

# Global Energy: waiting game

July, 2017

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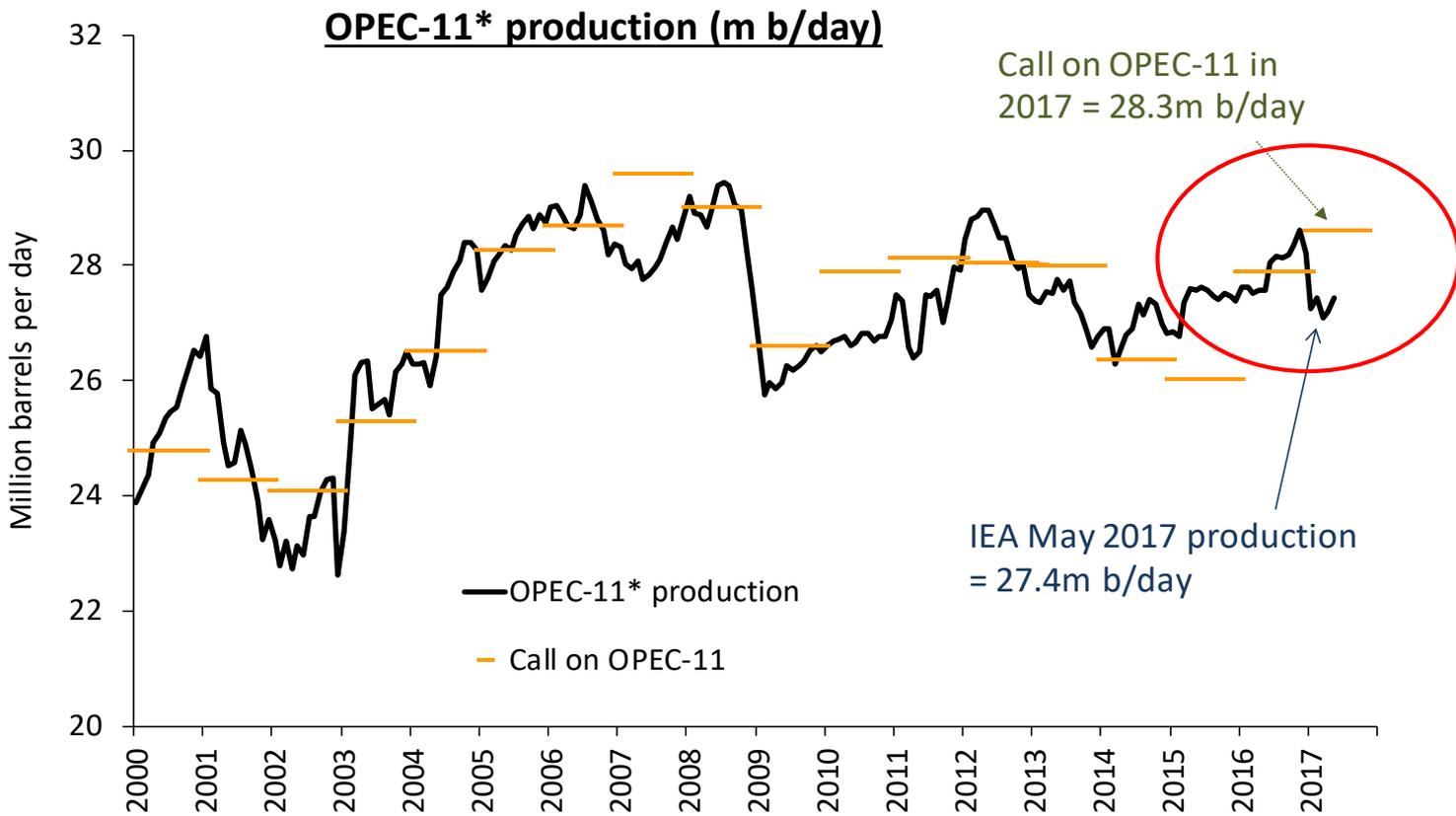
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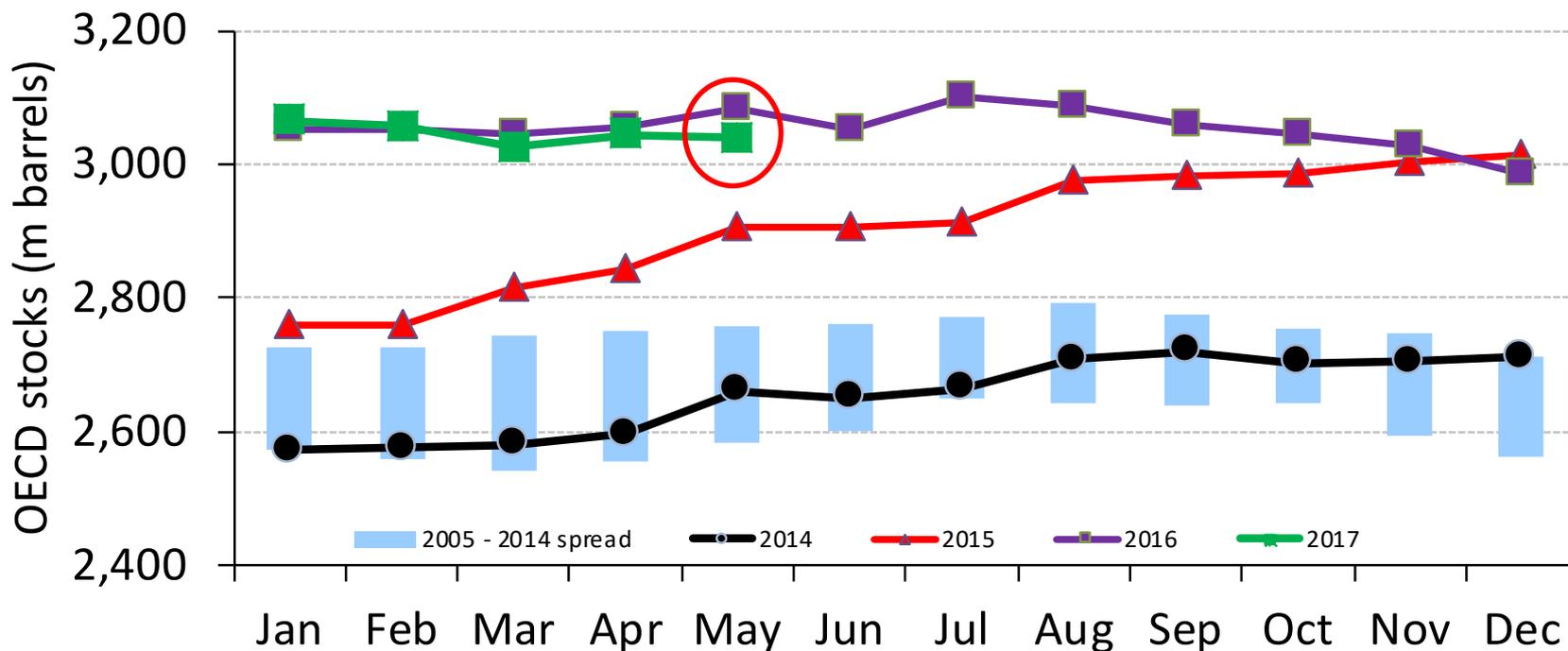
- **A waiting game so far in 2017** and sentiment towards crude oil and energy equities is back to early 2016 levels
- **Bloated global oil inventories** remains the root cause of the problem and the market wants to see confirmation of rebalancing
- We see some **reasons for optimism** around rebalancing but there are also many moving parts
  - Oil demand growth continues at a steady 1.0-1.5m b/day
  - Cost inflation in the US onshore will pressure well economics
  - Lack of investment will bring non-OPEC (ex-US) production declines
- But **a ramp up in US activity** will keep a lid on oil prices near term
  - Growing and outspending is back on the agenda for US E&Ps
- Energy equities are, in our view, **likely to recover from very low sentiment** but the market will clearly want to see solid data before pricing in more hope

- OPEC have cut production by 1.2m b/day in 2017, in compliance with announced quota reductions
- “Call on OPEC” for 2017 is now 28.3m b/day; 0.9m b/day above May 2017 production



- In 2015, OECD inventories moved well above the top of the ten year range...  
 ...the move implied average oversupply of c.0.8m b/day
- In 2016, inventories fell slightly, indicating a tightening in the second half of the year
- In 2017, inventory levels tightening thanks to OPEC cuts, albeit slower than first hoped

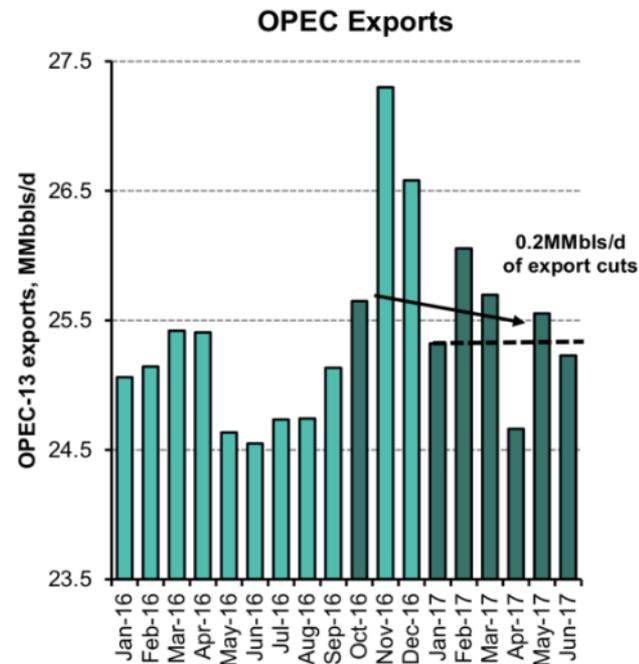
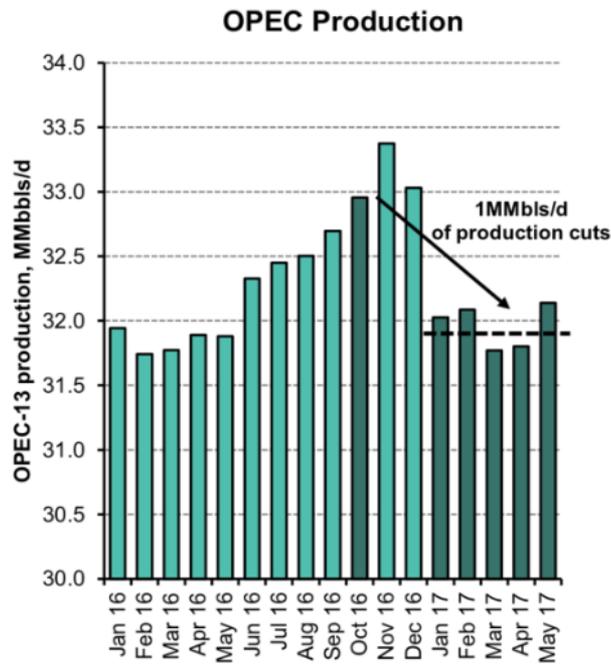
**OECD oil inventories (million bbls)**



- **OPEC production surge**
  - OPEC Sept-Dec 2016 production was 33.8m b/day
  - Almost 1m b/day higher than the 32.9m b/day deliver to that point in 2016
- **OPEC exports greater than production**
  - Many OPEC countries reduced above ground inventory but data is poor quality
  - Saudi cut its above ground inventory from 329m bls (Oct 2015) to 268m bls (March 2017)
- **Offline production returns to the market**
  - Libya and Nigeria (outside the OPEC quota system) increased by over 200k b/day each respectively
  - Indications are that both countries were still continuing to ramp production further
- **Global oil demand was seasonally weak**
  - 1Q global oil demand of 96.5m b/day, only 1m b/day higher than 1Q 2016
  - Global oil demand growth expectations for 2017 are steady
- **Delivery of floating storage**
  - Oil futures curve flattened and all incentives to hold crude oil in floating storage were removed
  - We estimate c.50 mn bls that was stored offshore has entered OECD oil inventories so far during 2017
- The return of US onshore production growth will delay the rebalancing process

- OPEC increased their production in Q4 2016 before cutting in January 2017
- OPEC exports spiked by around 1m b/day in 4Q 2016 resulting in an additional 90m barrels of oil being moved into OECD oil and oil product inventories in 1Q 2017

## OPEC-11 production (m b/day): January 2016 – May 2017

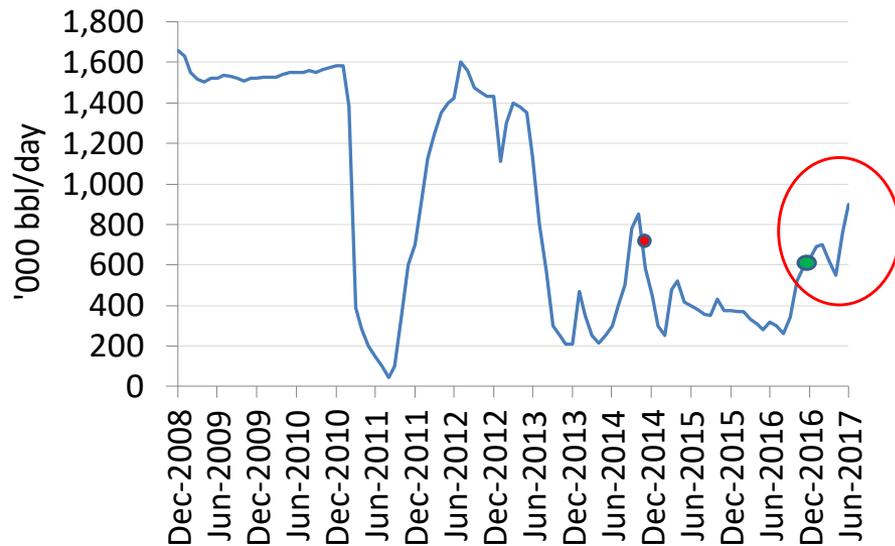


Source: OPEC Monthly Oil Market Report, Bernstein Analysis  
 Note: OPEC-13 countries include Algeria, Angola, Ecuador, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, UAE, and Venezuela

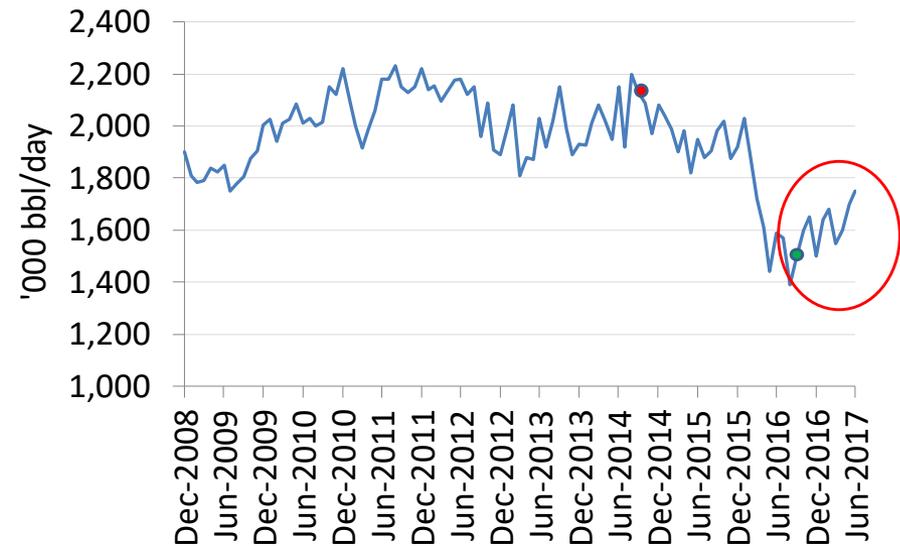
Source: Kpler, Bernstein analysis

- Libya and Nigeria are exempt from the January 2017 OPEC quota cuts, as their production has been depressed by civil war/unrest
- Both countries have seen a recovery in production in recent months (combined increase of 0.4m-0.5m b/day), which is dampening the effect of OPEC's 1.2m b/day cut

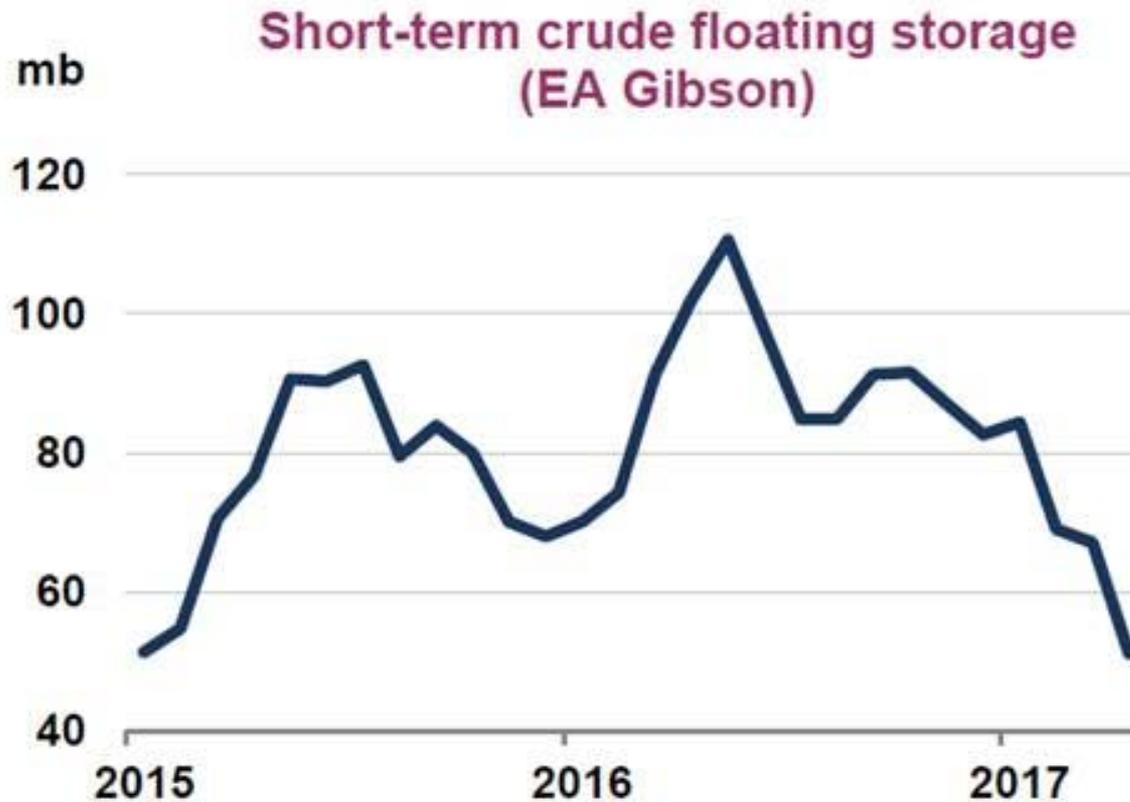
### Libya oil production



### Nigeria oil production



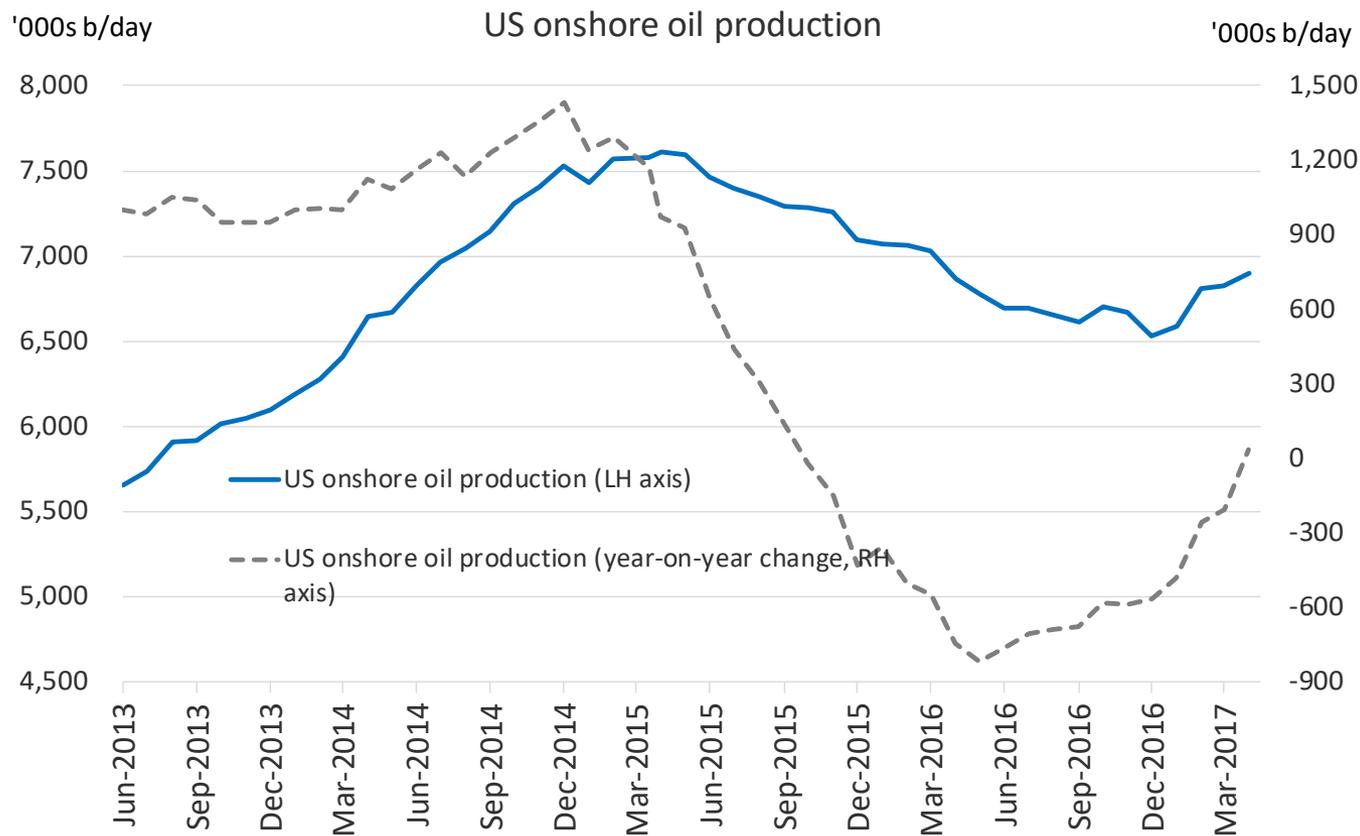
- Short-term floating storage totaled around 85m barrels at the end of 2016.
- Floating storage declined by around 40m barrels over the first 4 months of 2017





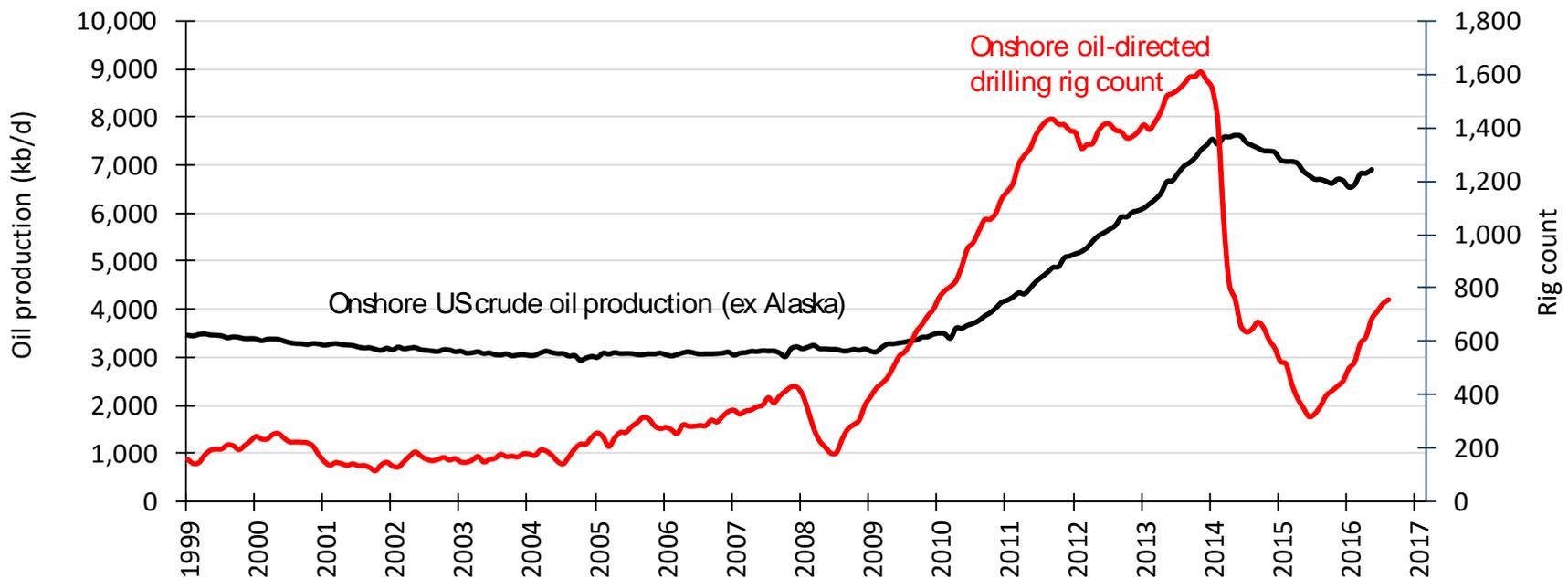
## US onshore oil production (kb/day)

Actual production and annual change



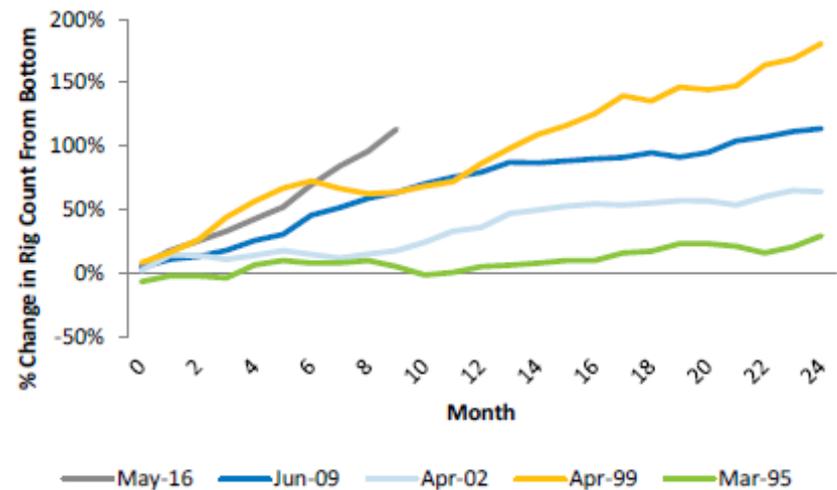
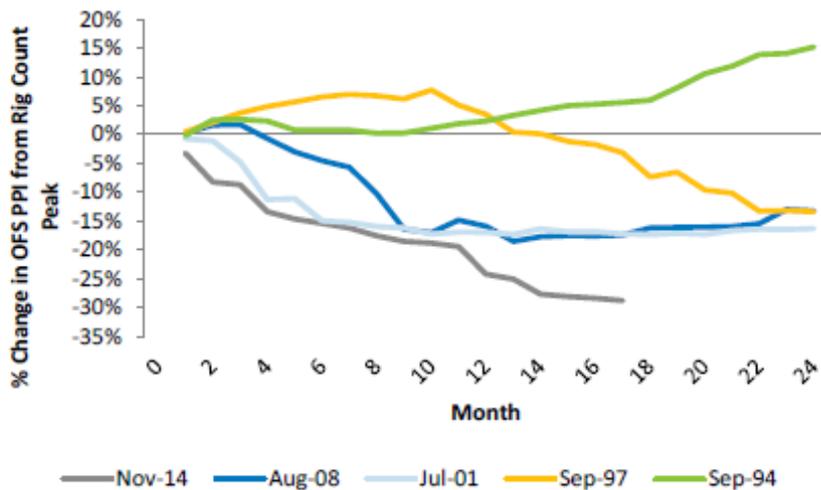
- The decline of US onshore oil production in 2015/16 now reversed to growth
- US onshore (ex Alaska and GoM) oil supply was 6.9m b/day in April 2017
- US onshore oil peaked in Apr 2015 at 7.6m b/day and fell to 6.5m b/day in Dec 2016
- The US oil directed rig count has recovered from low of 330 mid-2016 to 756 in June 2017

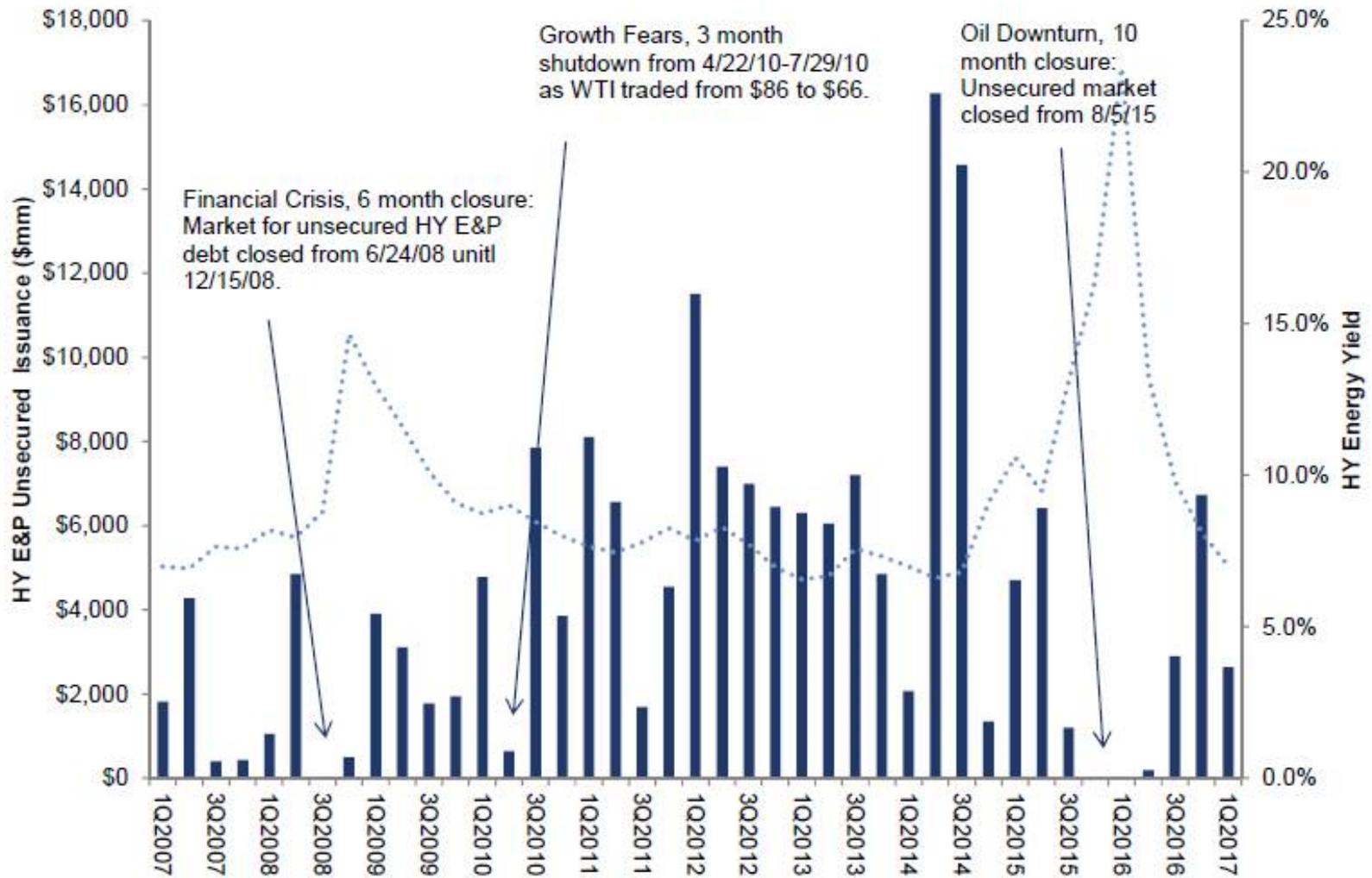
## US onshore oil production vs oil rig count (table shows US onshore total rig count by shale basin)



- **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.
- Drilling and completion activity has ramped sharply and there are now **infrastructure, sand and labour shortages** which are causing cost inflation.
- **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.
- **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.

- Cyclical service cost deflation in this downcycle has been more severe than any previous cycle over the last 25 years
- The rig count recovery since May 2016 has been the sharpest over the last 25 years
- We believe that if activity continues to accelerate, we are likely to see significant cost inflation





Source: Goldman Sachs (May 2017)

- We expect marginal investment (from higher oil prices) to be invested in US shale
  - The resource is available, payback is quick and technical, fiscal and political risks are low
- Too great a level of investment will bring too much oil onstream too quickly
- Efficiency gains will compete with cost inflation and infrastructure access
- We believe that a trajectory from \$45/bl today towards \$60/bl will be required
  - Delivering economic initial growth spurt in 2017/2018 as new wells come online
  - Delivering more growth in 2019/2020 as non-OPEC ex-US sees production declines

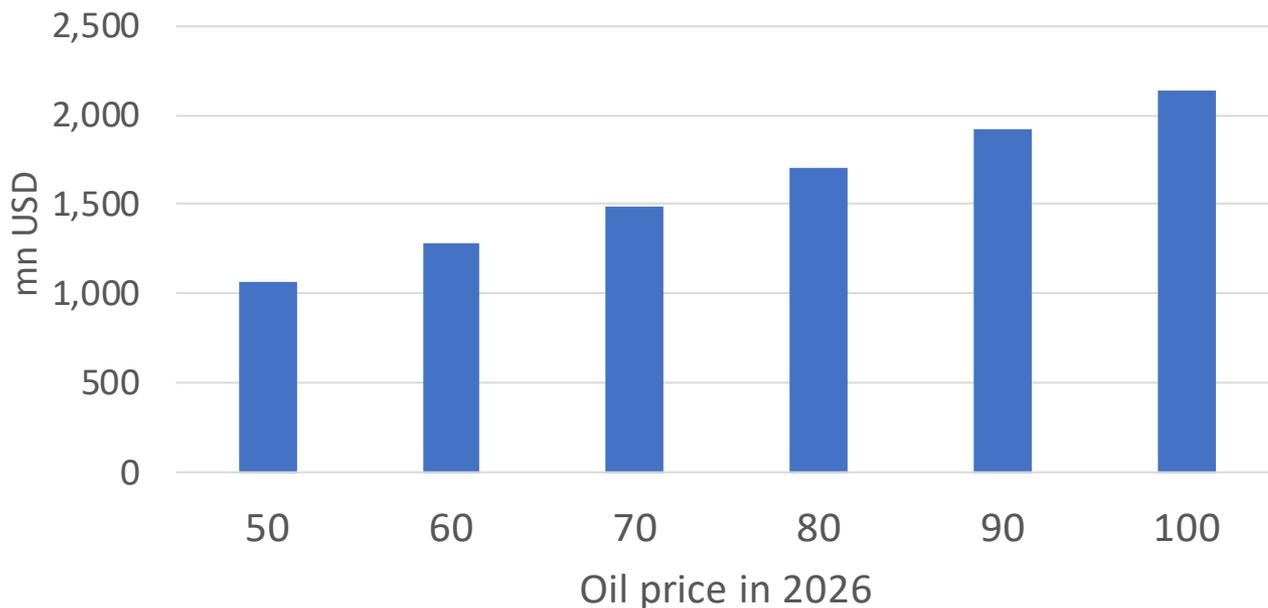
## Potential trajectories for US onshore oil production

Brent oil price	Production change (estimates)
\$30-40/bl	Declining 0.3-0.5m b/day
\$40-50/bl	Broadly flat
\$50-60/bl	Increasing around 0.6-1.2m b/day
\$60-70/bl	Increasing around 1.2-1.6m b/day

- **OPEC needs to find a way to live with US shale**
- **There are likely three approaches OPEC can take in response:**
  - **Cut deeper** as per previous down-cycles where OPEC has cut by 3 or 4m b/day
    - A faster rebalance that would probably increase net revenues in the process
    - Any increase in US activity would probably be met with cost inflation and dis-efficiencies
  - **Extend even longer** as US growth means the March 2018 rebalance will not be achieved
    - Extend the cuts through 2019 & return 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
    - US shale is here to stay, so a period of low oil prices is unlikely to help either party
    - Cannot discount the risk that OPEC decides to reiterate that they are the market leader

- The successful IPO of Saudi Aramco is a material requirement of de facto OPEC leader Saudi Aramco during 2018 and will affect its choice of strategy for OPEC
- Saudi cash burn has been approx. \$7.5bn per month so far during 2017
- A \$2trn valuation for Aramco would, in our view, require prices returning to over \$100/bl in 2026. We see this as unlikely, but note the implied optimism from Saudi

Sensitivities for market capitalisation of Saudi Aramco

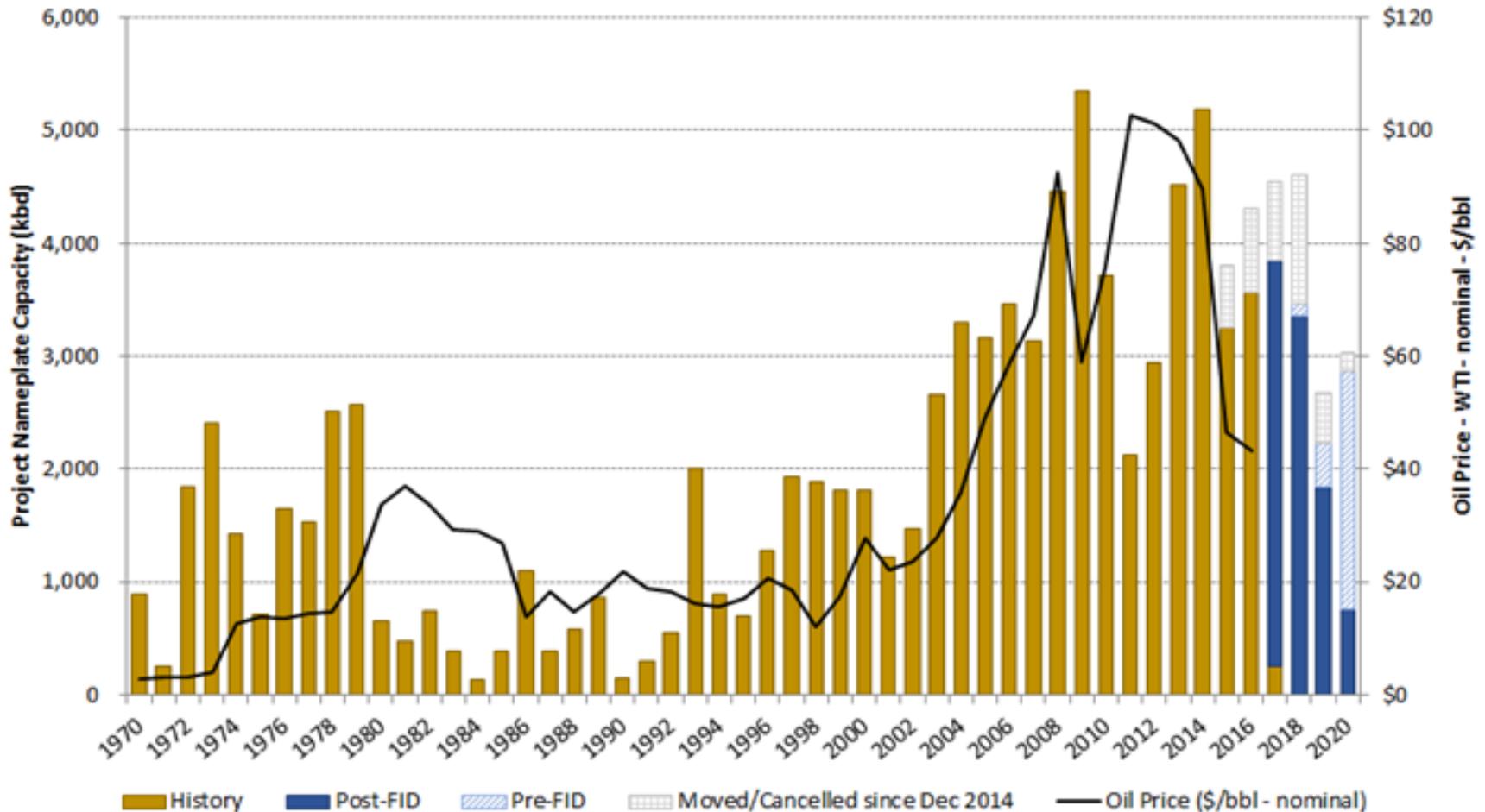


#### Valuation assumptions:

- 20% royalty
- 50% corporate tax rate
- Oil price rising in straight line from \$50/bl in 2017 to various levels in 2016



## Major non-OPEC (ex-US onshore) project start-up schedule



Source : Tudor Pickering Holt, Kessler Energy, Guinness Atkinson Funds, July 2017. Forecasts are inherently limited and cannot be relied upon.

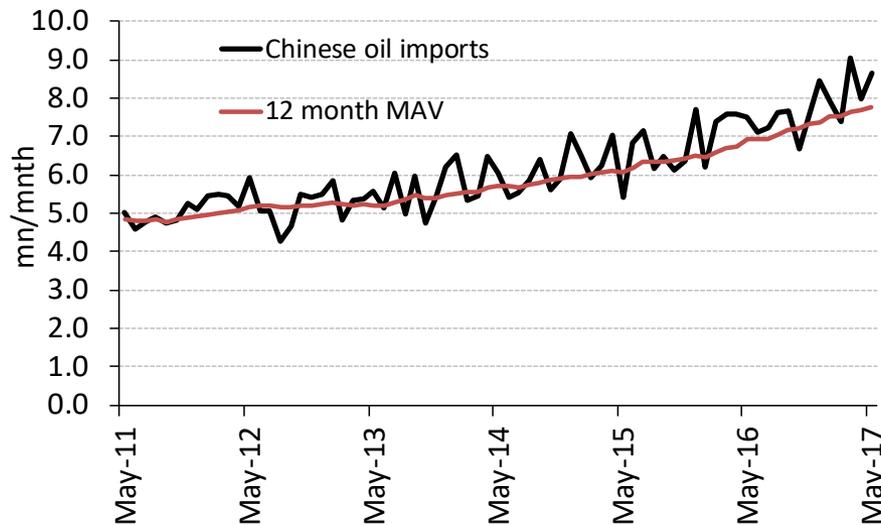
- 2016 world oil demand up around 9.4m b/day on pre-recession peak (2007)
- Non-OECD demand has grown unchecked for over a decade, not unseated by financial crisis
- Estimates for 2017 indicate healthy demand growth of 1.2m b/day – nearly all from non-OECD

## Global oil demand (m b/day)

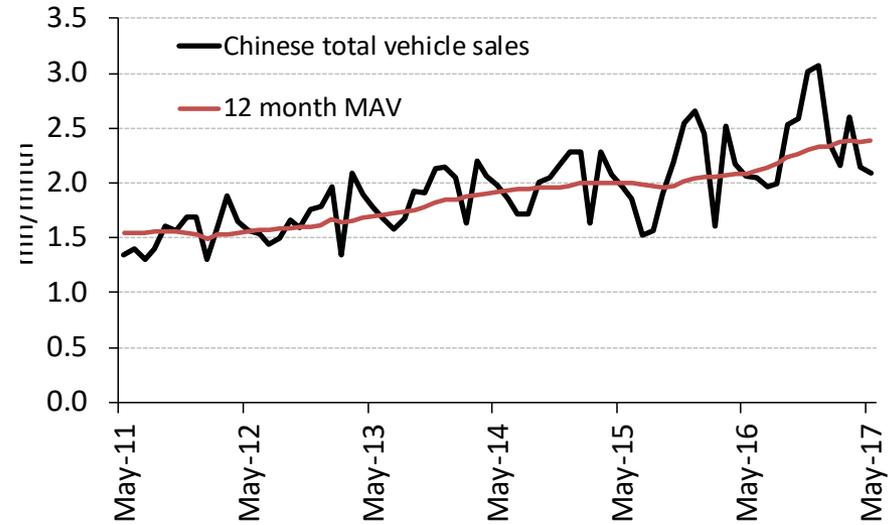
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>OECD demand</b>													IEA	IEA
North America	25.7	25.8	24.5	25.8	24.5	23.7	24.1	24.0	23.6	24.2	24.2	24.6	24.7	24.7
Europe	15.6	15.7	15.7	15.6	15.5	14.7	14.7	14.3	13.8	13.6	13.5	13.7	14.1	14.2
Pacific	8.8	8.9	8.7	8.7	8.3	8.0	8.2	8.2	8.5	8.3	8.1	8.0	8.1	8.0
<b>Total OECD</b>	<b>50.1</b>	<b>50.4</b>	<b>48.9</b>	<b>50.1</b>	<b>48.3</b>	<b>46.4</b>	<b>47.0</b>	<b>46.5</b>	<b>45.9</b>	<b>46.1</b>	<b>45.8</b>	<b>46.4</b>	<b>46.8</b>	<b>46.9</b>
<i>Change in OECD demand</i>		0.3	-1.5	1.2	-1.8	-1.9	0.6	-0.5	-0.6	0.2	-0.3	0.6	0.4	0.1
<b>NON-OECD demand</b>														
FSU	3.8	3.9	4.0	4.0	4.2	4.0	4.1	4.4	4.6	4.5	4.7	4.6	4.8	4.9
Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7
China	6.4	6.7	7.2	7.6	7.7	7.9	8.9	9.3	9.9	10.4	10.8	11.5	11.9	12.3
India	2.6	2.6	2.7	2.9	3.1	3.2	3.3	3.5	3.7	3.7	3.8	4.0	4.3	4.5
Other Asia	6.4	6.4	6.6	6.9	6.8	7.1	7.5	7.6	7.6	7.9	8.2	8.5	8.8	9.2
Latin America	4.9	5.0	5.2	5.3	5.6	5.7	6.1	6.2	6.5	6.6	6.8	6.8	6.6	6.7
Middle East	5.5	5.9	6.1	6.4	6.7	7.1	7.3	7.5	7.9	8.0	8.4	8.4	8.4	8.5
Africa	2.8	2.9	2.9	3.3	3.3	3.4	3.5	3.5	3.8	3.8	3.8	4.1	4.2	4.3
<b>Total Non-OECD</b>	<b>33.1</b>	<b>34.1</b>	<b>35.4</b>	<b>37.1</b>	<b>38.1</b>	<b>39.1</b>	<b>41.4</b>	<b>42.7</b>	<b>44.8</b>	<b>45.6</b>	<b>47.2</b>	<b>48.6</b>	<b>49.7</b>	<b>50.9</b>
<i>Change in non-OECD demand</i>		1.0	1.3	1.7	1.0	1.0	2.3	1.3	2.1	0.8	1.6	1.4	1.1	1.2
<b>Total Demand</b>	<b>82.5</b>	<b>83.8</b>	<b>85.1</b>	<b>87.2</b>	<b>86.4</b>	<b>85.5</b>	<b>88.4</b>	<b>89.2</b>	<b>90.7</b>	<b>91.7</b>	<b>93.0</b>	<b>95.0</b>	<b>96.6</b>	<b>97.8</b>
<i>Change in demand</i>		1.3	1.3	2.1	-0.8	-0.9	2.9	0.8	1.5	1.0	1.3	2.0	1.6	1.2

- Chinese oil demand growth for 2017 has been revised around 20% higher since the start of the year
- Gasoline consumption growth is up over 10% year-on-year
- Sales of SUVs in Q1 2017 up 21% year-on-year (compared to electric vehicle sales up 5%)

## China oil imports

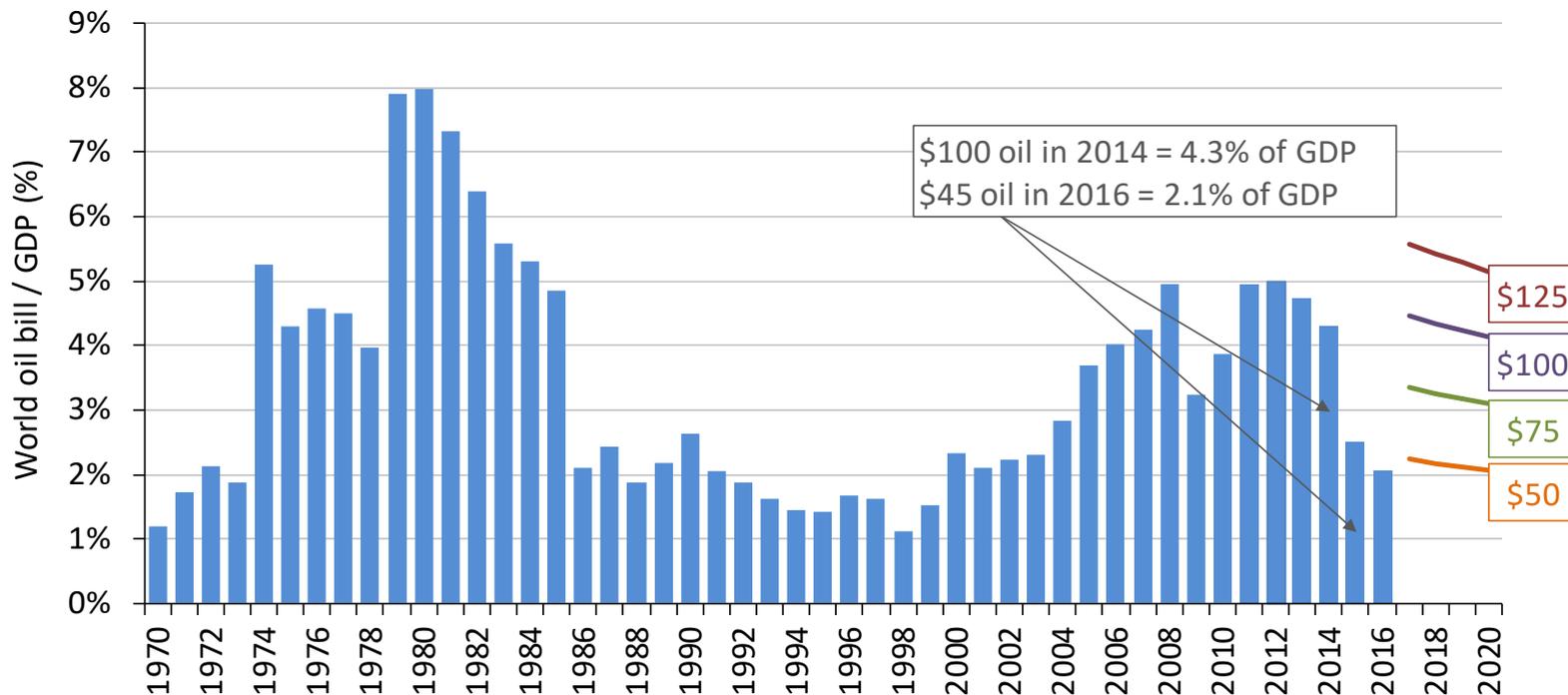


## China total vehicle sales



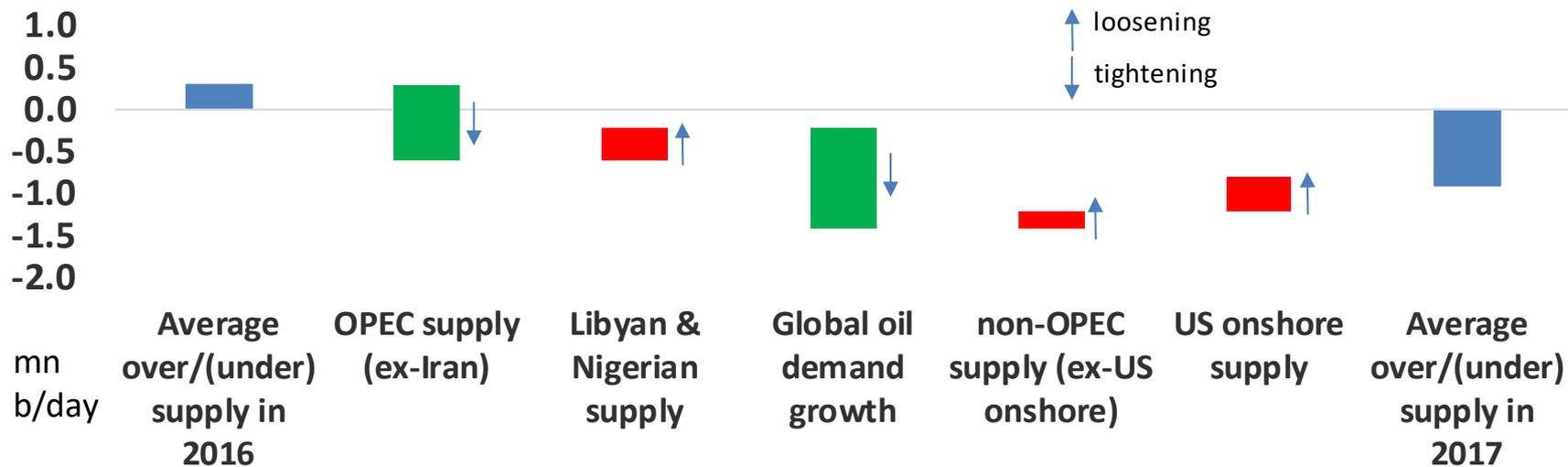
- We believe Saudi is targeting a price that gives a “reasonable” world oil bill
- Ten year average world oil bill is 4.2%, 20yr average is 3.2%, 30yr average is 2.8%
- If oil averages \$75 it will mean in 2020 the world oil bill is 3.1% of GDP
- If oil averages \$50 it will mean in 2020 the world oil bill is 2.1% of GDP

## The world oil ‘bill’ as a percentage of world GDP



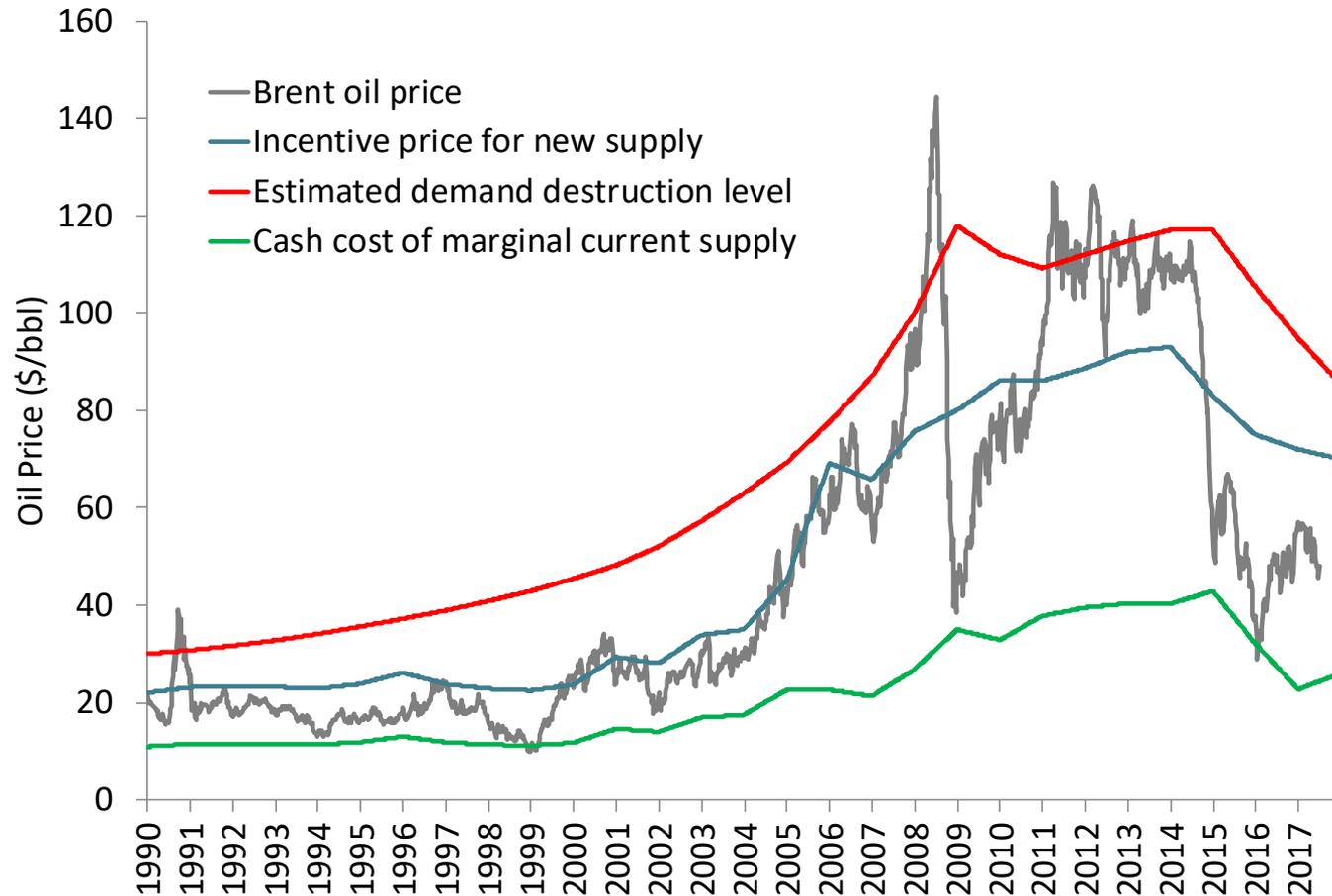
- As ever, the picture of oil supply and demand in 2017 will be dynamic
- Our ‘base’ case shows that the oil market is likely to be undersupplied in 2017, by something around 0.7-0.9m b/day
- We assume that the market averaged 2016 in slight oversupply (c.0.3m b/day)
- ‘Core’ OPEC cuts and growing global oil demand tighten the market
- Recovering production in Libya, Nigeria, US and Canada loosen the market

## 2017 global oil market balance (assuming OPEC deal is adhered to)

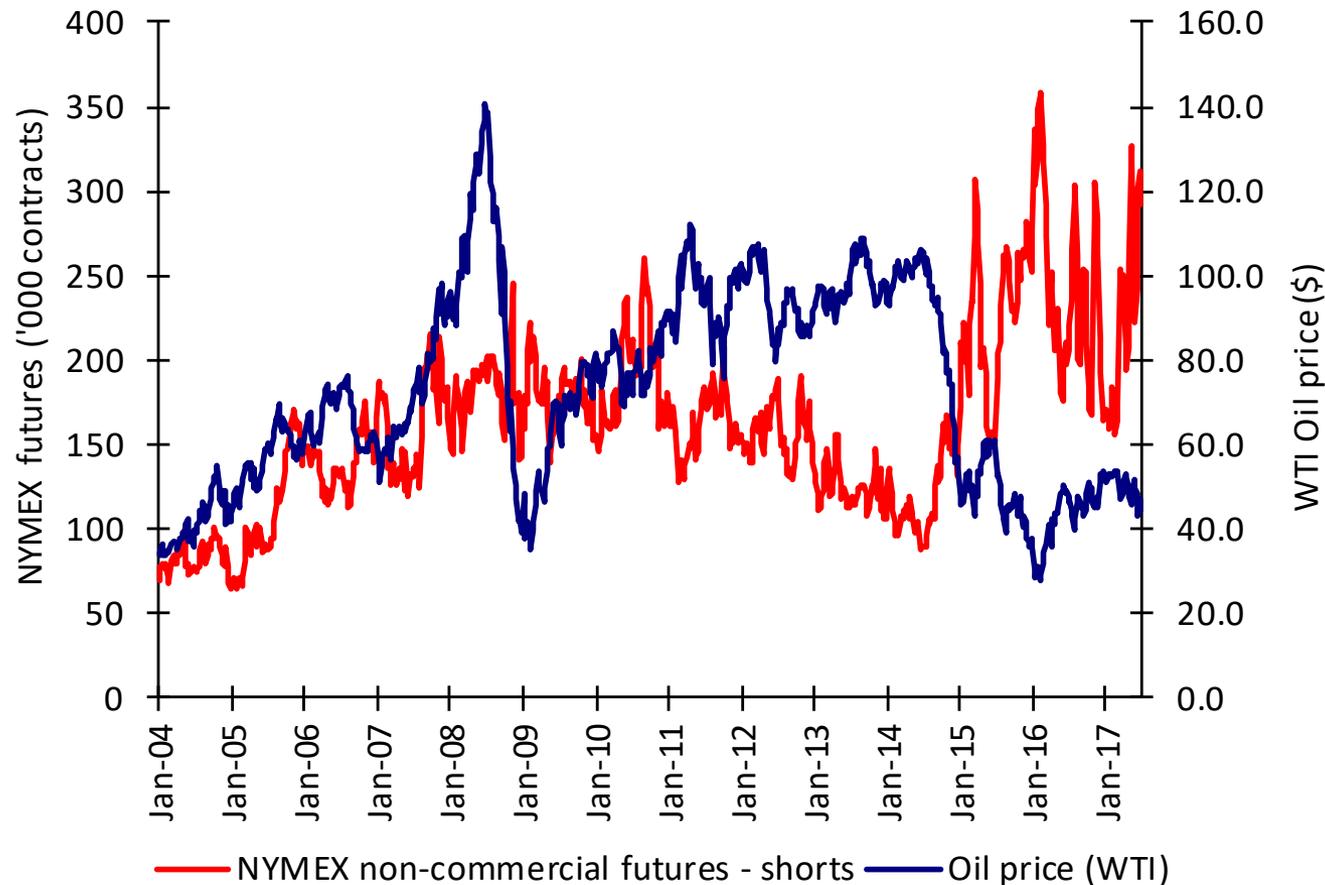


- Oil price trading below full cycle marginal cost of supply

## Economics of crude oil

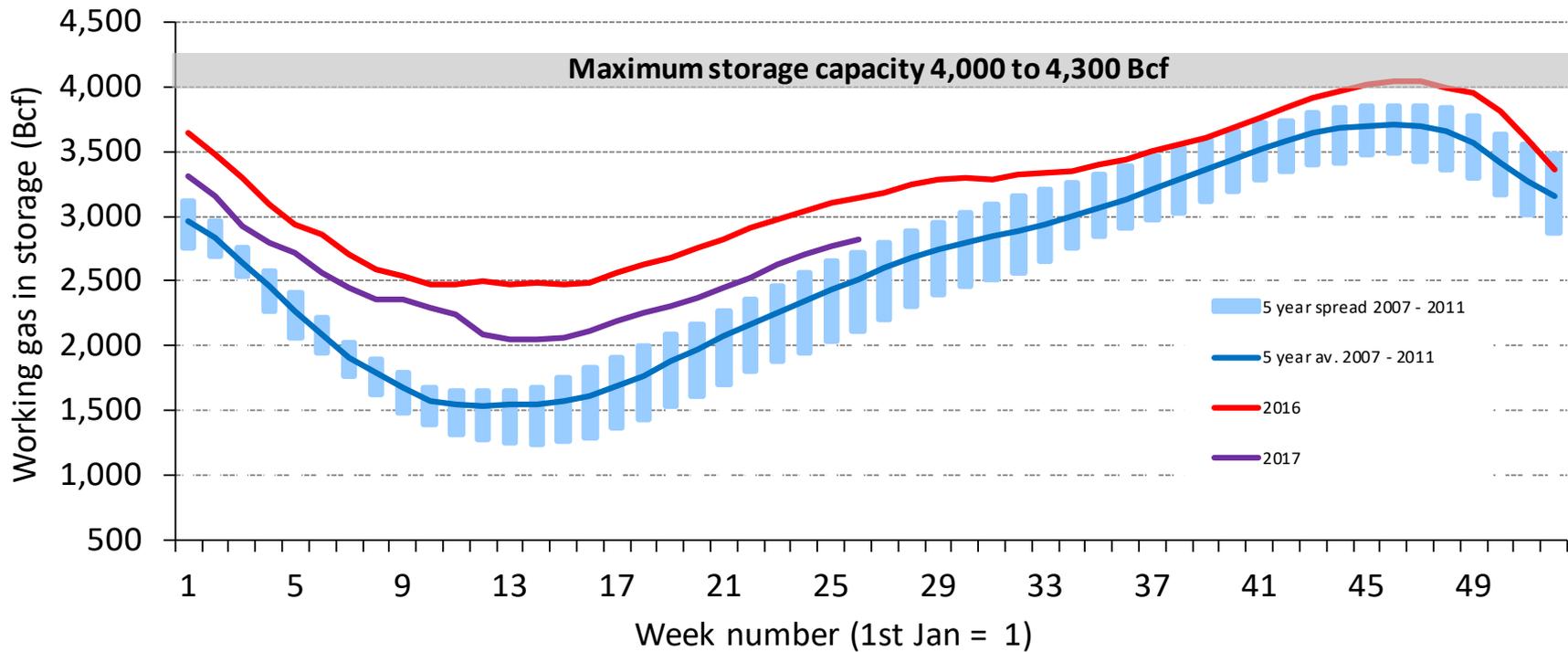


- NYMEX gross non-commercial oil short position has nearly doubled in 2017, now sitting just below the February 2016 record peak



- A cold start to 2016/2017 winter, plus structural undersupply saw inventories normalize....
- ...but, a warm end to 2016/17 winter has pushed inventories higher again
- Now recovering slowly towards long term norms

## US natural gas inventories





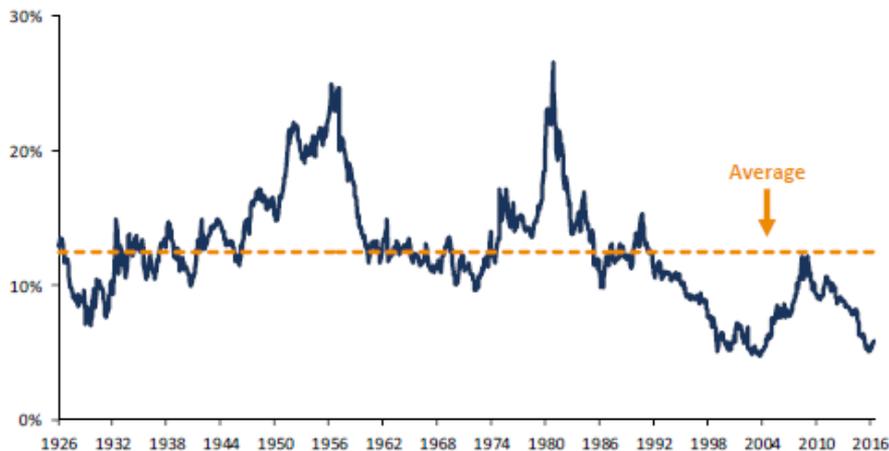
In our view:

- Energy equities are back, relative, to the lows seen in early 2016
- Energy look to be about fair value if oil remains at \$50/bl forever
- Energy equities look approximately 30+% cheap if oil recovers to \$60/bl (WTI/Brent)

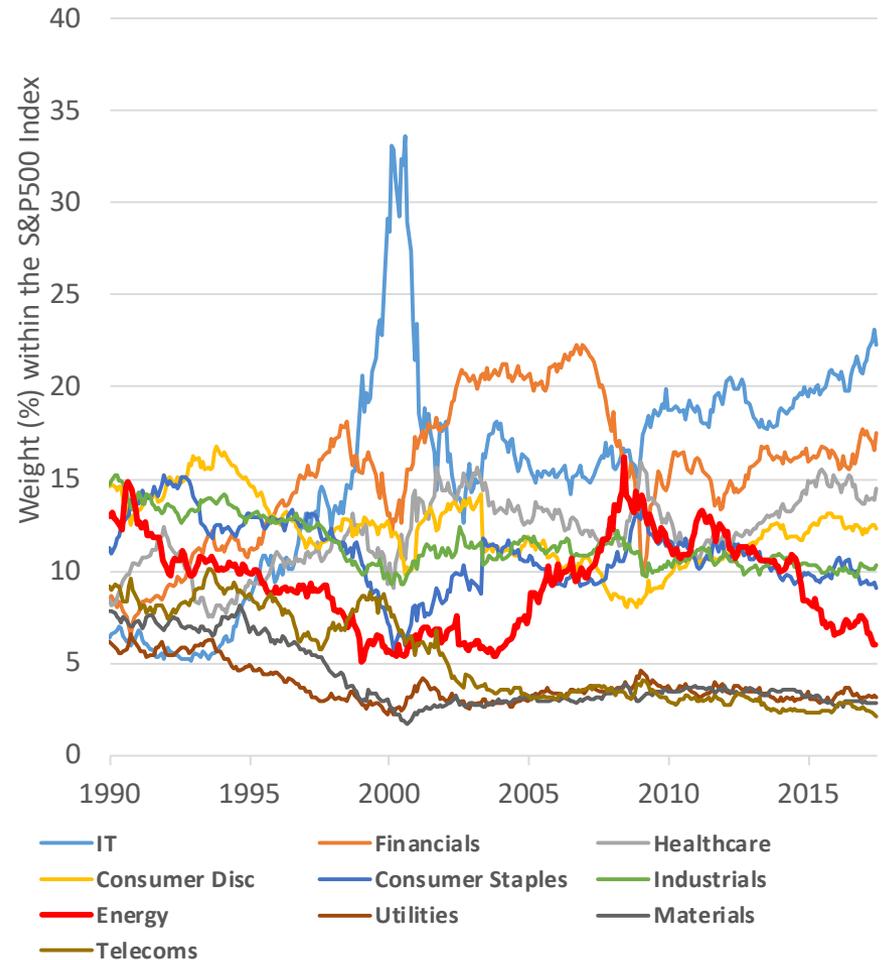
Valuation methodology		Comment	Sector upside at \$60 oil
<b>Multiples</b>	1. EV/EBITDA	Current EV/EBITDA multiples imply that the sector is discounting around \$50/bl as a long-run oil price	30-40% absolute
<b>Multiples</b>	2. Price/ Book relative	The market-relative price/book ratio of the large caps is at a big discount to historical levels	60% relative (if we see reversion to mean)
<b>Multiples</b>	3. Price/ Book and ROCE	If Energy companies return to normalized levels of ROCE then P/B should return to normalised levels	35-45% absolute
<b>HOLT</b>	4. HOLT valuation	The CS HOLT valuation system implies attractive absolute valuation upside for the sector	25% absolute
<b>Oil prices</b>	5. Long term correlations	The 56% R2 between the sector relative to markets and the long term oil price has broken down	50% relative

- The S&P500 energy index was 6.0% of the S&P500 index at 30 June 2017
- Since 1990, energy has ranged between 5.1% and 16.2% of the S&P500
- The average weight over the last 25 years has been 9.5%
- The weight of energy within the S&P 500 is close to multi-decade lows

## Weight of energy with the S&P Index (1926-2016)

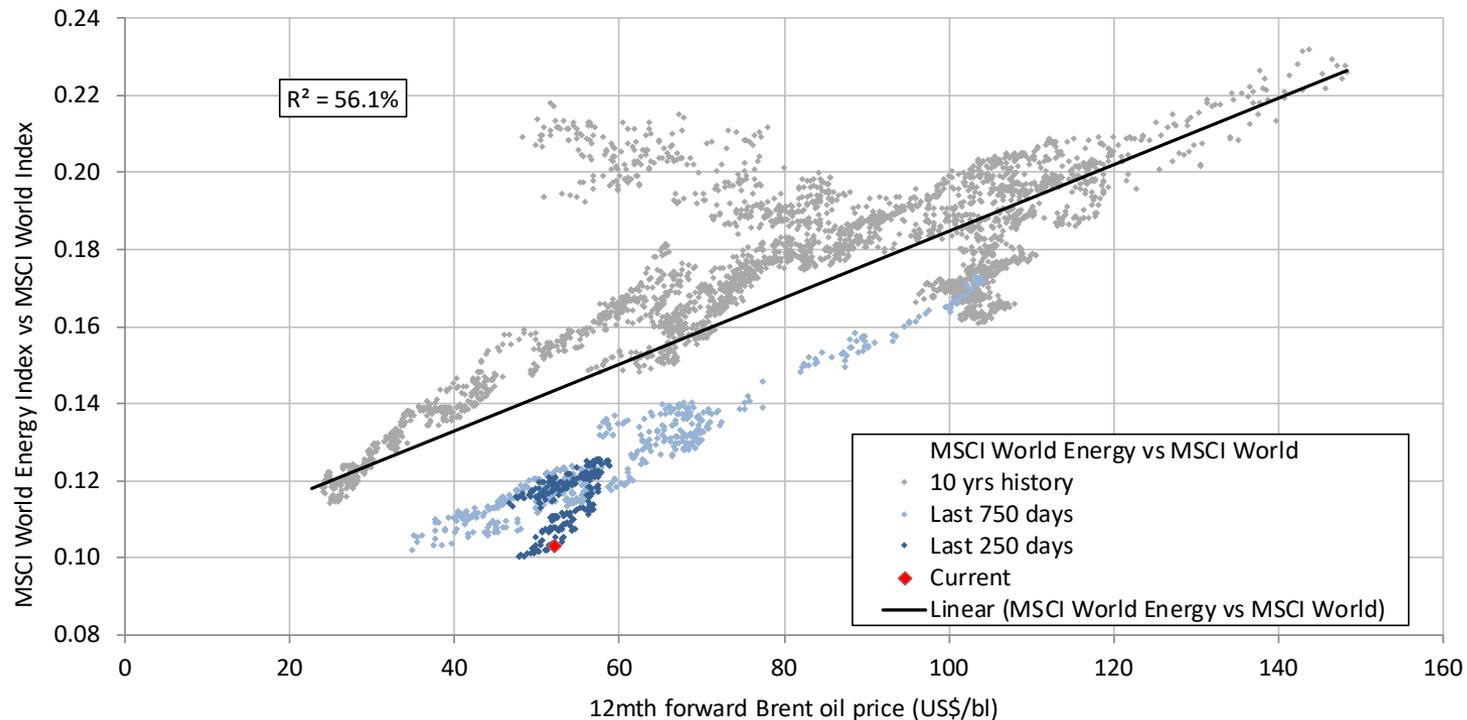


## S&P Index sector weights (1990-2017)



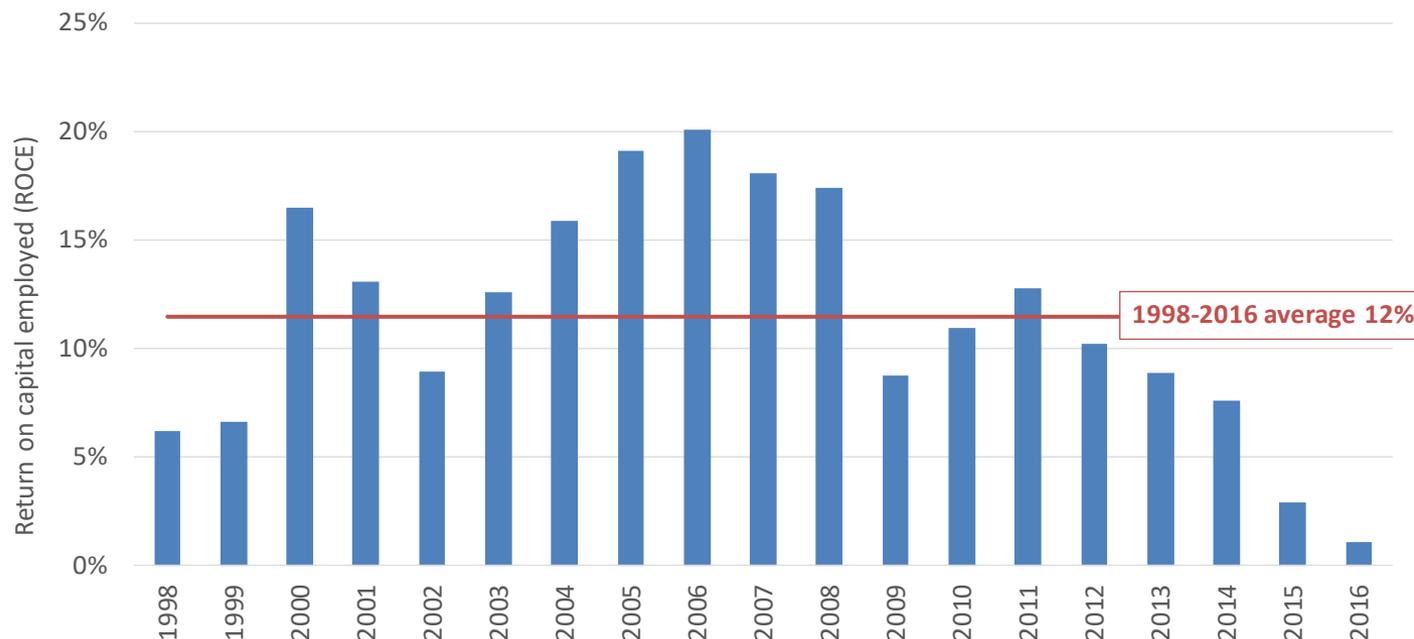
- There is a 56%  $R^2$  between the energy sector relative and the forward oil price
- Energy company equities have de-rated relative to current commodity prices
- There is c.40% potential upside to the long run relationship
- Current sentiment very low, indicated by red dot at bottom of range

### Oil & gas company market-relative valuations vs long dated oil prices



- The combination of lower oil prices and legacy higher cost structures leave ROCE depressed
- The ROCE of the Guinness Atkinson Global Energy portfolio was just over 1% at \$43 oil in 2016
- The long run average of the same portfolio of holdings would have been 12%
- We expect reported ROCE to improve as a result of
  - External factors: improvements in oil and natural gas prices
  - Internal factors: Cost deflation, efficiency improvements and M&A activity

## ROCE of current Guinness Atkinson Energy fund portfolio holdings

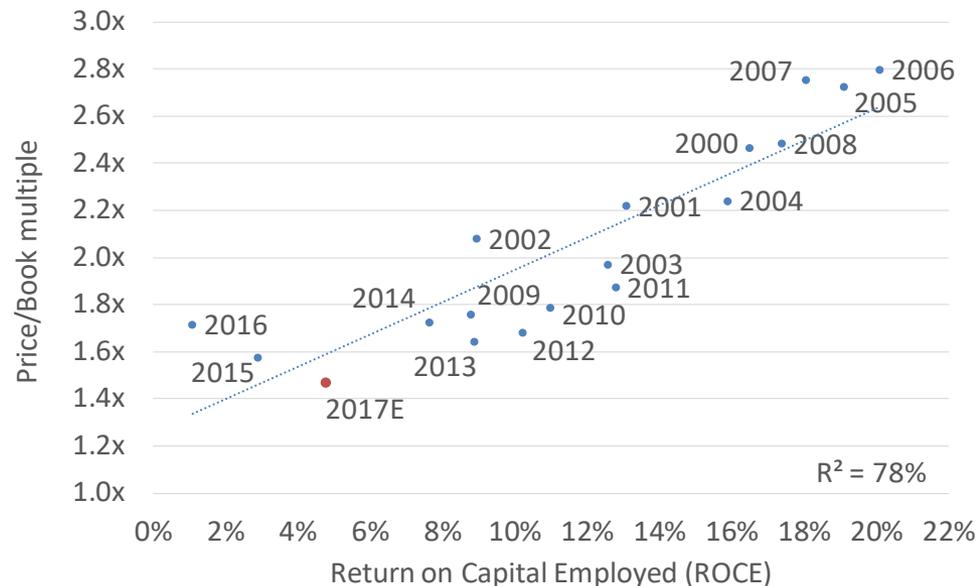


Source: Bloomberg, Company Data and includes analysis of all 'full position' holdings in the Guinness Atkinson Energy fund as of December 31 2016. \*ROCE = return on capital employed.

*Past performance is no guarantee of future results. Holdings are subject to change*

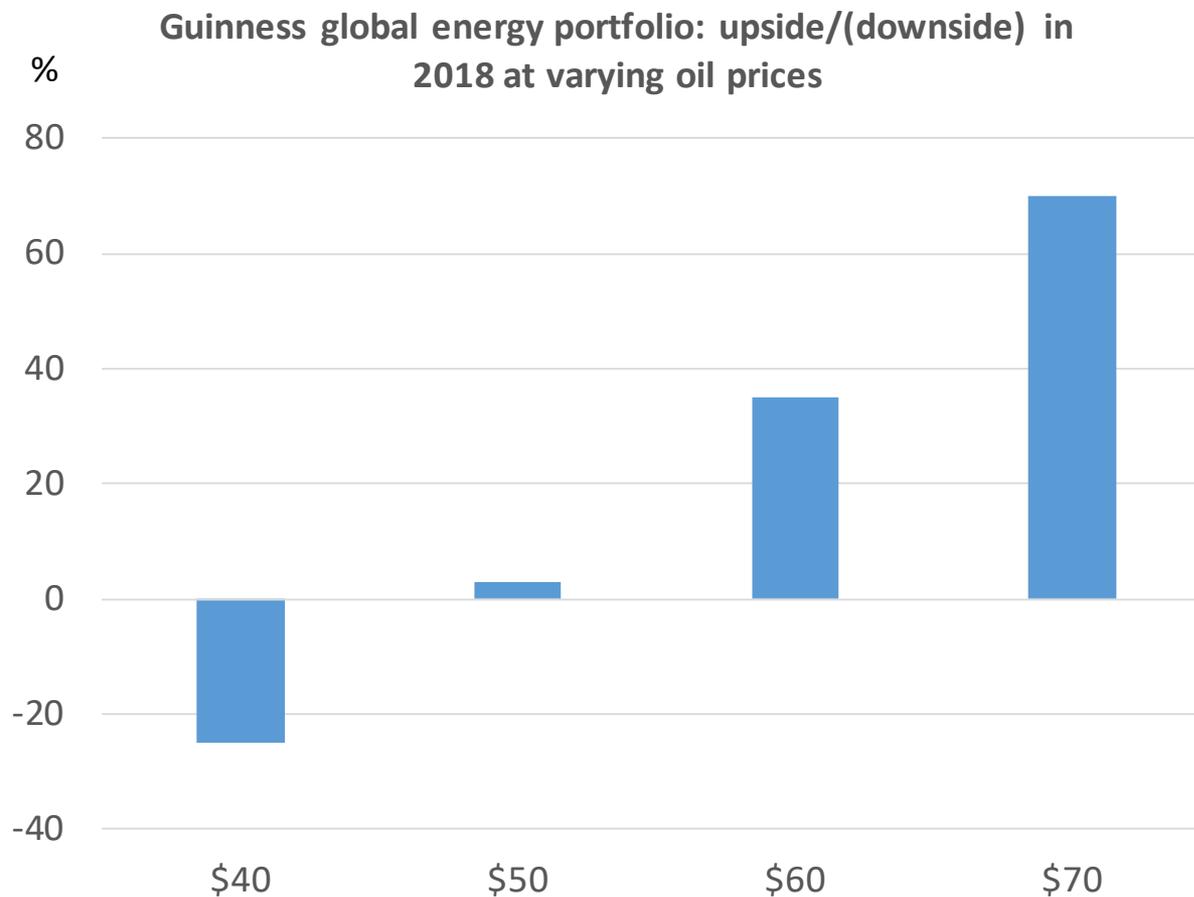
- Return on capital employed (ROCE) is a key driver of valuation for the energy sector
- ROCE has been depressed as a result of cost inflation, capital enlargement and now, oil prices
- The ROCE for the Guinness Atkinson portfolio is likely to be only 1% in 2016 at \$43 Brent oil
- Even with \$70/bl oil in 2020, all else being equal, ROCE would be below the long run average of 12%
- The sector is focusing on cost cutting and efficiency gains to help boost ROCE
- We see good potential for ROCE to exceed our expectations and for valuation to benefit

## ROCE vs P/B multiple for Guinness Atkinson Energy portfolio



Source: Bloomberg, Guinness Atkinson estimates, numbers in brackets indicate forecast Brent oil (\$/bl) and Henry Hub (\$/mcf) gas prices. Past performance is no guarantee of future results.

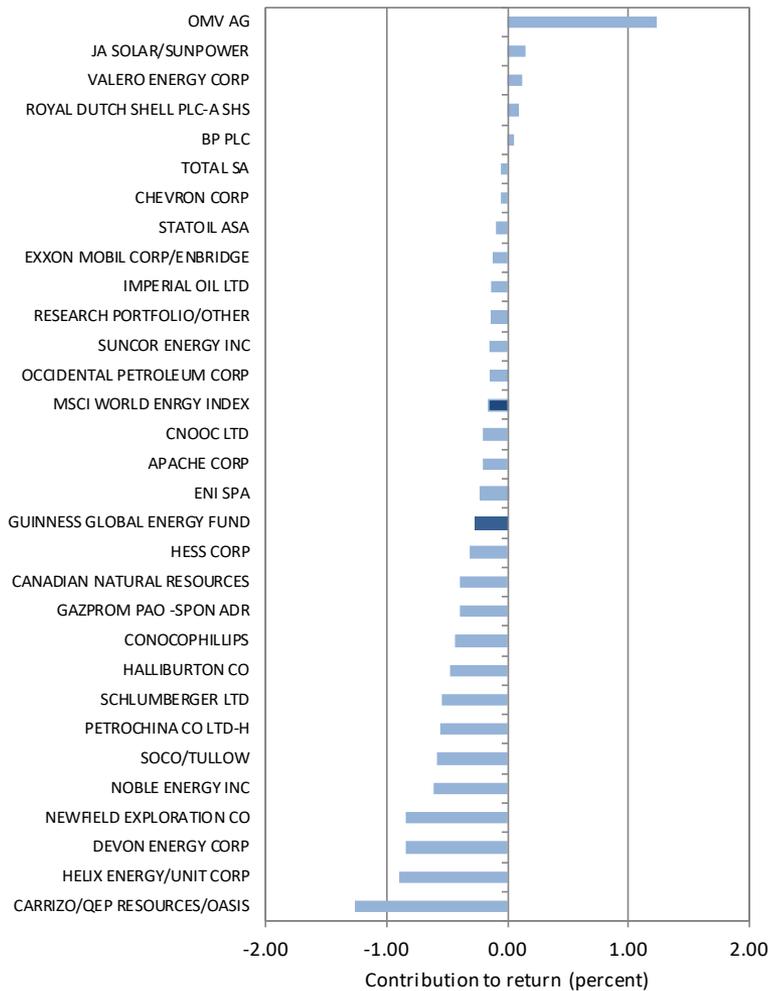
- Upside/downside sensitivities estimated assuming each oil price stays flat into perpetuity



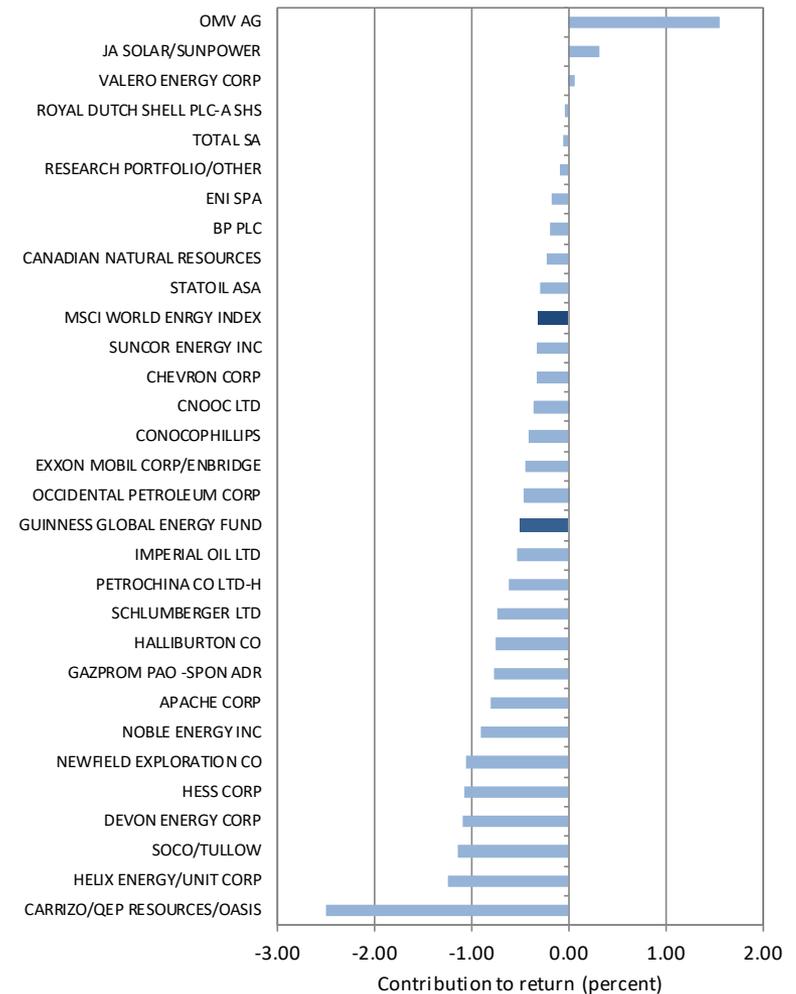
Theme	Example holdings	Weighting (%)
1 Cheap large-cap oil	  	36.8%
2 Undervalued integrated oil & gas reserves	  	19.5%
3 US shale oil growth	  	10.4%
4 Exploration & production spending plans	  	8.3%
5 Emerging market natural gas demand	 	7.0%
6 International mid and small cap oil producers	  	6.7%
7 US Gulf Coast refining advantages		4.0%
8 Rising US natural gas price		3.1%
9 Other (incl cash)		2.7%
10 Low cost solar	 	1.3%

**Top 10 holdings as of 06/30/2017:** 1. Valero Energy Corp 3.91% 2. TOTAL SA 3.88% 3. Apache Corp 3.86% 4. Chevron Corp 3.83% 5. Suncor Energy 3.79% 6. Imperial Oil Ltd 3.77% 7. Statoil ASA 3.77% 8. Conocophillips 3.75% 9. ENI SpA 3.72% 10. BP PLC 3.70%

## 2017 2Q indicative contribution



## 2017 1H indicative contribution



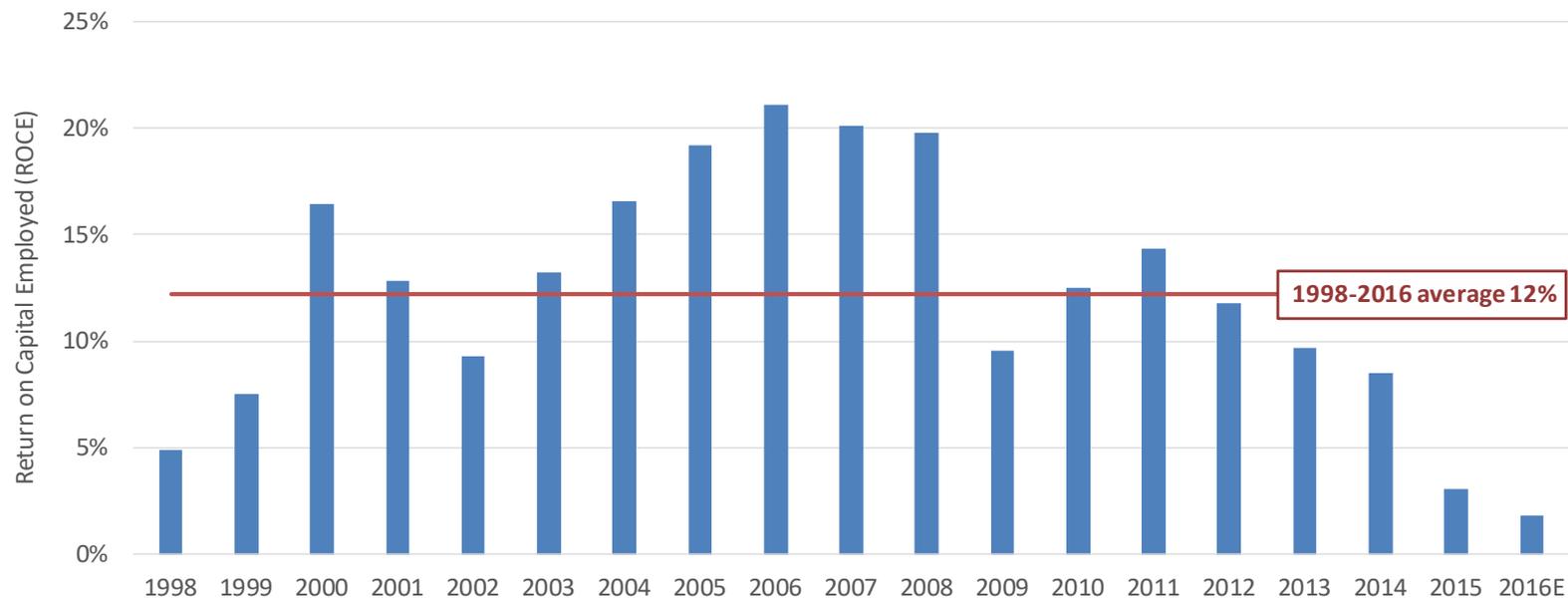
Source: Guinness Atkinson Funds, Bloomberg, data as of end Jun 2017

Past performance should not be taken as an indicator of future performance. The value of this investment and any income arising from it can fall as well as rise as a result of market and currency fluctuations as well as other factors. Fund holdings & sector allocations are subject to change and are not recommendations to buy or sell any security.



- The combination of lower oil prices and legacy higher cost structures leave ROCE depressed
- The ROCE of the Guinness Atkinson Global Energy portfolio is currently only 2% at \$43 oil in 2016
- The long run average of the same portfolio of holdings has been 12%
- We expect reported ROCE to improve as a result of
  - External factors: improvements in oil and natural gas prices
  - Internal factors: cost deflation, efficiency improvements and M&A activity

## ROCE of current Guinness Atkinson Energy fund portfolio holdings



Source: Bloomberg, Company Data and includes analysis of all 'full position' holdings in the Guinness Atkinson Energy fund as of December 31 2016. \*ROCE = return on capital employed.

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# Fund and index performance, as of June 30, 2017

- Underperformance from energy vs S&P500 in 1H 2017, leaving the sector, in our analysis, a long way from historical normalized valuation levels

	H1 2017	1 Year	5 Years*	10 Years*	Since Inception (June 30, 2004)*
Global Energy Fund	-15.20%	-6.32%	-2.86%	-2.29%	5.83%
MSCI World Energy Index	-9.28%	-0.84%	0.40%	-0.24%	5.76%
S&P 500	9.33%	17.87%	14.59%	7.17%	8.19%

Expense ratio: 1.53% (gross); 1.45% (net)

\*Periods over 1 year are annualized returns

*Performance data quoted represents past performance; past performance 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. Performance data current to the most recent month end may be obtained by calling 800-915-6566 and/or visiting [www.gafunds.com](http://www.gafunds.com)*

<b>Single sector</b>	Companies engaged in the production and distribution of energy (oil, natural gas, coal, alternative energy, nuclear and utilities)
<b>High conviction</b>	Equally weighted, concentrated portfolio (30 positions)
<b>Unconstrained</b>	No reference to index
<b>Global</b>	Diversified globally
<b>Investment type</b>	Listed equities (long-only)
<b>Investment objective</b>	Long-term capital appreciation



## Timothy Guinness

- Executive Chairman and Chief Investment Officer of Guinness Atkinson Asset Management
- Portfolio manager of the Investec Global Energy Fund from November 1998 to February 2008
- Co-founder of Guinness Flight Global Asset Management and, after its acquisition by Investec, chairman of Investec Asset Management until March 2003
- Graduated from Cambridge University in 1968 with a degree in Engineering. After obtaining an MBA at MIT, worked for 10 years as a corporate financier



## Will Riley CA

- Joined Guinness Atkinson Asset Management in 2007
- Company valuation expert for PricewaterhouseCoopers 2000-2007
- Qualified as a Chartered Accountant in 2003
- Graduated from Cambridge University with a Masters degree in Geography in 1999



## Jonathan Waghorn

- Joined Guinness Atkinson Asset Management in 2013
- Co-portfolio manager of the Investec Global Energy Fund from February 2008 to May 2012
- Co-head of energy equity research at Goldman Sachs from 2000-2008
- Drilling engineer in Dutch North Sea for Shell



- **Guinness Atkinson Asset Management:** founded in 2003, along with UK sister firm Guinness Asset Management
- **Four core areas of expertise:** Global Equities, Energy, Asia & Financials
- **Guinness Atkinson Group AUM (at June 30, 2017): \$1.4bn**
- **Staff of 19, including 8 investment professionals**
- **Company is 100% owned by employees**

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

The Fund's holdings, industry sector weightings and geographic weightings may change at any time due to on-going 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. References to other mutual funds should not be interpreted as an offer of these securities.

**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 funds holdings.**

While the fund is no-load, management and other expenses still apply. Please refer to the prospectus for further details.

*The Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectus contains this and other important information about the investment company, and it may be obtained by calling 800-915-6566 or visiting [gafunds.com](http://gafunds.com). Please read it carefully before investing.*

You cannot invest directly in an index.

Fund holdings & sector allocations are subject to change and are not recommendations to buy or sell any security.

**Diversification does not assure a profit nor protect against a loss in a declining market.**

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