

Looking across an Asset Manager's Investment Opportunities in Energy

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Energy investing at Wellington Management

A ~US\$1 trillion investment manager founded in 1929

~US\$2 billion invested in energy futures

~US\$30 billion invested in energy equities

~US\$10 billion invested in energy debt

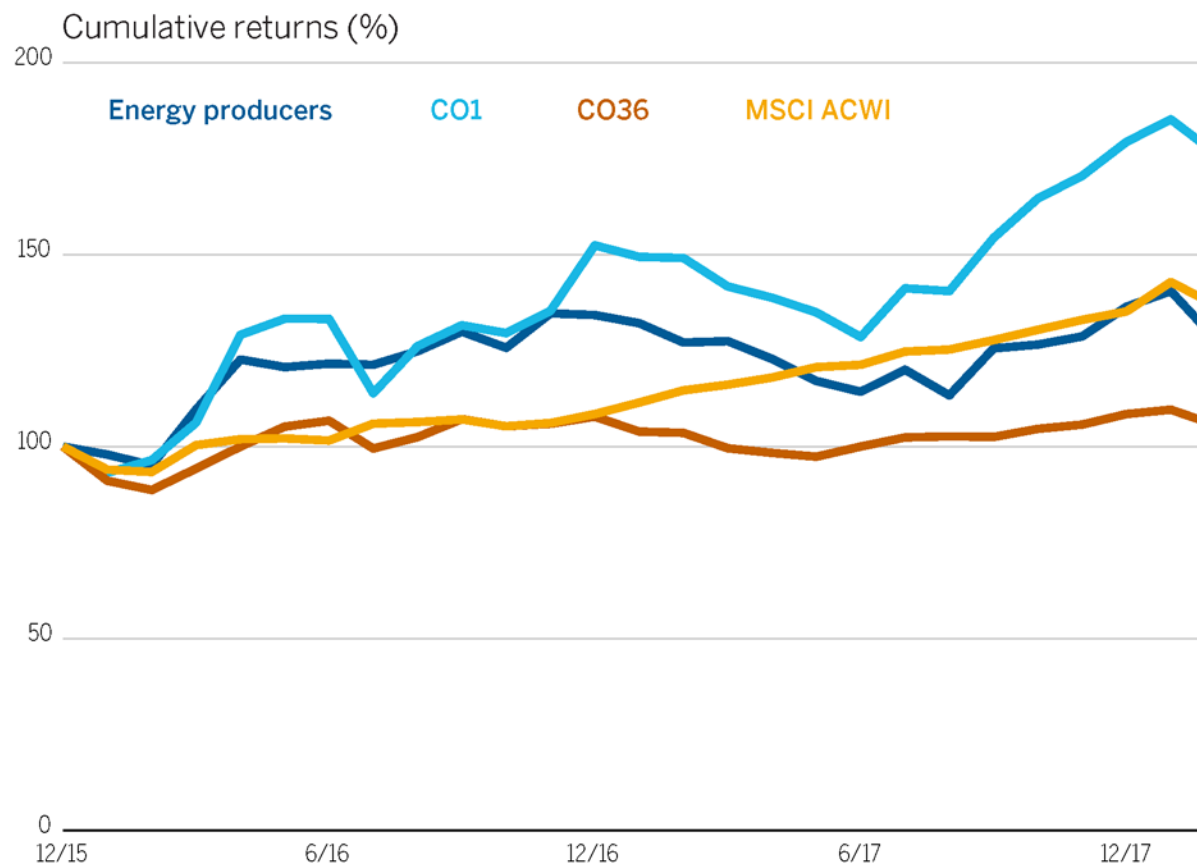
Oil equities underperformed in 2017

Calendar year 2017 Performance (%)

Global equities	+24.6
Brent futures	+13.2
Private energy	+10.0
High yield energy	+7.7
Global energy equities	+7.6
US exploration & production	-10.2

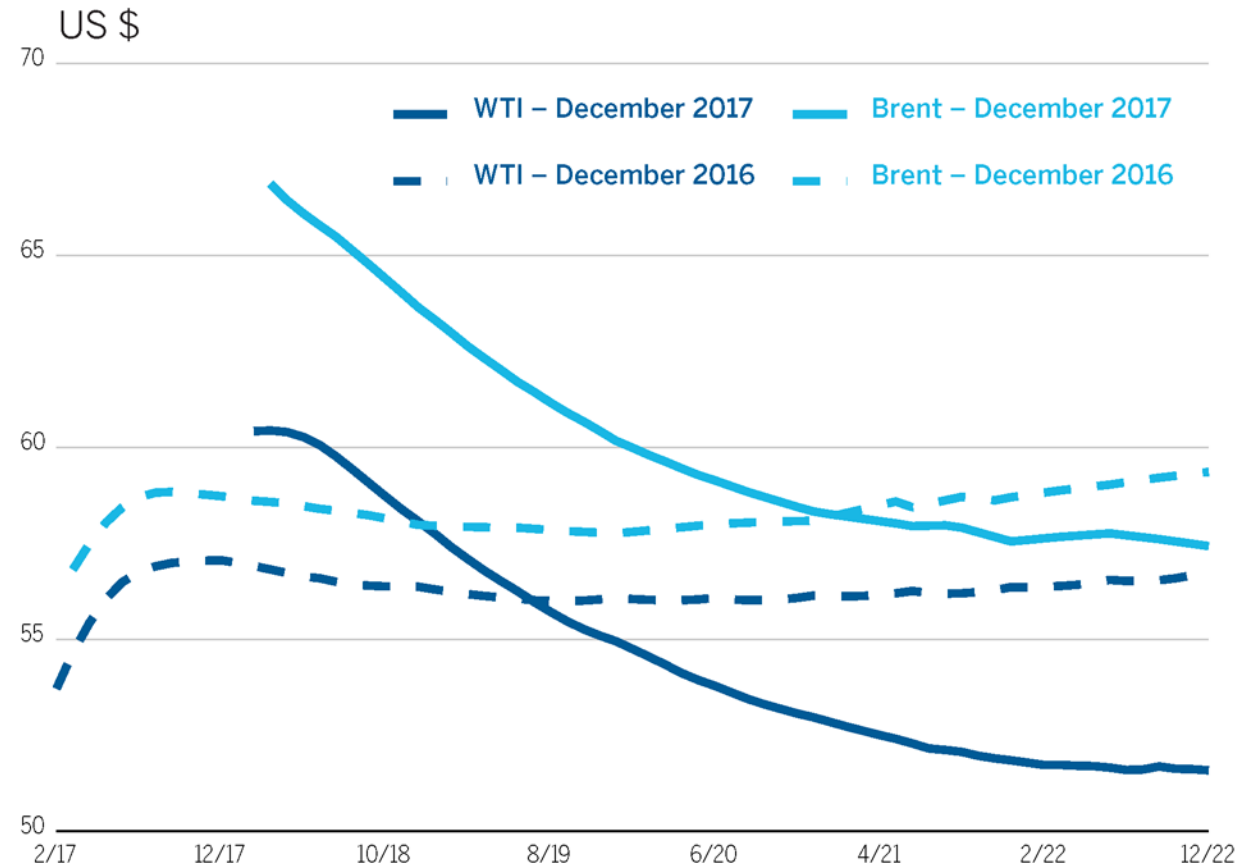
As of 31 December 2017 | Indexes used are as follows: Global equities: MSCI All Country World Index; Brent futures: Bloomberg Commodity Brent Oil Price Return; Private energy: Preqin Median Select Private Energy Fund Return; High yield energy: Bloomberg Barclays US High Yield Index - Energy; Global energy equities: MSCI All Country World Energy Index; US exploration & production: SPDR S&P Oil & Gas Exploration & Production ETF. | **PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS AND AN INVESTMENT CAN LOSE VALUE** | Source: Bloomberg, MSCI, S&P, and Preqin.

Since 2016, spot oil has outpaced energy stocks and long-dated futures



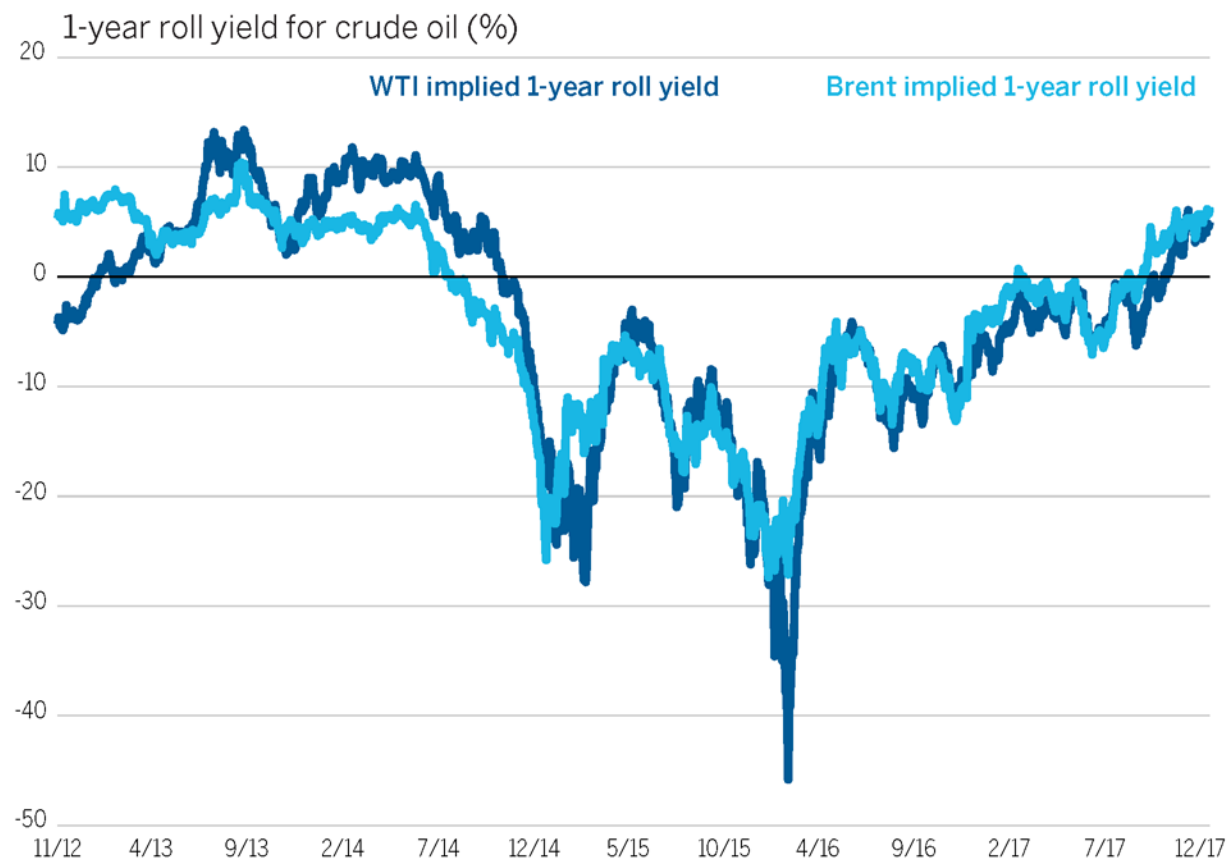
Returns for Energy Producers represent the E&P sub-sector of the MSCI AC World Energy Index. | As of 28 February 2018. | Source: MSCI, Bloomberg, and Factset. | **PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS AND AN INVESTMENT CAN LOSE VALUE** | Chart data: December 2015 – February 2018

Oil curves have shifted into backwardation



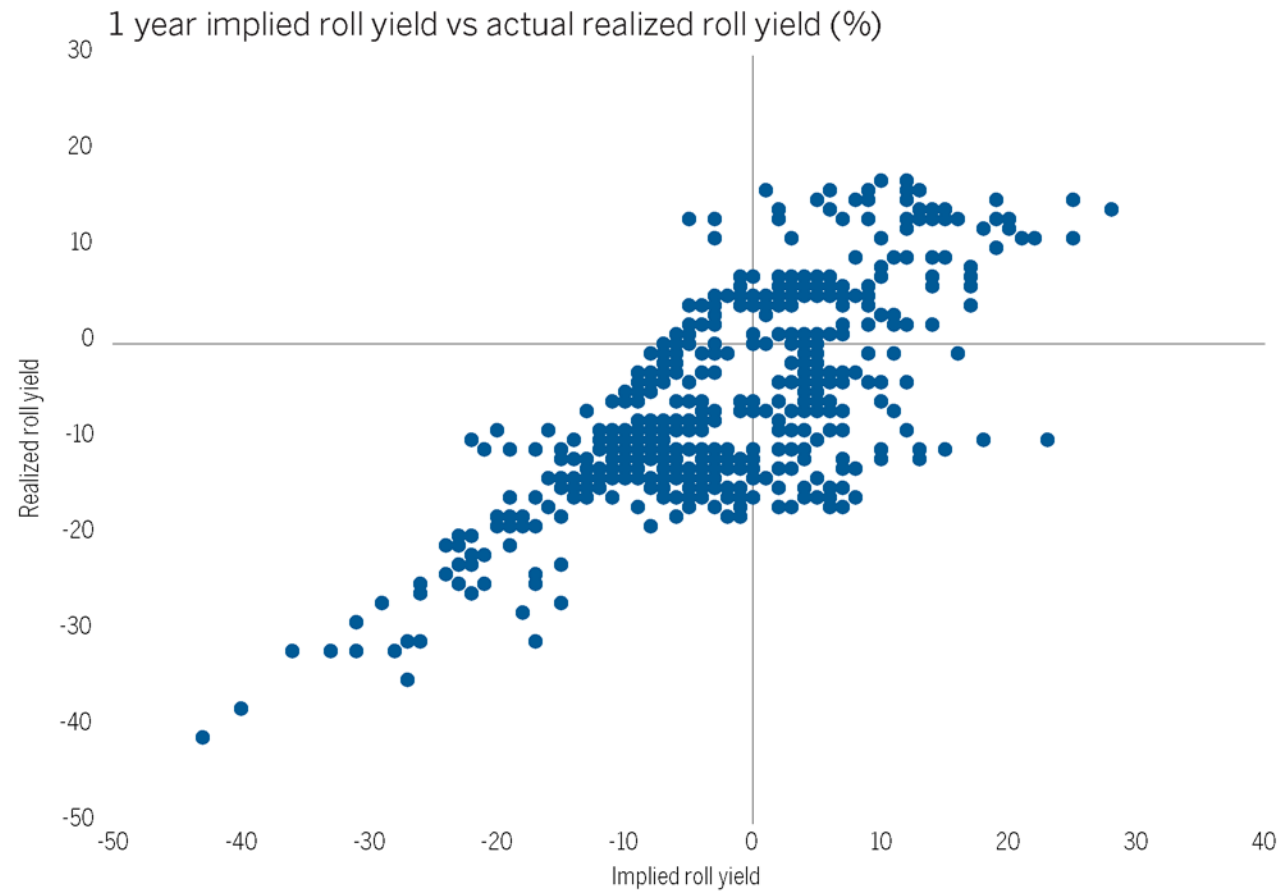
As of 31 December 2017 | Source:
Bloomberg | Chart data: February 2017 – December
2022

Oil roll yield is positive again



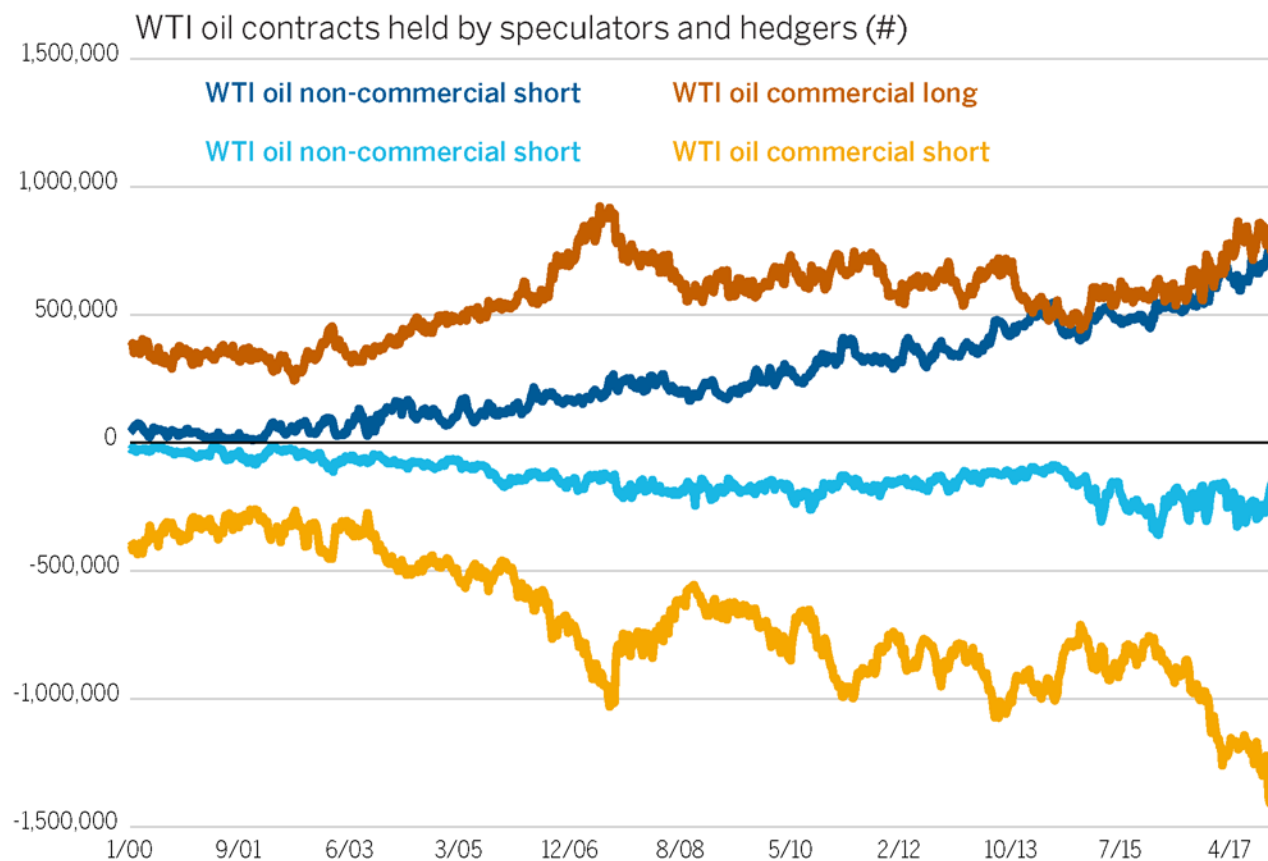
Data from 5 November 2012 through 31 December 2017 | Source: Bloomberg

The shape of the oil curve is indicative of the realized roll yield



Source: Bloomberg. | Chart data: 1 January 2003 –
31 December 2017

Backwardation is attracting investor length and offsetting growing producer hedging



Sources: CFTC and Bloomberg. | Chart data: 7
January 2000 – 26 January 2018.

New entrants have led to a surge in oil futures volumes

Record all-time high in open interest in WTI futures driven by international growth and the US decision to lift the export ban

Trading volumes out of China increased 30 percent in 2017 after doubling in both 2015 and 2016

WTI volumes have grown 51 percent in 2017 during non-US trading hours

Vol equity traders have moved into the energy space

The investment case for US shale equities is changing

5 years ago...

Differentiated return and investment opportunity versus the rest of the industry

Low end of the cost curve

Low technical and country risk

Short term flexibility

Rising productivity

In 2018...

Many investors are challenging the business model as growth has not translated into share price appreciation

Operations benefit from slower pace of growth

Outspending cash flows has put financial stress on balance sheets

Slower growth can improve the oil price outlook

Perspectives on how the E&P business model should evolve

Perspectives from Institutional Investors

We believe asset allocators need to see a better balance of growth and free cash flow to allocate back to public E&P companies

“A perpetual growth model doesn’t work when everyone is questioning the terminal value”

- US institutional investor

“The market rewards what is scarce and growth is not scarce anymore in the sector....high returns on capital are what is scarce now”

- US institutional investor

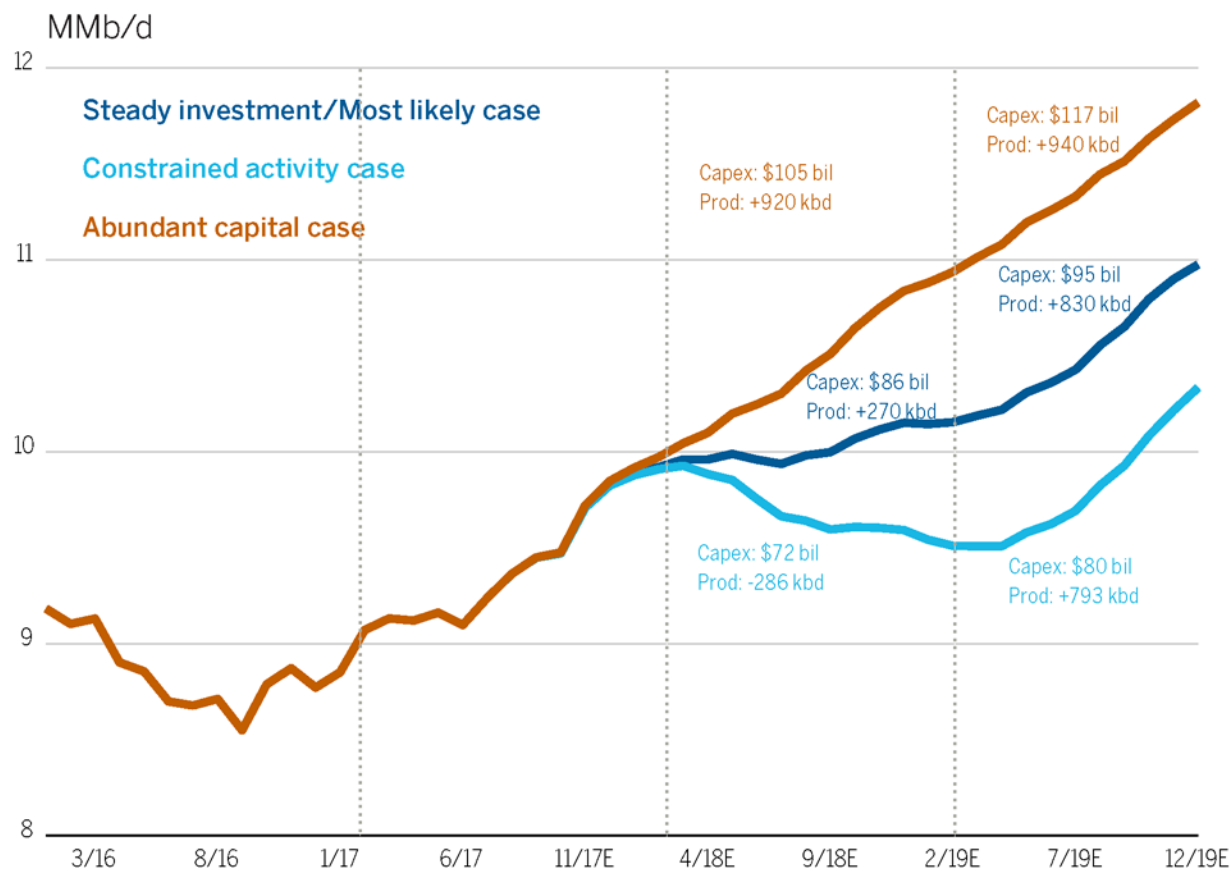
“There needs to be better alignment between shareholders and management teams...in most E&P companies insider ownership is less than 1%”

- US institutional investor

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Oil production requires access to capital

US oil production paths at different levels of capital investment



Actual data is presented from 1 January 2016 through 31 October 2017. Any data shown after that represents forward looking estimates. Actual results may vary, perhaps significantly, from the estimated data presented. | Source: IHS Markit

Capital market access is key for shale growth

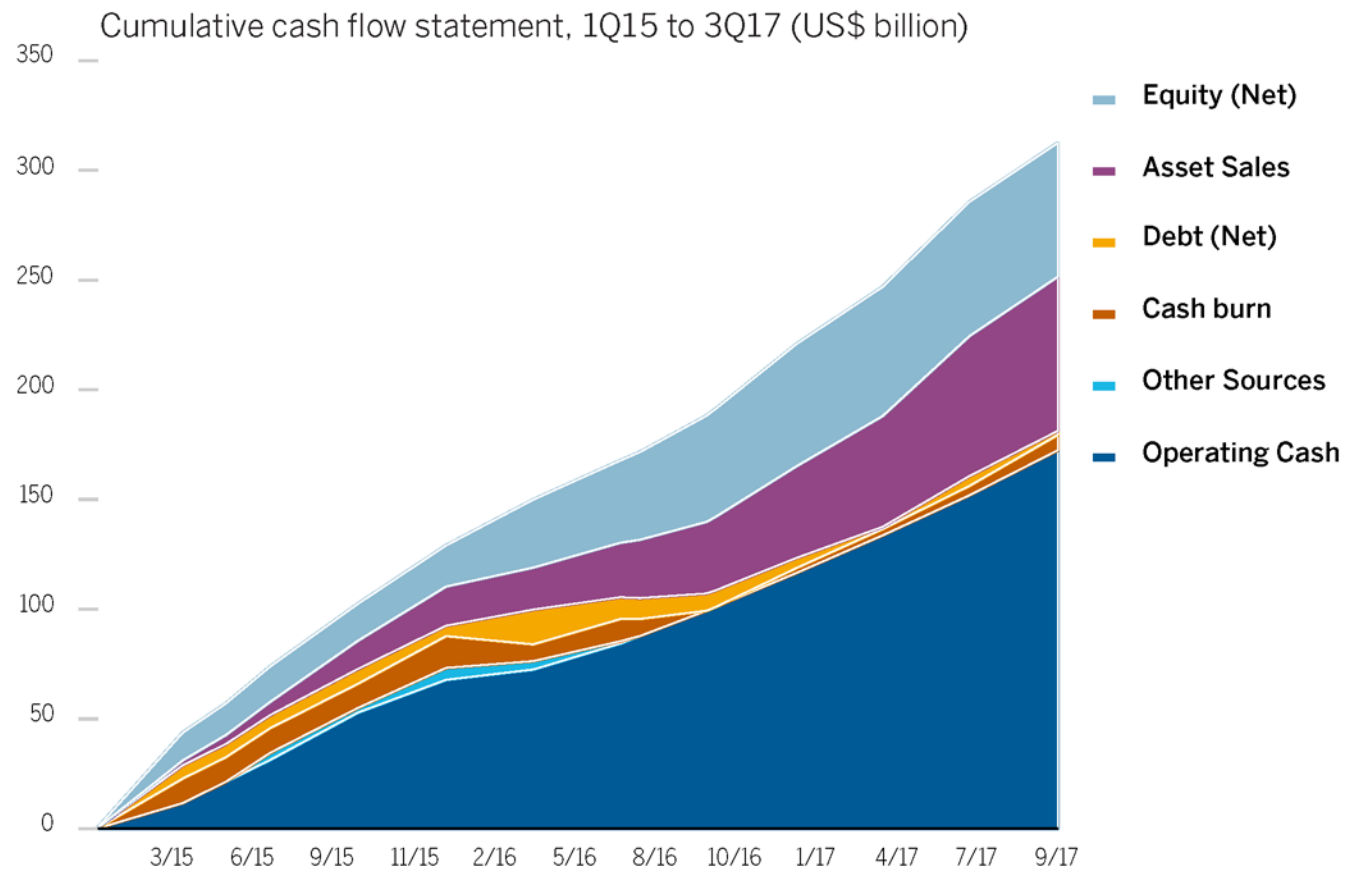
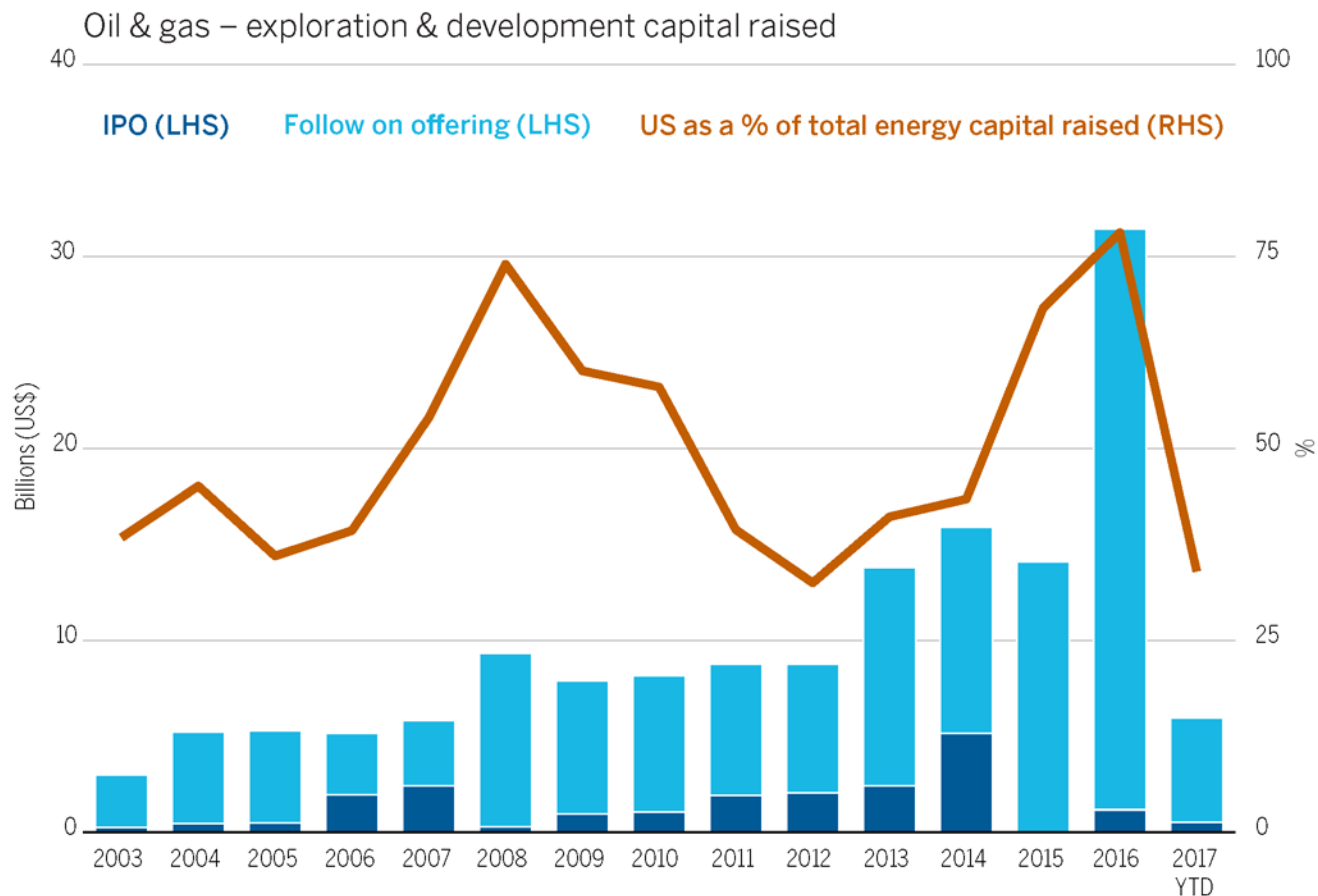


Chart data: 1 January 2015 – 30 September 2017 | Sources: Factset, Bernstein estimates and analysis

Fewer IPOs, but energy sector has still raised capital

US oil & gas – Exploration & development capital raised (US\$ billion)



As of 1 October 2017 | Source: Goldman Sachs

Debt investors are also changing their expectations

In 2014

The sector was new, innovative and growing

Oil over US\$100/barrel

Energy issued significant debt at attractive spreads

Today

The sector is more mature with greater differentiation

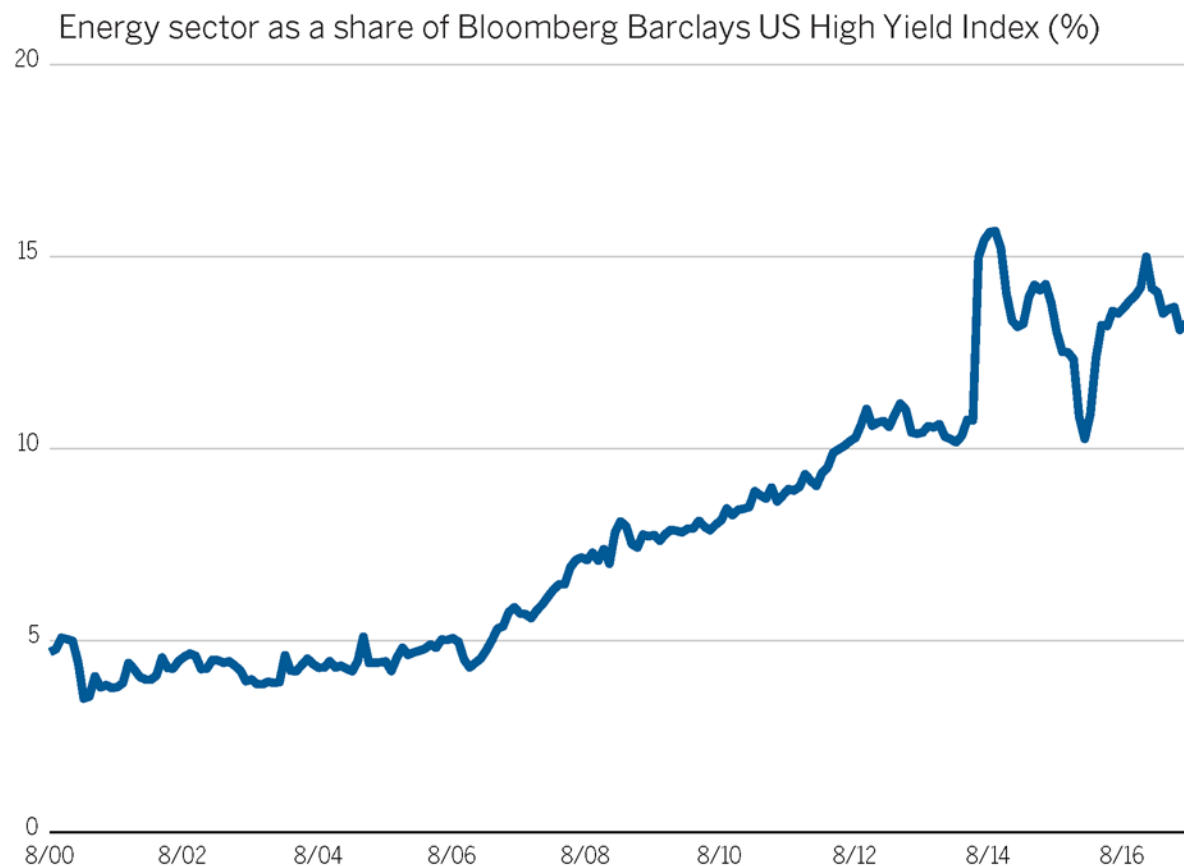
Oil is US\$60/barrel

Other sectors present comparable spreads

Fewer companies are issuing debt

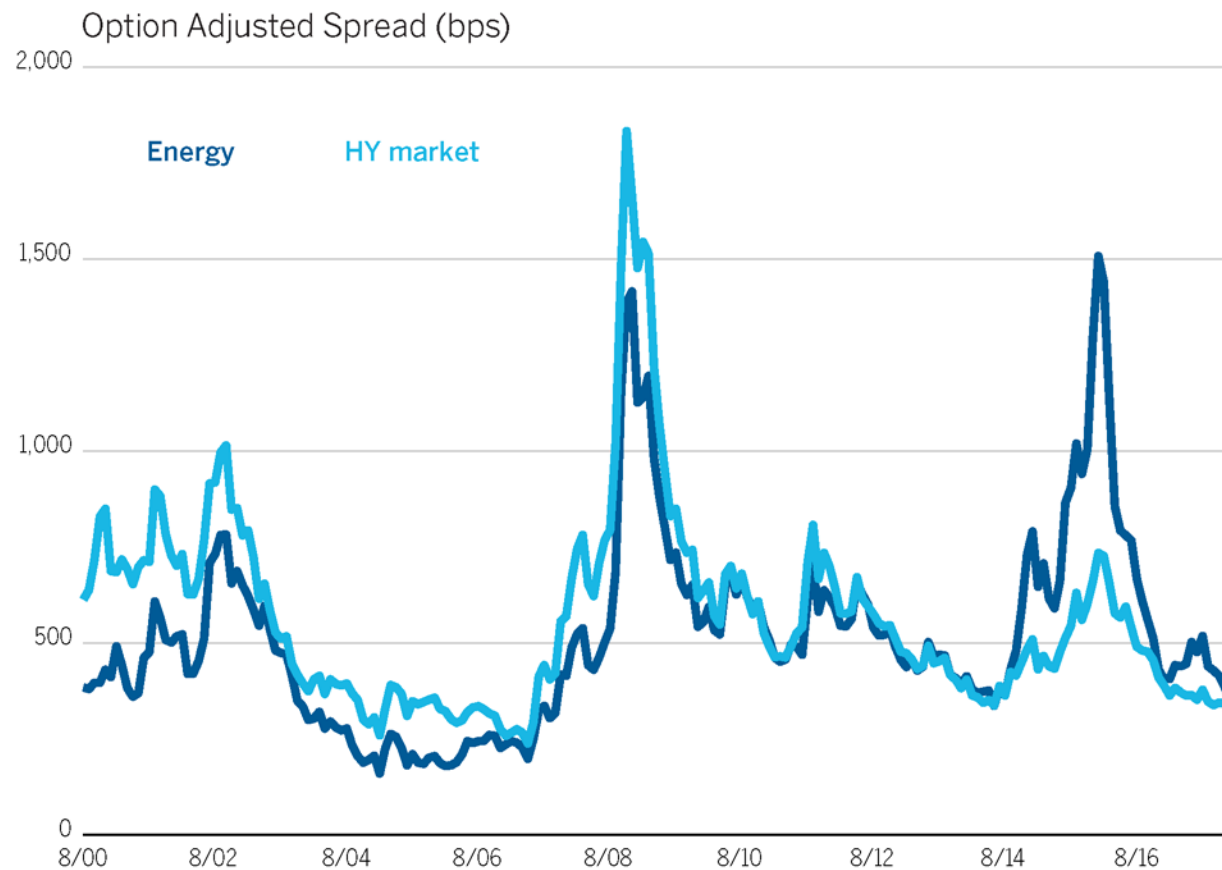
Investors experienced the downturn in oil prices

Energy high yield issuance has slowed after surging in over the past decade



As of 28 February 2018 | Source: Bloomberg
Barclays US High Yield index | Chart data: August
2000 – February 2018

Energy interest rate spreads



As of 28 February 2018 | Source: Bloomberg
Barclays US High Yield index | Chart data: August
2000 – February 2018

Private companies have ample capital
but provide a different value proposition

Private energy attracted capital through

Strong returns

Land value appreciation

Significant institutional investor flows into privates

Going forward, we see

Lower potential for land value appreciation

Greater long-term price uncertainty

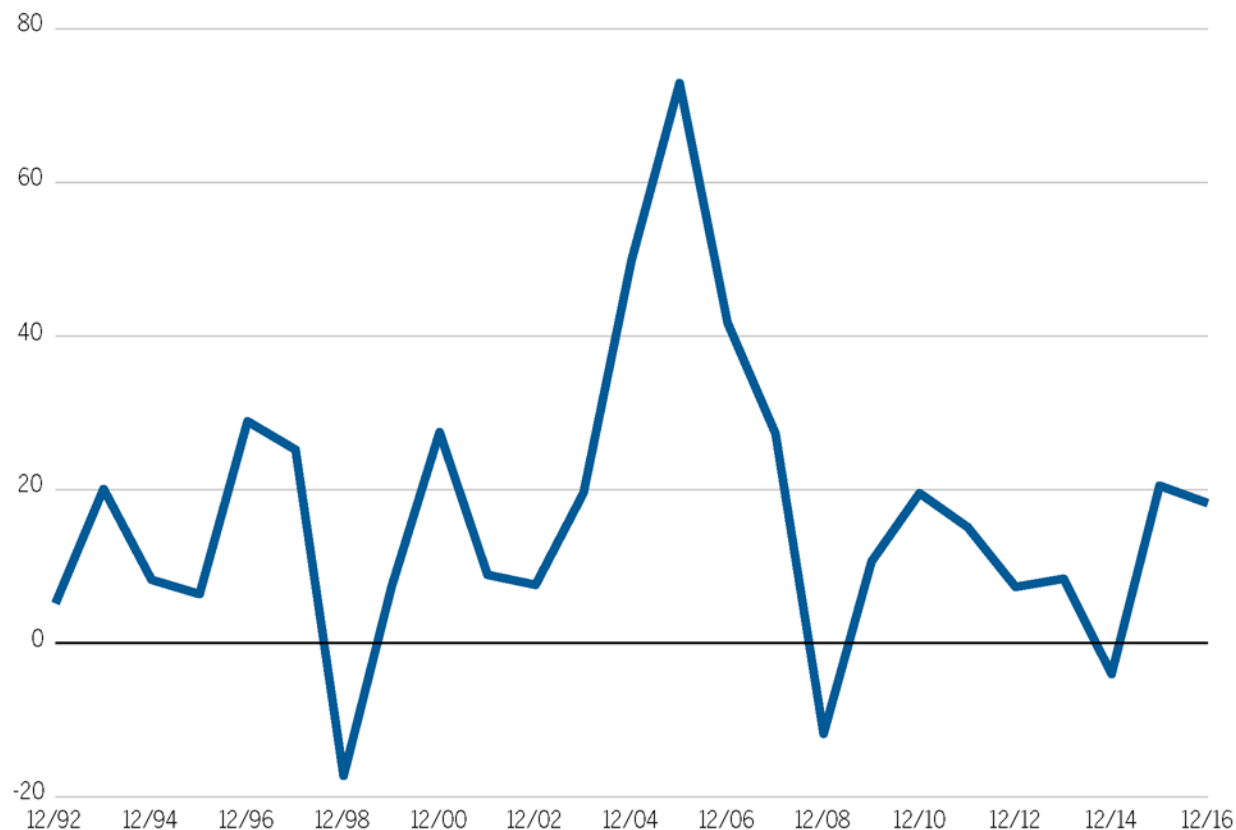
Demand for liquidity

**PAST RESULTS ARE NOT
NECESSARILY INDICATIVE OF
FUTURE RESULTS AND AN
INVESTMENT CAN LOSE VALUE.**

Actual occurrences may vary from the forward looking
statements presented.

Energy Upstream & Royalties and Private Energy Index

One-year rolling returns (%)



As of 31 December 2016 | Source: Cambridge Associates. **PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS AND AN INVESTMENT CAN LOSE VALUE.** | The index is a horizon calculation based on data compiled from 348 energy related fund (including 87 Energy Upstream & Royalties, 189 US Private Equity Energy and 72 ex US Private Equity Energy funds), including fully liquidated partnerships, formed between 1986 and 2016. All returns are net of fees, expenses and carried interest.

Summary

We believe the financing outlook is uneven across asset classes

Oil futures benefit from backwardation

E&P managements need to regain investor confidence

High yield investors tend to be more tentative

Privates have significant capital available to deploy

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