LTIF

Long Term Investment Fund

Investing in oil

June 2018

«The problem of oil, it might be tersely said, is that there is always too much or too little»

Myron Watkins, *Oil: Stabilization or Conservation?,* New-York, 1937

Presentation plan

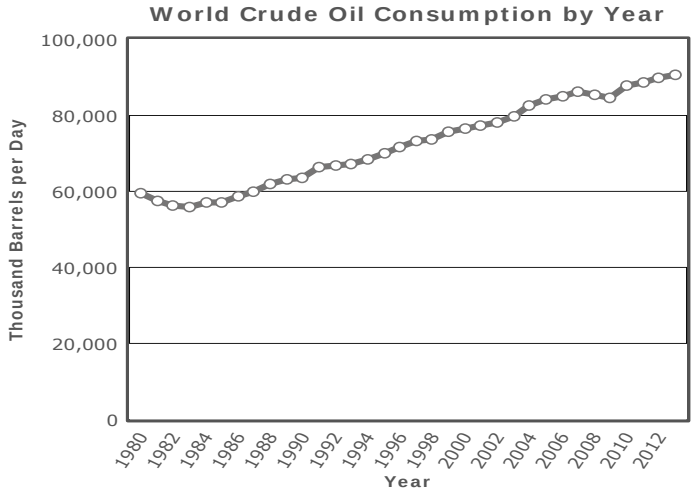
- **The essential cyclical nature of the industry. Key characteristics**
- Supply shocks create big dislocations
- The complete cycle
- A full model of price behavior
- Where are we in the cycle?
- How to invest

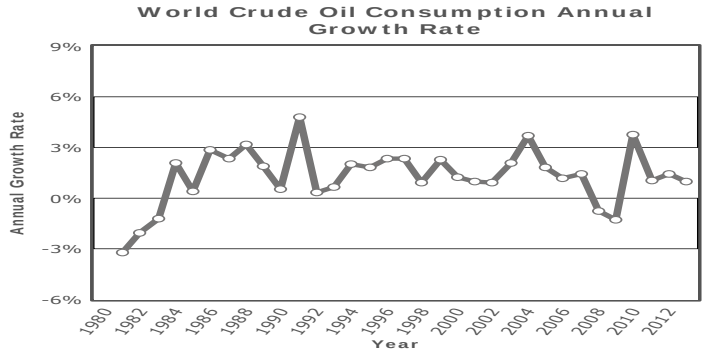
Key message: the oil market presents today an opportunity similar to that of 2004 – 2014 (oil up by 470 %, E&Ps up by 600%)

Oil industry characteristics

- The oil industry has the following characteristics
  - It's huge (5% of world GDP, capex > US$ 1,000 bn)
  - It enjoys a very stable demand
  - Short-term supply and demand are highly inelastic
  - It has very long lead-times for new capacity
  - It has very high sunk costs

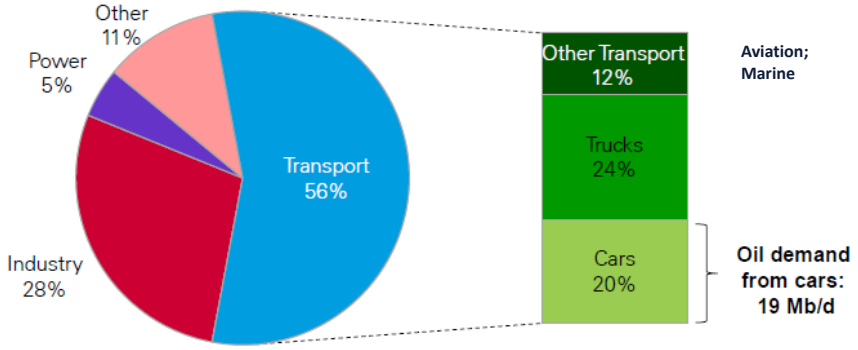
Oil demand is very stable





Source: United States Energy Information Administration

Because most of its uses are very stable

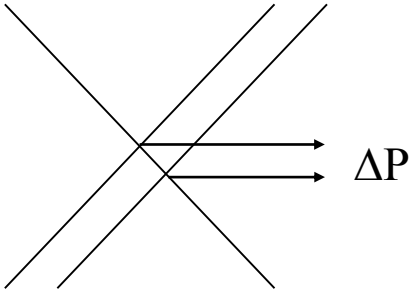


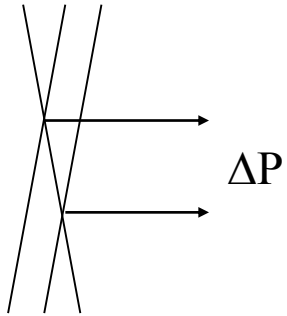
Source: BP, 2016

And the strongest source of additional demand is depletion

Short term, both supply and demand are very inelastic

- Most users are price-insensitive
- Most producers cannot change their output. Developing new fields takes up to 10 years
- Sunk costs are much higher than operational costs: strong incentive to maintain production, even at a loss (especially if high debt demands cash flow)





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Supply shocks create big price disruptions

- 70s: Middle East conflict
- 80s: Alaska's North Slope and North Sea
- 2000's: shale oil

Disruptions are persistent: both scarcity and overcapacity take years to correct

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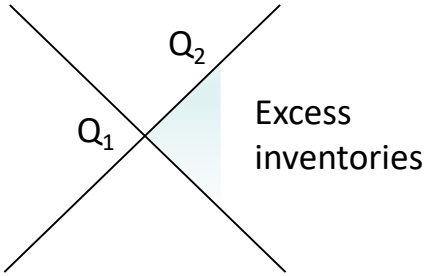
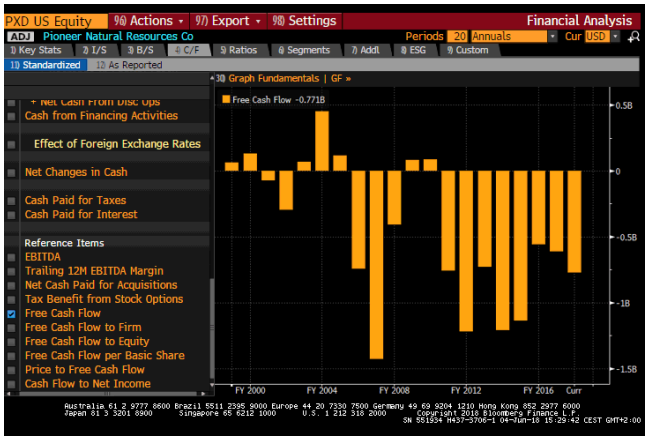
The complete cycle

- Excess production: inventories go up, prices go down, no new investment (prices go low enough to attempt to shut some wells – February 2016**)**
- Rebalancing comes through demand growth (1.5%) and depletion (4%), but there is inertia
- The process takes 4-5 years
- Eventually, inventories start going down, and prices up. One or two years later, investment restarts, take 3 to 10 years
- The role of shale: it has shortened the cycle somewhat, but only for part of the curve:
  - Growth: form 0 to 5 mbpd
  - Limits: all areas except for Permian are mature
  - Very fast turnaround (both up and down)
  - Unprofitable





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A full model of price behavior

- Short-term: price is determined by inventories (with some noise from financial players)
- Long-term: price is anchored by full cycle total costs *for the future*
- Do not take price curves as the market's opinion on future prices
- Huge procyclical mentality (examples of new realities…)

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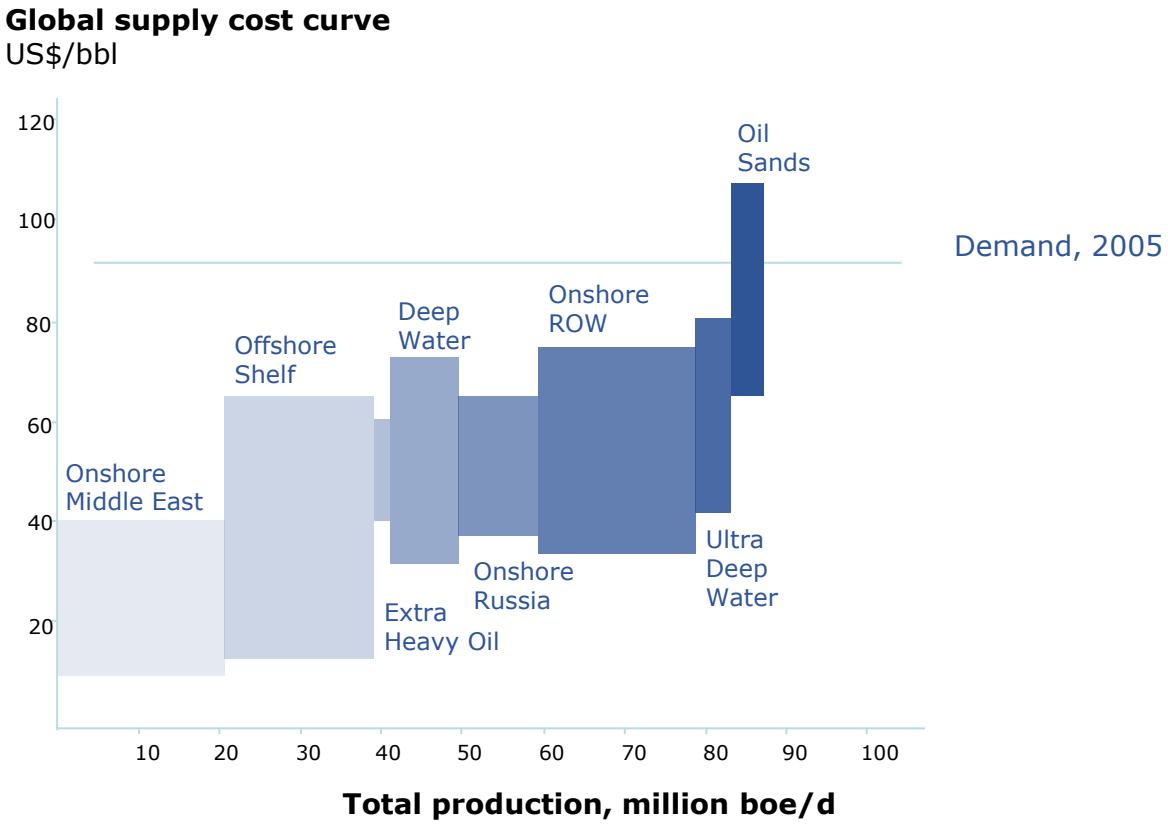
1. Shale generated the supply shock



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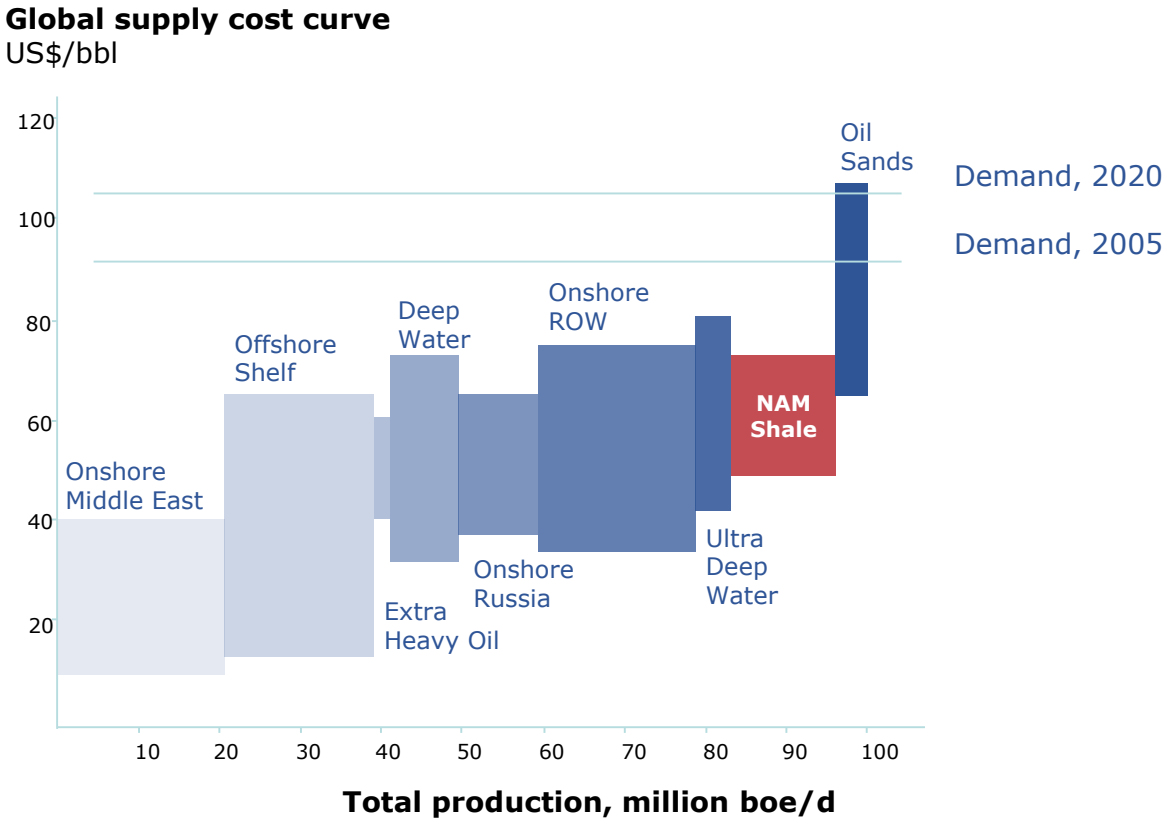
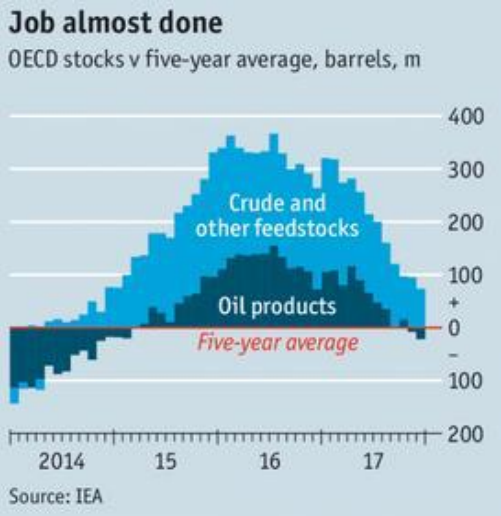
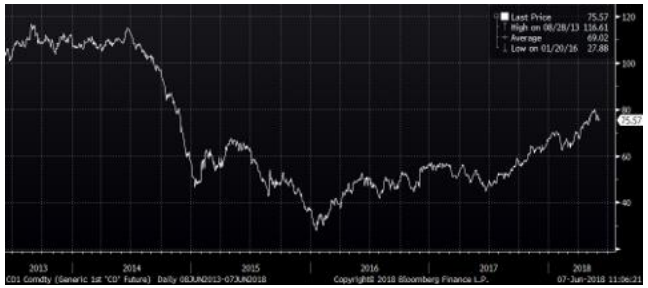


2. Inventories started growing…

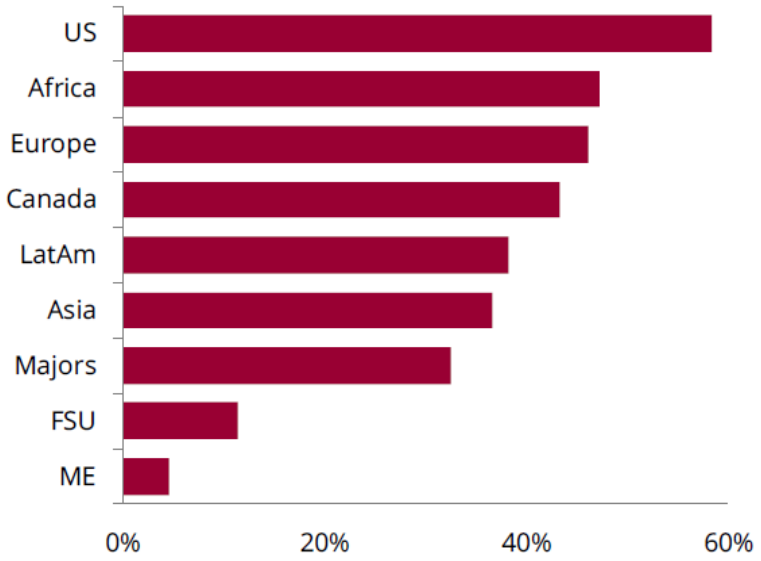


…(with the corresponding drop in prices)…

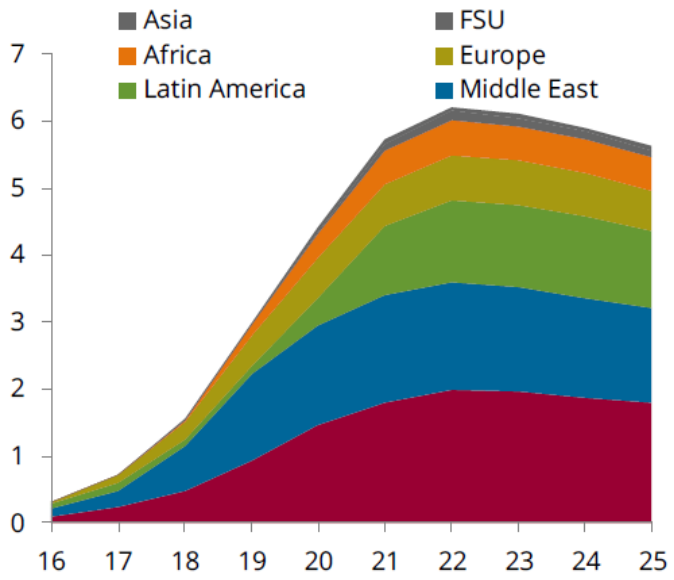


3. Capex disappeared

Global Capex Cuts (2017/2014, in %)



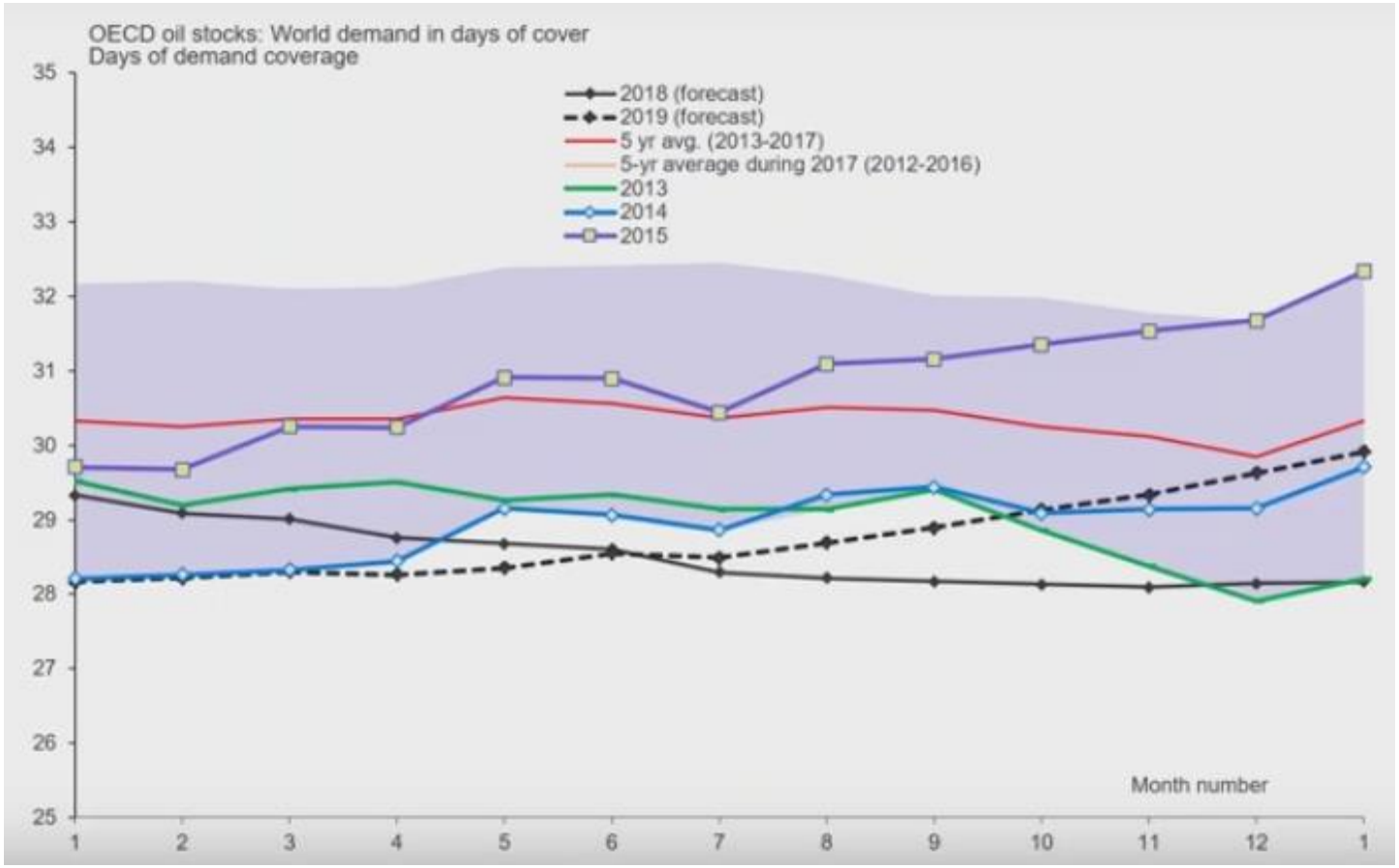
Project Cancellation Impact (in Mb/d)



Source: Energy Aspects, January 2018

4. And inventories started going down

Days Of Demand Cover: OECD Crude Oil Stock (in days)



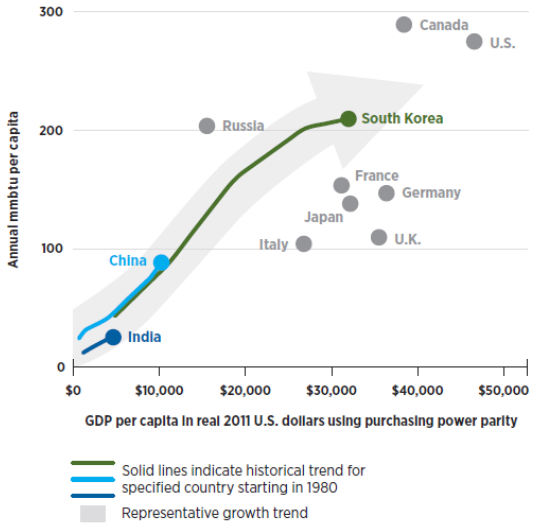
2015 actual

2018 forecast

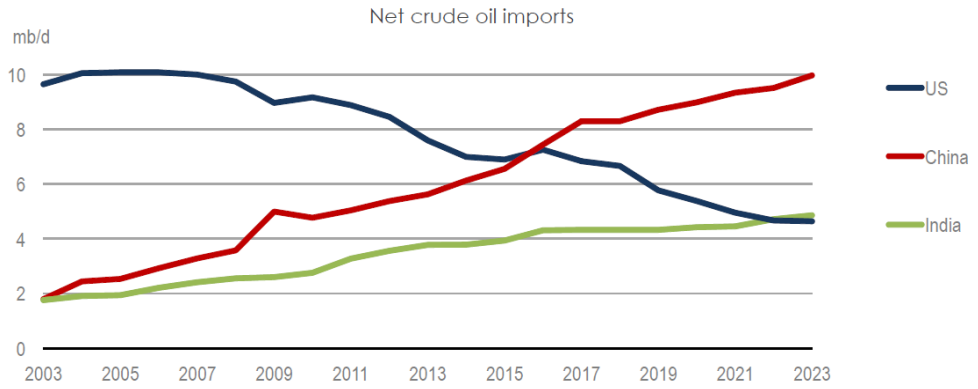
Source: Rystad Energy, January 2018

At the same time, demand continues very strong

India is now getting to the curve point where demand explodes



Importers of Crude Oil (in Mb/d)



Source, EIA

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- Rebalancing comes through demand growth (1.5%) and depletion (4%), but there is inertia
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Conclusion: five years of high prices

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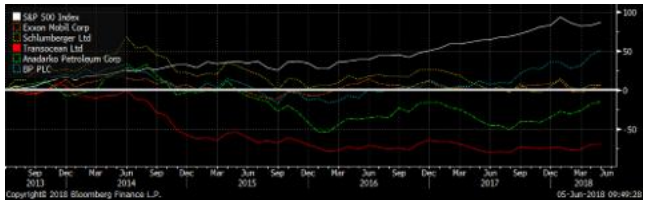
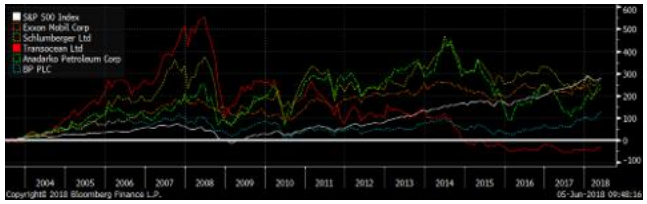
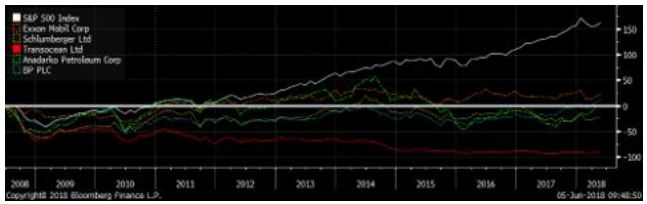
Oil related companies don’t create much value over the cycle

Obviously, in a bad 5-year cycle…

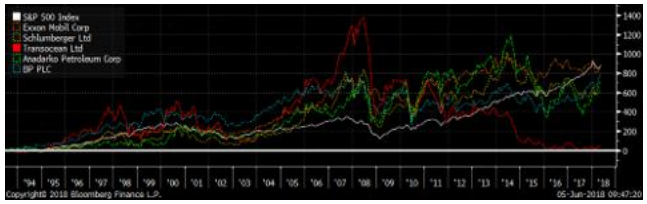


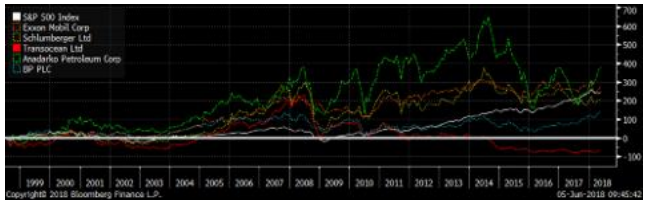
…but also in cycles with excellent prices…





…or over the very long time



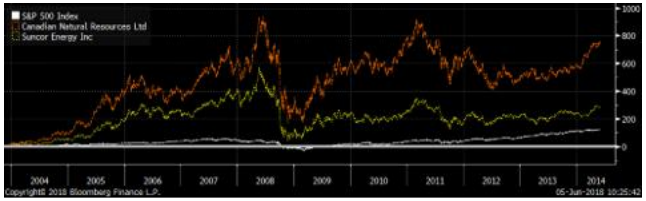


Visibility		
	E&P	Visa
	Shipping	Salmon Farming

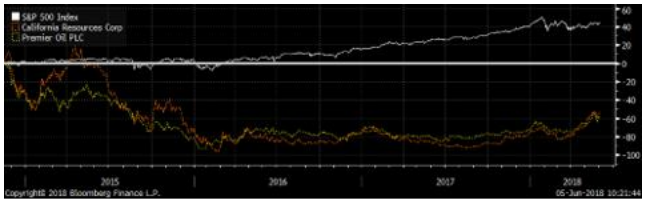
Quality of Business

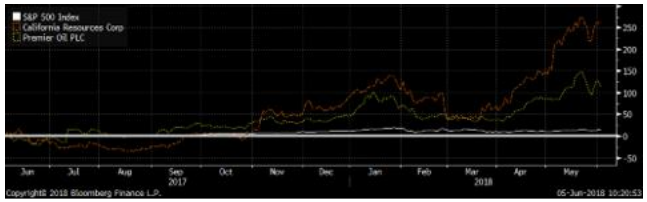
Yet good timing can yield outstanding results

Oil sands companies were almost unknown in 2002. With high costs and oil prices expected to hover around $20, they showed no value. They followed oil all the way to >$100.



Companies leveraged to do projects counting oil at $100 were deemed bankrupt (and priced as such) when oil dropped to $26. At oil >$70, they are worth 10 times more





Our preferred approach: a combination of cycle management and detailed fundamental analysis to obtain maximum return while minimizing risk and preserving a value bias.

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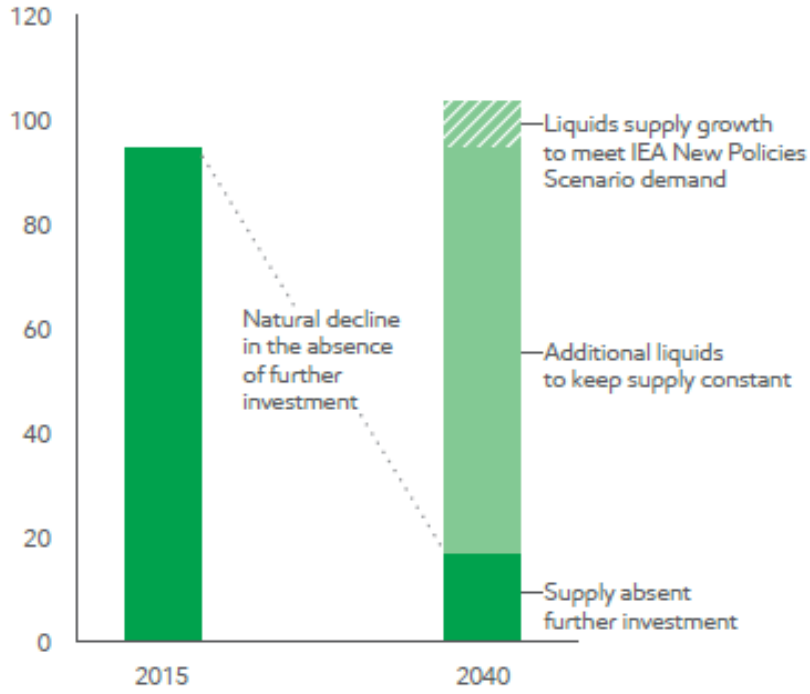
Liquids demand & supply (Mb/d)

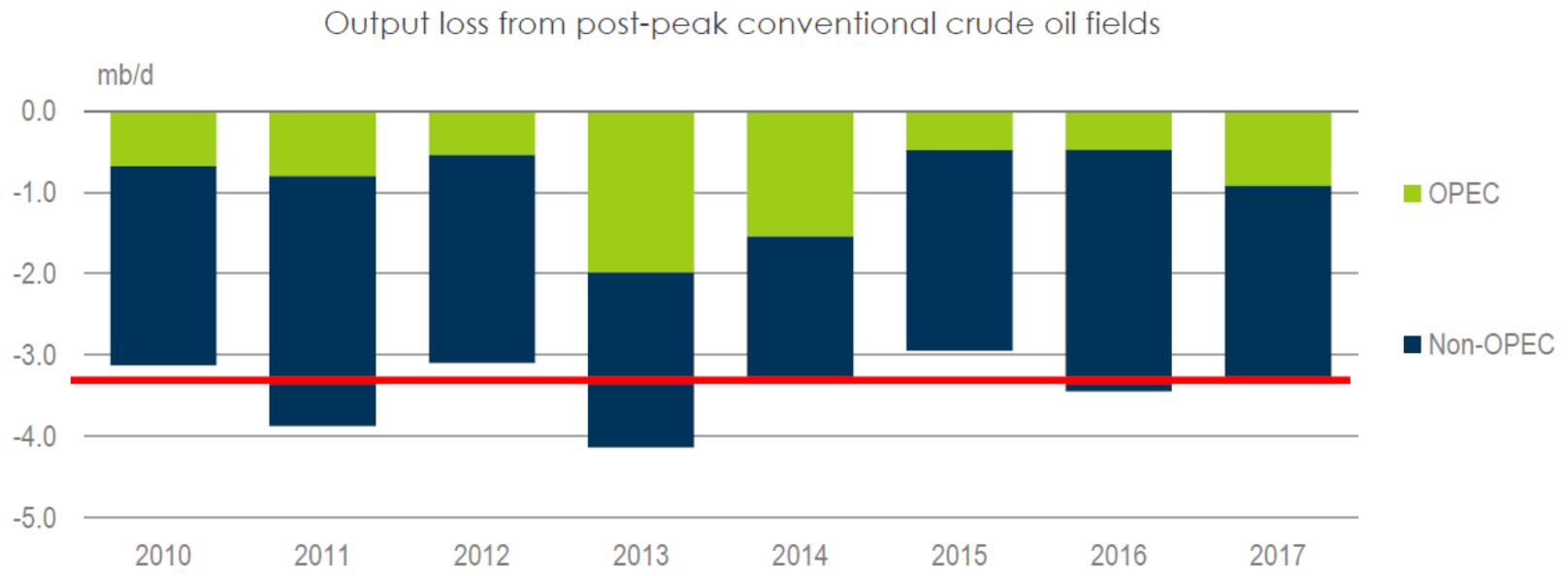


Exxon Mobil, March 2018

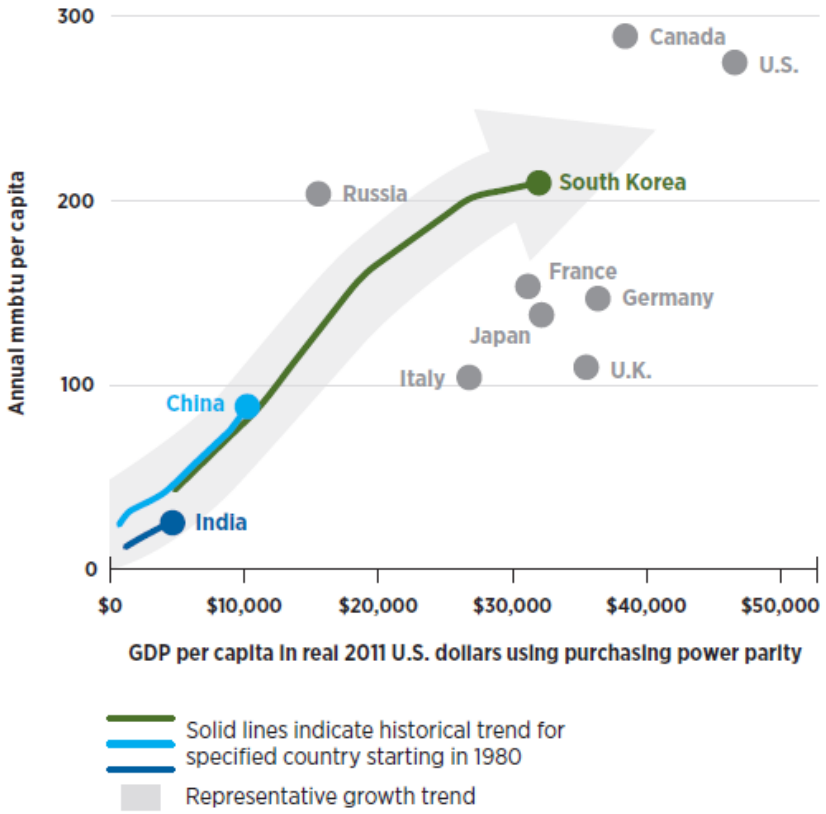
- Upward of US$450 billion a year of upstream oil investment is needed to meet demand;
- Without further investment, liquids supply would decline steeply;
- Over 80% of new liquids supply needed to offset natural decline;

51 Mb/d
of global supply is assumed to be in decline by the IEA in 2017!

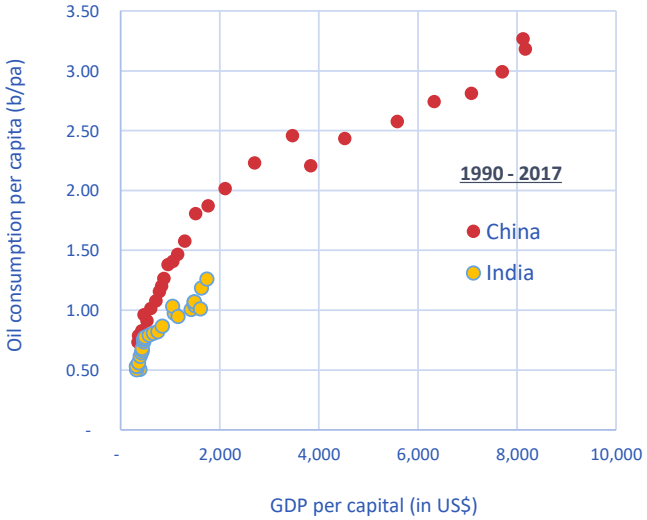
Worldwide Base Decline from Ageing Oil Fields (in Mb/d)



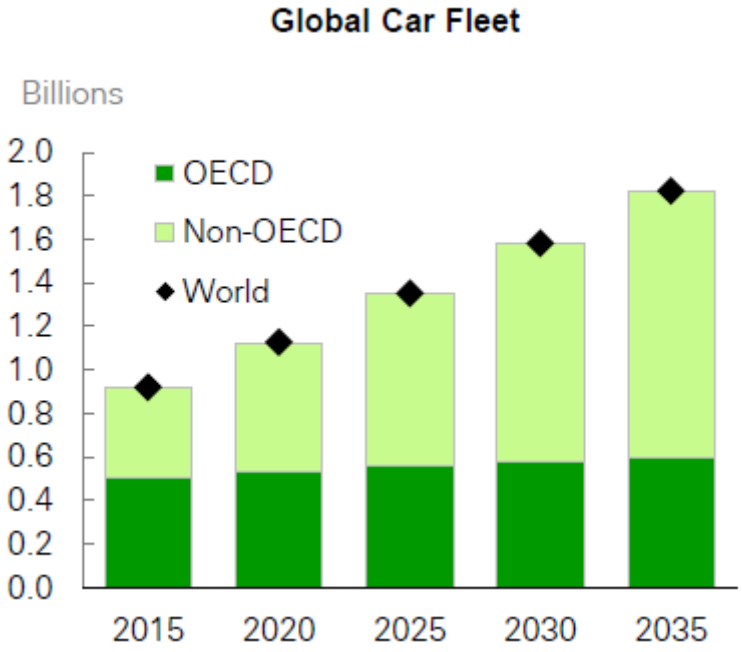
Back up slides

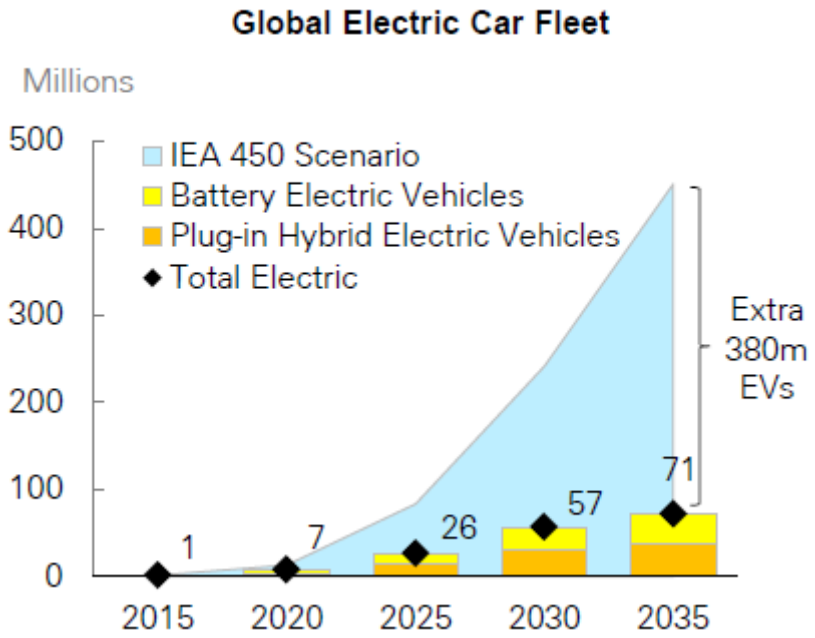


Over the next decade, nearly 40 percent of the world's population is expected to enter the critical $3,000 to $10,000 per capita GDP threshold, where energy demand accelerates (see chart at right).



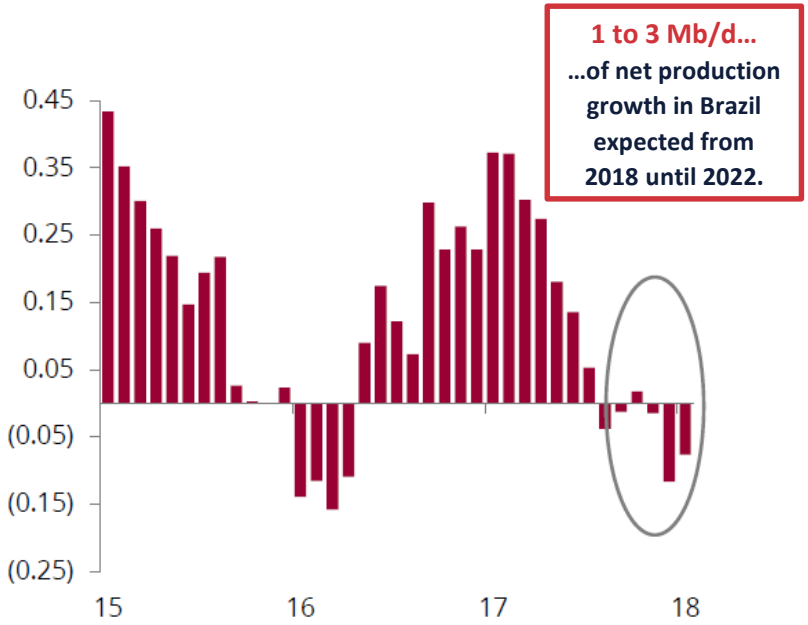
Growth and mix of global car fleet for different scenarios





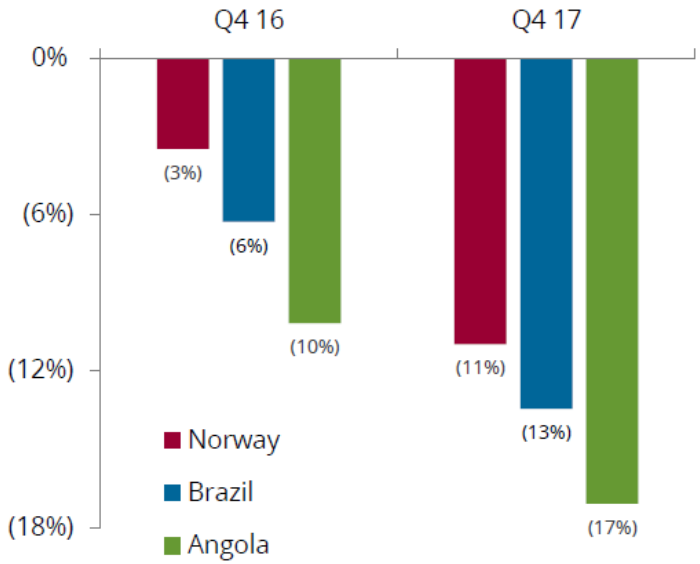
Germany 2017 - 2018 sales
3,4 Mio EV → 2,5

Brazilian liquids production (y/y change, Mb/d)



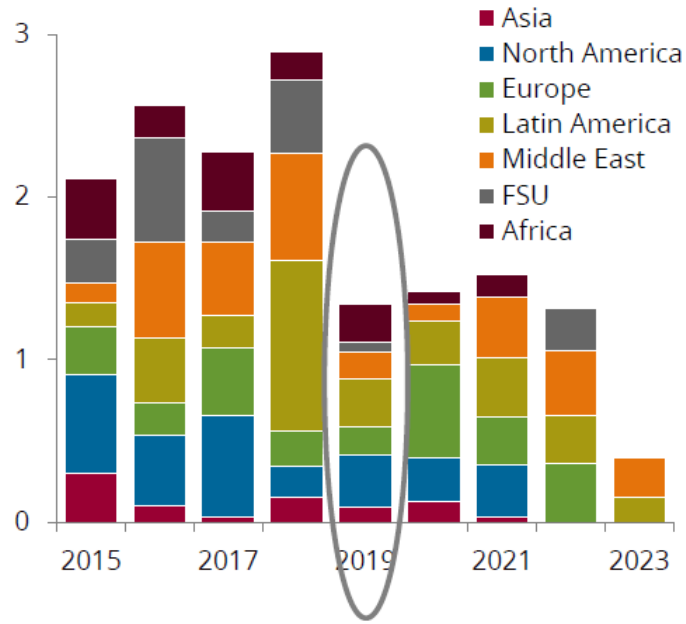
Brazilian crude production has underperformed relative to expectations amid high declines in the Campos

Selected base decline rate (Q4, in %)

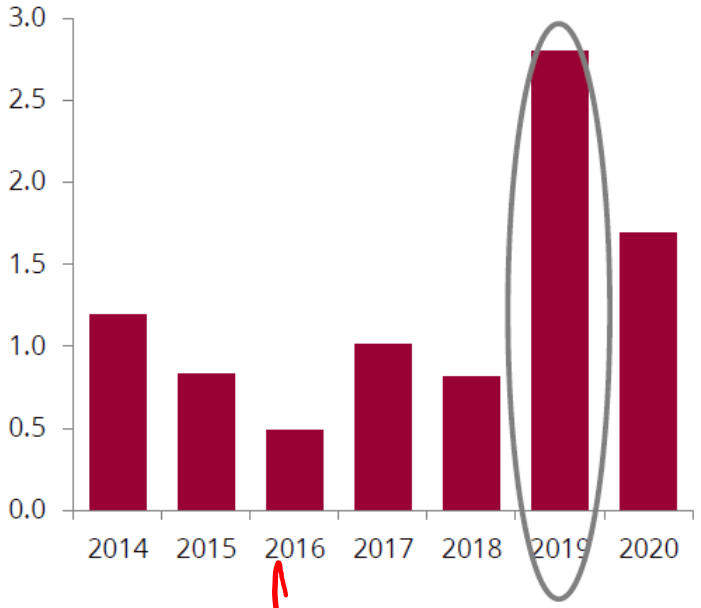


Rising base decline rate for conventional liquids production was clearly visible across Q4 17

Existing Upstream Capacity Additions (Mb/d)



Refining Capacity Additions (Mb/d)



bring up to 17