LTIF Natural Resources

LTIFGEV LX

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July 2018

Main messages

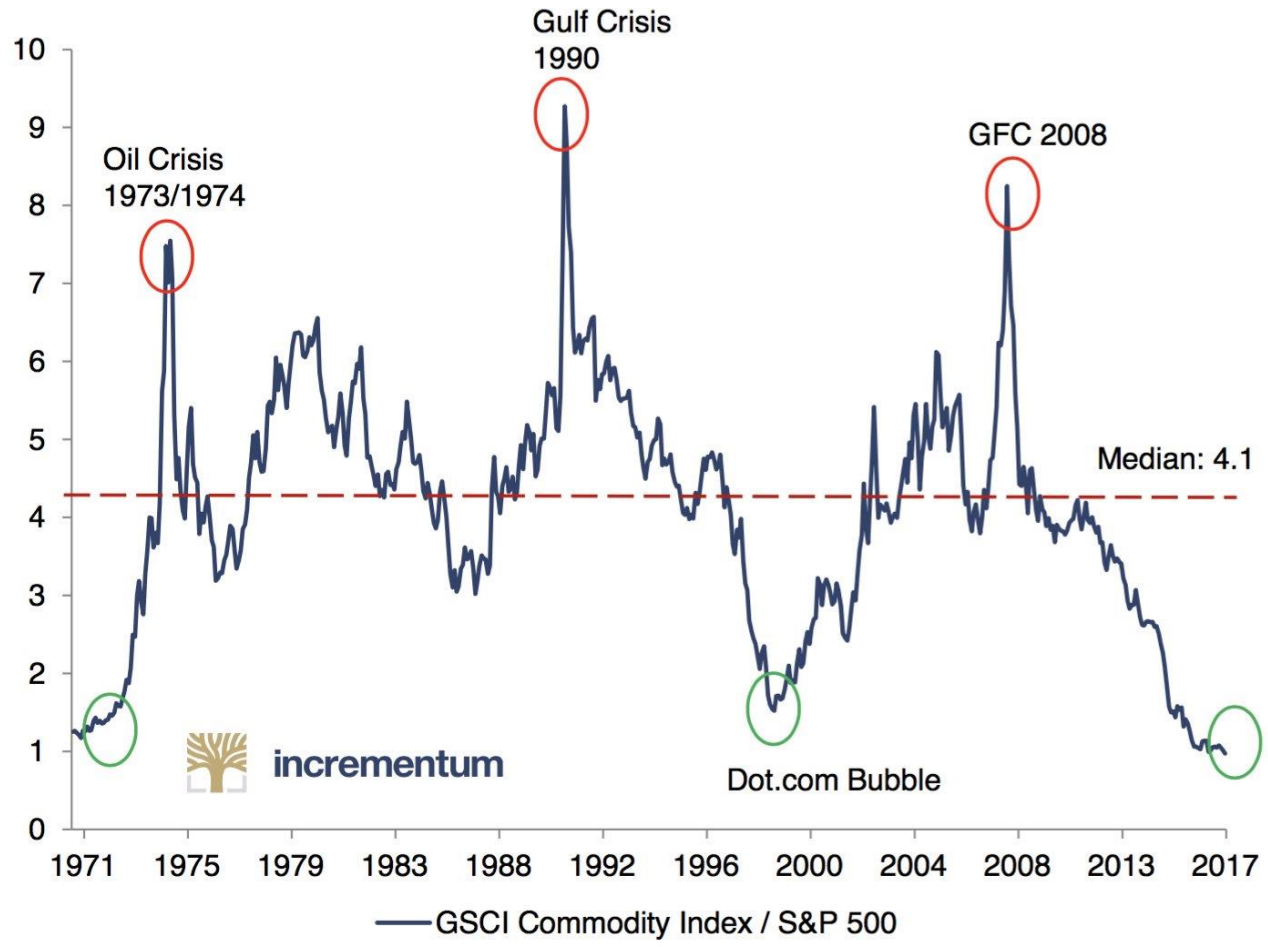
- Natural Resources are one of the clearest, deepest sources of value now available

- In general, we prefer to invest in commodity-producing companies rather than the commodities themselves

As cheap as it can get?

in gold we trust .report

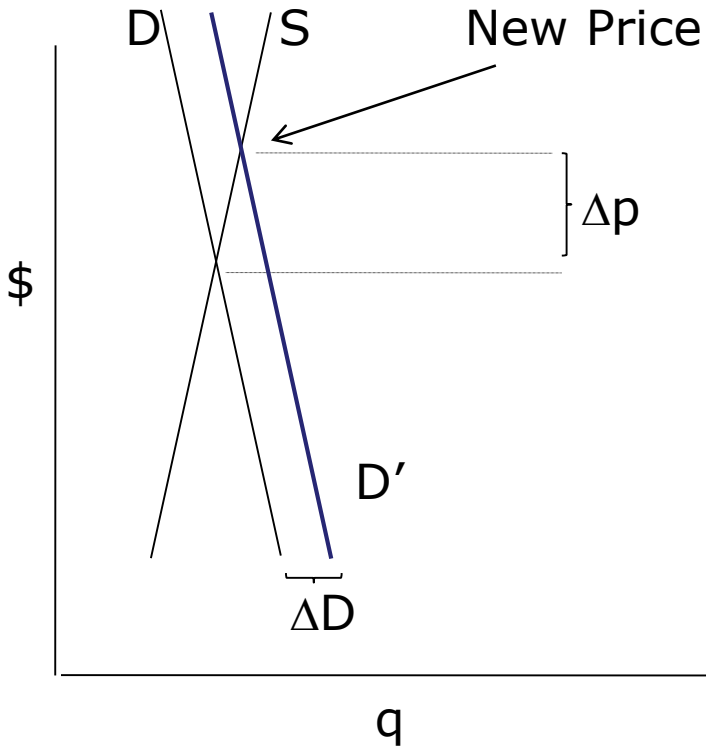
GSCI/S&P500 Ratio: Equities Expensive, Commodities Cheap? 13



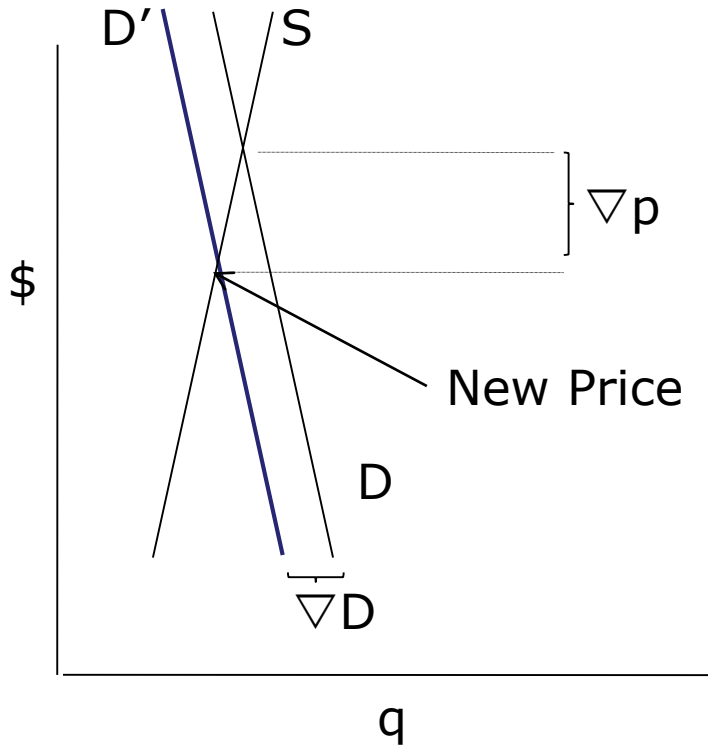
- In a historical context, the relative valuation of commodities to equities seems extremely low.
- In relation to the S&P500, the GSCI commodity index is currently trading at the lowest level in 50 years. Also, the ratio sits significantly below the long-term median of 4.1.
- Following the notion of mean reversion, we should be seeing attractive investment opportunities.

Natural resources offer opportunities to value investors

- Business models are ***difficult to conceptualize: most analysts*** don't agree on standard valuation techniques
- The sector is highly fragmented, with hundreds of different companies, not all well followed
- The sector is also heterogeneous: different commodities require very different levels of investment, lead times, etc. Some are much more abundant than others
- Much of the sector needs to be "renewed" all the time, thanks to the depletion of current producers. This ensures a constant "call to markets", which puts investors in a solid position



If both supply and demand are very inelastic, a small increase in demand that cannot be met by supply implies a *huge* increase in price to balance the market



But, if demand drops, so will the price. The very limited storage capacity exacerbates the problem.

- ***Supply***, by its very nature, is the root of wide price fluctuations:
  - Very long lead times
  - Very high sunk costs
  - In some case, very large single increases
- Both supply and demand are very inelastic: any disruption creates strong movements in prices
- Prices are determined in a straightforward way, but there are three very different regimes:
  - Excess capacity (stockpiles)
  - Incentive (normal)
  - Auctioning

Auctioning regime

- Sometimes, supply cannot meet demand, over the short/medium term, at any price. Then, an auction starts
- In an auctioning regime, prices are limited by demand reduction, conservation, and substitution
- For truly inelastic applications, price becomes the marginal cost of substitutive products

Broad universe, broader dynamics

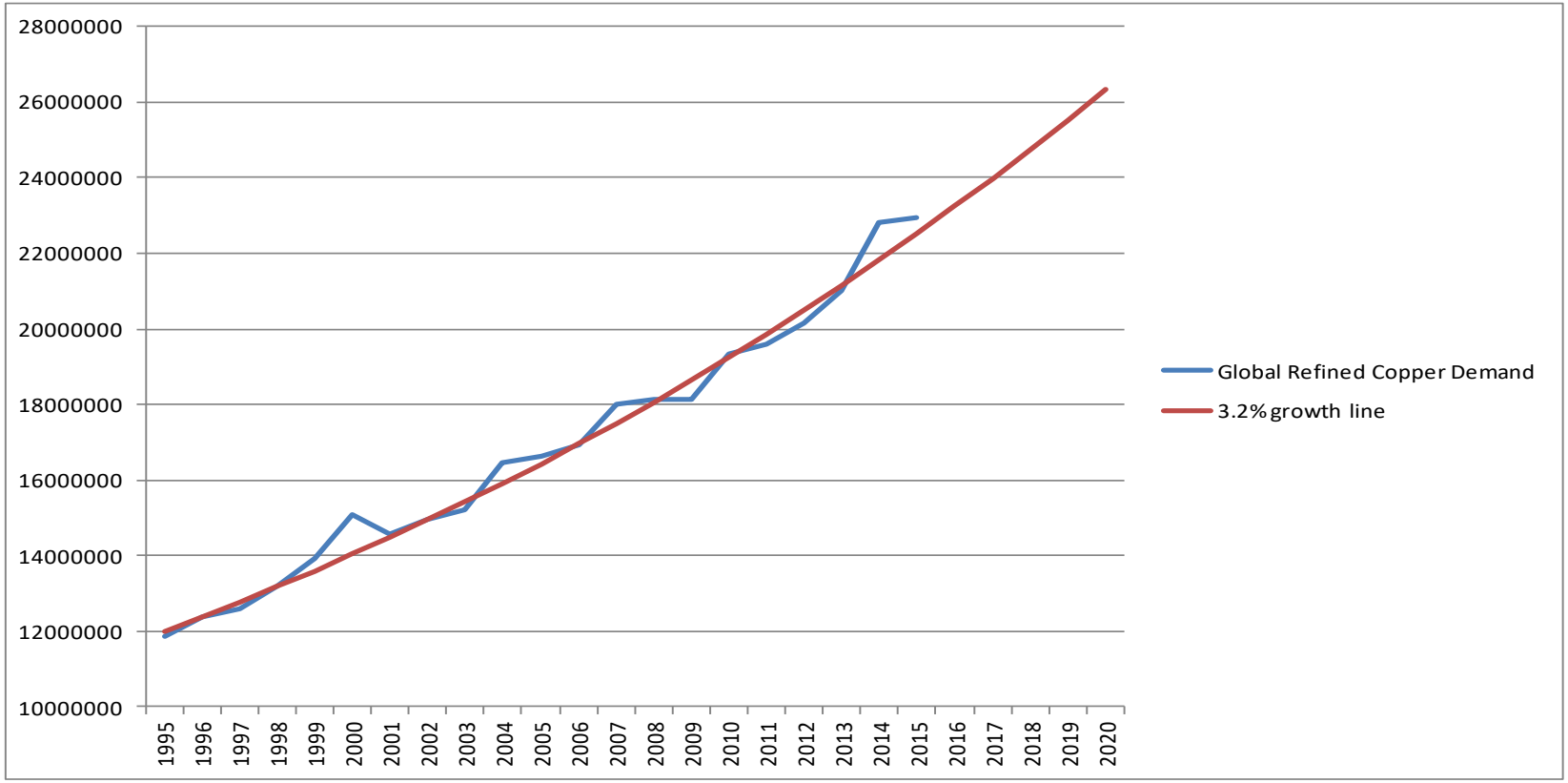
Drillers	Service	Flood
Refineries	Steel	Drought
Pipelines	Smelting	Saltwater/Sweetwater
Transport	Upgrading	Native People
LNG	Storage	Permitting
Products	Food	Environment
Mining	Processing	Landslides
Exploration	Plantation	Fatalities
Production	Agriculture	Costs
Handling	Aquaculture	Strikes
Equipment	Utility	Union
Maintenance	Pulp/Paper	Electricity
Water	Royalties/PSA/Taxes	Infrastructure
Subsidies	Regulation	Weather
Hedge Book	Rehabilitation	Politics

Developments/Expectations in Resources

- Decline rates of major fields/mines are significant. Replacement will have to come from smaller fields/mines, etc.
- The number of Escondida/Ghawar/McArthur-River, etc. is limited. Majors need scale. That's why they become/became (rightly so) more dependent on bulk commodities
- Bulk is a logistic oligopoly. Move tons of "worthless" earth from A to B. Majors are unbeatable
- Majors will not concentrate on exploration but buy. Apart from Energy, it is already very concentrated. Targets will include leaders in "minor" commodities (Potash, Cameco, etc.)
- Given the already spent dollars, replacement values, etc., buying will be much cheaper than exploring/developing.
- "Midcap" value is in commodities that are scarce, but not scarce enough. It needs to be producible on industrial scale/approach. Diamond pipes/gold orebodies are often too scattered/scarce/unreliable, etc.
- Risk of change in global power? Syria, Russia, China, Iran, etc. Chinese/Russian/Indian companies might challenge the existing landscape (Rosatom, Areva…)
- Oil majors are rather defensive stocks. PSAs work as cap/floor on revenues. They outperform in bear markets but don't follow crude in bull markets
- Hedge book might become a big problem for frackers. There are going to be new Ashanties.

Demand is more stable than perceived

Copper apparent demand over the past 20 years shows a trend growth of just above 3%, in line with the growth of the global economy.



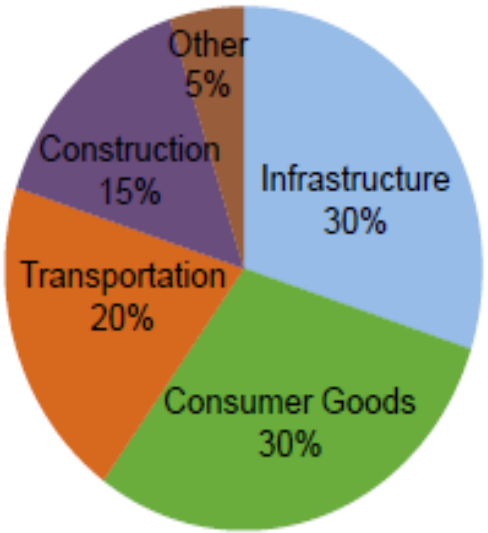
Even on the very long term

Chinese zinc usage will rise

Chinese Zinc Demand to Remain Strong

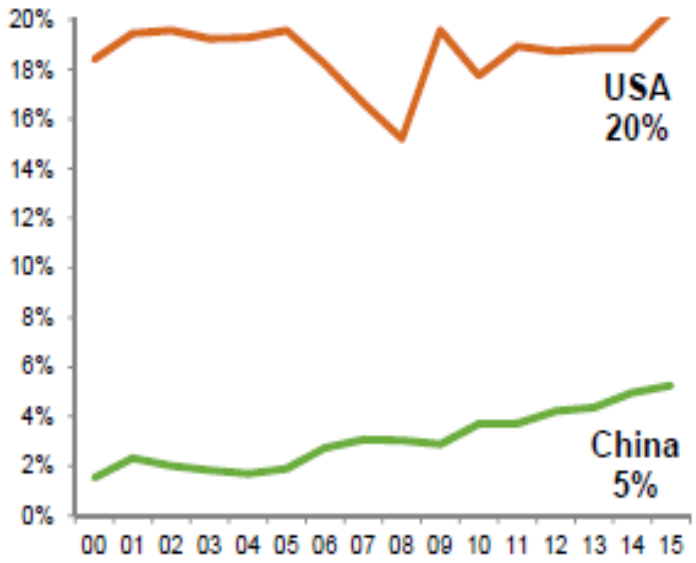
Teck

China Zinc Demand



Source: Teck

Galvanized Steel as % Crude Production



Source: Teck

If China were to galvanize crude steel at half the rate of the US using the same amount of zinc/tonne, a further 2.1 Mt would be added to global zinc consumption

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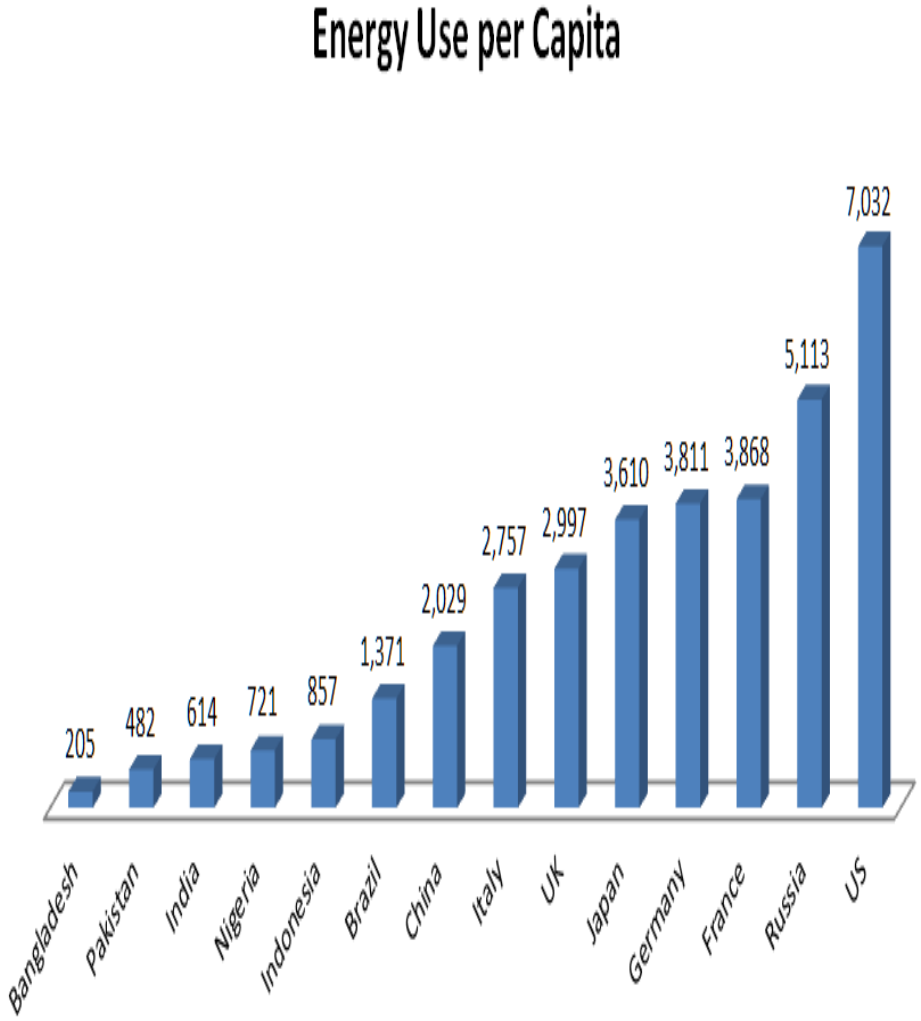
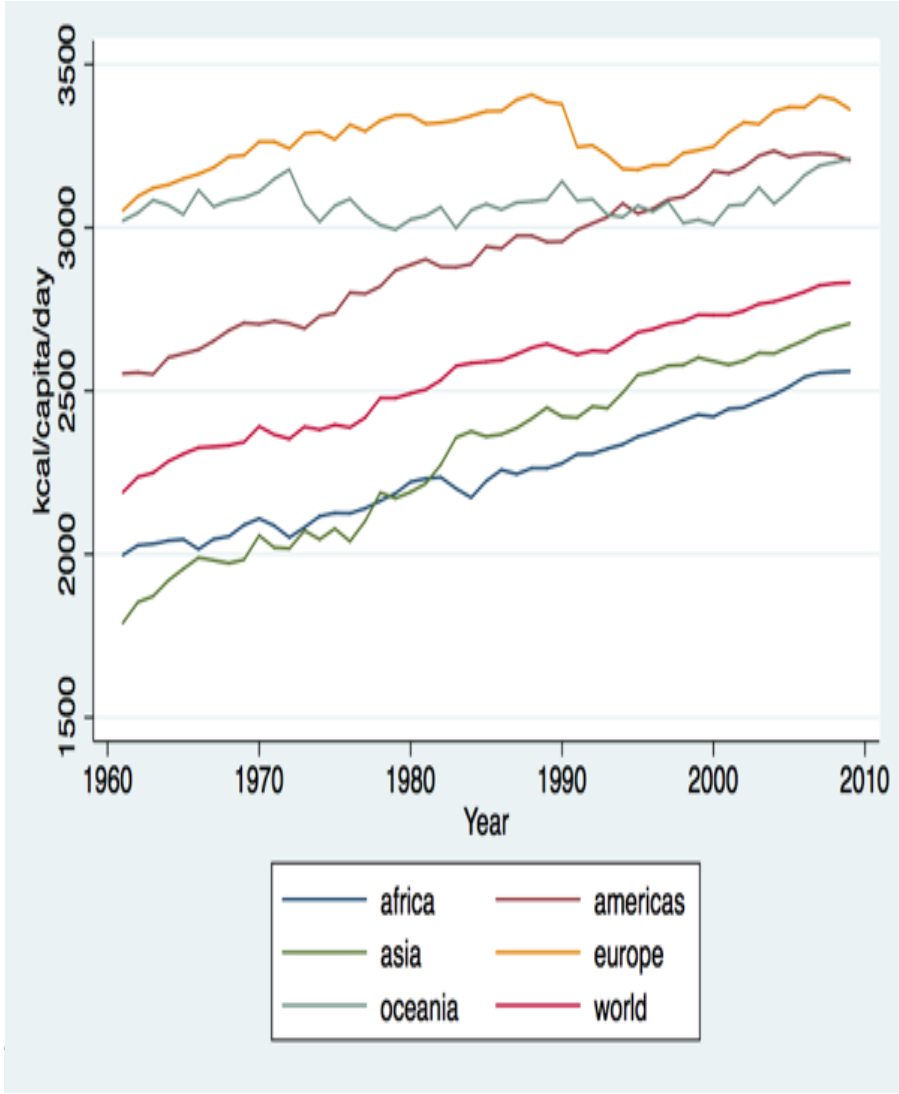
Usage per capita all the same story



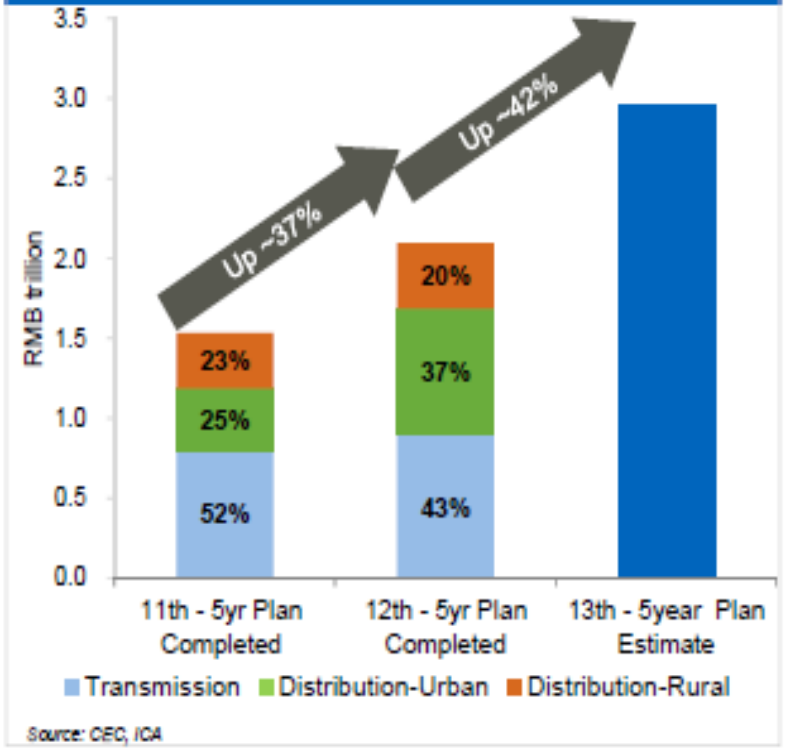
Source: Worldbank 2011



Chinese Copper Demand to Remain Strong

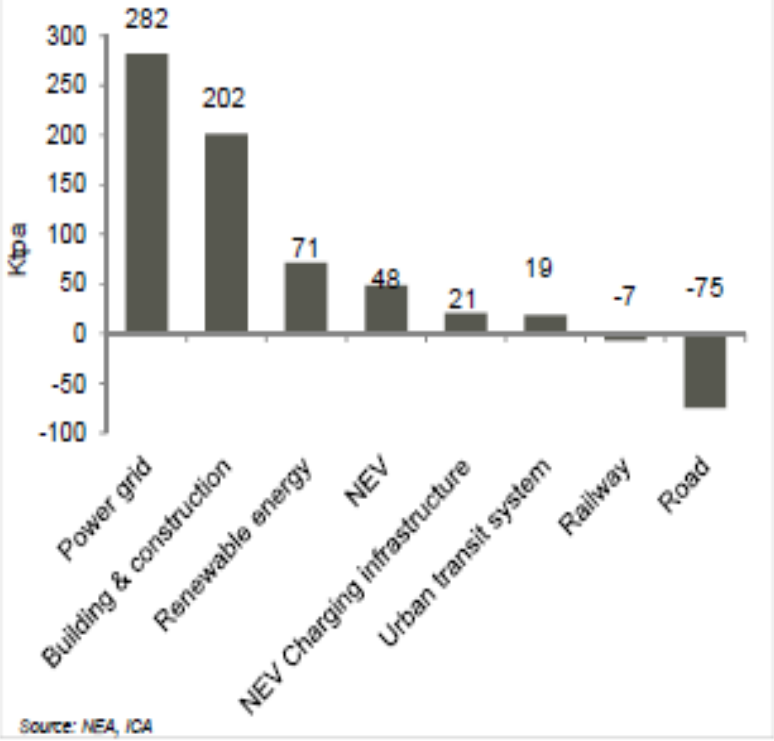
Teck

Significant Power Grid Investment



Source: CEC, ICA

Potential Annual Growth in Most Sectors



Source: NEA, ICA

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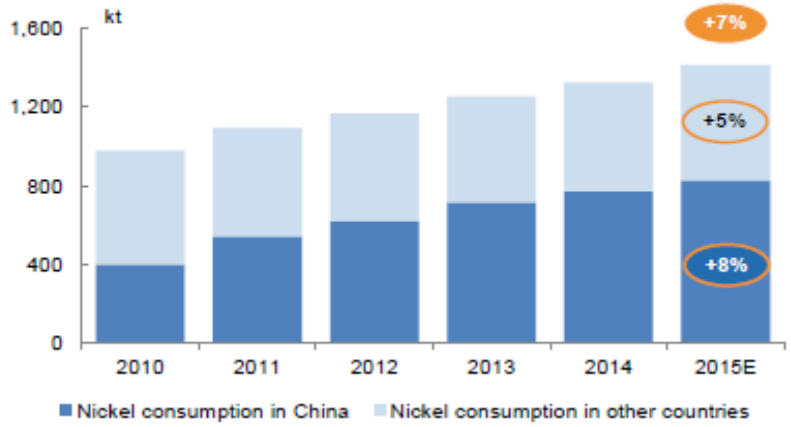
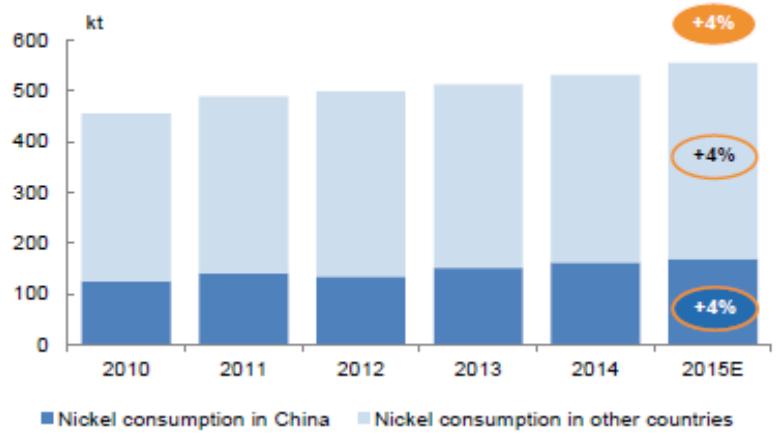
Bear market rather due to destocking than demand

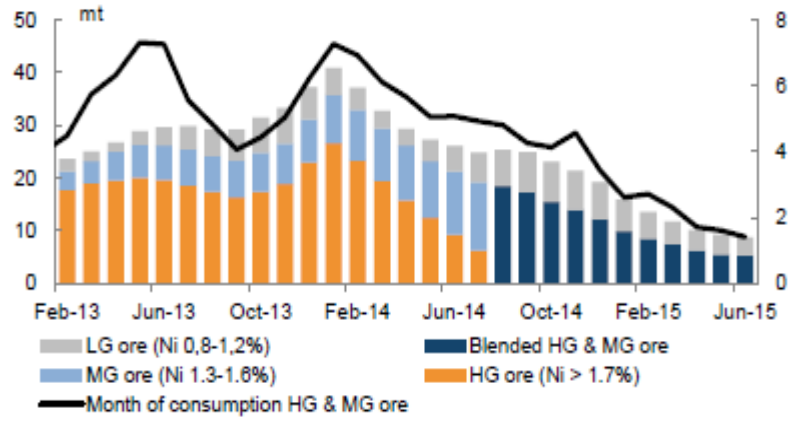
Primary Nickel Consumption (Stainless Steel)



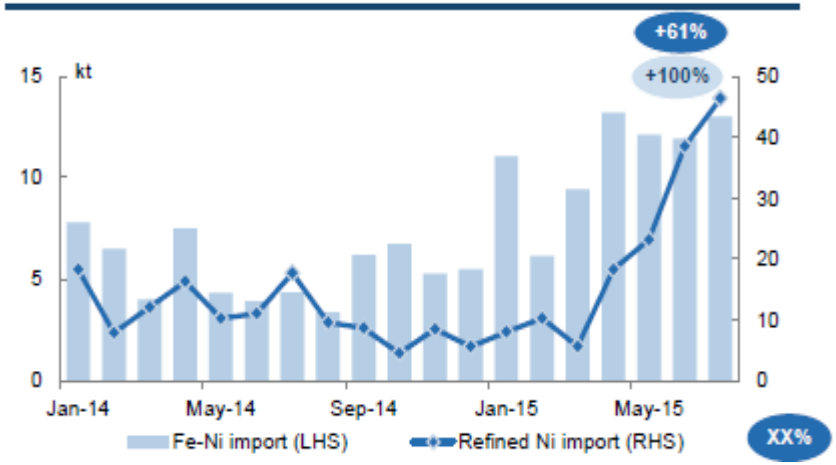
Primary Nickel Consumption (Non-Stainless Steel)



Chinese Ni Ore Inventories: High&Medium Grade Ore – Just Over a Month of Consumption Left

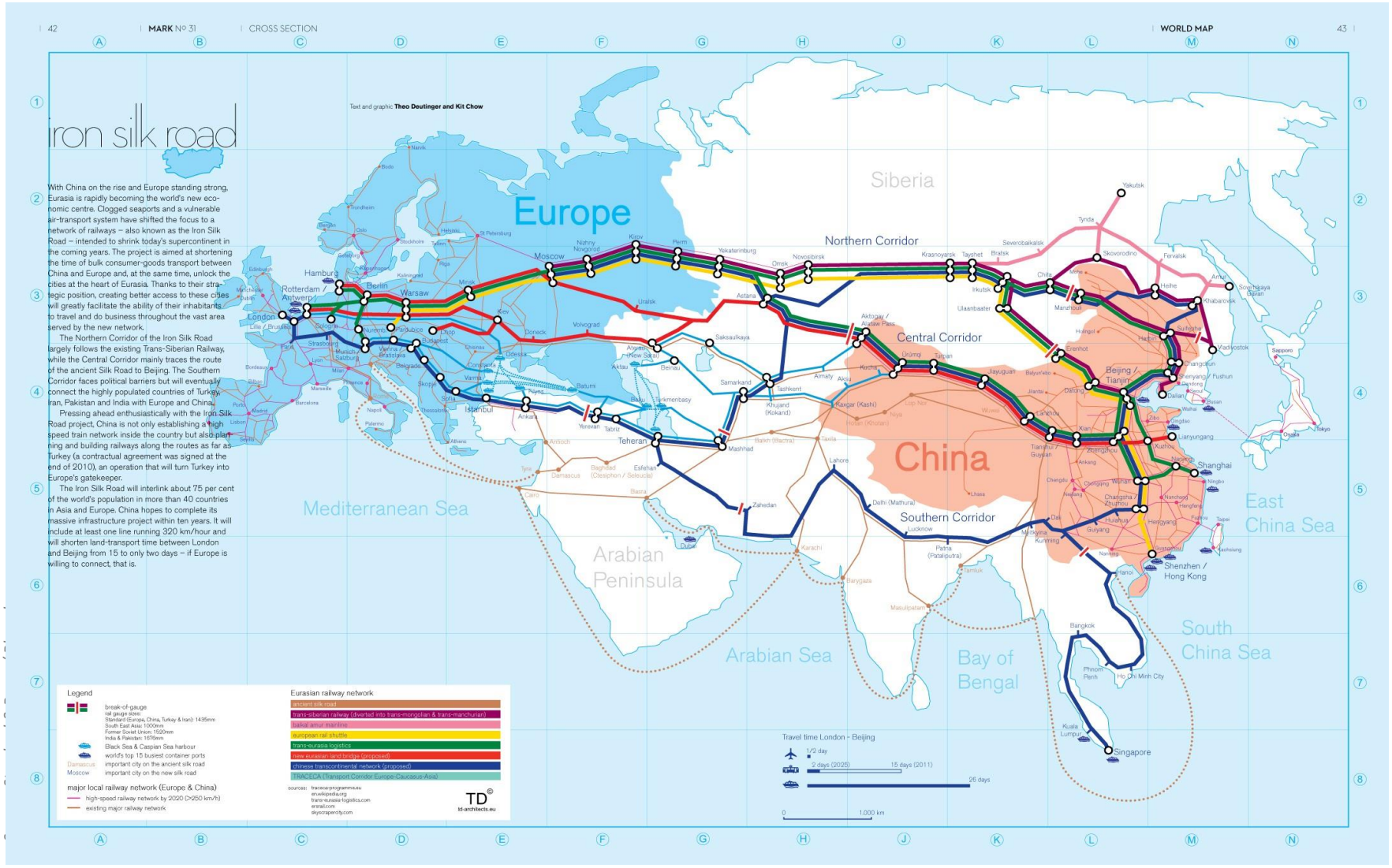


Strong Increase of Fe-Ni and Re-Ni Imports to China



Source: Norilsk Nickel

New Silk Road

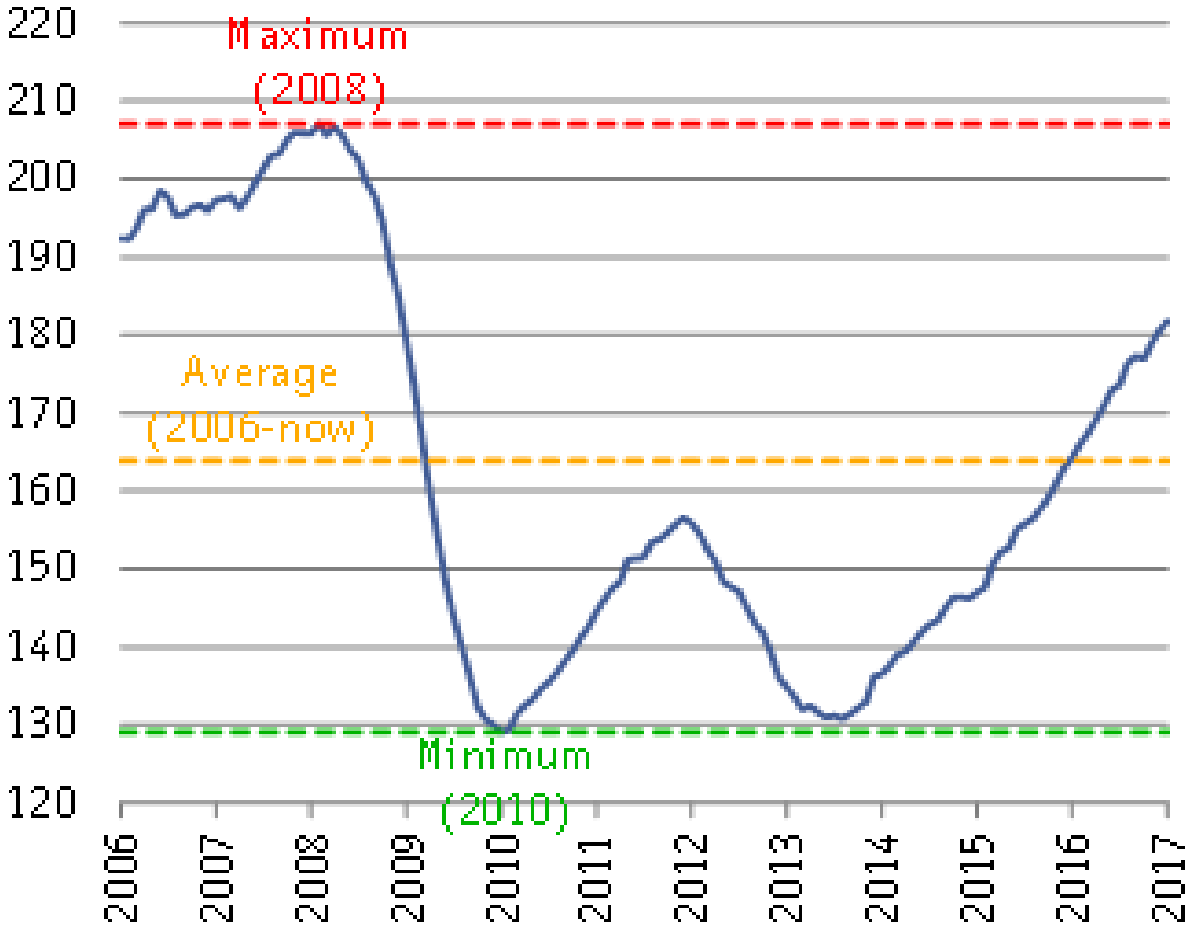


What is it all about?

- The concept was unveiled by Xi Jinping in September 2013.
- China's Marshall Plan to aid development in Central Asian countries and build relations with its neighbors.
- "One Belt, One Road" is the name of the development strategy to revive the land and maritime Silk Roads dating back to the days of Marco Polo. "Belt" refers to a vast area in Eurasia, and "Road" stands for the sea route that links China's coastal cities to Africa and the Mediterranean, passing key ports in Southeast Asia and the Suez Canal.
- The world's largest infrastructure project ever. A huge free trade area linking together 65 countries and 5 billion people.
- It challenges the old hegemony of the Atlantic alliance (ports, channels, bottlenecks, etc.).
- New Development Bank, Silk Road Fund, FTA's, Dying Petro$, Ruble/Yuan currency swaps, Ruble priced Urals futures on SPIMEX (St. Petersburg Mercantile Exchange), gold flows east, military supremacy follows economic power, Yuan/IMF SDR's, Yuan convertibility/Reserve currency.
- Western Central bank will be forced to buy Yuan.

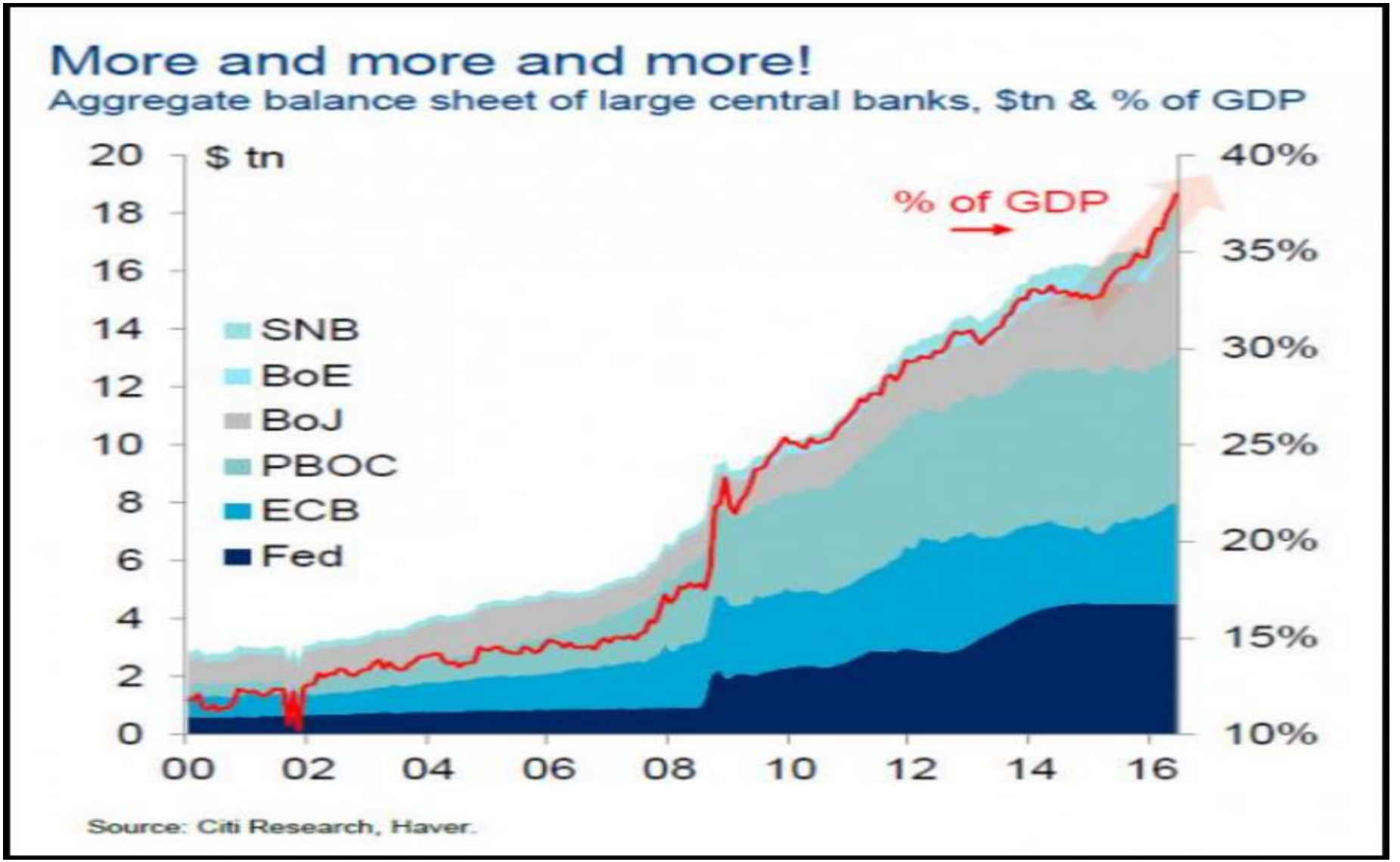
European economy is stronger than perceived

12M moving avg. monthly CV registrations (units '000)



Monthly commercial vehicle registrations in Europe are growing 8% on the back of recovery in South Europe (double digit growth).

The rock-steady beat of madness: One step beyond!



It is not just about QE, but repo eligibility

QE/helicopter money, next steps?

- The printed money has to reach the street. Deficit spending, tax breaks, IMF infrastructure funds, collateralized Italian MBS, Govt. debt/Regional debt/Municipal debt/packaged student loans/car loans, etc.

- Cantillon Effect. Who gets NIRP and ZIRP first? The more the better?

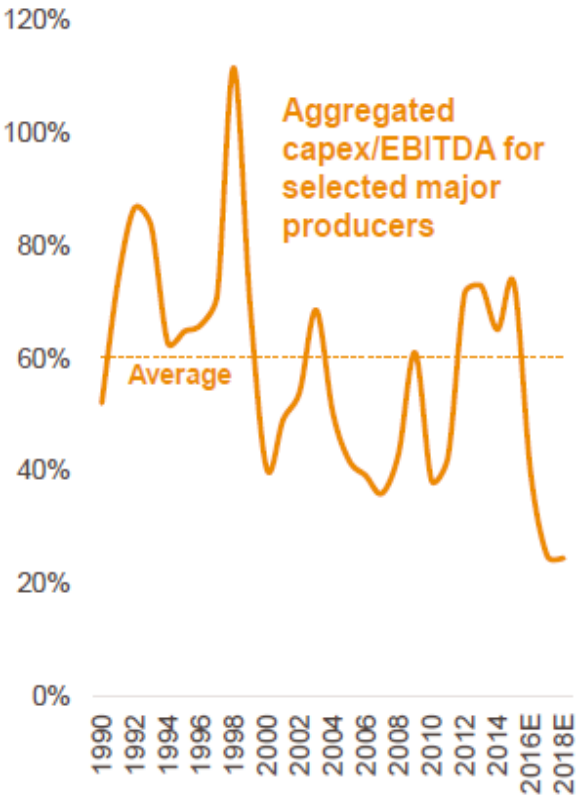
- Renzi's masterplan: 95 Billions of infrastructure investments in Mezzogiorno until 2023. Not too difficult to finance with zero debt costs…

- Infrastructure/"social" infrastructure/"security/defense" infrastructure…

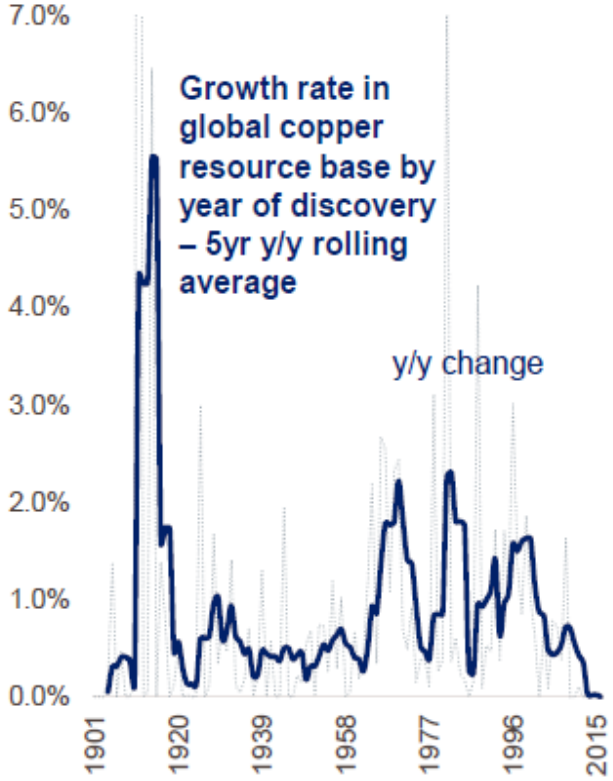
Sustaining copper mine supply is progressively more challenging

Mined copper grades continue to decline[1] …

Sector reinvestment has collapsed [1,2] …



Exploration has been increasingly unsuccessful [1] …



Source: (1) Bernstein European Metals and Mining, 8 March 2017, Copper & Gold – Not a production wall … It's a production cliff! (2) Selected producers includes Rio Tinto, BHP Billiton, Anglo American, Glencore, Vale, First Quantum, South 32, Antofagasta. Estimates for 2016-2018 based on company guidance and approved projects only.

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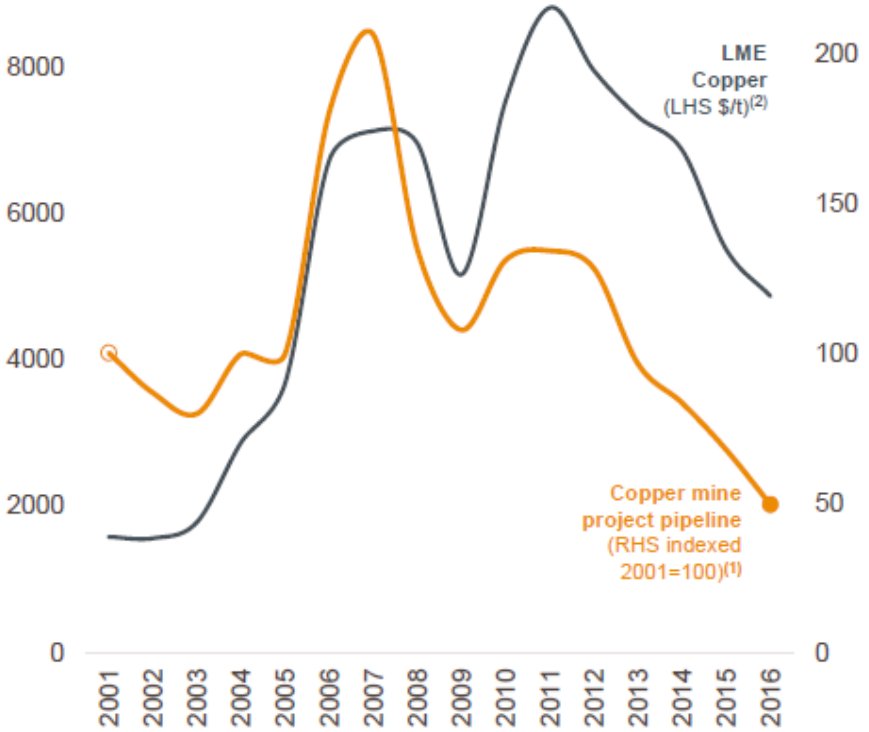
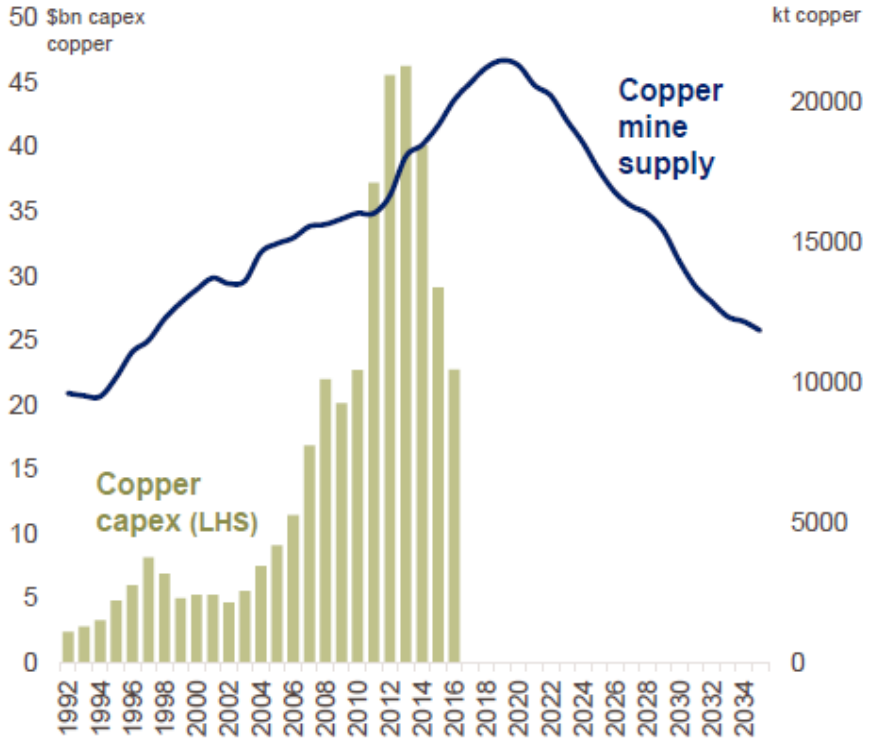
Project pipeline below pre-supercycle lows!

Sustaining copper mine supply is progressively more challenging

Copper mine project pipeline now below pre-supercycle lows



Supply is peaking in 2018 and declines thereafter at 3.5% CAGR with no reinvestment (3)



Source: (1) Copper mine project pipeline comprises the total production volume of projects categorised as highly probable and probable by Wood Mackenzie's Global copper long-term outlooks from 2001 to 2016, indexed change from 2001. (2) Annual average LME cash copper price, source Wood Mackenzie and Bloomberg. (3) Bernstein European Metals and Mining, 8 March 2017, Copper & Gold – Not a production wall ... It's a production cliff!

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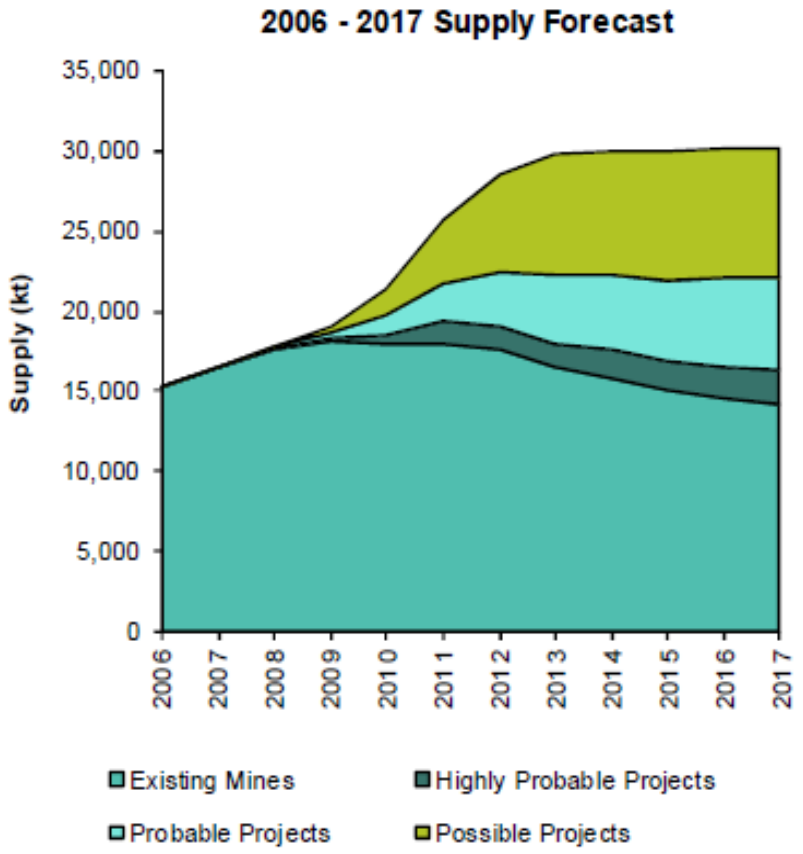
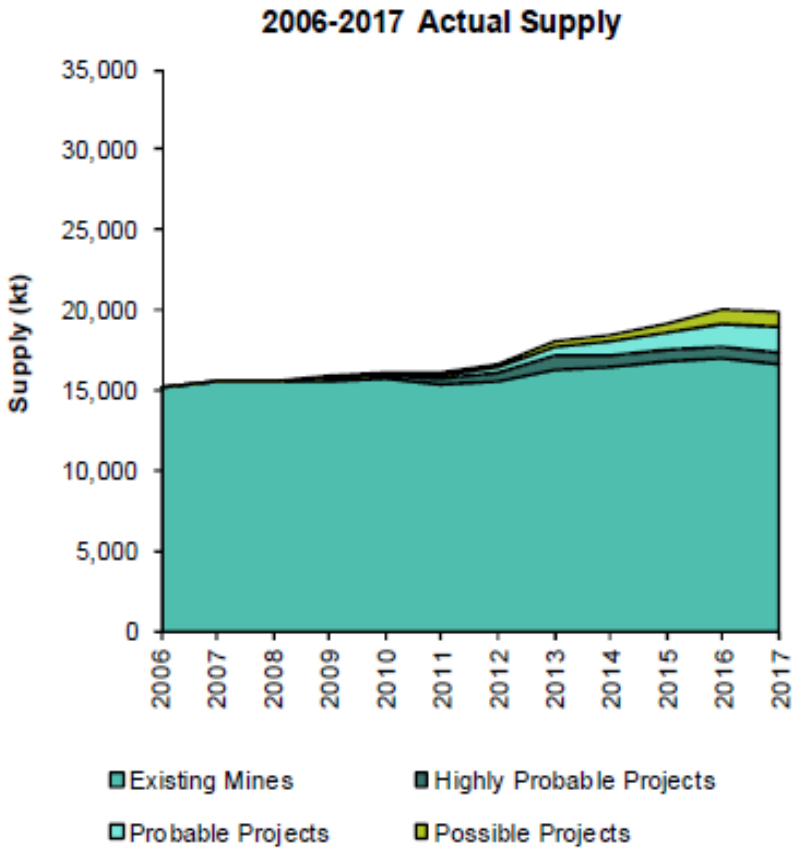
Mediocre supply response in relation to capex

EXHIBIT 4: **In 2007, the maximum 2017 run-rate supply was estimated at 30.2Mt, +99% growth (+6.4% CAGR) generating fears about a possible "wall of supply"...**



Source: Brook Hunt, Wood Mackenzie, Bernstein analysis

EXHIBIT 5: **... when in reality, despite the copper price hitting US$10,000/t in 2011, supply actually grew just +31% (+2.5% CAGR).**



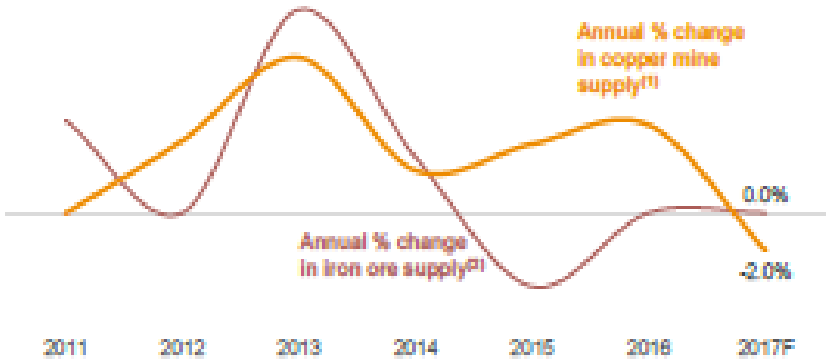
Source: Brook Hunt, Wood Mackenzie, Bernstein analysis

But supply is going to decline instead

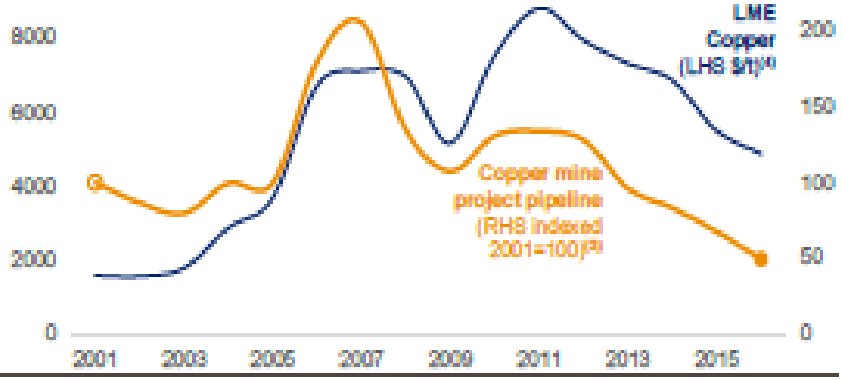
Rising supply risks are expected to underpin higher prices

- **Twenty-four months of low prices have induced stresses on the supply side:**
  - voluntary supply cutbacks
  - involuntary supply cutbacks (strikes/technical issues)
  - Chinese supply side structural reforms
  - high grading to enhance cash flows
- **Commodity market fundamentals are improving against a backdrop of:**
  - better than expected demand
  - limited, if any, inventory build through the trough of the cycle
- **Reduced sector reinvestment is laying the foundation for sustainably better sector returns**
  - From a peak of c.$71bn in 2012, diversified's total capex shrank to an estimated $25bn in 2016[5]
  - Industry is already struggling to overcome aging mines, falling grades, energy/water/infrastructure shortages as well as "social licence to operate" challenges
  - The pipeline of highly probable and probable copper projects at the end of 2016 is now almost half of that seen pre-super cycle

Increasingly favourable fundamentals for copper ...



... mine project pipeline at lowest level in 16 years



Notes: (1) Wood Mackenzie Global copper short-term outlook January 2017. (2) Source Wood Mackenzie. (3) Copper mine project pipeline comprises the total production volume of projects categorised as highly probable and probable by Wood Mackenzie's Global copper long-term outlooks from 2001 to 2016, indexed change from 2001. (4) Annual average LME cash copper price, source Wood Mackenzie and Bloomberg. (5) Source Morgan Stanley and Citi Research.

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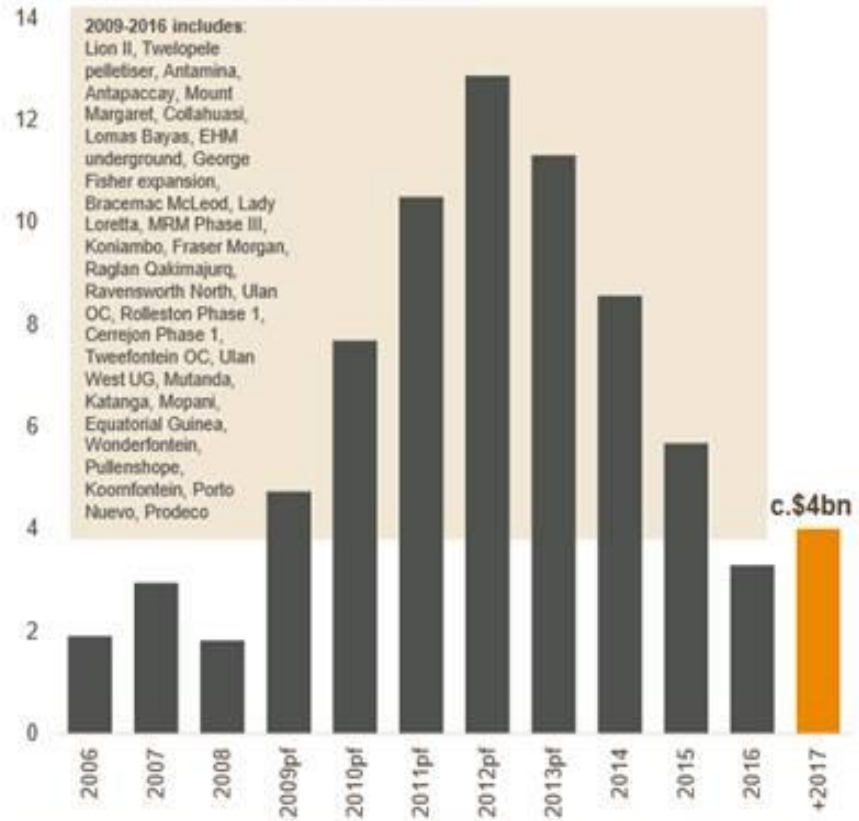
Mining capex has bottomed

Industrial capex spend has normalised

Total Industrial capex ($bn)[2]



- **A well capitalised business requiring modest capex going forward**
  - More than $38 billion of expansionary capital (c.$64bn total capital) invested in the combined Glencore/Xstrata asset base since 2009
  - Heavy (mostly Xstrata's) capex program now essentially complete
  - Technology/infrastructure upgrades at Katanga and Mopani provide permanent capex (and opex) reductions
- **2016 Industrial capex[1] declined to $3.4bn from $5.7bn in 2015**
- **2017 Industrial capex[1] guidance of c.$4bn**
  - Increase reflects preparations for Katanga Whole Ore Leach commissioning by end 2017, some incremental oil drilling, coal mobile equipment purchases and Mopani's concentrator/shaft sinking progression
- **Total Industrial capex guidance at c.$4bn per annum over the next three to five years**
  - Including c.$3bn of sustaining capex
  - No large greenfield expansion projects

Notes: (1) Total Industrial capex including JV capex and capitalised interest, excluding marketing capex of $138M in 2016 and c.$70M in 2017F. (2) Glencore total Industrial capex 2006 to 2008, combined Glencore and Xstrata total Industrial capex from 2009. Excludes Las Bambas capex from 2010 to 2014.

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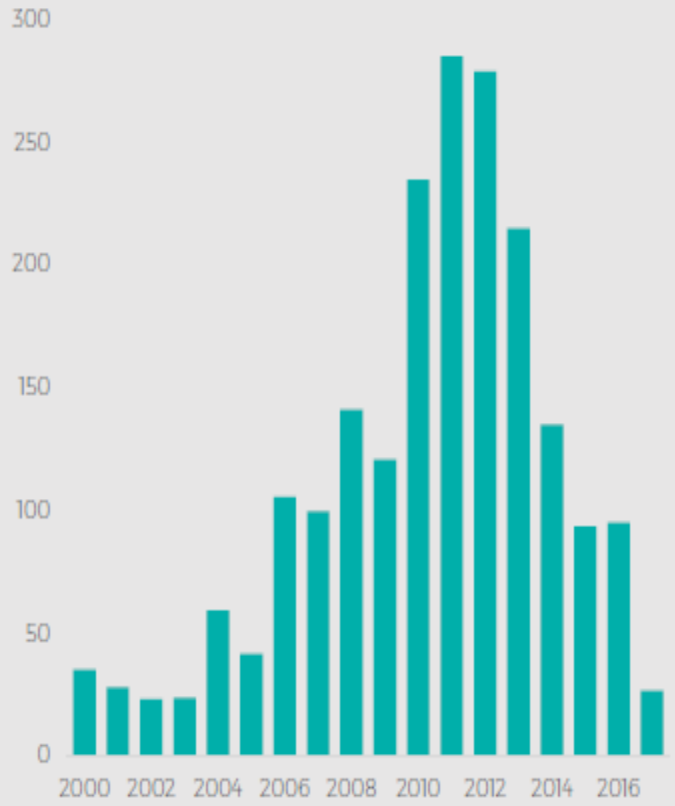
Most stuff already in deficit

Capex has been slashed ...

Capex announcements (not annual spend)[1] ($bn)



... underpinning the shift into deficit for commodities

Cumulative change in annual metal balance (kt)[2]

Bank of America Merrill Lynch
2018 Global Metals, Mining & Steel Conference

Notes: (1) Source: Citi Research (2) Wood Mackenzie: copper, zinc. Glencore estimates nickel

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It will take a lot of time and a lot of money...

Sector capex plans have risen beyond trough levels but still remain low, reflecting:

- Modest capex inflation
- Remaining spend on legacy projects
- Catch-up spending
- Mine-life extensions for current operations

Volume growth challenges - large increases in capex unlikely

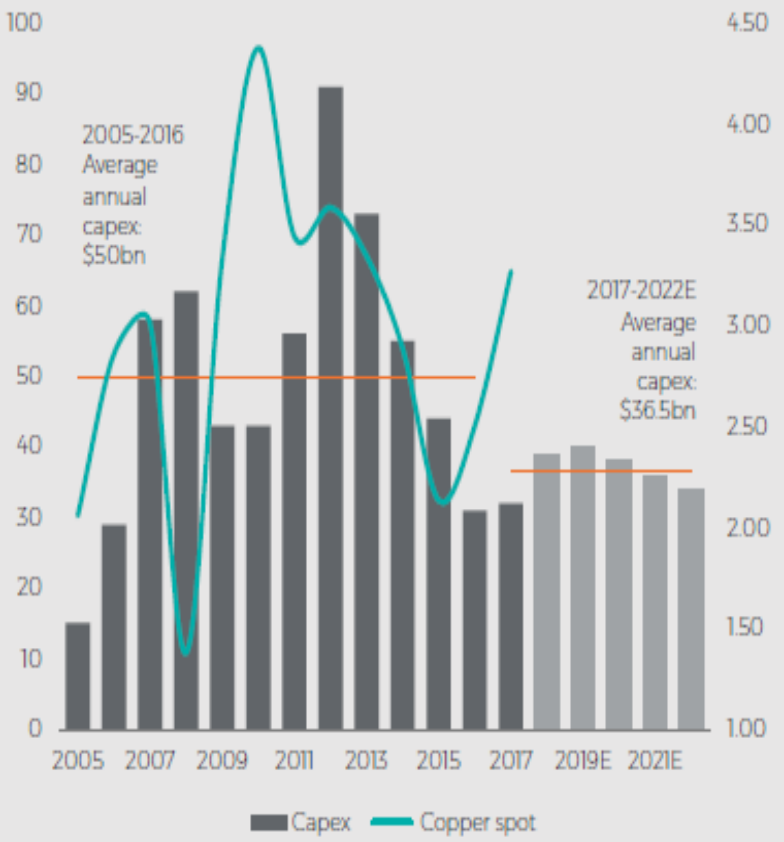
- More prudent/shareholder-friendly capex philosophy
- Lack of 'shovel ready' projects – particularly in copper/zinc/nickel/cobalt
- New growth will require miners to operate in 'challenging' geographies
- Increasing 'social licence to operate" complexity for greenfield project approvals

Capital efficient growth is key

- Sensible organic reinvestment vital to underpin long-term cash flows
- Investing with consideration for the global supply/demand balance

Lower forecast capex, but can it increase dramatically?

Total sector capex ($bn) vs copper spot price ($/lb, RHS)[1]



Bank of America Merrill Lynch
2018 Global Metals, Mining & Steel Conference

Sources: (1) Total sector capex from Morgan Stanley research, includes 29 European mining and steel companies and Morgan Stanley estimates to 2022E. Copper price from Bloomberg

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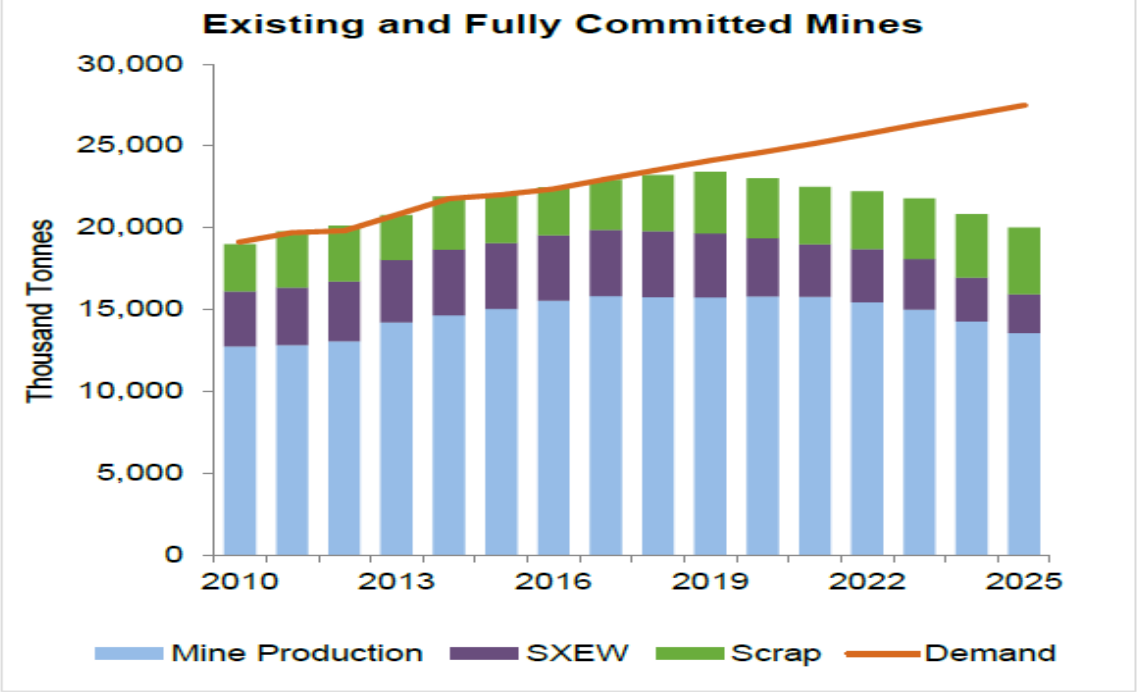
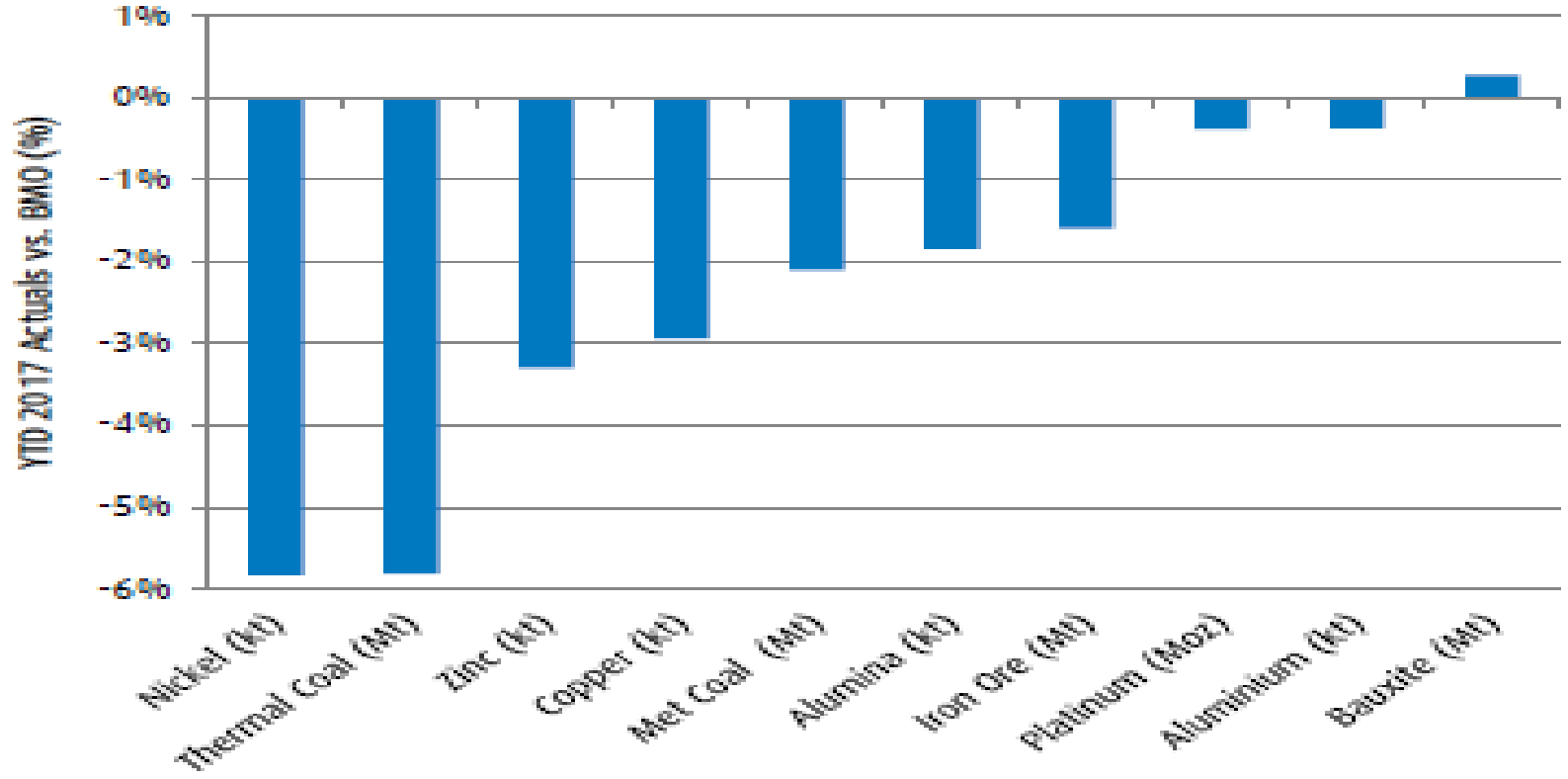
One has to adjust to the other

- To incentivize new capacity prices have to go at least 50% higher
- Even after getting into an incentive pricing regime, projects take years to build



With rising prices, production misses go up not down

Exhibit 1: Production Misses Adding Up

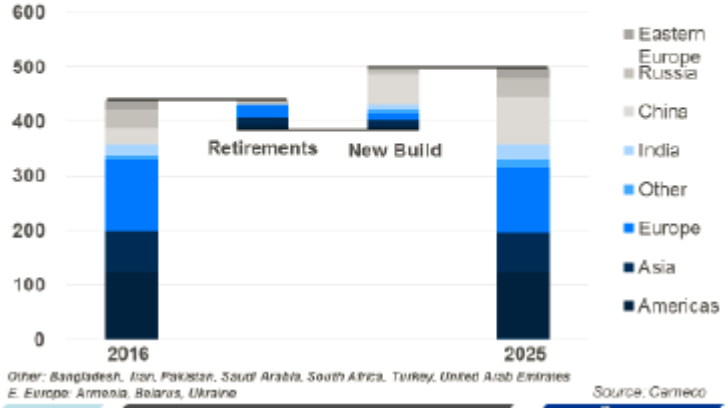


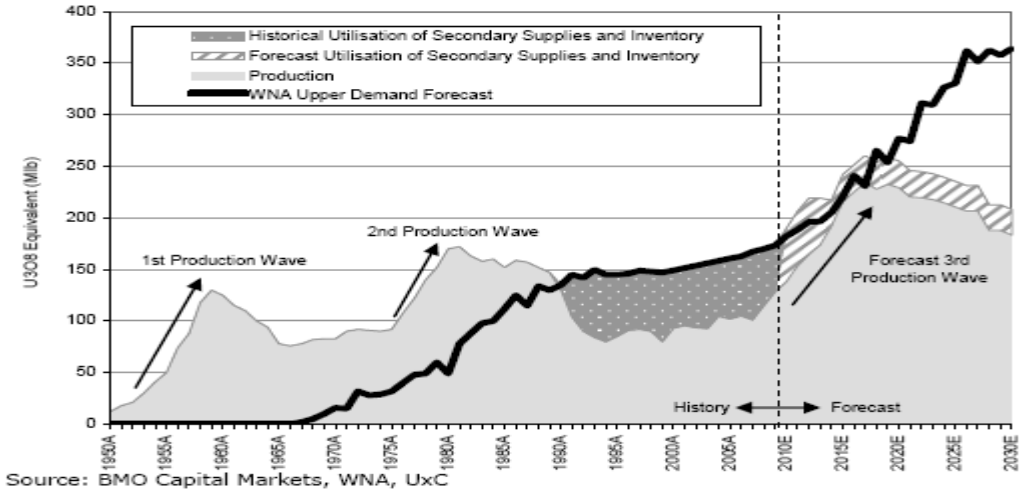
Source: BMO Capital Markets

Diminishing secondary sources will lead to supply gap

Substantial Reactor Growth

- 64 reactors under construction today
- 65% expected to come online over next 5 years

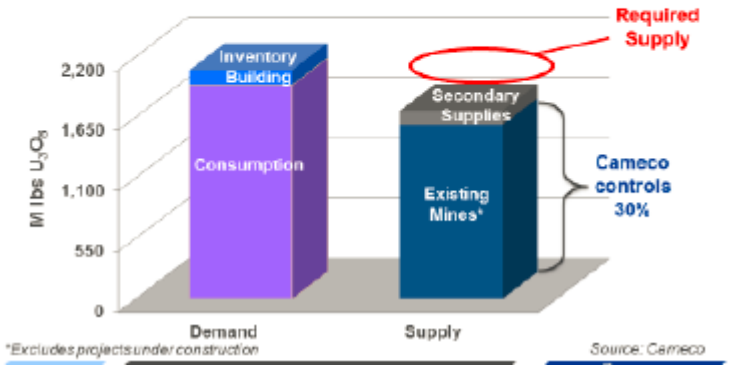




New Uranium Supply Needed

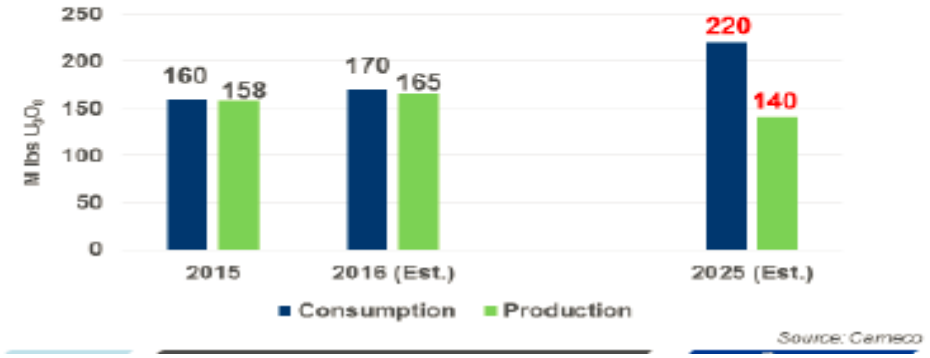
2016 – 2025

- 10% of demand will need to be filled by new supply
- Investment in new production not occurring today

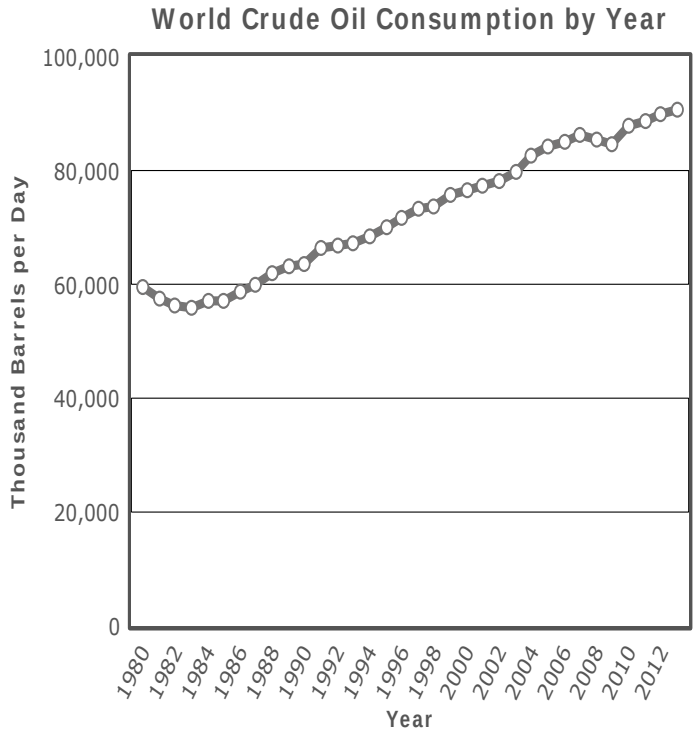


Consumption Outpaces Production

- Only 35% of U consumed over the last three years has been replaced under long-term contracting

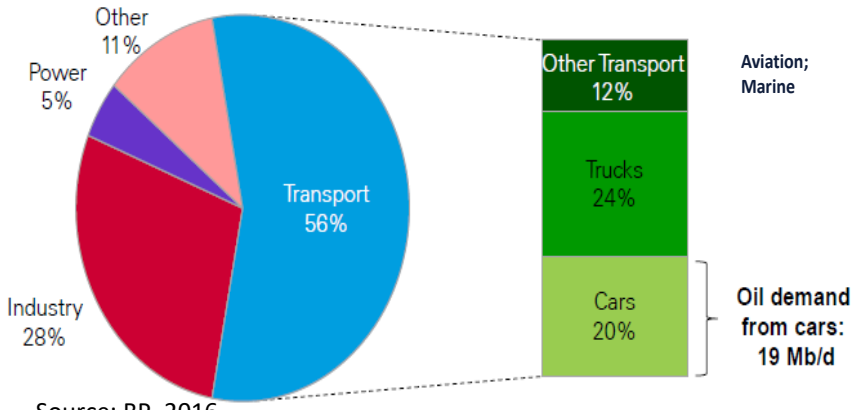


Oil demand is very stable



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

Oil: the world will need 100m barrels a day by 2020

- The world consumed 95m b/d oil in 2015A
- 100m b/d in 2020, with demand growth at 1.0% p.a., in line with historical averages
- Growth only in developing countries. OECD demand is already flat or decreasing
- Depletion is at least 3% per year so we need around 18m b/d new production assets to offset it
- Electric Vehicles, CO2 emission regulation will not have a large impact over 2020

Exhibit 42 Our 2020 Global Oil Demand Forecasts Are 750 mb/d Below IEA's Medium-Term Outlook

	Morningstar		IEA (Feb 2016)		
Non-OECD Demand (mmb/d)	2020E	2015-20 CAGR	2020E	2015-20 CAGR	Variance mmb/d
China	12.9	2.8%	13.2	3.3%	(0.31)
India	4.9	4.5%	4.9	4.3%	0.05
Other Asia	9.9	2.8%	10.0	3.0%	(0.10)
Middle East	9.1	2.1%	9.2	2.4%	(0.14)
Brazil	3.0	-0.9%	3.1	-0.6%	(0.06)
Latin America (ex Brazil)	3.8	1.4%	3.9	1.7%	(0.06)
Africa	4.8	3.4%	4.8	3.4%	-
Former Soviet Union/Europe	5.9	1.0%	5.9	1.1%	(0.04)
Non-OECD Demand	**54.3**	**2.3%**	**55.0**	**2.6%**	**(0.66)**
OECD Demand	45.4	-0.3%	45.5	-0.3%	(0.08)
Total Global Demand	**99.8**	**1.1%**	**100.5**	**1.2%**	**(0.75)**

Source: IEA, Morningstar

Demand in developing countries keeps growing

- Non OECD demand has been steadily growing for the past few years, around 3%+ per year
- While OECD demand has been flat to slightly down since the late 90s
- We see no reason for a change in the next few years, a least to 2020. China, India, Indonesia… even Brazil in deep crisis should continue to grow car and transport penetration

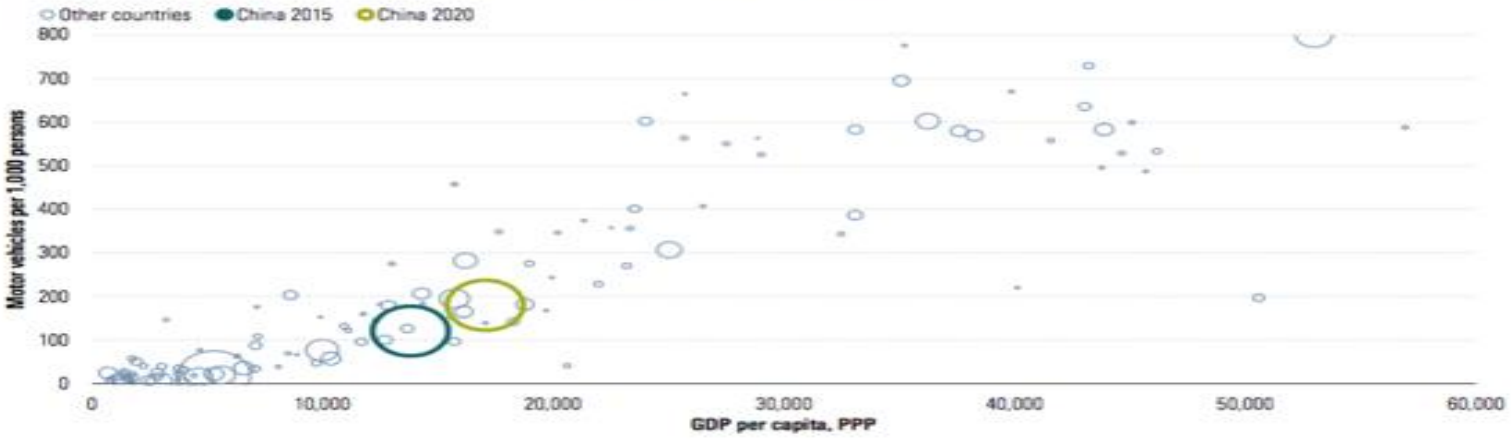
Exhibit 40 Non-OECD Countries Driving All Oil Demand Growth During the Past Decade

Source: EIA, IEA, Morningstar

Transport penetration rises

- Transport accounts for ca. 2/3 of oil products demand and transport is very much related to GDP growth. Very steady growth excluding large crisis
- China, and further down the road India, and most developing countries will continue to increase motor vehicle penetration. CHI now has around 15% penetration in motor vehicles per person vs 80%+ in most advanced economies.
- China sells a similar number of new cars than the US and growth has been monitored by the CHI authorities (licenses, pollution, …)

Exhibit 50 Chinese Motor Vehicle Ownership Is Well Below That of High-Income Countries*



Source: World Bank, International Organization of Motor Vehicle Manufacturers, China Association of Automobile Manufacturers, National Bureau of Statistics, CEIC, Morningstar
*** Bubble size denotes population

Supply has surprised the world bringing 5m b/d from scratch

- Growth in supply has been almost entirely coming from shale oil (US): +5m b/d in 5 years (debt bubble)
- The rest (conventional) has not been able to grow, despite high oil prices. Soon, capex collapse will take its toll and conventional (85% of total) production will start to decline
- Given stronger demand due to economic development, crude is already in deficit, probably 1-2 mio b/d.

Appendix A Global Supply/Demand 2010-20E

Global Supply (mmb/d)	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
North America	14.0	14.5	15.8	17.2	18.8	19.9	19.3	19.4	19.9	21.4	22.8
Of Which: US	7.8	8.1	9.1	10.3	11.8	12.9	12.5	12.6	12.9	14.2	15.5
Of Which: Tight Oil	0.5	0.8	1.6	2.6	3.7	4.4	3.9	3.7	4.0	5.2	6.4
Of Which: Tight Oil/Shale NGLs	0.8	1.1	2.3	3.6	5.1	6.1	5.6	5.6	5.9	7.3	8.7
Russia	10.5	10.6	10.7	10.9	10.9	11.1	11.1	10.9	10.9	10.8	10.8
Non-OPEC ROW	23.2	22.7	21.9	21.6	21.8	22.1	21.7	21.5	21.5	21.5	21.5
Biofuels/Processing Gain	4.1	4.0	4.0	4.2	4.4	4.5	4.7	4.8	4.8	4.9	5.1
Total Non-OPEC Supply	51.8	51.8	52.5	53.8	55.9	57.6	56.9	56.6	57.2	58.6	60.2
Middle East OPEC	19.8	21.4	22.0	21.7	22.1	23.3	24.5	24.9	24.7	24.6	24.5
ROW OPEC	10.3	9.5	10.3	9.5	9.0	8.7	8.5	8.2	8.1	8.0	7.8
OPEC NGLs/Other Liquids	5.2	5.8	6.2	6.5	6.5	6.7	6.9	7.0	7.1	7.1	7.1
Global Liquids Supply	**87.2**	**88.5**	**90.9**	**91.5**	**93.5**	**96.3**	**96.7**	**96.8**	**97.0**	**98.3**	**99.7**

Global Demand (mmb/d)	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
U.S.	19.2	18.9	18.6	18.9	19.1	19.4	19.5	19.5	19.5	19.5	19.4
Europe	14.5	14.3	13.7	13.7	13.4	13.7	13.7	13.6	13.5	13.4	13.3
Japan	4.4	4.5	4.7	4.6	4.3	4.1	4.1	4.0	4.0	3.9	3.9
Other OECD	8.0	8.1	8.9	8.9	8.8	9.0	8.9	9.0	8.8	8.9	8.9
OECD Demand	**46.2**	**45.7**	**46.0**	**46.1**	**45.7**	**46.2**	**46.2**	**46.1**	**45.8**	**45.7**	**45.4**
China	9.1	9.5	9.8	10.1	10.6	11.2	11.5	11.8	12.2	12.5	12.9
India	3.3	3.5	3.8	3.8	3.8	4.0	4.2	4.4	4.6	4.8	4.9
Other Asia	7.1	7.2	7.8	8.1	8.3	8.6	8.9	9.1	9.3	9.6	9.9
Middle East	7.4	8.0	7.7	7.9	8.0	8.2	8.3	8.5	8.6	8.8	9.1
Brazil	2.7	2.8	3.0	3.1	3.2	3.2	3.1	3.0	3.0	3.0	3.0
Latin America (ex Brazil)	3.6	3.7	3.4	3.5	3.6	3.6	3.6	3.7	3.8	3.7	3.8
Africa	3.4	3.3	3.8	3.8	4.0	4.1	4.2	4.4	4.5	4.7	4.8
Former Soviet Union/Europe	5.1	5.4	5.3	5.4	5.6	5.6	5.6	5.6	5.7	5.7	5.9
Non-OECD Demand	**41.7**	**43.3**	**44.6**	**45.7**	**47.1**	**48.4**	**49.5**	**50.5**	**51.7**	**52.9**	**54.3**
Global Demand	**87.9**	**89.0**	**90.5**	**91.8**	**92.7**	**94.6**	**95.7**	**96.5**	**97.4**	**98.6**	**99.8**

Source: IEA, Morningstar

OPEC is not really growing

- OPEC has grown production by 3.5m b/d since 2010 (Saudi Arabia alone 2m b/d)
- OPEC could grow a bit thanks to Iran and Libya (if geopolitics stabilize) and there are 2m b/d spare capacity (maybe…)
- Consensus points to 1.5m b/d production increase in 5 years, when the world needs 5m b/d, net of depletion
- There still is disruption risk in countries such as Venezuela, Nigeria, Angola, Irak, Libya

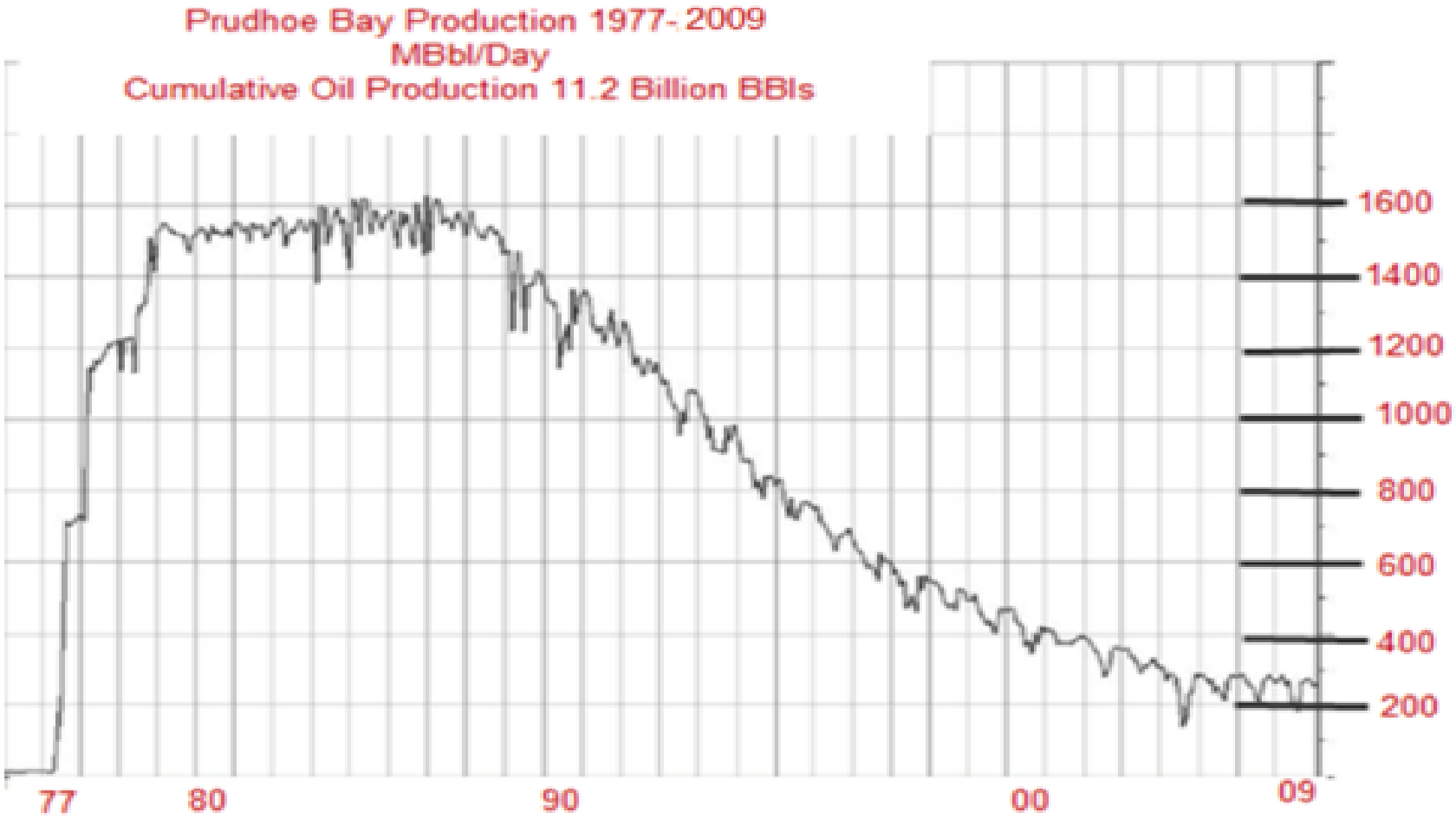
Appendix D OPEC Supply 2020-20E

OPEC Supply (mmb/d)	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E
Middle East OPEC											
Saudi Arabia	8.10	9.04	9.57	9.41	9.52	10.12	10.23	10.15	10.00	10.00	10.00
Iran	3.70	3.58	3.03	2.68	2.80	2.86	3.34	3.63	3.74	3.75	3.75
Iraq	2.37	2.67	2.95	3.08	3.32	3.99	4.36	4.35	4.26	4.20	4.20
United Arab Emirates	2.31	2.51	2.66	2.72	2.75	2.88	2.90	2.95	2.95	2.95	2.95
Kuwait	2.03	2.21	2.46	2.54	2.60	2.74	2.80	2.73	2.63	2.60	2.60
Neutral Zone	0.53	0.59	0.57	0.52	0.41	0.09	0.20	0.44	0.45	0.45	0.45
Qatar	0.81	0.82	0.74	0.73	0.71	0.66	0.68	0.67	0.65	0.64	0.62
Middle East OPEC	19.84	21.41	21.97	21.69	22.09	23.34	24.50	24.91	24.67	24.59	24.57
ROW OPEC											
Angola	1.77	1.64	1.76	1.72	1.66	1.77	1.74	1.71	1.68	1.66	1.60
Nigeria	2.08	2.18	2.10	1.96	1.90	1.81	1.78	1.72	1.66	1.65	1.63
Libya	1.55	0.47	1.39	0.90	0.46	0.40	0.34	0.35	0.40	0.45	0.50
Algeria	1.26	1.28	1.17	1.14	1.12	1.11	1.08	1.01	0.97	0.93	0.89
Ecuador	0.47	0.50	0.49	0.51	0.55	0.54	0.55	0.55	0.55	0.55	0.55
Venezuela	2.23	2.49	2.50	2.47	2.46	2.40	2.34	2.26	2.18	2.15	2.10
Indonesia	0.98	0.92	0.88	0.84	0.87	0.69	0.68	0.65	0.63	0.59	0.56
ROW OPEC	10.33	9.47	10.27	9.54	9.03	8.72	8.49	8.24	8.06	7.98	7.83
OPEC Crude Production	**30.2**	**30.9**	**32.2**	**31.2**	**31.1**	**32.1**	**33.0**	**33.2**	**32.7**	**32.6**	**32.4**
OPEC Condensate/NGLs/Other	5.24	5.83	6.19	6.45	6.53	6.68	6.85	6.99	7.09	7.12	7.15
ROW OPEC	**35.4**	**36.7**	**38.4**	**37.7**	**37.6**	**38.7**	**39.8**	**40.1**	**39.8**	**39.7**	**39.5**

Source: IEA, Morningstar

Hubbert's peak

It is not about the end of oil etc. It is the study of the production profile (bell curve) of a conventional oil field. Technology rather changes the ramp-up than the decline.



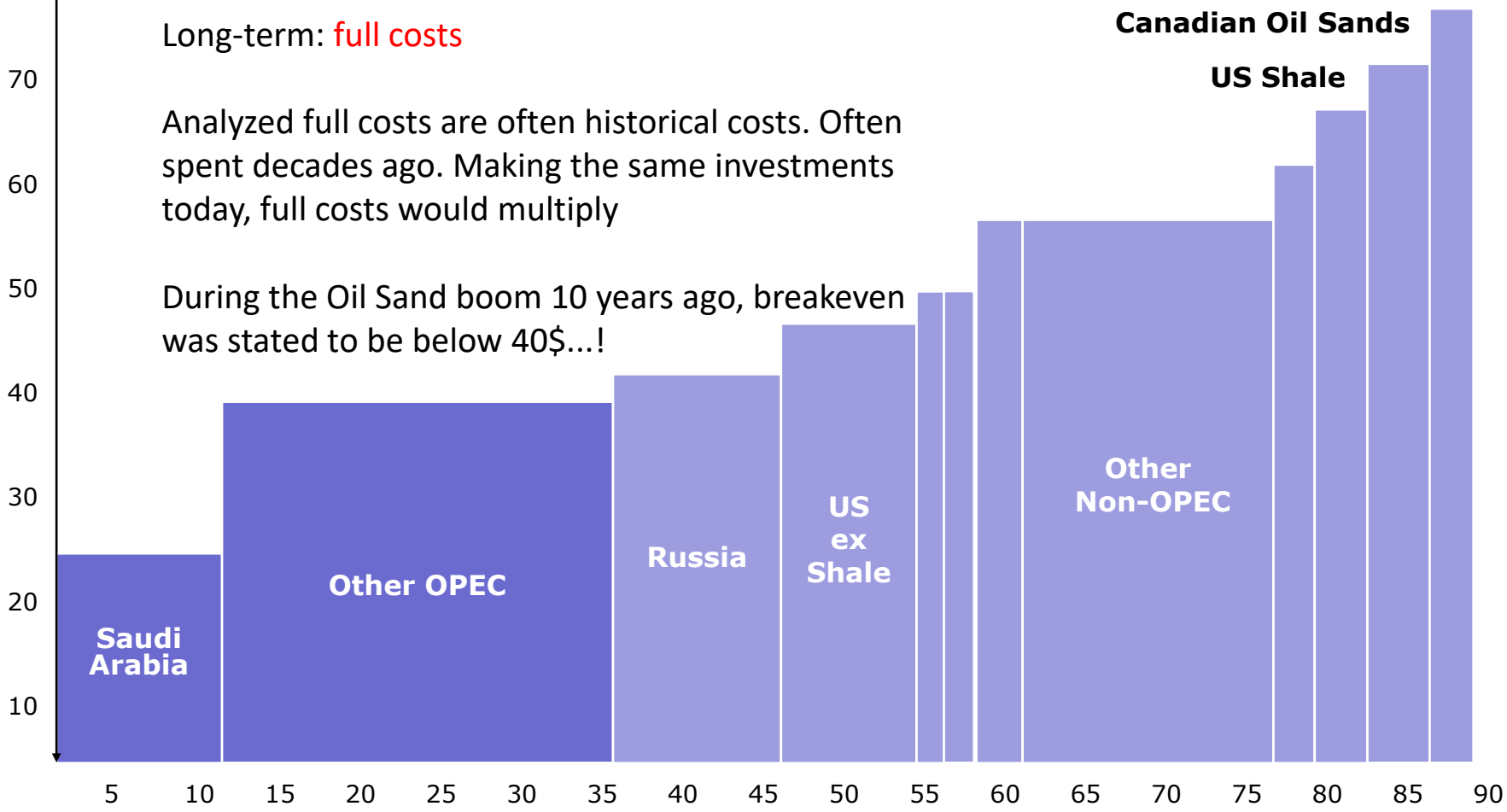
Mother nature determines costs

Short-term: variable (lifting) costs against net-back. Current lift costs go from $15 to > $30

Long-term: full costs

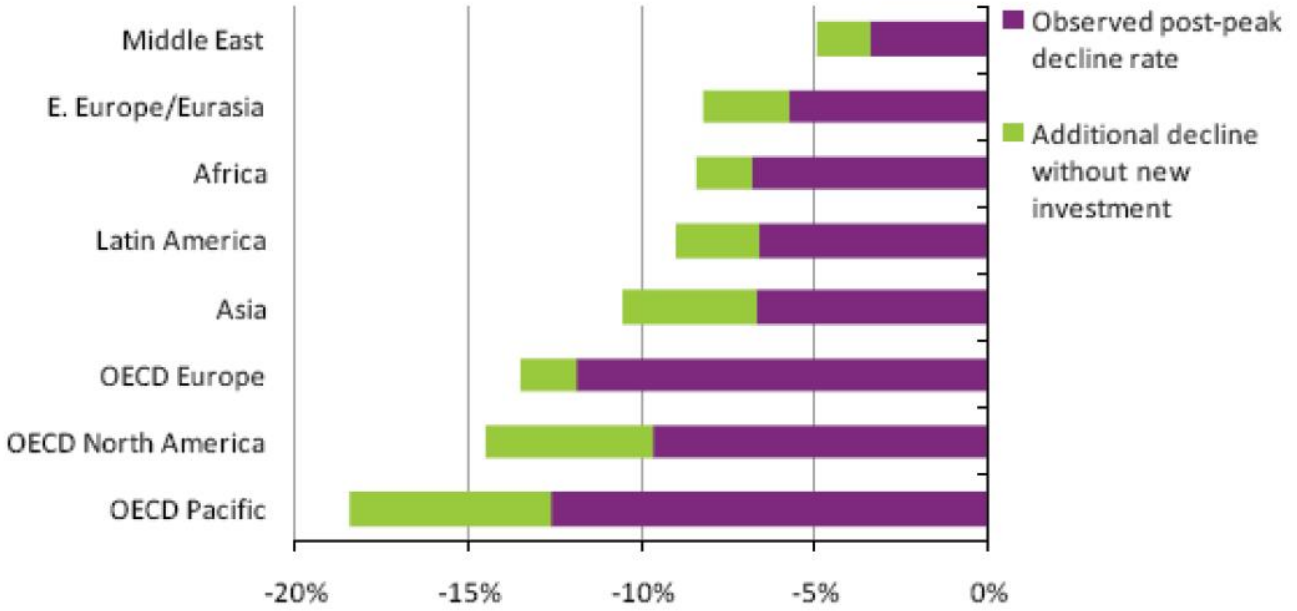
Analyzed full costs are often historical costs. Often spent decades ago. Making the same investments today, full costs would multiply

During the Oil Sand boom 10 years ago, breakeven was stated to be below 40$...!



The clock is ticking… depletion is kicking

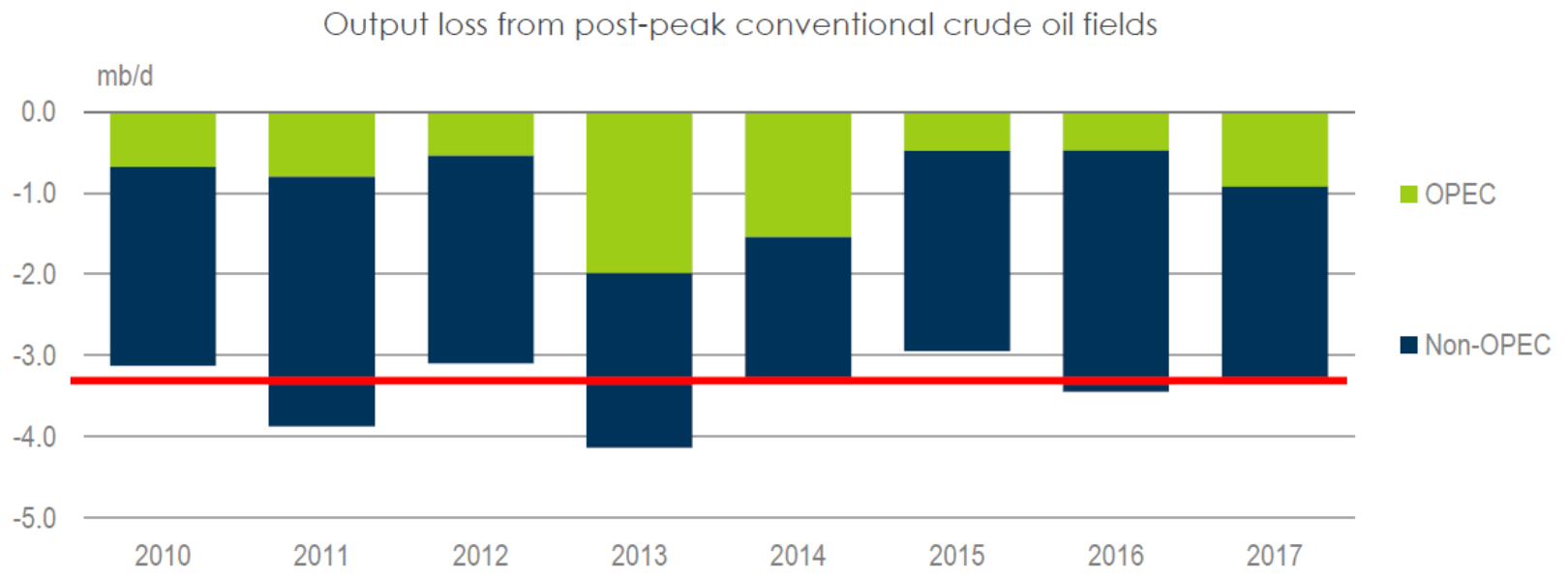
- **Global depletion is around 3-4% per year** and IEA forecasts increased depletion for the next years
- Global depletion is accelerating due to reduced capex globally and tight formations
- **Shale oil depletion is much higher**



Notes: The observed decline rate is the cumulative average annual rate of change in observed production over the life of each field since its production peaked, weighted by cumulative production. The natural decline rate is the notional rate of decline in production had there been no investment beyond that associated with the initial development of the field. Source: IEA (2008a).

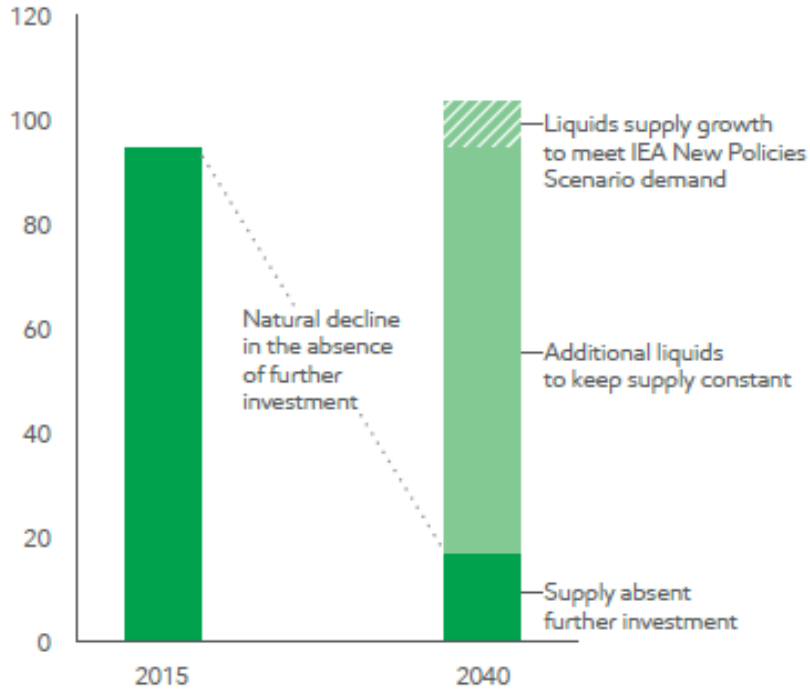
Every 3rd year a new Saudi is needed

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



Structural need for higher prices to incentivize capex

Liquids demand & supply (Mb/d)



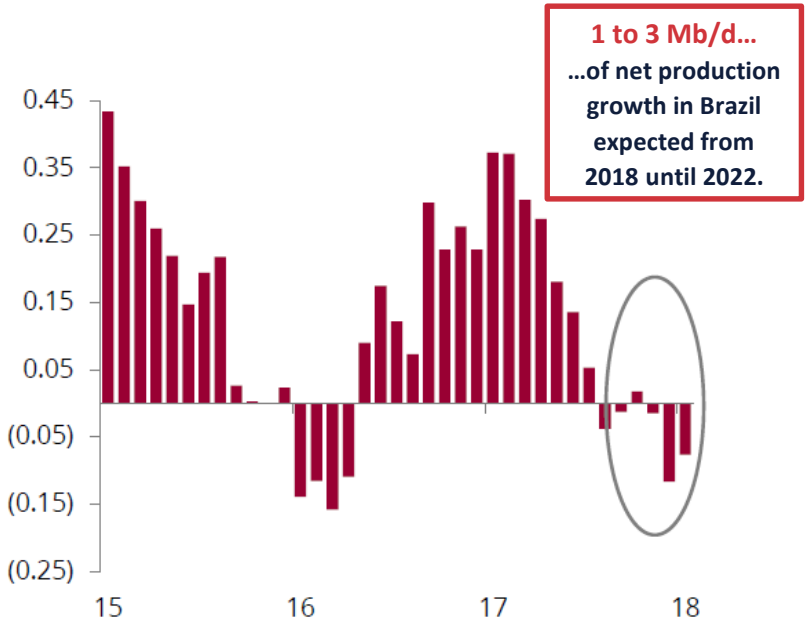
Exxon Mobil, March 2018

- 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!

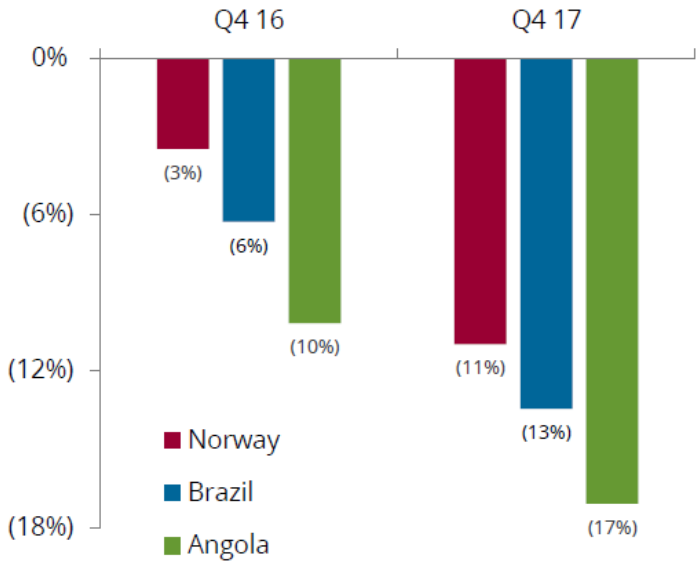
Decline rates are rising

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



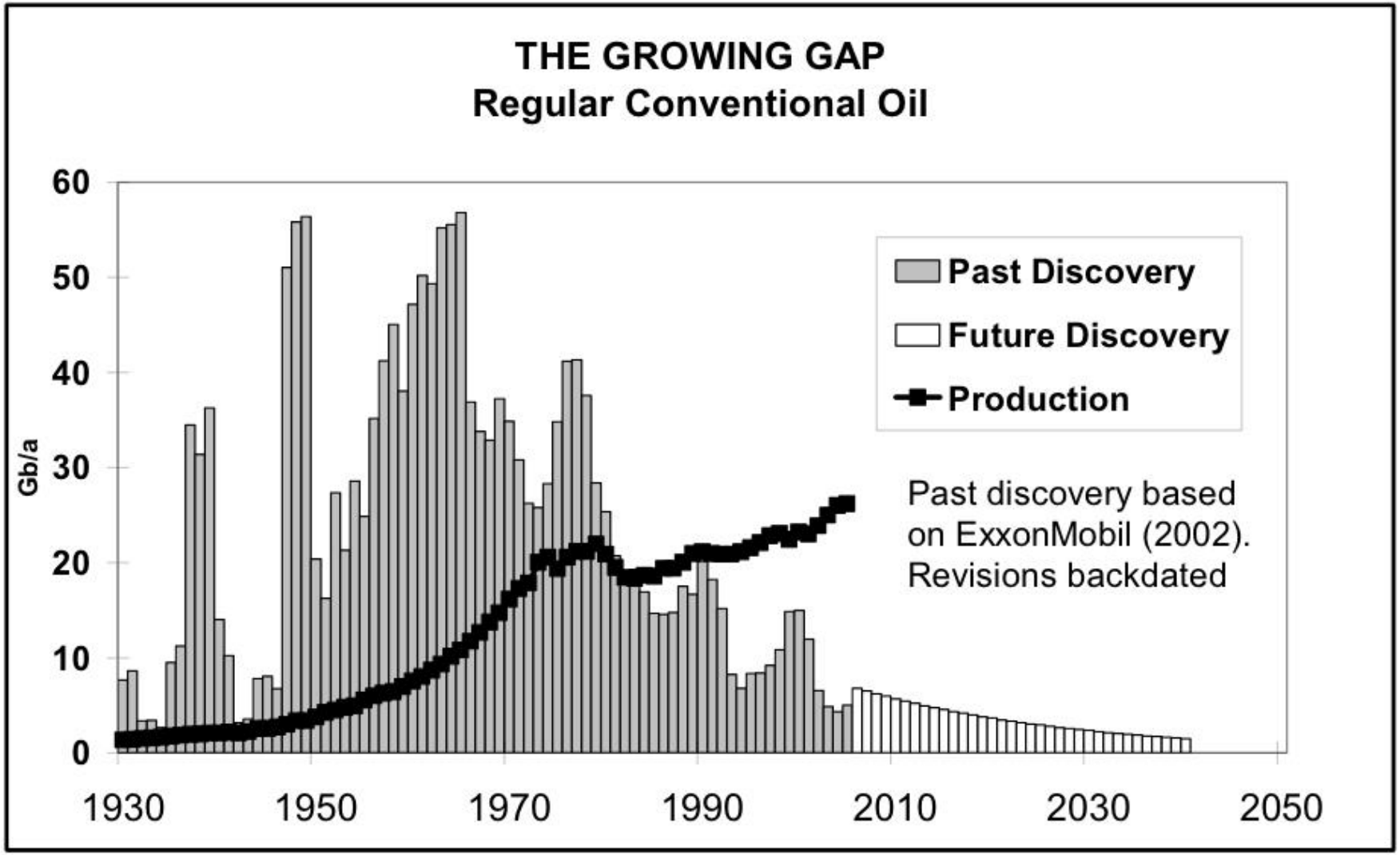
Brazilian crude production has underperformed relative to expectations amid high declines in the Campos

Selected base decline rate (Q4, in %)

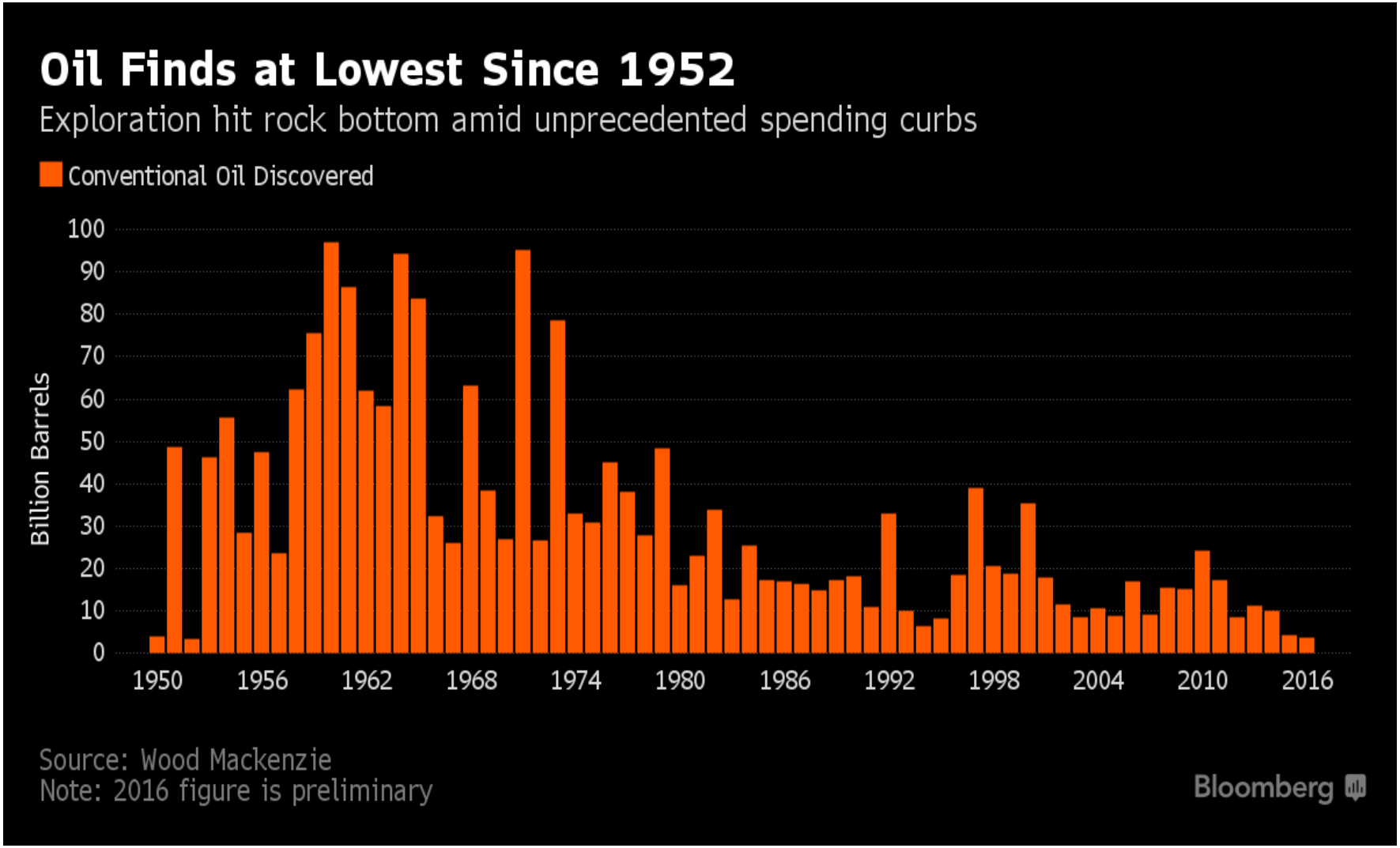


Rising base decline rate for conventional liquids production was clearly visible across Q4 17

Unconventional is urgently needed…

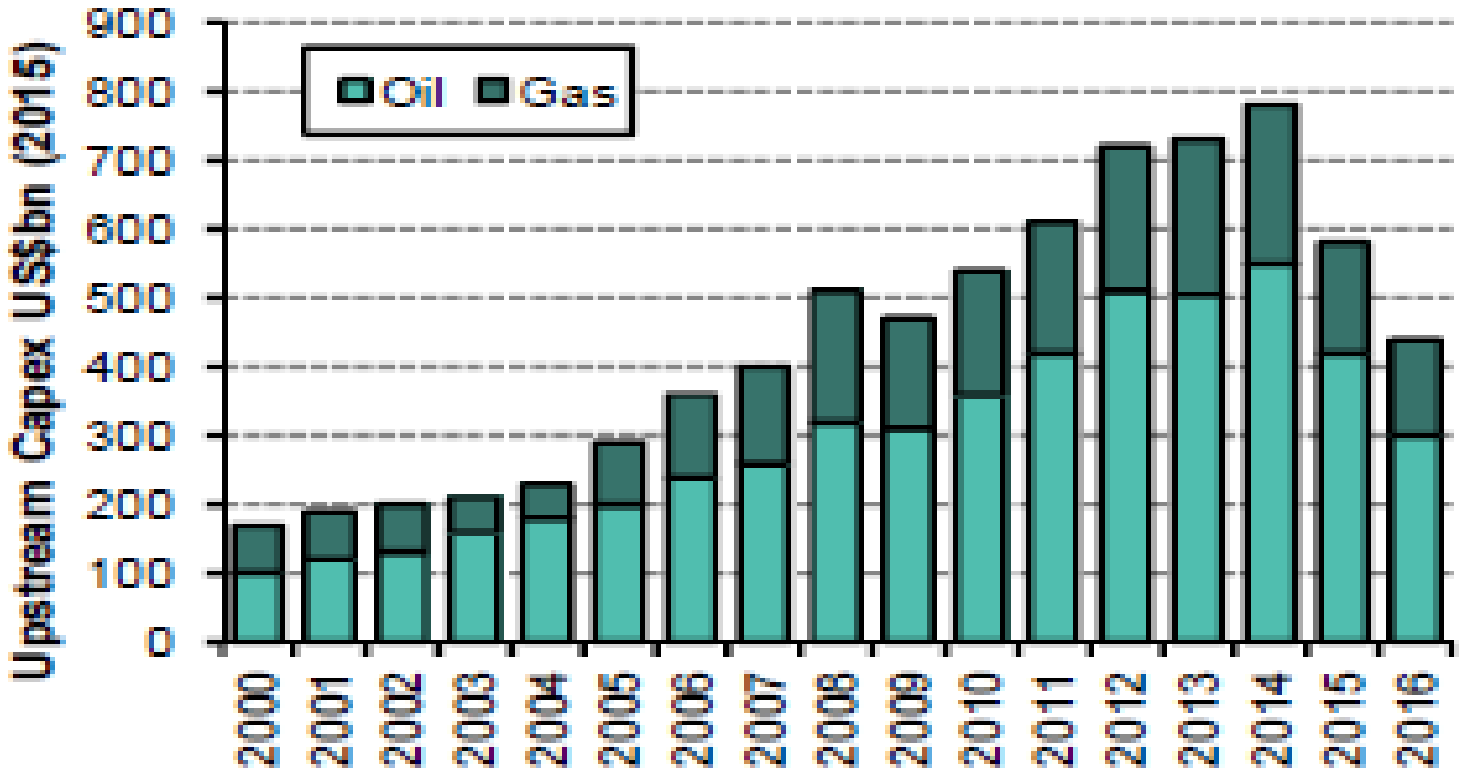


Horrible development given the explosion of cashflows and subsequent exploration spending!



Same story as mining

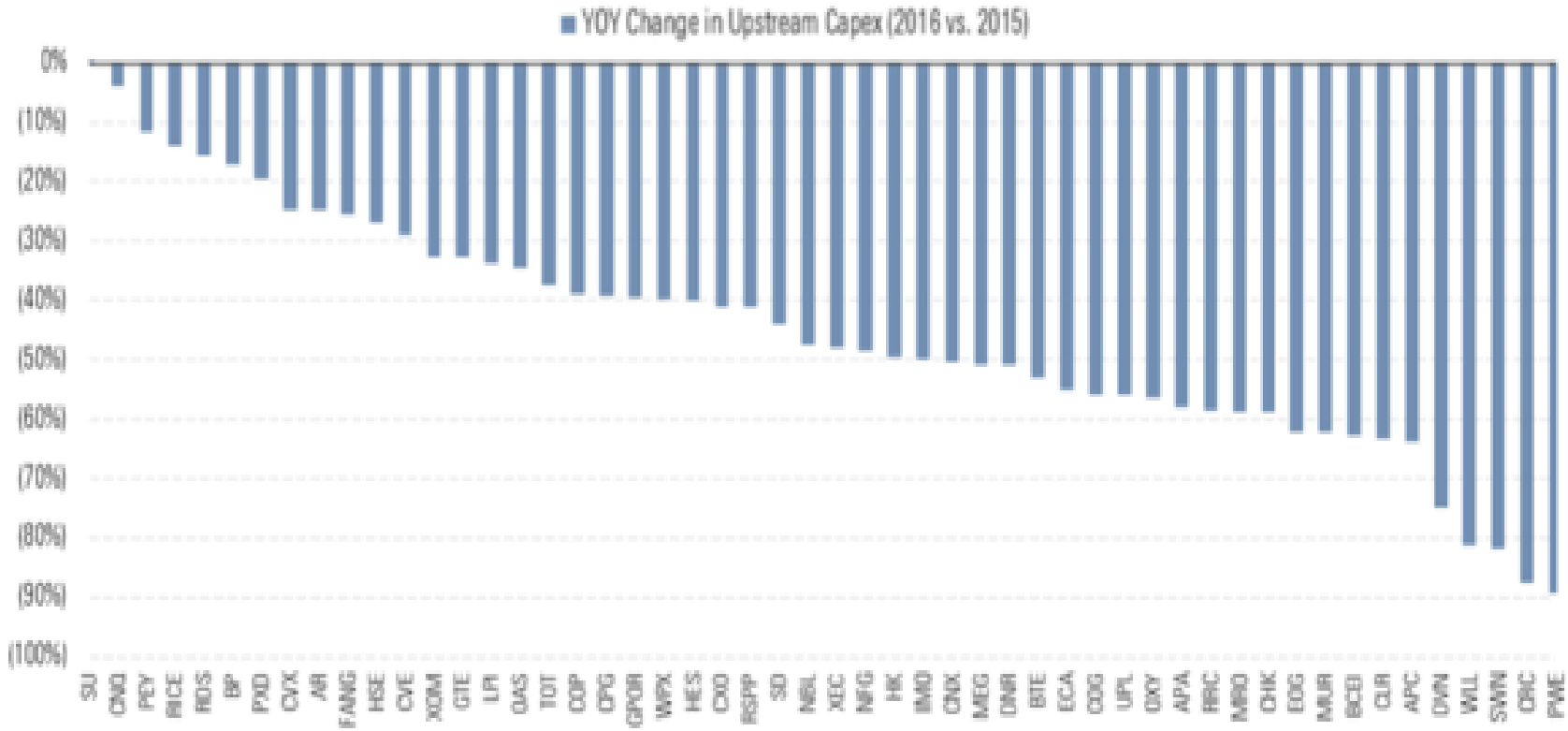
EXHIBIT 1: **Organic Upstream Capex**



Source: IEA

Massive capex cuts in 2015 & 2016 (mostly conventional)

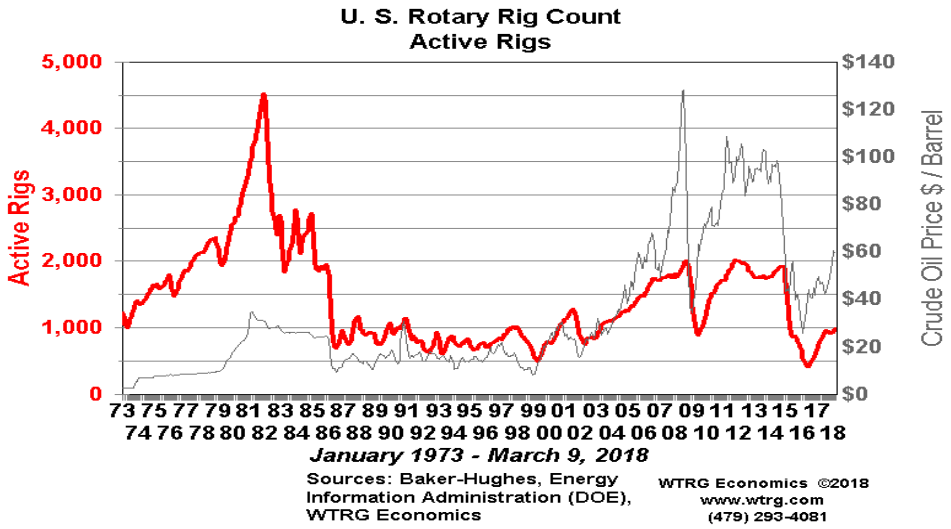
Exhibit 10 Drastic Reduction in Spending Levels Means Today's Activity Is Insufficient to Increase Global Production*

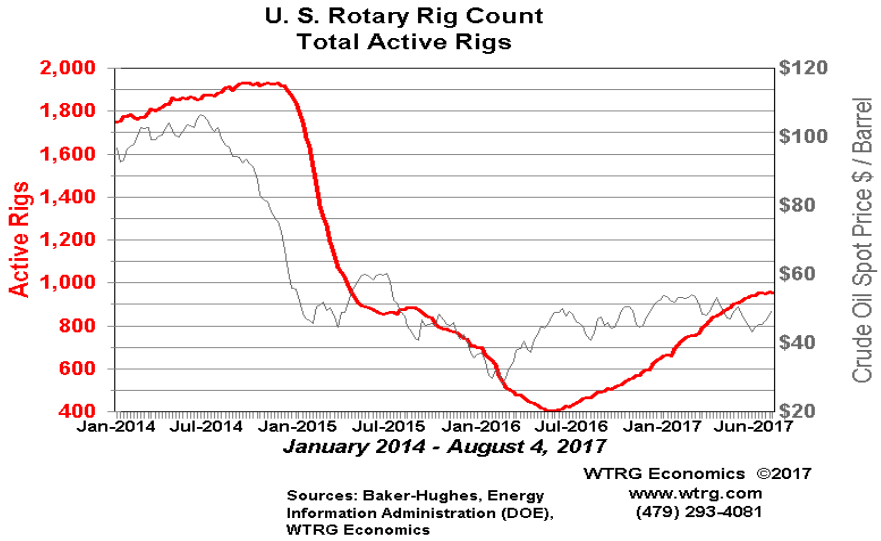


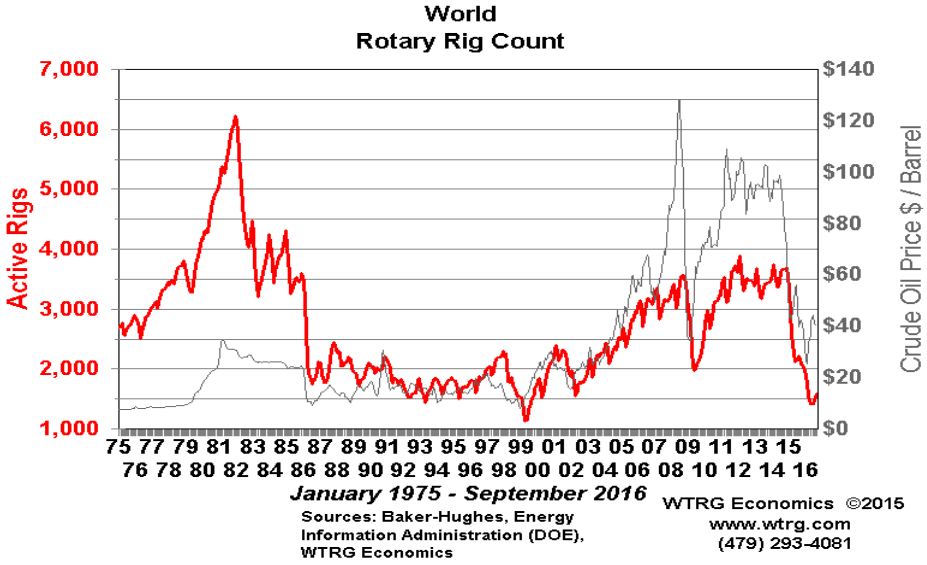
Source: Morningstar

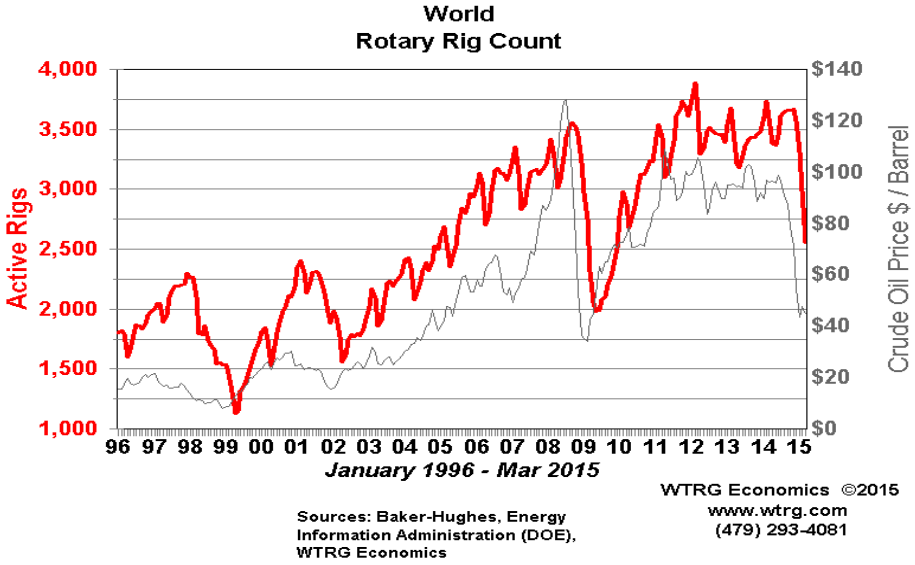
***In total, the above spending cuts equate to a 35% year-over-year reduction in spending among our current coverage ($147 billion in 2016 from $227 billion last year).

Capex cuts









The "MotherFrackers" depletion

- US shale depletion is 2/3 year 1, 50% year 2 and 1/3 year 3. How do we make numbers when your facilities must be 66% amortized by year 3? Nobody cares
- Global depletion is accelerating due to reduced capex globally and tight formations
- We encourage you to take a look at an excellent presentation made by Mr. David Einhorn from Greenlight Capital "The Motherfrackers" where you will find accurate calculations on real IRRs on shale. Shale has never made money due to depletion and growth ambitions

Exhibit 26 Tight Oil Decline Rates by Age of Producing Well

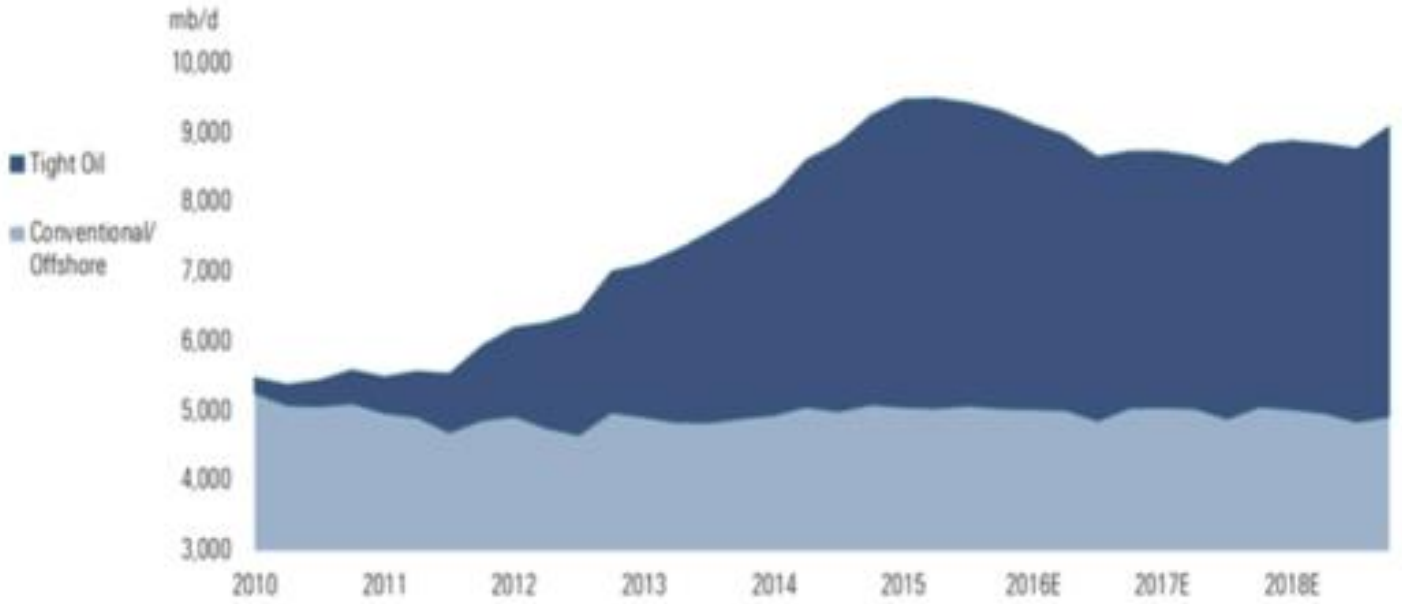
Annual Decline Rate (%)	Bakken	Eagle Ford	Niobrara	Permian
Year 1	62%	67%	64%	61%
Year 2	44%	51%	44%	45%
Year 3	26%	31%	26%	27%
Year 4	19%	23%	19%	20%
Year 5	15%	18%	15%	15%
Year 6	12%	15%	12%	13%
Year 7	10%	13%	10%	11%

Source: Morningstar

US production is peaking

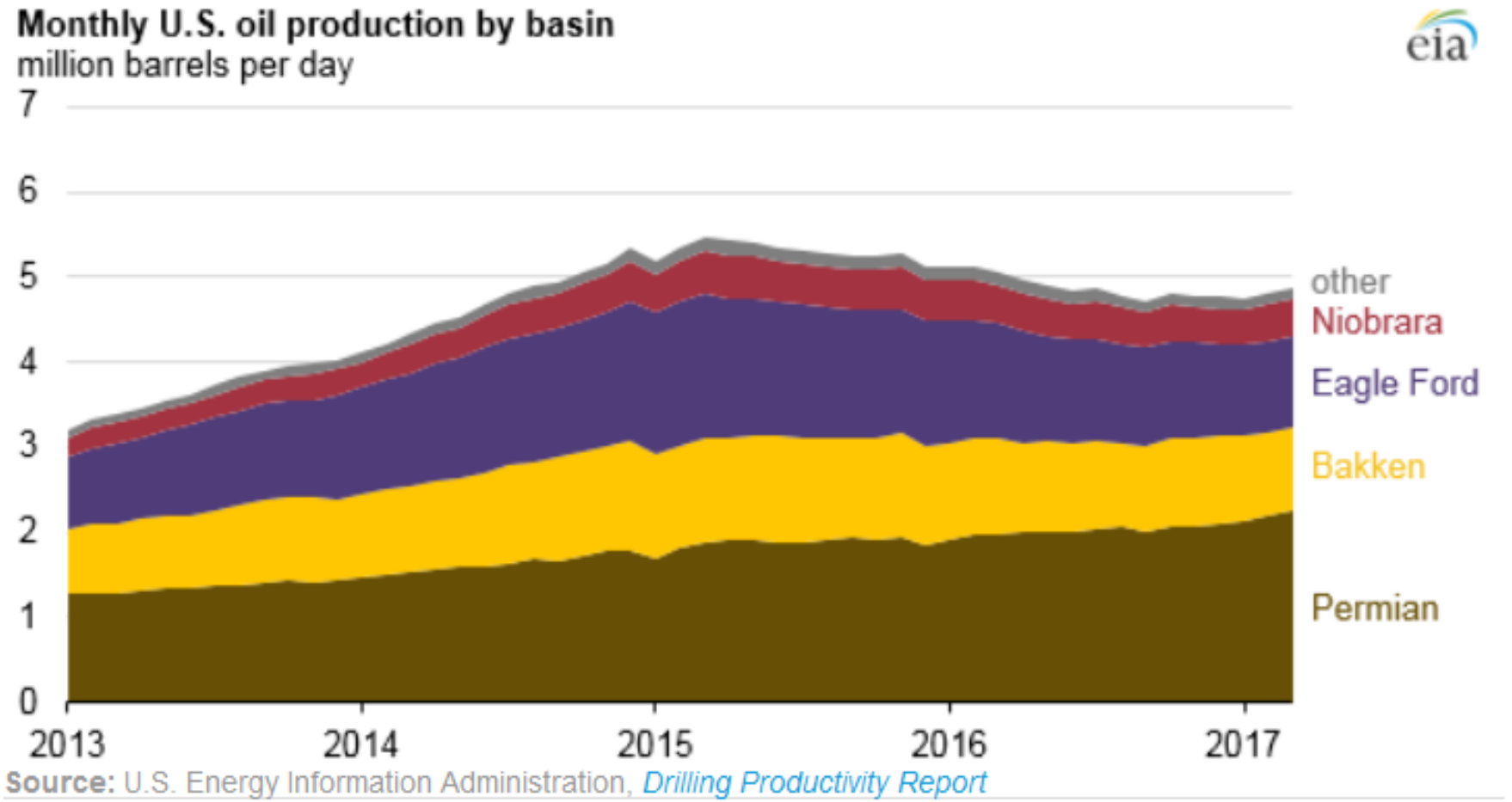
- Most of productivity improvements are behind us. Main advances have been the number of drilling days, longer laterals and economies of scale
- Cost deflation is also behind us and this industry is cyclical

Exhibit 11 Shale Sputter: Lower Spending Has Stalled U.S. Production Growth *

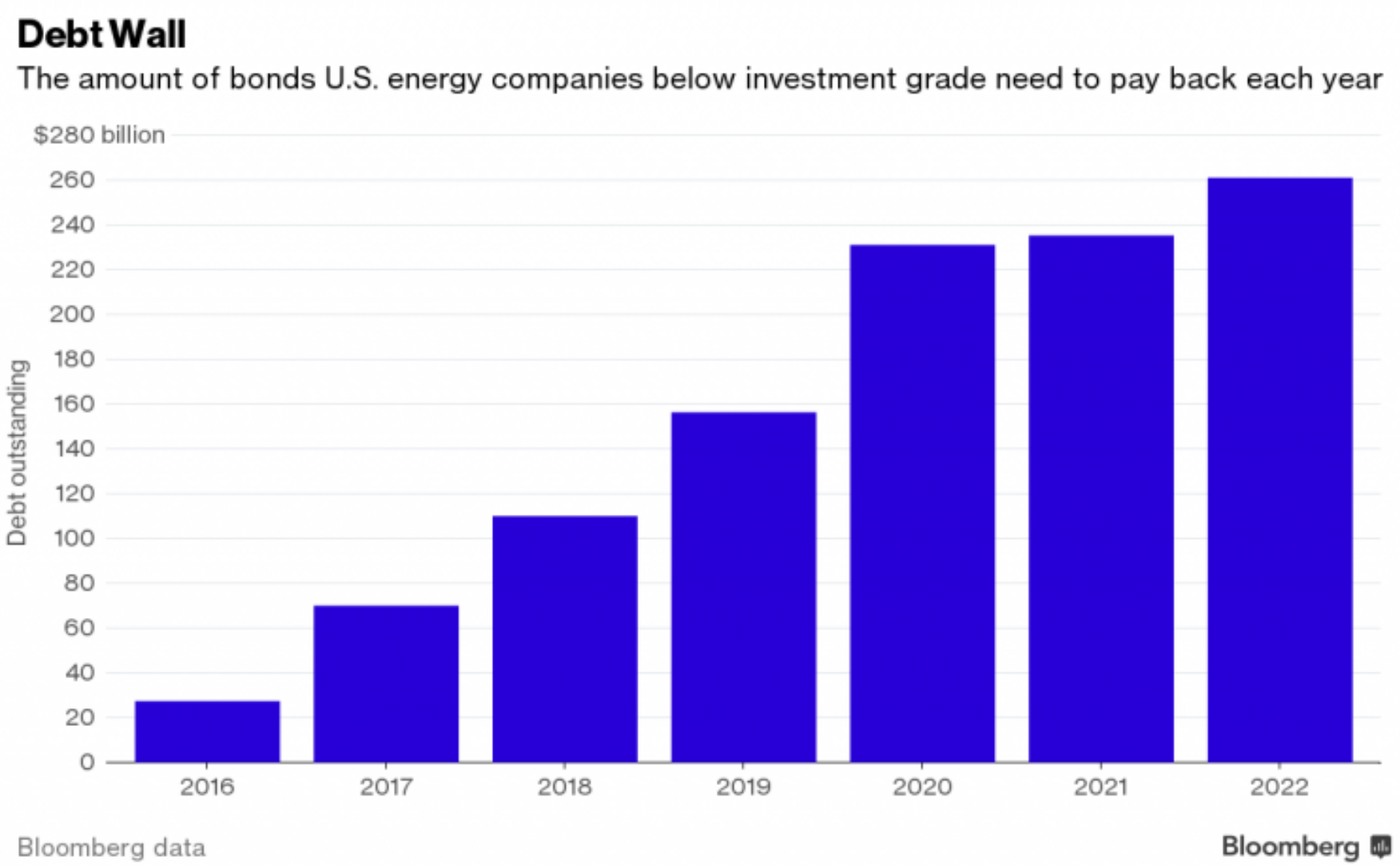


Source: EIA, Morningstar
*** 2016-17 forecasts assume onshore U.S. activity remains at current levels until fourth-quarter 2017, and that 1,100 drilled-but-uncompleted wells are brought on line.

For shale it is difficult to grow further

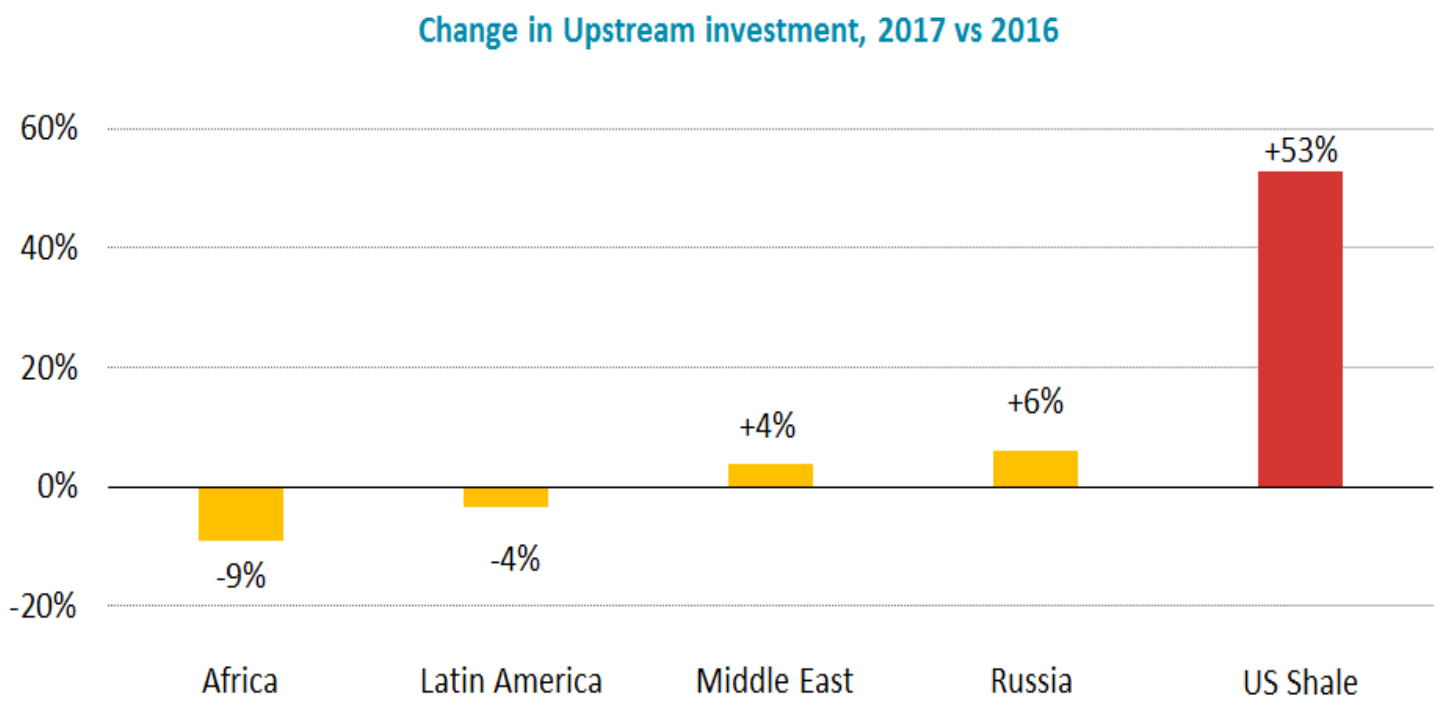


Decline rates/ever negative cashflows, shale is a debt bubble



As elsewhere, investors have a preference for losses/cash-burn

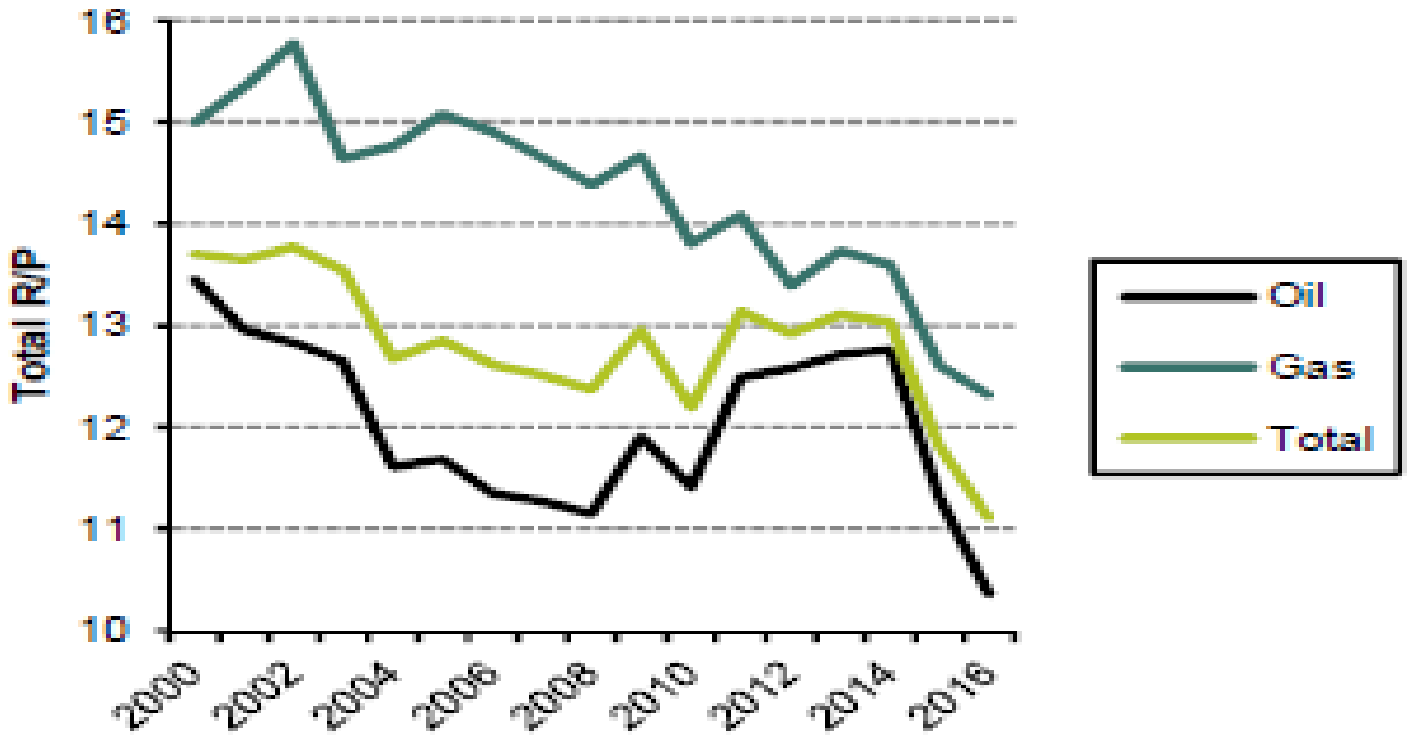
A two-speed oil market



After two years of unprecedented decline, global upstream investment is expected to stabilize in 2017, but downside risks remain

Production / reserve life lowest since 2000

EXHIBIT 2: **Reserves life of *TOP50* Companies. Oil reserves life has declined to its lowest level since 2000...**



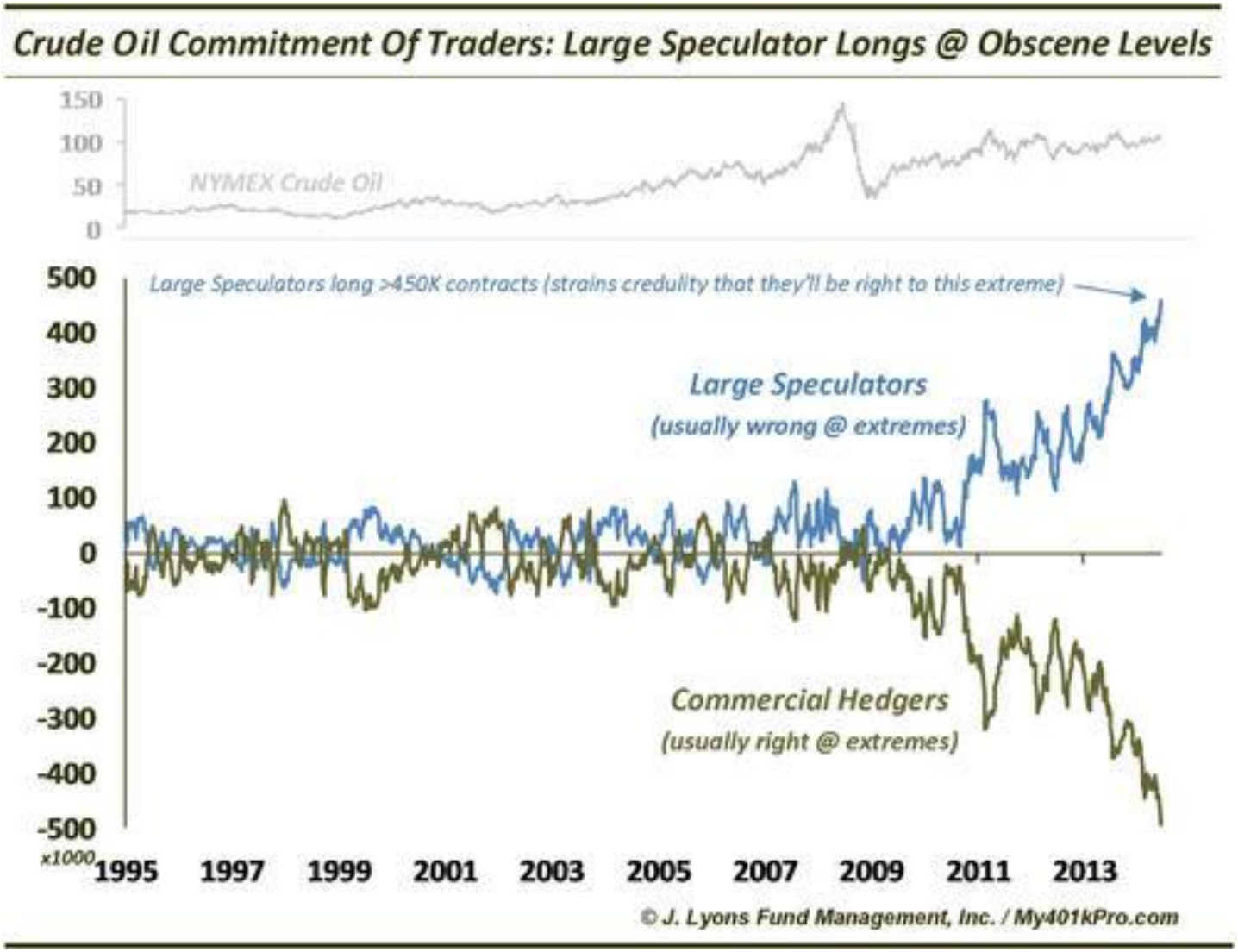
Source: Corporate Reports, Bernstein Analysis

LTIF
Long Term Investment Fund

Opec quotas get allocated in relation to reserves and population....!!

Year	Abu Dhabi	Dubai	Iran	Iraq	Kuwait	Neutral Zone	Saudi Arabia	Venezuela
1980	28.0	1.4	58.0	31.0	65.4	6.1	163.4	17.9
1981	29.0	1.4	57.5	30.0	65.9	6.0	165.0	18.0
1982	30.6	1.3	57.0	29.7	64.5	5.9	164.6	20.3
1983	30.5	1.4	55.3	41.0	64.2	5.7	162.4	21.5
1984	30.4	1.4	51.0	43.0	63.9	5.6	166.0	24.9
1985	30.5	1.4	48.5	44.5	90.0	5.4	169.0	25.9
1986	30.0	1.4	47.9	44.1	89.8	5.4	168.8	25.6
1987	31.0	1.4	48.8	47.1	91.9	5.3	166.6	25.0
1988	92.2	4.0	92.9	100.0	91.9	5.2	167.0	56.3
1989	92.2	4.0	92.9	100.0	91.9	5.2	170.0	58.1
1990	92.2	4.0	92.9	100.0	91.9	5.0	257.5	59.1
1991	92.2	4.0	92.9	100.0	94.5	5.0	257.5	59.1
1992	92.2	4.0	92.9	100.0	94.0	5.0	257.9	62.7
1993	92.2	4.0	92.9	100.0	94.0	5.0	258.7	63.3
1994	92.2	4.3	89.3	100.0	94.0	5.0	258.7	64.5
1995	92.2	4.3	88.2	100.0	94.0	5.0	258.7	64.9
1996	92.2	4.0	93.0	112.0	94.0	5.0	259.0	64.9
1997	92.2	4.0	93.0	112.5	94.0	5.0	259.0	71.7
1998	92.2	4.0	89.7	112.5	94.0	5.0	259.0	72.6
1999	92.2	4.0	89.7	112.5	94.0	5.0	261.0	72.6

Ashanti reloaded? On a huge scale?



Collapsing capex/investment will have an effect…

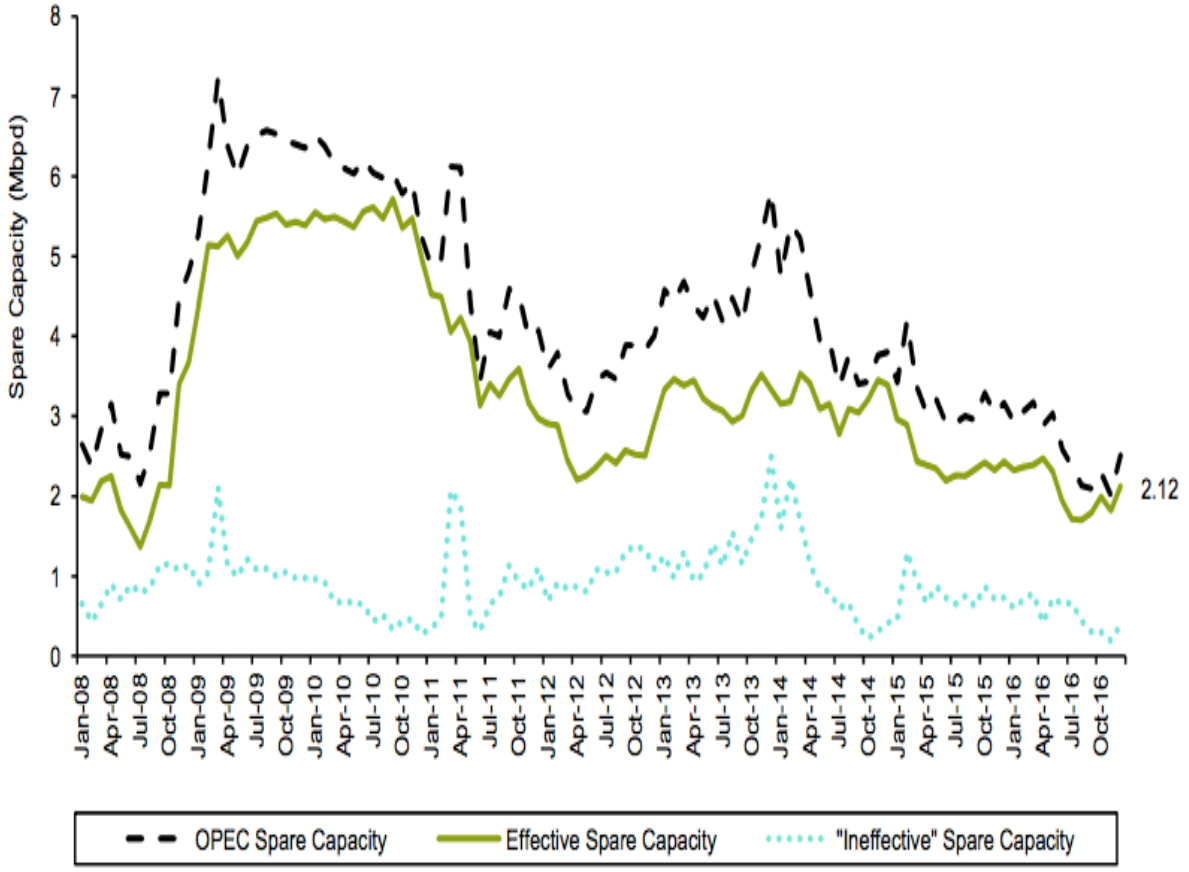
- The supply of oil from existing fields declines on an average of 5-7% per year
- The largest onshore oil fields decline at a slower rate
- Deepwater offshore fields decline 2+ times faster than onshore fields
- The latest onshore tight oil fields in North America show annual decline rates greater than 30, 40, 50% in the first years before the rate asymptotes to a more traditional decline rate
- Going forward, the mix of high decline fields will grow much faster than production from lower decline onshore conventional fields
- Not the actual commodity price will define capex spending but the expectation of it.
- Market will be bear market minded for years. CEOs, investors, debt-holders, banks, analysts will prefer cash-flow distribution to investment/production growth

Source: IHS, Deloitte & Touch, USGS databases, IEA, other industry sources

The clock is ticking… current spare capacity is all time low

- We estimate 2m b/d spare capacity, mainly in Saudi Arabia
- 2% of global capacity, similar to the levels reached in 2005, before prices shoot up
- 2% spare is below the 4-5% needed to protect the market from disruptions
- Shale oil will be the swing producer but with a time lag (6 quarters in for a full response)
- There is a risk of oil prices overshooting

EXHIBIT 2: **OPEC Effective Spare Capacity increased by 260kbpd to 2.12Mbpd in December following Indonesia's departure**

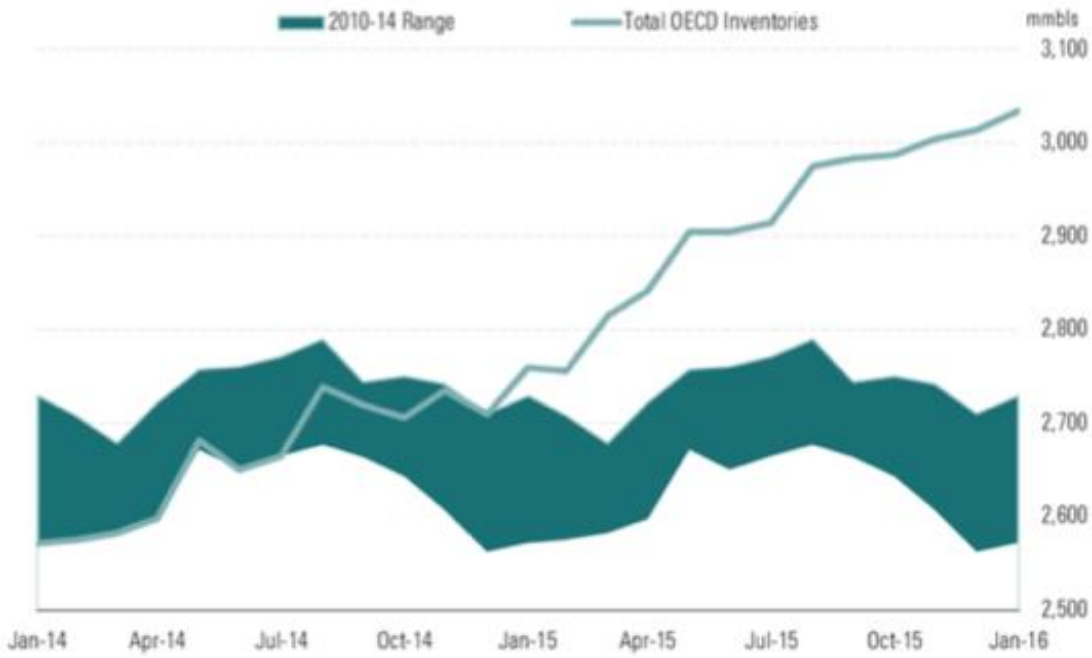


Source: IEA, Bernstein analysis

Inventories are only short term indicators

- Consensus focuses in the short term and thus inventories
- In OECD countries, there are 3bn bbl stored, very high vs recent years
- OECD consumes 17bn bbl per year so there are 2 months of inventories… really not look massive
- There is no data on non OECD countries but our guess is that inventories are lower

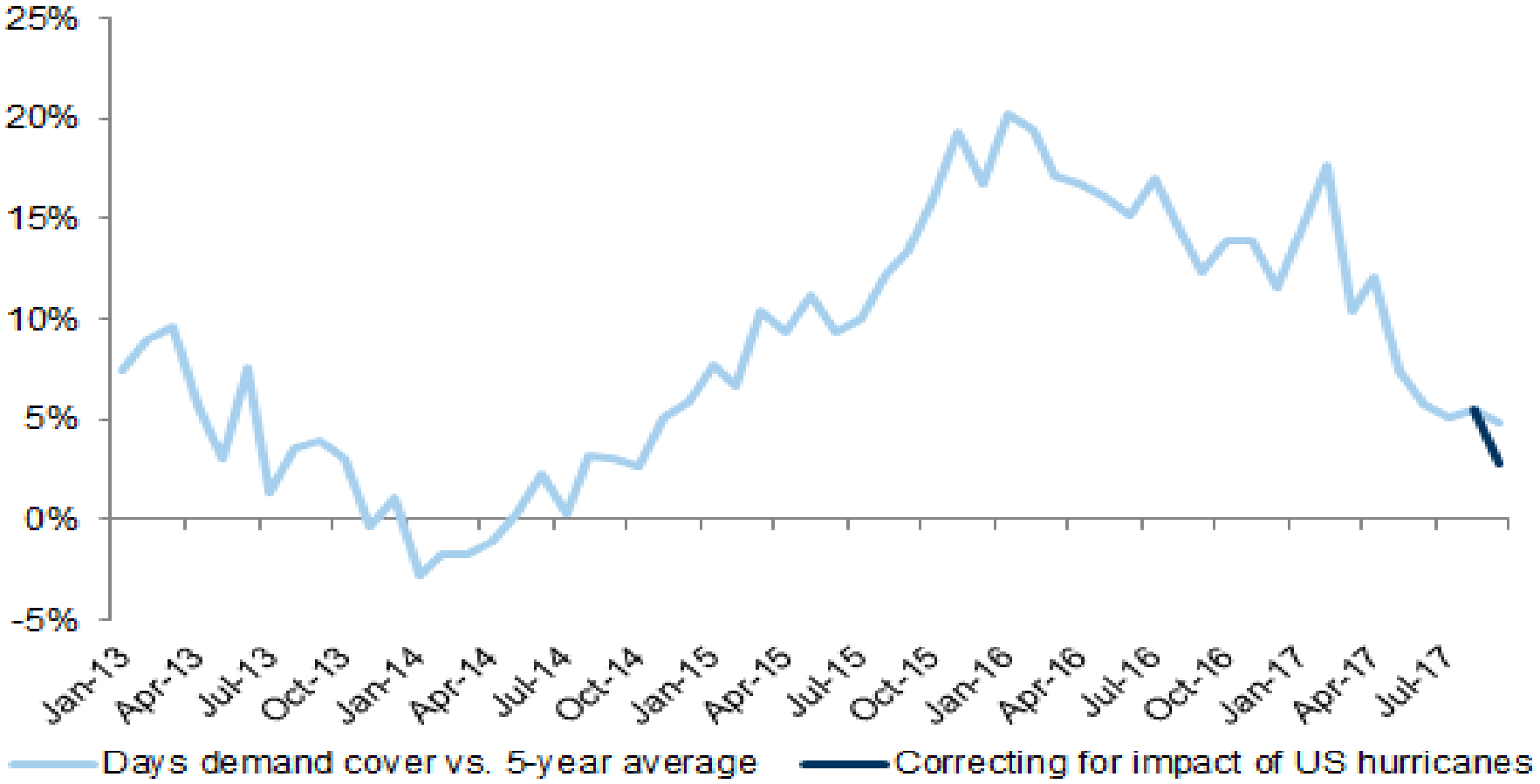
Exhibit 13 OECD Stocks: Industry Will Have Large Inventory Buffer in Place After Supply-Demand Rebalancing*



Source: IEA
*** The shaded region of the charts represent the inventory ranges of 2010-14

Crude inventories already normalizing

Weekly inventories in US, Japan and European ports in days of demand cover and vs 5 years average.



Source IEA

First, we invest in companies, not in commodities

- Companies can be profitable even when commodities prices fall and vice versa. (Forced) hedges, production sharing agreements will cap upside, even force companies into default when costs start rising (Ashanti…)

- Spent project dollars can be bought for cents now

- In any case, successful commodity investing requires a view on the future commodity price, which requires an understanding of future supply or be condemned to "buy a demand story"

- Once we determine a long term price, we analyze companies one by one, paying great attention not only to valuation, but also to implementation challenges and financial robustness

Sector/commodity analysis

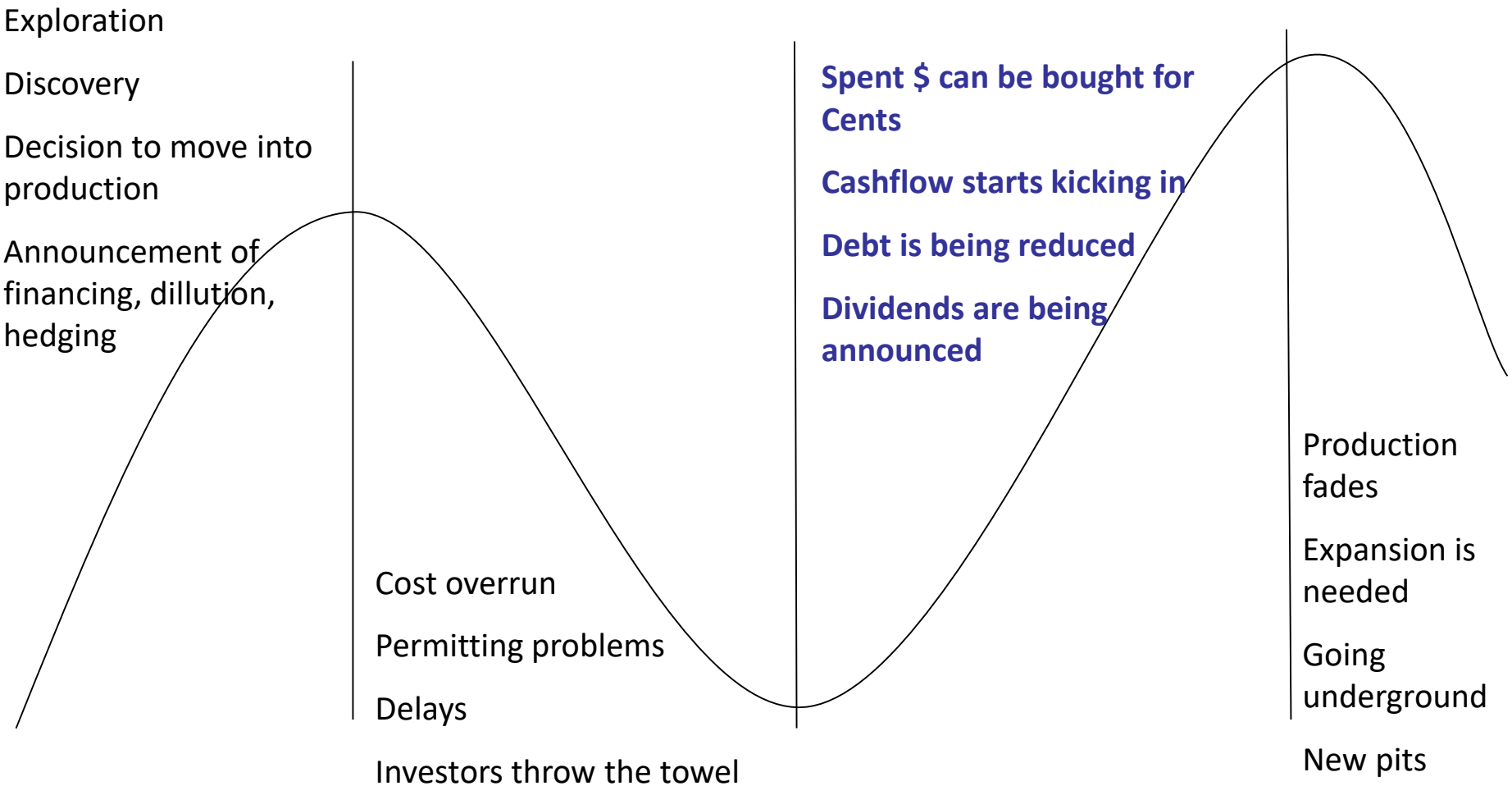
Macro/monetary policies/credit growth	→	tightening/easing cycle (Fed exports policy via peg)
Analysis of marginal/project costs	→	capex cycle/supply response
Capex cycle/supply response	→	commodity price trend expectation
Stockpiling/de-stocking (Secondary supply)	→	„artificial“ influence on prices. Cycles can be long (Uranium)

SIA demand/supply model with own price assumptions

Company search

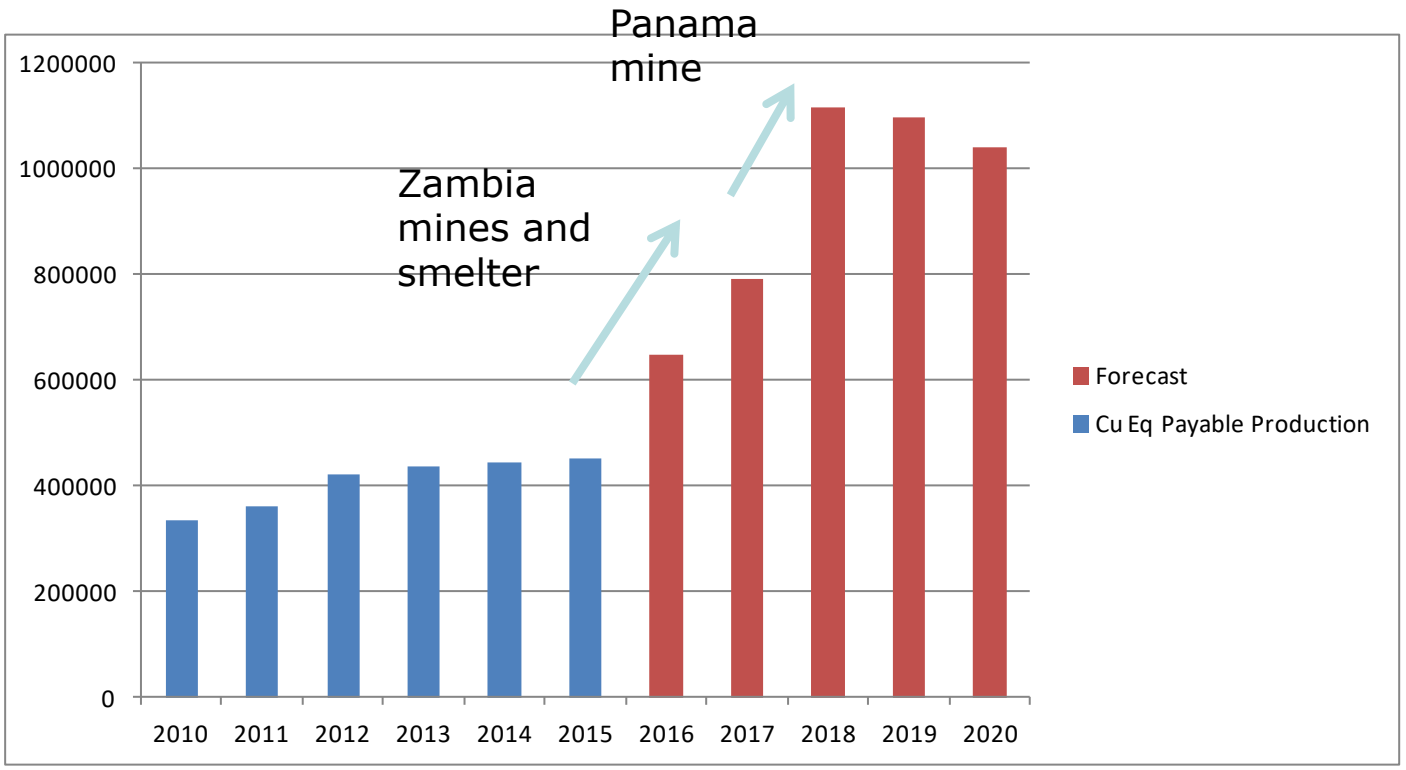
- Sectors that are in the right capex/supply cycle
- Cure for low prices are low prices. Companies within sectors where low prices and other influences start impacting supply as long until high prices and subsequent capex will start to impact supply again
- Buying the $ for Cents. No further financing/dilution for being/moving into production
- Capital structure analysis, risk/reward profile might be better in senior debt Freedom to invest up to 15% in debt
- Ounces in the ground, total cost of extraction, etc. In some cases (Uranium) exposure to physical commodities offer superior risk/reward. Fund cannot have investments with risk to physical assignment/delivery

”The SIA value bracket”



First Quantum: Huge production growth

- First Quantum is a mining company with operations and projects in 9 countries and an exceptional growth profile
- Copper is their main product, but they also mine nickel, zinc, and gold



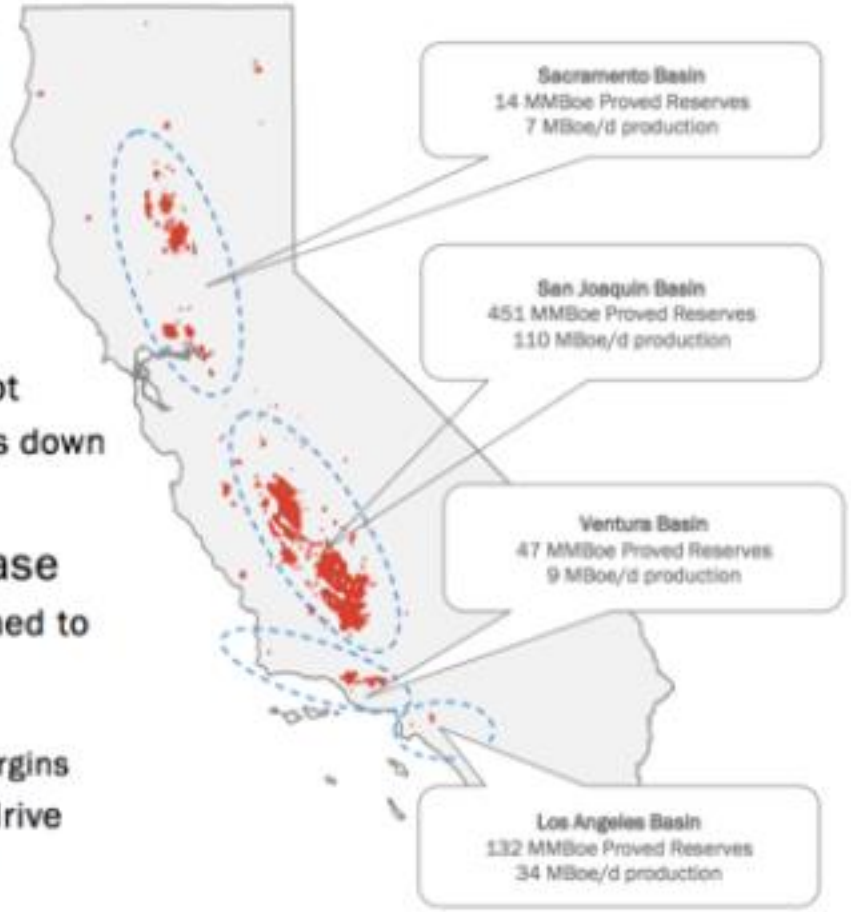
CRC, a good quality E&P with a debt problem

- CRC is an oil weighted E&P. Oil accounts for around 70% production and reserves
- Base depletion of its assets is low, around 15%, top class in the US
- Growth potential on better recovery factors reduces spending, exploration and technical risks
- CRC can make double digit returns on investment on normalised oil prices
- Stock is cheap due to low oil prices and high debt. We think both will gradually clear in the next 12 months
- Stock was spun off from Occidental Petroleum at c. 6$ per share in 2014 and trades now at 1.5$. Our IV is 10$
- CRC is a category 4 stock for SIA

CRC, California, Good Resources, too much debt

CRC at a Glance

- World-Class Resource Base
  - In 4 of 12 largest fields in the continental U.S.
  - 644 MMBoe proved reserves
- Capital Structure
  - No significant near-term debt maturities
  - Reviewing options to reduce spin-off debt
  - FY 2016 capital investment of $50mm is down >85% from 2015 level
- Positioned to Grow as Prices Increase
  - Internally funded capital program designed to live within cash flow and drive growth
    - Low decline rate that is flattening
    - Increasing crude oil mix improves margins
  - Operating flexibility to shift basins and drive mechanisms to optimize growth through commodity price cycles

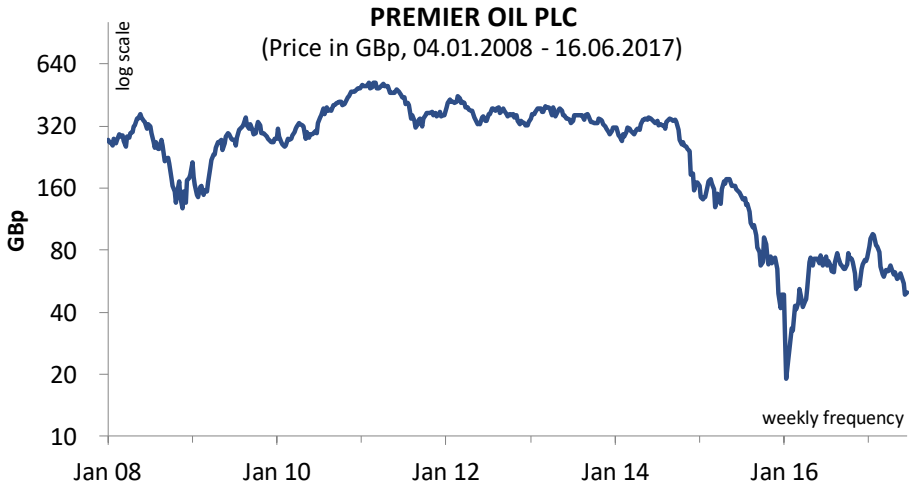


Category 4: Premier Oil plc

- **Premier Oil plc** is an international oil and gas exploration and development company with producing interests in the United Kingdom, Indonesia, and Pakistan. The Company has continuing exploration and appraisal efforts in the United Kingdom, South and South East Asia, and Africa. (Bloomberg Ticker: PMO LN)

SIA Risk Category	1	2	3	4

(1 = low Risk; 4 = high Risk)



Issue Data	
Last Price (16.06.2017)	50.00
52wk High (10.01.2017)	99.50
52wk Low (20.06.2017)	47.00
P/E (Trailing 12m)	2.31
Dividend Yield	
Price to Book Ratio	0.37
Price to Sales Ratio	0.31
EV / Trail 12M EBITDA	4.06
Shares Outstanding	510.8243
Market Cap	240.09
Enterprise Value	3'214.25

Per Share Data	
EPS (Trailing 12m)	0.26
Dividend per Share	0.00
Book Value / Share	1.58
Sales / Share (Trailing 12m)	1.93
Cash Flow / Basic Share	0.60
Free Cash Flow / Share	-0.75

Cash Flow Analysis	
Price / Cash Flow	0.99
Price / Free Cash Flow	
Cash Flow / Net Income	2.49
Dividend Payout Ratio	0.00
Cash Generated / Cash Req	0.44
Cash Dividend Coverage	
Cash-oper / Sales	31.03
Eff Interest Rate	

Profitability	
EBIT	-146
Operating Margin	-14.84
Pretax Margin	-39.72
Return on Assets	2.16
Return on Common Equity	15.88
Return on Capital	6.77
Asset turnover	0.17

Structure	
Current Ratio	0.76
Quick Ratio	0.49
Total Debt to Total Assets	49.56
Total Debt to Com Equity	371.21
Acct Receivable Turnover	6.99
Inventory Turnover	35.60
Gross Margin	22.00
EBIT / Total Inter	-0.79

Growth Potential	
Sales 1yr Growth	-7.85
Asset 1yr Growth	14.22
Capital 1yr Growth	13.81

Source: Bloomberg

Category 4: Premier Oil plc

SIA Risk Category	1	2	3	4

(1 = low Risk; 4 = high Risk)

- **Premier Oil is a medium-sized oil company present in 3 main regions, the North Sea, Vietnam and Indonesia**, with current production of 70,000 b/d.

- **Over time PMO has build long life reserves totaling 750m barrels** (reserves & resources > 25 years of production), with an attractive cost level of $15 per bbl.

- **Management has correctly managed the downturn**, lowering its break even cash costs from 35$ per bbl in 2014 to 25$ in 2016; reducing capex from $ 1.2bn in 2014 to $ 400mn in 2017; and acquiring assets from EON at the right time (15,000 b/d in the North Sea).

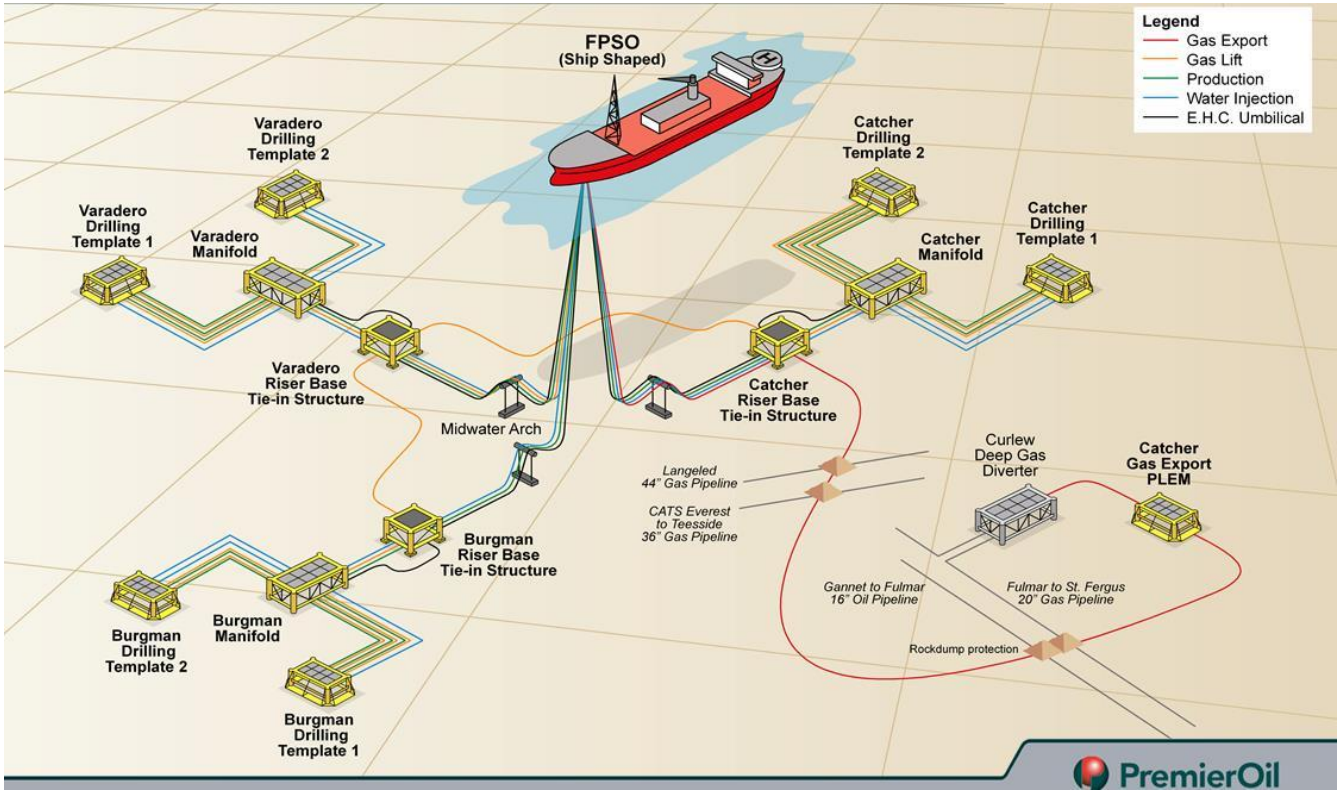
- Taking into account the existing projects and EON assets, **PMO could reach 90,000-100,000 b/d production by 2019**, effectively adding 10,000 b/d per year for the next 2.

Category 4: Premier Oil plc

SIA Risk Category	1	2	3	4

(1 = low Risk; 4 = high Risk)

- **Two new projects are behind these growth prospects. First, Catcher** (50% owned, North Sea) is expected to come on stream in H217 and has seen its capex reduced from an initial 2.25bn $ to 1.7bn.



Category 4: Premier Oil plc

SIA Risk Category	1	2	3	4

(1 = low Risk; 4 = high Risk)

- **PMO was trading at 300-400p p.s. in 2014** (with oil prices at 80$+). After the collapse in oil prices it went as low as 20p in 2016. It is now trading at 88p with a market capitalization of only GBP 500m.

- **The oil price collapse combined with a large pile of debt almost killed the company.** However, management has been able to withstand these conditions heavily cutting opex & capex, acquiring distressed assets and re-negotiating its debt.

- **The company has agreed new funding with its lenders** and an announcement is expected for the end of Jan-17. Net debt is currently 2.8bn $ with cash and undrawn facilities adding up to 600mn $.

- **Oil has started a new up cycle.** We expect oil price to move first to the US shale marginal cost (60$+) and then move to conventional marginal costs (80$+). We see 60$+ in 2017 and 80$+ as from 2019 once the massive capex cuts happened since 2014 will come into effect.

LTIF Long Term Investment Fund

PremierOil

Category 4: Premier Oil plc

SIA Risk Category	1	2	3	4

(1 = low Risk; 4 = high Risk)

- **Within our oil price scenario, PMO's Intrinsic Value is c.400p** so we believe the company can become a 4-bagger in the next 2-3 years.

- **PMO is a category 4 risk stock and thus included in a basket** where we will never surpass 10% of the funds in order to manage risk. Risks are 1) oil price 2) execution in a risky business 3) regulation 4) debt levels.

Salmon – industry overview

- About 60% of the world's salmon production is farmed. Cultivation takes place in large nets in waters (fjords, bays) or in tanks on land
- Salmon only makes up 2.3% of global seafood supply. Total global supply is still marginal compared to most other seafood categories
- The most important category is whitefish which is about ten times larger than salmon. The non-food category (pelagic for reduction) is the largest being 25% of global seafood production
- Salmon farming has the best economical profile among all protein sources:
  - Salmon has a very low feed conversion and most of the fish is edible meat while other sources of meat have a higher level of waste or non edible meat
  - Salmon consumes no fresh water while to produce 1kg beef 14.000 liters of fresh water consumption is needed

Figure 1: World salmon production

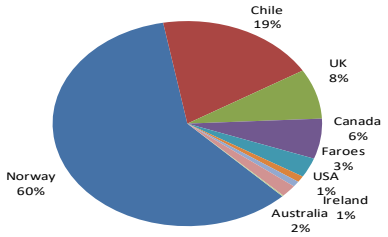


Figure 2: Seafood categories (million tones)

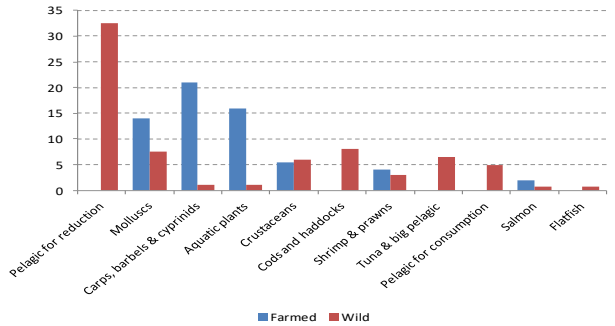
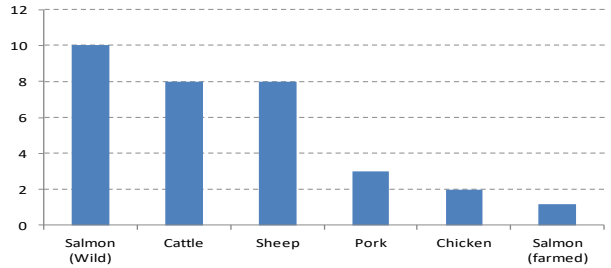
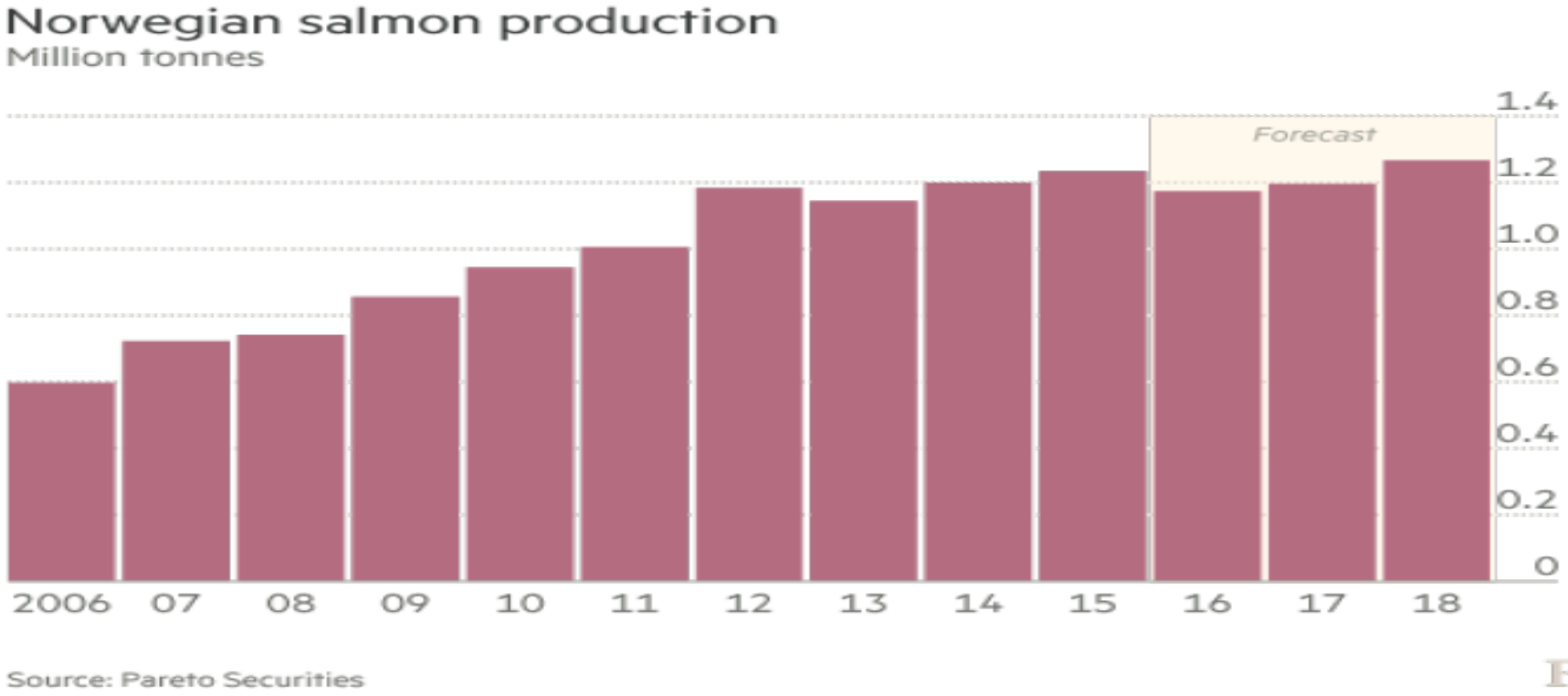


Figure 3: Feed conversion ratio (tons feed per kg of animal)



Salmon – supply is not growing anymore

- Salmon price has been historically highly volatile as supply has been so
- Historically salmon price has been highly correlated with supply growth
- Almost 60% of current supply comes from Norway where production capacity is limited by regulation
- Historically 7% volume growth has led to a 3% price increase
- Accordingly: +20% volume growth (2012) -15% price, 2% volume growth (2013) +40% price
- Currently Norwegian salmon farmers are running at full capacity which provides a positive outlook for a stable supply and reasonable salmon prices



Further supply needs extraordinary measures

Norway turns to radical salmon farming methods

Futuristic egg-shaped enclosures among techniques to be used to counter multiple threats

The futuristic-looking marine egg concept is a closed unit to protect the fish backed by leading salmon producer Marine Harvest

Norway's salmon producers are turning to radical farming techniques in the face of multiple threats to their industry.

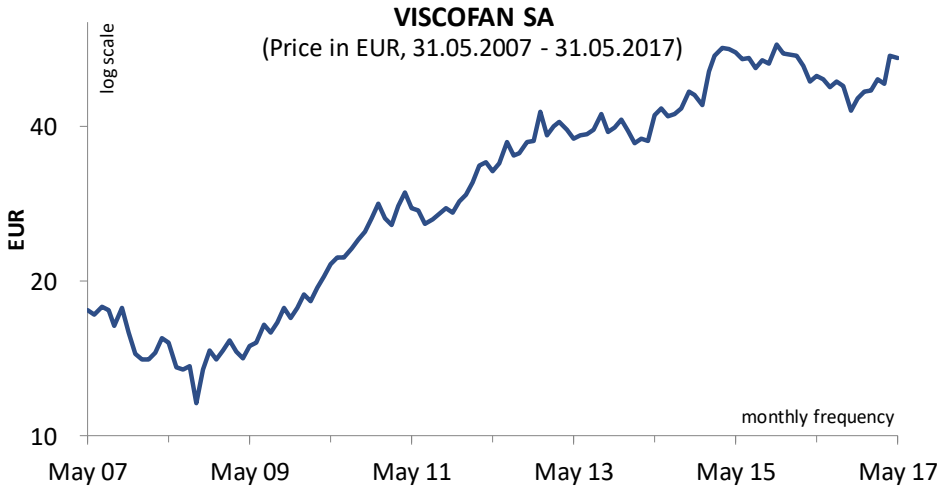
From futuristic egg-shaped enclosures that bob in the water to supertanker-like structures submerged in the ocean, the Norwegian government is trying to counter increasing challenges in the form of sea lice, fish escapes and the shortage of suitable coastline for aquaculture.

Category 1: Viscofan SA

- **Viscofan SA** manufactures artificial casings made of cellulose, collagen, and plastic for use in the meat industry. The Company also processes and cans olives, asparagus, other vegetables, and fruit byproducts. Viscofan operates in Europe, Asia, and the Americas. (Bloomberg Ticker: VIS SM)

SIA Risk Category	1	2	3	4

(1 = low Risk; 4 = high Risk)



Issue Data	
Last Price (31.05.2017)	54.43
52wk High (28.04.2017)	56.13
52wk Low (11.11.2016)	41.84
P/E (Trailing 12m)	20.27
Dividend Yield	2.14
Price to Book Ratio	3.58
Price to Sales Ratio	3.47
EV / Trail 12M EBITDA	12.25
Shares Outstanding	46.60368
Market Cap	2'536.64
Enterprise Value	2'226.31

Per Share Data	
EPS (Trailing 12m)	2.69
Dividend per Share	1.44
Book Value / Share	15.19
Sales / Share (Trailing 12m)	15.70
Cash Flow / Basic Share	3.00
Free Cash Flow / Share	1.26

Cash Flow Analysis	
Price / Cash Flow	18.17
Price / Free Cash Flow	43.10
Cash Flow / Net Income	1.12
Dividend Payout Ratio	53.65
Cash Generated / Cash Req	0.96
Cash Dividend Coverage	1.86
Cash-oper / Sales	19.10
Eff Interest Rate	19.48

Profitability	
EBIT	154
Operating Margin	21.12
Pretax Margin	21.24
Return on Assets	14.19
Return on Common Equity	18.66
Return on Capital	16.93
Asset turnover	0.83

Structure	
Current Ratio	3.81
Quick Ratio	1.57
Total Debt to Total Assets	9.13
Total Debt to Com Equity	12.01
Acct Receivable Turnover	5.38
Inventory Turnover	
Gross Margin	
EBIT / Total Inter	125.50

Growth Potential	
Sales 1yr Growth	-1.34
Asset 1yr Growth	11.91
Capital 1yr Growth	13.19

Source: Bloomberg

Investment Management Team

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Urs Marti	Macro/sector analysis
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