



SIA – Digging & Dealing

June 2018

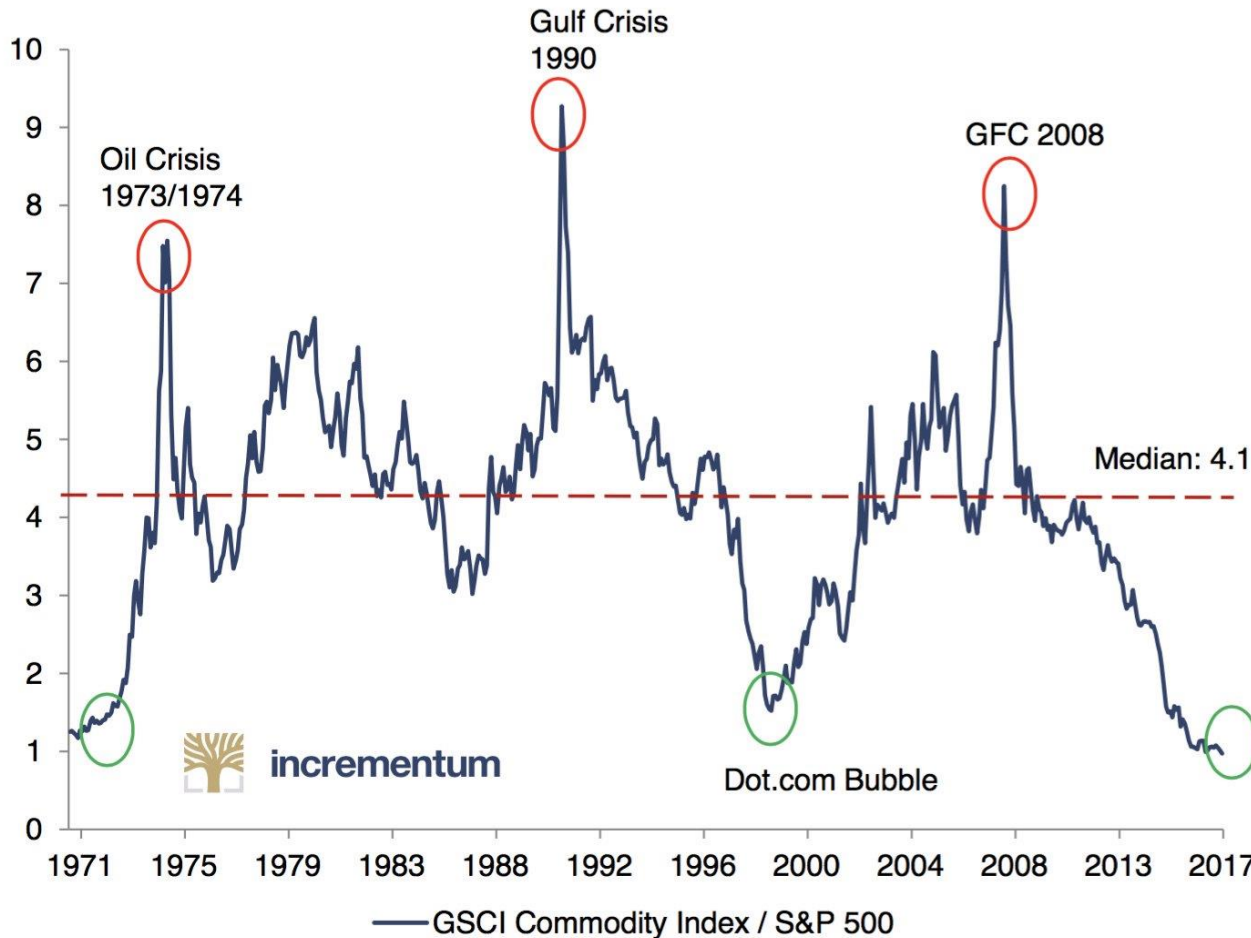


Bushveld Complex South Africa

in gold we trust
.report

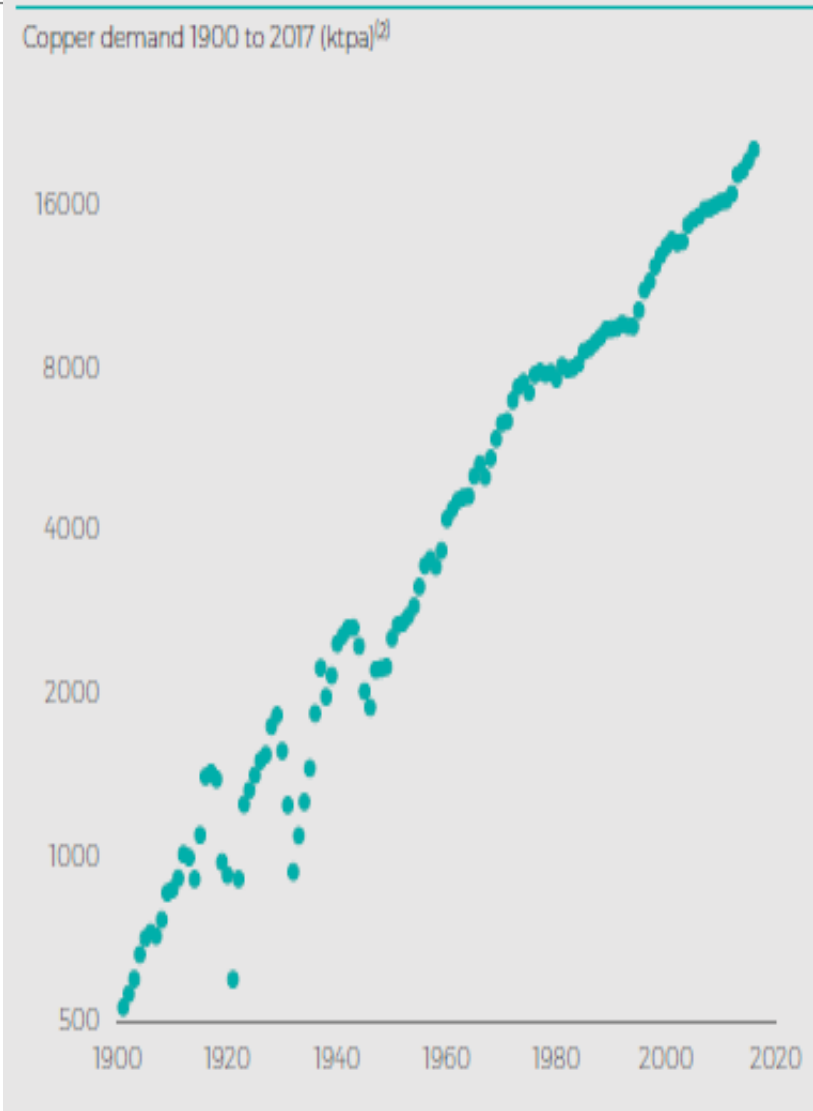
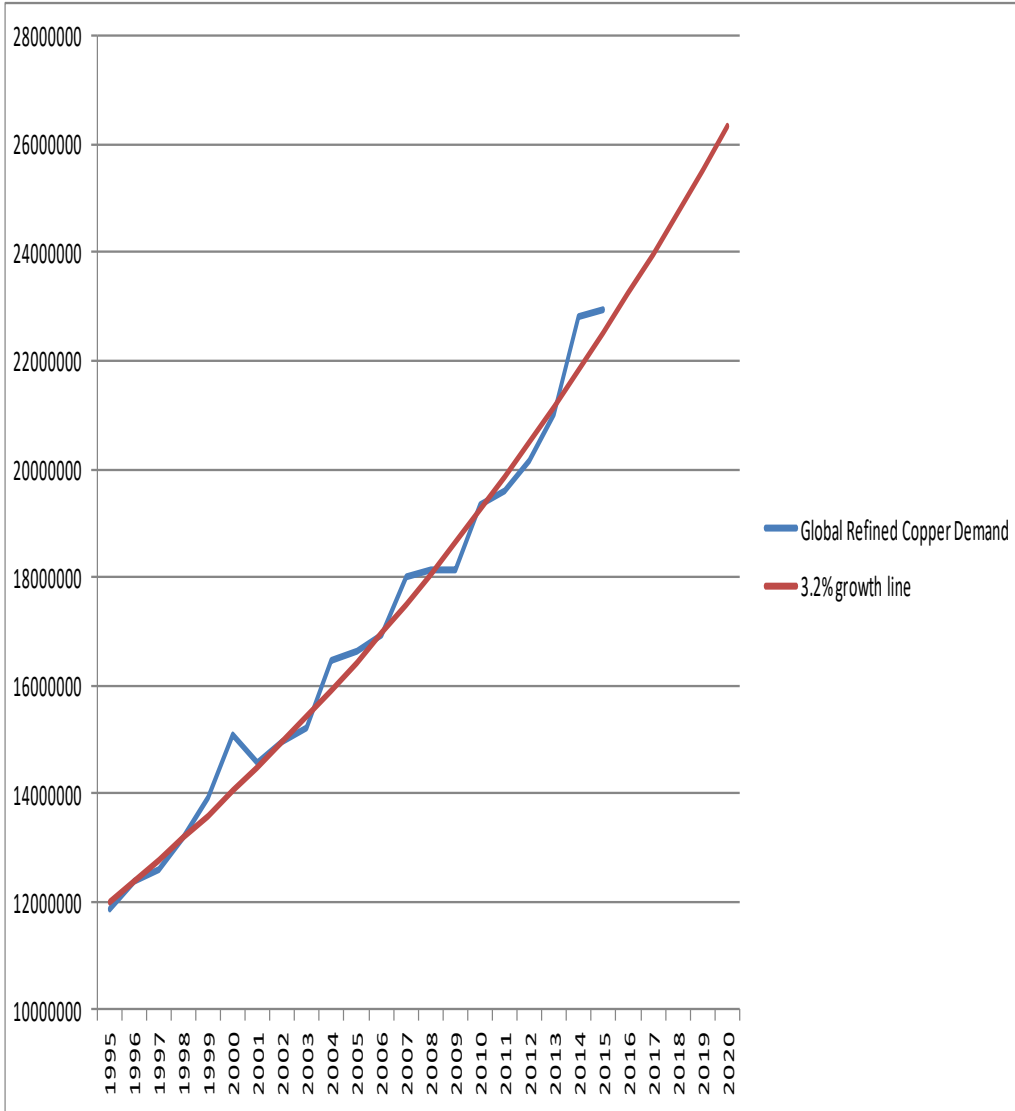
GSCI/S&P500 Ratio: Equities Expensive, Commodities Cheap?

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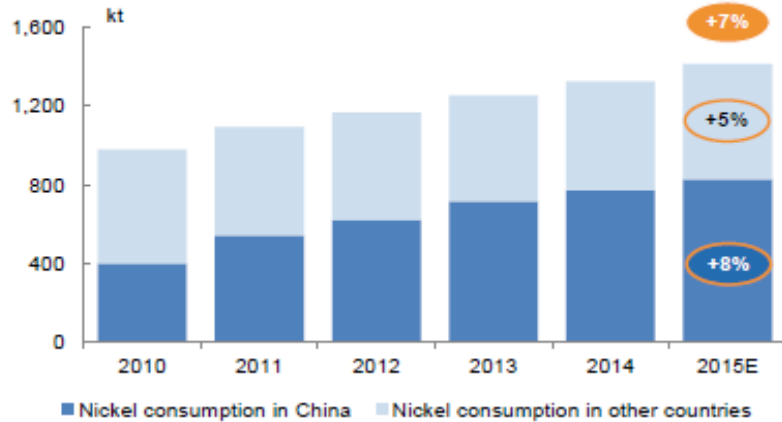
- In a historical context, the relative valuation of commodities to equities seems extremely low.
- In relation to the S&P500, the GSCI commodity index is currently trading at the lowest level in 50 years. Also, the ratio sits significantly below the long-term median of 4.1.
- Following the notion of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

Copper just an example, demand is stable/GDP

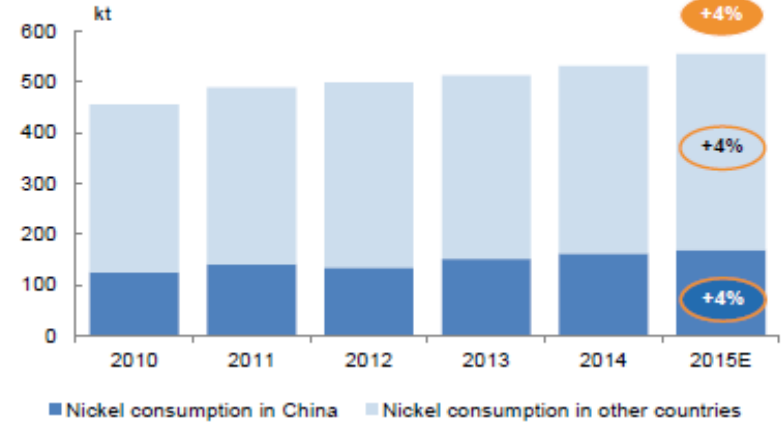


Bear market due to destocking, not demand

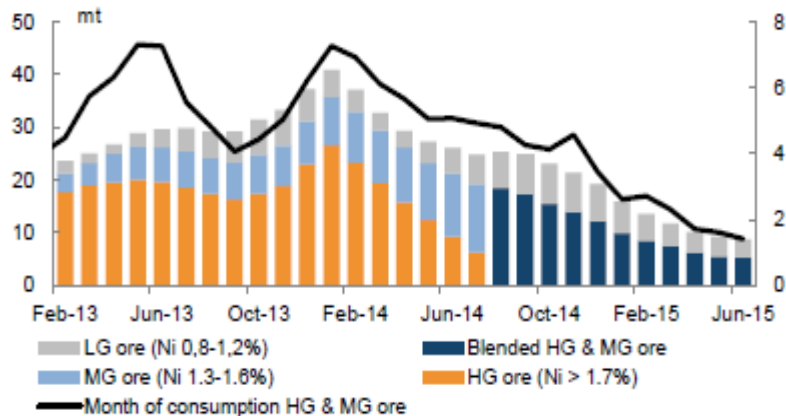
Primary Nickel Consumption (Stainless Steel)



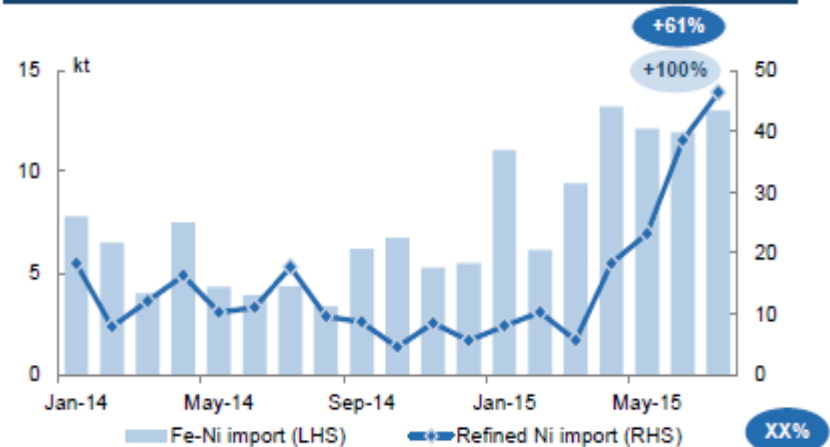
Primary Nickel Consumption (Non-Stainless Steel)



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

| 42 | MARK NO 31 | CROSS SECTION | WORLD MAP | 43 |

iron silk road

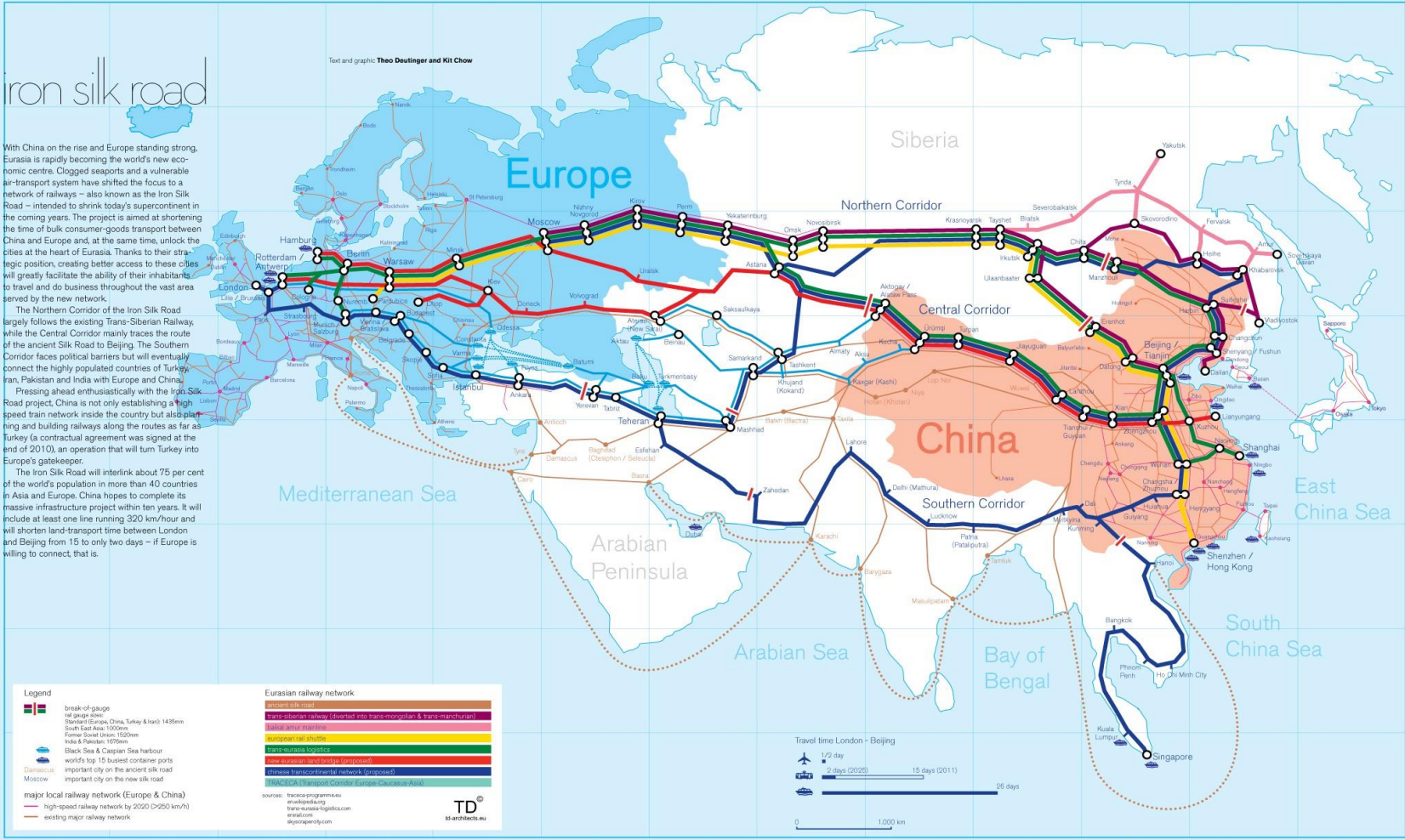
With China on the rise and Europe standing strong, Eurasia is rapidly becoming the world's new economic centre. Clogged seaports and a vulnerable air-transport system have shifted the focus to a network of railways – also known as the Iron Silk Road – intended to shrink today's supercontinent in the coming years. The project is aimed at shortening the time of bulk consumer-goods transport between China and Europe and, at the same time, unlock the cities at the heart of Eurasia. Thanks to their strategic position, creating better access to these cities will greatly facilitate the ability of their inhabitants to travel and do business throughout the vast area served by the new network.

The Northern Corridor of the Iron Silk Road largely follows the existing Trans-Siberian Railway, while the Central Corridor mainly traces the route of the ancient Silk Road to Beijing. The Southern Corridor faces political barriers but will eventually connect the highly populated countries of Turkey, Iran, Pakistan and India with Europe and China.

Pressing ahead enthusiastically with the Iron Silk Road project, China is not only establishing a high-speed train network inside the country but also planning and building railways along the routes as far as Turkey (a contractual agreement was signed at the end of 2010), an operation that will turn Turkey into Europe's gatekeeper.

The Iron Silk Road will interlink about 75 per cent of the world's population in more than 40 countries in Asia and Europe. China hopes to complete its massive infrastructure project within ten years. It will include at least one line running 320 km/hour and will shorten land-transport time between London and Beijing from 15 to only two days – if Europe is willing to connect that is.

Text and graphic: Theo Deutinger and Kit Chow



Legend		Eurasian railway network	
	break-of-gauge		existing rail road
	1435mm gauge		trans-siberian railway (diverted into trans-mongolian & trans-manchurian)
	Spain (Iberian, China, Turkey & Iran) 1435mm		major urban railroads
	South East Asia 1000mm		major express railroads
	Former Soviet Union 1520mm		trans-mongolian railroads
	India & Pakistan 1676mm		new trans-asian-rail bridge (proposed)
	Black Sea & Caspian Sea harbour		Chinese transcontinental network (proposed)
	world's top 15 busiest container ports		TRACECA Transport Corridor Europe-Caucasus-Asia
	Damascus		major local railway network (Europe & China)
	Moscow		high-speed railway network by 2020 (>250 km/h)
			existing major railway network

sources: TRACECA programme.eu
newrailroads.org
trans-mongolian-railroad.com
mtr.com

TD
THEO DEUTINGER

Travel time London - Beijing

1.5 day

2 days (2025)

15 days (2011)

26 days

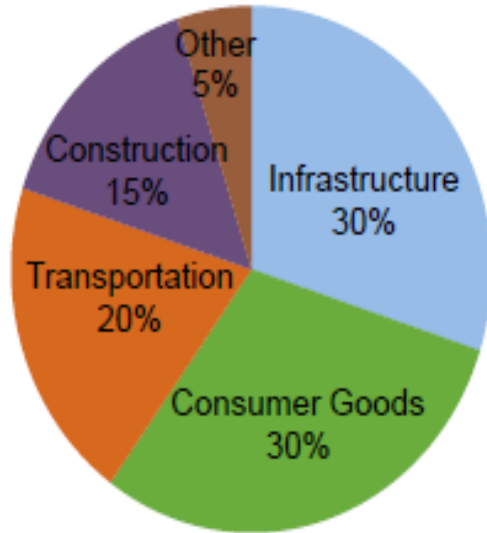
0 1000 km

- 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.

Chinese Zinc Demand to Remain Strong

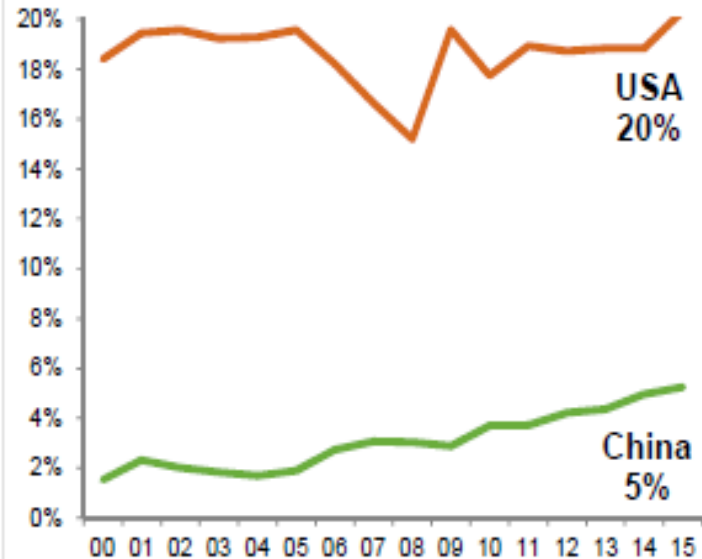
Teck

China Zinc Demand



Source: Teck

Galvanized Steel as % Crude Production

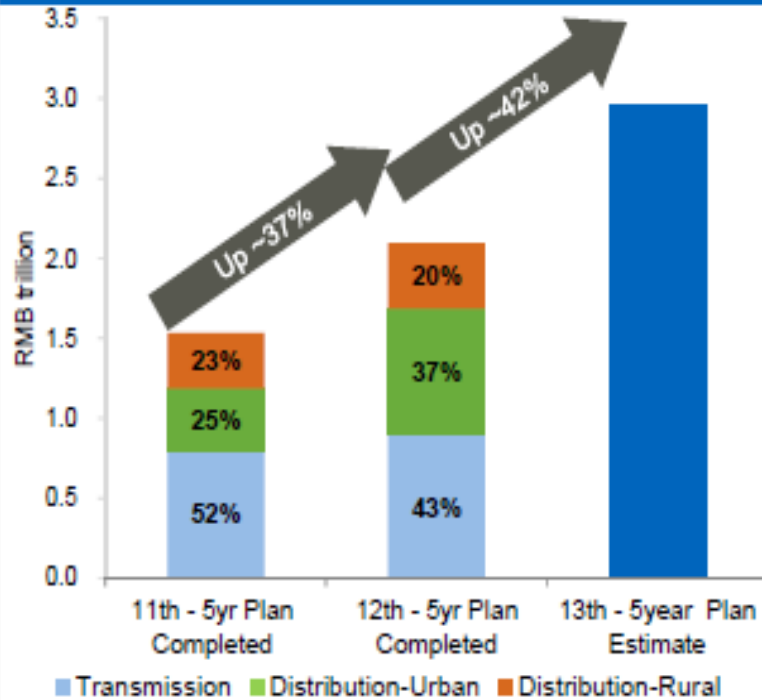


Source: Teck

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

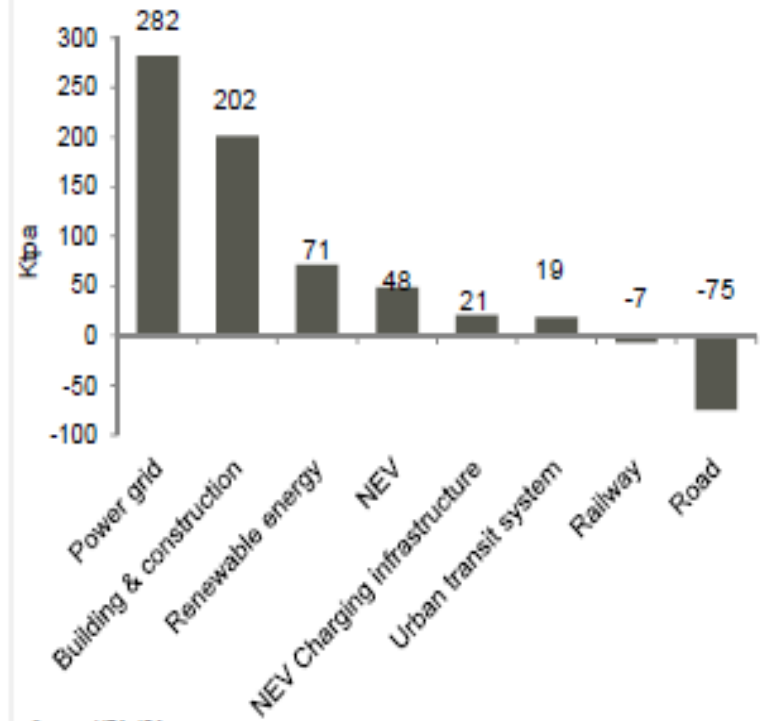
Chinese Copper Demand to Remain Strong **Teck**

Significant Power Grid Investment



Source: CEC, ICA

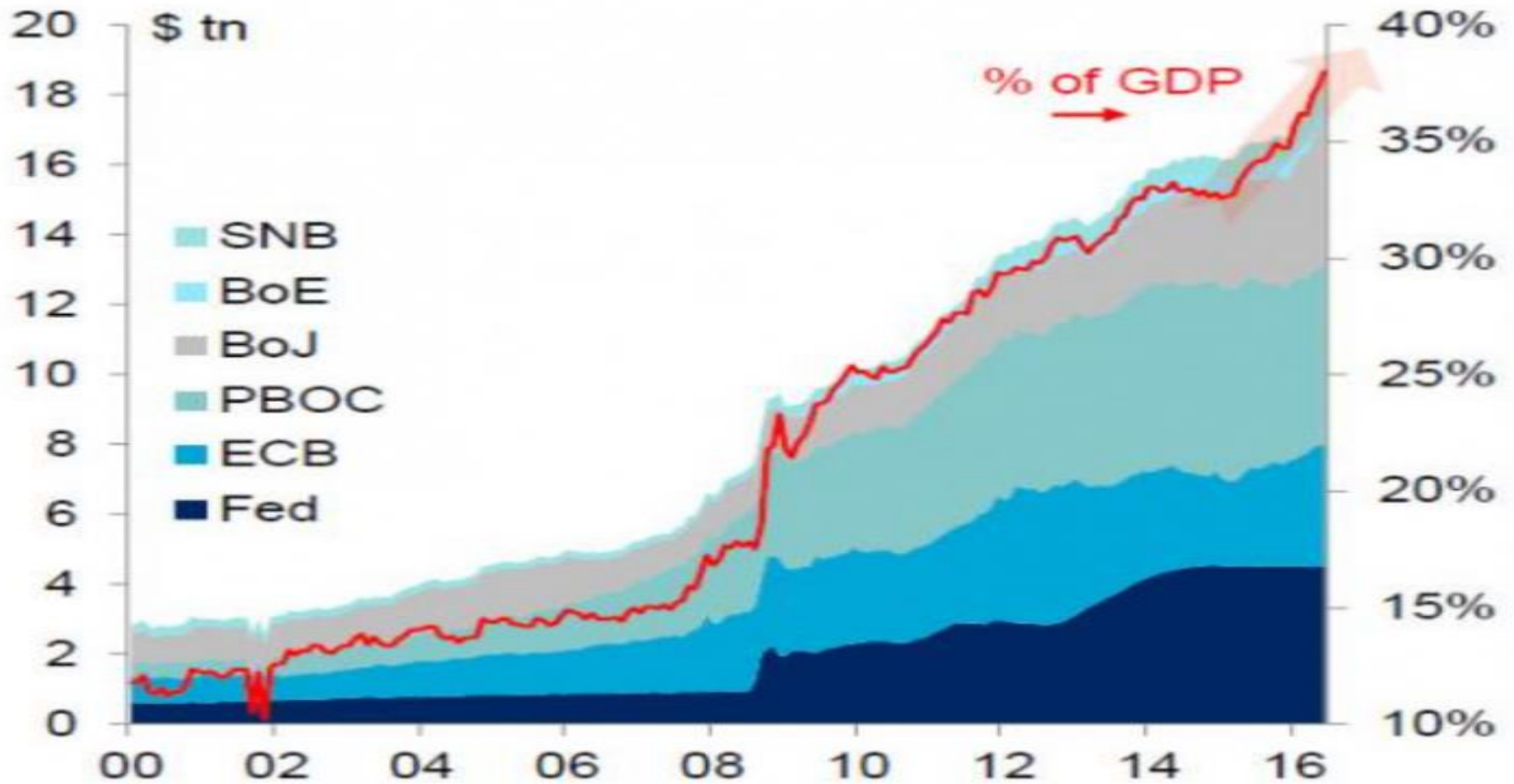
Potential Annual Growth in Most Sectors



Source: NEA, ICA

More and more and more!

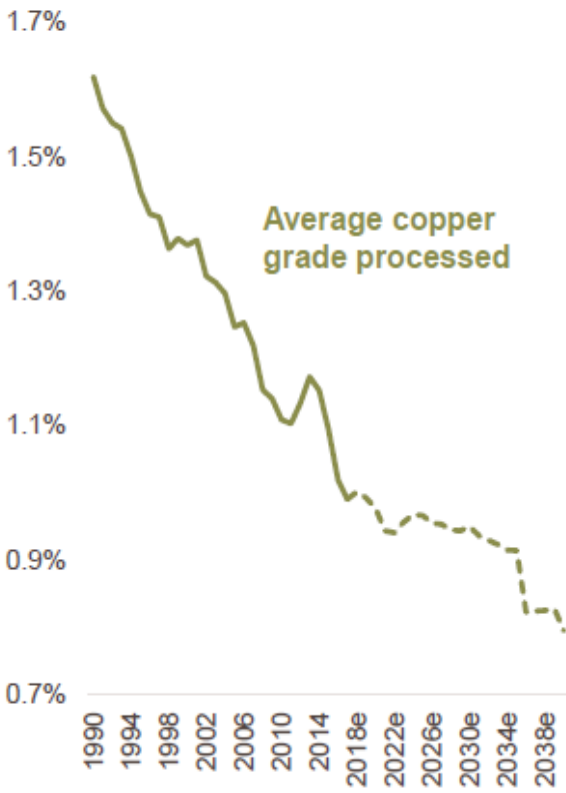
Aggregate balance sheet of large central banks, \$tn & % of GDP



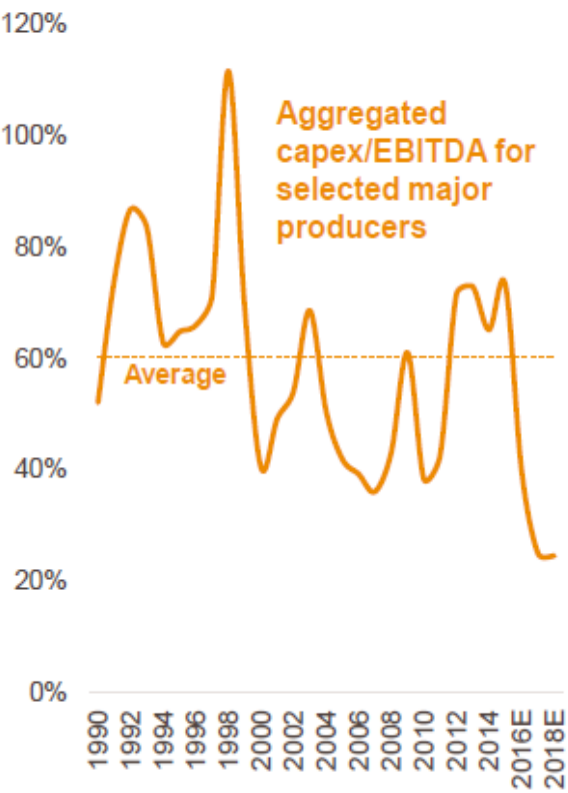
Source: Citi Research, Haver.

Sustaining copper mine supply is progressively more challenging

Mined copper grades continue to decline⁽¹⁾ ...



Sector reinvestment has collapsed^(1,2) ...



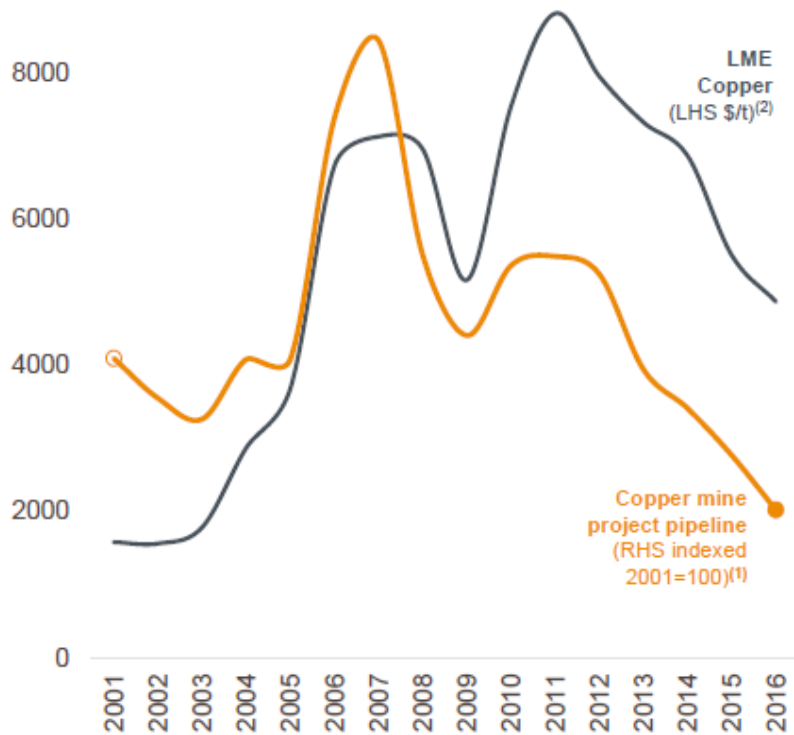
Exploration has been increasingly unsuccessful⁽¹⁾ ...



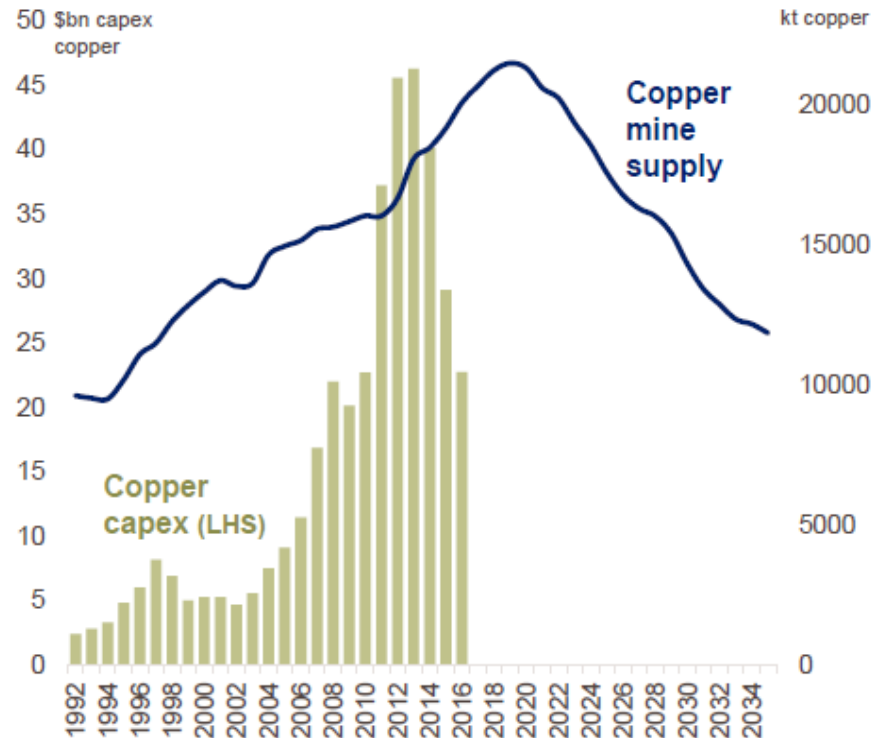
Source: (1) Bernstein European Metals and Mining, 8 March 2017, Copper & Gold – Not a production wall ... It's a production cliff! (2) Selected producers includes Rio Tinto, BHP Billiton, Anglo American, Glencore, Vale, First Quantum, South 32, Antofagasta. Estimates for 2016-2018 based on company guidance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

Sustaining copper mine supply is progressively more challenging

Copper mine project pipeline now below pre-supercycle lows



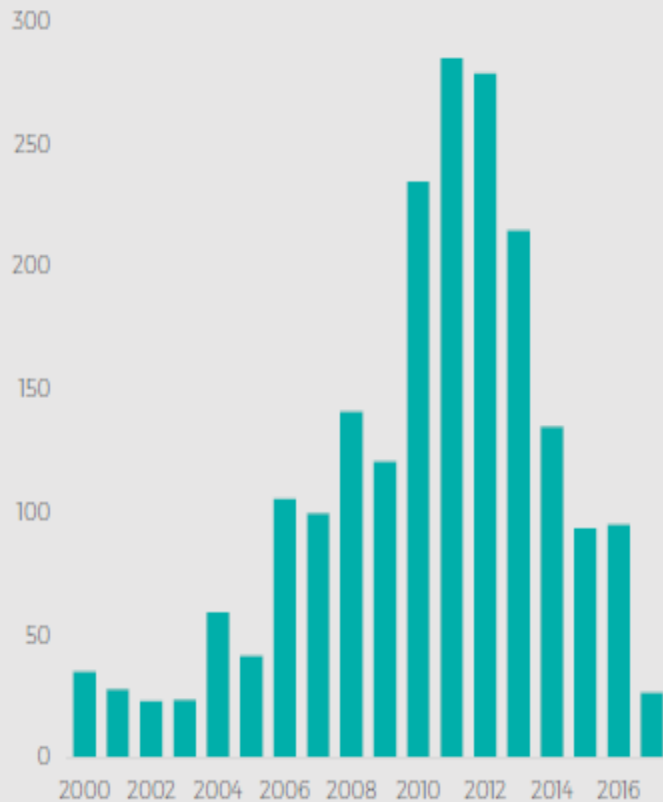
Supply is peaking in 2018 and declines thereafter at 3.5% CAGR with no reinvestment ⁽³⁾



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 2010, 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

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⁾

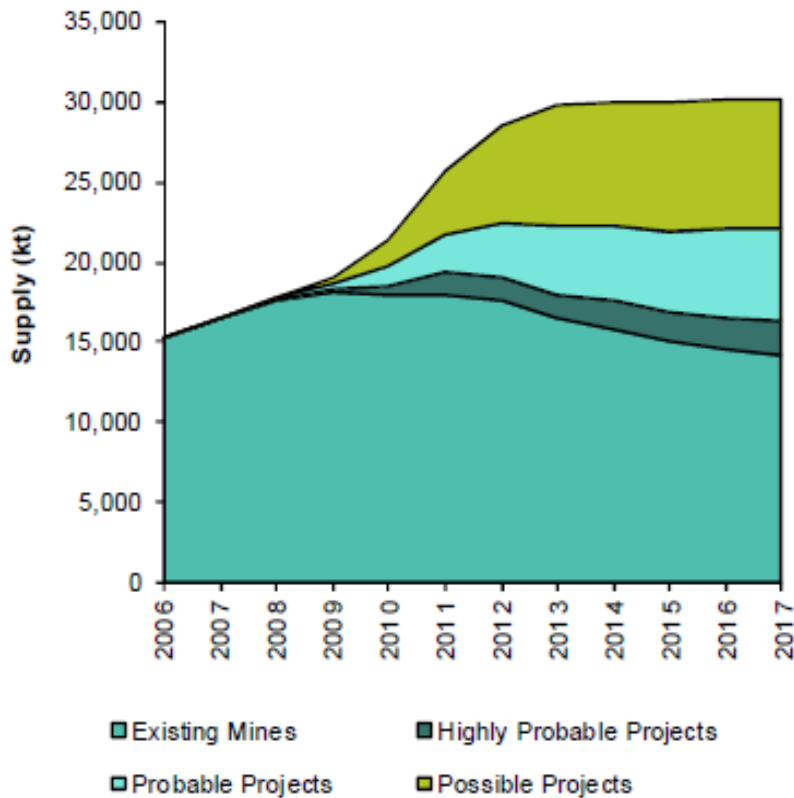


Mediocre supply response in relation to capex

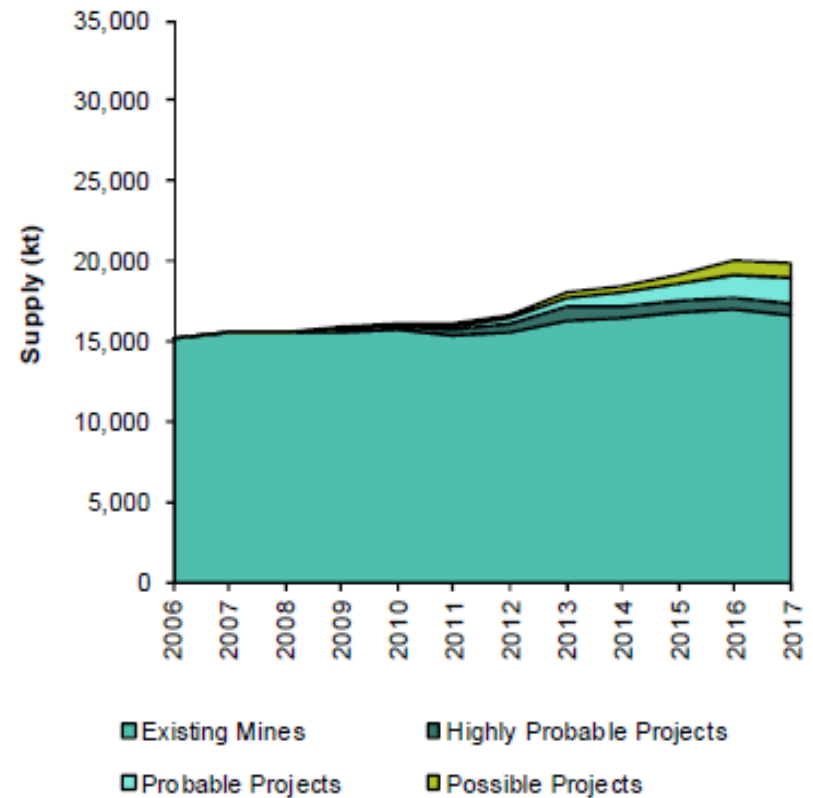
EXHIBIT 4: In 2007, the maximum 2017 run-rate supply was estimated at 30.2Mt, +99% growth (+6.4% CAGR) generating fears about a possible "wall of supply"...

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

2006 - 2017 Supply Forecast

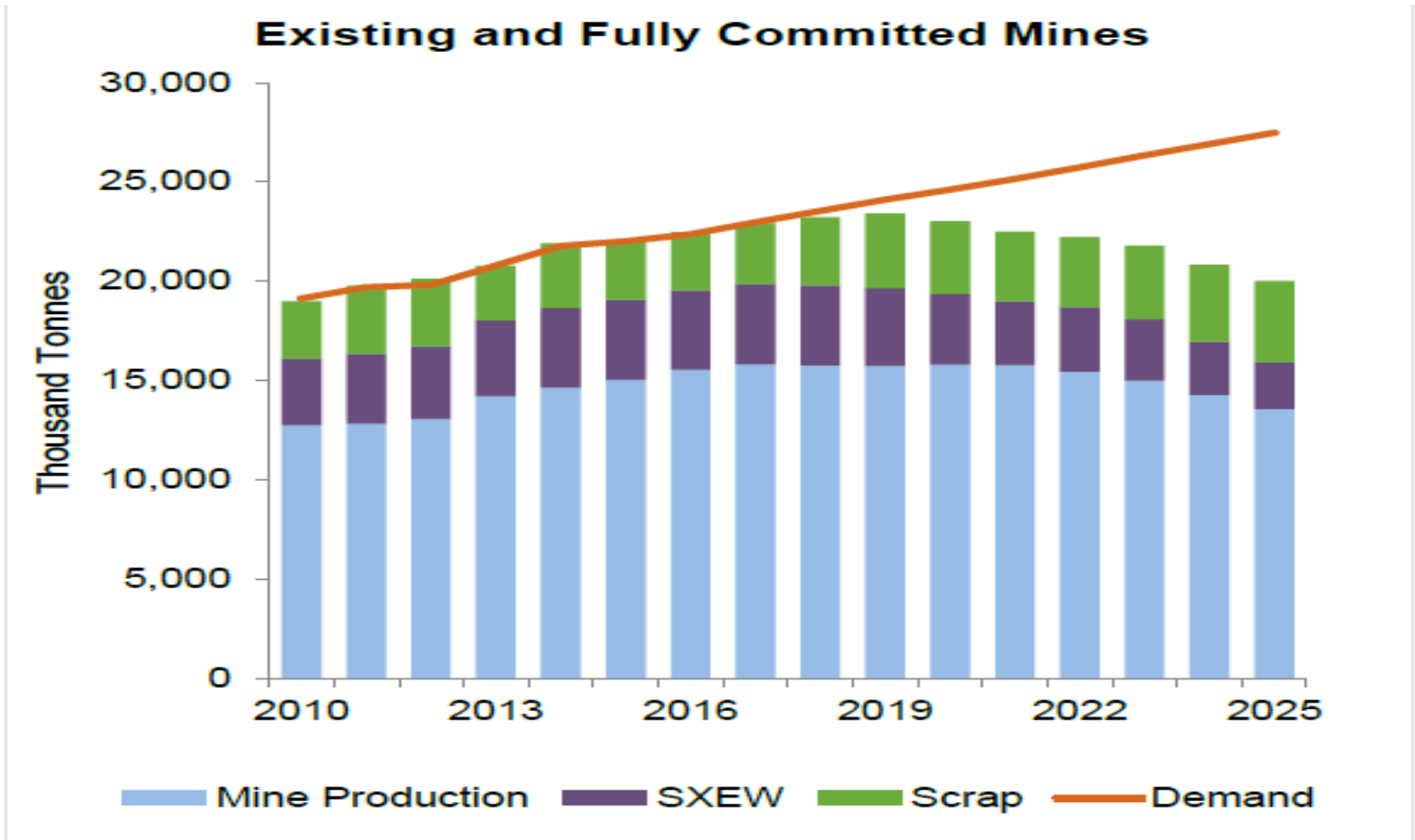


2006-2017 Actual Supply



Source: Brook Hunt, Wood Mackenzie, Bernstein analysis

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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⁾

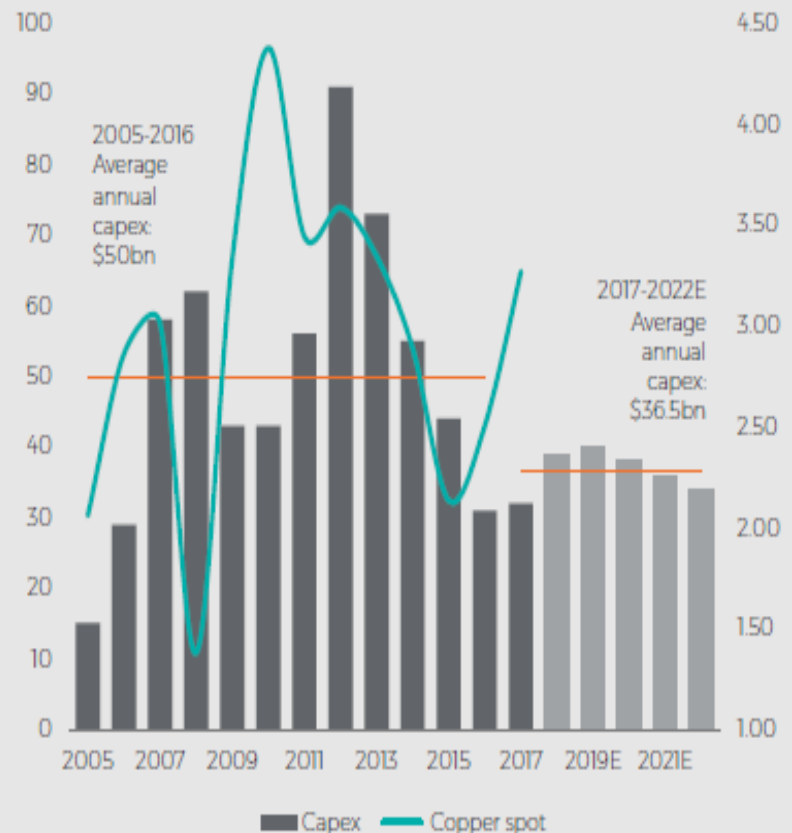
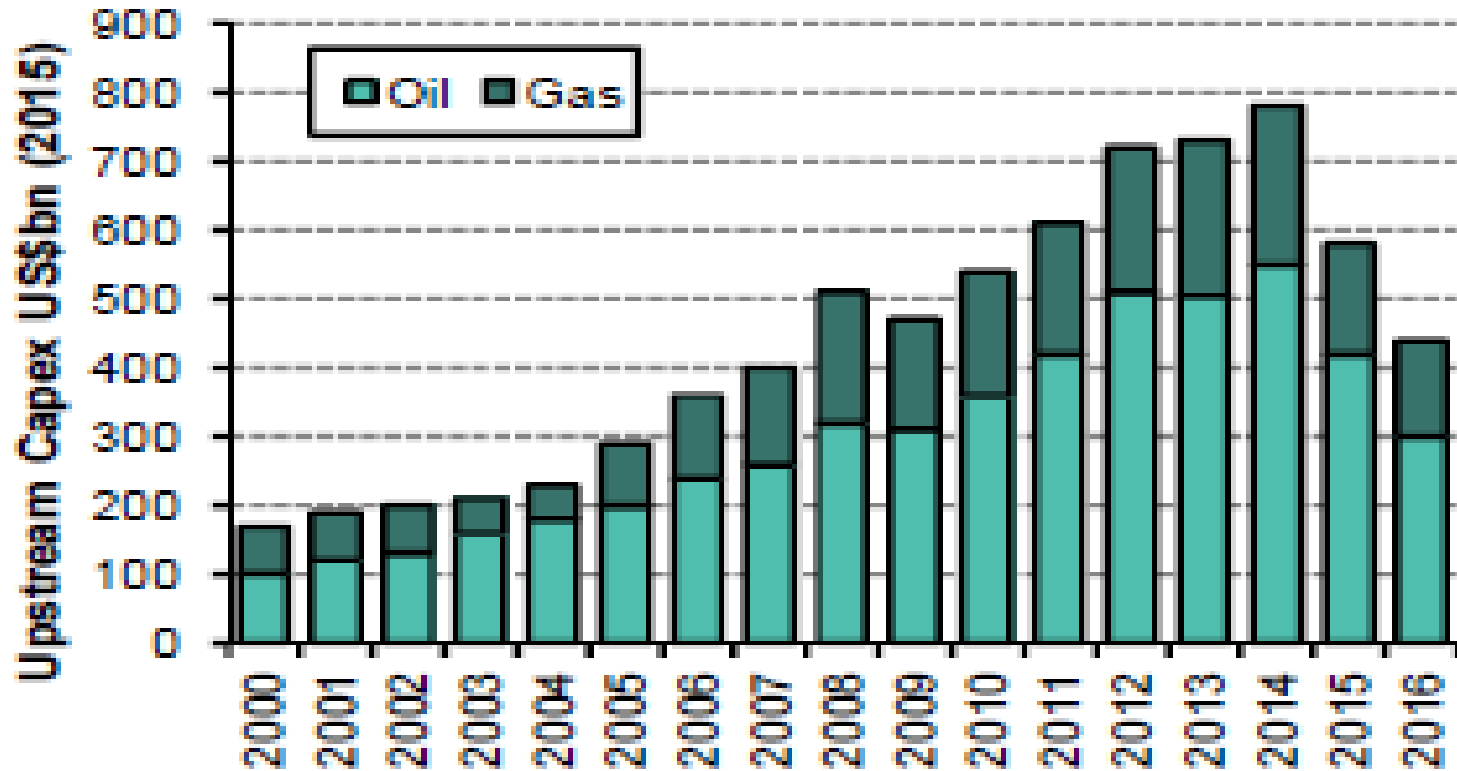


EXHIBIT 1: Organic Upstream Capex



Source: IEA

Exploration

Discovery

Decision to move into production

Announcement of financing, dillution, hedging

Cost overrun

Permitting problems

Delays

Investors throw the towel

Bank hike debt costs

Spent \$ can be bought for Cents

Cashflow starts kicking in

Debt is being reduced

Dividends are being announced

Production fades

Expansion is needed

Going underground

New pits