

21-22 MAY | LONDON

# COM RISK

COMMODITY RISK MANAGEMENT

# METALS

## Chairperson

Christian Mildner, Head of Corporate Sales – Physical Market Specialist, LME

# METALS

## Market trends – What risk managers in the metal sector should know

Oliver Nugent, Metals Strategists, Citi

Commodities Strategy | 22 May 2019

# Metals – Betwixt and Between Comrisk London Conference 2019

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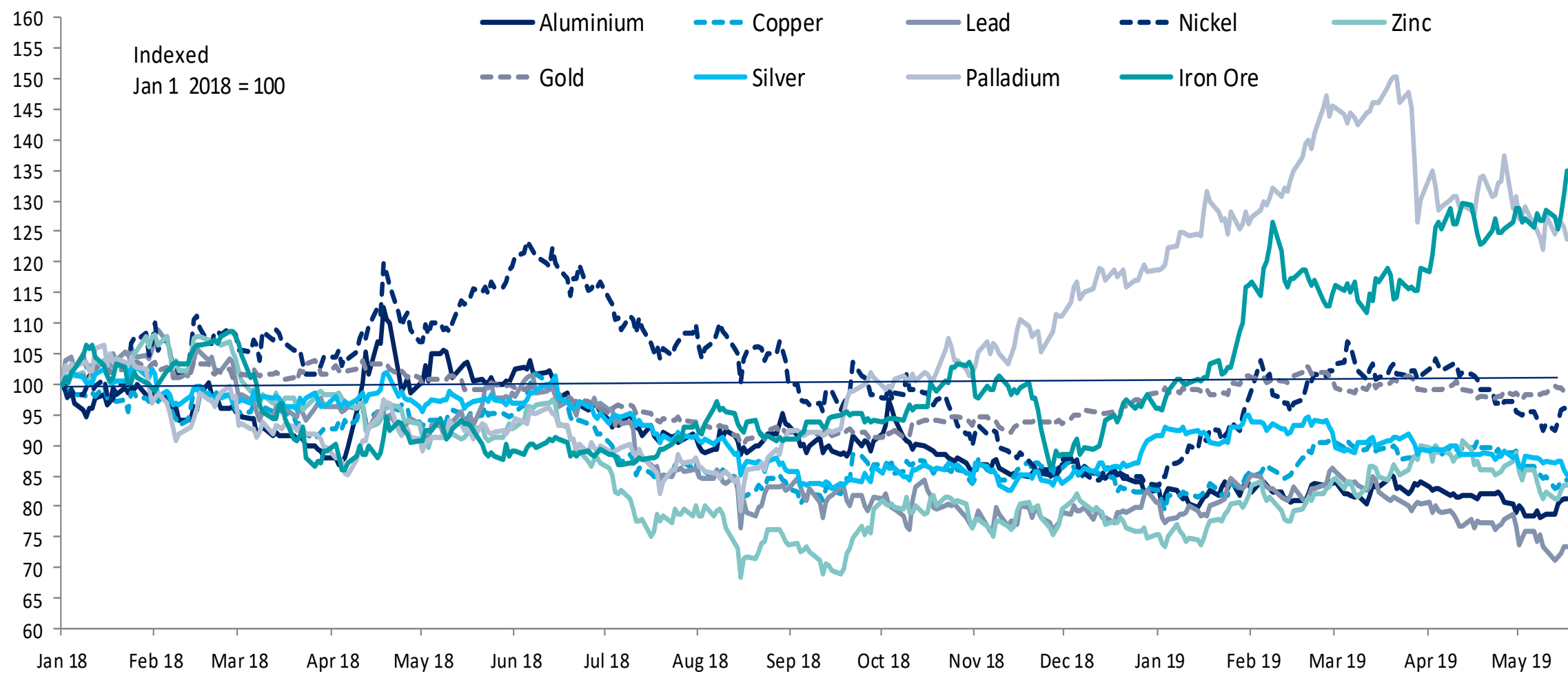
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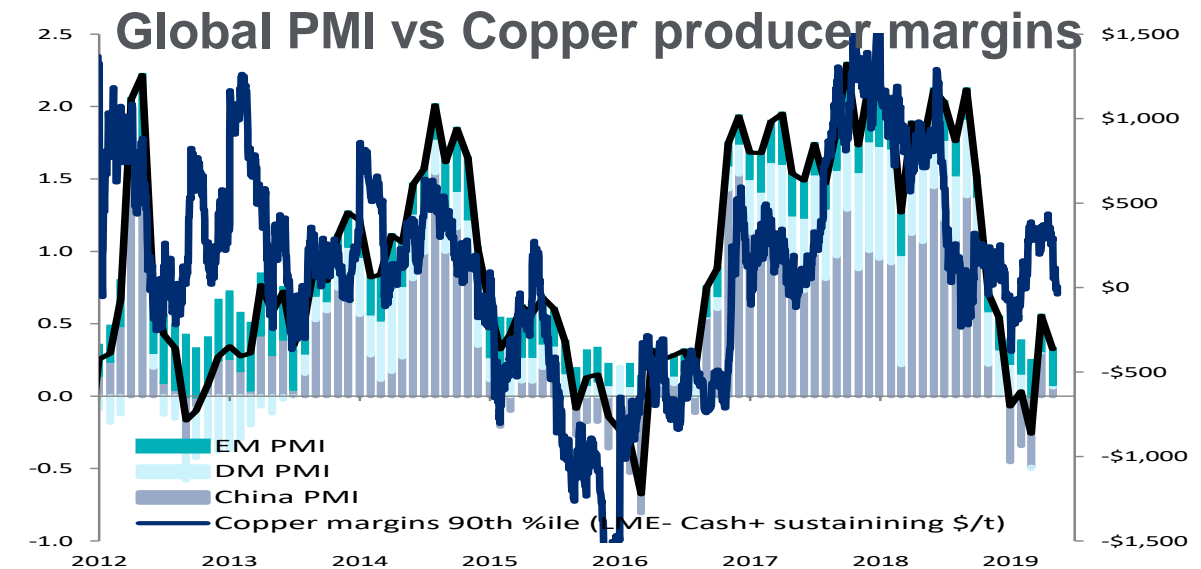
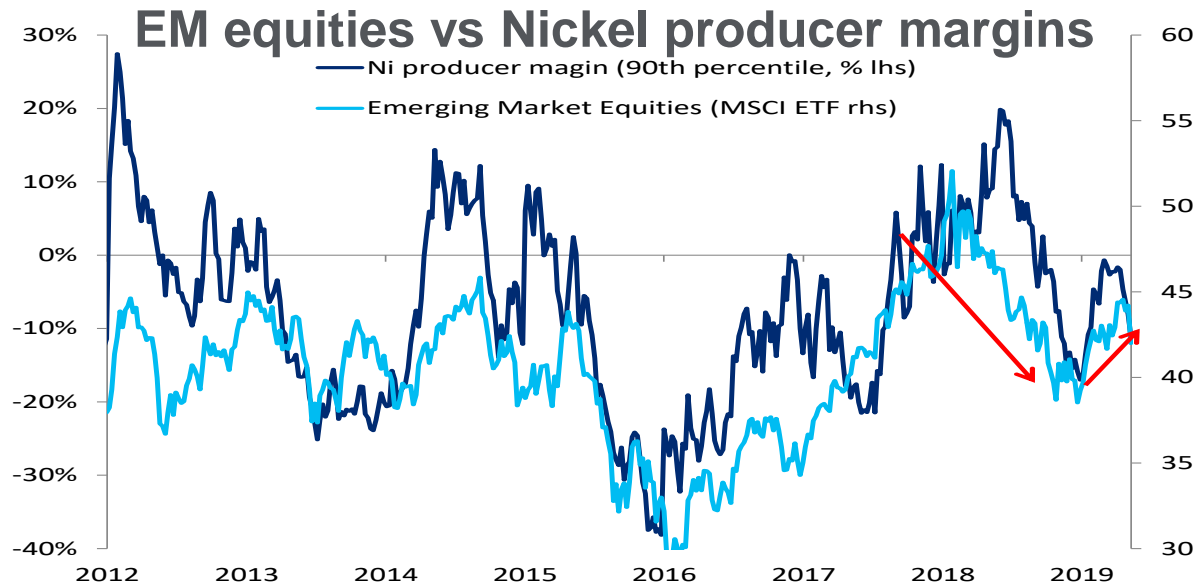
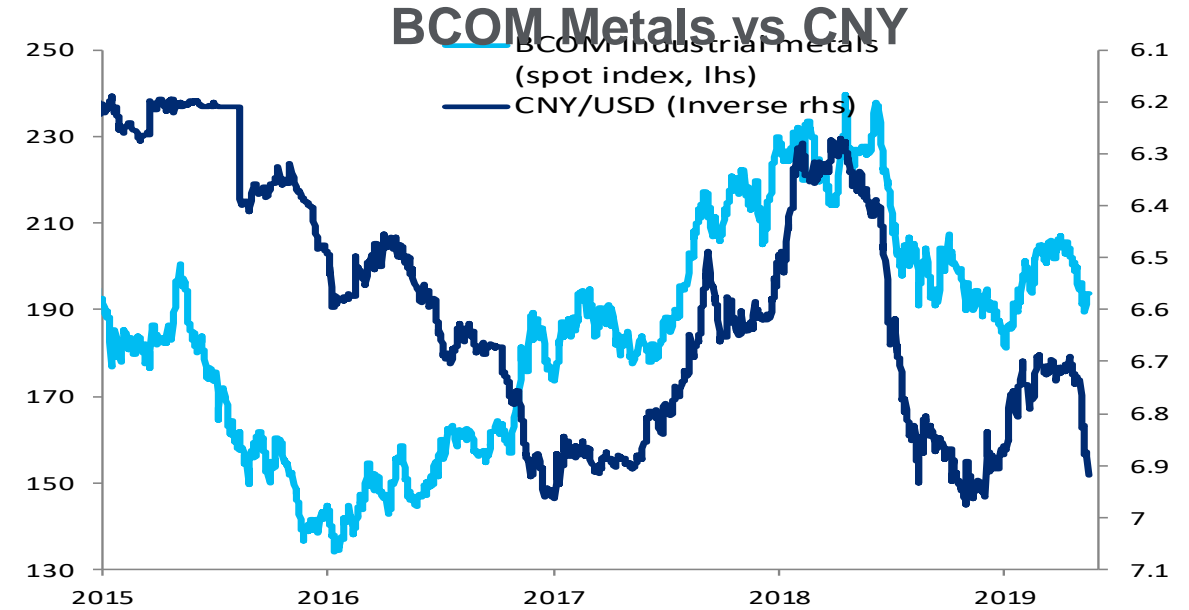
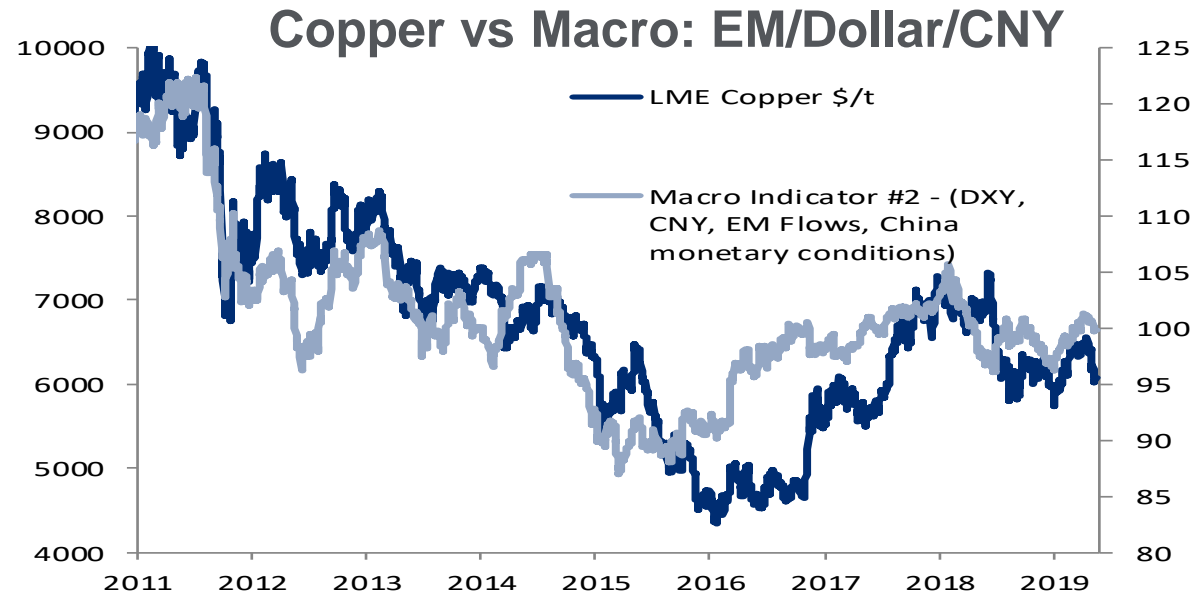


# Base metal prices have given away early year gains



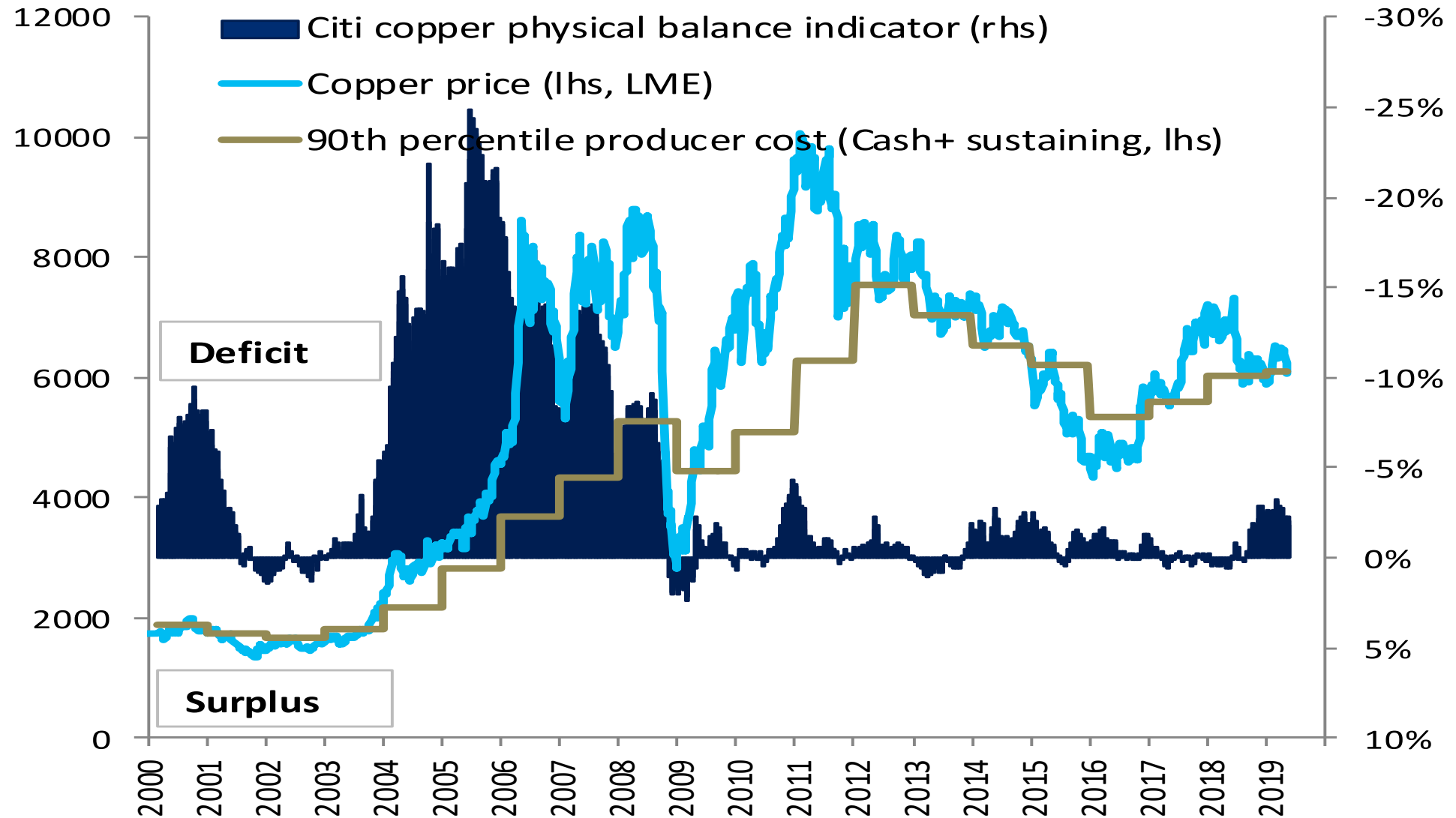
Source: Bloomberg, LME, SGX, CME, Citi Research

# With (mostly) tepid supply themes, metals are trading the macro



# Copper margins, spreads and positioning help tell you what is going on

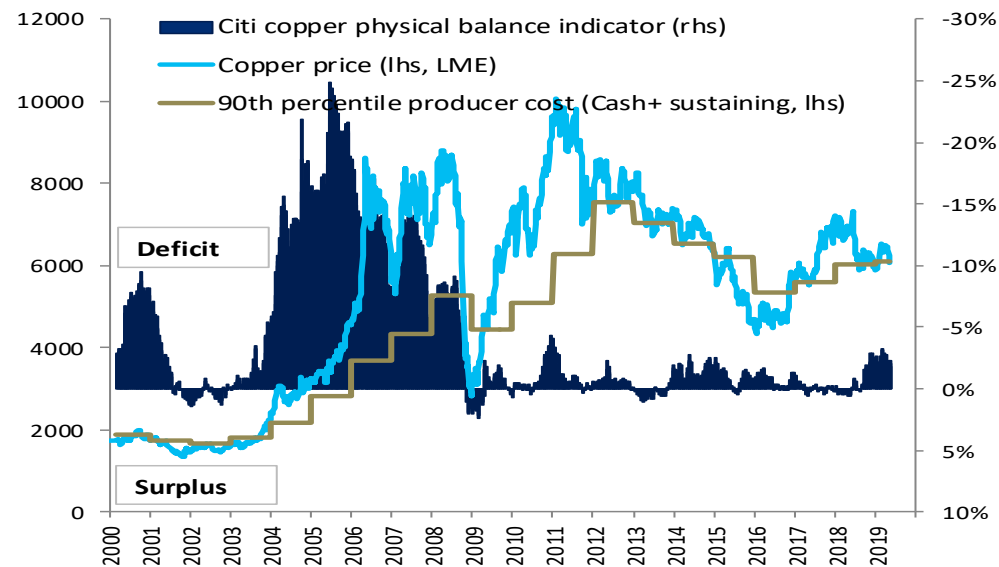
Our copper physical indicator still points to moderate tightness (rhs), and producer margins are now slightly negative vs \$6,080/t marginal cost (lhs)



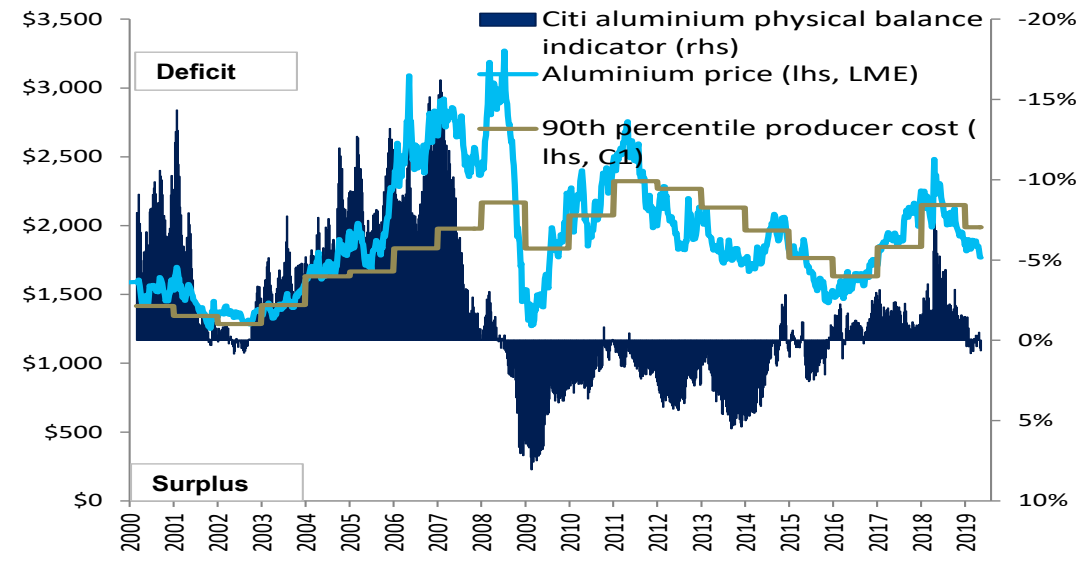
Source: Bloomberg, Wood Mackenzie, Citi Research

# Fundamental tightness mostly mild across the base metals

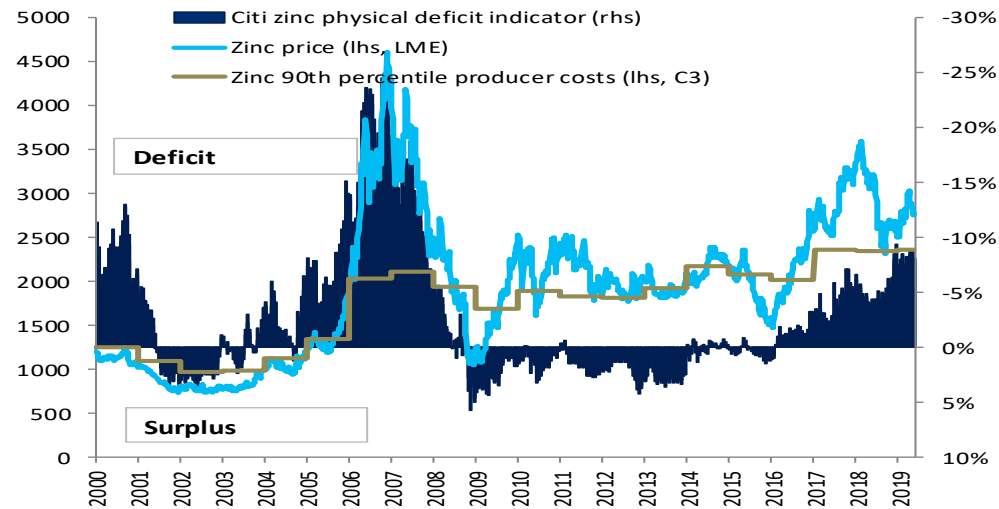
## Copper



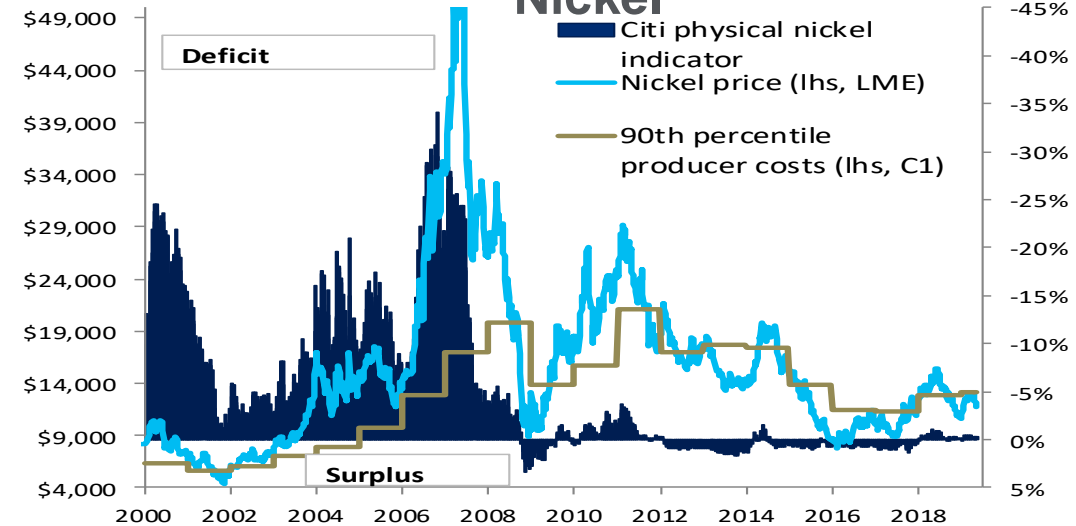
## Aluminium



## Zinc



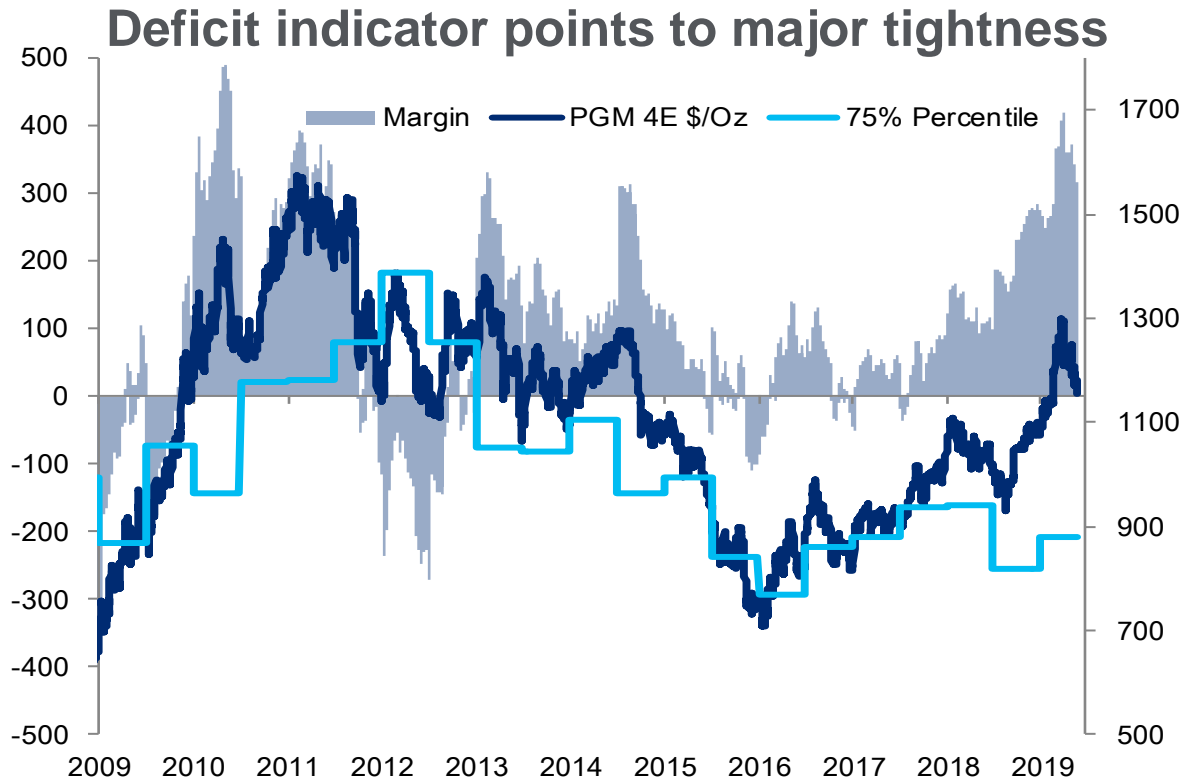
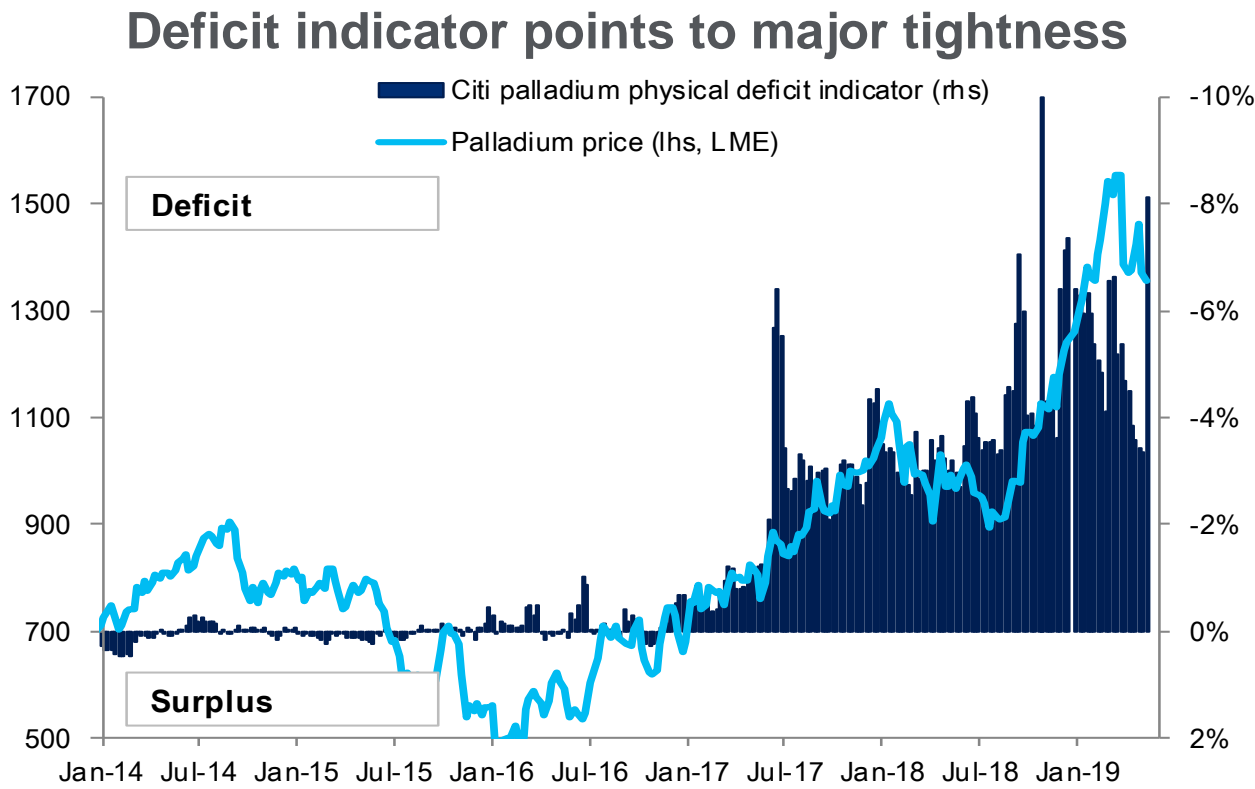
## Nickel



Source: Bloomberg, Wood Mackenzie, Citi Research



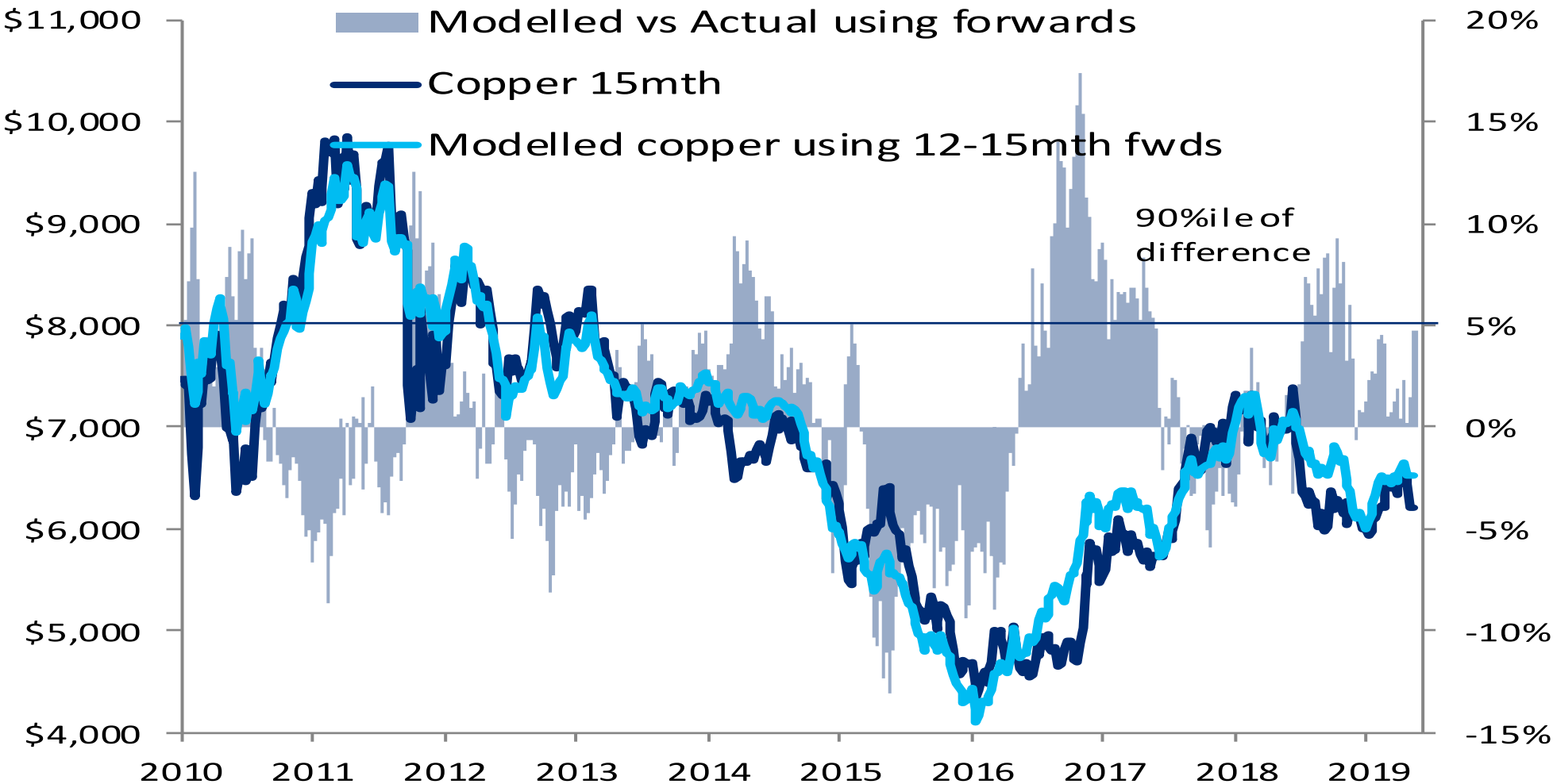
# Compare with the genuinely tight, macro defying - Palladium



Source: Bloomberg, Citi Research

# Macro sentiment is particularly important to copper in the short run

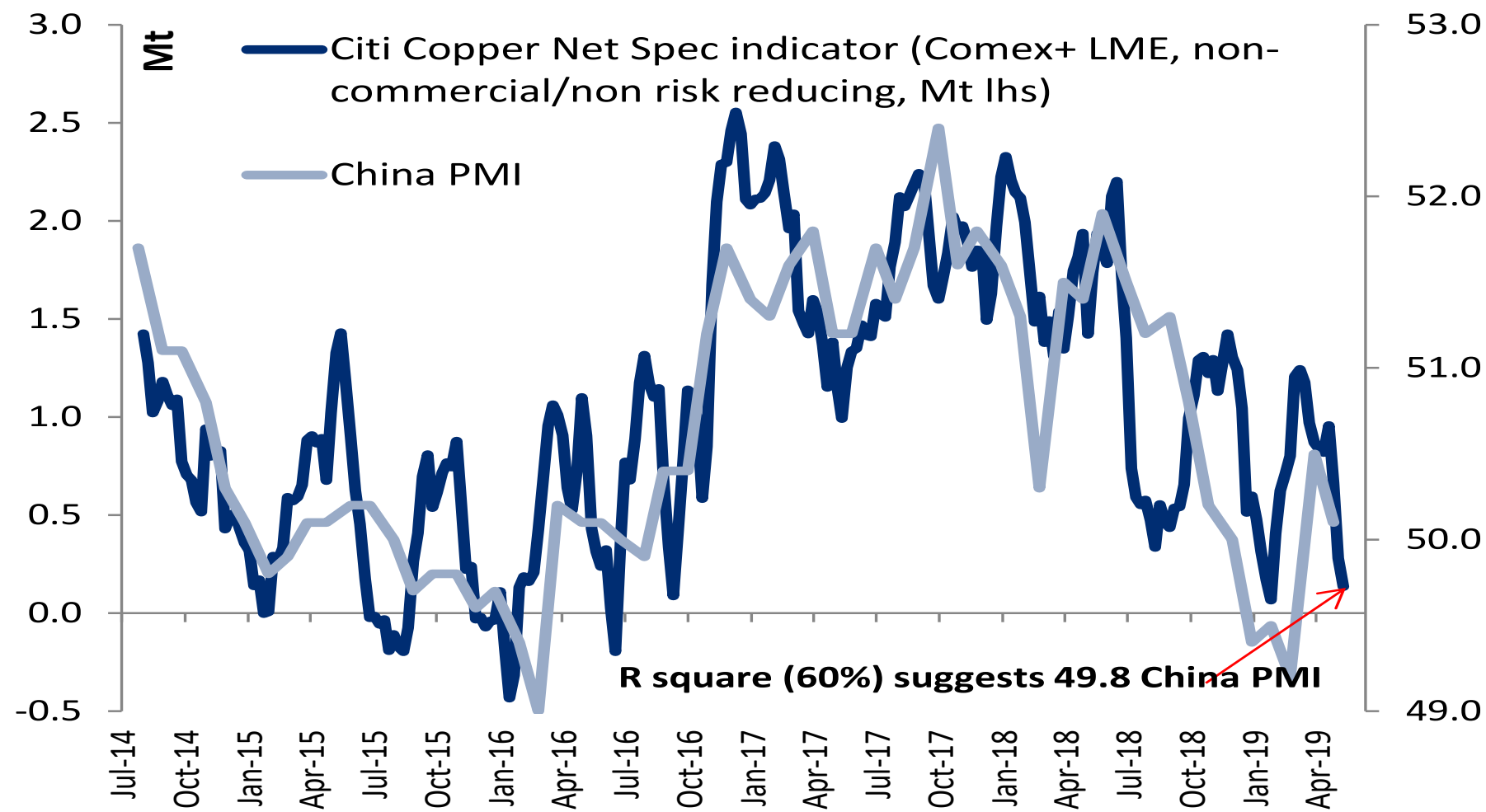
Copper took the brunt of the trade war fears in June, but divergences to other commodities do not tend to last



Source: Bloomberg, Citi Research

# Macroeconomic sentiment is particularly important to copper in the short run

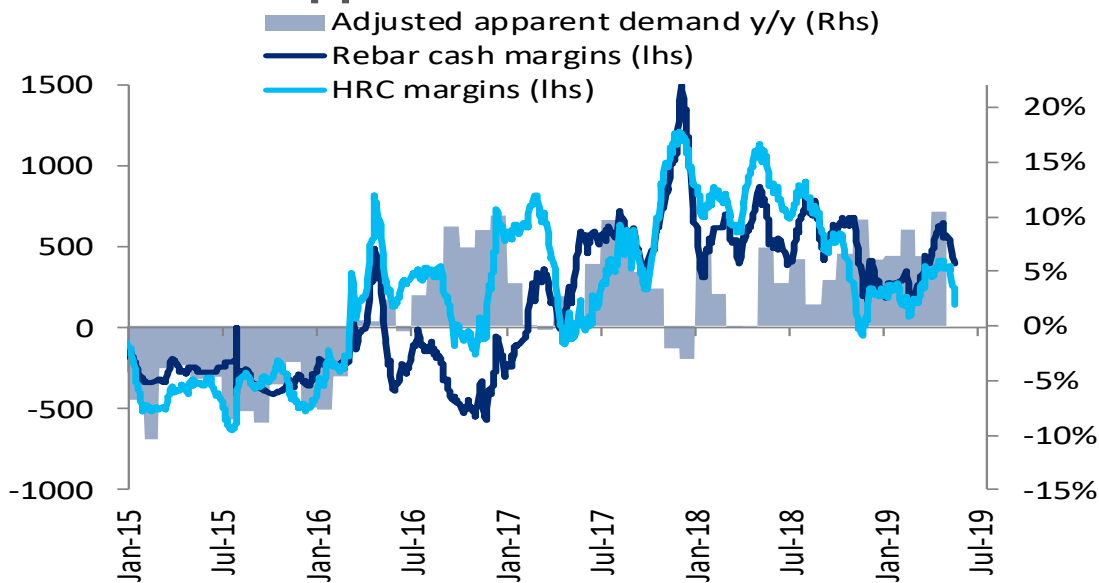
Copper positioning is now very low, and consistent with a sub 50 China PMI print (vs April print of 50.1)



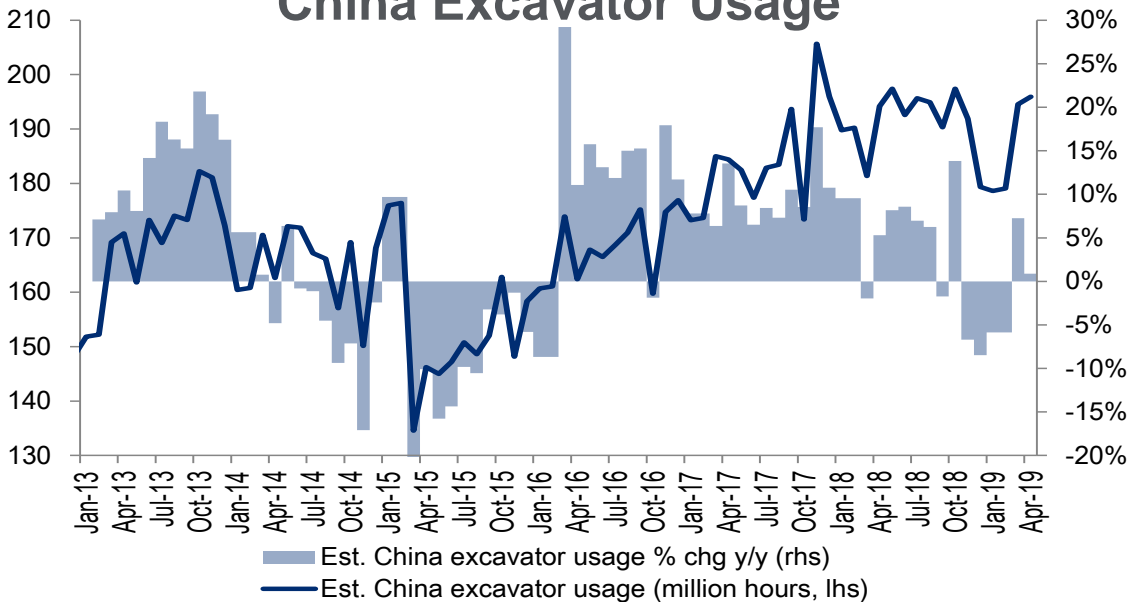
Source: Bloomberg, CFTC, LME, Citi Research

# The 'hard' Chinese demand data hasn't yet shown a collapse

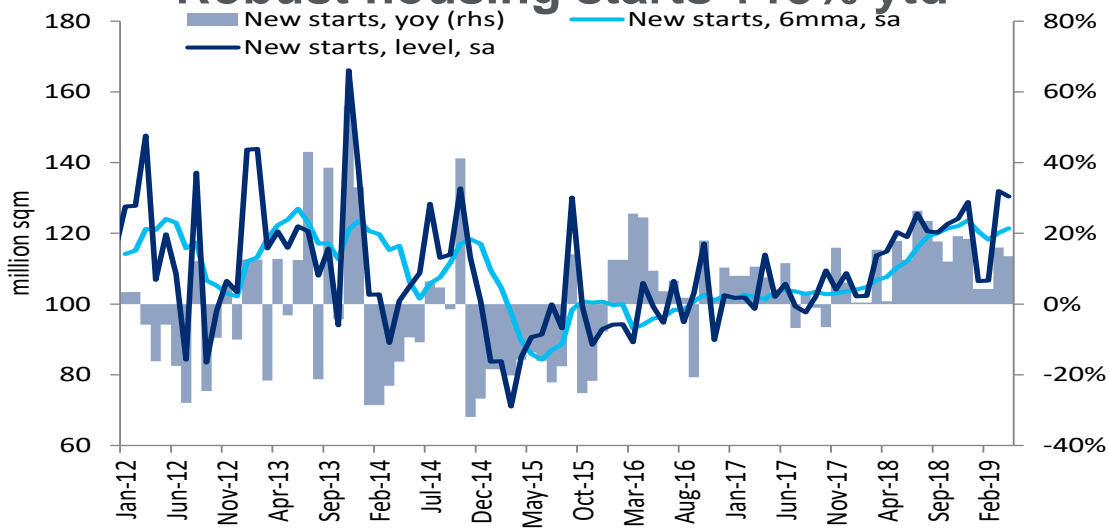
## Apparent steel demand



## China Excavator Usage



## Robust housing starts +13% ytd



## End Use Copper Demand still positive

CCET End Use (YoY)		Building & Construction 22%	Cooling/Aircon 11%	Appliances 10%	Automotive 7%	All Other (ex-Grid) 32%
Dec-18	4.4%	21%	8%	1%	-14%	0.1%
Jan-19	-0.7%	-3%	6%	-1%	-10%	0.3%
Feb-19	-1.1%	-3%	6%	-1%	-16%	0.3%
Mar-19	5.2%	11%	20%	2%	-1%	2.0%
Apr-19	1.0%	3%	7%	3%	-13%	1.0%
YTD	2.5%	1%	11%	1%	-9%	1%

Source: Bloomberg, China NBS, Zoomblan, Komatsu, Citi Research

# Trade war risks to global growth have been a drag on metal prices

Citi remains cautiously optimistic on a veneer of a US-China trade deal in Q2, perhaps at the June G20 Summit, we note that the timeline for a potential trade deal to cease tensions could extend well into 2020 or beyond, and that a China-containment strategy beyond trade will continue. Wider auto-tariffs are still coming.

**May 20-** US lifts Canada-Mexico metal tariffs: key steps towards USMCA

**June 1 –** China implements retaliation, increased tariff's across \$60Bn of US imports

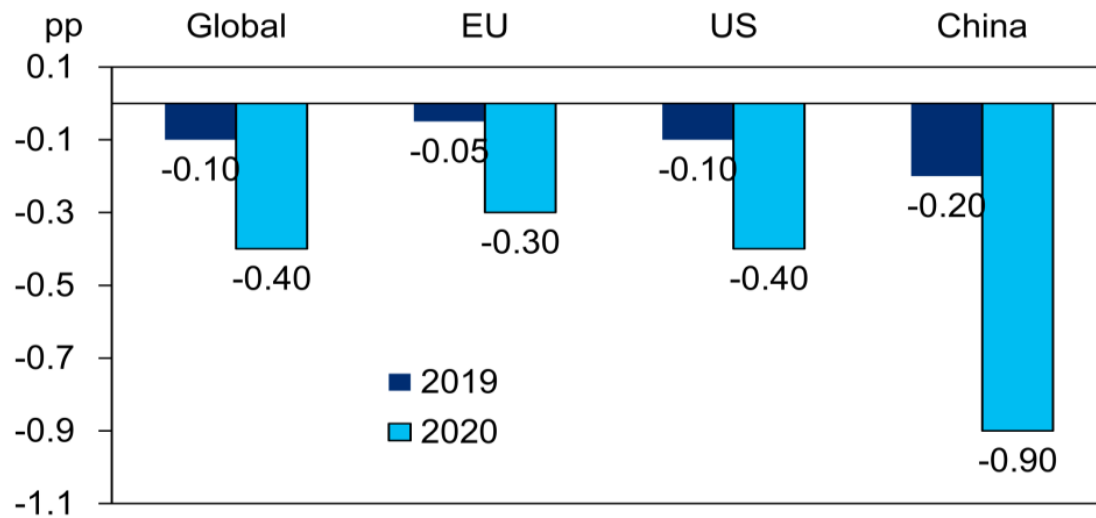
**June 24 –** (As soon as) US implementation of 25% tariffs on ~\$300bn Chinese imports. The USTR scheduled hearings for June 17 and headlines suggest tariffs on the \$300bn implemented 7 days after.

**June 28-29 -** G20 leaders summit, Xi-Jump meetings, opportunities for a deal?

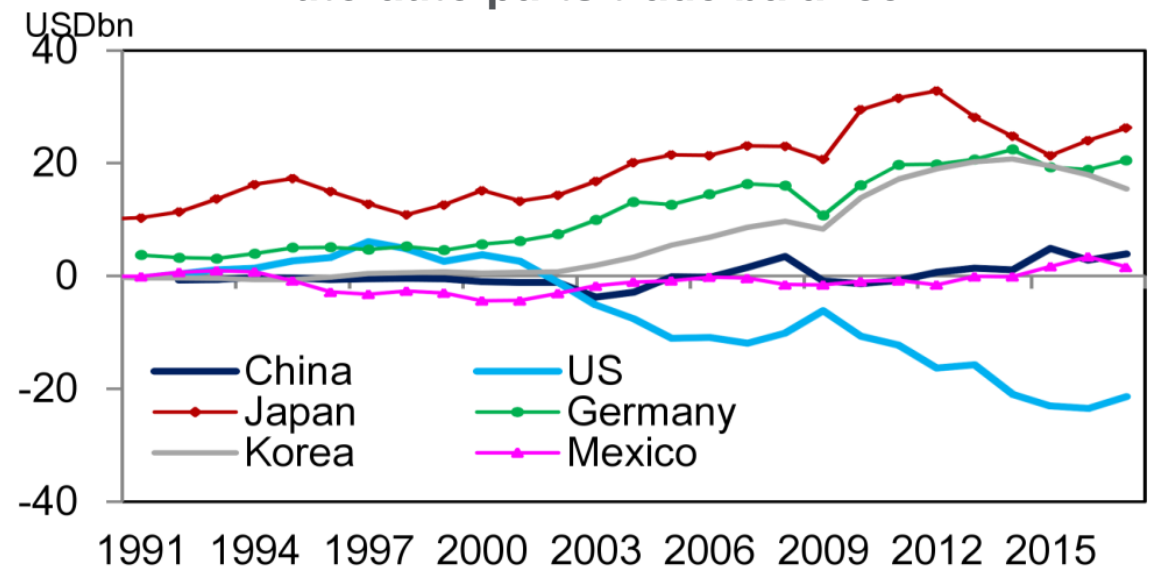
**November 14 –** Hard deadline for US auto/auto-parts – focus on Europe

-----**November 2020- US Presidential elections** -----

**Simulation GDP at full blown trade war\***



**Auto-auto parts trade balance**



\* US- China e.g. 25% tariff on all bilateral US-China trade starting in late 2Q), and a partial increase in tariffs between the US and the EU (e.g. 25% on US imports of EU cars and parts, plus proportionate retaliation, plus tariffs vs aircraft subsidies, starting in 4Q)

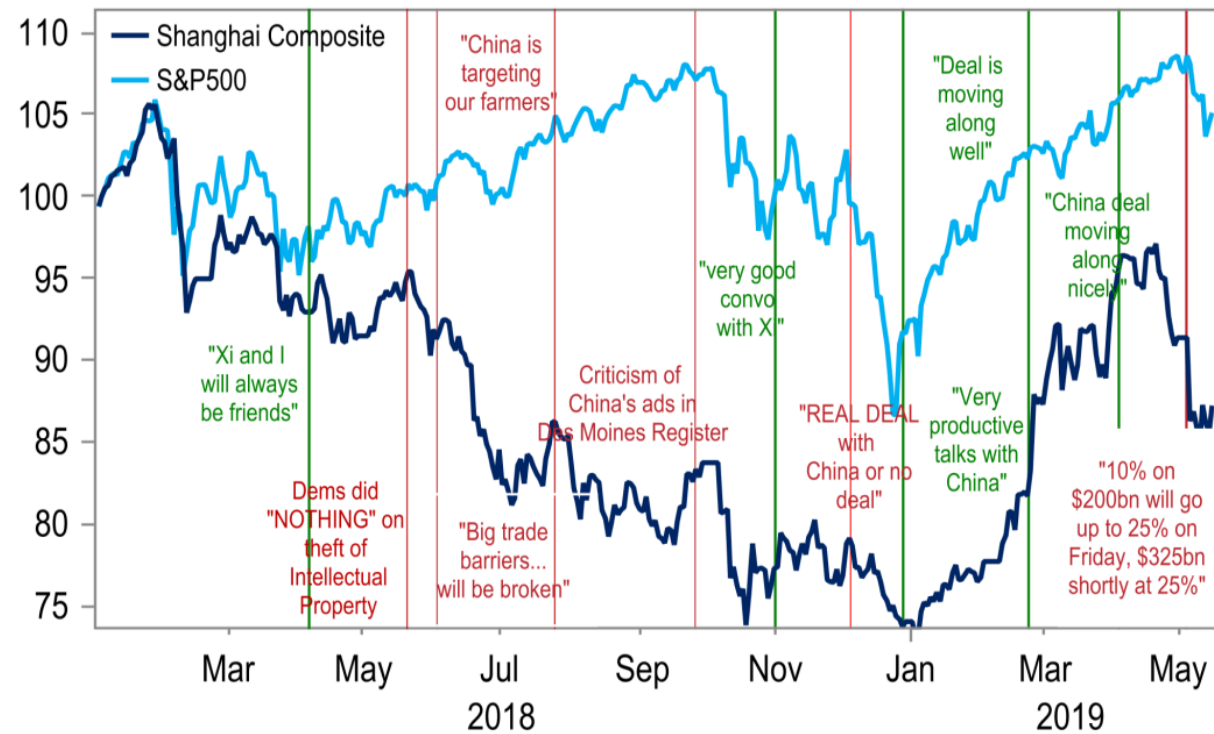
Source: Bloomberg, Citi Research



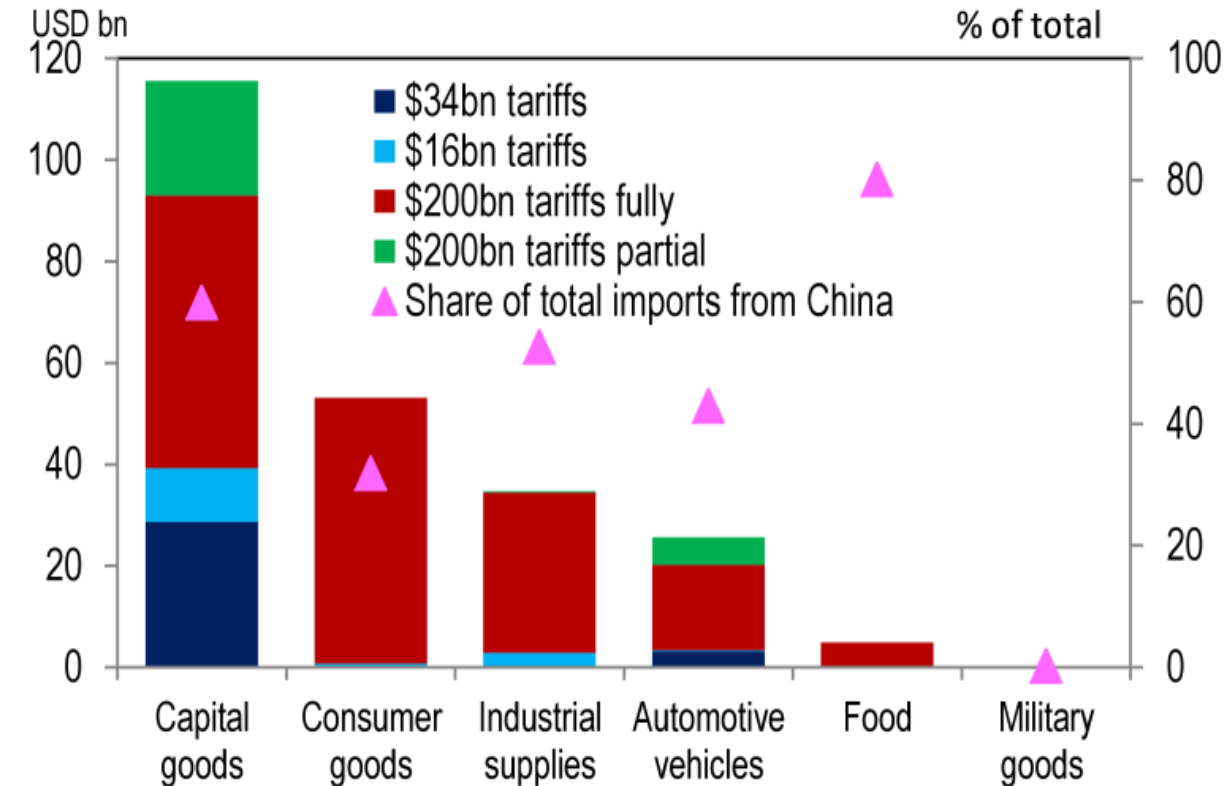
# Trump – deal maker or ideologue?

US Equity markets so far largely outperform  
but drop from April highs

3 Jan 2018 = 100



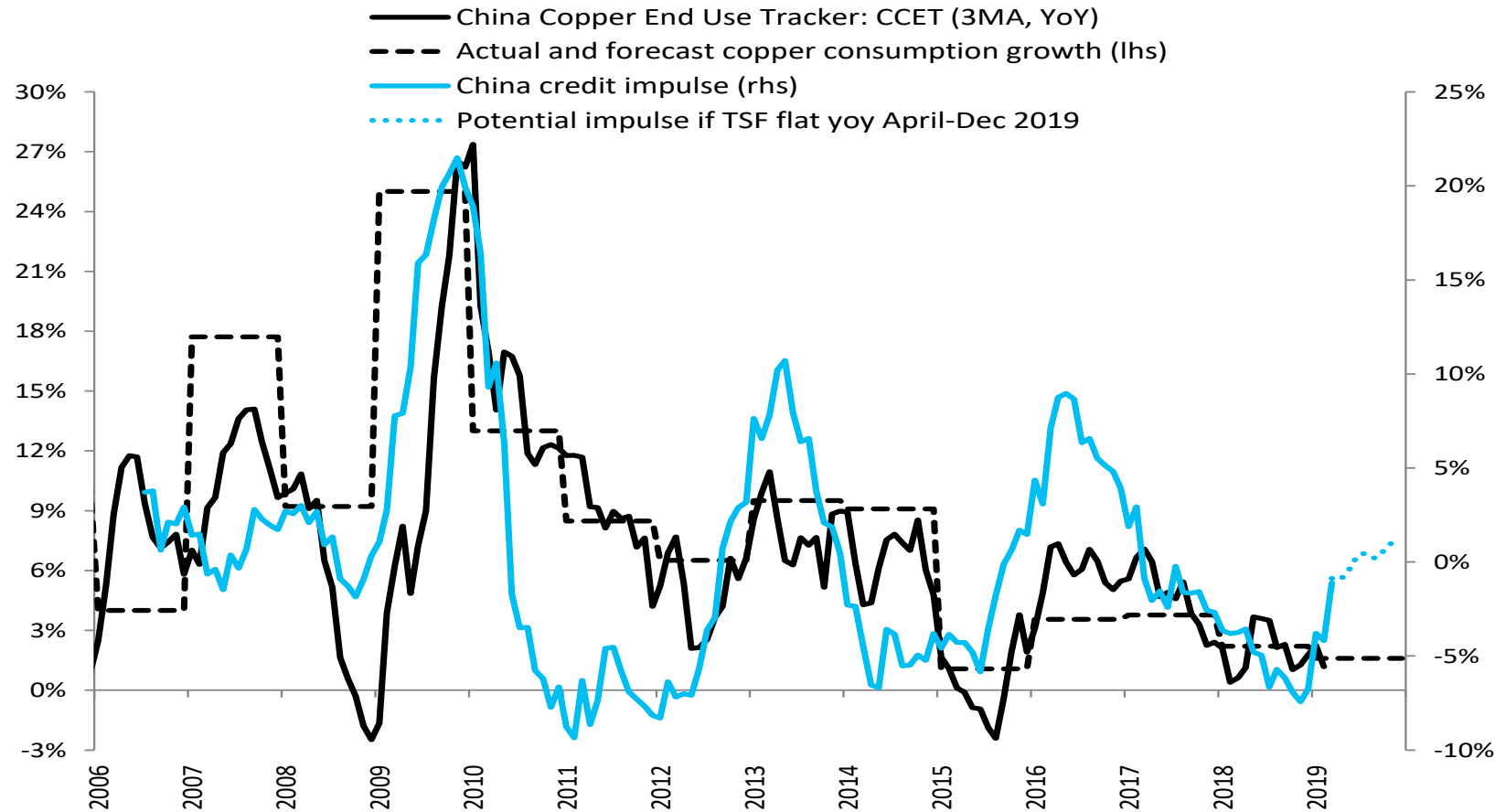
New US Tariffs pose greater inflation risks  
US implemented tariffs on China  
(as part of section 301 investigation)



# Our top down work supports at least 2% Chinese Copper demand growth...

Our 2% China refined copper consumption growth forecast looks easily consistent with the latest China credit data. Even assuming no incremental y/y growth in credit flows for the remainder of 2019, the credit impulse looks more than sufficient to support our forecast. We see the impact of higher tariffs as somewhat mitigated by our assumption of sufficient further China easing to get 6.4 percent GDP growth.

**The increasing China credit impulse suggests that if anything the risks to our China refined copper demand growth forecast is skewed to the upside**



# Citi's base case (60% weighting) is constructive vs current prices

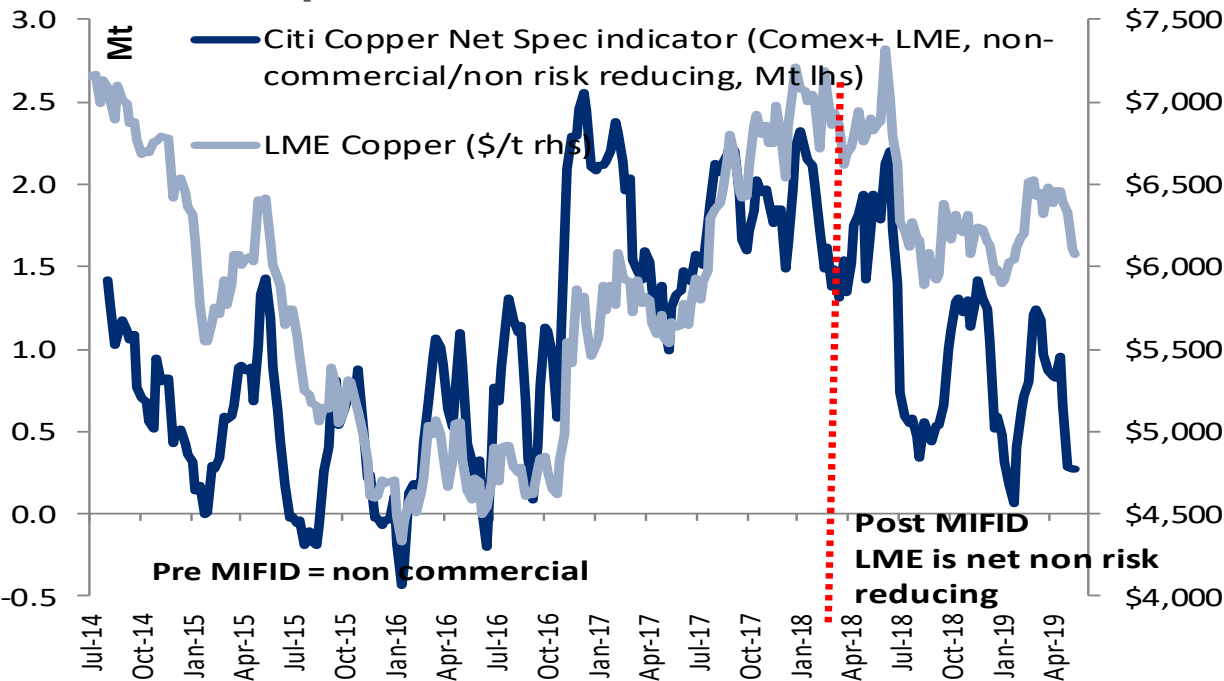
Our new base case is predicated on continued 25% tariffs on the first \$250bn through the 3Q19, that trade negotiations continue, and that they resolve during 2H19 with a gradual unwind of tariffs starting in 4Q19.

Base Metals	Scenario Weight	Unit*	2018	1Q19	2Q19f	3Q19f	4Q19f	2019f
Aluminium (Bull)	10%	\$/t	2110	1883	1950	2050	2100	1995
Aluminium (Base)	60%	\$/t	2110	1883	1900	2000	2050	1960
Aluminium (Bear)	30%	\$/t	2110	1883	1600	1600	1600	1670
Copper (Bull)	10%	\$/t	6530	6216	7200	7500	7500	7105
Copper (Base)	60%	\$/t	6530	6216	6200	6400	6600	6355
Copper (Bear)	30%	\$/t	6530	6216	5800	5800	5800	5905
Lead (Bull)	10%	\$/t	2240	2034	2200	2200	2300	2185
Lead (Base)	60%	\$/t	2240	2034	1850	1900	2000	1945
Lead (Bear)	30%	\$/t	2240	2034	1700	1600	1600	1735
Nickel (Bull)	10%	\$/t	13115	12365	13000	13500	14000	13215
Nickel (Base)	60%	\$/t	13115	12365	12000	12500	13000	12465
Nickel (Bear)	30%	\$/t	13115	12365	10000	10000	10000	10590
Tin (Bull)	10%	\$/t	20371	21002	22500	22500	22500	22126
Tin (Base)	60%	\$/t	20370	21002	20000	20500	21000	20625
Tin (Bear)	30%	\$/t	20370	21002	18000	18000	18000	18750
Zinc (Bull)	10%	\$/t	2920	2704	3300	3000	2700	2925
Zinc (Base)	60%	\$/t	2920	2704	2800	2500	2300	2575
Zinc (Bear)	30%	\$/t	2920	2704	2500	2400	2100	2425
Alumina (Bull)	10%	\$/t	475	387	420	420	415	410
Alumina (Base)	60%	\$/t	475	387	405	390	385	392
Alumina (Bear)	30%	\$/t	475	387	370	360	350	365
MW premium (Bull)	10%	c/lb	19	19.2	19.0	20.0	21.0	20
MW premium (Base)	60%	c/lb	19	19.2	18.5	17.0	15.0	17
MW premium (Bear)	30%	c/lb	19	19.2	18.0	15.0	13.0	16

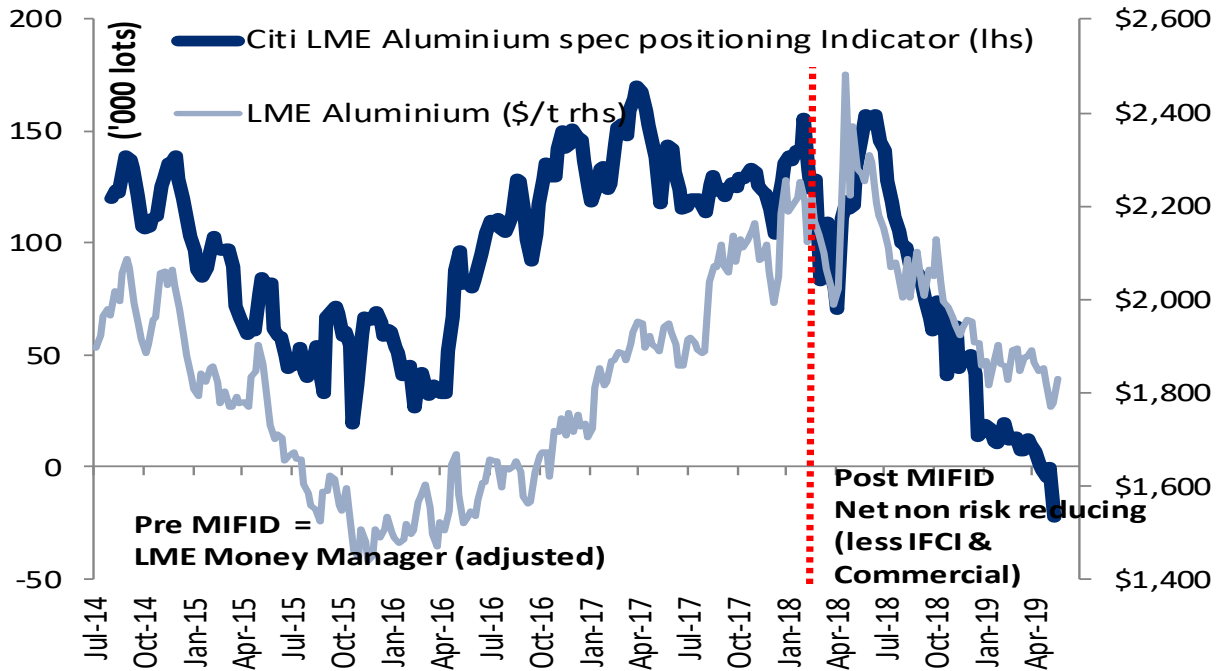
Source: Bloomberg, LME, China NBS

# Positioning is largely ‘flushed’ out,

## Copper net spec's back to lows pre Trump election & “reflation” trade

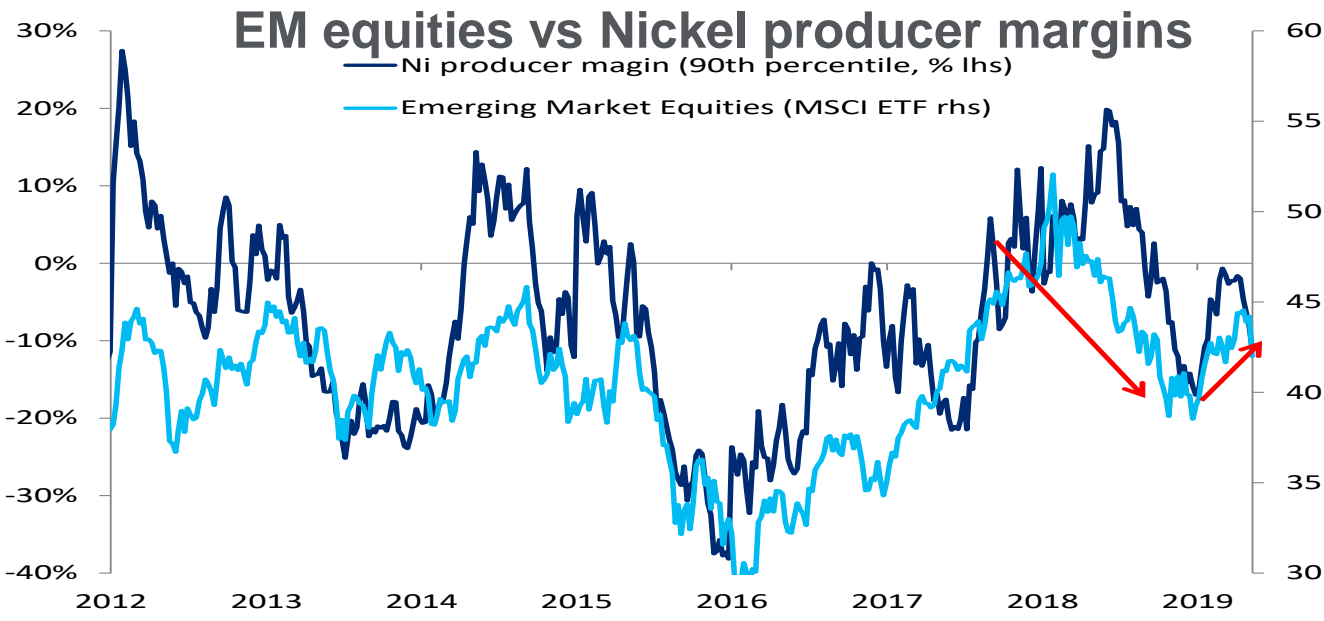
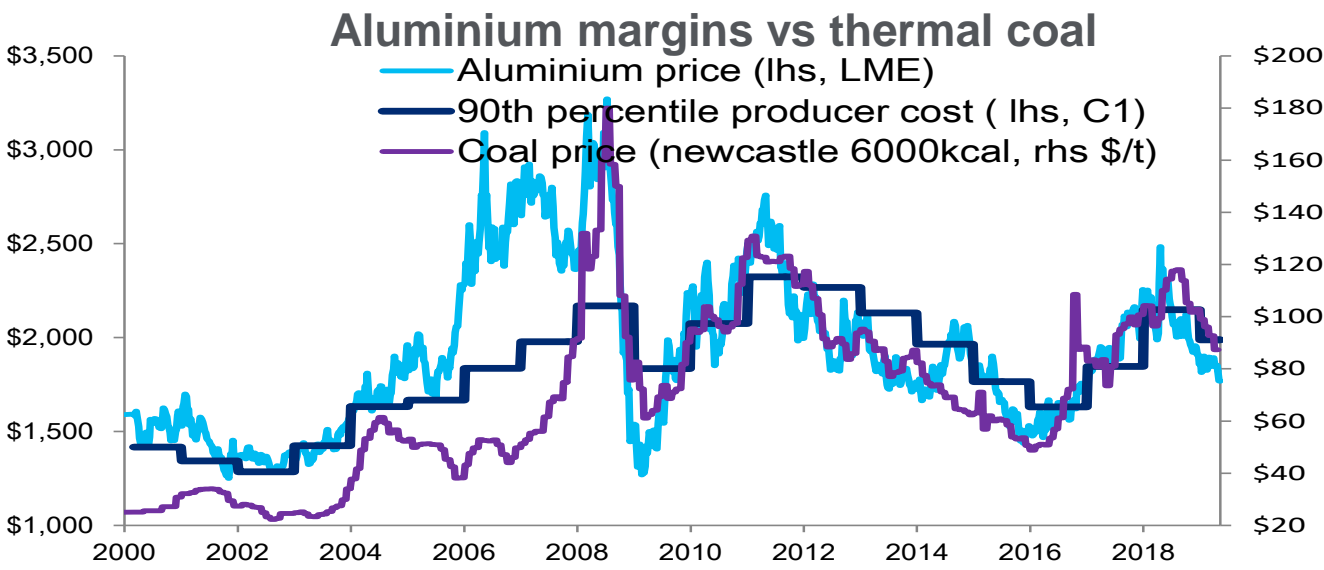
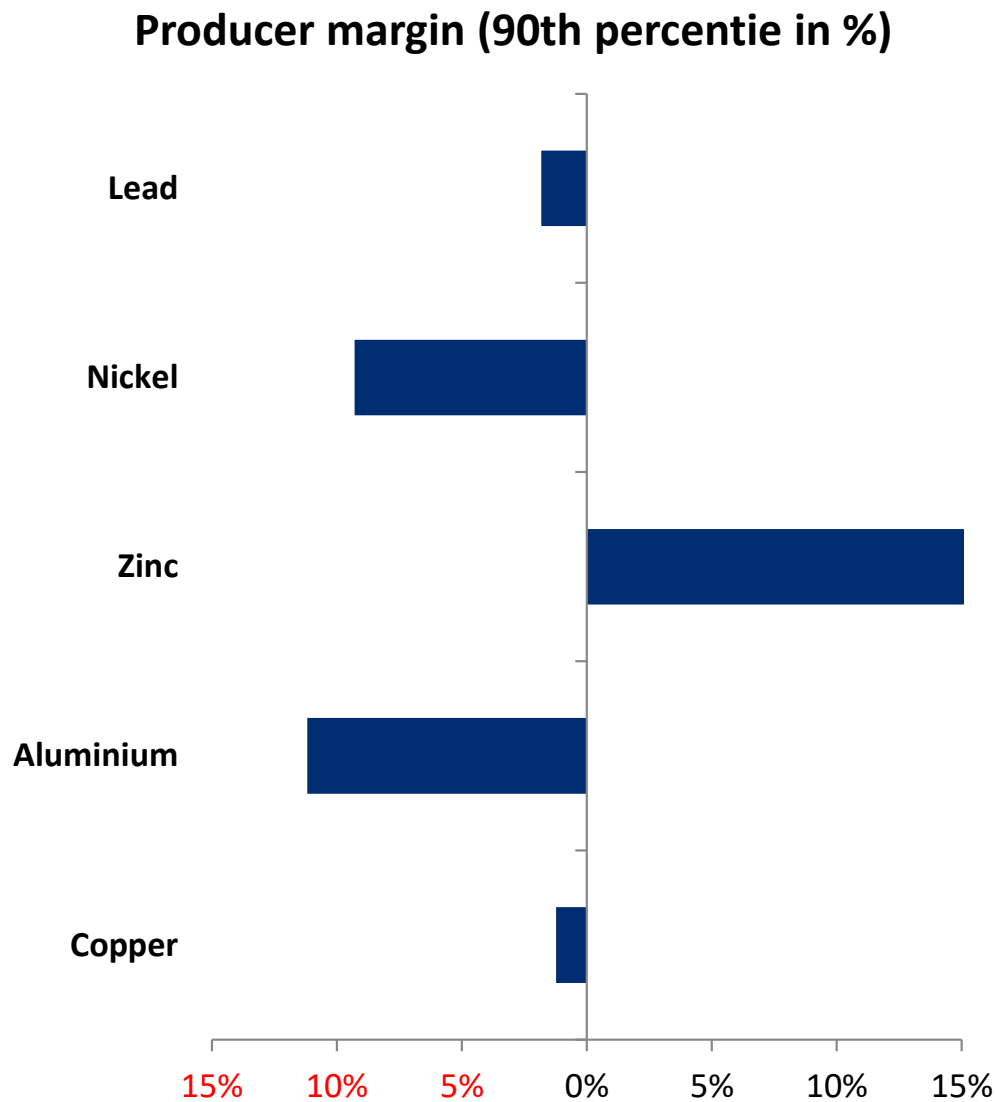


## Aluminium positioning looks near “rock bottom”



Source: Citi Research, Bloomberg, LME, CME

# Base metals are trading into cost, but the posts can change

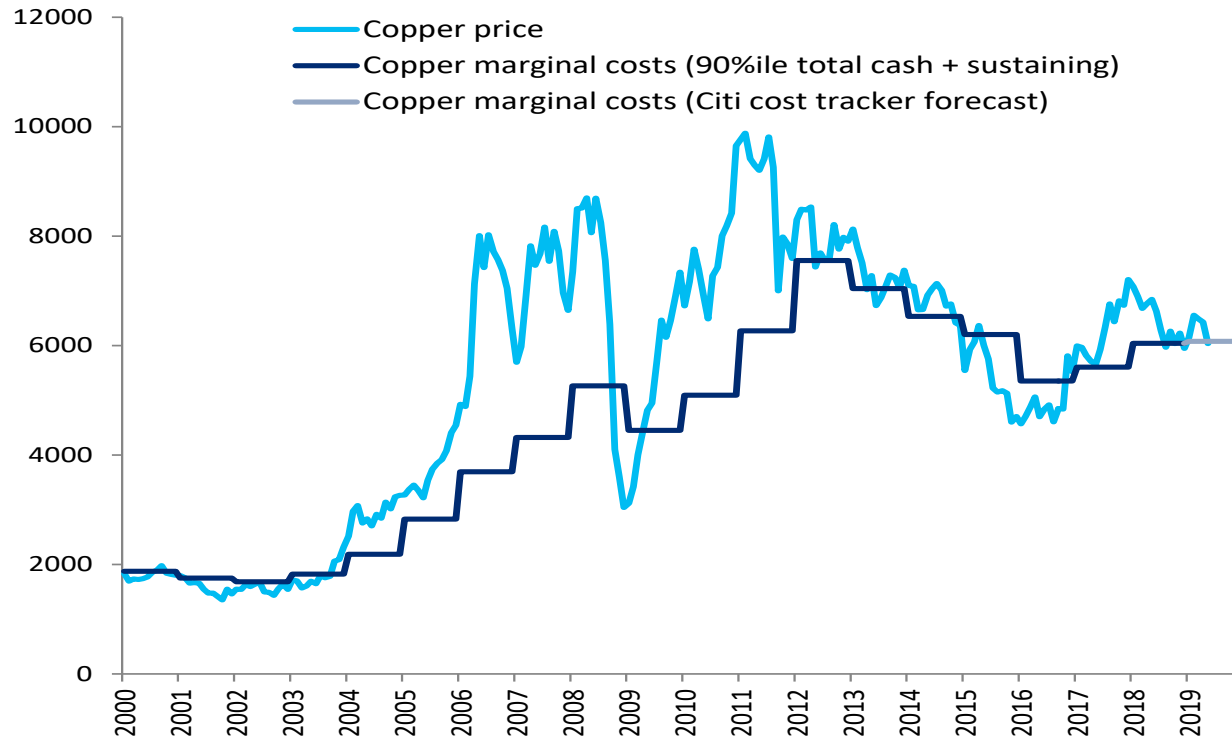


Source: Bloomberg, Wood Mackenzie, Citi Research

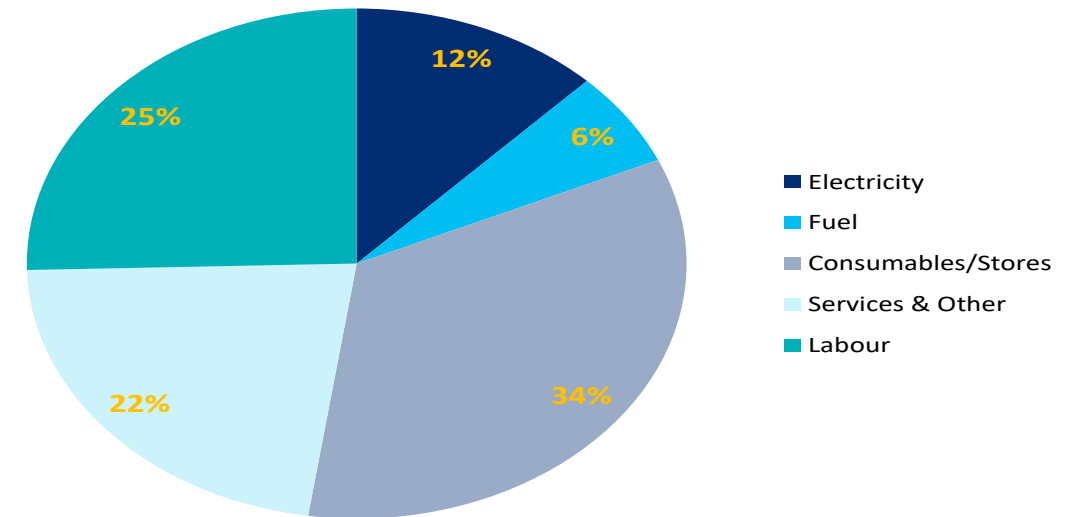


# How low can copper go? <\$5000/t is possible on big surplus, collapsing costs

Copper prices are a function of the supply and demand balance as well as (pro-cyclical) marginal costs



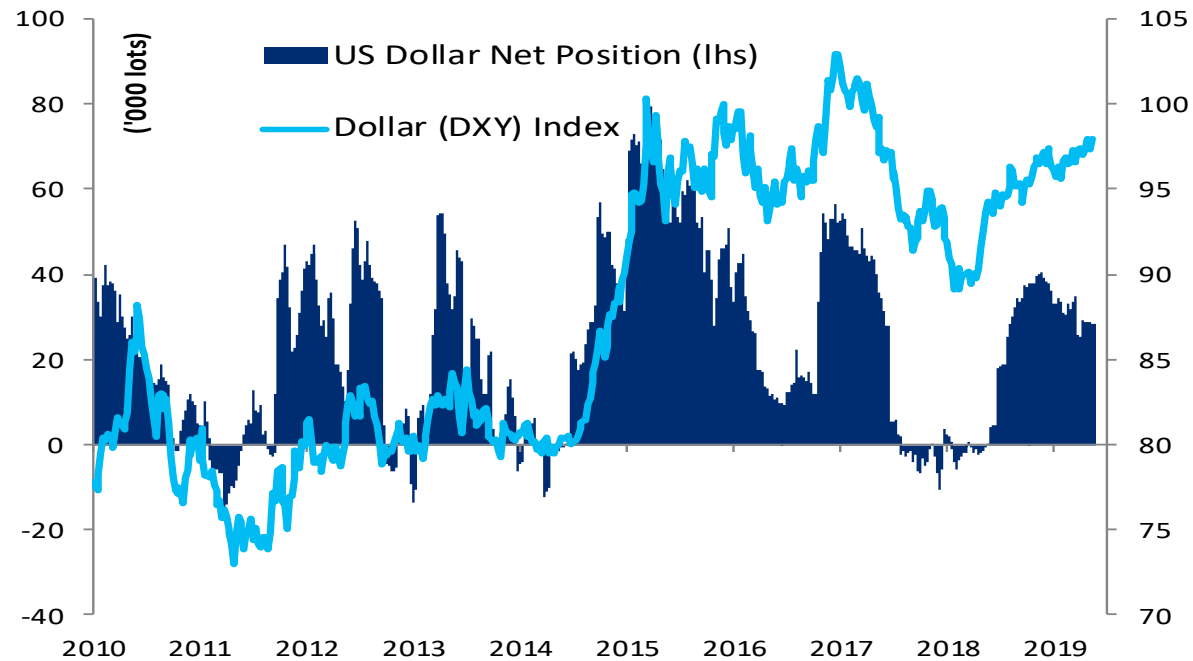
Volatility in labor and services costs tends to be associated with moves in the dollar, while the other components are linked to commodity prices such as oil, coal, and steel



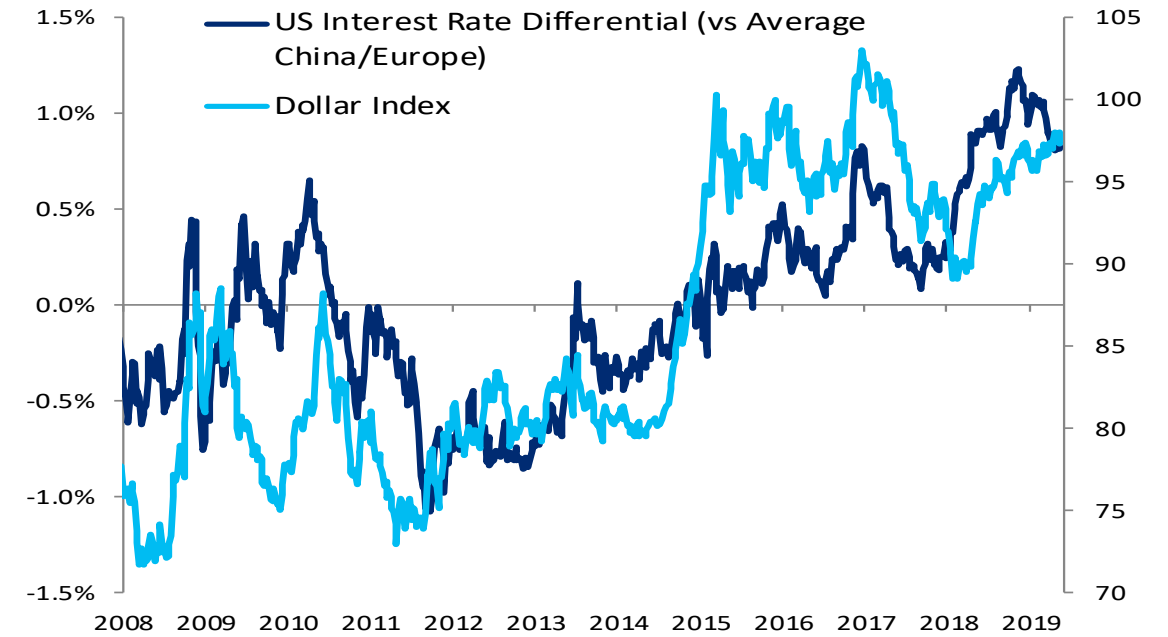
- 1) \$5k= major trade war escalation= major surplus, 5% USD vs producer currencies, -20% consumables: Oil to \$60, coal to \$67 and steel scrap to \$260
- 2) Citi bear case = \$5,500, China stimulus/scrap recovery = small surplus-balanced.

# \$US – positioning appears to be long...EM set the path forward

\$US non commercial positioning is long...



...supported by widening US-ROW interest rate differentials



# Long run price forecasts

		Point Prices													Annals					
		0-3M	6-12M		Q3 2018	Q4 2018	Q1 2019	Q2 2019E	Q3 2019E	Q4 2019E	Q1 2020E	Q2 2020E	Q3 2020E	Q4 2020E	2018	2019E	2020E	2021E	2022E	2023E
Energy				5Y Cyclical																
ICE Brent	USD/bbl	78	74	60	76	69	64	74	76	74	65	57	53	50	72	72	56	50	60	65
NYMEX WTI	USD/bbl	68	65	55	69	59	55	62	64	65	60	52	48	45	65	62	51	45	55	60
Henry Hub Natural Gas	USD/MMBtu	2.7	2.8	2.7	2.9	3.7	2.9	2.7	2.7	2.8	2.7	2.6	2.5	2.6	3.1	2.8	2.6	2.4	2.7	2.7
Base Metals				LT Price																
LME Aluminum	USD/MT	1,950	2,000	2,200	2,055	1,964	1,883	1,900	2,000	2,050	2,050	2,000	2,000	1,950	2,108	1,960	2,000	2,050	2,200	N/A
LME Copper	USD/MT	6,200	6,600	7,500	6,119	6,161	6,216	6,200	6,400	6,600	7,000	7,200	7,000	6,800	6,529	6,355	7,000	7,500	8,000	N/A
LME Lead	USD/MT	1,850	2,000	2,000	2,096	1,966	2,034	1,850	1,900	2,000	2,000	2,000	2,000	2,000	2,241	1,945	2,000	2,200	2,200	N/A
LME Nickel	USD/MT	12,000	12,500	15,000	13,262	11,485	12,365	12,000	12,500	13,000	13,000	13,500	14,000	14,000	13,117	12,465	13,625	14,000	15,000	N/A
LME Zinc	USD/MT	2,600	2,300	2,400	2,537	2,627	2,704	2,800	2,500	2,300	2,300	2,300	2,300	2,300	2,921	2,575	2,300	2,400	2,400	N/A
Precious Metals				LT Price																
COMEX Gold	USD/T. oz	1,325	1,400	1,200	1,212	1,229	1,306	1,325	1,350	1,350	1,365	1,365	1,375	1,385	1,269	1,335	1,375	1,400	1,450	N/A
Silver	USD/T. oz	15.5	16.0	16.5	15.0	14.6	15.6	14.9	15.5	15.5	16.0	16.0	16.5	16.5	15.7	15.4	16.3	18.0	19.0	N/A
Platinum	USD/T. oz	880	925	1,150	814	824	823	870	880	925	975	1,000	1,000	1,000	880	875	995	1,000	1,100	N/A
Palladium	USD/T. oz	1,350	1,200	800	952	1,155	1,432	1,350	1,350	1,300	1,200	1,200	1,100	1,100	1,030	1,360	1,150	900	800	N/A
Bulk Commodities				5Y Cyclical																
Hard Coking Coal (Spot)	USD/MT	210	190	125	190	223	207	210	200	190	175	170	170	165	208	202	170	160	150	N/A
Thermal Coal Asia (NEWC)	USD/MT	82	88	80	117	105	97	82	80	88	88	86	84	86	107	87	86	80	80	N/A
Iron Ore Spot (TSI)	USD/MT	100	84	55	67	72	83	95	90	85	73	70	68	70	69	88	70	60	60	N/A
Agriculture																				
CBOT Corn	USd/bu	370	390	N/A	354	370	373	370	385	390	390	400	405	405	369	380	400	450	N/A	N/A
CBOT Soybeans	USd/bu	800	850	N/A	850	878	905	800	825	850	860	875	900	925	932	845	890	1,000	N/A	N/A
CBOT Wheat	USd/bu	450	500	N/A	517	511	490	450	475	485	500	515	525	540	495	475	520	575	N/A	N/A
ICE Sugar	USd/lb	12.5	14.5	N/A	10.8	12.9	12.7	12.3	12.8	13.0	13.5	14.0	14.5	15.0	12.2	12.7	14.3	N/A	N/A	N/A
ICE Coffee	USd/lb	90	100	N/A	103	109	99	95	100	100	110	115	115	125	113	98	116	N/A	N/A	N/A
ICE Cocoa	USD/MT	2,300	2,350	N/A	2,262	2,184	2,252	2,300	2,325	2,325	2,350	2,400	2,400	2,450	2,309	2,300	2,400	N/A	N/A	N/A

Additional slides

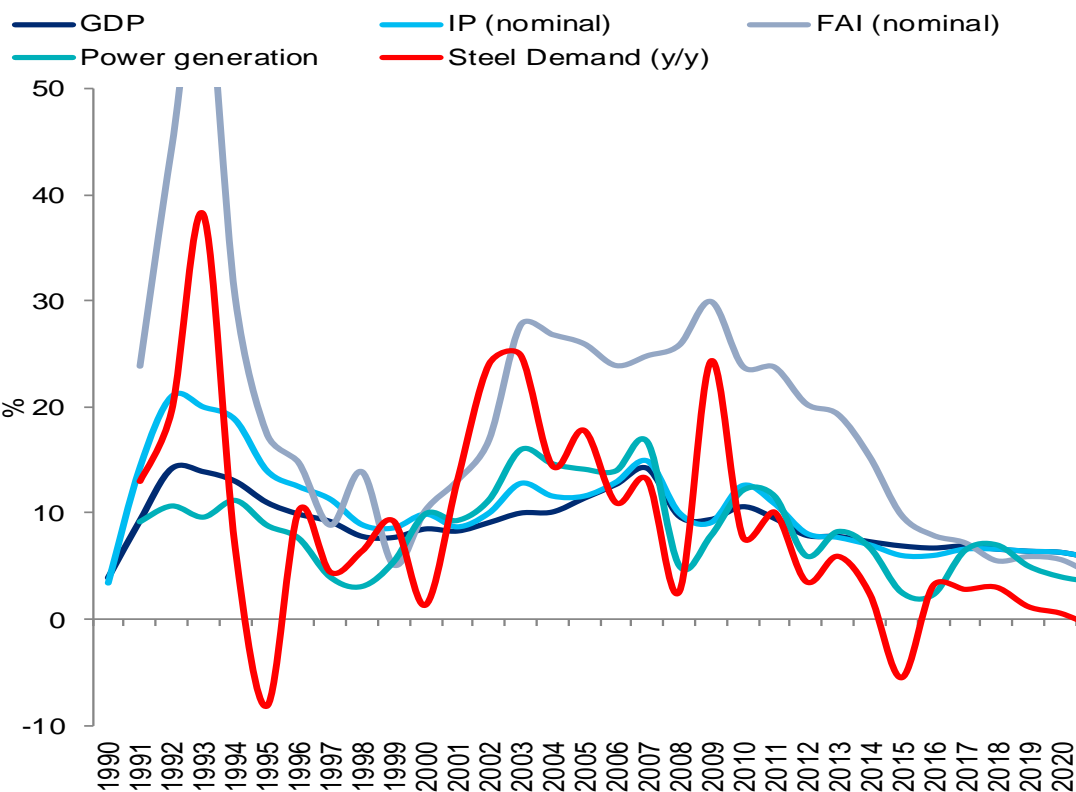
# Quantifying the impact of US tariff's on Chinese economy

Quantifying the impact of US tariffs on Chinese economy							
	Source	Formula	First-Round 6 Jul / 22 Aug 2018	Second-Round 24 Sep 2018	Potential Third-Round Some time in 2019	Potential Third-Round 2019	Total
US to raise import tariffs	Policy Decision	a	25%	10%	15%	25%	25%
Pass-through of tariffs to prices	Feenstra (1989)	b	0.6	0.6	0.6	0.6	0.6
US import prices to increase	Calculation	c=a*b	15%	6%	9%	15%	15%
US imports from CN subject to tariffs (\$ bn)	Policy Decision	d	50.0	200.0	200.0	267.0	517.0
US import price elasticity	Kee et al (2008)	e	-3.39	-3.39	-3.39	-3.39	-3.39
US imports from CN to decline (\$ bn)	Calculation	f=c*d*e	-25.4	-40.7	-61.0	-135.8	-262.9
CN-US trade surplus (\$ bn)	CN Customs 2017	g	277.9	277.9	277.9	277.9	277.9
CN total exports (\$ bn)	CN Customs 2017	h	2,263.5	2,263.5	2,263.5	2,263.5	2,263.5
CN GDP (\$ bn)	NBS 2017	i	12,253.7	12,253.7	12,253.7	12,253.7	12,253.7
CN total urban employment (ppl mn)	NBS 2016	j	424.6	424.6	424.6	424.6	424.6
Impact on CN-US trade surplus	Calculation	k=f/g	-9.1%	-14.6%	-22.0%	-48.9%	-94.6%
Impact on CN exports	Calculation	l=f/h	-1.12%	-1.80%	-2.70%	-6.00%	-11.61%
Impact on CN GDP	Calculation	m=f/i	-0.21%	-0.33%	-0.50%	-1.11%	-2.15%
Impact on CN employment (ppl th)	Calculation	n=f/i*j*1000	-881.0	-1,409.7	-2,114.5	-4,704.7	-9,109.9

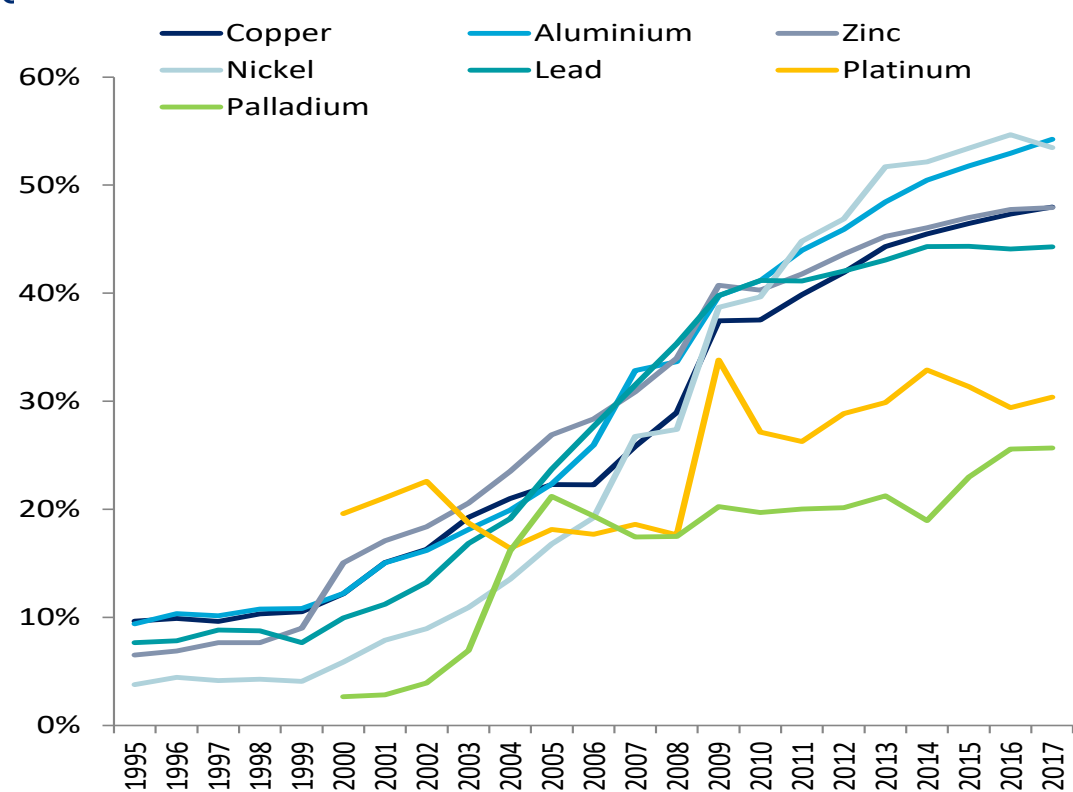


# Longer term – China consumer shift and shale supply growth are headwinds

China slowdown is weighing heavily on commodities demand...



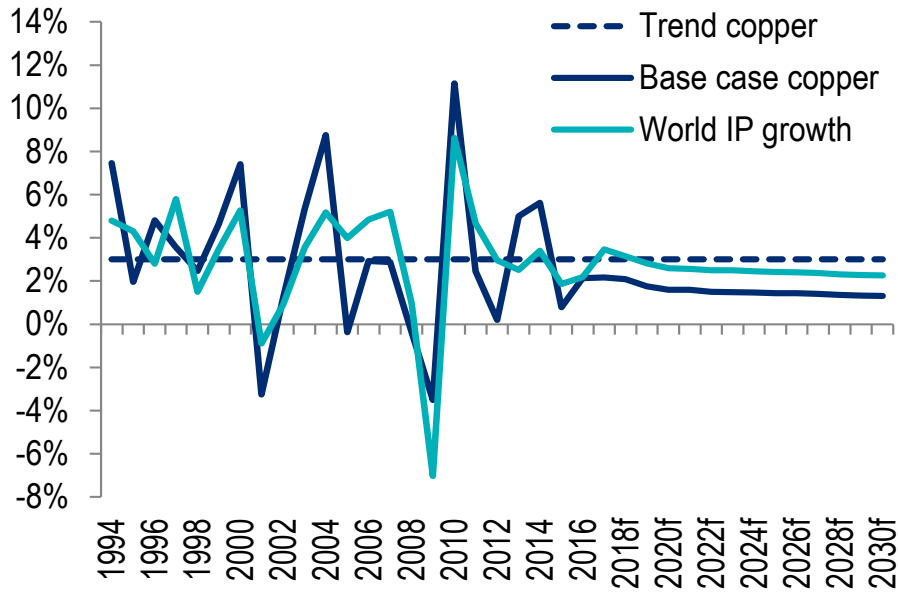
...as China's share of global metal demand rose rapidly over the past decade



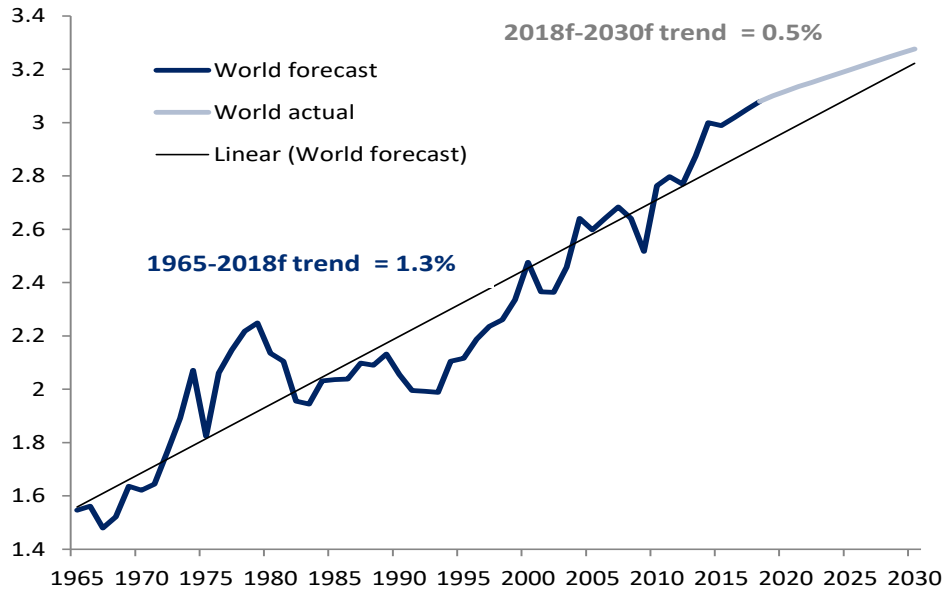
Source: NBS, Citi Research

# Global growth drives metals and bulk commodity consumption

Copper demand growth is relatively tightly linked to global IP growth

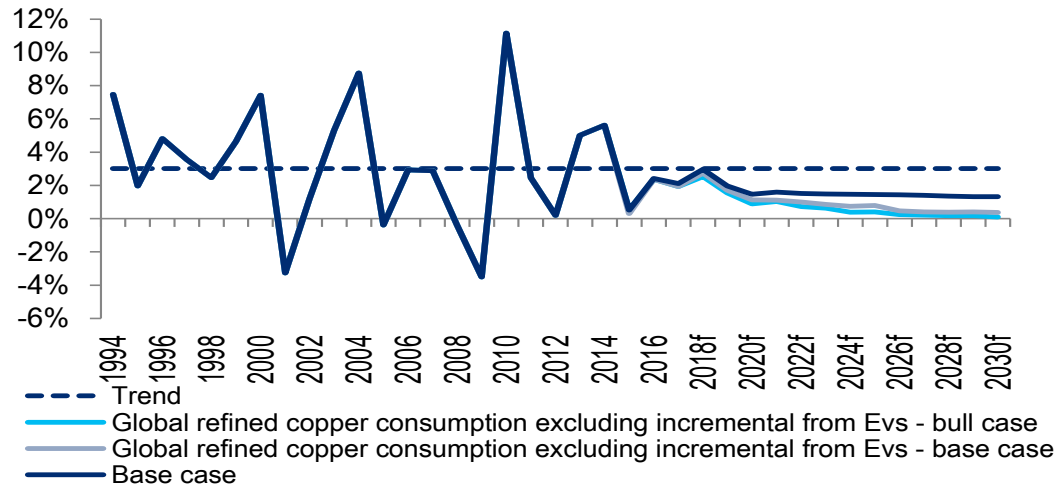


Copper and more broadly metals demand has grown strongly since the early 1990s



# We continue to assume below trend (<3%) copper demand growth

## We forecast sub-trend copper demand growth

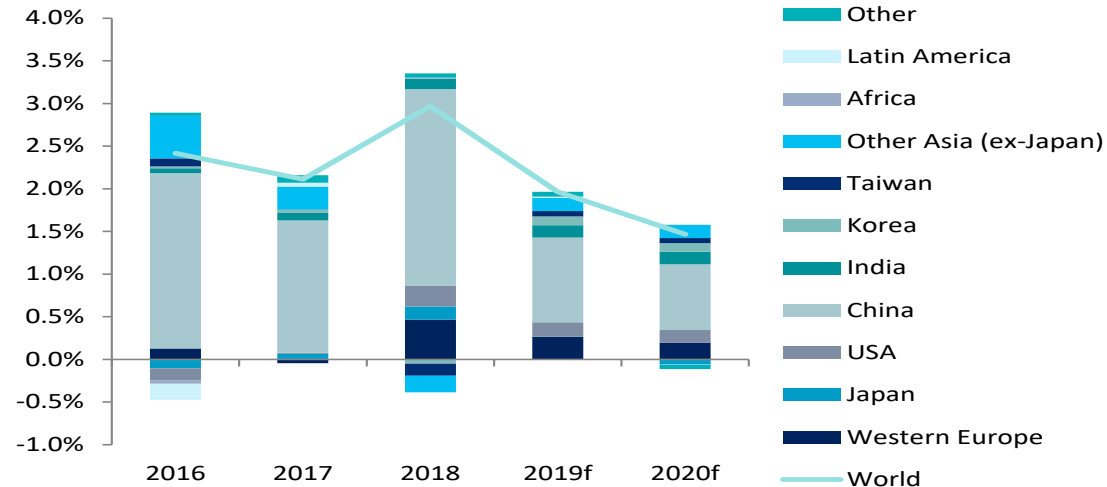


## Refined copper consumption by economy ('000t)

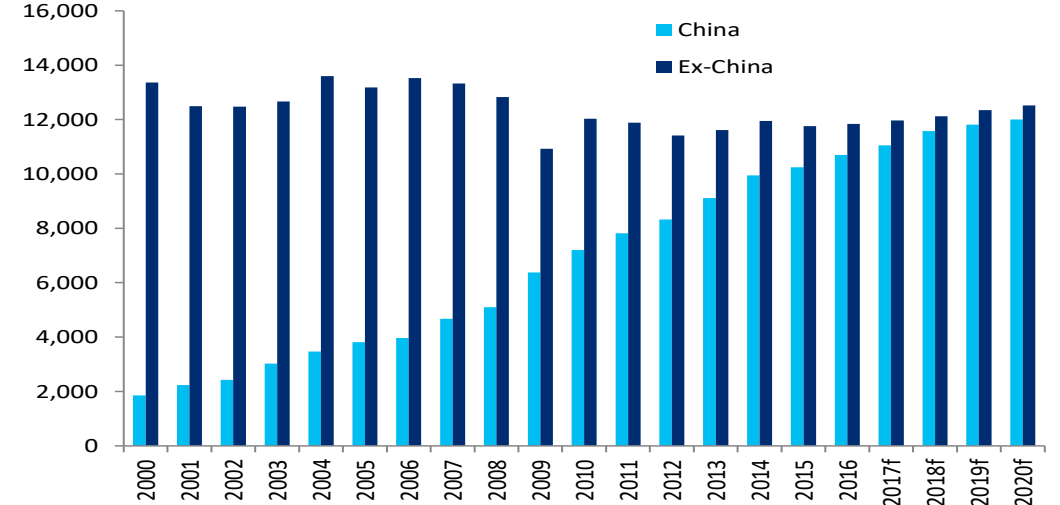
### Global refined copper consumption forecasts

kt	2016	2017	2018	2019f	2020f	2021f
Western Europe	3,342	3,332	3,439	3,502	3,549	3,603
Japan	985	1000	1035	1036	1022	1022
USA	1,816	1,818	1,873	1,913	1,949	1,981
China	10,697	11,047	11,578	11,813	11,999	12,210
India	498	518	546	580	616	653
Korea	680	689	677	702	725	747
Taiwan	491	492	459	474	489	501
Other Asia (ex-Japan)	1,190	1,250	1,205	1,241	1,279	1,317
Africa	215	216	219	219	220	221
Latin America	839	849	849	853	852	854
Other	1,785	1,804	1,816	1,830	1,817	1,800
<b>World</b>	<b>22,537</b>	<b>23,014</b>	<b>23,696</b>	<b>24,162</b>	<b>24,516</b>	<b>24,909</b>

## China dominates copper consumption growth (y/y chq)

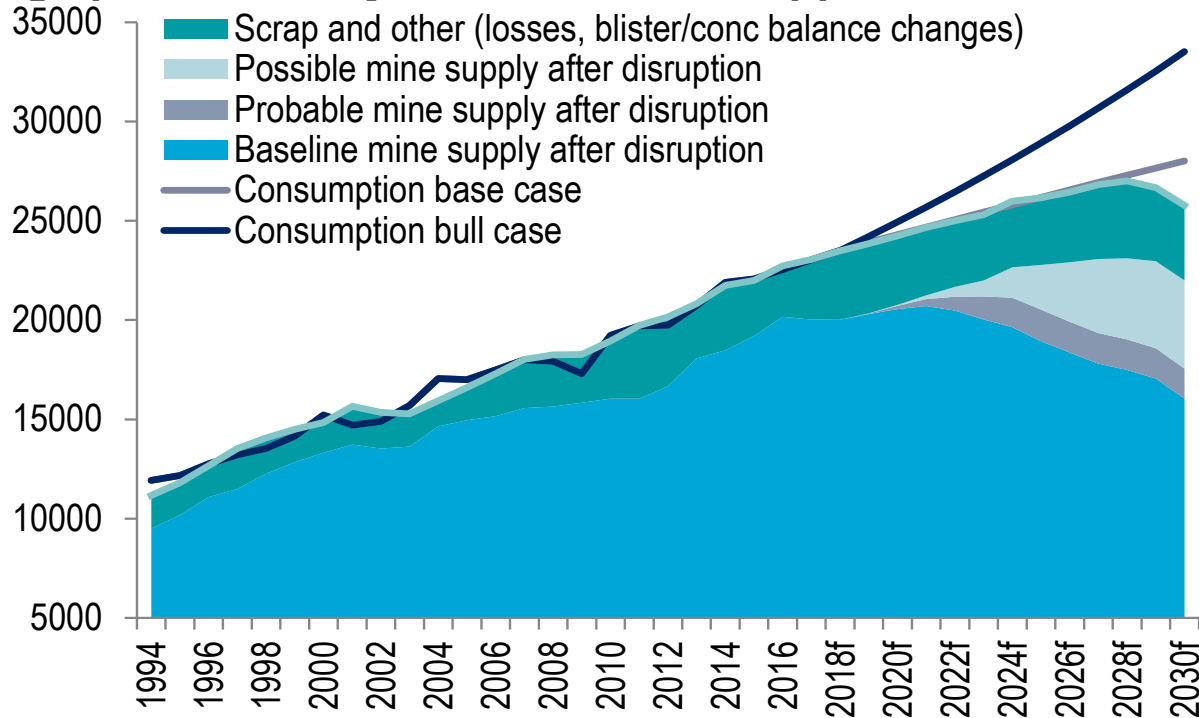


## China relative to ex-China copper consumption trends

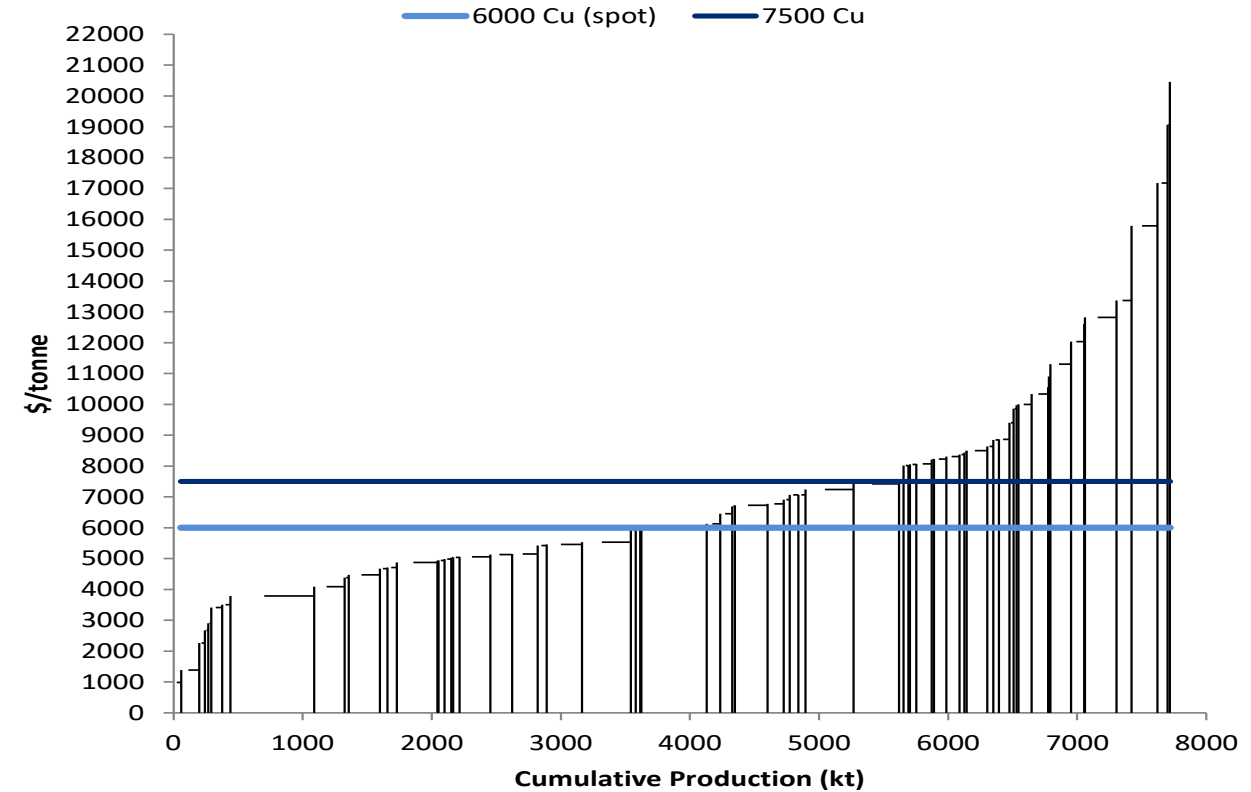


# Long run copper pricing dynamics

The copper supply gap is gradually opening up, in large part driven by EV demand for copper...

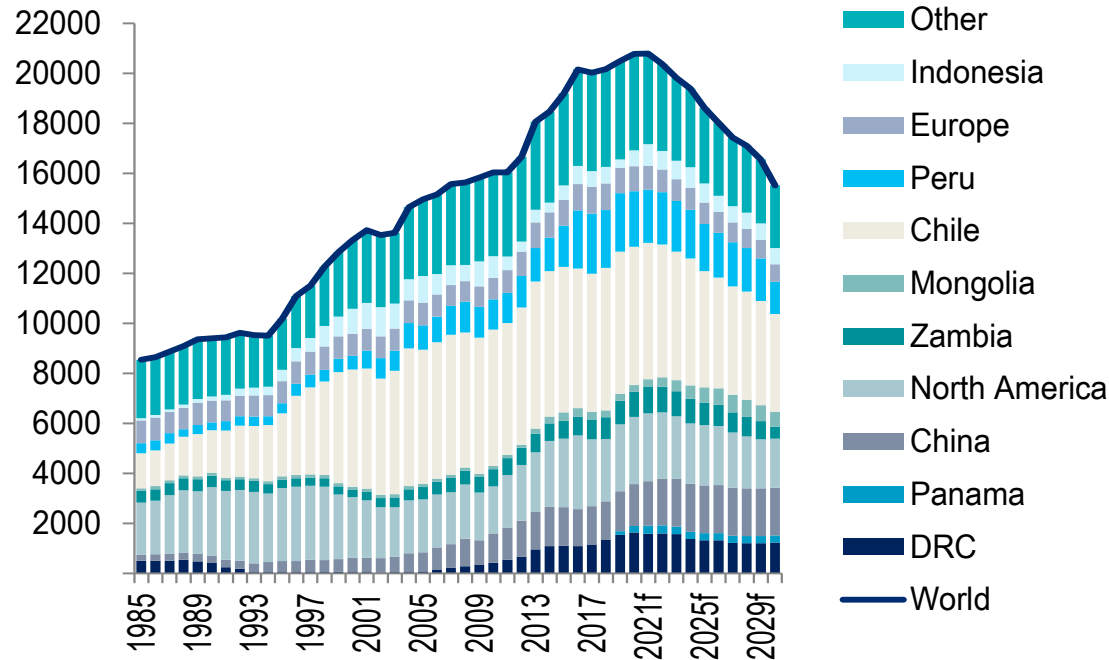


...and not enough mine supply will be built at current prices

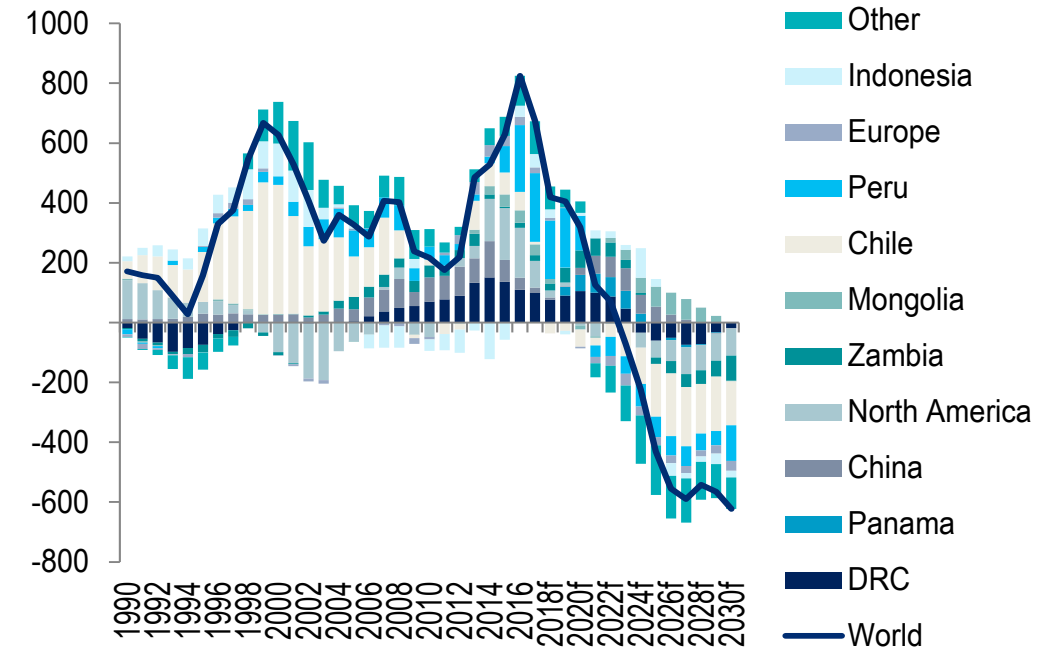


# A non-zero level of copper capex is required owing to mine depletions

Baseline copper mine supply is set to decline by 4.65mt through 2030 (includes projects under construction and is presented after disruption allowance) ('000t)



Copper declines are set to be broad based but the base of Chilean and Zambian supply looks particularly challenged ('000t, 5-yr change)





# Appendix A-1

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