Zinc / Lead Concentrate trading

Themes in 2023

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Market themes 2023…

#1: Macro environment and fundamentals

Chinese demand has lagged RoW with zero Covid policy, but has eased **policy to stimulate growth**.

Weaker RMB…

War in Ukraine & sanctions have driven **energy price blowout and global inflation**.

Fed, BOE, ECB tightening

Potential effects:

Phase 1: smelter cuts in Europe and tightness in US underpin LME and premiums – **negative arbs**

Phase 2: RoW demand slows, China picks up – **arbs open**

#2: Lead/Zinc themes

Theoretical **zinc conc surplus** of ~200Kt + balanced lead conc market.

Forecasts could be derailed easily based on energy/demand-induced smelter cuts.

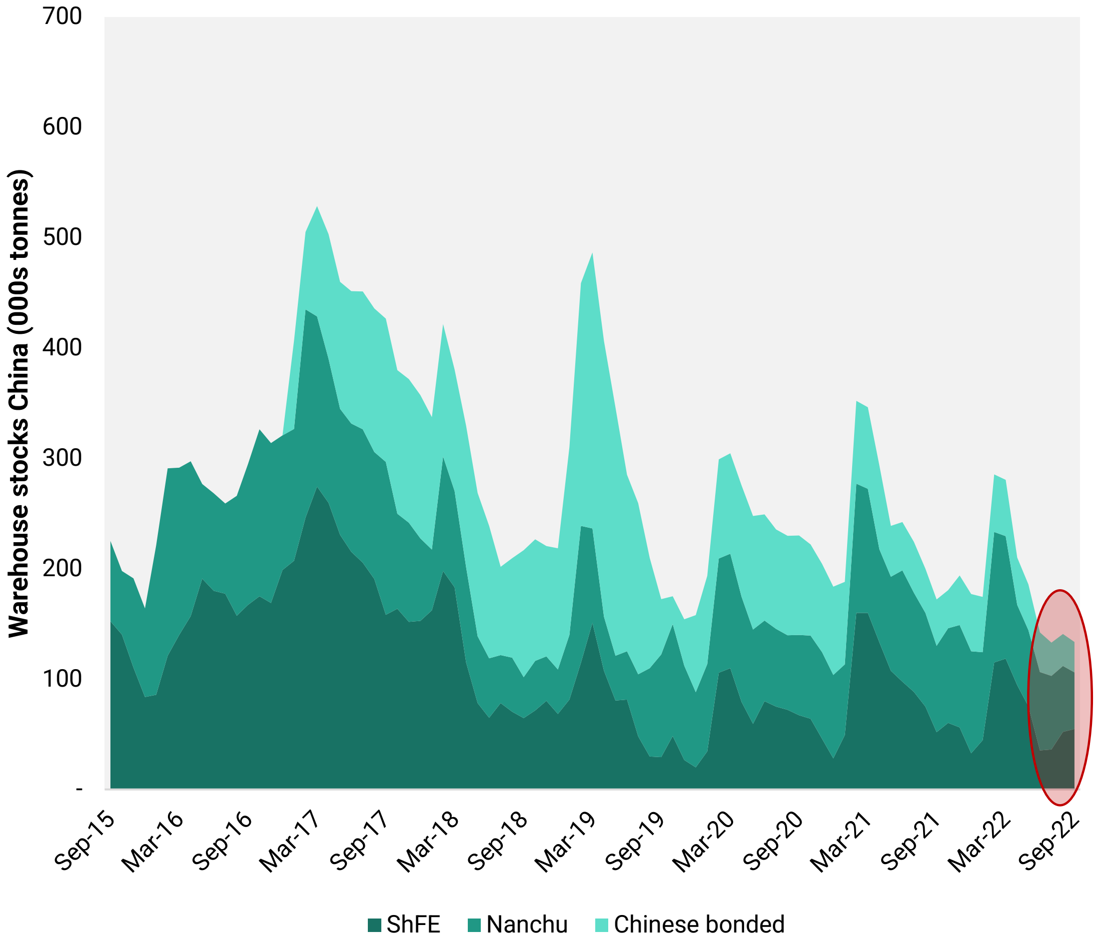
Chinese market is improving, and refined zinc is rapidly being destocked driving open arb. This will put downward pressure on TCs despite potentially soft concentrate market

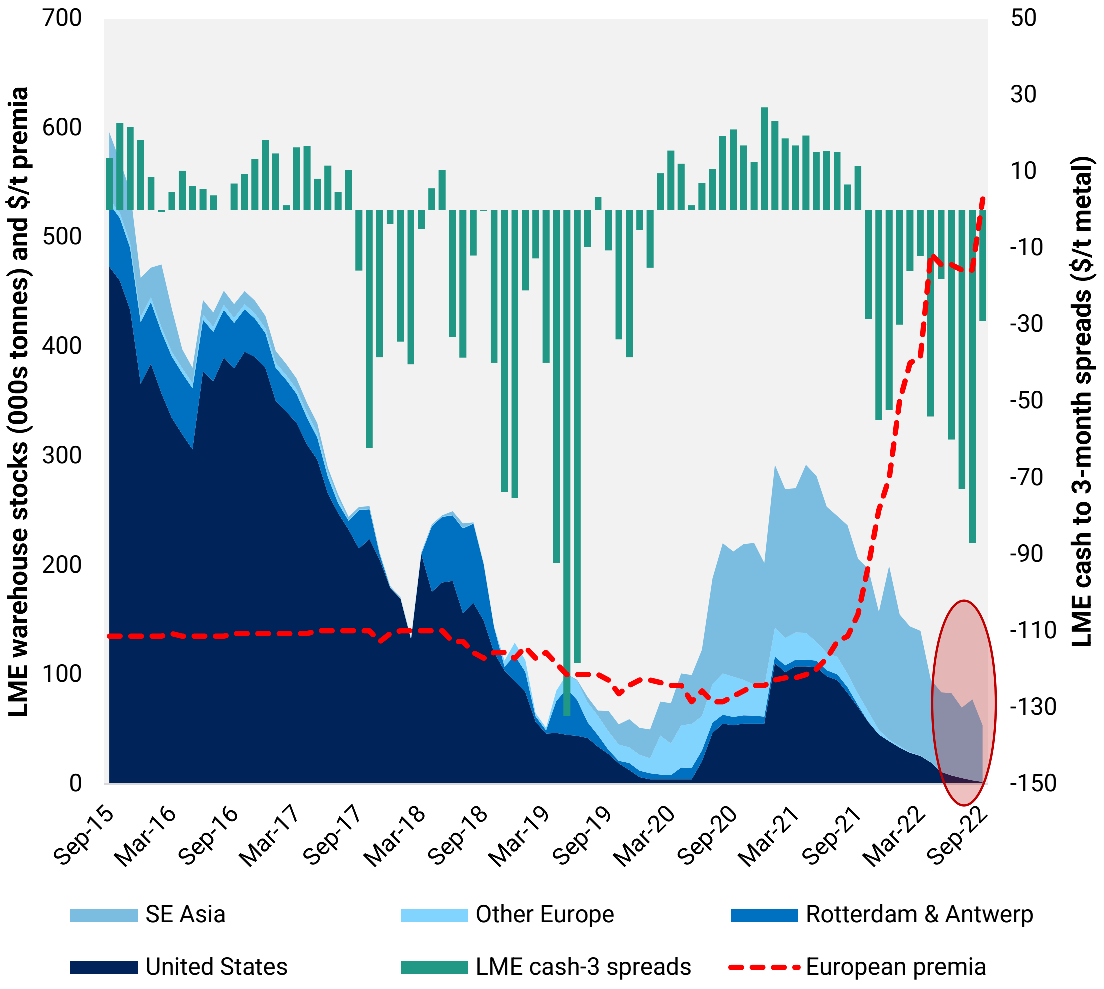
Seaborne Pb/Zn concentrate to remain tight. Redirection from Europe will be important theme.

BM Pb conc terms likely to fall, Zn conc terms to rise modestly.

US policy leading to soaring USD strength, global fallout while China depreciates RMB and improves

Destocking is happening, but demand is also falling…





Rapid destocking has already happened in Europe and is now gathering pace in China. BUT demand is slowing in Europe while it improves in China…

Source: LME, SHFE, CRU, Fastmarkets

Direction of Arbs will be major driver for BM terms to be agreed for concs

Where is demand and stock worse?

China

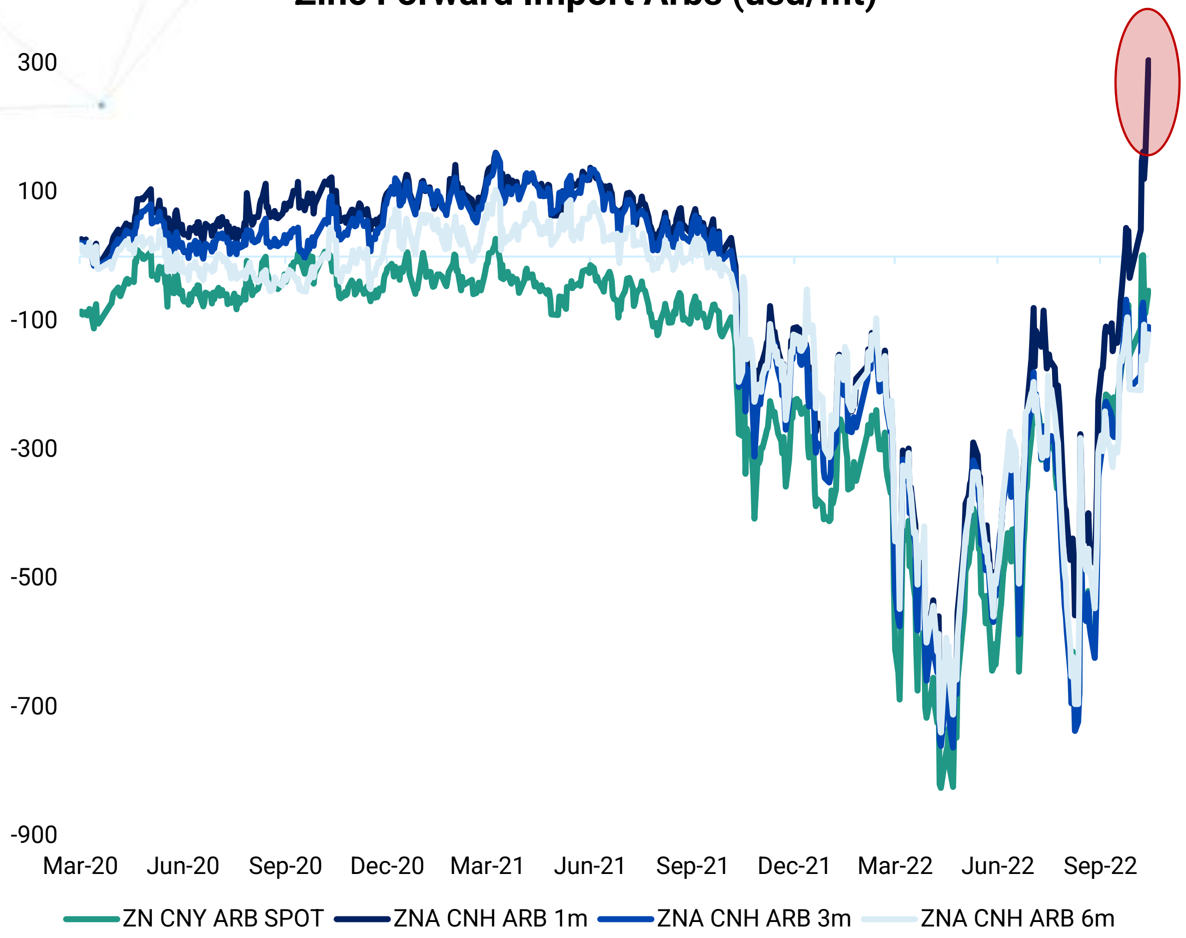
- Zero-Covid policy maintained? ↓
- 22 Stimulus ~ 3.2 Trn RMB (3% GDP) ↑
- Improving indicators H2 2022 ↑
- Central bank easing ↑

Rest of World

- Aggressive rate hikes to combat War-led inflation ↓
- Fed, ECB, BOE bank tightening - QT ↓
- Falling demand in H2 2022 ↓

Zinc arbs

Zinc Forward Import Arbs (usd/mt)

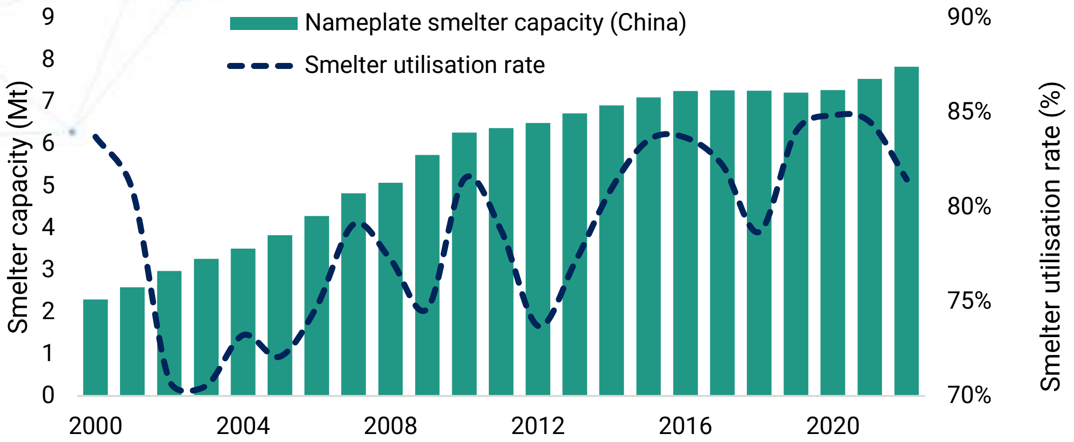


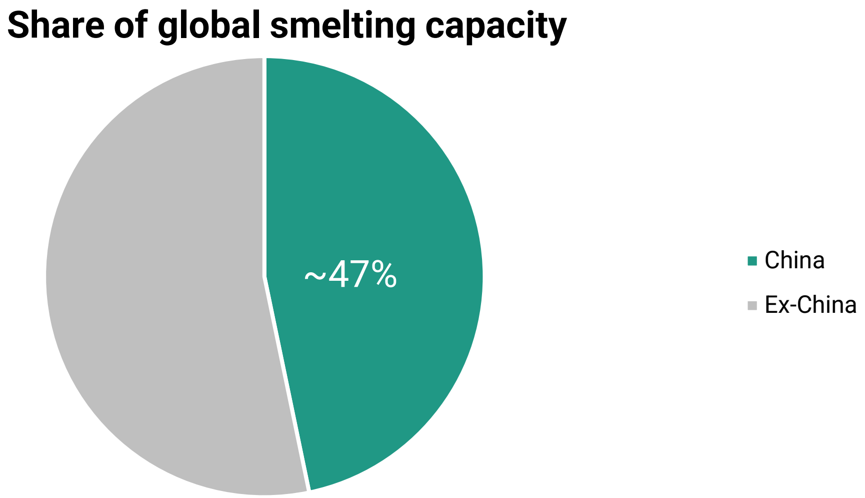
Zinc Conc Arb 1M usd/dmt

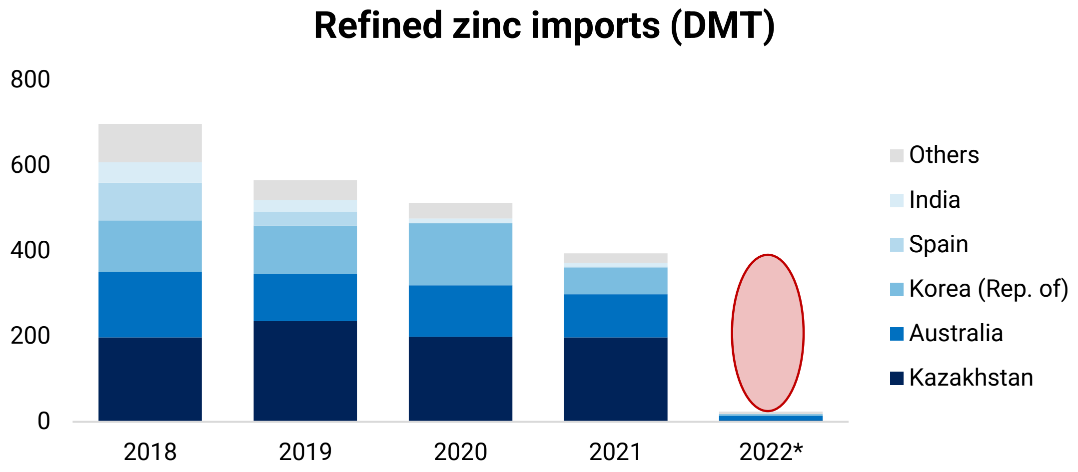
….This means the Chinese cogs are slowly starting to move and rapid destocking has driven the arbitrage opening despite smelter cuts in Europe

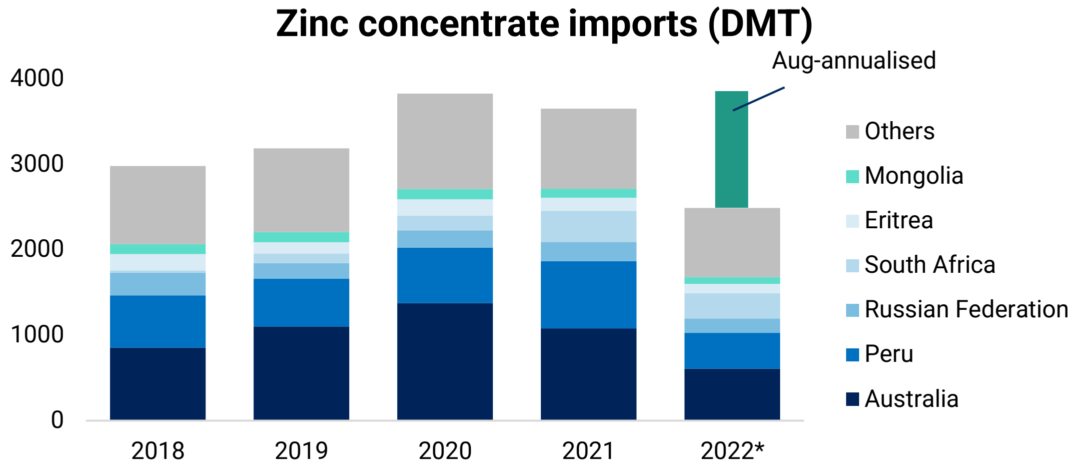
Sources: LME, SHFE, Refinitiv Eikon, Open Mineral Research

Chinese Zinc imports have collapsed





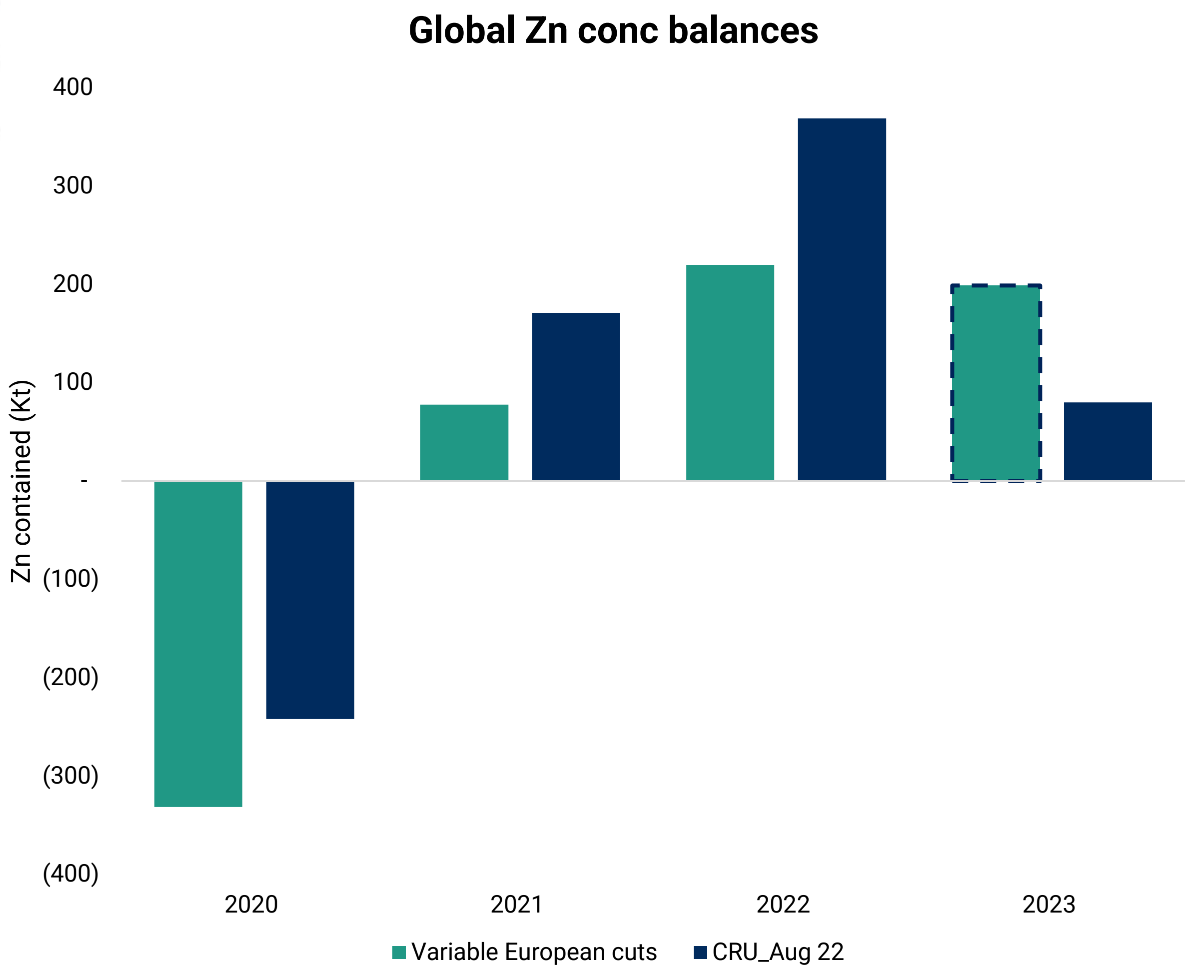




With ~50% of refined zinc market, China is still a large importer. But with slowing demand Zinc imports have plummeted in 2022.

Sources: CRU, S&P Global, Open Mineral Research

Zinc concentrate balances



Points which could derail this forward view:

Fiscal Tightening

A reversal of fiscal tightening (due to the economic damage being inflicted) results in improved sentiment/demand and the restart in numerous smelting facilities in Europe

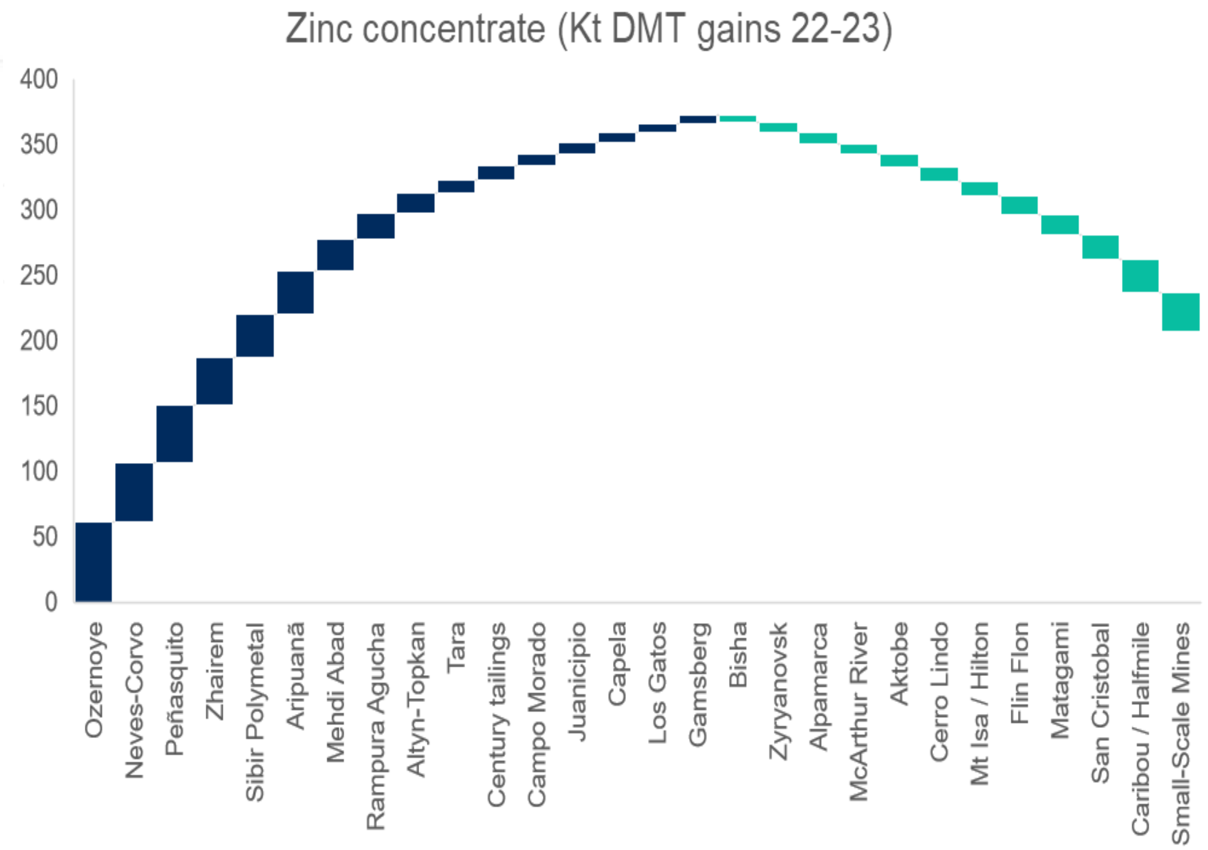
Price

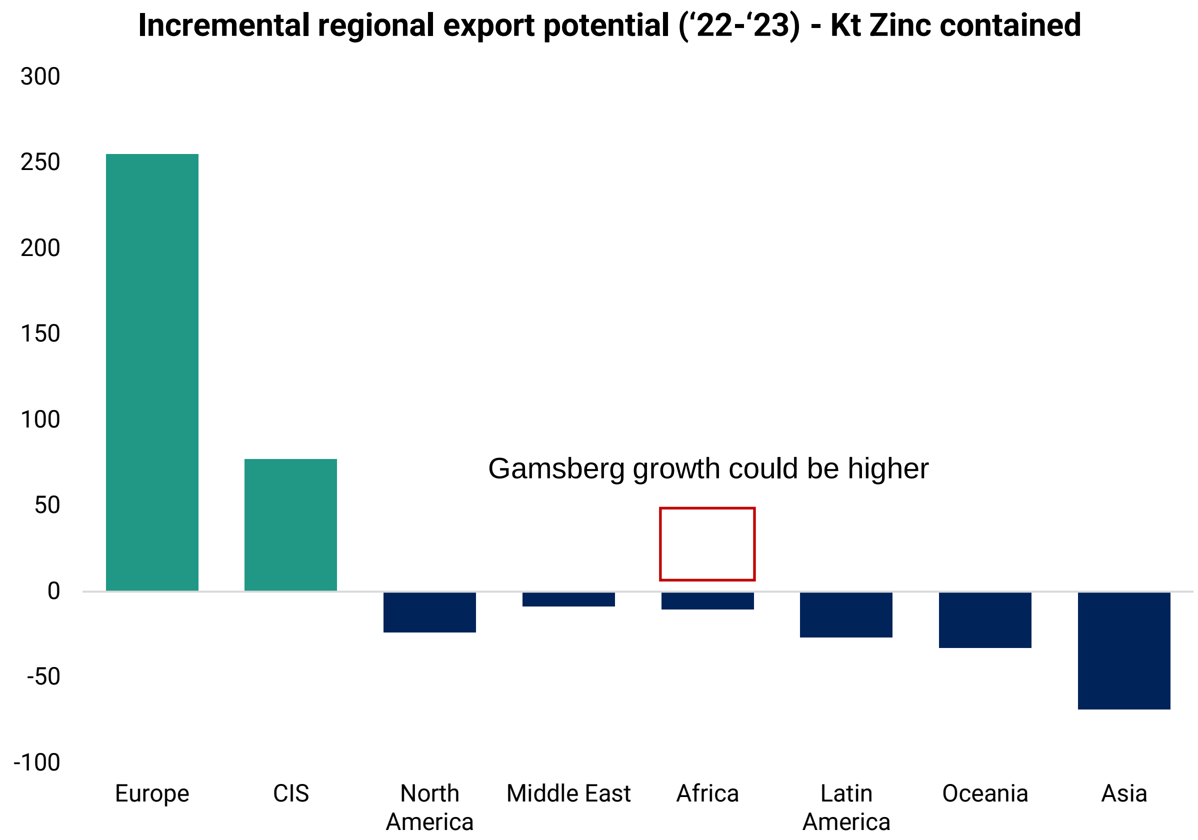
A high TC (~$240-280/dmt) environment, zinc prices pulling back to $2,500/t, and ongoing cost inflation would push fourth quartile miners into uncomfortable territory and could induce closures for zinc miners globally by H2 2023.

The concentrate market is likely to be in modest surplus next year, but there is major scope for this to shift

Sources: CRU, Open Mineral Research – internal conc modelling assuming European smelter cuts persist through 2023

2023 expectations for zinc concentrates





2023 Concentrate surplus (~200Kt Zn-in conc). But this is heavily contingent on European Smelters staying partially closed. Concentrate redirection from Europe and potential mine closures will be themes into 2023.

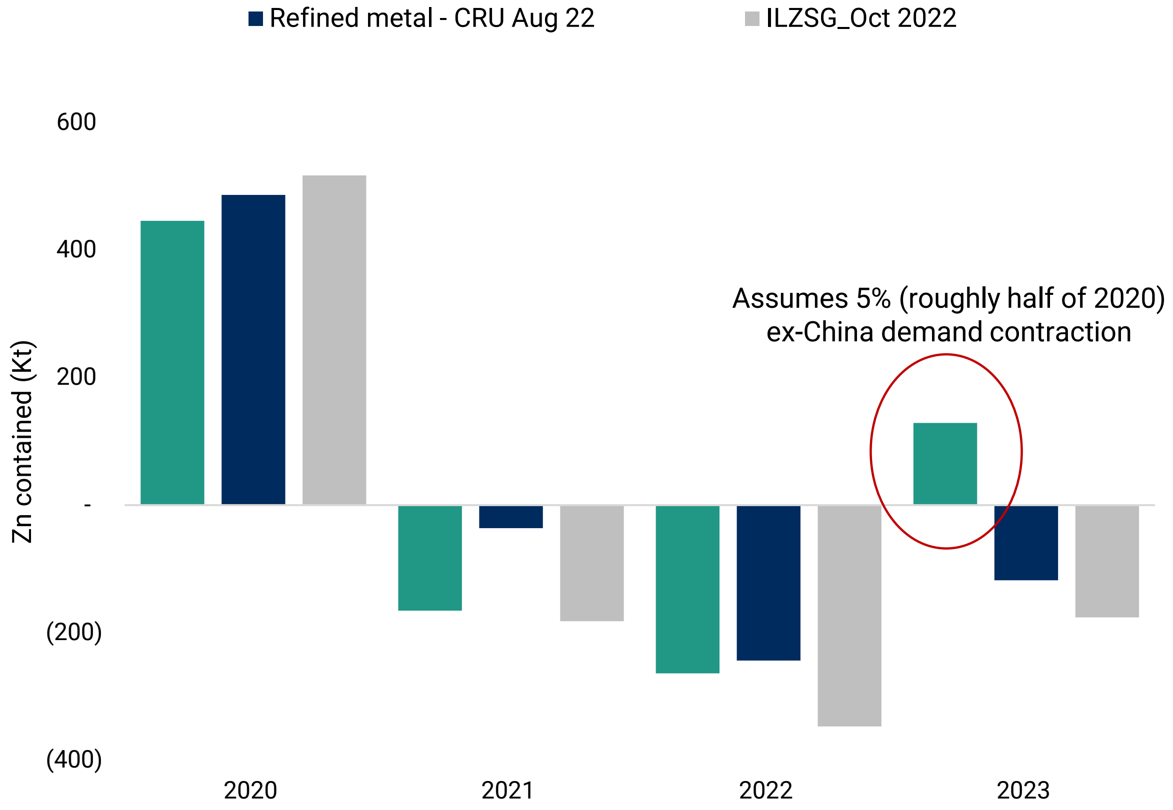
Sources: Refinitiv Eikon, CRU, Open Mineral Research

Are deficit markets here to stay?

Zinc refined market

- Since 2021, rebounding demand post-covid has led to zinc market deficits. Stocks have been drawn down to multi-year lows.
- Despite weak demand in China in 2022, smelter cuts in Europe have left the global refined market with continued deficits and premia in Europe and USA at near all-time highs.
- Demand has slowed significantly in Europe, USA and the world outside China in H2 2022 as global energy prices have surged and fiscal tightening to try curb inflation has ramped up.
- Research houses may be under estimating the potential magnitude of demand losses in 2023 as recession and slowdown take hold through Q4 2022.

Global Zn balances



Notes: Green bars represent OM scenario of falling demand for 2023

Surplus in refined market needs just 5% RoW contraction

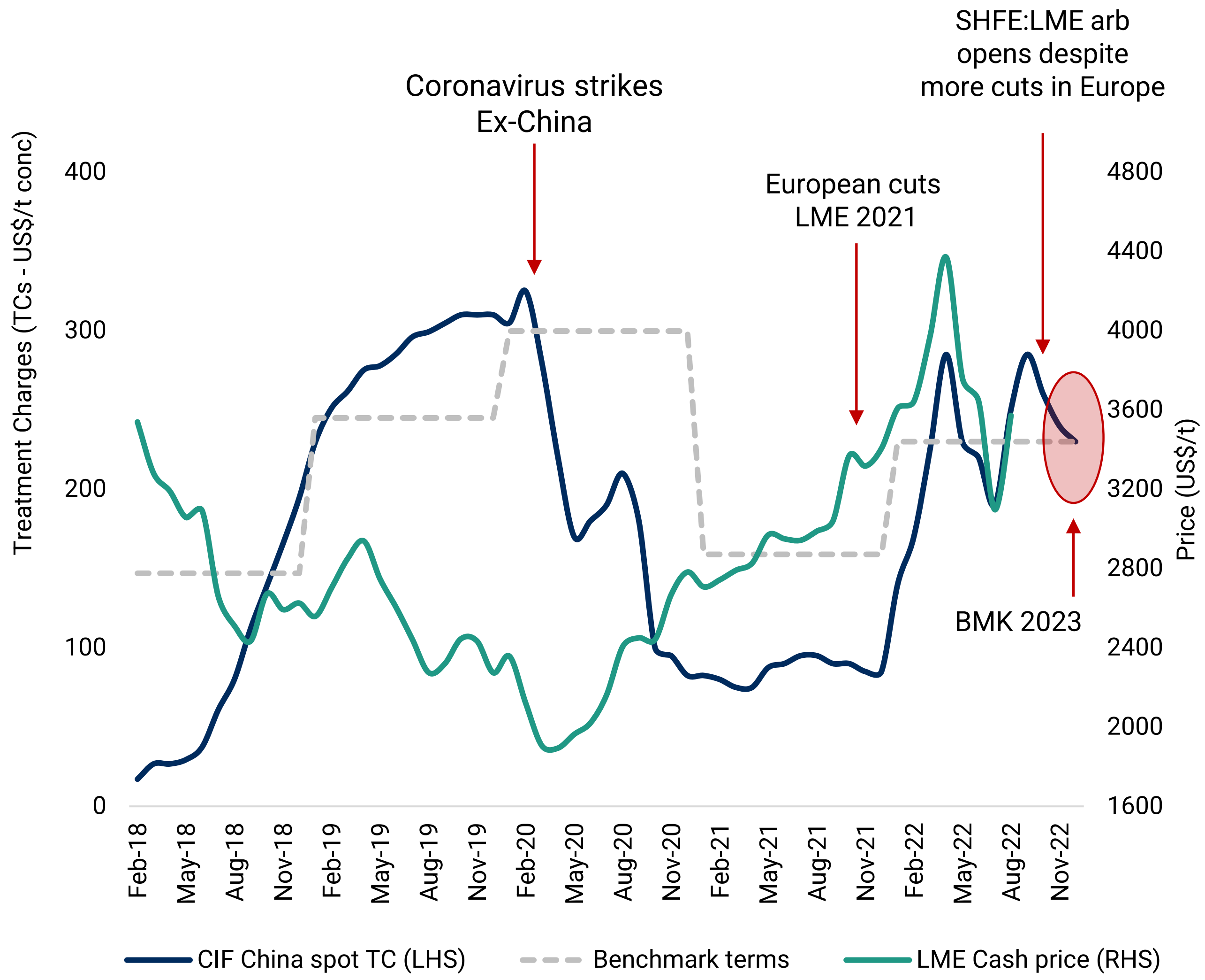
Sources: CRU, Refinitiv Eikon, ILZSG, Open Mineral Research

Zinc concentrates – 2023 benchmark levers

Zn benchmark negotiated terms in 2023 are expected to be higher than last year.

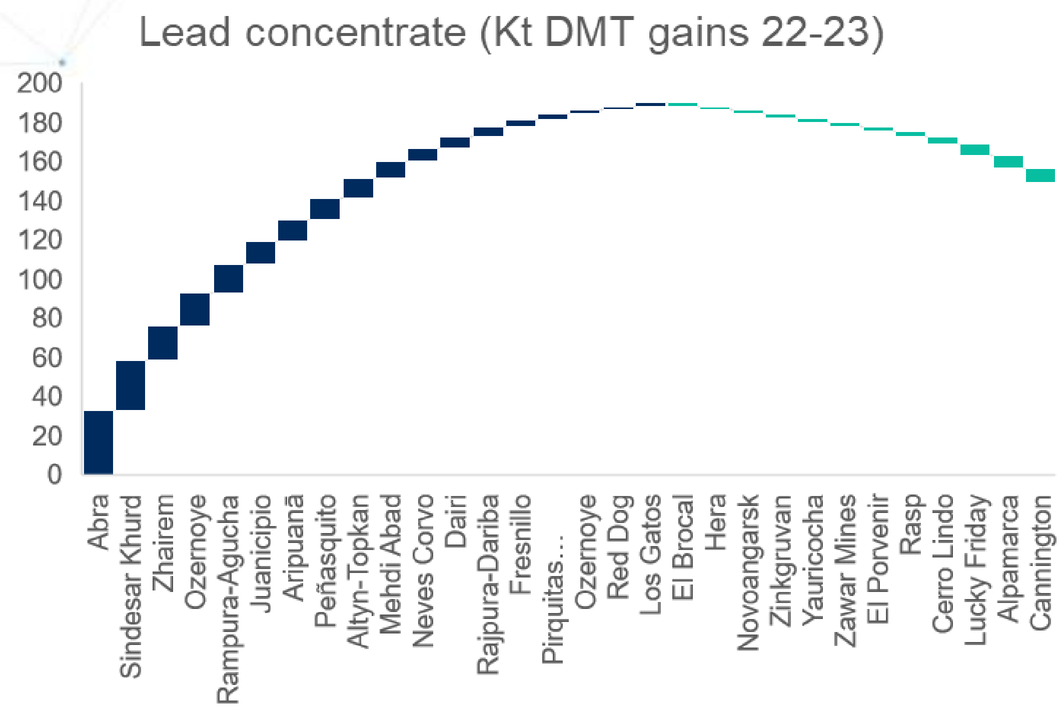
Levers to consider:

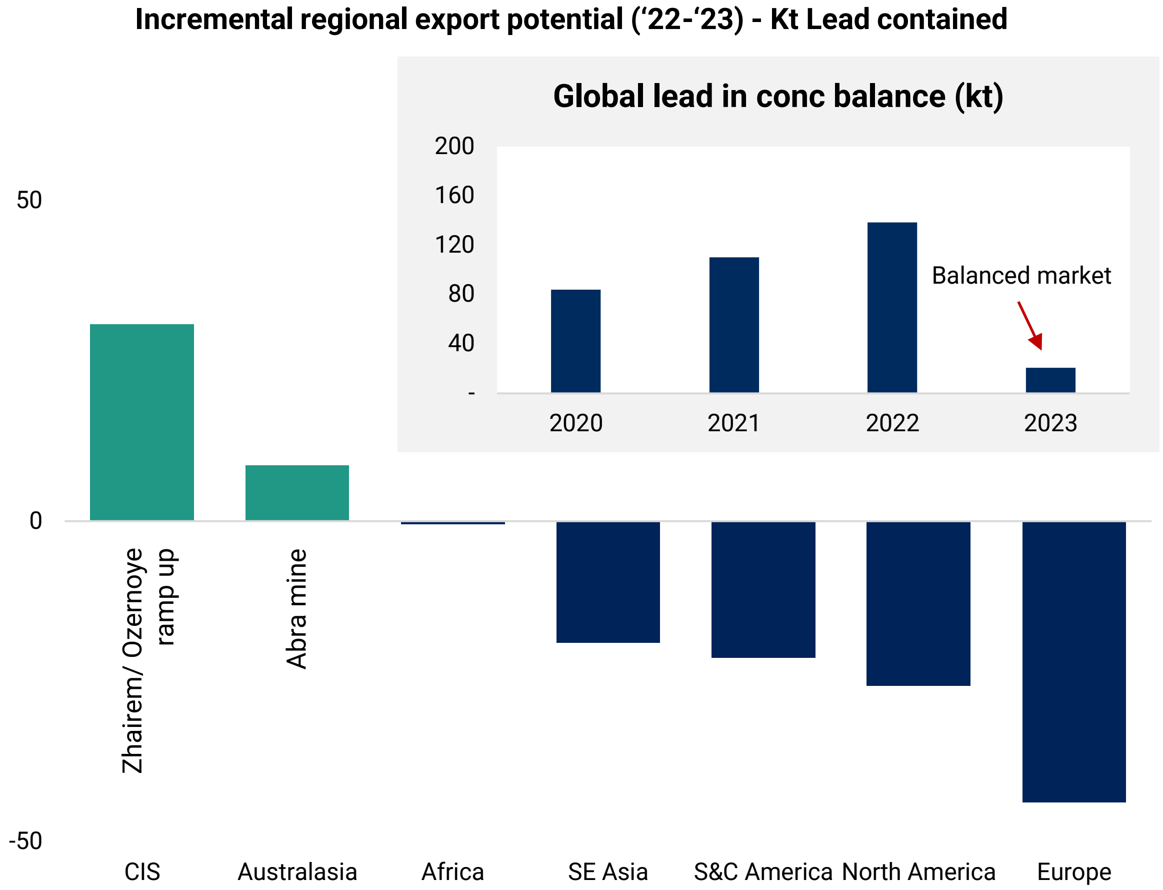
- Concentrate arbitrage into China has opened (SHFE relative outperformance to LME). Big imports for August 2022.
- Interplay between demand weakness outside of China versus degree of smelter cuts. (Aluminium) Cuts in Europe tend to cite mixture of high energy costs and weakening demand now.
- Open Chinese arbitrage is good for average producer as this will be important lever for BM negotiations



China improves while RoW falters, driving open arb and put a cap on how high TCs will go

2023 expectations for lead concentrates





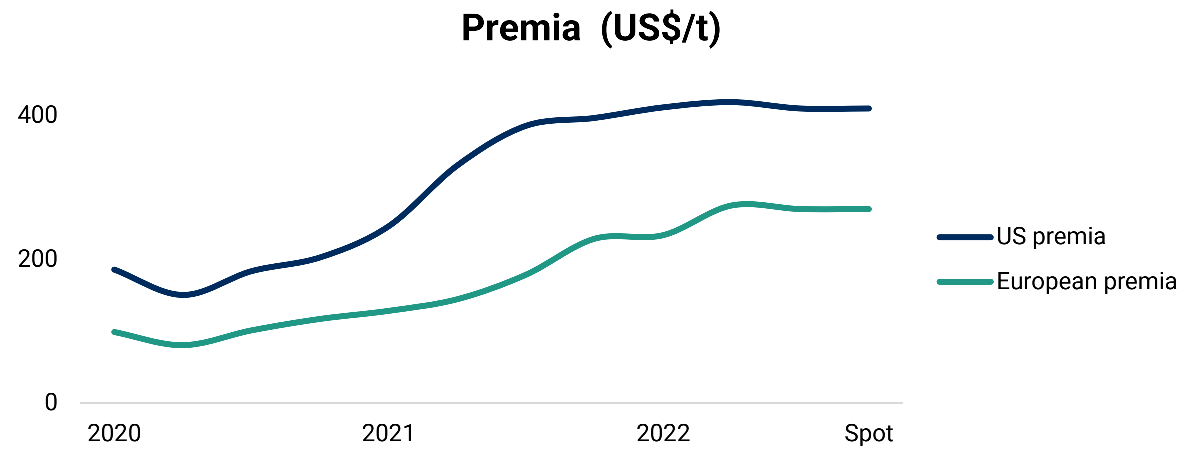
The Pb concentrate seaborne market could be tight in 2023. Growth in CIS and Australian supply will increase their export potential. In Europe the restart of Stolberg will create a relative draw for concentrates.

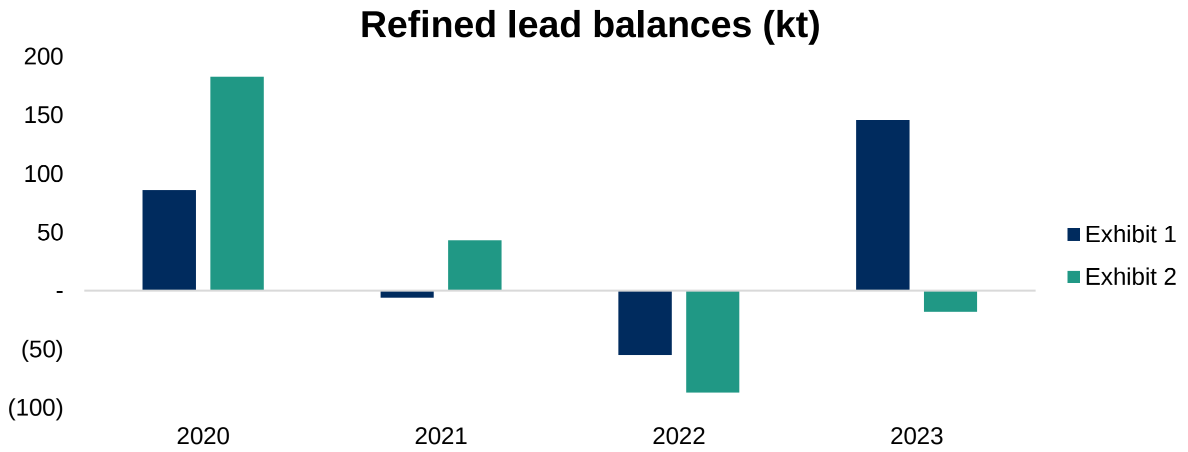
 Sources: CRU, Open Mineral Research

Are deficit markets here to stay?

Lead refined market – recent playbook

- The flooding at Stolberg in July 2021 began to tighten the European market at a time when the USA market was already short units of refined lead.
- Market premia picked up in both Europe and the USA and are sitting at >$400/t in the US and ~$270/t in Europe
- LT contract premia negotiations for the next year will be important levers to the smelters faced with higher energy costs and squeezed margins in Europe

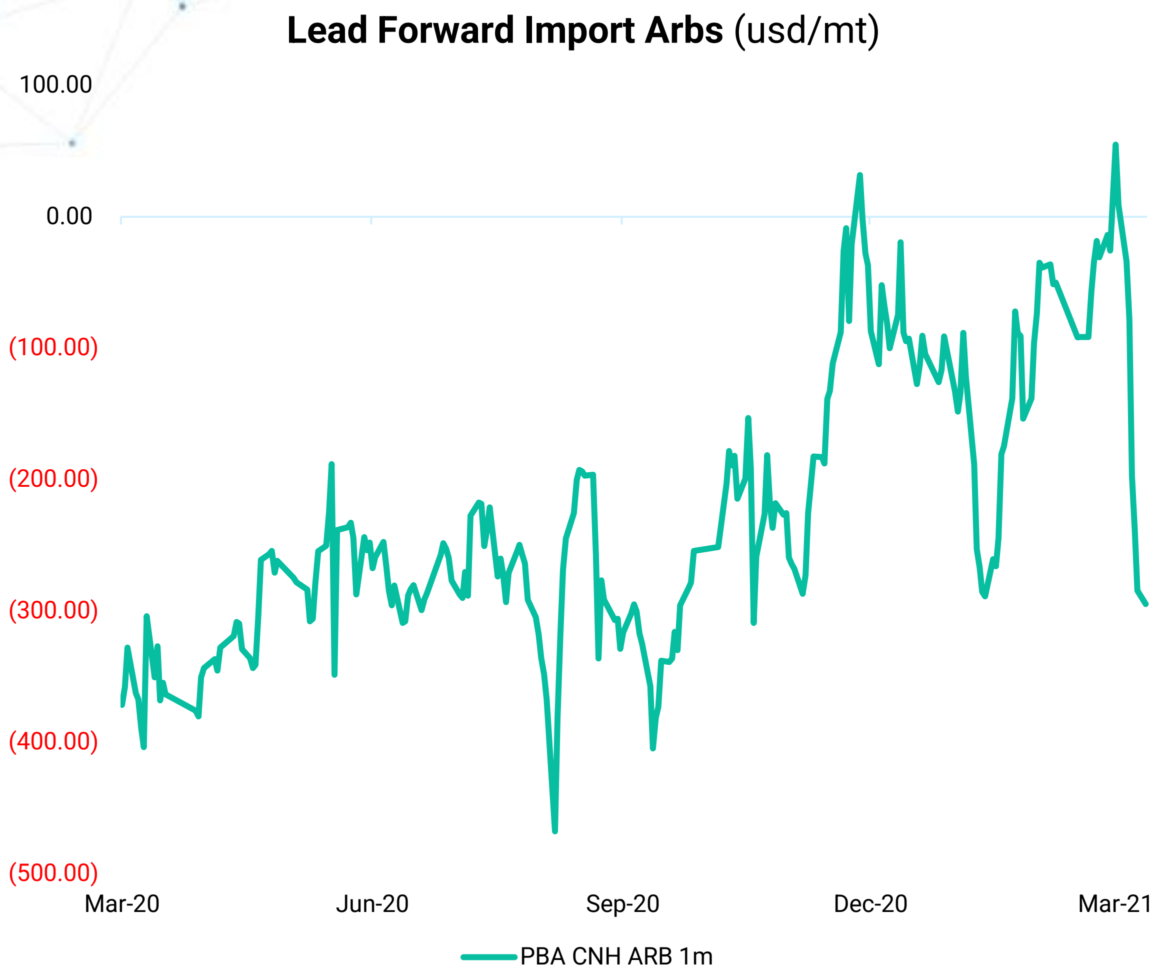


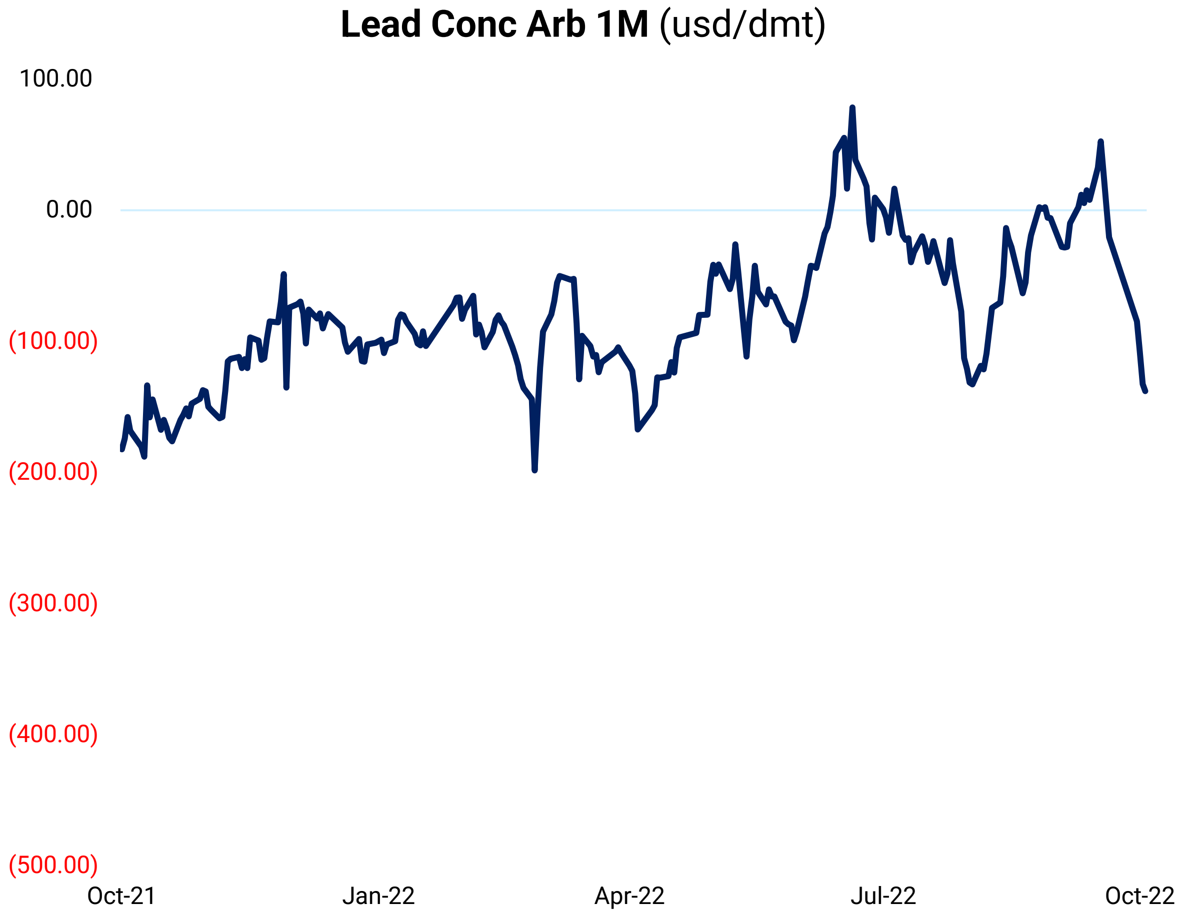


Refined lead market should ease in 2023 which could drive relative LME:SHFE underperformance

 Sources: CRU, ILZSG (Exhibit 1 & 2) – August 2022

Lead arbs





….Less acute than zinc, negative arb position has been closing despite the strong devaluation of the RMB

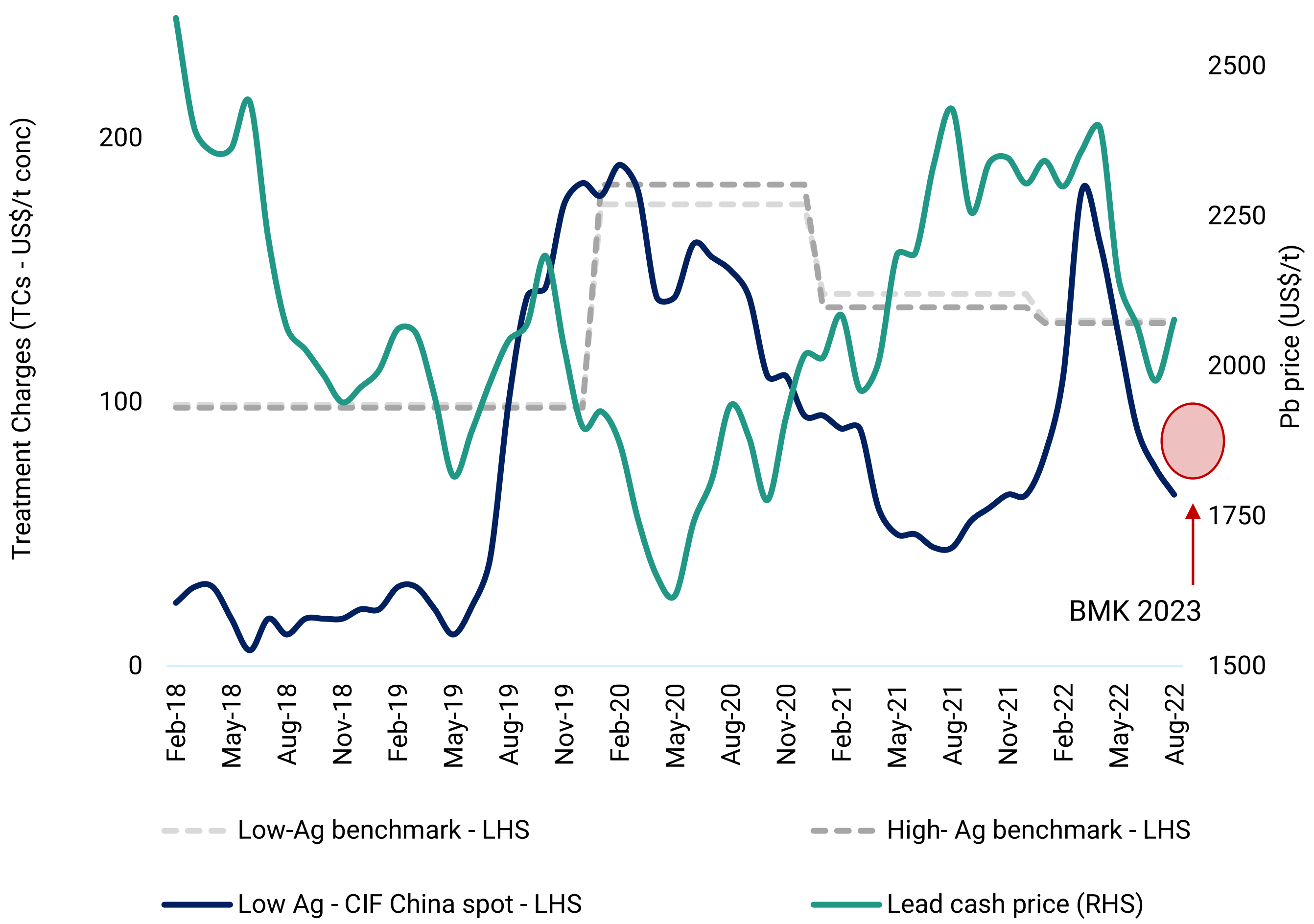
 Sources: LME, SHFE, Refinitiv Eikon, CRU, ILZSG,Open Mineral Research

Lead concentrates – 2023 benchmark levers

Pb benchmark negotiated terms in 2023 are expected to be lower than last year.

Levers to consider:

- Spot TCs have been in the $50-75 range in recent months and will play important pivot point to BM neg.
- High-Ag Pb Concs have traded at lower TCs and similarly terms for 2023 likely to be lower than low-Ag and lower than 2022



China improves while RoW falters, driving open arb and put a cap on how high TCs will go

 Source: LME, LBMA, SMM, Open Mineral Commercial terms

Conclusions

2022 Q4

2023

Fundamentals and macro

- Chinese demand is beginning to improve while the RoW generally deteriorates
- The Zinc concentrate market balances are tied very closely to developments in Europe and smelter outages. Massive redirection of refined zinc flows expected in 23
- The Lead concentrate market will be balanced in 2023 and it TC fortunes will very much be tied to arbitrage

Pricing and TC outlook

- Zinc BM terms are likely to be modestly higher than 2022. $240-280 range seems reasonable
- Levers to downside are further opening of the arb through the winter and downward pressure on spot TCs as China starts buying zinc units
- Lead BM terms are likely to settle lower for both low and high Ag contracts. The spot market is well below current BM terms

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Career Profile

Ryan Cochrane has over fifteen years of experience as a metals analyst and geologist having worked on gold and polymetallic projects in South Africa, Western China, Armenia and the Northern Andes.

Prior to joining Open Mineral, he led CRUs base metals supply and cost research, worked on copper mine costs and later led the gold mining research team at Wood Mackenzie. In earlier roles, he covered precious metals at Thomson Reuters GFMS.

He has strong expertise of zinc, lead and copper markets along with precious metals. Ryan holds a PhD in geochemistry, geochronology and thermochronology from the University of Geneva, Switzerland

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