Jefferies

Global | Metals & Mining

Copper Breakout

"The fundamental outlook for copper is improving faster than we had previously anticipated. Based on our supply and demand forecasts, the copper market is entering an extended period of deficits now. We expect this to lead to declining inventories and higher prices sooner than we had previously anticipated. The supply response to these higher prices will take too long to balance the market as the lead time to bring new capacity online is 5+ years for brownfields and 10+ years for greenfield projects. If growth in supply lags growth in underlying demand, as we expect, then demand destruction will be needed for the market to balance.

	Spot		2023A	2024E	2025E	2026E	2027E	2028E	2029E	2030E	Long-term
		Previous		3.95	4.65	5.25	5.50	5.50	5.25	5.00	4.00
Copper ($/lb)	4.05	New	3.88	4.15	4.75	5.50	6.00	6.00	5.50	5.25	4.00
		% Change		5.1%	2.2%	4.8%	9.1%	9.1%	4.8%	5.0%	0.0%
		Previous		**8,708**	**10,251**	**11,574**	**12,125**	**12,125**	**11,574**	**11,023**	**8,818**
Copper ($/t)	**8,929**	**New**	**8,543**	**9,149**	**10,472**	**12,125**	**13,228**	**13,228**	**12,125**	**11,574**	**8,818**
		% Change		*5.1%*	*2.2%*	*4.8%*	*9.1%*	*9.1%*	*4.8%*	*5.0%*	*0.0%*

Jefferies Copper Price Forecast Changes

Source: Bloomberg, Jefferies estimates

This demand destruction will require a significantly higher price. Ultimately, we believe the copper price will need to rise enough to incentivize the development of new greenfield projects that the world will need to meet demand, but that incentive price is well above $5/lb. If copper goes from $4/lb to $6/lb, as we expect over the next 2-3 years, copper mining equities should roughly double, on average. This leverage to the copper price in a cyclical upturn is clearly the reason to own the equities, in our view." – *Jefferies, 21 March 2024*

"We had expected copper market strength to really kick in during 2025 as we had been concerned about the impact of a weakening US economy this year. However, the risk of a significant slowdown in the US now seems to be remote, and the next cyclical upturn in copper may be here. The recent rise in the copper price despite ongoing fears about Chinese demand has been encouraging and justified, in our view.

Indian copper demand increased by 18% y/y in 2023 and has grown at a CAGR of 10% for the past five years. While India only accounts for ~5% of global copper demand, it is becoming a big enough end market to move the needle as a result of its strong growth rates and bigger base. We believe the India story in metals and mining is still underappreciated.

outlook than we had previously envisioned. Obviously there are still risks, and we are not raising our near-term copper price forecasts yet, but our current deck is increasingly conservative, in our view." – *Jefferies, 13 March 2024*

Copper Supply/Demand Model	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	CAGR 2023E-2030E
Total Supply (kt)	24,820	25,309	25,812	25,701	26,366	27,336	27,857	28,574	28,711	29,135	1.7%
Total Demand (kt)	24,865	25,168	25,797	26,178	26,898	27,591	28,345	28,991	29,782	30,658	2.5%
Surplus (Deficit), (kt)	**-45**	**141**	**15**	**-477**	**-532**	**-255**	**-487**	**-417**	**-1,072**	**-1,523**	
Growth in supply	*3.2%*	*2.0%*	*2.0%*	*-0.4%*	*2.6%*	*3.7%*	*1.9%*	*2.6%*	*0.5%*	*1.5%*	
Growth in demand	*3.8%*	*1.2%*	*2.5%*	*1.5%*	*2.8%*	*2.6%*	*2.7%*	*2.3%*	*2.7%*	*2.9%*	
Price (US$ per pound)	$4.24	$4.00	$3.88	$4.15	$4.75	$5.50	$6.00	$6.00	$5.50	$5.25	
Price (US$/tonne)	$9,338	$8,816	$8,543	$9,149	$10,472	$12,125	$13,228	$13,228	$12,125	$11,574	

Source: Company filings, Wood Mackenzie, Jefferies' estimates

"Our demand forecasts in the table below do not explicitly include the potential impact of data center demand for AI, and we also model slow demand growth in other end markets in the US. The risk to our demand forecasts is to the upside, which implies that the risk to our price forecasts continues to be to the upside as well." – Jefferies, 25 March 2024

Goldman Sachs | Commodities Research

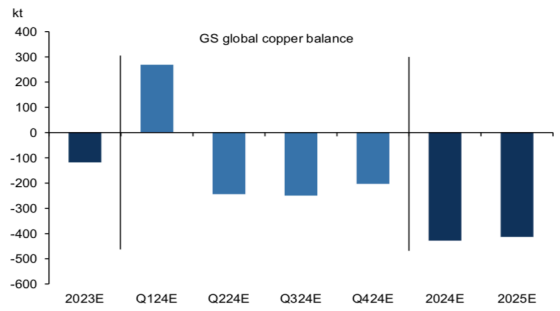
Metal Views

Copper's time is now

"In this broadly more supportive macro setting for industrial metals, copper stands out in terms of the degree of the tightening increment anticipated ahead. The deficit inflection in copper into Q2 onward is tied to a combination of progressive supply shock, more resilient demand environment and already tight stock buffers.

Structural supply under-investment, best reflected in peak mine supply we expect next year, implies that demand destruction will need to be the persistent solver on scarcity, an effect requiring substantially higher pricing than current in our view. In this context, we maintain our view that the copper price will surge into next year (GSe 2025 $15,000/t average), expecting copper to rise to $10,000/t by year-end and then $12,000/t by end of Q1-25' as scarcity pressures mount." – *Goldman Sachs, 15 March 2024*

Exhibit 12: Copper market is set to shift into a significant deficit phase from Q2 onwards until year-end
GS Global refined copper balance



Source: Goldman Sachs Global Investment Research, BNEF, Woodmac, ICA, ICSG

BHP

BHP's economic and commodity outlook
February 2024 [1]

"The supply side challenges described above have altered our thinking on what the middle third of the 2020s will look like for copper, with profound implications for the final third.

Previously, we envisaged the middle third of the 2020s as an opportunity for the industry to build a modest inventory buffer on the back of a run of small surpluses. The projected accumulation of stocks over this period was certainly not enough to absorb the major deficits we thought were likely to occur in the final third of the decade, but they were better than nothing and could at least mitigate price volatility for a time. Now, with both calendar 2023 and calendar 2024 presenting as deficits, whither the buffer? The answer is that it is no longer there, even with a modest surplus projected for calendar 2025. The durable inducement pricing regime previously expected to emerge in the final third of the 2020s could well come forward under these circumstances, with the pronounced deficits we envisage in the copper industry's medium–term future looming.

These expected deficits are a joint function of historical under–investment in new primary supply and geological headwinds at existing operations intersecting with the "take–off" of demand from copper– intensive energy transition spending that we expect will be a key feature of global industry dynamics as the final third of the 2020s arrives - if not earlier.

Our confidence in medium term deficits is underpinned by both the demand and supply side, but if forced to elevate one over the other, supply headwinds would be the #1 motive force. Simply put, the supply response to supportive demand and price signals in the 2020s to date has been underwhelming, despite copper's future–facing halo effect. And time is running very, very short to turn that story around." – *BHP's economic and commodity outlook, 16 February 2024*

ANZ

"Copper's fundamentals continue to beat expectations amid an uncertain economic backdrop. We expect the inflection point in central bank monetary policies to trigger a broader improvement in sentiment in coming months.

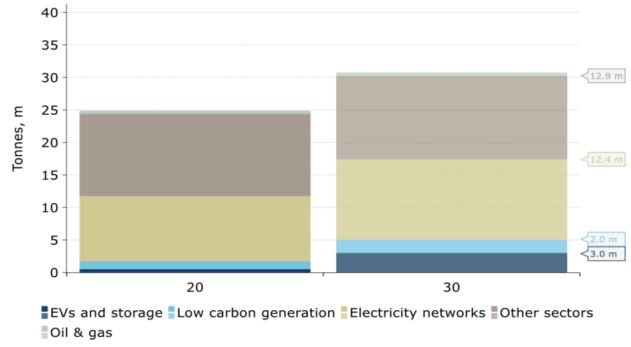
Copper has a broad spread of consumption across the global economy, leading to concerns over demand amid tighter monetary policies and weaker economic growth. However, it remained strong amid an increased focus on electrification and decarbonisation. We expect growth in demand from China, US and India, three of the top five consumers, to reach 4.3% in 2024.

This comes amid increasing supply side issues. Unplanned disruptions are likely to remain high as producers struggle with high costs and falling quality issues. Political risks also remain high, putting new mine development at risk.

We see the market returning to deficit this year, which should underpin prices. We maintain our short-term target of USD9,000/t and expect that to lift above USD10,000/t over the next 12 months.

Demand from the clean energy technologies sector has reached 22% of overall demand. More importantly, growth over the next three years is expected to see these levels significantly rise. So much so that even below-average growth from traditional sectors, such as construction and manufacturing, won't stop total demand from recording strong growth rates.

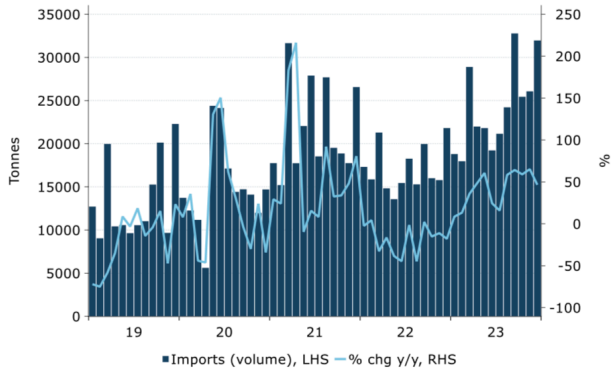
Figure 12. Copper demand growth by sector



Source: Bloomberg, Macrobond, ANZ Research

India's growth prospects are improving rapidly as it undertakes an ambitious infrastructure build out and expansion of manufacturing and exports.
This has importance for the copper market. India was a net-exporter of copper until 2017, but it now imports nearly half of its refined copper demand. Low consumption per capita should lead to strong growth in overall demand. Infrastructure, energy transition, and strong economic growth will drive overall demand. We expect a compound annual growth rate of 8.6% in copper consumption between 2022 and 2030.

Figure 14. India's copper imports

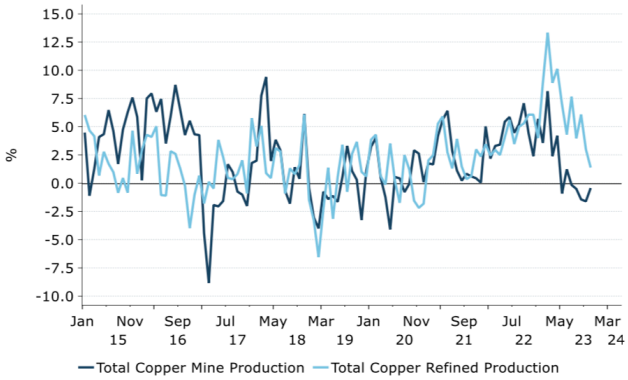


Source: MoC&I, LME Bloomberg, Macrobond, ANZ Research

This comes amid questions over the mining sector's ability to deliver targeted output.

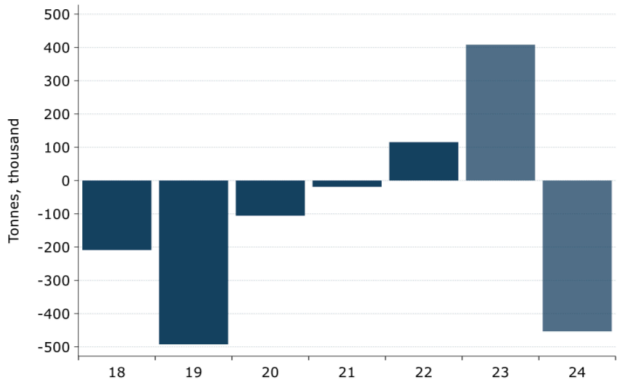
Unplanned disruptions to supply have been a feature of the copper market. Over the past 20 years, the amount of mine supply curtailed by unforeseen events has equated to 5.5% of the initial production forecast at the start of the year (Figure 17). This year looks no different. At the beginning of 2023, mine production for 2024 was forecast to grow by over 6% y/y. After only one month, this growth forecast decreased to 3.9%.

Figure 15. Copper mine supply growth



Source: Bloomberg, Macrobond, ANZ Research

Figure 20. World copper market balance



Source: Bloomberg, Macrobond, ANZ Research

As such, we see the copper market moving back into a deficit, which should provide support to prices in the second half of the year." – *ANZ Research, 22 February 2024*

ING

Article | 18 March 2024

Copper's bull run is only just beginning

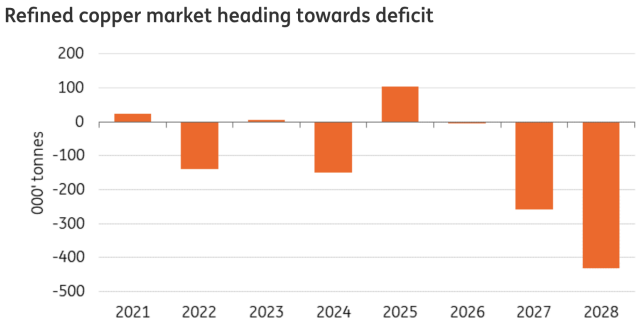
"Copper climbed above $9,000/t last week, surging to its highest level in one year after months of range-bound trading. The rally was triggered by news that major copper smelters in China have pledged to curb output in response to a tightening copper ore market.

Meanwhile, copper mines currently in operation are nearing their peak due to declining ore grades and reserves exhaustion. For example, the world's largest copper mine, Escondida in Chile, has already reached

its peak. Its production in 2025 is expected to be at least 5% lower than it is today.

In Chile, Codelco – the world's biggest supplier of copper – is struggling to return production to pre-pandemic levels of about 1.7 million tonnes a year by the end of the decade from around 1.3 million tonnes this year. This marks the lowest level in a quarter century amid aging assets and declining ore grade. At the same time, there is a lack of high-quality large-scale projects in the pipeline that could push the copper market into deficit as demand from the green energy sector grows.

The global refined copper market was expected to be fairly balanced this year, but the shortfall in mine supply now means that the market is likely to be in a deficit – the extent of which will also be dependent on the scope of Chinese smelters production curbs, as well as how quickly Chinese copper demand will pick up in the second quarter (which is seasonally the strongest quarter for copper demand).



Source: CRU, ING Research

Copper will also benefit from looser monetary policy, which will alleviate the financial strain on manufacturers and construction companies by reducing borrowing costs.

In the short term, the upside to copper prices might be capped by macro drivers, including ongoing demand concerns in China and lingering uncertainty over US monetary policy.

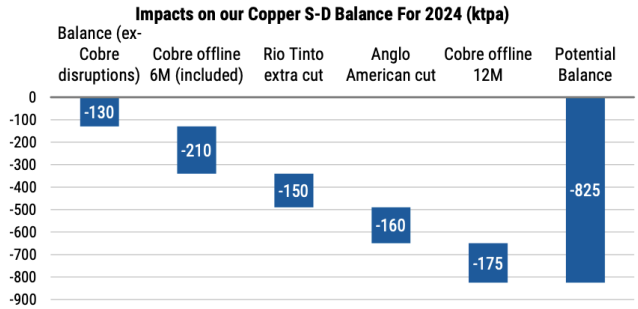
However, micro dynamics are starting to look more constructive for copper amid a tightening supply outlook. The demand side is expected to slowly improve this year, especially from the green energy sector. Copper is used in everything from electric vehicles (EVs) to wind turbines and power grids. In EVs, copper is a key component used in electric motors, batteries and wiring, as well as charging stations.

Last year, rising demand for renewables and EVs in China has already offset the slump from the more traditional sectors like the property market, and we expect this shift in demand drivers to continue this year." – ING, 18 March 2024

Sprott Insights

Copper: Wired for the Future

"While copper is abundant, mining it economically and efficiently is a challenge. Chile and Peru, the top copper-producing countries, are grappling with labor strikes and protests, compounded by declining ore



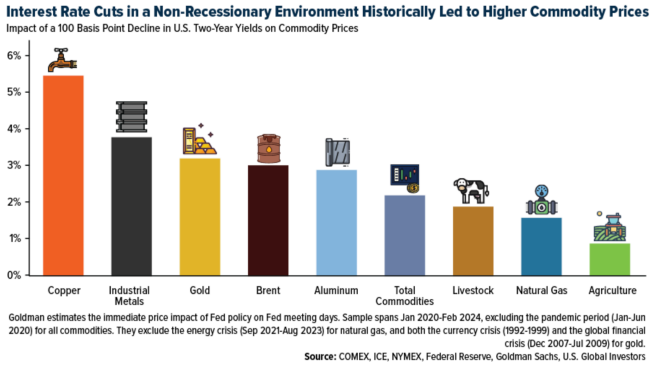
Source: Company Disclosure, Morgan Stanley Research

Against this backdrop, our commodity team is increasing its price forecasts to $4.38/lb (+8% vs. previous) in 2024 and $4.41/lb (+8%) in 2025." – Morgan Stanley, 27 March 2024.

U.S. Global Investors

"Copper's Red-Hot Rally, Fueled By EVs, Renewables And A Smelter Squeeze. Copper futures climbed as high as $9,164.50 per metric ton on the London Metal Exchange (LME) on Monday, March 18, marking a fresh 11-month high. The rally comes hot on the heels of a months-long sideways grind, propelled by supply risks and growing optimism around the global economic outlook.

Contributing to the run-up is news that as many as 15 Chinese smelters are considering output cuts at a recent high-level meeting in Beijing, which ignited a flurry of trading activity that the LME hasn't seen in years.



Beyond supply concerns, copper demand continues to be driven largely by the renewable energy boom. According to the International Energy Agency (IEA), copper's share of total demand across all applications is forecast to surge from 23% currently to over 42% by 2050.

grades. Russia, ranked seventh in copper production, faces an expected decline due to the ongoing war in Ukraine. Despite efforts by miners to ramp up production, many analysts anticipate a widening supply imbalance.

The anticipated supply-demand dynamic may suggest a strong performance for copper in a bull market. The previous commodity supercycle, driven by China's industrialization and urbanization, is giving way to a new cycle focused on the global energy transition.

Copper prices and miners are likely to benefit from the growing supply-demand gap. Some miners in particular are thriving due to the optimistic long-term outlook for copper demand. Copper's strategic importance has driven significant M&A (merger and acquisition) activity in 2022-2023, with major mining companies like BHP and Rio Tinto acquiring copper miners at substantial premiums. Automakers, concerned about securing future supplies of critical minerals like copper, are also investing directly in mining companies.

Copper's role as a critical mineral in the U.S. has led to its inclusion in over $30 billion of funding from the Inflation Reduction Act.

M&A activity in the copper sector has recently overtaken that in gold, with several companies receiving premiums of over 20%. This reflects the strength and positive outlook of the copper mining industry. As a long-valued asset, copper is entering a new era with the global energy transition." – Sprott, 27 February 2024

"Perennial copper supply deficit materializing... As of mid-2023, our house view was that the copper market would be in a slight surplus in 2024 and 2025. On the back of widespread copper concentrate supply disruptions and delays in the ramp of new mine projects (see Exhibit 2), the copper supply balance has changed quickly and our commodity team is now forecasting a shortfall of 0.7mt (~2.6% of demand) in 2024 and significantly higher deficit conditions throughout the rest of the decade.

Copper smelters have started to feel the impact of lower concentrate availability that has led to a collapse in spot copper treatment charges

This isn't just hot air. In August 2023, the Department of Energy (DoE) added copper to its official list of critical materials, making domestic producers eligible for government subsidies under the Inflation Reduction Act (IRA). The designation underscores copper's pivotal role in securing a sustainable energy future." – US Global Investors, 26 March 2024.