

Quarterly Metals Report

Q3 — August 2023

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel





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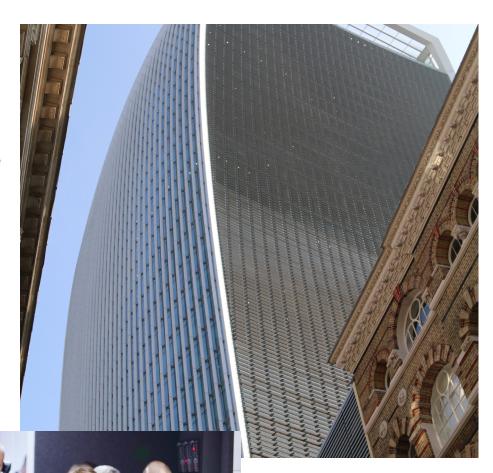
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Summary

In the previous quarter, expectations shifted from a pause in the central bank tightening cycle to further rate increases in July and potentially later in Q4 2023. As we move away from central bank-centric rhetoric, economic growth and consumer performance will be key in driving the risk sentiment across the board. Still, China's stimulus outlook remains critical to the longer-term narrative for metals this quarter. Sentiment has been improving as signs emerged that regulators are working to follow through on the promises made at the most recent Politburo meeting. However, markets remain cautious about the scale of support, and any positive news seems short-lived. As a result, the positive stimulus is more likely to solidify support levels than boost bullish sentiment in the near term.

Aluminium (AI)

Aluminium prices continued to drift lower during the quarter, as weakening global demand outlook and further tightening expectations from key central banks weighed on base metals' performance. Aluminium, being one of the most macro-responsive metals, lost momentum as a result. While the pause from the Fed should help solidify support for Q3 2023, stimulus out of China will be key in driving the overall narrative. Yunnan smelters are returning online, but rising risks around the possible repeat of drought conditions in China could cap any upside in production gains. Range \$2,130-2,400/t.

Copper (Cu)

Copper, in line with the rest of the base metals complex, weakened in Q2 2023. Much attention has been paid to diminishing stocks on the LME exchange as levels retest the recent and 2005-year lows. However, given the muted demand outlook, prices seem to be less impacted by stock moves. For 2023, copper is expected to remain in a slight surplus of 36k tonnes of refined material, one of the last years of surplus before underinvestment in mining capacity and longer-term demand prospects from EVs deepen the global material deficit. Range: \$8,100-8,920/t.

Lead (Pb)

The expectation of consumer recovery has been muted during the quarter, and the price of lead fluctuated within the highs and lows of \$1,980 - \$2,190/t. The zinc to lead premium climbed to multi-year lows of \$232/t after the zinc downside was more robust than in lead. Construction materials feel the brunt of the Chinese muted outlook, especially in the construction sector. Still, overall production resumptions and the release of new capacity should lead to increased output in July. With relatively stable macro conditions, we anticipate lead prices to maintain trading in fluctuations in Q3 2023 between \$2,000-2,240/t.

Nickel (Ni)

At the start of Q2 2023, nickel prices have broken robust support of \$22,000/t, as the risk-off sentiment took hold on the back of a compounding impact of continued monetary policy tightening across major banks and muted outlook from China. Since smelters are returning from maintenance, we expect production to continue recovering in Q3. Still, it will take time to reach full capacity, and the recovery will be marginal. While we still hold our optimistic view of recovery true, the positive momentum is being priced further down the curve. Our outlook for Q3 is \$20,000-24,000/t.

Tin (Sn)

Tin's performance was the only exception amongst the base metals group, as it gained 6.22% during the quarter on the back of the Myanmar tin ore export ban. While we struggle to see a strict, immediate implementation, given authorities hope for a smooth demobilisation process, there is still a fair bit of buffer stock in China, so the timing will be key to assessing the physical tightness in the market. We expect prices to continue to be driven by supply forces as global demand remains muted, keeping futures in the \$26,000-30,000/t range.

Zinc (Zn)

On a quarterly and a year-to-date basis, zinc was the worst performer among other base metals, falling by 20%, as construction-heavy materials took the heat from a lack of China's stimulus clarity. There are tentative signs that European smelters could begin production again this year; however, declining prices are further dimming prospects of a full-fledged return, and Q4 production is again under threat of energy prices. We believe we will continue to see gains in the property market and a build-up of activity in Q4 2023; however, they will be marginal, pushing zinc to \$2,300-2,750/t.

Iron Ore & Steel

Iron ore futures continue to be subject to China's stimulus outlook. Despite market hopes of a large stimulus, we expect the support more likely to be limited in scope. While this might not boost growth immediately, it should create a sustainable path for Chinese recovery from lockdown restrictions while balancing stimulus without over-inflating debt. We are, however, cautious of prices breaking above \$120/mt, given that regulators are more prone to tighten supervision after big price gains. Range: \$100-120/mt.

Gold (Au)

Gold finished Q2 2.5% lower, closing at \$1,919.35/oz. We expect gold to benefit from the softening inflationary environment in Q3 as an indicator of the end of the tightening cycle from the Fed. As the long cycle of monetary policy tightening starts to yield positive results, major central banks are on the path to pause interest rate hikes. Still, credit conditions are expected to stay tight for longer, moderating economic growth and bringing yields lower, which should raise the attractiveness of holding non-yielding bullion. Range: \$1,900-\$2,010/oz.

Silver (Ag)

In line with gold, silver underperformed in the second quarter of the year. Silver returned to rise in late June as the markets priced at the end of the Fed's monetary tightening campaign. While any positive data on the US economic performance is likely to drive silver prices lower, softening inflationary pressures should support the case for a pause in monetary tightening, creating a more favourable environment for precious metals in Q3 2023. Range: \$21.00-26/oz.

Palladium (Pd)

In line with our previous report, palladium continued to lose ground in the second quarter of 2023, falling to a \$1,222/oz level at the end of June, the lowest level since March 2018. While the automobile sector, which accounts for 85% of palladium demand, continues to rise, the palladium outlook remains grim, given the increasing demand for exhaust-free electric vehicles. Range: \$1,100-\$1,300/oz.

Platinum (Pt)

Platinum prices rallied at the start of Q2 2023, reaching \$1,127.20/oz in the second half of April. Softer dollar and power issues from South Africa offset the minor gains from the semiconductor space, pushing the metal to test March 2022 highs. Platinum is expected to be boosted by increasing use in heavy-duty vehicles and some substitution of palladium in petrol vehicles. Range: \$900-\$1050/oz.

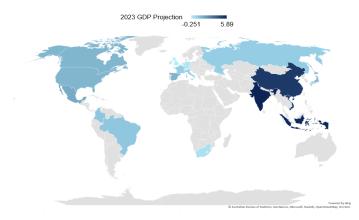
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Market Overview

Global Outlook: While the global economic slowdown is underway across developed and developing countries, the growth outlook for 2023 has improved since March as more economies are set to avoid recession. Major central banks are reaping the benefits of the most aggressive monetary tightening campaigns in decades, with inflation continuing to soften at a steady pace. Still, underlying price pressures are proving upwardly sticky, which strengthens the narrative of higher interest rates for longer. The banking sector turmoil, caused by the collapse of Silicon Valley Bank (SVB) in March, has uncovered financial sector vulnerabilities, proving that risks to the global outlook are skewed to the downside. At the same time, China's economic rebound seen earlier this year lost momentum in Q2 2023, painting a grim picture for the world's economy. A data-driven approach to monetary policy adopted by the Fed and the ECB brings us into sentiment-driven territory. Until the next central banks' meetings in September, we expect to see heightened market volatility. Global growth is forecast to slow, and the IMF expects growth of 2.8% this year, relative to 3.4% in 2022.

IMF 2023 Growth Projections

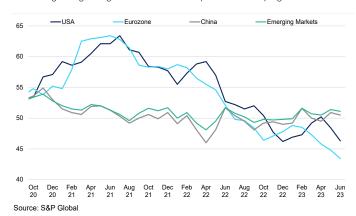
Most of the developed world is set to stagnate.



PMI: Global manufacturing remained in contractionary territory, with July's figure unchanged from the month before at 48.7. The prevailing trend of falling demand, and, in turn, new orders and exports, weighs on total output: the inventories continue to swell, further highlighting the looming weakness as economic performance softens. Business activity across the four largest developed world economies slowed for a second straight month in July, down to its weakest since February. While still in expansionary territory, the overall expansion was only very modest to hint at a near-stalling growth and potential downturn in the coming months if the current weakening trajectory persists.

Developed Economies Manufacturing PMIs

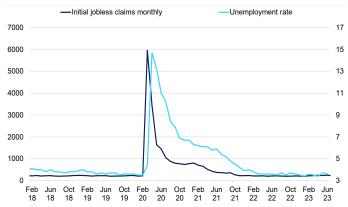
We see a growing divergence between developed and developing economies.



US: While recession concerns have been mounting since the Fed launched its monetary policy tightening campaign last year, the US economy remains resilient. In June, GDP growth for Q1'23 was revised from 1.3% YoY to 2% YoY as consumer expenditures and exports proved stronger than previously assumed. Such a revision raises hopes that a steep recession could be avoided in 2023, and instead, a soft landing would materialise with a gradual slowdown of output growth. This view is strengthened by the persistently tight labour market, with unemployment dropping to 3.6% in June, well below the historical average of 5.72%. At the time of writing, there are 1.6 jobs available for every unemployed person, a ratio much higher than the pre-pandemic norm. Certain industries, particularly healthcare and services sectors, still face a worker shortage after many workers left their positions during the height of the pandemic. June marked the 30th consecutive month of net private job growth, with nonfarm payroll employment increasing by 209,000. While it was the lowest reading since December 2020, it remains strong by historical norms, suggesting that overall economic growth could avoid slipping too deeply into contradictory territory. Given the recent pace of job creation and the number of available jobs outpacing the number of workers, we do not expect any sharp increase in the unemployment level in the coming quarter, and we believe that labour market tightness, although moderating, will remain elevated.

US Labour Market

The unemployment rate stays at a historically low level.



Source: Department of Labour, Bureau of Labour Statistics

At the same time, the consumer sector is the area that suffers the most significant declines. Consumer spending, which accounts for more than two-thirds of US economic activity, slowed to 0.1% in May from 0.6% the previous month and below expectations of 0.2%. Retail sales, a key indicator of the consumer's propensity to spend, softened more than expected to 0.2% MoM in June compared to the 0.5% reading recorded a month before. The data points to the biggest falls in sales at petrol stations and building material shops as well as a cut in spending on sporting goods and hobbies. Decreased spending on petrol indicates that consumers are making conscious choices to economise on discretionary expenditure, reflecting the cost-of-living crisis.

Nevertheless, while inflation remains above the Fed's long-term target, price pressures continue subside, gradually increasing consumers' purchasing power. In June, headline and core CPI marked the smallest annual increases in more than a year, with the readings at 3% and 4.8%, respectively. The rise was primarily driven by housing costs, which accounted for over 70% of the increase in CPI. While growth in the price of newly signed leases has been slowing down, inflation data reflects housing dynamics with a lag, as it measures both new and existing leases, which generally do not update frequently. Once the last year's slowdown in market rental growth becomes fully incorporated into CPI, we expect inflation to soften further. Still, given the tight labour market, we do not see price pressures decelerating to the 2% target level this year.

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US Retail Sales vs Personal Savings as % Disposable Income Savings are on the rise again as consumers pull back spending.

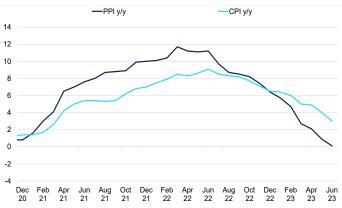


Source: US Census Bureau, Bureau of Economic Analysis

In line with expectations, Jeremy Powell announced a 25bps increase in the latest Fed statement, lifting the Fed funds rate to a new target range of 5.25% to 5.50%. The policymakers reiterated the importance of bringing down inflation even at the expense of higher unemployment or slowing economic growth. So far, the US economy has proved exceptionally resilient to tight credit conditions. While June data pointed to softening price pressures, the one-month data might not be enough to assess whether the monetary tightening has had enough impact on long-term price stability. The relatively tight consumer and labour markets create upward inflation pressures, which could resurface if the Fed calls victory on inflation too quickly. As a result, the Fed continues with neither hawkish nor dovish rhetoric of data-based assessment, giving themselves space to raise interest rates further if inflation proves too sticky. With two months left before the next FOMC meeting, we believe that continued moderation of the US economy is inevitable, with real private domestic spending declining, feeding the narrative of no more interest rate hikes this year.

US PPI YoY vs CPI YoY

Both indicators continue from the 2022 highs.



Source: Bureau of Labour Statistics

Europe: The Eurozone economy has avoided contraction in Q1 2023, growing marginally by 0.1% QoQ, but the outlook remains bleak. In particular, Germany, the bloc's biggest nation, posted negative growth in the first quarter of the year, putting it on course for a technical recession. This underscores the fragility of the Eurozone's economic performance in the face of further tightening from the central bank. We will likely see the Eurozone's GDP underperform its Western counterparts in the coming quarter. While confidence in Europe continues to recover, improving by 1 point to -15.1 in July, the latest retail sales data indicated a continued downward trend, marking the seventh consecutive month of contraction. The biggest declines were seen in the sales of food, drinks and tobacco as European consumers face squeezed income due to persistently high inflation and increasing borrowing costs. Softening

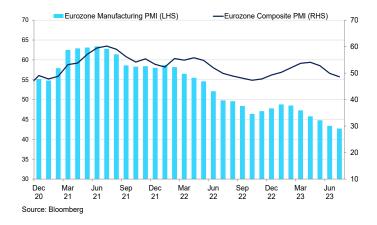
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demand for goods is impacting production, with the HCOB Eurozone Manufacturing PMI falling to 43.4 in June, down from 44.8 in the previous month. New orders fell rapidly, and at the strongest pace for eight months. The number signalled the sharpest deterioration in the manufacturing sector since May 2020: squeezed purchasing power, tightening financial conditions, and a shift to inventory destocking could cap manufacturing further.

Eurozone Manufacturing vs Composite PMI

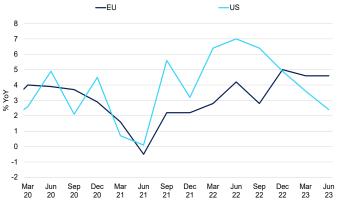
Factory activity continues to decline.



In July, annual CPI slowed for the third consecutive month to 5.3% from 5.5% in June, marking the lowest reading since January 2022. A further drop in energy prices and a slowdown in the cost of food, alcohol and tobacco were the main drivers behind the lower reading. At the same time, core inflation remained unchanged at 5.5%, compared to forecasts of 5.4%, and is now higher than the headline rate for the first time since 2021. Inflationary pressures will likely remain high, but we expect price growth to plateau, prompting lower inflationary growth in Q4 2023. The labour market remains robust, with an exceptionally low unemployment rate of 6.5%, unchanged since our last report. Wage pressures could still accelerate further, given widespread workforce shortages across services this summer. As a result of such tight labour market and inflation compensation effects, wages are expected to grow at rates well above the historical average, hampering ECB's efforts to get inflation back to its 2% target.

US vs EU Labour Costs

EU labour costs have increased significantly in recent months.



Source: Bureau of Labour Statistics, Eurostat

At the latest ECB meeting, Christine Lagarde announced a 25bps interest rate hike, bringing the deposit rate to the highest level in 22 years at 3.75%. Policymakers announced a data-driven approach going forward, as more hikes might be necessary if inflation in the coming months proves too sticky. While the near-term outlook is seen improving from the Q1 2023 lows, the tight labour market and elevated price pressures should yield a modest gain in activity this year. Given the less

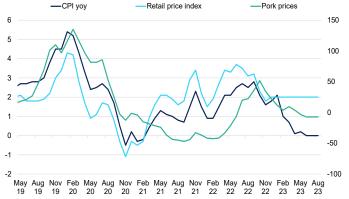
robust fundamental picture in comparison to the US, we expect the euro to deteriorate in the coming quarter.

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China: In line with our previous report, China's economy shows signs of stalling after a more robust performance in Q1'23, which saw the second-largest economy grow by 4.5% YoY. The rebound in consumption seen at the start of the year has slowed significantly in the last months. Retail sales, a key gauge of consumption, increased by only 3.1% in June, compared to 12.7% in May. While marking the fifth period of rise, the consumer spending increase is in part attributed to the low reading from the same time last year when several cities were under strict lockdown restrictions. Still, it was below market expectations of 3.2% as consumers proved increasingly reluctant to spend. Flagging domestic demand is also reflected in weak price pressures, with PPI in June marking the steepest decrease over seven years at -5.4% and a flat CPI reading raising deflationary fears. The decline in consumer prices was mostly driven by a faster fall in pork prices, which traditionally significantly impacts Chinese inflation as pork accounts for more than half of total meat consumption. China's core CPI, which excludes volatile food and energy prices, softened to 0.4% in June, the slowest pace since March 2021. This is partly due to the cooling of the services sector, which has so far been the key driver of the country's post-Covid recovery. While the summer holiday season encourages Chinese consumers to continue spending on travel and eating out, activities that were strictly forbidden under lockdown, growth in these sectors is insufficient to lift the entire services sector. In July, the nonmanufacturing PMI declined to 51.5 from 53.2 in the previous month, marking the weakest growth since December 2022. We expect the weakness in overall demand to continue in the coming guarter as consumers prove increasingly reluctant to spend.

China CPI YoY vs Pork Prices

Decreasing pork prices have driven annual CPI lower in recent months.



Source: National Bureau of Statistics

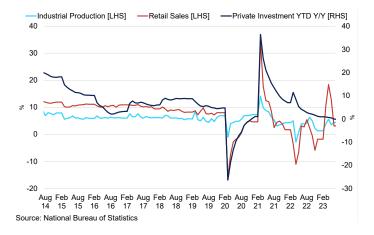
At the same time, the global appetite for Chinese goods remains muted amid elevated recessionary fears. June data points to Chinese exports falling at their fastest pace in three years, with outbound shipments plummeting 12.4%, compared to a 4.5% drop in May. With exports accounting for around 20% of the economy, the outlook for the Chinese economy remains lacklustre. The decline in exports is exacerbated by continued tensions with the US and restrictions on access to processor chips and other technology used in used in electronics production, representing almost 40% of China's total foreign trade. The weak demand weighs on industrial production, reflected in main manufacturing indices softening in June. NBS signalled the third month of contraction in factory activity with a reading of 49 as new orders, buying activity and export sales all extended declines. We expect manufacturing activity to remain muted in the near term as firms grow increasingly concerned about sluggish market conditions.

In June, the policymakers pledged considerable support to stimulate economic growth. Still, the question the markets are faced with is whether the possible stimulus measures will be effective given the current economic landscape. Boosting internal consumption poses an enormous challenge, given household fears over income security due to

adverse wealth effects from the property market slowdown and a record-high youth unemployment rate of 21.3%. In an environment of elevated uncertainty, even with improved credit conditions, Chinese consumers are unwilling to take loans and increase spending. As the markets anticipate more details regarding the possible policy adjustments, we believe that the high levels of debt faced by China and its local governments mean that adequate fiscal stimulus is unlikely to materialise in the coming quarter.

China Industrial Production vs Fixed Assets Investment vs Industrial Profits

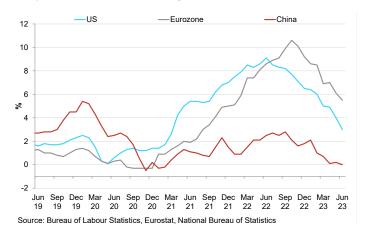
Industrial production stagnated in recent months.



Emerging Markets: Emerging markets' economic conditions remain fragile overall, but growth trends should prove more resilient relative to developed economies. While Western countries struggle with sticky price pressures, recent emerging market inflation data has been a key driving factor in upbeat outlooks for developing economies. Asia, in particular, could take the lion's share of growth in 2023: strong performance across Taiwan, South Korea, and India outweighed the decline in China as concerns over a sluggish post-pandemic economic recovery weighed on the country. As the world's biggest economy faces a weakening consumer and labour market, India remains one of the most attractive countries for investment thanks to its advantageous demography and steady growth trajectory. In Q1 2023, India's GDP growth surprised on the upside, making a 6.1% YoY growth, up from 4.6% in the previous quarter. While the US, Europe and China face softening factory performance, the Indian manufacturing sector, which accounts for 17% of the country's GDP, continues to expand, with a 57.7 reading recorded in July. According to the IMF, the nation's growth rate is expected to outpace that of China and the overall Emerging and Developing Asia in 2023.

Major Economies' CPI

Price pressures continue to soften in major economies.



Aluminium

LME Aluminium 3MO (\$)

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Overview: Aluminium prices continued to drift lower in Q2 2023, losing 11.8% during the quarter. Weakening global demand expectations in line with extended tightening expectations from key central banks weighed on base metals' performance, and in particular, aluminium, which remains one of the most macro-responsive metals. Spreads fluctuated during the quarter, and rather than any fundamental drivers, we have seen increased participation in the spread trading. As a result, the cash to 3-month spread jumped close to \$50/t backwardation in June, but since then returned back to contango levels. Volatility in the market continues to drop, falling to lows not seen since May 2022. At the same time, volumes have remained healthy. Hence, given a lack of strong momentum to drive the narrative, prices behaved orderly, continuing on the path of a 'soft landing'.

China Refined Aluminium Exports and Impots vs Primary Output

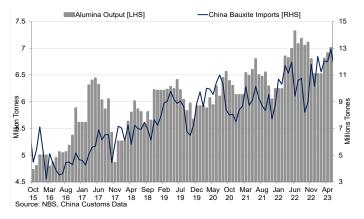


From the supply standpoint, primary aluminium output totalled 3.45m in June, up 1.88% y/y and 1.17% m/m. In H1 2023, domestic aluminium output was up by 2.81% y/y. The reason behind the month-on-month increase was the addition of capacity in Yunnan, which contributed 260,000mt m/m in June, driven by production resumptions at the end of the month. Guizhou added 120,000mt. However, Shandong production fell by 250,000mt due to capacity transfer, resulting in a marginal total increase across the country. In Q3, we expect domestic operating capacity to continue to grow, mainly contributed by Yunnan, which has granted a new power load for local smelters to resume production. Globally, aluminium producers saw improved conditions for the third consecutive month in June, led by the strongest expansion among Asia-based firms for four months, while there was also a renewed rise in the US. The rate of contraction among European users was the steepest since May 2020. The overall pace of growth picked up slightly to reach the strongest since February. Production levels rose at the quickest pace in four months, despite a slower upturn in new orders. Further improvements in supplier performance continued to ease price pressures on aluminium users as input prices decreased for the first time since May 2020.

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China Bauxite Import vs Alumina Output

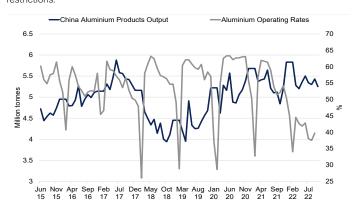
Bauxite imports into China remain strong, but gains in alumina output are not proportionate, given weaker demand picture.



However, given the greater dependence on the energy density of aluminium production this quarter's performance could once again be reliant on energy supply in the region, fuelling concerns that there could be a repeat of last year's shutdown. September last year was a tough period for aluminium production given the drought situation in Sichuan, which is responsible for 1m tonnes of China's supply, which resulted in 20% of the material being lost and a \$200/t price gain on the back of this. Sichuan has imposed power rationing recently due to tight power supply, but power consumption in the region already reached a record high in July, exacerbating already low hydro dam levels. According to MacroMicro's data, China's Three Gorges Dam water level is now at 150m, in line with September 2022 lows. Even with the demand situation being lacklustre, we continue to watch out for weather conditions in the region and the subsequent cuts that could take place. We believe that the nation will be aware of the upcoming risks and might import, and in turn, integrate a higher share of fossil fuels such as coal to secure enough power supply.

Aluminium products output vs Operating Rates

Operating rates jumped higher in Q2 2023, recovering from the lows of lockdown restrictions.



Source: National Bureau of Statistics, SMM Information and Technology

From the demand side, downstream aluminium operating rates remained elevated, with a slight operating rate increase in the aluminium foil sector due to revived demand from the battery and air conditioning markets during the summer months. However, its sustainability was uncertain. Downstream firms have now entered an off-peak season, and with overall market sentiment softening, should affect upstream factories to reduce output in Q3 2023. Poor demand weighed on aluminium billet operating rates, hurting demand for liquid aluminium. Rising output, and cargo into the region, might help inventories swell in the coming months. As of July, SHFE stocks remain low at 98,079mt. Given that demand is showing no signs of change, that should weigh on domestic prices.

As per our last report, it looks like the Chinese property market has found a bottom in Q1, with property sales and starts growing since the start of this year. While the growth has been marginal in comparison to the recovery seen in 2021, the sector is showing signs of hope that the worst might be behind us. While we do not expect to see a sharp acceleration of construction activity this year, slow and steady growth is likely to continue into the year-end. While the market still looks to China to gauge the outlook for metals this year, we are likely to see the market recalibrate its expectations towards a more balanced approach, with both Europe and the US considered. Asia's largest economies have been crucial in supporting metals, however, given a continuous lack of good news out of China, we believe that further emphasis will be on the global macro picture instead. China's recovery lost momentum in Q2 2023, growing just under 1% q/q and putting China's growth target for the year at risk. Deflation is now a major threat, with economy-wide prices declining for the first time since 2020. The weak GDP data intensified calls for more stimulus, with attention now shifting to positive pledges out of Communist Party's Politburo last month. However, we struggle to see positive sustainable improvement in pricing conditions until concrete policies are put in place. Chinese policymakers have hinted, though, that stimulus measures this year will likely be limited in scale, underscoring their relatively modest growth target of 5% for the year.

China's Property Market

The property market is recovering year-on-year, but gains remain marginal.



We believe that the market was a bit impatient with the China stimulus story, and any new introductions will take months to implement into the economy, so given a lack of strong stimulus introduction in Q2, we will not see drastic changes in the economy in Q3. We think that good news out of China will help prop prices during the day; however, until data out of the region becomes positive in a sustainable manner, we will continue to see a "soft landing" in the metals space. Despite the lower demand story that we have seen in recent months, supply shock seems to have some protracted impact on prices, so we continue to pay attention to the bauxite ban news from key regions. China's output has been stable, but any changes in production could alter the path of metal prices in Q3 2023. We expect that as the market is recalibrating its expectation in regard to the Chinese policy, the outlook in Q3 is likely to maintain a slight downward path before the market finds strength once again in Q4 2023.

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Copper

LME Copper 3MO (\$)



Sentiment

China Recovery Story

Less Hawkish Fed

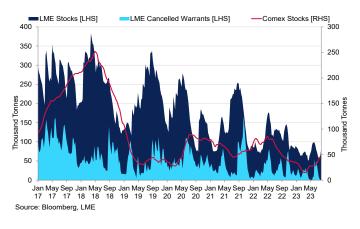
Peru & Chile Output

Stimulus

Overview: Copper prices drifted lower during the second quarter, falling by \$880/t to close the quarter at \$8,174/t. A lack of momentum from Chinese policymakers and an extended hawkish tone from central banks weighed on copper performance. Since June, prices remained rangebound, with support and resistance levels at \$8,000/t and \$8,720/t holding firm, respectively. Much attention has been paid to diminishing stocks on the LME exchange as levels retest the recent lows and 2005-year lows of 60,000mt. However, given the muted demand outlook, the market is paying less attention to stock moves. The spread remained in contango for most of the quarter, trading at -\$40.0/t at the time of writing.

LME Copper Stocks vs Cancelled Warrants vs COMEX

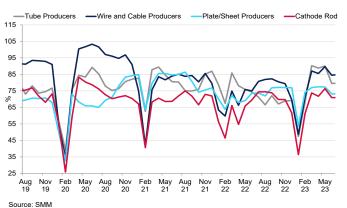
Both LME and COMEX stocks are at multi-year lows, but this has failed to bring prices significantly higher.



Outlook: Copper cathode output stood at 917,900mt in June, a 4.3% m/m fall, while up 7.1% y/y. H1 saw output at 5.56m mt, up by 11%. The main reason behind the monthly reduction in production was the smelter maintenance, with a total impact of more than 50,000mt. Prices of sulphuric acid in most parts of the country continued to fall, but that had little impact on smelter production. However, the demand for blister copper has increased significantly, suggesting growing demand for refining, and given that some smelters have not purchased enough, this has led to a decline in production at smelting facilities. Copper price ranges have been holding firm in recent weeks, and support remains above the cost of production level. We expect August output to improve, given the end of maintenance for the majority of smelters, before the restart of partial closures in September. As a result, month-on-month performance should continue to soften while year-on-year performance remains healthy.

China Copper Operating Rates

Tube and wire performance once again outpaced the gains seen in PSS and cathode rod.



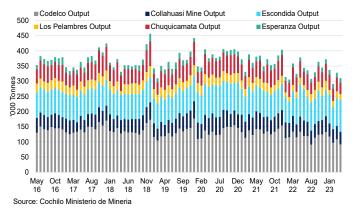
Operating rates for all products have improved sharply in Q2, jumping to highs not seen since 2020, especially for wire and tube, as softer copper prices brought on higher orders. Operating rates for both wire and tube stood at 84.5% and 79.57% in June, respectively. Cathode rod and PSS gains were more lacklustre. In particular, PSS material inventory and finished inventory continue to diverge. Raw material growth, and finished remaining broadly unchanged, suggests higher material import or cargo transport into the PSS facility while production remains stable. Given the seasonality assumption, we are likely to see operating rates flat until the end of the year, dipping slightly lower in the second half of the year.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

The latest data from Chile showed that copper output in the nation dropped by 5.2% m/m and 1.1% y/y to 416,200t in April due to project delays, water restrictions and lower ore quality. While mine disruptions have weakened in recent months, the commissioning of new production capacity remains very limited. Continued output cuts from Codelco continue to offset gains made by Escondido. Cumulatively, output declined 2.1% YoY to 1.68mt in the first four months of the year following a series of operational issues. Codelco is attempting to get back on track at its operating mines; however, we do not anticipate any major developments this year, and production is likely to soften into the year-end. Meanwhile, in Peru, output is recovering following protests earlier this year. In April, copper production reached 199,330 t, up 1.6% m/m and 31% v/v. While this is below the highs seen by Q4 2022, recent gains seem promising. Still, Peru continues to see risks to production. The "Peruvian Armed Protection Period" of the Las Bambas copper mine expired in July, and community road blockages and strikes have begun to grow, which could once again translate into disruptions to the production at Peruvian copper mines. The resumption of strike protests could raise disruptions to spot copper concentrate supply in China in the second half of the year. Still, in May, China imported a record 2.56m mt of copper ore and concentrate, up 16% y/y and 20% m/m. In April, imports from Chile stood at 656,400mt, up 28.2% m/m, while imports from Peru declined by 13.7% to 483,200mt. As a result of higher imports into the economy, TCs for copper concentrate 25% CIF broke above \$90/mt. We expect that continued protests in Peru, labour contract negotiations and ore erosion at Chilean mines will weigh on TCs in the second half of the vear.

Chile Output by Mine

Continued output cuts from Codelco continue to offset gains made by Escondido.

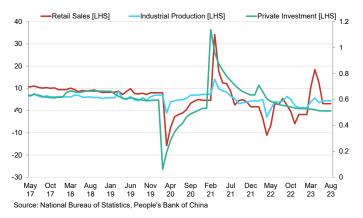


Alongside the rest of the base metals complex, copper continues to be macro-driven, especially with pressures from the monetary policy side and the Fed. This reaffirms that macro remains key in driving the metals' prices, and we expect the forward guidance from the Fed to set the tone for the central bank narrative until the end of the year. With central bank decisions out of the way, we expect the focus to shift back to the fundamental picture, especially stimulus releases out of China. We think that good news out of the region will help prop up prices; however, until data out of the region becomes positive in a sustainable manner, we should continue to see a "soft landing" in the metals space. We remain cautious regarding the outlook for copper prices. The 30-day volatility points to a continuous decline as price fluctuations subside and the metal is trading rangebound. Strong stops on either side of the trading range limit the scale of the move on the day. While the end of the hiking

cycle from the Fed should be supportive of metals, particularly copper, the outlook into the year-end remains uncertain, and we are likely to see a market rush into price rate cuts as economic data continues to soften.

China's Macroeconomic Environment

The consumer sector is beginning to show signs of moderate weakness after post-lockdown appetite weakened.



However, the upside is also strongly covered, given the absence of Chinese stimulus to prop up the momentum. Calls from key policymakers and government officials to open up the economy and encourage foreign investment have boosted sentiment across base metals on the day of the announcement; however, this momentum struggled to last, and prices have continued to soften, following the longer-term trend. Metals should continue to drift lower until we see a recovery from the second-largest economy portrayed sustainably. While markets still look out to China to gauge the outlook for metals this year, we are likely to see the market recalibrate their expectations towards a more balanced approach, with both Europe and the US domestic and macro outlook taken into consideration. For 2023, copper is expected to remain in a slight surplus of 36k tonnes of refined material, one of the last years of surplus before underinvestment in mining capacity and longer-term demand prospects from EVs deepen the global material deficit. Momentum for copper is set to improve closer to the year-end, on improving fundamentals and longer-term decarbonisation trend for copper.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Lead

LME Lead 3MO (\$)





Overview: The expectation of consumer recovery has been muted during the quarter, and the price of lead fluctuated within the highs and lows of \$1,980 - \$2,190/t as a result. In July, we saw lead prices post consecutive gains, gaining as much as \$90/t across four trading days. The spread between cash and 3-month futures continued to fluctuate and, as of July 25th, is now back in contango. Zinc to lead premium climbed to multi-year lows of \$232/t after zinc downside was more robust than seen in lead. Construction materials are feeling the brunt of the Chinese muted outlook, especially in the construction sector. Instead, lead prices rallied in line with other base metals based on macro fundamentals, especially with US CPI and PPI prices easing at a healthy pace, suggesting the end of the tightening cycle from the Fed. Fundamentally, smelter closures helped to maintain the support level at \$2,000/t.

Lead Price vs Cash to 3-Month Spread

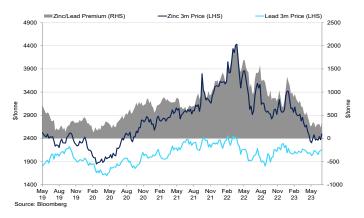
The spread has continued to see backwardation expand in recent months.



Outlook: In June, primary lead production reached 293,100mt, down 5.4% m/m but still up by 24.50% y/y. In H1 2023, cumulative production reached a 17% y/y increase, equalling 5.835m mt. On a year-on-year basis, production is excelling; however, since March, we have seen a marginal decline in production. The reason behind this is the high number of maintenance operations at lead smelters, particularly in Henan and Yunnan. Most of these smelters are of large scale, and so the impact of their absence is being felt through weaker production numbers. At the same time, the supply of lead concentrate remained tight, for high-grade concentrate in particular, as it faced robust market competition, resulting in insufficient raw material supplies. As a result, some lead smelters were forced to passively reduce their production levels. This marks the third consecutive month of declines, but June's fall surpassed expectations. In Q3, the output of primary lead is expected to stop declining and start increasing again as lead smelters complete their maintenance and gradually resume production. Considering the tight supply of raw materials and other factors, smelters will be looking to accumulate lead ingots, putting pressure on the demand side, however, some smelters are unable to fully recover from maintenance. In addition, lead consumption has relatively improved, and the market has expectations for the traditional peak season (which starts in July and goes into the year-end), focusing on the support of downstream delivery efforts on prices in the future.

Zinc & Lead Prices vs Zinc/Lead Premium

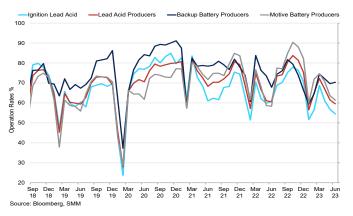
The premium between zinc and lead continued to fall to multi-year lows



Secondary lead output was 339,000mt in June, down by 8.2% m/m and also down by 8.1% y/y. Cumulative production in the first half of the year was at 2.05m mt, unchanged y/y. Secondary production, which traditionally represents 60% of overall lead production, underperformed on a year-on-year basis in June, the first time this year. In line with primary production, large secondary smelters saw production equipment failures and maintenance. Therefore, the operating rate of large-scale smelters fell from May. Lead operating rates are still doing poorly, while they have recovered from recent lows, small firms are still not doing particularly well. Big firms are also on the lower scale of production. Still, we expect that the impact of the maintenance at primary lead enterprises will ease, and profits will begin to improve. As a result, the refined lead supply is expected to increase month-on-month. Consequently, downstream orders at large-scale lead-acid batteries are gradually improving, and rigid demand purchases are still maintained after lead price strengthened and the peak season expectations are gradually being fulfilled.

Battery Producers Operating Rates

Further maintenance issues expected in the latter half of the year.

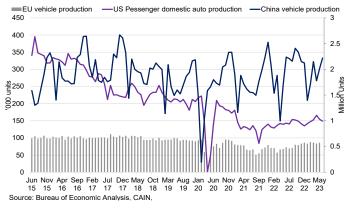


Passenger vehicle sales continued to improve across producing nations, maintaining a path of stable growth for 2023. US passenger vehicle sales increased to 236,032 units, down by 3.1% m/m but still up 15.6% y/y. New vehicle sales continued to grow rapidly, up by 20% y/y in May 2023, as both the overall consumer demand and supply of vehicles improved thanks to a continued easing of supply chains. This is despite newvehicle prices remaining near record highs of \$45,838 per unit and rising interest rates making financing more difficult (adding to vehicle insurance, which rose by 1.7%). According to a CPI report, new vehicle prices have grown by 0.1% m/m in June and up by 4.1% y/y, marking the slowest pace of growth since May 2021. Consumers have been faced with elevated prices for over a year, and given a shortage of supply last vear, we believe those that have missed out on a purchase are now catching up. While this is not necessarily an organic driver of growth from consumers, it is still leading to a healthy demand picture in major economies. High prices are likely to persist given that historically

new-vehicle supplies remain low relative to demand. While on a relative basis, the story is improving since the start of this year, historically, the situation remained muted, and we expect global sales to come in flat in comparison to 2022. In Europe, sales continue to surprise on the upside despite growing fears of a recession for the bloc this year. New car registrations grew by 17.8% to 1m registered units. In line with the US, this growth can be attributed to the region's rebound from a low base of growth seen last year, which was driven by vehicle component shortages. China is the spotlight for sales, and while it underperformed on a y/y basis in June, figures remain historically high, with more than 11m vehicles being sold in H1 2023.

Major Economies Passenger Vehicle Sales

We expect auto production to flatline this year despite MoM improvements.



Lead-acid battery represents the oldest rechargeable battery technology. The global stationary energy storage market is estimated to reach over \$215.34bn by 2031, exhibiting a CAGR of 22.19. Countries and regions are making notable progress in advancing development. China led the market in grid-scale battery storage additions in 2022, with annual installations approaching 5GW. This was followed closely by the US, which commissioned 4GW over the course of the year. While grid-scale batteries remain far smaller in advancement than pumped-storage hydropower, the technology is catching up. Grid-scale batteries are projected to account for the majority of storage growth worldwide. Total installed grid-scale battery storage capacity stood at close to 28GW at the end of 2022. Compared with 2021, installations rose by more than 75%, as around 11GW of storage capacity was added.

Overall, with relatively stable macro conditions, we anticipate lead prices to maintain trading in fluctuations in Q3 2023. Still, overall production resumptions and the release of new capacity should lead to increased output in July. If the consumption of lead-acid batteries improves, the trend of lead prices is relatively optimistic, and the supply of material for batteries as raw materials may become less tight.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Nickel

LME Nickel 3MO (\$)

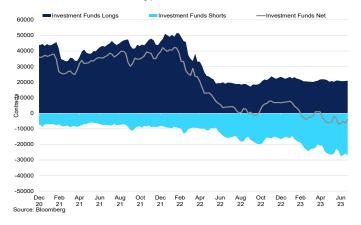


Sentiment **Rising Output from Philippines Output Evs/Battery Demand** Stainless Steel Production Indonesia Recovery

Overview: At the start of Q2 2023, nickel prices have broken robust support of \$22,000/t, as the risk-off sentiment took hold on the back of a compounding impact of continued monetary policy tightening across major banks and muted outlook from China. Metal has now found new support at \$20,000/t and is continuing to trade above this level. The cash to 3-month spread remains heavily in contango, suggesting the threat of a supply squeeze is not imminent. Moreover, the spread is now below -\$200/t, underscoring the lack of demand for steel usage. And while we believe that the EV demand outlook is helping to prop up prices, this trend alone is not sufficient to drive price gains in the upcoming quarter, and instead, pessimism surrounding the steel outlook is weighing on prices. In particular, steel-intensive metals, including nickel and zinc, have been one of the worst performers across the base metals group, diminishing by 15% and 20% in Q2 2023, respectively.

Nickel COT Performance

Markets have become increasingly short of nickel in Q2 2023



Outlook: Despite softer nickel prices in recent months, production out of China is recovering from the lows seen at the start of this year. In June, China's refined nickel output stood at 20,400mt, up by 9% m/m and 31% y/y. Although nickel prices fluctuated greatly and the profit margin of electrowinning nickel was not stable enough, the new production lines maintained normal schedules, and the output continued to climb. NPI output is also recovering, albeit slowly, with production standing at 784,000mt in physical content, up 0.18% m/m but down 2.62% y/y. The overall price of NPI fluctuated and declined in line with nickel prices. The ore prices stabilised, but the price of coal was still in the downward range; thus, the profits of the NPI plants were maintained. Overall, NPI profit margins in June were relatively stable, and stainless steel mills maintained high production schedules in June, so NPI plants increased production slightly. It is estimated that the domestic NPI output will rise by 3% in July. We expect production to continue to recover in Q3, given that smelters are coming back from maintenance. Still, it will take time to reach full capacity, and the recovery will be marginal.

Chinese Nickel Ore Imports vs Stainless Steel Production

On a MoM basis, ore and stainless steel production imports are improving.

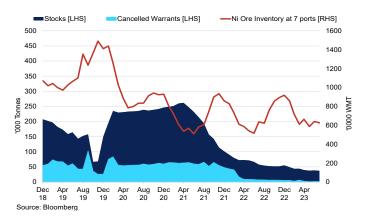


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From the demand side, improving steel production led to a greater inflow of imports of ore in Q2 2023. Previously arrived imported nickel has basically been digested by downstream buyers, and demand is picking up given the traditional seasonality; we see stocks build slightly at ore inventory at seven ports, with the level now at 6.38mt. The arrival of ore into Chinese ports continues to grow rapidly, with 42% m/m expansion in April and May, given the subsiding impacts of the monsoon season in the Philippines. Traditionally, around August and September period, when the dry season subsides is when we see CIF ore prices pick up again. At the same time, we anticipate construction activity in China to improve into H2'23, which should prop up prices for ore into the new guarter. All the gains that we might see from a positive macro or potential supply shock should remain muted into the year-end, but construction activity is poised to accelerate into Q4 2023. We do not expect LME inventories to have a strong impact on prices.

LME Nickel Stocks vs China Nickel Ore Stocks at 7 Ports

We expect to see Chinese stocks replenish in Q3, but most of the imports will go straight into consumption.



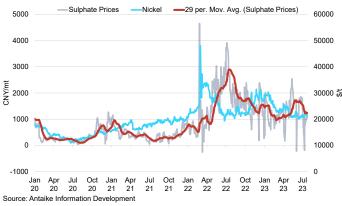
Electric vehicles (EVs) remain the silver lining of metal demand this year, and the shorter-term trend is little impacted by the macroeconomic outlook. Globally, EV sales are expected to see continued growth throughout the year. With over 2.3m EVs sold in Q1 2023, up 25% y/y, the IEA expects 14m in sales by the end of this year. National policies and incentives continue to bolster sales, while oil price volatility could further motivate prospective buyers. The EU and the US have passed legislation this year to match their electrification ambitions, with the former adopting new CO2 standards for cars that align with the 2030 goals set out in the Fit for 55 packages. In the US, the Inflation Reduction Act (IRA) could deliver a 50% market share for electric cars in 2030, in line with the national target.

Moreover, given larger battery sizes for BEVs and PHEVs, their outperformance relative to hybrid EVs could further amplify demand for battery materials. In 2022 alone, battery demand for vehicles grew by over 70%. In China, the biggest car manufacturer, EV sales increased by 80%, with growth in battery demand slightly tempered by an increasing share of PHEVs. Battery demand in the US grew by around 80%, despite electric car sales only increasing by around 55% in 2022. While the average battery size for electric cars in the US only grew by about 7% in 2022, it remains about 40% higher than the global average due in part to the higher share of SUVs in electric car sales relative to other major markets, as well as manufacturers' strategies to offer longer all-electric driving ranges.

Nickel remains the primary beneficiary of this trend, with battery chemistries such as NMC and NCA contributing 68% of global demand. In particular, nickel's share stands at around 35% and 50% in these chemistries, respectively, and this share continues to grow. Over the course of 5 years, nickel demand for EV batteries grew from 2% to 10%. As has already been seen for lithium, the mining and processing of critical minerals will need to increase rapidly to support the energy transition, not only for EVs but more broadly to keep up with the pace of demand for clean energy technologies. However, the deficit in the nickel market is set to grow over the course of the decade, with Class 1 seeing a sharper contraction relative to Class 2, which is more favoured for conversion into battery-ready nickel sulphate. In 2023, the supply/ demand balance remains in surplus at 180.5k tonnes. However, other battery chemistries are also growing in demand. In particular, lithium iron phosphate (LFP) cathode chemistries have reached their highest share in the past decade, at 25% in 2022, vs 15% from high-nickel content chemistries. While LFPs have lower energy density than those with nickel content, they rely less on materials that are difficult to source, such as cobalt in NMC.

Nickel vs Sulphate Prices

Sulphate prices are now converging with nickel prices.



China remains the biggest supplier of nickel sulphate, with 391.3kt to be produced in 2023 out of the global total of 591.8k t. In June, China's nickel sulphate output stood at 159,500 mt in physical content, up 7.16% on the month and up 29.82% on the year. An unexpected shortfall in raw materials, coupled with a spike in short-term demand, induced a supply crunch for nickel sulphate, pushing prices upward. Downstream companies had to account for high-priced raw materials due to a rigid need for inventory restocking, thereby resulting in a demand push on sulphate prices. In July, low scheduled production indicated no significant increase in demand and a tight supply of raw materials. Over the longer term, shortages of nickel sulphate are set to expand rapidly, with 1,000kt/year in anticipated supply vs 2,500kt/year needed in the IEAs net-zero emission outlook.

While we still hold our optimistic view of recovery true, the positive momentum is being priced further down the curve. Demand outlook continues to fluctuate, driven by China's stimulus story and, subsequently, stainless steel demand forecast. We believe that the market is getting a bit impatient with the China stimulus story, and while the message of higher support from policymakers has been clear, a lack of focused implementation strategies is set to weigh on nickel prices into Q3 2023. In the meantime, we expect to see increased participation from provincial officials refining existing stimulus measures in the meantime. Supply under long-term contracts should start flowing into the market, weighing on prices in the meantime. A combination of muted demand, recovering supply from the Philippines and a potential oversupply of Class 2 is likely to weigh on prices in Q3 2023.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Tin

LME Tin 3MO (\$)

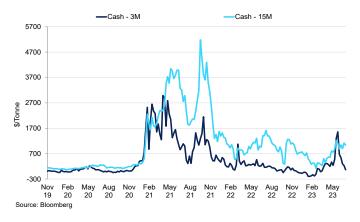




Overview: Tin's performance was the only exception amongst the base metals group, as it gained 6.22% during the quarter. While the majority of the quarter's performance has been flat, spikes caused by news of Myanmar ore shortages brought the metal to test the highs of \$28,440/t. In July, this news once again caused a sharp jump in prices, with the metal now testing the highs of \$29,000/t. As a result, the cash to 3-month spread tightened sharply following the price rally, jumping above \$1,500/t in June. The tightness has now dissipated, but it has served to lift LME inventories to a September 2022 high of 4,880 mt. The tightness in the spread however was not seen reflected in any shortage of physical material. Still, the demand side slowdown is capping strong upside gains, and most of the upside has been triggered by supply shortages rather than any pick of demand activity.

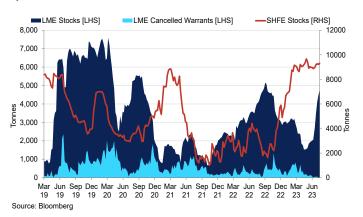
Tin calendar spreads

Myanmar supply shock has pushed the cash to 3-month spread into a strong backwardation.



Outlook: Imports of tin ore into China from Myanmar, the biggest tin ore exporter, are seen improving month-on-month and year-on-year, with the figure at 16,197mt in June. In the first half of the year, the total performance is still 10% below the same period in 2022 due to shortages seen earlier this year. While the reliance on Myanmar ore is declining, 75% of China's tin imports rely on it, meaning that the blanket mining ban from August 1 threatens to cause a supply deficit in China in H2 2023. As a result, we expect China to front-load on imports ahead of the ban. Still, we remain cautious about the speed of the ban implementation, given that authorities have mandated a "smooth demobilisation process for mine workers", which could be a while before a complete phase-out from the export market. There's a fair bit of buffer stock in China at the moment, but it does mean that the country will probably be looking for additional ore in the international market. This should support prices in the meantime.

Tin LME Stocks and Cancelled Warrants vs SHFE Deliverable Stocks SHFE stocks remain historically high, providing solid buffer stock in case situation in Myanmar escalates.

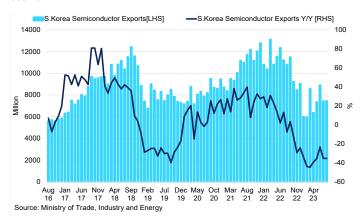


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The second major supply problem is posed by Indonesia, which aims to restrict exports of refined tin to stimulate the build-out of downstream processing capacity. The problem is that Indonesia currently only has enough downstream capacity to absorb 5% of its domestic tin production, meaning that any restrictions will likely come in phases. In the meantime, exports from the region seem to have returned to the long-term average, as the annual export licensing round took longer than expected. The May figure of 7,108mt is still down 2% m/m. In line with Myanmar, the first five months of the year are down by 35% y/y, given the lacklustre replace this word! first quarter performance. Subsequent exports from the region are likely to remain above 7,000mt, which is not enough to reduce the year-on-year deficit gap. Still, it is noticeable that China has been stocking up on metal. Deliverable stocks remain historically elevated, at 9,222mt, creating a robust buffer stock. At the same time, LME stocks have been growing sharply, with exchange inventory rising above 4,755mt for the first time since Q3 2022 in response to renewed LME time-spread tightness in June. While a lower demand outlook is erasing some of the pressures on the market, the market may need some inventory cushion. Smelting production is likely to remain stable in Q3 2023 as the market tries to preserve stocks of raw materials until the situation in Myanmar becomes clearer. If mining suspensions end in this quarter, this should give smelters some breathing room to navigate the flow interruptions of Myanmar concentrate. However, further tightness into the year-end could threaten the stockpiles of tin inventories. That could provide a further boost for concentrate TCs in the near term.

South Korean Semiconductor Exports

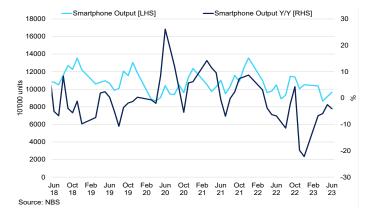
Exports of semiconductors recovered last month, however, still post strong y/y decline.



Almost 50% of the world's annual production of refined tin is used in consumer electronics, remaining the core demand driver for tin consumption. The electronics boom of 2021, when lockdowns meant more working and playing at home, has gone into reverse as hardpressed Western consumers tighten their belts. This a big U-turn from recent years, when the market experienced sharp scarcity of semiconductors and chips, resulting in shortages across the globe. This move attests to the weakening demand in the electronics sector. Global semiconductor sales were down by 22% y/y in April and are forecast by WSTS to fall by 10% in 2023 before rebounding by 12% in 2024. In the first half of 2023, the sector finished on a weak footing, with the latest PMI indicating the strongest deterioration in operating conditions for three years in June. Both new orders and production fell at the strongest rates this year, with firms indicating that high inflation and weaker economic conditions dampened demand, and in turn, prices. Despite this, manufacturers sought to protect their margins by raising output charges. However, from the supply side, further easing in bottleneck issues shortened suppliers' delivery times. This resulted in excess capacity building among global electronic manufacturers as backlogs continued to fall. Although the demand outlook remains subdued, tin supply risks from Myanmar and Indonesia are likely to keep prices elevated.

Global Smartphone Output

Smartphone output continues to drop, posting negative y/y growth.



Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Zinc

LME Zinc 3MO (\$)



Sentiment

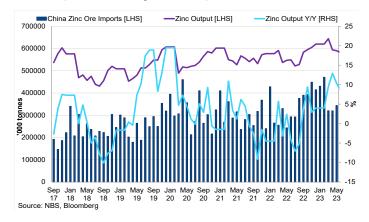
Improving European
Output
Smelter Output
End-User Demand
Galvanised Steel Outlook

Overview: Zinc continued to weaken in Q2 2023, but the downside momentum stalled, finding support at \$2,325/t by the end of June. On a quarterly and a year-to-date basis, zinc was the worst performer among other base metals, falling by 20%, as construction-heavy materials took the heat from a lack of China's stimulus clarity. Further demand weakness, coupled with increases in mining supply, has further weighed on metal prices in recent months. The divergence between lead and zinc intensified, with the spread between the two now below \$240/t – the June 2020 low. Meanwhile, LME closing stocks surged higher, rising above 90,000 tonnes in July, marking highs not seen since June 2022. While this has done little to impact zinc prices in recent weeks, larger inflows into the warehouses pushed the cash to a 3-month spread to deepen further into contango, with the level now at the widest level since March 2022.

Outlook: Zinc, being one of the worst-performing metals so far this year, is putting further pressure on European smelters that have been struggling with energy pricing risks since the start of last year. The decline in natural gas prices in Europe outpaced those seen in zinc, down 62.3% and 21.8% this year, respectively. Still, lower zinc prices have diminished smelters' profit margins, threatening further closures. As of 2023, only 16% of the miners can operate above the cost of production across Europe. With 50% of the costs distributed to TC/RC and labour costs, the pressures from other segments are likely to remain elevated. This winter season should prove the most challenging for zinc production, and we expect higher energy consumption by the end of the year to threaten the issue of energy security once again and, in turn, send prices higher, stalling the reopening of capacity that was idled last year. There are tentative signs that European smelters could begin production again this year; however, declining prices are further dimming prospects of a full-fledged return.

China Zinc Our Imports vs Output

While ore imports are recovering m/m, smelter production stalled in recent months.



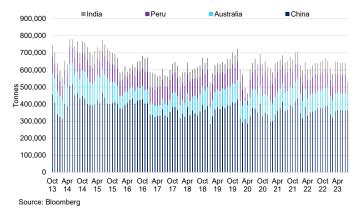
Meanwhile, the latest LME data pointed to growing closing inventories, with the latest July increase of 21,100 tonnes, on par with the daily increase seen since the end of May. The majority of the additions came from the Singapore warehouses. Net inflows during the quarter totalled 35,850 tonnes to 80,925 tonnes – May 2022 highs. While this is the largest quarterly increase since Q1 2023, the inflows have been fragmented, and the trend of destocking has continued to take place. This helped to widen the cash to 3-month contango into -\$20/t – the March 2022 low. The weak correlation between the near-term spread and closing LME stocks suggests weaker dependence on the fundamental picture of supply/demand than macroeconomics, a trend that we have seen in other metals.

Zinc outlook is set to weaken into the second half of this year, given the growing surplus for 2023, which is set to widen to 205.9k tonnes for refined material globally, the biggest in 11 years. At the same time,

demand in China continues to see further weakness from June until the end of the year due to government-imposed restrictions on steel products, marking the third year in a row that policymakers have mandated reduced output to rein carbon emissions. While steel production seems healthy, Beijing's relatively modest targets for growth in 2023 have dented expectations of a big increase in demand. In order to achieve this target, steel production would have to contract year-on-year. While we do not anticipate a reduction in production on a grand scale, any gains made this year should be modest. Indeed, refined zinc output stood at 552,500mt in June, down by 2.1% m/m and 13.1% y/y. Still, YTD output reached 3.23m mt, up 8.6% y/y. This is thanks to the robust performance of Q1, whereas Q2 output stalled. Production should remain relatively stable ahead of the summer power cuts but reduce slightly in Q3 on a m/m basis.

Mine Output from Key Miners

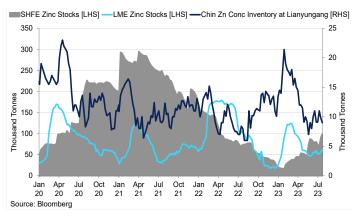
Output continues to improve across major miners, including Peru and Indonesia



Mining output continues to improve across major miners, including Peru and Indonesia. Imports of ore improved in May, growing to 344.2k t, up from 320.2k t in April; this is 41.1% higher than the same period last year. Likewise, concentrate inventory at the Lianyungang began to build higher since May, reaching 11k tonnes on the back of the inflow of imported material. This has, however, failed to bring domestic TCs higher, and the level continued to fall to \$680/mt by the end of the quarter as zinc ore imports diminished from the highs of 471.0kt since the start of this year. While scheduled smelter maintenance in Q3 2023 should help provide a floor for domestic treatment charges, we do not expect any upward momentum in prices to be sustainable, given elevated operating rates from galvanising and diecasting facilities. On the imported zinc front, the import window remains closed, diminishing any inflows of imported zinc ingots from bonded zone inventories. As a result, domestic TC for zinc concentrate continued to diminish to the lows of \$165/mt.

Zinc stocks at LME, SHFE vs Concentrate Inventory at Lianyungang

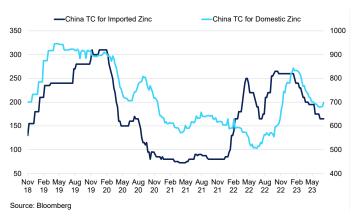
While concentrate inventory is recovering, final SHFE stocks remain at historic lows.



Still, one of the biggest headwinds that zinc is facing this year is from the demand side and, in particular, the construction sector. Earlier this year, data pointed to slow but stable growth in construction, particularly in big cities, as both the infrastructure investment and new construction data grew by 9.5% in June. However, many of the high-quality developers that can continue have state support. According to CRIC, sale volumes at the country's top 100 developers fell by 33% y/y in June, down from a 21.2% decline in May. Those declines came against a period last year when activity was already suppressed. The market is anticipating a comprehensive and forceful stimulus package that supports the economy. However, given recent statements from the policymakers' highlighting the support is more likely to be limited in scope, the complex and layered systemic issues faced by the economy imply a more narrow and targeted approach for segmented parts of the economy to work together. While this might not boost growth immediately, it should create a sustainable path for Chinese recovery out of lockdown restrictions while balancing stimulus without over-inflating debt. Alongside the fiscal support, a reduction in the RRR may come in August or September, while there's unlikely to be another cut to interest rates until the first quarter of next year. Our view is that we will continue to see gains in the property market and a build-up of activity in Q4 2023; however, the gains will be marginal and not enough to support overall economic performance. As a result, zinc should continue to soften into Q3 2023.

China TCs for Domestic and Imported Zinc

Given higher imports of concentrate into China, imported zinc TCs begun to climb.



Iron Ore & Steel

1st Generic SGX 62% Fe

18

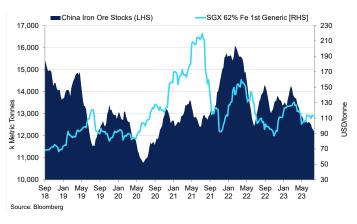


Sentiment Rebar & HRC China Recovery Story China's Property Sector Macroeconomic Outlook

Overview: Steel and iron ore prices gained ground in the latter part of the quarter as optimism surrounding Chinese stimulus measures began to grow, lifting iron ore demand. Still, this failed to offset losses seen earlier this year, and iron ore prices fell by 8.68% on the Fe iron ore futures. Given the improving profit margins for many stainless steel smelters, activity improved ahead of the off-season. This, coupled with the continued recovery of demand in the construction activity, supported prices above \$100/mt by the end of the guarter. At the same time, the supply of ore remained tight, with stocks in China falling to October 2020 lows of 122.8m mt. Further pledges from Chinese policymakers to support the economy, and construction, in particular, pushed metal prices to \$115/mt in June.

China Iron Ore Stocks vs SGX 62% Fe 1st Generic

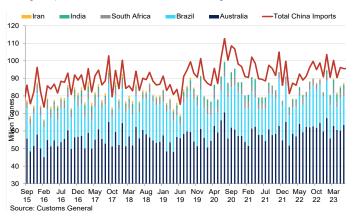
Iron ore stocks should swell in the coming months, as exports from key mines continue to recover.



Outlook: In June 2023, stainless steel production totalled 3.018m mt, increasing by 2.5% m/m and 11.3% y/y, given the continued marginal recovery of market conditions. Still, given that the industry entered a traditional off-season in June, where end-user demand is usually weaker, the 300-series and 200-series production weakened slightly month-onmonth, with output totalling 1.577m mt and 0.899m mt, respectively. Despite this, the 200-series stainless steel maintained a better profit margin due to favourable cost conditions, prompting some steel mills to shift production from the 300-series to the 200-series. Nevertheless, some steel mills resumed production of the 300-series, resulting in little change to its overall output, and a substantial price drop in June further contracted profit margins. We expect that improving price conditions seen in the last couple of weeks should help prop up output from stainless steel producers; however, gains are unlikely to be strong.

Top 5 China Iron Ore Imports

Stronger imports from Australia and Brazil are flowing into the Chinese market.

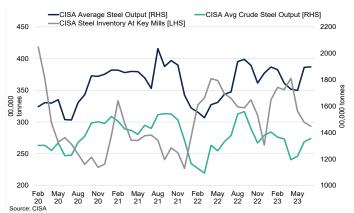


On the other hand, the ore supply crunch is likely to maintain in Q3 2023, and we do not anticipate any easing in the near term. Imports of ore from key miners have been lacklustre on a year-on-year basis despite month-on-month recovery. In particular, total imports into the country fell to 95.51m mt in June, down by 0.7% m/m but still 7.4% higher than the same time last year. Imports from Brazil declined from May highs to 16.51m mt, while Australian exports expanded to 63.43m mt, the first monthly incline since March. In Q3 2023, shipments from Australia and Brazil should remain high, which will keep future supply abundant. Iron ore inventory should build up from current lows of 122.28m mt as a result, but for now, the focus is directed to long-term contracts instead. With low iron ore availability, steel mills hunted for spot iron ore, keeping offers firms. Traders purchased as needed, and with some orders of high-priced ore to complete orders,

Following the fallout of the real estate sector in 2021, the government continued to provide support for the industry. In 2023, Beijing extended property support packages, which included the easing of rules for property acquisitions and the extension of debts. However, the government efforts have so far failed to revive market activity. Lack of confidence in the construction sector is eating away at the country's growth that struggles to see consumers remain as resilient as in the US. Construction and real-estate industries represent 13.8% and 6.8% of the country's GDP, respectively, and while we have seen a shift away from the construction sector in favour of consumers and business, the latest service and retail sales data points to a softening appetite from the consumer sector. Evidence of that is seen in a slump in mortgage borrowing, a decline in house prices and reluctance among private sector companies to borrow and invest. As a result, inflation has fallen close to zero this year — another sign of weak demand in the economy.

Average Steel and Crude Steel Output vs Steel Inventory

Recovering output of steel is coinciding with further drawdowns at the inventories



Real estate assets account for 70% of household wealth, with important implications for consumption. Moreover, real estate loans account for 27% of total bank credit, meaning a thriving market is also critical to financial stability. However, rather than completing projects and then recouping their investment, residential housing developers began selling units before completion, meaning that by 2022 the share of down payments and mortgages in total developer funding increased to 80.4%. This approach carried risks and exposed developers and home buyers to interest rate increases and a slowdown in price growth. Last year, income from state-owned land sales fell by 23.2%, causing China's national budget revenue to fall by 20.6%. Declining revenue is also undermining local government's ability to support growth. The government needs to step in as a borrower-of-last resort to maintain spending that then provides households and businesses with the income they can use to repair their balance sheets until they are confident enough to resume borrowing.

China Investment Infrastructure Y/Y

While infrastructure and fixed asset investment continues to slow, implied steel demand points to marginal recovery in the construction sector.



China has space to expand government borrowing so long as privatesector savings remain high. However, debt is large, and with youth unemployment at record highs, savings rates are likely to be skewed on the downside. The market is anticipating a comprehensive and forceful stimulus package that supports the economy. However, given recent statements from the policymakers' highlighting, the support is more likely to be limited in scope. The complex and layered systemic issues faced by the economy imply a more narrow and targeted approach towards segmented parts of the economy to work together. While this might not boost growth immediately, it should create a sustainable path for Chinese recovery out of lockdown restrictions while balancing stimulus without over-inflating debt. In particular, the top priority for the builders would be to ensure the completion of unfinished projects to ensure that property returns to those buyers that placed their downpayments ahead of the collapse. Other measures could include relaxation of home purchase restrictions in major cities, cuts to downpayment requirements and mortgage rates, as well as financing help to developers to ensure the delivery of stalled housing projects. Alongside the fiscal support, a reduction in the RRR may come in August or September, while there's unlikely to be another cut to interest rates until the first quarter of next year. Our view is that we will continue to see gains in the property market and a build-up of activity in Q4 2023; however, the gains will be marginal and not enough to support overall economic performance.

Recent price gains are likely to further stimulate production activity in the region: ore shipment is poised to recover, but the supply crunch is unlikely to ease anytime soon. This should further boost consumption from stainless steel smelters and keep ore inventory at a historically low level. At the same time, a recent rise in prices should squeeze the profits of steel mills, boosting demand for lower-grade ore. Still, expectations of policy stimulus continue to drive iron ore price performance, and if further measures are introduced, this could support steel prices. We are, however, cautious of prices breaking above \$120/mt, given that regulators are more prone to tighten supervision after big price gains.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Gold

Spot Gold \$/Oz

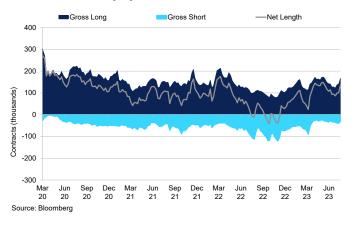


Sentiment Softer Monetary Policy Central Bank Demand Stronger Dollar Jewellery Demand

Overview: Gold finished Q2 2.5% lower, closing at \$1919.35/oz. The price rallied at the start of May, testing \$2,050/oz levels on the back of softening inflation data leading markets to price in the Fed's interest rate pause, and subsequent cuts later in 2024. However, the yellow metal quickly gave back its gains as persistent dollar strength put a cap on any upside momentum for gold. Hawkish comments from the Fed officials following their May meeting created further tailwinds for the greenback. By late May, the price of gold stabilised at around \$1,950/oz level with a tug of war between elevated uncertainty stemming from the US debt ceiling negotiations and continuous dollar appreciation. While June marked a pause in the Fed's monetary tightening campaign, higher interest rate projections from the board and Powell's hawkish statement pushed investor rate expectations steadily higher, putting downward pressure on gold. Despite a drop during the quarter, so far this year, gold prices have increased by 6.6% and remain around historically high levels.

NYMEX Managed Money Net Position

The market held a net long in gold in the first half of 2023

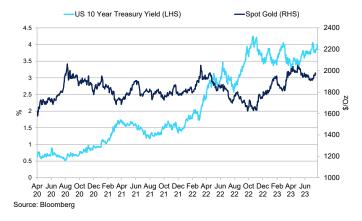


Outlook: In July 2023, The Fed reiterated the importance of bringing down inflation and raised the federal funds rate for the twelfth time since March 2022. June data points to price pressures softening, raising hopes that the long monetary tightening cycles beginning to bear fruit. There needs to be more than the one-month data to assess whether the tightening has had enough impact to bring price stability in the long term. The economy is very resilient, creating upward inflation pressures that could resurface if the Fed calls victory on inflation too quickly. The labour market remains robust, with an exceptionally low unemployment rate of 3.6%, and with widespread workforce shortages across services this summer, wage pressures could accelerate further. As a result, the Fed continues with neither hawkish nor dovish rhetoric of data-based assessment, giving themselves space to raise interest rates further if inflation proves too sticky. At the time of writing the markets are ruling out more hikes this year. So far, a lack of overt hawkishness from the Fed has led the dollar to depreciate, testing the 100 level on the 14th of July. It quickly retraced after US GDP growth data pointed to a stronger-thanexpected performance. As we enter the second half of the year, markets will start to pay more attention to the impact of higher interest rates on economic growth, and given the US economy's resilience to tighter credit conditions compared to other major economies, the 100 level should provide a stable support for the currency. While relatively resilient, the high-interest rates should impact the US economy, acting with a lag. As the US economy weakens and rates remain unchanged, with lower yields will benefit non-yielding assets like gold. On the downside, any positive news on the US economy should lead the price of gold to depreciate as markets shift their focus away from risk-off assets.

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Gold Spot vs US 10yr Treasury Yield

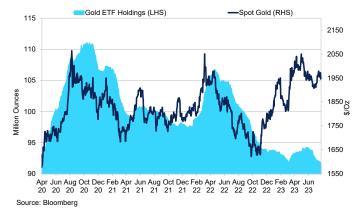
Inverse correlation between gold and 10yr yield held in the quarter, as precious metal prices depreciated..



Global gold ETF demand fell negative in H1 2023, driven by 56 tonnes of outflows in June, which marked the only month of net outflows in Q2 2023. The safe-haven inflows seen in March were outstripped by rising interest rates, with funds listed in the UK and Germany recording the most significant losses. At the end of June, collective holdings of global gold ETFs were at their lowest levels since February, 10% lower YoY and 13% below the 3,919 tonnes record set in October 2020. Most outflows recorded in June occurred when the gold price dropped in the second half of the month as major central banks extended their hawkish rhetoric amid sticky inflationary pressure. Asia was the only region that experienced inflows last month, driven mostly by China, where gold ETFs became more attractive due to local currency depreciation and the RMB gold prices stabilising around the record high. In Q3, increased recessionary risks stemming from prolonged monetary tightness in Europe and the US, and waning interest rate headwinds, should create upside potential for ETFs. Still, any sign of inflation stickiness or robust performance of the US economy could create cap upside potential for gold ETFs.

Gold vs ETF Holdings

The last months have noted an increasing divergence between ETF holdings and spot gold.

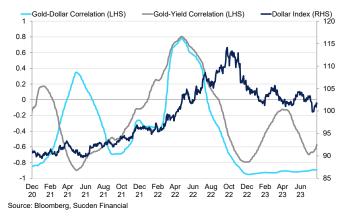


Physical demand for gold has decreased in recent months, driven mainly by a sharp decline in the official gold reserves of the Central Bank of Turkey. In April, net sales amounted to 69 tonnes, marking the first net decrease in reported gold holdings since March 2022. May saw a 27- tonne fall in global gold reserves, with the Central Bank of Turkey remaining the biggest net seller. After curbing precious metals imports in February, the Central Bank continues to offload its gold reserves to satisfy solid bar, coin, and jewellery demand.. Turkey has seen a surge in gold demand as citizens embraced the precious metal as a hedge against inflation; the country decreased its gold reserves by 63 tonnes in May. Poland and China were the most significant buyers, purchasing 19 and 16 tonnes, respectively. While we are yet to see global June figures,

data from China pointed to an eighth consecutive gold reserve increase in June at 21 tonnes, signalling ongoing strong demand for the precious metal. As the long-term pessimism toward the future role of the US dollar increases, the World Gold Council predicts central banks to remain net gold purchasers in 2023.

Gold-Dollar vs Gold-Yield Correlation vs Dollar Index

The first half of the year has seen a strong negative correlation between the relative value of gold and the dollar index.



Overall, we expect gold to benefit from the softening inflationary environment in Q3 as an indicator of the end of the tightening cycle from the Fed. As the long cycle of monetary policy tightening starts to yield positive results, major central banks are on the path to pause interest rate hikes. Still, credit conditions are expected to stay tight for longer, moderating economic growth and bringing yields lower, which should raise the attractiveness of holding non-yielding bullion.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Silver

Spot Silver \$/Oz



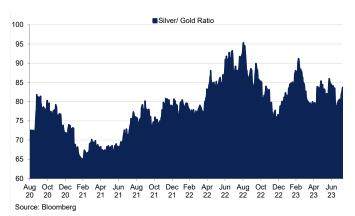
Sentiment Softer Monetary Policy China Recovery Story Stonger Solar Outlook Recessionary Fears

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Overview: In line with gold, silver underperformed in the second quarter of the year, falling by more than 6% to \$22.77/oz at the end of June. The price of the precious metal fluctuated in the last few months on the back of US economic data releases and changing expectations of the Fed's monetary policy path. Silver peaked in May, hitting \$26.05/oz, a price not seen since April 2022, but quickly gave back its gains when the dollar rallied after US economic growth figures pointed to resilient financial performance. We saw significant corrections at times when the Fed's statements became more hawkish, driving nominal yields higher. A stronger dollar and higher yields are having a strong traditional impact on the speculative side of the metal performance. Silver returned to rise in late June as the markets priced in the end of the Fed's monetary tightening campaign. While any positive data on the US economic performance is likely to drive silver prices lower, softening inflationary pressures should support the case for a pause in monetary tightening, creating a more favourable environment for precious metals in Q3 2023.

Gold to Silver Ratio

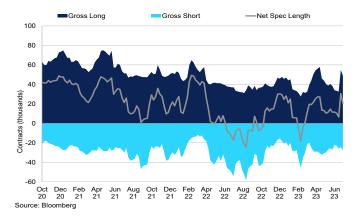
The ratio started to narrow in June.



Outlook: In line with expectations, the 25bps interest rate materialised in July with a lack of overt hawkishness from Jerome Powell, leading markets to believe that the central bank has ended its year-long aggressive tightening campaign. With the pause of interest rate hikes priced in for this quarter's forecast, markets have begun to pay close attention to the impact the tightening cycle has had on the real economy. The consumer sector has already shown signs of softening. While the labour market remains tight, we expect the tight monetary environment to have a greater impact on employment indicators in the coming months. As the US economy weakens amid tight credit conditions, the appetite for the dollar should calm, shifting investors' focus to precious metals like silver.

Silver Managed Money COT

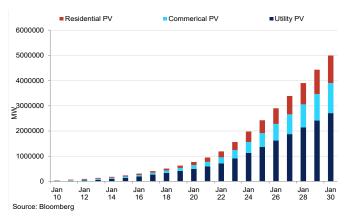
The market is holding a net long in silver.



The global outlook continues to deteriorate, and with tight credit conditions in major economies continuing to weigh on consumers' confidence, demand for goods is set to decline. As an economic slowdown becomes more likely, the outlook for precious metals with more industrial uses will darken Given that 50% of the silver's demand is attributed to industrial uses, underwhelming economic data from China, and a weakening global economy could create headwinds for the white metal. According to S&P Global, the global electronics PMI continues to fall, with the May level reaching the 3-year low of 47.9. It was the third consecutive month of deterioration in operating conditions across the global electronics manufacturing sectors, as weak global economic conditions and subdued confidence led to a sharp fall in new orders. The electronics outlook is clouded for 2023 as consumer purchasing power dented by months of elevated inflation and tight credit conditions discourage consumers from upgrading their devices or buying new models altogether.

Predicted Cumulative PV Installed Capacity

The solar photovoltaic industry remains the fastest-growing sub-segment within the energy sector.



On the other hand, silver continues to benefit from increasing demand for solar energy. One key component of silver's price performance is its use in constructing photovoltaic cells, which separates it from the rest of the base metals in its industrial usage, such as construction. The global energy crisis stemming from the Ukraine crisis has provided a significant boost to clean energy investment, further improving the outlook for photovoltaic silver demand. The International Energy Agency (IEA) forecasts that solar power investment is expected to surpass oil investment in 2023 as a growing number of countries accelerate their efforts towards renewable energy transition. While lack of available space or inhospitable terrain poses a major challenge for solar installation in some regions, ongoing experiments with floating sea panels raise hopes of future photovoltaic expansion. The technology is improving fast; last year, State Power Investment Corp., China's most prominent renewable power developer, managed to generate electricity from rafts of solar panels in the Yellow Sea. The company forecasts that China's potential for offshore solar amounts to 700 gigawatts, , as much as India and Japan's electricity generation capacity combined. The solar photovoltaic industry remains the fastest-growing sub-segment within the energy sector; it is estimated that in 2023, total global investment in solar power technology will be \$382 billion, compared to \$298 billion in 2022. This continued expansion is bullish for silver as the sector makes up around 10% of global demand.

The main driver for silver in the upcoming quarter is set to be macroeconomic. In line with gold, the white metal will likely benefit from the pause in monetary policy tightening set to take place this year. We do not expect inflation to reach target levels in the near term, and with this in mind, terminal rates from key central banks will remain higher for longer, further moderating economic growth. As the appetite for the dollar softens and yields turn lower, precious metals like gold and silver could gain momentum in Q3.

Analysis and Forecasts for Base Metals, Precious Metals, Iron Ore & Steel

Palladium

Spot Palladium \$/Oz



Sentiment

Auto Market Outlook

China Recovery Story

EV Demand

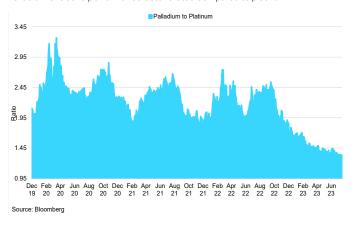
Supply Chain Bottlenecks

Overview: In line with our previous report, palladium continued to lose ground in the second quarter of 2023, falling to a \$1,222/oz level at the end of June, the lowest level since March 2018. The metal's price surge in 2022, when palladium's price reached \$2,021/oz, led automakers to replace it with cheaper platinum, causing the price to deteriorate in recent months. On top of that, the major shift towards electric vehicles driven by growing efforts to reach carbon-neutral targets further weighs on the demand for metals used in the production of autocatalysts.

Outlook: While the automobile sector, which accounts for 85% of palladium demand, continues to rise, the palladium outlook remains grim, given the increasing demand for exhaust-free electric vehicles. The last few years have seen a significant shift towards carbon neutralisation, with many countries implementing regulations encouraging consumers to choose EVs. In March, EU member states formally approved a new law requiring that all new cars and vans sold in Europe must be zeroemission by 2035 in an attempt to reach the target of reducing net greenhouse gas emissions. In June, China announced a 520-billion-yuan package of tax breaks for green cars, extending the existing tax exemption by four years. The policy is likely to positively impact the country's EV sales, which amounted to 580,000 units sold in May, up by 10.5% from the previous month. According to IEA, global electric car sales are expected to increase by 35% in 2023, creating headwinds for the metal used in the production of autocatalysts. As EVs are gaining market share and automakers are substituting some palladium for cheaper platinum in combustion engine vehicles, demand for palladium is expected to fall by 400,000oz in 2023.

Palladium to Platinum Ratio

Palladium's relative performance deteriorated compared to platinum.



From the supply side, as Russia and South Africa dominated worldwide palladium production, amounting to 80% of the global output, operating risks stemming from the war in Ukraine and resurfaced energy issues in South Africa could lead to possible short-term upward moves in palladium prices. At the moment, the rallies are being sold quickly, however, implying that there could be more downside.

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Platinum

Spot Platinum \$/Oz



Sentiment

Auto Market Outlook

China Recovery Story

Supply from South Africa

Supply Chain Bottlenecks

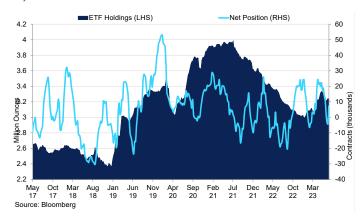
Overview: Platinum prices rallied at the start of Q2 2023, reaching \$1,127.20/oz in the second half of April. Softer dollar and power issues from South Africa offset the minor gains from the semiconductor space, pushing the metal to test March 2022 highs. The precious metal quickly gave back its gains, however, and continued on a downward trend until the end of June, closing Q2 2023 at \$906.30/oz.

Outlook: Globally, the auto sales outlook is seen recovering after experiencing significant drops last year. New-vehicle total sales for the first half of 2023 are projected to reach 7,687,900 units, marking a 13.6% increase from the same period in 2022. In May, passenger vehicle sales improved across the board, with the biggest producers posting positive month-on-month growth. US passenger vehicle sales increased to 299,842 units, while Germany registered a 22% increase in passenger vehicle sales, amounting to 247,000 units. The pent-up demand stemming from vehicle supply issues and delayed orders last year benefits the industry, with retail buyers spending \$47.9 billion on new vehicles, up from \$41.1 billion in June 2022. Platinum is expected to be boosted by increasing use in heavy-duty vehicles and some substitution of palladium in petrol vehicles.

At the same time, the slowdown of the Chinese jewellery market is expected to continue this year as Chinese economic growth eases further amid sluggish consumer spending. The world's second-largest economy is the largest platinum jewellery market, accounting for 50% of worldwide demand. According to Heraeus, platinum jewellery fabrication in China decreased by 22% in Q1 2023 as a preference for gold jewellery acted as a headwind for platinum consumption. While the increasing price of gold might make platinum jewellery more attractive to consumers, demand growth is expected to remain significantly below pre-pandemic levels at 650koz.

Platinum ETF Holdings vs Net Length

Both indicators jumped higher in May as investors tried to benefit from the price rally.



From the supply side, while South African producers improved their position regarding power generation in the first half of the year with more off-grid generation, the resumption of instability in electricity supply in July weighs heavily on mining output from the region. The country, which is currently experiencing the winter season, saw snowfall for the first time in 12 years, leading to increased electricity demand. As the peak demand exceeded maximum Eskom forecasts for July, the power utility moved to stage 6 load-shedding, which means a power grid reduction of up to 6,000MW and power supply cuts for four hours at a time. Load-shedding raises fears that producers will not be able to work through nearly 500koz of the reported work-in-progress stock, leading to a significant loss in platinum production. The severity of load-shedding has already impacted South Africa's PMG output, with Anglo American Platinum, the world's biggest producer of platinum, announcing an 8% decrease in its PMG production in the first half of 2023. While the global economic outlook remains muted, production cuts could prop up prices and increase price volatility in the next quarter.

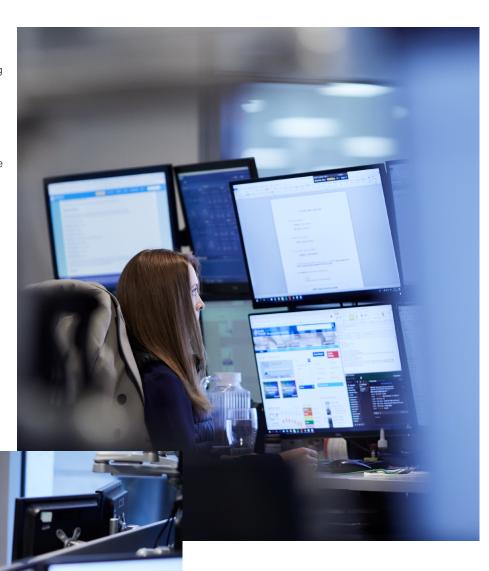
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