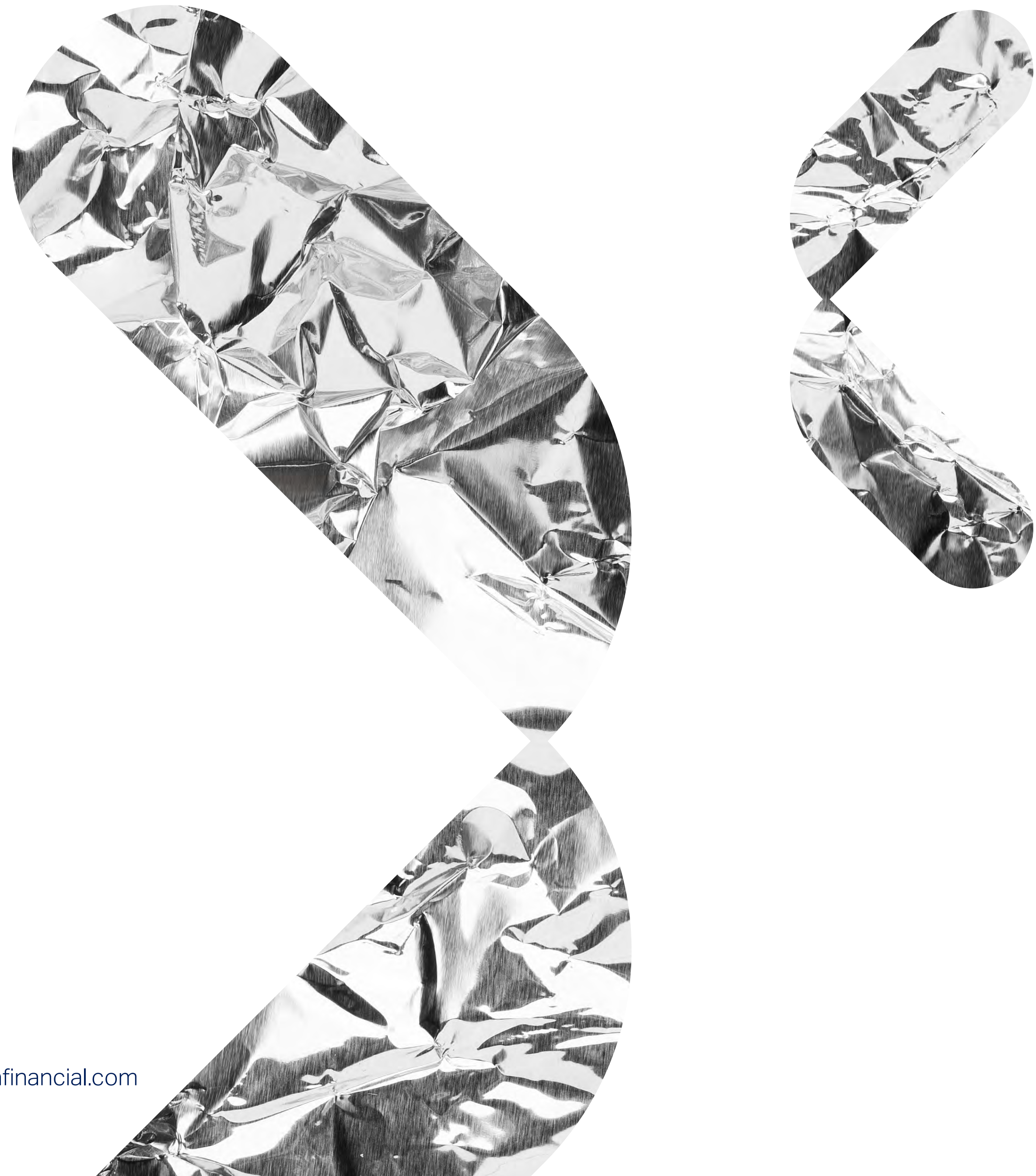
Sucden Financial

Quarterly Metals Report

Q2 — May 2022

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



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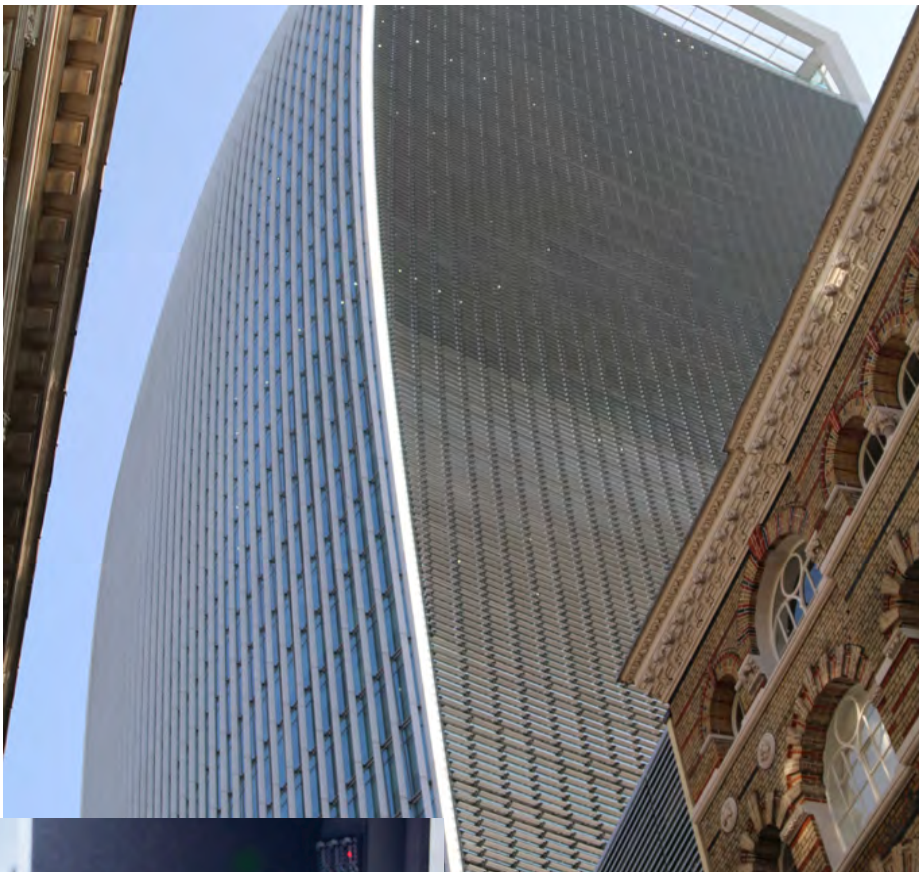

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Sucden Financial's experienced and knowledgeable teams are central to our success, drawing on their expertise to exploit ever-changing markets, technology and trading environments, to keep our clients ahead. We are open minded, constantly evolving and adapting to tackle today's and tomorrow's opportunities.

Summary

Higher rates from central banks are raising rates, and we expect the BOE and Fed, who front-loaded hikes, to slow their pace after Q3 to prevent a hard landing. This will reduce the peak yields, which have to deal with softer economic growth. Inflation is starting to peak but is still high, causing the cost of living to rise. Consumer spending is weakening, and this is undoubtedly detrimental to metal demand. European markets are still tight due to the lack of material attributed to the crisis in Ukraine and the lockdown in China. While Chinese demand is abysmal now, we expect a rally as they come out of lockdown and stimulus is released. Metals are moving into a sell-the-rallies market, which will be confirmed once we hear more details from China. If central banks pause rate hikes as the ECB hikes rates, we could see U.S. and U.K. equity markets rally as current rate expectations moderate.

Aluminium (Al)
The supply side in April is forecast to have performed better than expected given the release of concentrated capacity, however, the supply bottlenecks are not keeping up with the production levels and are further strained by the lockdown conditions, likely to further deteriorate the imports and exports out of China. We will continue to pay attention to inventory levels, especially following the Labour Day holiday and the energy crisis in Europe. Our range for the quarter is between $2,600-3,310/t.

Copper (Cu)
Copper production in China was softer in April and May due to maintenance, which caused TCs to rise; June output will be stronger, which could mean inventories in China will start to rise once again. The import window is open, and this has caused premiums to rise; quotes for premiums are also high, but the material has not emerged in China yet due to logistical issues. End-user demand in China is woeful, and macro indicators show this, but logistical issues are causing backwardations. We expect a downside in the near term, but the market will rally on easing China lockdown, but we favour selling this rally. Range $8,800 - $10,200/t.

Lead (Pb)
Shanghai reported car sales of 0 in April; this outlines the demand side of vehicles in China. ROW consumption is also weak, with production lagging due to shortages of materials; as consumers shift towards BEVs, we will see a shift away from ICE vehicles. Operating rates for secondary lead have been weaker due to logistics and weaker demand, which has caused prices for scrap batteries to soften. We expect the market in Europe and the U.S to remain tight, with premiums rising despite weak consumption. Range $2,000 - $2,250/t.

Nickel (Ni)
We are starting to see nickel drift back to its fundamental equilibrium after the chaos in Q1. Open interest is low, and so are volumes; the fact that the overnight session is still closed reduces any arb possibilities. Stainless steel output is shifting away from the 300 series due to cost, and we see 300 series stainless losing more of its market share in the coming years. Class 1 nickel will be used for batteries as EV demand takes off. Lack of liquidity has volumes to decline, and we expect the market to drift lower to $24,000/t but, due to the current environment, has top of a range caveat of $34,000/t.

Tin (Sn)
Tin demand from solder is still impressively strong, as outlined by key market sales figures. Demand for home appliances has also been steady, but this consumption could soften due to lower home completions and higher living costs. Supply is improving, and we are seeing the backwardations narrow. We expect prices to weaken and favour selling rallies as miners invest in new supply and availability starts to improve. We have a downside target of $30,000/t in the near term before $27,500/t.

Zinc (Zn)
Zinc mining has started to recover in China and Australia. Peru is slightly lagging due to mining protests, preventing $53bn of investment across the whole industry. Natural gas prices in Europe have increased again, and this will delay any prospect of smelters coming back online, tightening the European and U.S. market despite higher benchmarks. There is still supply risk for zinc in Europe and China, and this presents an upside, but we have seen a flush out of longs in recent weeks. China easing COVID restrictions will be a boon for demand and will prompt a greater risk appetite. We anticipate zinc to rally back to $4,500/t on China news, with the supply side still unsettled.

Iron Ore & Steel
The import loss of seaborne iron ore caused imports to slow into China; this caused port stocks to decline in conjunction with seaborne lump and pellet premiums, which are yet to take off. Steel output in China has started to recover, but China's poor demand and logistical backdrop have caused inventories at key mills to increase significantly. The PBOC is cutting rates, but the stimulus has yet to be delivered, prompting weaker iron ore and steel demand. We need to see more details on expenditure plans on infrastructure to confirm any upside potential. Range: $115-160/t.

Gold (Au)
High inflation lifted the metal at the beginning of April, but with rallying yields and the dollar, investors saw other attractive safe havens, such as the dollar and Treasury yields. More so, with slower consumer demand from China, the upside for gold is limited. Inflation remains high, but markets are pricing in a peak soon as the Fed begins to tighten aggressively this quarter. Geopolitical pressures, unless acute, have been mostly priced in, setting our outlook for the metal on the downside for this quarter. The range: $1,810-1,950/oz.

Silver (Ag)
While silver traced gold closely in the first quarter of the year, we see their performance diverge, with silver seeing a stronger downside, as China remains under tough lockdown conditions and sees no way out of the zero-covid policy as of yet. Moreover, macroeconomic conditions are pointing to further tightening of monetary policy by the Fed this quarter, with the scale of each hike likely to remain in line with the 50bps seen in May's meeting. We expect the scale and the timing of the hikes to ease later in the year, as the Fed adjusts its policy to accommodate softer economic growth performance. Our range: $20.50-24.80/oz.

Palladium (Pd)
Palladium took on the brunt of the impact of sanctions imposed on Russia. While both platinum and palladium prices softened in April, the elevated divergence, as well as uncertainty surrounding the availability of palladium in the longer term, might be one of the strongest pushes for automakers to switch. In H2, we expect this trajectory to shift as supply chain bottlenecks ease and the Chinese economy is slowing from the covid outbreak. Range: $1,870-2,490/oz.

Platinum (Pt)
Overall, while supply-side performance is moderately on the downside, the demand side continues to battle longer lead times and a lack of auto parts availability. This, coupled with China's deteriorating performance, will likely keep a lid on platinum performance. In H2, we expect this trajectory to shift as supply chain bottlenecks ease and the Chinese economy is slowly recovering from the covid outbreak. The benign demand picture from the automotive sector means that platinum has little upside potential and is likely to remain in the Q4 2021 range of $900-1,100/oz.

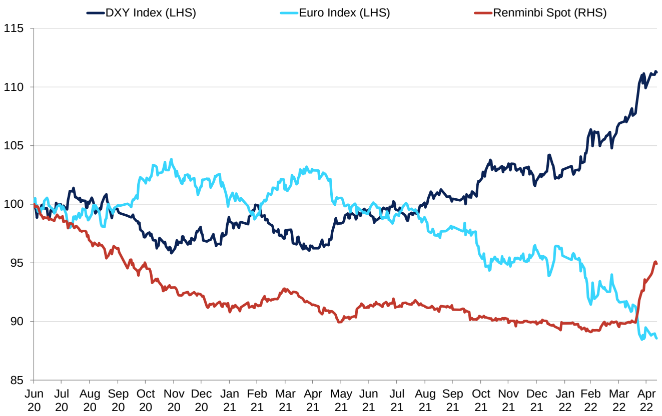
Market Overview

Global Outlook: Economic growth lost a little traction at the end of Q1, with March seeing rates of expansion in output and new orders ease and backlogs continuing to build due to continued bottlenecks. JP Morgan's global composite index softened to 51.0 in April, down from 52.7. Rising inflationary pressures worsened supply chains, and intensifying geopolitical tensions also hindered growth and hit confidence. The crisis in Ukraine has rocked the markets, causing an unprecedented amount of volatility in sectors closely linked to the Russian economy. Embargoes on Russian energy exports have contributed to rises in global energy prices and this is expected to remain the case in the long run.

European economies will suffer more than the US, which is relatively well insulated. This performance is likely to widen further, driven by the divergence of monetary policy timing in both economies.

Major Economies Currency Performance

Dollar had a strong run in recent weeks, pushing the euro and renminbi to multi-year lows.



Source: Bloomberg

The crisis is unlikely to derail the recovery alone. However, coupled with tighter monetary policy conditions and multi-decade high inflation, consumers that usually represent about 50% of the developed economies' GDP are likely to pull back on their spending habits as it dents real earnings. Supply chains are being tested once again, this time by extraordinary events in Ukraine and strict lockdown conditions in China, thereby contributing to an evident slowdown in economic growth. On the other hand, this softness in demand helped alleviate some of the pricing pressures coming from commodities.

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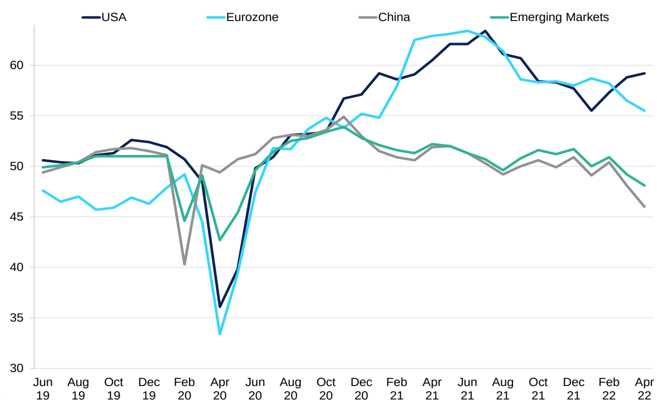
Oil: The crisis in Ukraine rocked the oil markets, causing WTI to fluctuate between the lows of $75/bl at the start of the year and the highs of $123/bl seen in March. In particular, sanctions directed at Russia resulted in a tit-for-tat strategy between the exporter and importers of crude, leading to Russia recently cancelling shipments to Bulgaria and Poland. More recently, Europe has introduced an embargo on oil shipments, with the exports set to phase out over the course of six months, with countries like Hungary seeing their deadlines extend to 2023. Russia provides more than a quarter of EU crude oil imports, and before with the embargo, nearly 0.7m bl/d that previously flowed to Europe had been rerouted, according to JPMorgan; Russia would only be able to reroute a further 1m bl/d to other markets. As a result, 15% of Russian oil exports are finding their way to China. The nation received 43.03mt of crude in April, according to Bloomberg, which could be explained by a 20% jump in overall shipments from Russia in April. Since the end of February, Russian seaborne oil exports have been nearly 100,000 bl/d higher than the 2021 average, according to Vortexa.

From the demand side, the outlook remains bleak in the near term, given the strict lockdown conditions in China. Demand has been down 1.2m bl/d since the lockdowns in Shanghai began, and a shutdown of the capital impacted demand even more so. China's oil demand averaged 13.3m bl/d in March, according to Bloomberg. As a result, demand is weakening but will recover once China comes back from lockdown conditions. With OPEC+ choosing to maintain its supply unchanged at 274,000 bl/d and Russian oil shipments reducing substantially over the next couple of months, the market is set to remain tight in Q2.

Manufacturing PMIs: According to S&P Global, US manufacturing PMI showed a sharp improvement in operating conditions across the sector, with the index increasing to 59.2 in April from 58.8. Expansion was supported by Increases in output and series-record rise in pre-production inventories, with both domestic and foreign demand ticking higher. Although backlogs rose, the rate of expansion of work eased to the softer in 14 months. Moreover, delivery times increased further, and severe material shortages led to sharper increases in cost burdens. Similarly, with inflationary pressures remain elevated, producers continued to pass costs to consumers, as the rate of charge inflation accelerated. Outlook expectations remain upbeat, with reports pointing to improved supply chain stress driving the robust confidence.

Major Economies Manufacturing PMIs

While performance remains robust in the US, Europe, China and EMs are seeing significant declines.



Source: Bloomberg

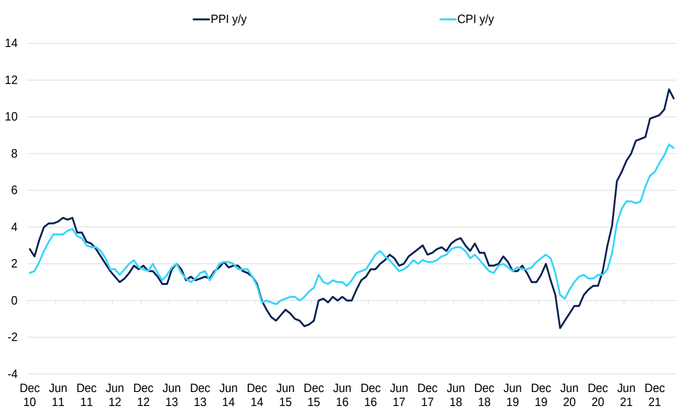
The Eurozone manufacturing sector weakened further at the start of the second quarter, with the headline PMI slumping to a 15-month low of 55.5 in April from 56.0; still expansionary but the slowest rate of improvement since early 2021. In addition, a rise in geopolitical tensions continued to weigh on demand and subdued increases in new orders and sustained supply-side pressures coming from China had a noticeable impact on business confidence, which remains at 2020 lows. Meanwhile, amid surging commodity, and energy costs, input price inflation grew in April and hit a five-month high.

The introduction of tighter restrictions to contain the spread of the latest Covid outbreak in China weighed heavily on manufacturing performance in April, with the manufacturing index falling from 48.1 to 46.0 in April. The performance turned contractionary for the first time since X, and is close to February 2020 lows, which was 40.3. Companies registered the fastest drop in output and new business since the beginning of the pandemic, with restrictions around mobility also leading to the second--fastest deterioration in vendor performance. The ongoing disruption to businesses, increasing costs and intensified geopolitics weighed on business confidence, which fell to a three-month low.

US: In Q1 2022, the US GDP figure surprised to the downside, falling by 1.4%, below the average consensus of an increase of 1.2%. The correction, however, was primarily driven by a growing trade deficit and a slowdown in the build-up of inventories. Consumer spending and investment remained robust, suggesting the overall economic performance was healthy. Moreover, the reason behind the growth contraction, the growing trade deficit, was driven by surging imports into the country, backed by a solid consumer appetite. In Q2, US consumer spending is expected to soften somewhat but remain robust overall. Indeed, in March, consumer spending increased 1.1% m/m despite high inflation, as customers relied on their savings to support their shopping patterns. This is likely to boost economic performance figures quarter-on-quarter as the trade deficit eases. However, inflation is denting consumers' ability to spend to the same extent as they used to. Consumers are now facing first-hand the price increases, threatening to cause inflationary psychology that could result in a wage-price spiral that the Fed has warned about. As of now, real weekly earnings are not keeping up with prices, falling by 1.1% m/m in March despite a spike in compensation for American workers. Therefore, consumers are making conscious choices to cut down on non-essential purchases, clearly outlined by the Netflix case, which saw its first customer loss in more than a decade, as many choose to opt out of subscription model services to save money.

US CPI vs PPI y/y

Both measures of price performance continue to beat multi-decade highs, with CPI seeing moderating growth performance in April.



Source: Bureau of Labour Statistics

This, coupled with multi-decade high inflation, calls the case for an aggressive monetary policy stance from the Fed. Indeed, in April, inflation remained at 1980 highs, increasing by 8.3% y/y. While headline inflation was higher than expected, it is softer than March performance of 8.5%. However, core inflation accelerated, growing by 0.6% m/m, up from 0.3% in March. Therefore, while we might be seeing peak inflation, supported by softer commodity price performance, core components are continuing to rise, with rents and cars' price increases becoming more prominent. We expect this trend to continue, with inflation performance to grow at a more moderate pace, while core continues to accelerate, therefore increasing its share in overall price performance.

As a result, the Fed statement has become more aggressive in recent weeks, causing a massive correction in bond market prices. In May, it has increased the rates by 50bps, the steepest rate hike since early 2000s. Markets are now pricing in the rate rising to 2.75- 3.00% by year's end. As the Fed shifted its policy approach, bond yields have surged. Indeed, the 10yr nominal US Treasury yield has surged from 1.72% to 3.00% in the last two months. The short end of the curve has taken on the brunt of the news, with the 2yr yield surging to 2.85%, and continues to remain elevated as of 16 May. There are two principal components to rising bond yields: inflation expectations and real yields affected by supply and demand in the bond market. The breakeven rate, the difference between the nominal and real yields, measures the inflation expectations component. It has risen only by 40bps for both 2yr and 10yr rates and has been falling since the start of March. The nominal rates have themselves increased by 150bps, respectively, since the start of the period. Therefore, the main factor driving increased bond yields in the last couple of months was supply and demand. With the Fed first ending purchases and then selling the bonds, markets are pricing in a surge of bonds into the market.

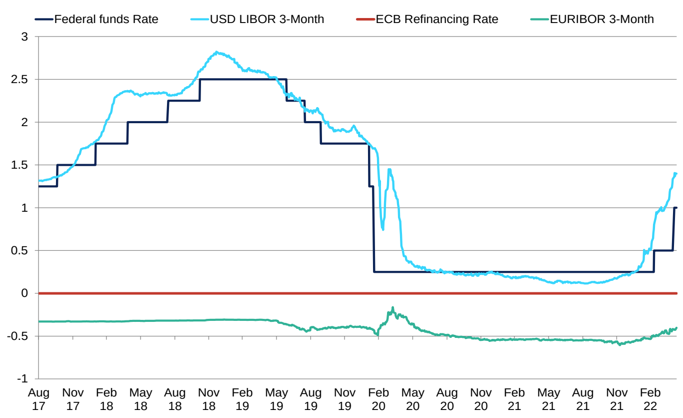
The Fed faces the challenge of avoiding tightening too much to avoid an extended recession period. We expect the policymakers to hike aggressively this quarter, and as inflationary pressures ease month-on-month, the scale of hikes should slow significantly. The meetings in the latter part of the year are likely driven by general economic health rather than inflation itself, as the Fed will be monitoring its impact on economic growth. The IMF still expects the economy to grow by 3.7% in 2022 vs 5.7% in 2021.

Eurozone: This quarter, Europe faced strong headwinds, with the bloc seeing falling consumer consumption and plummeting confidence. Confidence in April fell to the lowest in a year at 105 as the impact of the Ukraine crisis drained sentiment from industry to consumers.

Falling confidence was pronounced among manufacturers and consumers, highlighting the widespread impact of geopolitical tensions on the economy. While the data showed an easing in price expectations down from a record in the coming months, it still reflects the overall impact on households. Indeed, inflation in Europe is converging with the US, as it grew by 7.5% y/y in March, the highest since the creation of the Eurozone, with energy prices alone up 44.7% y/y. Core prices were up a more modest 3.0% y/y. A lower confidence level suggests that elevated prices are likely to weigh on consumption and investment in the region, especially to those nations closer to the bloc's Eastern border. In Q1, output barely rose across the region, up by 0.2% q/q, with Germany narrowly avoiding a recession. In the second quarter of the year, we expect moderate activity to continue, but relative to the US, Europe is slowing down faster.

US and Europe Monetary Policy Conditions

The Fed has begun to hike in March, while the ECB is only said to do so once the bond purchasing programme ends later this quarter.



Source: Bloomberg

With inflation accelerating sharply in March, there was the expectation that the ECB would speed up the process of monetary policy normalisation. However, this has not taken place. The central bank decided to keep its plans for a gradual easing of asset purchases, and while it has brought the date of the first-rate hike forward into July, it is still months behind the Fed. In the meantime, this management will become troublesome as the deteriorating geopolitical tensions seem to have hit Europe the hardest. The ECB is committed to ending asset purchases later this year, and an emergency tool is in the works that should help if yields continue to rise. The risk is particularly acute if the bloc decides to ban gas imports from Russia, in addition to the already-introduced oil embargo.

In the meantime, this management will become troublesome as the deteriorating geopolitical tensions seem to have hit Europe the hardest.

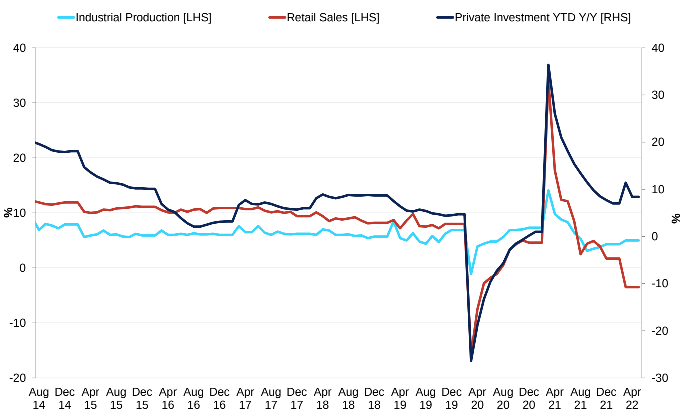
Downside pressures are getting more pronounced in Europe. Energy embargoes and continued consequences of the crisis in Ukraine had an impact on the economy's sentiment. In the meantime, with ECB not setting a clear objective in monetary policy, and so tightening is likely to let inflation run loose for the moment. Still, it should come down month-on-month naturally following the softening of commodity prices relative to March. Moreover, the prospect of Russia shutting down gas shipments to major economies and oil embargo is likely to keep weighing on sentiment and could threaten a technical recession.

China: China's economy is struggling with the outbreak of COVID-19. The rising number of cases and the zero-covid rule meant that more than 70 cities had been partially or fully shut down since late-March, with production completely closed in major manufacturing hubs. This has seriously disrupted an already-strained production and the distribution of goods and consumer spending internally. Moreover, strict lockdown conditions in Shanghai meant that one of China's most important ports saw container wait times triple to 12.1 days in a matter of weeks. All of this comes amid a substantial slowdown in the property sector, where activity dropped sharply, reflecting stress felt by a sector that contributes around 10% of the country's GDP. April, in particular, saw firms cut China's junk property bond holdings by around $1bn in value, against the backdrop of a record sell-off in global fixed income.

In Q1, the Chinese economy grew more rapidly than anticipated, up by 4.8% y/y and 0.8% m/m. Real GDP, however, while up 1.3%, was down from 1.6% in Q4 2021. This level is well below the official target of 6.00%, suggesting the economy grew slowly even before the outbreak of covid cases across the country, with consumer and business spending and industrial production decelerating. In addition, retail sales declined by 11.1% y/y in April with especially large declines in spending on automobiles, jewellery, and clothing, after having deteriorating slightly in March. This was the deepest decline since March 2020. Yet if the lockdown conditions are to remain in place to bring cases down close to zero, it does not bode well for returning to normalcy in terms of economic performance, global trade, and the ease of doing business. Therefore, Q2 performance is likely to be modest even if restrictions are lifted later in the quarter.

China Economic Performance

Even before the introduction of tough lockdown conditions, Chinese economy showed signs of slowdown.



Source: National Bureau of Statistics

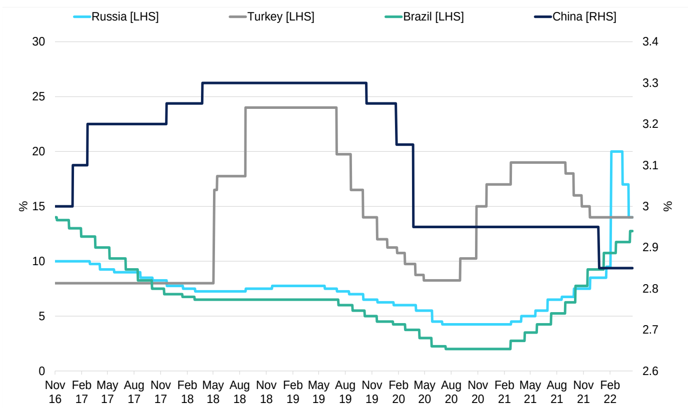
As a result, the PBoC has taken some measures to offset these negative factors. In April, the central bank announced a 25bps reduction in the required reserve ratio for commercial banks. This was following a 50bps in July and December. Indeed, while the policymakers stated their intentions to support the slowing economy, little has been done to encourage robust recovery, and no clear guidance on the ease of restrictions has been announced.

This soured the outlook for economic growth, causing the IMF to downgrade its 2022 forecast to 4.4%, from 4.8% in its January projection. At the same time, the scope for China's easing continues to diminish as the Fed's aggressive tightening cycle approaches, creating little space to manoeuvre the trajectory of future policy decisions. In fact, according to the IIF, foreign investors are rapidly withdrawing capital from China, putting downward pressure on the renminbi. As a result of prevalent currency weakness, with the latest drop falling to the lowest level against the greenback not seen since November 2020, China cut the amount of money that banks can have in the FX reserves. Therefore, in the meantime, China's economic performance will highly depend on its tolerance of the zero-covid policy and how it chooses to maintain manufacturing activity in the economy. Indeed, in the past, we have seen China relax the rules for factories to ensure the continuity of activity to fulfil the needs-only demand. We do not see any significant changes to the policy outlook, and our current view for Q2 is on the downside.

Emerging Markets: Despite aggressive hiking done by the emerging market economies earlier this year, rising interest rates in the US are worsening the outlook already clouded by both slowing growth and the crisis in Ukraine. Indeed, US 10yr real yields flipped positive in April. While this level was not sustained, it highlights the start of the trend, in which the era of negative yields that sent investors rushing to EMs in search of higher returns may be nearing an end. With increasing interest rates in the US, the dollar still has more upside, further eating away the appetite for other currencies. Inflation remains stubbornly high in emerging markets, despite the aggressive cycle of hikes we saw in Q1. Indeed, Brazil already has its interest rate at 11.75%; meanwhile, its inflation continues to grow m/m at 12%, with the latest push driven by the crisis in Ukraine. The IMF has its 2022 forecast for emerging markets and developing economies set at 3.8%, down from 6.8% in 2021.

Emerging Economies Interest Rates

Russia and Brazil hiked aggressively and are beginning to slow the tightening of monetary policy conditions.



Source: The People's Bank of China, The Central Bank of Russia, Central Bank of Turkey, Banco Central do Brasil

Russia's economy saw an unprecedented number of sanctions by the rest of the world, making it the most sanctioned economy in history. Most notably, the energy embargos, in particular oil, if effective, could reduce Russia's GDP to -12.4% in 2022, according to Russian ministry. While government response globally has been the driving force behind the trend, the biggest impact has been made by the corporate world, with many international companies choosing to stop importing goods or end relations with Russian firms altogether. The initial wave caused panic for others that chose to stay, with many deciding to continue with the existing contracts while postponing or choosing not to renew contracts. In the meantime, the Russian economy, while weakened, is more robust than expected. We expect the deceleration to continue, especially from the consumer side, given the 14% interest rate. The IMF forecast an 8.5% contraction in Russia's GDP this year, down from 4.7% in the year prior.

Aluminium

LME Aluminium 3MO ($)

Sentiment

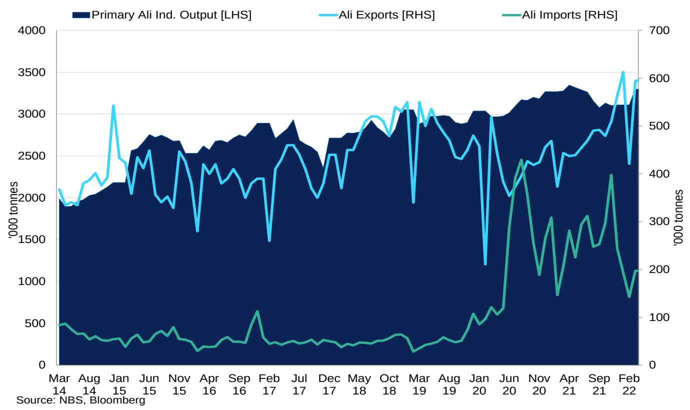
Robust Production	China's Demand	Supply Chain Bottlenecks	Chinese Property Market

Q1 Review: Aluminium prices jumped higher in Q1 in line with other metals, following the escalating crisis in Ukraine and subsequent sanctions imposed on Russia, bringing the supply of metal into question. Indeed, while Russia is not the biggest producer of aluminium in the world, it contributes 4.2% to the global supply. While no direct sanctions on the metal have been introduced, complications with shipping and the banking transfers from Russia have complicated the export process. In mid-March, LME markets faced the nickel short squeeze, urging investors to close their positions across the whole base metals group on the back of trading uncertainty. However, following the event, aluminium prices recovered most of the previous months' gains, closing the quarter marginally higher at $3,550/t, vs $3,849/t at the peak. Indeed, following the short squeeze of the metal on the LME exchange, aluminium was the only metal that saw an increase in liquidity through the reduction in bid-ask spread, confirming the metal's appeal as the safest base metal across the group. Volumes are trading just below the historical average. In Q2, the global macro picture soured once again, with the Chinese economy struggling with an outbreak of COVID-19 cases; conditions are providing a lacklustre picture from both the metal supply and demand. Prices have remained range-bound since.

Outlook: In March, following the end of the Olympic Games and power rationing for the blue sky initiative, we saw robust recoveries made from the supply side. China alumina output totalled 6.55m mt, of which metallurgical-grade alumina was 6.34m mt. Output increased significantly month-on-month, with provinces like Shanxi and Henan expanding by 19% and 78%, respectively. Aluminium production totalled 3.32m mt in March, marginally unchanged year-on-year at 0.92%, but up 12% m/m, as an industry was recovering from the January-February slowdown. Imports also remained robust during March, with the customs data pointing to imports of bauxite at 11.7m mt, up 13.58% m/m and 15.79% y/y. Imports from Australia were 2.95m mt, up 15.62% m/m; imports from Guinea were 6.18m mt. Imports of bauxite into China were strong y/y and m/m after rationing in February, however, will likely be lower in April; the vessel waiting times into China has tripled in the last couple of weeks to 12.1 days.

Primary Aluminium Output vs Exports of Unwrought & Aluminium Products

March performance was robust following power rationing and the Olympic Games in China.



In April, despite tough lockdown conditions implemented in China, the domestic aluminium output is expected to increase due to the release of concentrated capacity. According to SMM, the pandemic did not affect the overall pace of production of aluminium smelters. In particular, the resumed production capacity and the new production capacity in Yunnan, Guangxi and other places were put into operation smoothly. As of early April, Chinese aluminium operating capacity reached 39.97m mt per annum, and the operating rates stood at 90.8%, with the end of month figure likely at 40.3m mt pa, and the domestic aluminium output is expected to reach 3.32m mt in April, with a year-on-year increase of 1.9%, and 0.15% up m/m. While this is still below the 45m average historical capacity, the output would be in line with the performance not affected by the outbreak of covid.

However, the pandemic is still restricting the shipments and supply chain conditions are being strained once again, making it difficult for enterprises to obtain raw materials and ship finished products. As a result, some smelters were forced to reduce production due to insufficient orders and a shortage of raw materials. Henan stepped up restrictions on truck transportation due to the recurrence of the pandemic, but arrivals were little affected as cargoes were shipped mainly by railway. As a result, downstream producers in Henan and other regions stocked up actively, leading to a sharp decline in the social inventories and supporting aluminium prices. Aluminium smelters in northwest China became more willing to stock up (the alumina) and turned to suppliers in Henan due to pandemic controls in Shanxi, pushing alumina prices in Henan up by CNY10/mt to CNY3,000-3,050/mt. Likewise, the prices in Guizhou (CNY3,025/mt) and Guangxi (CNY2,990/mt) were firm as rigid demand increased significantly amid active production resumption by aluminium smelters in Yunnan. However, for the majority of provinces, some companies saw their export orders slump in April partly due to the pandemic.

The pandemic is still restricting the shipments and supply chain conditions are being strained once again, making it difficult for enterprises to obtain raw materials and ship products.

China Freight Turnover (tonne-km) YoY by Railway

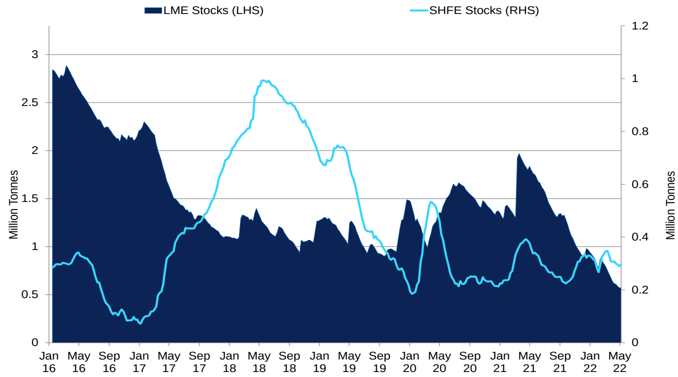
We have seen an increase in railway usage in China given the prevailing truck shortage conditions.

Source: National Bureau of Statistics

With alumina and aluminium prices falling, premiums remain stubbornly high, suggesting that there is ample demand for the product from the US and Europe. The latter, in particular, saw a slight increase in premiums, it could be that the bloc is filling the gap missing from Russia. Indeed, output fell in Europe for the first time in 21 months, with future output at risk of partial closure due to higher energy prices and move away from Russian energy purchases, as well as partial disruption due to low water levels in Norway. As a result, Europe could have increased its reliance on Chinese shipment, even if it meant waiting for an extended period of time for delivery, given the extended lead times. Indeed, April aluminium exports reached 597,000 mt, which is the second higher level ever; meanwhile, total exports growth slowed to the slowest level in two years, suggesting China could be prioritising shipments on a needs-only basis.

LME vs SHFE Stocks

LME stocks have been falling rapidly, reaching 17-year lows. SHFE stocked up ahead of the Labour Day holiday in May.

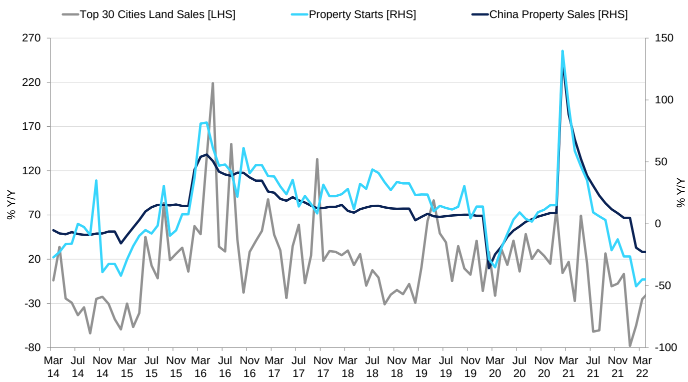


Source: Bloomberg

Despite demand and supply being down in China in April, both LME and SHFE stocks continued to diminish, suggesting continued use of metal internally and more so abroad. Shanghai premium bill of landing has remained flat over the last couple of months, since beginning of its decline in October 2021. In China, aluminium inventories continue to draw down as finished products producers stocked up, however, the inventory of finished products themselves has increased due to a lack of demand from the end-user. Indeed, aluminium users have been depleting the aluminium stocks, in addition, to fill in the gap of missing material through lack of adequate logistics. China is manufacturing on a needs-only basis, and demand will only see some upside given lockdown relaxation and stimulus, however, that will either be late Q2 or Q3.

Chinese Property Market

Chinese property market was already on the back foot even before the outbreak of Covid.



Source: National Bureau of Statistics, BI

The demand side continues to be severely impacted by lockdown restrictions in China. In Q1 2022, the property sector contracted for the third quarter straight, even before the recent covid wave and subsequent lockdowns began to escalate. Output in the real estate industry, a key economic contributor, contracted 2% y/y, according to NBS. However, it was the steepest drop among all sectors, most likely supported by government initiatives. Indeed, the new 23 measures encouraged financial institutions to support local government infrastructure projects, as well as provide financial services to industries hit hardest by the pandemic. Still, it is adding to the pain felt by developers and putting pressure on policymakers to support an economy that's facing deteriorating consumer spending and the highest unemployment rate since the beginning of the pandemic. However, the markets have not responded positively to this, with aluminium prices continuing to decline on the back of a weak demand backdrop. Indeed, the financing conditions continue to deteriorate. In particular, property loan growth slowed to the slowest pace in over two decades, at 6% y/y in March, due to the continued slump in the real estate market brought on by developer defaults, virus lockdowns and weak consumer confidence.

Copper

LME Copper 3MO ($)

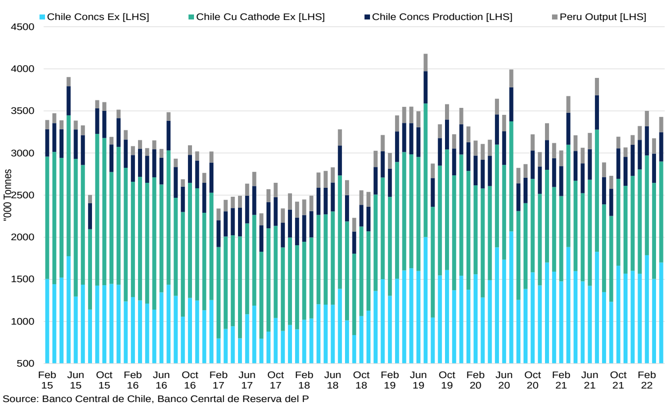
Sentiment

China Easing Lockdown | China's Inventories | Poor China Data | Improving Refined Output

Q1 Review: Copper prices were well supported throughout Q1, which caused the 3-month LME contract to gain 7% and close the quarter at \$10,375/t. Prices have since sold off sharply due to weak output from China's economy, and the rest of the world's economies are also posting weakening data at a time when central banks are raising rates. Inflationary pressures prevail but could slow, but end-user demand is softening sharply. The cash to 3- month spread has switched back into backwardation and settled at \$25.6/t on Friday, 13 May. Investment from China has been promised, but we still lack details; this should improve demand, but we are coming from a shallow base. Shanghai prices gained 4% in Q1 and have sold off since then but hold above the 200 DMA at writing. The arb window is open, and import premiums are improving as premium quotes rise.

Chile and Peru Copper Production

Even though output from BHP was poor, copper production in Chile was still good but we expect delays to projects due to ESG regulations.



Source: Banco Central de Chile, Banco Cenrtal de Reserva del P

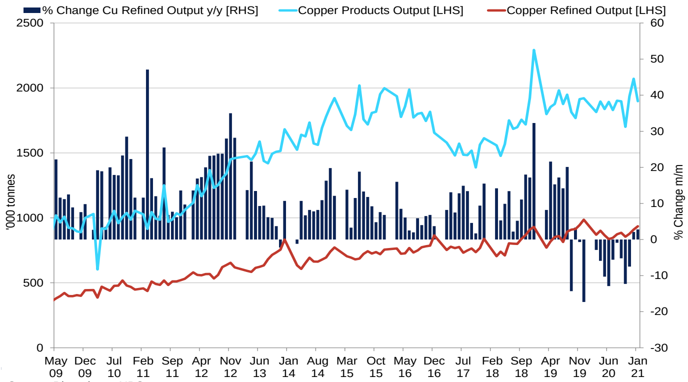
Outlook: Copper production in Chile was robust in 2021, reaching 5.6m tonnes of metal content, representing around 27% of global production. However, not all companies have performed well BHP has struggled to maintain its output numbers due to social unrest and COVID outbreaks, and copper production was down 10% in the months to 22 March. They warned that they would likely still struggle with worker issues in 2022 as they cited skills shortage and overall labour tightness to persist until 2022. BHP also cited that regulations from the Chilean government will likely constrain copper supplies, and the water rights to the mining industry, while necessary, will be a huge factor; BHP are relatively well insulated from water rights as they invested in coastal water desalination. The ESG rhetoric from governments and local community involvement will delay projects. Anglo American released that the government rejected their application for the expansion of Los Broncos. The development will allow Anglo American to access higher-grade ores and extend the life of the mine through to 2036. The underground mine has a grade of 1.7%, three times the open pit grade. The increase in government involvement will delay these projects and disincentivise mining investment with higher-grade ores and lower environmental regulations. Zambia and DRC have considerably higher ore grades, and even though DRC's mining code has numerous requirements for miners, but still falls short of Peru and Chile's new regime. DRC's President wants an audit of the mining companies' permits to prevent fraud and corruption. Ore grades are significantly higher, and Barrick Gold Corp is the latest firm to be looking at investing in copper projects in Zambia and DRC. Russian copper projects are likely to be delayed in the years due to the reduction in funding and the crisis with Ukraine, and the combined maximum production is 438,000 tonnes between the three projects.

We expect marginal costs to be higher this year due to energy and transportation costs, but even after the sell-off to \$9,200/t, prices are significantly above marginal costs; full sustaining costs, including royalties, stand at \$6,124/t for 2022, and total cash costs including royalties are \$4,687/t. Profitability for miners has been good in recent years, this year, margins look slightly thinner due to input costs rising, but

TCs are still low despite the rise since March. China copper concentrate TC 25% CIF has rallied to $86.5/t from $62.50/t at the beginning of March.

China Refined Copper output vs Copper Products

Output will likely remain weak in May for cathodes, but we expect production to improve in June.



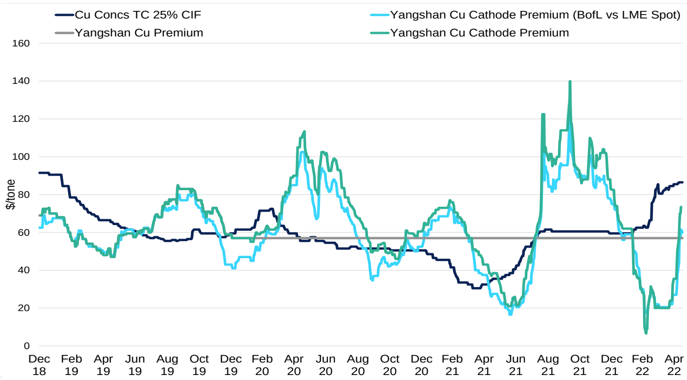
Source: Bloomberg, NBS

We expect TCs to rise further as smelter maintenance in May continues; smelters in Shandong will gradually resume output in June as this will release more copper cathode capacity in H2 2022. Smelters will run at full capacity due to high profitability as sulfuric acid prices are high even with the modest correction. Global demand for chemical fertiliser is strong due to a lack of product from Russia and European capacity being taken offline. The output of refined copper in China reached 935,000 tonnes in March, and we expect to see this number marginally flat in April and May due to maintenance. Copper product output reached 1.89m tonnes in March, and we expect to see more upside for copper products in the coming months. Blister RCs have been declining as demand from smelters has been strong. We continue to see logistical issues preventing significant gains in output due to the lockdowns, and the spot market has been weak as smelter and port inventory was sufficient. Inventories across China's market increased marginally to 121,500 tonnes; Shanghai stocks increased the most as imported copper flowed into the warehouses.

Chinese copper premiums have improved as exchange prices have declined, and liquidity starts to improve. However, end- user demand in China is still poor.

China Imported Concentrate TC 25% CIP vs China Yangshan premiums

TCs have improved but depend on maintenance at smelters. Premiums rallied due to the import window being open.



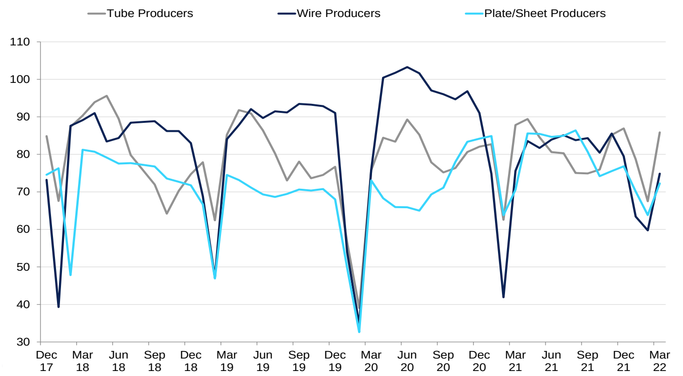
Source: Asian Metal Inc, SMM Information and Technology, Shanghai Metals Market

The import window into China is open, but imports have not improved due to the logistical challenges. This will keep domestic supply subdued in the near term, with the backwardations in SHFE still firmly intact; however, this material will likely arrive in June.

The spot premiums could fall when this material arrives in Shanghai, especially as demand is feeble in China, as outlined by economic data. The SHFE/LME premium is rising as LME prices continue to suffer as sentiment remains weak due to rising inventories, although in China. SHFE inventories have been falling, supporting copper prices in China despite the weak demand outlook. Shanghai B/L cathode CIF has increased, to $72.5/t, a significant increase from the $30/t we saw last week, primarily due to the rise in import arbitrage. The copper cathode warrant premiums have reached $82.5/t as of 16 May , with the Yangshan warehouse premiums at $73.5/t. The lower output of copper in China has led to the market being tight, despite the poor demand. With maintenance expected this month, we expect the backwardation to remain intact as inventories are low and output in the near term will be subdued. The scrap market in China cannot pick up the slack due to lockdowns and lack of material flowing due to logistical issues and difficulty procuring scrap, leading to a shortage of raw materials. Imports of scrap improved in March to 149,935 tonnes, up from 109,806 tonnes. However, secondary output has declined as a result, and this will have a limited production of a secondary rod as products cut output due to reduced availability of material and low profit.

Copper Products Operating Rates

Operating rates are starting to improve, but end-user demand and domestic logistics are poor.



Source: SMM, Bloomberg

Operating rates for tube, wire, and plate/sheet have all started to improve, but end-user consumption is weaker, which will cap production somewhat. Work on construction and the electric grid is low due to the lockdown and has been suspended. We expect operating rates to improve, but all systems financing in China was considerably weaker in April; Beijing has not given the stimulus it promised. The stimulus will arrive when China is out of lockdown, which will improve market sentiment, as manufacturing will look to improve, which has been contracting at an alarming pace in recent months. Copper consumption will rise in infrastructure, electrical grid and renewable energy, but the property market and home appliances could suffer, despite home appliances being robust in recent months.

The divergence in inventory between China and the ROW is prevalent, which could keep the import window open. The tightness is still in Europe, and we expect physical premiums to remain strong in Europe and the U.S. Construction in the U.S. continues to grow with housing starts and construction spending still strong. While housing sales are starting to decline, the rising borrowing costs and costs of living will filter into the housing market as mortgages have reached 5.3%.

Lead

LME Lead 3MO ($)

Source: Bloomberg, 30.05.2022

Sentiment

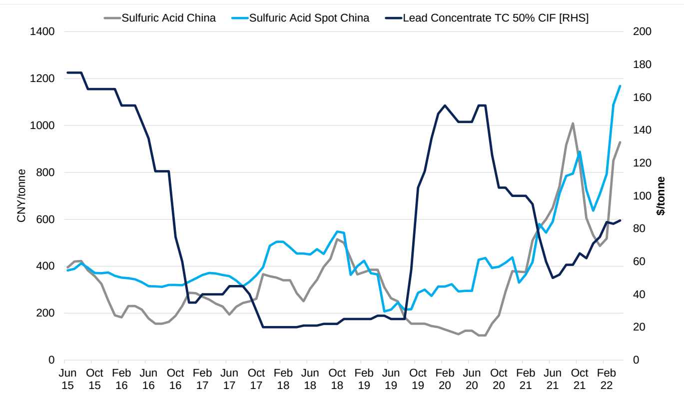
Poor Auto Demand	Europe/US Stocks	Poor China Data	Stable Lead Output

Q1 Review: Lead prices rallied 5% in the quarter; this was a far cry from the 17% high when prices hit $2,700/t. We continue to see a divergence in the exchange and off-exchange inventories, with off-exchange stocks declining. The demand outlook has been weak in China, and we expect this to remain the case. European premiums have been elevated, and in our view, this trend will continue; there is very little material in European warehouses with zero tonnage in U.S. warehouses. The cash to 3-month spread is in a mild contango at the time, writing at -$13/t; the spread has been in backwardation for the majority of the last 12 months, outlining tight fundamentals, but the softer demand outlook from China and macro headwinds have caused spreads to switch to contango. We have seen heavy selling on the flat price in recent weeks, with prices in China also suffering to yuan15,100/t, but this is still in the long-term range for SHFE lead which has traded a yuan14,500/t,16,500/t range in the last year.

Outlook: Lead output has increased in recent months, with January data showing mining output softened in Peru to 20,568 tonnes, down from 22,195 tonnes in December. We also saw Australian mine output decline to 42,150 tonnes, marginally weaker than December's figure of 42,150 tonnes; as a general trend, Australian mine output is higher. China's mine supply has rallied significantly in recent years; mine output was 120,000 tonnes in February 2020, but in January 2022, mine output reached 240,600 tonnes, which is lower than 277,000 tonnes in December. The availability of lead ore and concentrate is still limited, and this has played out in the TC market, with the China lead concentrate TC 50% CIF at $85/t. Domestic lead concentrate TCs were yuan1,150/t as, on average, the inner Mongolia lead concentrate TC stands at yuan1,200/t, the highest in China. Hunan, Henan, and Guangxi are all around yuan1,100/t, but TCs could gain further ground as there is limited capacity due to logistics and transportation.

Sulfuric Acid 98% China Market Price vs Sulfuric Acid Spot China vs Lead Concentrate TC 50% CIF

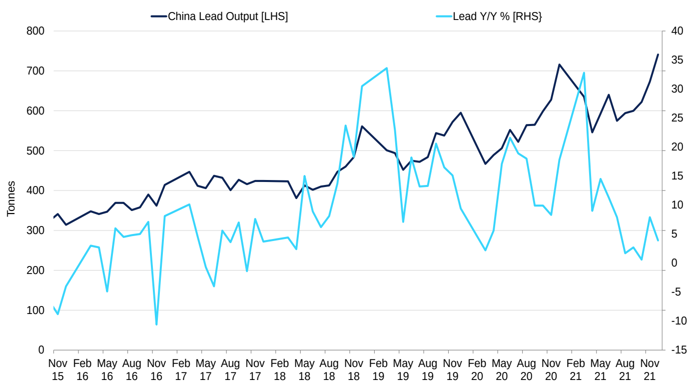
Sulfuric acid prices increased significantly in China, and lead concentrate has also improved as availability increases.



Source: Bloomberg, AMTL, SMM

Chinese Lead Output and Lead Output Y/Y Growth

Lead output continues to grow slowly despite the previous concentrate tightness and environmental controls.



Source: Bloomberg, NBS

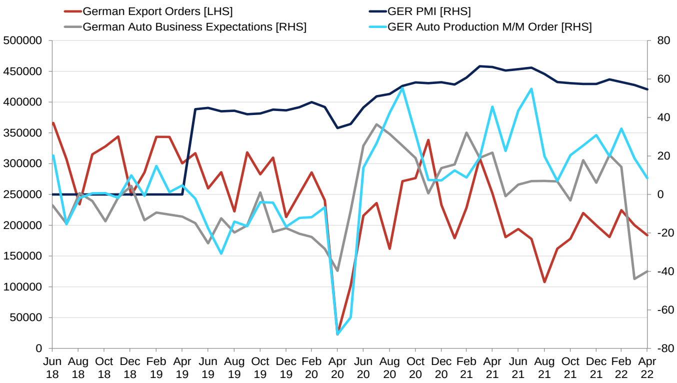
Total lead output in China was 654,000 tonnes, according to NBS, in March 2022. This was lower than the previous month's data reaching 741,000 tonnes in December. SMM data indicates that primary lead production in April was 271,500 tonnes, up 2.8% M/M, increasing 2.14% Y/Y. Data from January to April show output declined 1.05% from a year prior, with their survey indicating that productive capacities for those companies totalled 5.71m tonnes in 2022. We saw some maintenance in April with Henan Jinli and Hunan Jingui. There was a strong resumption of output from enterprises in Henan Province, which caused an improvement in concentrate flows. As we investigate May, production is expected to remain flat as we see more maintenance and capacity come back online. Smelter operating rates have been increasing, and we expect this trend to continue as they hover around 80%. The operating rates have declined in the secondary lead market, with medium-sized firms operating at 20% and large at 57% as we entered the off-season.

According to SMM, secondary lead output increased significantly in April to 349,100 tonnes, up 13.54% Y/Y; combined data for January to April indicates that production was up 12.31% Y/Y; we continued to see the dynamic of a resumption of capacity in some regions with others going through maintenance. We expect secondary output to increase as more smelters come back online. China's lead scrap recycled battery prices have weakened in the last few sessions, with deep cycle battery ex-VAT at CNY8,695/t and the recycled start-type battery ex-VAT at CNY7,945/t. Demand for second-hand batteries is weak, and secondary and primary refined lead prices are also declining.

Exports of refined lead from China have remained volatile due to supply-chain logistics and lockdowns, accentuating the tightness in Europe.

German Auto Market and Manufacturing PMI

Auto production and business expectations are weak in Germany, suggesting a weak outlook for lead consumption.

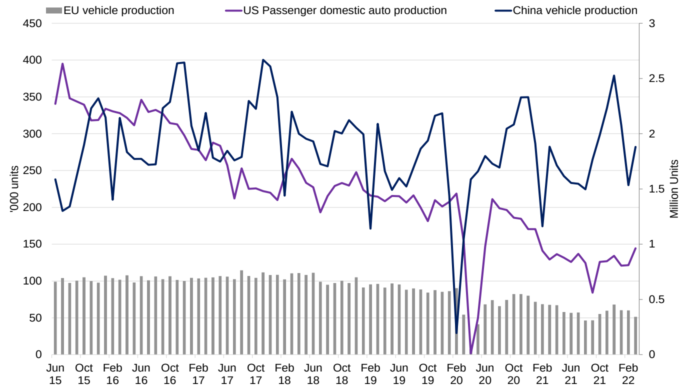


Source: IFO, Markit, Bloomberg

Downstream demand is weak, and orders are on a need-most basis due to the lack of battery orders. We are currently in a seasonally low demand period for lead and batteries, exemplified by spot discounts and a narrower discount between primary and secondary. We saw lead from Shanghai, Zhejiang, and Jiangsu move from a discount to a yuan20/t premium over SHFE. Indeed, secondary smelters held back material due to the lower prices and the discount of yuan150/t. The decline in prices has squeezed secondary lead margins, and prices of scrap and secondary batteries have also been declining. We do not expect demand for material to increase substantially in the near term. However, material in European and U.S. LME warehouses is meagre, around 3,000 tonnes and 0. This has prompted refined lead exports to increase in recent months, standing at 18,237 tonnes in April and a similar number the month before. Imports of refined lead have been very low for some time now; this outlines the tightness in the rest of the world compared to China. European inventories stand at 3,925 tonnes, with no tonnage in the Americas; however, demand in Europe continues to be soft from the auto and battery market.

Passenger Vehicle Production in China vs U.S. vs Europe

Vehicle production and sales for ICE vehicles are low globally; the rise in EVs is not enough to offset this.

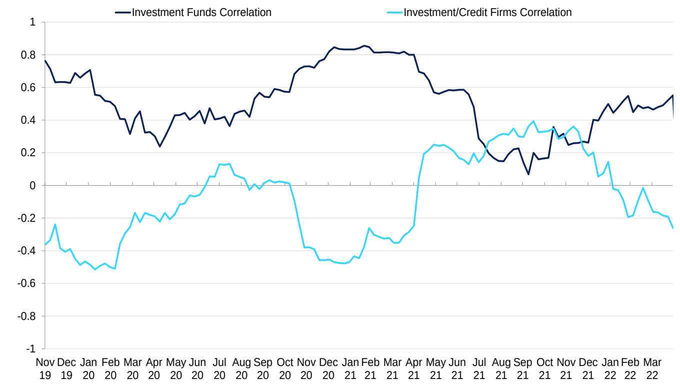


Source: Bureau of Economic Analysis, CAIN, Eurostat

German auto production fell in Q1 2022 from 34.2 in February to 8.5 in April, and auto business expectations nose-dived in Q1 from 19.9 in January to -40 in April. In conjunction with the cost-of-living crisis, high petrol prices and material shortages have caused a decline in auto demand. With the availability of subsidies in conjunction with policies to stop selling ICE vehicles, consumers are favouring BEVs instead of PHEVs and ICE vehicles. Germany and France's auto sales declined in April by 23% and 22%, respectively, citing supply-side issues; the U.K. had the weakest March sales since 1998. However, EV sales continue to boom. Chinese passenger vehicles reached 1.88m units in March, with February data at 1.53m units, this shows an improvement, but EV sales were the largest proportion of this despite the 30% cut in subsidies in 2022; China sold 1m BEVs in Q1.Passenger vehicle registrations are rising but remain at historically low levels, around 844,187units (ACEA). U.S. output is ticking higher but struggles to recover due to material shortages in addition to the semiconductors and chips.

Correlation between the weekly change in 3-month Price and Change in Net Positions

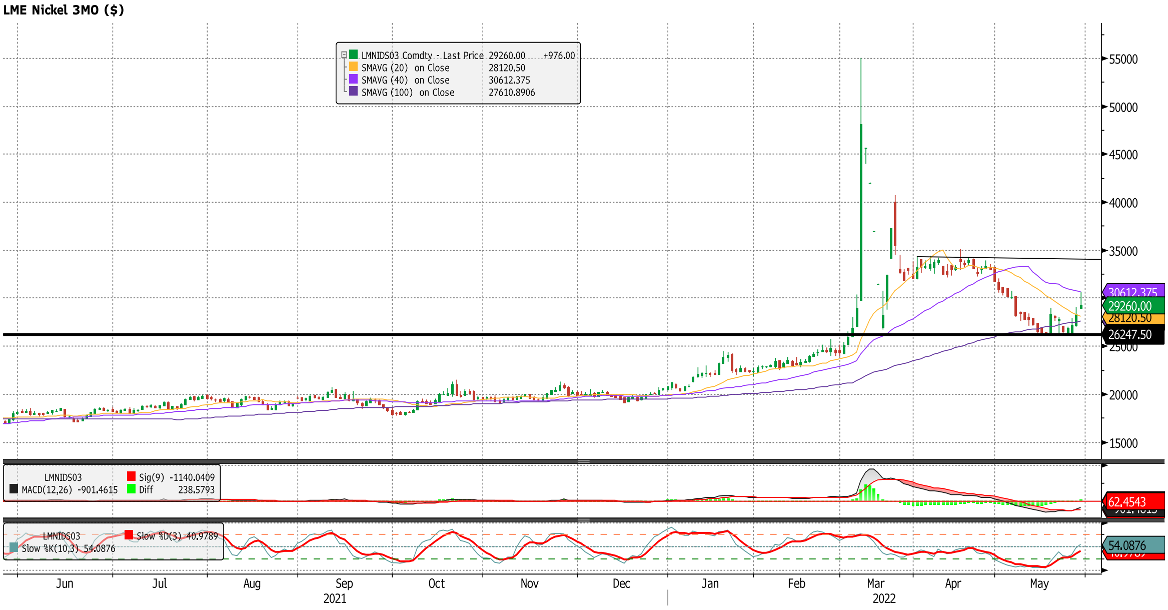
The funds' position correlation is still high at 0.4 but is not statistically significant. We expect to see more fund selling in the near term.



Source: LME, Sucden Financial

Nickel

LME Nickel 3MO ($)



Source: Bloomberg, 30.05.2022

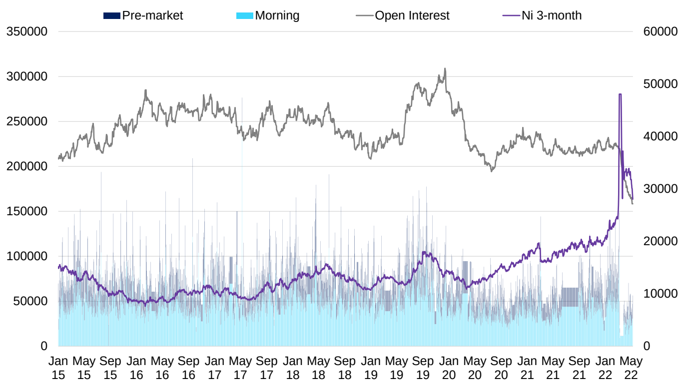
Sentiment

Lack of appetite to trade	EVs/Battery Demand	Reduced 300 Series	Indonesia NPI/Matte
↓	↑	↓	↓

Q1 Review: The nickel market was gripped by several factors in Q1, with declining warehouse stocks, the Ukraine crisis, and a significant short position in both OTC and LME markets, amongst other factors, including the lack of transparency of these positions, creating a perfect storm. The result was skyrocketing prices outside of LME price bandings, with the 3-month price reaching $100,000/t, but these trades were cancelled, and prices settled at the previous days close. The market closed for a week and then LME introduced price limits, which did not work, with prices breaking below the percentage limit momentarily. Open interest and volumes are now significantly weaker as the traders have little confidence in the market. The lack of appetite for shorting the market has meant prices remain elevated, trading at $28,600/t at time of writing. This can also be attributed to the fact that the overnight session for nickel remains shut. As a result, SHFE prices have sold off sharply as a proxy for an LME short.

Nickel Open Interest vs Pre-Market Volumes vs Morning Session Volumes vs 3-month Price

Open interest has been declining for years but liquidity is low and volumes remain poor.



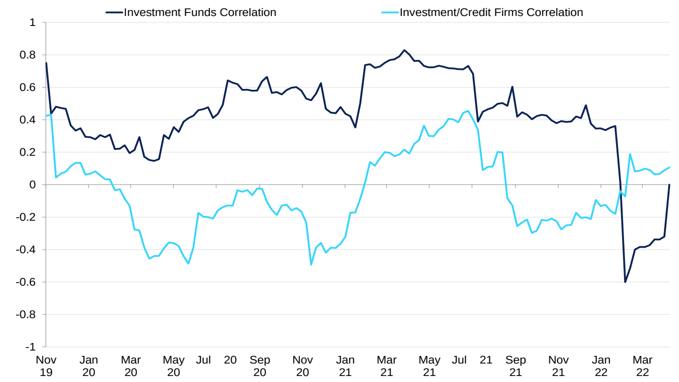
Source: LME, Bloomberg

Outlook: Nickel prices have started to sell off in recent sessions, despite the overnight session not being open on the LME and risk managers likely limiting short positions. If they were not, nickel would likely be considerably lower, around $24,000/t. The recent move below $30,000/t can be attributed to CTA funds liquidating positions, but we do not see significant changes in volumes, and the liquidity remains low. SHFE prices have sold off sharply, with the front-month contract being sold as a proxy for the LME, with the contract now standing at CNY205,550/t. Until the overnight session on the LME is open, we expect shorts to use SHFE with little alternative. Volumes are shallow, and liquidity is still poor; open interest is low at 158,513 as of May 9th, significantly below the long-term average, which stands at 242,023.12. Open interest has been below the long-term average since 2020, and we do not expect this to recover. Volumes for the cash-to-3 months spread are especially weak, with the 50-day average volume at 5.45 lots as of 9 May. 3-month volumes have also declined significantly, which is to be expected. The 50-day average volumes stand at 17,951 lots; this peaked for 2022 on March 16th at 27,800 lots. The lack of confidence in the market is evident as trading is thin as volatility is high. 90-day volatility stands at 113.86%, and the 30-day volatility has declined significantly to 43.84%, a ar cry from the 211.49% in March.

LME market data suggests that the funds still hold a net long of 23,390 contracts compared to 40,000+ in April. Indeed, the commercial firms saw a mild reduction in their net short at 40,159 contracts. System funds selling the market will not be picked up in the report due to the duration of their position. Indeed, higher margin requirements and risk parameters mean the net position has limited scope to change. For reference, the exposure significantly lowers the net short of 53,082 contracts. Pre-market volumes are considerably lower, suggesting little involvement from China currently. The correlation between the weekly change in price and the weekly change in the fund position has declined sharply to -0.345, an improvement from -0.6, which shows a statistically significant negative correlation. The correlation was 0.4 at the beginning of the year but was previously 0.8 in March 2021. The investment/credit firms' correlation has increased and is now positive at 0.0667, which is not statistically significant. The investment/credit net position has rallied from -20,019 in December to 11,512 contracts as of 6 May. The forward curve shows tightness in the long run and is in contango, but the curve is not steep.

Correlation between weekly Change in 3-month Price and Weekly Change in COT Position

The correlation has broken down and is now negative, although not statistically significant.



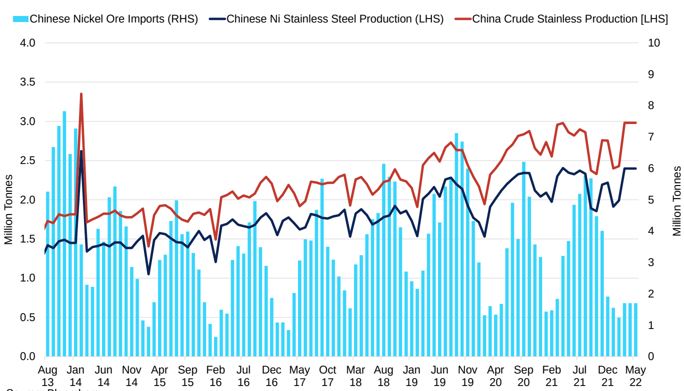
Source: LME, Sucden Financial

While fundamentals have taken a back seat so far in 2022, stainless steel output in March was 2.97m tonnes, up 31.4% M/M and 1.51% Y/Y. We expect to see a divergence in production of different stainless products, 300 series is likely to show declines in April and May due to transportation, lockdowns, and higher input costs for nickel. 400 series will likely be the beneficiary of the weaker 300 production due to the lower nickel content; the shift towards lower nickel content is not a new one. We see more 400 series replacements will be represented by 439,441,444 series, which have high chrome content. Nickel prices above $20,000/t will see 300 series market share decline sharply, and this is expected to fall to 46% in 2025 and 40% in 2030; in our opinion, this will cause 200 and 400 series stainless to push towards 30% each. With the higher substitution cost from end-user sectors such as consumer durables, construction, and transport, their reduction or lack of nickel in the 200 and 400 series reduces the strength, corrosion resistance, and toughness. However, the 400 series is used in various elements and has a high temperature and corrosion resistance.

Fundamentals have been irrelevant in Q1 2022, this will likely remain the case in the immediate term as trading remains extremely thin.

Stainless Steel Output vs Nickel Ore Imports

Nickel ore import are seasonally low, but high nickel stainless output has declined due to costs.

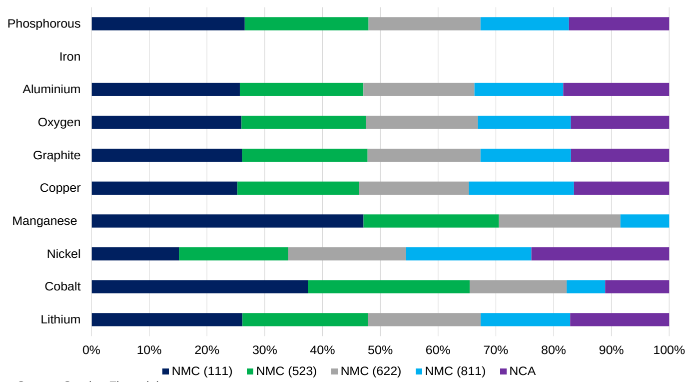


Source: Bloomberg

We see a lot less class 1 nickel allocated to the stainless market, but this has been the case for some years. Refined nickel represents less than 5% of stainless steel. Previously we saw Chinese NPI as a substitute for this, but as Chinese NPI has been falling recently, we expect Indonesian NPI to contribute to more stainless production. The percentage of scrap usage will also increase towards 20%, from 16% in 2020, as nickel prices rise and other inputs such as energy are also higher, not to mention the environmental rhetoric being pushed in the background. As nickel and ferrochrome prices are high, there has been a stronger demand for scrap, but availability is limited. This will cause a reduction in the 200 and 400 series in May, as it did in April. Stainless steel prices could see more upside as a result even though profit margins for stainless have been squeezed. According to SMM, Chinese production NPI declined in April to 37,200tonnes in nickel content, down 4.17% M/M, but up 9.86% Y/Y. High-grade NPI was 30,700 tonnes, and operation rates for Chinese NPI have been declining due to weaker material availability despite the strong profit margins for higher quality NPI. Lockdowns in China will contribute to the lower operating rates in Inner Mongolia, Liaoning, and Jiangsu. The pandemic and zero-tolerance policy indicate that steel and nickel demand has been weaker than expected. Although data is starting to weaken, the construction industry has been weak in China but is strong in Europe and the U.S. at writing.

Material Demand From Different Cathodes

High nickel batteries in Europe will boost demand but LFP cells are becoming a very viable alternative from a costs perspective.



Source: Sucden Financial

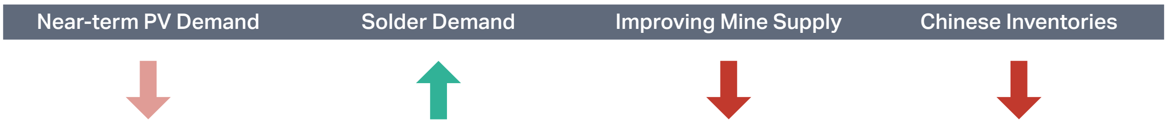
EV demand continues to beat expectations, and global EV sales were up 120% in Q1. Across the globe, there was a preference for BEVs, even in China which cut its subsidy by 30%. The increase in competition and new models is helping to accelerate the higher uptake of EVs, and higher petrol prices in conjunction with the phasing out of ICE engines in the coming years is pushing consumers toward BEVs. While power costs are high, especially in Europe but this is expected to decline. PHEV sales in Europe declined in 10 regions fell 8% compared to Q1 2021, and BEVs reached 1m units in China; however, over half of these used an LFP cell which is a considerable headwind to nickel demand. High nickel batteries in Europe will continue to be a boon for nickel, and we do not see it as a case of LFP vs NMC or NCA as the market will be large enough for both. However, we expect to see more vertical integration by OEMs to secure raw materials, reduce costs and have greater control over their products. We also expect the market to continue prioritising BEVs; Europe needs to invest in other aspects of the supply chain, not just Giga factories.

Tin

LME Tin 3MO ($)

Source: Bloomberg, 30.05.2022

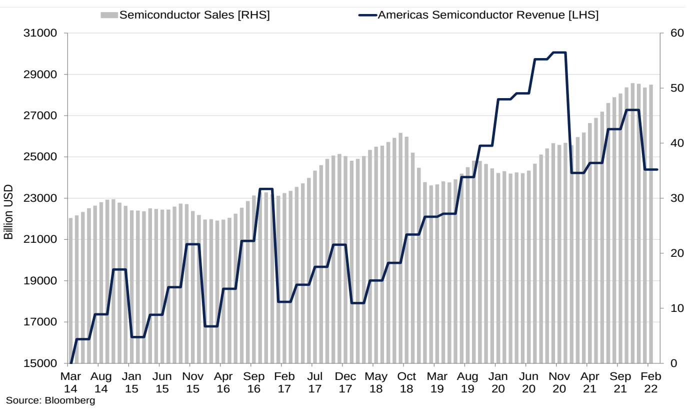
Sentiment



Q1 Review: Tin prices gained 10.6% on the LME in Q1, after prices gained 31.3% but failed to hold above $50,000/t during March. Tin prices have declined in recent weeks as sentiment declined due to demand in China and monetary policy tightening in most major economies. However, China is bucking that trend as the PBOC reduces rates and promises stimulus to boost the market. Global inventories for tin have been pushing higher as tin availability is improving. LME stocks stand at 3,000 tonnes, SHFE deliverable stocks have been steady in recent months, standing at 2,555 tonnes. Demand for solder and tin will remain stable in the near term as the order books for semiconductor producers remain firm; however, other consumer end-user sectors are weakening, but we expect this to be particularly prevalent in the near term.

Global Semiconductor Sales vs Americas Semiconductor Revenue

Revenue for the Americas has been declining but global sales continue to grow at impressive rates.



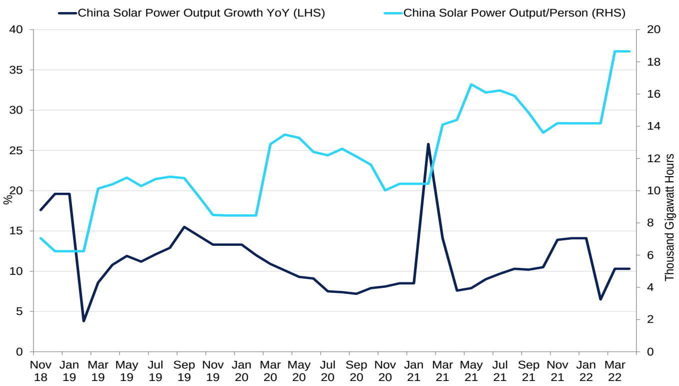
Source: Bloomberg

Outlook: Semiconductor sales continue to post strong growth. January and February data from the SIA indicates sales were $50.7bn in January 2022, up 26.8% Y/Y but down 0.2% M/M. This was the 10th consecutive month where sales grew more than 20%, February data then grew at 32.4% Y/Y, Asia and Pacific were once again the second strongest at 41.4% with Americas at 43.2%, Europe was at 29.3% and China at 21.8%. Production of semiconductors will remain strong as companies try to clear the backlog; South Korea exports are still high, with Y/Y figures at 37.9% in March. However, despite the attempt by key consumers to localise production, shifting the supply chain will take time. Taiwan and TSMC, UMC, Vanguard and PSMC represented 64% of the foundry market in 2021. This is expected to be 61% in 2022 and fall to 58% in 2025.

Outside of solder demand from semiconductors, tin consumption is weak in consumer-led sectors. With living costs rising, end-user demand for home appliances such as air conditioners, fridges, TVs, and computers have been softening. We expect demand to remain weak in the near term, following COVID-19 and its lockdown wave of consumption and lower disposable income from the consumer. Weekly online air conditioner sales have been steady at 217,166, reaching 24 April 2022. Sales have been relatively volatile in recent weeks but have been trending lower since the start of March. Refrigerator sales have improved in the week to 24th April to 308,419 units, but this is still below the long-run average of 275,000 units per week. We see seasonal spikes in June and November, but consumption remains weaker, and sentiment amongst Chinese consumers is low and this will likely remain the case as China's stimulus will likely target infrastructure, not the consumer. As mentioned in previous reports, the long-term trend for tin is positive due to solar panels and EVs. Silicon is the dominant semiconductor used in solar panels, however, despite the shortage of silicon and, therefore semiconductors, solar panel investment has been strong as the decarbonisation trend continues.

China Solar Power

Y/Y growth in exports remains steady but producers are nearing full capacity and this could cause Y/Y growth to soften.



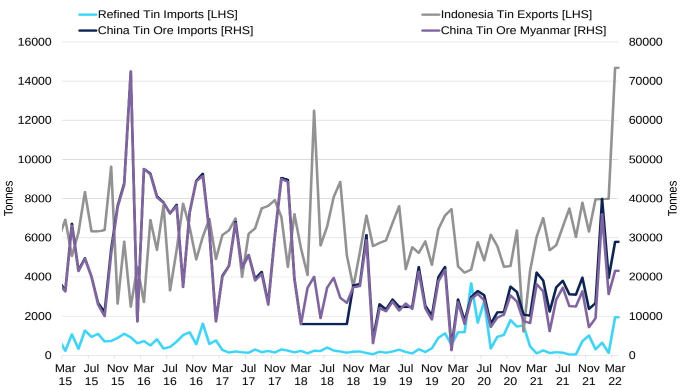
Source: Bloomberg

China's solar panel output growth is still in double digits, at 16.8% Y/Y in March 2022, marginally lower than December's figure of 18.8% Y/Y. The decarbonisation trend will be strong across the globe, and we expect significant investment in this area in the coming years due to the energy crisis in Europe from the war in Ukraine. This will accelerate the transition as the bloc looks to reduce its reliance on external sources of energy.

Additionally, the PBOC introduced a carbon emission reduction facility in 2021; this means that commercial and retail banks can borrow 60% of qualifying green loans from the central bank at a rate of 1.75% with 1-year maturity, considerably lower than the prime rate. In conjunction with the energy crisis in Europe, this facility will likely accelerate solar production, while solar Power Purchase Agreements (PPAs) are more expensive than wind power by 10euros/MWh. The EU's PV market grew at 34% in 2021, Solar Power Europe forecast in their median forecast estimates that growth rates will reach 18-20% adding 162.7GW by the end of 2025. We expect growth rates to be above these estimates as the market improves energy security and attempts to reach its target of 45% renewable energy by 2030. However, in Europe, 315 projects have been delayed or cancelled this year, and the geo-political tensions and supply-chain bottlenecks could cause 482 GW less renewable capacity to be installed by 2030, according to The Potsdam Institute for Climate Impact Research and ETH Zurich, with solar accounting for 237GW of that reduction.

China Refined Tin Imports vs Total Ore Imports vs Myanmar Ore Imports vs Indonesian Exports

Indonesian tin exports surged higher in Q1 but Chinese refined imports increased significantly, back to 2020 levels.

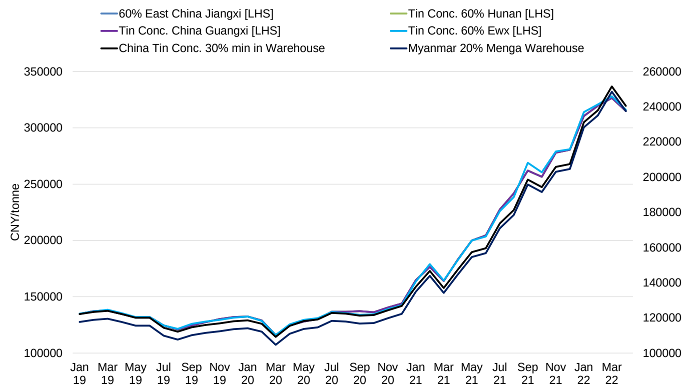


Source: Customs General Administration, Ministry of Trade of Republic

Indonesian exports have been increasing in recent months; this is in line with our view from our previous report that tin supply is improving, putting pressure on the spreads and 3- month prices. Exports reached 14,676 tonnes in March, up from 8,000 tonnes in February and 7,966 tonnes in January. Exports to China reached 4,739 tonnes in March, in part due to the increase of material flowing between borders following COVID-19, but April data may be similar as border controls remain intact and ports are blocked, and as of 27th April, the waiting time for vessels reached 12.1 days in Shanghai. China tin ore imports from Myanmar reached 21,582 tonnes in March, according to customs data. However, data from the ITA indicate that imports were 28,986 tonnes (gross weight); this material contains 11,100 tonnes of tin, up 85%. This will continue to increase tin concentrate availability. however, logistics in China are still restrained by lockdowns, and this could prompt refined output to moderate slightly. Spot prices for tin ore, 30% min, from Myanmar in warehouses in Yunnan remain near record highs but have edged lower in recent weeks back below CNY239,500/t. Tin concentrate 60% South Guangxi, Hunan, and Jiangxi remain just off the record highs but are starting to soften in line with higher tin availability. We expect tin concentrate prices to begin to moderate further in the coming months. TCs for tin concentrate have declined in some regions. which contradicts the improving availability of tin concentrate in China. The high Chinese prices, in conjunction with the open arbitrage window prompted higher imports despite the logistical issues.

Tin Concentrate Prices in China and Myanmar

Prices have rallied further in Q1 2022, but short-term data suggests some softening of prices.



Source: Bloomberg

The forward curve for tin shows easing fundamentals; this is replicated by the rising supply of tin and material flowing into China. This has been replicated in the LME spreads as well, cash to 3 months trades at $415/t at the time of writing, spreads in the coming months are considerably less backwardated with June to 3-month stands at $98.33/t, with 3-month to August 2022 at $46.67/t.

The forward curve for tin shows easing fundamentals; this is replicated by the rising supply of tin and material flowing into China.

While the supply side is improving, we expect these spreads to tighten and would favour owning these tin spreads. The arb window is still open and we anticipate seeing more refined imports this year into China. The longer term supply trend suggests that AfriTin are expanding its production by 9,000 tonnes in concentrate in its phase 2 expansion, helping to reduce the deficit. LME trading conditions are tricky, and open interest and cumulative volumes have declined for years. Open interest in the tin market recovered marginally in H2 2021 but has since weakened; volumes continue to weaken. Bid/Ask spreads for the 3- month price have widened considerably in recent months, as commodities liquidity continues to trouble trading. Liquidity is poor; funds have reduced their exposure to tin and hold 1,108 contracts, considerably below their net length of 2,400 contracts at the end of 2021. We expect sentiment to continue to weaken as the supply side improves and consumer products demand declines.

Zinc

LME Zinc 3MO ($)

Sentiment

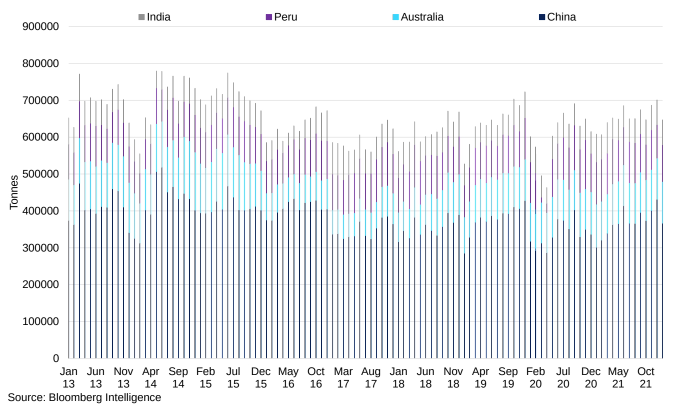
China Easing Lockdown	Supply Risk Europe	Poor China Data	Demand Ex-China
↑	↑	↓	↑

Q1 Review: Sustained volatility, geopolitical risk, systemic risk and counterparty risk all poked their head above the parapet in Q1. Causing significant price rises for all base metals but especially zinc due to the higher gas prices and curtailment of gas imports from Russia. Europe's energy crisis was compounded, and we saw further capacity curtailment, causing zinc prices to rally 18.9%, surging through our upside target as fundamentals continued to change. SHFE zinc prices gained 11.6%, and the LME arbitrage widened. Energy costs continue to rise, and the LME inventories declined significantly, tightening spreads, giving rise to 3-month prices from $4,000/t to $4,433.50/t at the time of writing.

Outlook: Mine production for zinc declined in January to 90,833 tonnes, down from 107,612 in December. The general trend continues to be on the downside, with production peaking at 121,722 tonnes. The supply-side trend of increasing community involvement and higher environmental regulations suggests we could see volatile supply in Peru in the coming years as miners are under more scrutiny. One way to mitigate this risk is by improving the usage of scrap. The latest mine data from Australia outlines that monthly production held steady in December at 111,656.5, marginally higher than 111,157 tonnes. China's output recovered strongly in 2021, reaching 431,203 tonnes in December. This was marginally higher than November's figure of 400,812 tonnes. Mine production should continue to rebound globally; however, output in China will suffer due to CNY and the lockdowns, which will reduce the flow of material and the movement of workers. As we move through the lockdowns in China, our material availability will improve; this compliments the ramp-up in production we will see from Gamsberg North and Rampura from Vedanta as they have pledged more investment to expand the mines. This should double ore production to 8m tonnes per year, with VZI aiming to produce 500,000 tonnes of zinc concentrate annually. With zinc prices above $4,000/t, there is a significant incentive to make material, with full sustaining costs including royalties at $2,348.2/t and total cash costs at $1,861.24/t; however, the costs have risen marginally due to higher oil and electricity prices. This is prevalent in Europe, where capacity has been taken offline due to the energy crisis, which was compounded by the war. This is exemplified by low European inventory levels and record physical premiums in Europe.

Zinc Mine Supply From Major Producers

Chinese mine production has increased as has Australia's, investment in mine supply will improve capacity in South Africa.



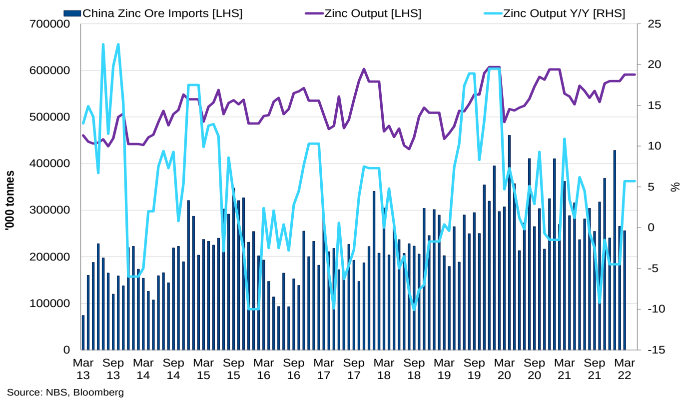
We have seen imports of refined zinc starting to increase, as imports of zinc ore have been declining in recent months from 428,366 in January to 255,865 in March. Imports from Australia have been falling from January at 148,526 tonnes to March, which recorded 53,603 tonnes; the issue within the market is not mine production but is smelter output.

The import loss of zinc concentrate is expanding, which has led imports to decline in recent months. We anticipate imports will remain low in the near term as demand from smelters is poor and there is substantial import loss. Zinc ore concentrate inventories are low at Lianyungang and have decreased in recent months; the moderate increase in the week to April 22nd was the easing of lockdowns and pre-orders. The higher amounts of China concentrate production have declined with monthly output at 25% and have failed to recover after the Chinese New Year due to COVID lockdowns. Their zero-tolerance policy has continually hit production, and the transportation of goods operating rates for zinc concentrate producers was 54.7% in March, and we expect them to push higher in the near term as the economy comes out of lockdown and re-opens. This will improve the availability of zinc in China; imports of refined zinc have declined in recent years from around 60,000 tonnes in 2020 to 21,343 tonnes in March 2022, and refined zinc exports have declined from January's level at 10,705 but is at 2,830 tonnes as the arb window is currently closed.

Mine supply has remained constant; however, the bottlenecks have been seen at smelters, particularly in Europe.

China Refined Zinc Output vs Zinc Ore Imports vs China Refined Zinc Output Y/Y

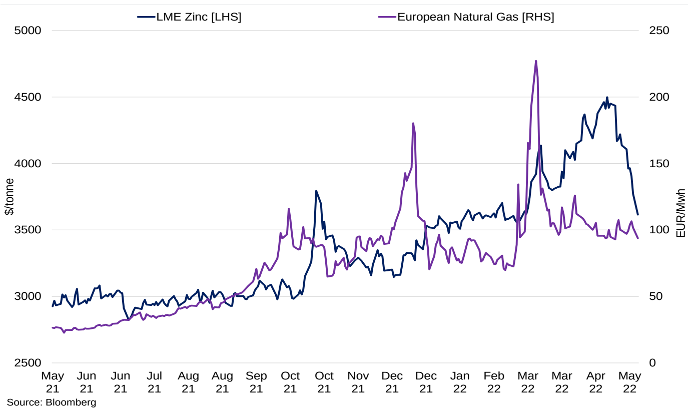
Chinese output has started to grow on a Y/Y basis but ore imports have declined due to import losses.



China's zinc output has remained high despite the poor processing of ore and concentrate; March's production was 591,000 tonnes, up 5.7% Y/Y, up from 577,000 tonnes in December. According to SMM, zinc output was 501,300 tonnes, up 0.9% Y/Y, up 42,900 tonnes, and production in Q1 2022 was 1.477m tonnes, down 2.19% Y/Y.

European Gas Prices Vs LME 3-month Zinc

Russia has cut of Germany's gas supply, there is still supply risk in Europe. Zinc prices still have upside as smelter profitability is low.

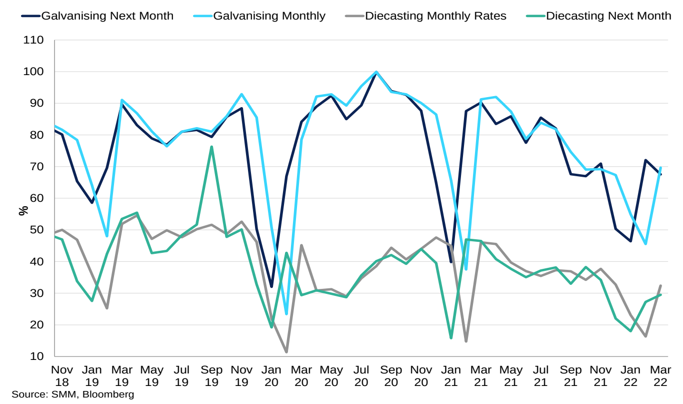


We expect production to improve in the coming months as smelters resume output after April. Small and medium producers will continue to struggle due to higher input prices such as energy, and maintenance will essentially end in May. This will improve the availability of zinc in China, but European premiums will continue to push higher as the availability of zinc remains tight. China's import ingot premium in Shanghai is now at a discount of CNY-20/t and China's zinc ingot grade 1 premium in Shanghai is at a CNY-60/t discount; this outlines the weakness in demand and the lack of transportation of zinc products. The zinc bill of lading Shanghai premium has held steady at $80/t in the first three months of the year, and the warrant premium is also flat at $90/t. The low premium environment is attributed to China's high exchange prices and reduced demand. Downstream stakeholders are tentative about purchasing material at such high prices due to a weaker demand outlook, and they are likely to reduce their inventory days of consumption

Imported zinc concentrate TCs have increased to RMB1,574.35/t as of May 1st, and domestic TCs are higher at RMB3,650/t for the same period, which is marginally lower than the week before. TCs in Hunan is higher at RMB3,900/t, with Guangxi marginally lower at RMB3,850/t. In recent months, domestic TCs have been declining after peaking in August 2021 at $4,250/t. Imported TCs have done the opposite in recent months, rallying to $180/t as 1 April. Zinc concentrate availability will improve, but the issue is refined production and bottlenecks at smelters. European gas prices have subsided, but zinc prices have remained firm due to the low inventory environment; power prices in Europe are still high, and this will keep output low.

Zinc Galvanising and Die Casting Operating Rates

Both rates have increased in recent months but are still low on historical levels.



Low premiums continue to indicate weak demand in China from the demand side. While the PBOC has committed to more monetary easing and supporting the real economy, it may support the market in the medium term. However, end-user demand is currently low, and prices are keeping orders for alloy ingots low; diecasting operation rates have marginally improved to 32.4% in March, and we expect rates to remain lower due to lockdown, operating rates have been down for months, and the highest rates have been 45% in the last year. Galvanizers' raw material days of inventory have been declining and stand at 5- days, and operating rates for galvanisers have been declining in recent months. Operating rates did increase in March to 69.95%, but the operating rates for April are set to decrease to 67.53%. European hot-dipped galvanised steel prices have weakened from the high of €2,000/t to €1,450/t. European construction is still expanding at a slower rate, with the PMI at 52.8, down from 56.31; construction confidence has plateaued in recent months, with the reading at 7.6. China's construction data is on the backfoot, but imported galvanised steel sheet prices have plateaued to $1,180/t. In March, the construction PMI has improved to 52.69, up from 40.08 the month before. We expect the construction index to remain strong in the near term as China's economy comes out of lockdown and the PBOC increases stimulus; however, Chinese data is expected to remain on the back foot as end- user demand is weak. Steel demand from the auto sector is improving as this sector starts to recover. European production is still at low levels, with EU industrial production and manufacturing for autos improving to 55 in February, but historically, it is still at low levels.

EU registrations improved in March at 844,187 units, up from 719,000 units in February, with Western Europe at 1.024m units. Production of passenger auto in China reached 1.8m units in March, and 1.246m units in the U.S. Steel is still the base for autos and is responsible for 54-63% of the car weight; however, this trend is declining.

Iron Ore & Steel

1st Generic SGX 62% Fe

Source: Bloomberg, 30.05.2022

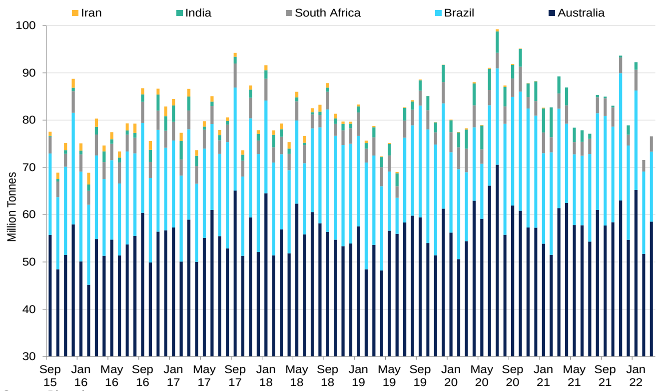
Sentiment

Rising Key Mill Stocks	China Lockdown Easing	Poor China Data	Seaborne Premiums

Q1 Recap: Iron ore prices maintained their strength in Q1. We had expected prices to struggle above $140/t, but the SGX 62% Fe 1st generic price was supported at $140/t and struggled above $160/t. Despite the weakness in the Chinese economy due to the Covid zero tolerance, and the blue skies initiative, prices remain high; the announcement by the government that they will boost infrastructure investment will come as a boon to iron ore prices. Coal prices in China are high; this will keep costs for steel elevated. Chinese economic data has been soft in 2022, but expansionary monetary policy kept sentiment positive. Negative import margins for seaborne iron ore widened over Q1, weakening spot demand and contributing to softer imports.

China Top 5 Iron Ore Importers

Imports declined sharply in Q1 2022 due to logistics and import losses but are starting to show signs of recovery.



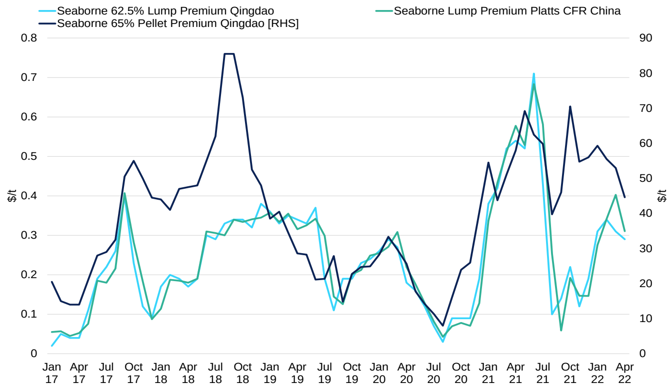
Source: Bloomberg

Outlook: The iron ore market has been pulled and pushed by multiple factors such as weak shipments from significant miners, steel controls, and poor China demand. The former was highlighted by China's customs data showing February imports declining by 81.3m tonnes. This is significantly below 99.79m tonnes in January. In addition, import losses for seaborne iron ore have been expanding. This has reduced the propensity to import, especially with iron ore demand weaker due to production curbs and a slow economy.

Australian customs data shows iron ore exports to China at 50.2m tonnes in February, down from 59.39m tonnes for January; this is seasonally weak and traditionally rebounds strongly in March; however, the import loss, lockdown, and weak demand will cap imports. As the supply of vessels improves, we expect shipments to improve; according to SMM, arrivals at major ports in China reached 12.25m tonnes on 24 April. We expect arrivals from Australia and Brazil to improve in line with steel blast furnace operating rates, enhancing iron ore purchases. Brazil's iron ore exports to China declined in March, and customs data suggest shipments of 14.81m tonnes down from 17.419m tonnes. March data was down from 21.02m tonnes Y/Y, and the decline can be attributed to lockdowns and port congestion. The slowdown in arrivals has triggered inventories at Chinese ports to decline to 149m tonnes. However, the lack of transportation during lockdown could have seen steel mills reduce lists, which could prompt restocking as flows return to normal.

Seaborne Lump Premium Qingdao vs Pellet Premium Qingdao vs Lump Premium CFR China

Premiums declined in recent months as demand for seaborn products wavered.

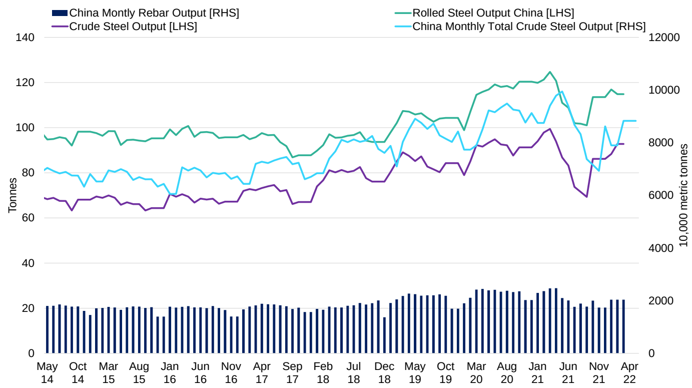


Source: Mysteel, Platts

Stimulus promises from China will improve steel demand and, in turn, iron ore demand; this will question China's environmental rhetoric and restrictions. China will implement a zero provisional import tax rate on coal from 1 May to March 2023, which will improve the availability of coal, reducing costs for steel. After the procurement cost of coking coal increased 72% Y/Y in Q1 2022, metallurgical coke procurement was up 20.3% Y/Y, with iron ore down by 15.8% Y/Y and import fines down by 23.93% Y/Y. In March, the domestic iron ore concentrate purchase cost was up 4.27% M/M at 912.07yuan/t, and the cumulative average purchase costs in Q1 were 878.9yuan/t down 165.97yuan/t. The weighted average purchase costs of imported fines gained 3.97% M/M to 893.78yuan/t, and the cumulative average was 842.44yuan/t. China's iron ore output has increased on a Y/Y basis by 8.6% as import flows have been weaker, and the seasonal increase is expected to continue in the coming months. Output reached 94.76m tonnes in March, which is the highest production since 2018, according to the NBS. This increase is a significant change in rhetoric previously, we saw China import high-quality fines as shipping rates were low, and they required less coal. Import premiums for seaborne iron ore have been declining in recent months, narrowing the spread between 62.5% lump premiums Qingdao and lump premium Platts CFR have declined. The spread between Australian 62% Fe and Brazilian 65% Fe has widened marginally and has oscillated around $20/t.

CISA Average Steel Output vs Average Crude Steel Output vs Steel Inventory at Key Mills

Inventory has continued to increase at key still mills as production is also rising across China, into a weak demand backdrop.

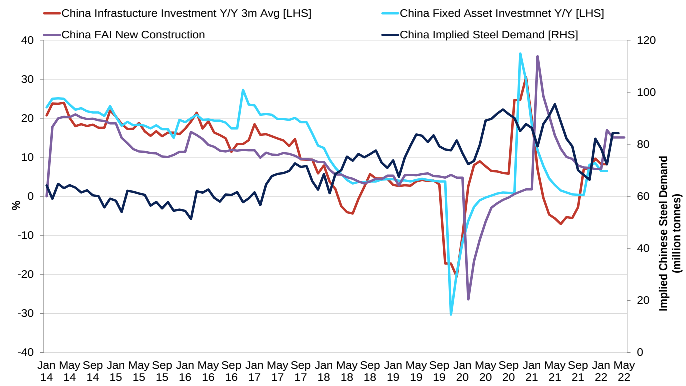


Source: Antaike Information Development, National Bureau of Statistics

According to the China Iron and Steel Association (CISA), actual steel demand fell 5% in Q1 Y/Y, with steel consumption in construction down by 7% and manufacturing down 2%. Fitch Ratings indicate that steel and cement production declined by 10.5% and 12.5%, respectively, Y/Y. According to CISA, the daily average crude steel output increased in March and April; as of 20 April, output reached 2.88m tonnes, up from 2.5m tonnes. The CISA show that the estimated domestic daily average steel output was 3.76m tonnes on 20 April 2022. This has caused steel inventory of key steel mills to reach 19.667m tonnes as of 20 April, and inventories started the year at 11.21m tonnes. This exemplifies weak demand, logistical issues, and sustained production levels in China despite the lockdowns, steel production curbs and economic weakness. Crude steel production has improved following the output curbs; 88.3 m tonnes were produced in March, up from 74.96m tonnes in February. We expect steel production to continue strengthening in Q2 as the government promotes economic growth and reverts to infrastructure expenditure. The U.S. steel demand has improved as construction and manufacturing in the U.S. continue to expand. The stimulus from Biden will continue to provide support for steel as they look to mandate using American steel in infrastructure projects. However, steel consumption in the U.S. has oscillated between 100m and 120m tonnes a year; China's implied consumption reached 84.37m tonnes in March. In recent months, U.S steel prices have pushed higher to $1,480/t for North American HRC spot ex-works.

China Investment vs Implied Steel Demand

Investment indicators are weak have started to rise in unison with implied steel demand.



Source: NBS, CEIC,Bloomberg

The daily average crude steel output has been improving but inventory at steel mills has increased significantly due to poor transportation and weak demand.

Chinese infrastructure investment growth has been declining on a Y/Y basis since 2017 as the economy looks to shift to a consumer-led economy. However, consumer expenditure is weak, especially after COVID-19 lockdowns; retail sales declined by 3.5% Y/Y in March, but YTD Y/Y sales stand at 3.3% Y/Y. Railway expenditure and infrastructure approval increased in March. As China comes out of the latest waves of lockdowns, the government will increase spending on the infrastructure projects such as railways, airports, and highways. The property sector remains weak, which will remain the case, presenting a downside to steel demand in China, but positive for emission restrictions. Chinese fixed asset investment, whilst still in growth, has started to improve by 9.67% in April. For 2022, we expected Chinese demand to be flat in 2021, due to the stimulus promised by Beijing. If this does not materialise, we anticipate demand will be 2% weaker. Due to inflation, market uncertainty and monetary tightening, global steel demand will face headwinds, especially in emerging markets. According to World Steel Association, India is anticipated to post strong steel demand growth at 7.5% due to infrastructure, construction, and manufacturing growth.

Gold

Spot Gold $/Oz

Source: Bloomberg, 30.05.2022

Sentiment

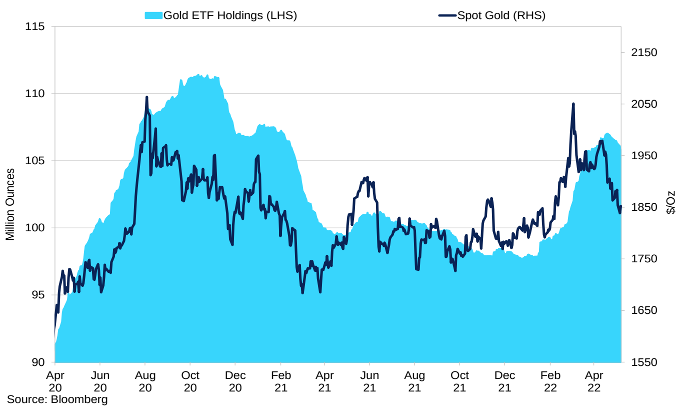
Tighter Monetary Policy	Stronger Dollar	Peak in Inflation	Softer Jewellery

Q1 Review: Spot gold rallied to pandemic highs of $2,050/t as investors flocked to safe havens in response to the crisis in Ukraine. Geopolitical tensions have only subsided marginally; however, gold prices erased all previous gains, falling by 6% since the peak to close the quarter at $1,940/oz. In April, investor sentiment shifted to the impacts of growing commodity prices and, in turn, inflation. US inflation hit the highest rate since 1981.As a result, gold as an inflation hedge gained footing, evident with prices closely following the difference between nominal and real 10yr Treasury yields, a gauge of inflation. Indeed, the relationship became so pronounced that even rallying nominal yields in early April did not result in the gold's softness, given their historical inverse relationship. ETF holdings outperformed, growing by 8.052moz during the first quarter and matched levels last seen in February 2021, when the gold price was $1,950/oz. However, as the Fed's sentiment became more hawkish and markets began to price in the inflation to peak, gold's appeal as a non-yielding asset began to lose steam and is trading at $1,890/oz as of 5 May.

Outlook: The crisis in Ukraine increased global economic uncertainty, causing commodities to rally. Gold was no exception; in combination with its safe-haven properties, the metal rallied 8.5% to its peak of $2,050/oz from the end of February. While dollar-denominated prices did not breach the 2020 highs, in euro-terms gold has performed well, reaching a record high as it strengthened to EUR1,900/oz levels. Indeed, the ECB decided to keep its plans for a gradual easing of asset purchases, and while it brought the date of the first-rate hike forward into July, it is still months behind the Fed. Therefore, the story in Europe is seen diverging from the US; with elevated oil prices following the embargo, we should see elevated inflation in Europe for longer, keeping the euro-denominated metal lifted in comparison to the US dollar. After the Ukraine conflict increased economic uncertainty, we saw a global inflation rally, driven in large by the spike in energy prices. In Europe, where the energy crisis became more acute, energy prices grew more than 44% in March. That gave the metal a boost following the recovery from the Ukraine-driven spike driven by its safe- haven properties.

Total Gold ETF Holdings vs Spot Gold

Gold ETF holdings reached pandemic levels in line with the price performance seen during the quarter.

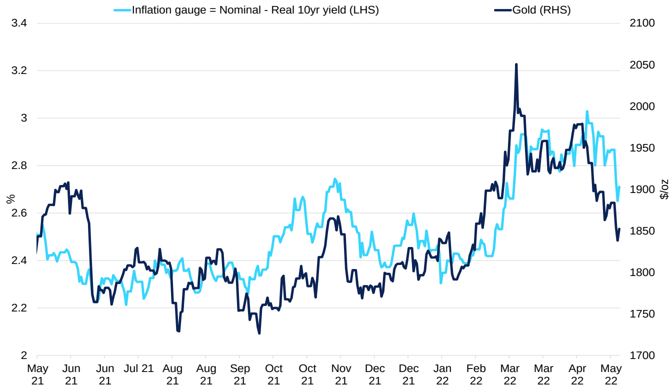


Source: Bloomberg

Elevated inflation was reinforcing gold, but attention shifted away as soon as the Fed began to tilt its outlook to aggressively hawkish. Indeed, now, central banks are in the midst of tapering bond-buying as a means of reducing support for a recovering economy, which presented some downside risks to gold. In the US, real rates turned positive for the first time in two years, a sign that investors believe the Federal Reserve can raise interest rates to cool inflation without severely hurting the economy. With the rate hikes all but guaranteed in June and highly likely in July, too, this has supported the US dollar and made gold a much less attractive asset to hold given its lack of yield. Indeed, now, central banks are in the midst of tapering bond-buying as a means of reducing support for a recovering economy, which presented some downside risks to gold.

Inflation Gauge vs Gold Spot

The relationship between inflation and gold price diverged following the growing hawkishness from the Fed.

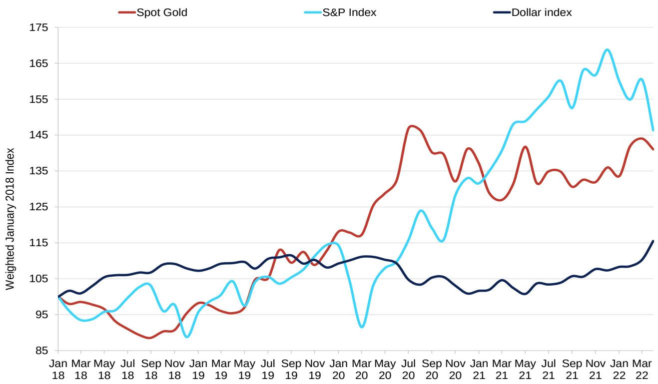


Source: Bloomberg

We are seeing increasing sentiment in the markets that the inflation will peak soon and aggressive monetary policy hikes are likely to remain until the end of the quarter, creating marginal headwinds for gold. Indeed, while inflation is still strong year-on-year, the markets are already pricing moderation in price pressures month-on-month and more pronounced softness in H2 2022. The ECB has not yet confirmed the timing of the first rate hike, but policymakers' comments suggest this would take place in June, causing inflation to run loose in the meantime. We expect the decline in gold prices to stall given markets pricing in softer inflation growth and little concrete changes to the geopolitical front. Indeed, real yields are increasing faster than nominal in the US. Therefore, the main factor driving increased bond yields in the last couple of months was supply and demand, and inflation expectations are already growing at a slower pace.

Gold vs Dollar vs S&P 500

Gold prices weakened in the latter part of April, whilst dollar performance excelled, rallying to 2002 highs.



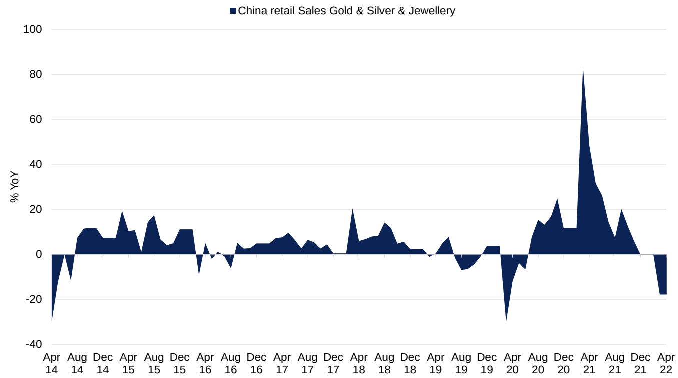
Source: Bloomberg

Alternatives to gold become even more apparent, given the S&P 500 to gold ratio remained the same despite both falling in recent weeks. As of 6 May, the level remains around the 2.2-2.3 range. With increasing interest rates in the US, the dollar still has more upside, further eating away the appetite for other assets. However, the ratio remains historically high, suggesting that gold is not yet seen as an alternative to equities. Gold's inability to benefit from falling stock markets reflects how difficult it will be for the yellow metal to make significant gains given the interest rate outlook outlined by the Federal Reserve. In Q2, we expect the policymakers to tighten aggressively, in line with the hikes we have seen in May. However, later in the year, the central bank is likely to slow the scale and timing of the hikes as it begins to consider the overall economic performance.

Central bank buying increased by 84t in Q1, double the previous quarter, benefitting from gold's performance during the time of crisis. This figure is still down 29% y/y as it continues to recover, with most of the buying concentrated in emerging markets. Notably, the most significant announcement came in February when the Russian central bank announced that it would resume buying gold from domestic producers following the introduction of sanctions. In 2020, the CB suspended its gold purchases, and since then, its gold reserves have remained largely unchanged, holding just under 2,300t of gold (21% of total reserves) at the end of January, according to WGC. We see a continuation of net central bank buying in 2022, albeit at a lower level than last year.

China Retail Sales of Gold & Silver & Jewellery YoY

Even before the implementation of pandemic measures in China, jewellery sales declined significantly and are likely to fall to 2020 levels in April.

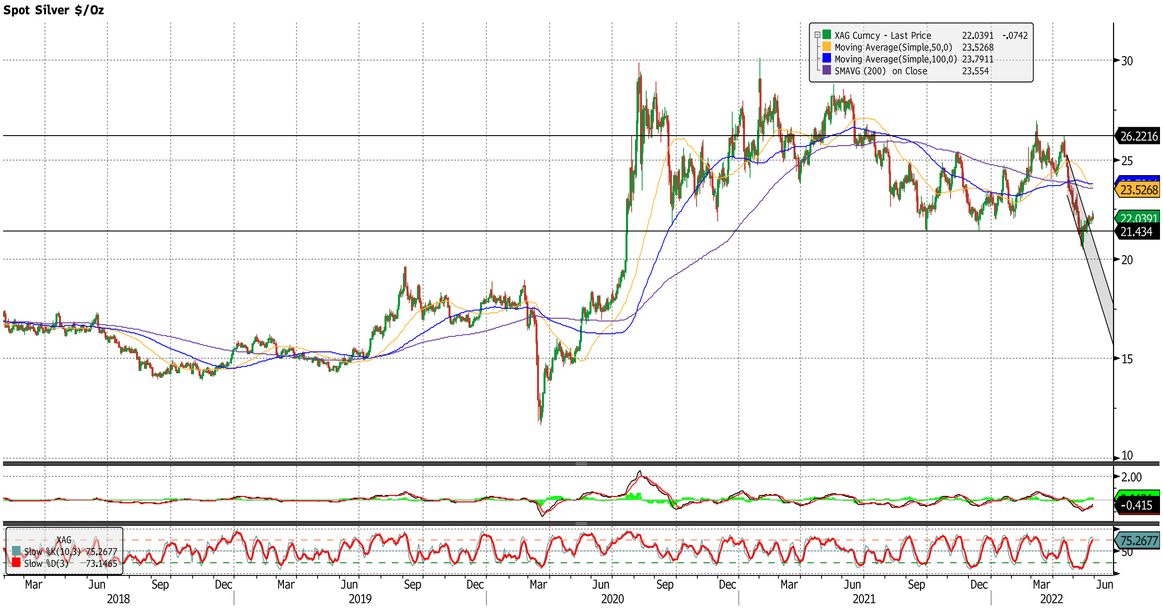


Source: National Bureau of Statistics of China

Jewellery consumption lost momentum in Q1, with demand falling 7% y/y at 474t, primarily due to softer demand in China and India; excluding those two markets, demand was 7% higher y/y. In particular, Chinese gold jewellery demand fell by 8% to 178t. Given the circumstances, Q1 performance was relatively robust, performing above the 5-year average of 154t for the first quarter. But the year-on-year decline was driven by high domestic gold prices and a very strong base period in Q1 2021. Looking ahead, the prospects for the quarter ahead are muted. The usual seasonal decline in the second quarter is likely to be exaggerated by the negative impact of continued lockdown restrictions in China. The Indian market, however, seemed insulated from high gold prices, as its local price traded at a discount to the international spot. The large discount may have been a reaction to low consumer demand from jewellers trying to draw in sales. Gold imports into India have stayed relatively consistent at between 2.5 and 3.0moz per month since September 2021.

Silver

Spot Silver $/Oz



Source: Bloomberg, 30.05.2022

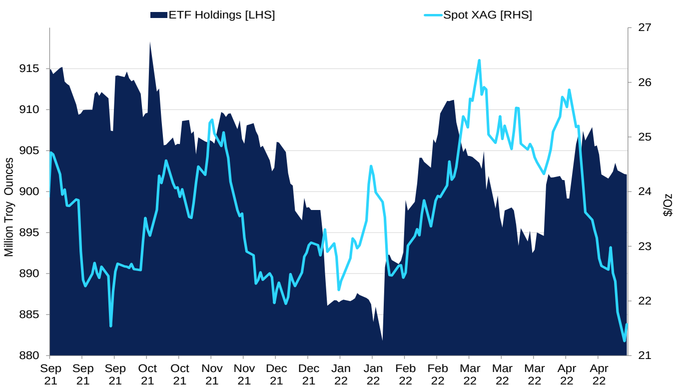
Sentiment

Tighter Monetary Policy	Softer Industrial Demand	Softer Solar Outlook	Softer Jewellery

Q1 Review: The worsening geopolitical conditions urged precious metals to rally in Q1. Indeed, despite fewer safe-haven qualities compared to gold, the metal jumped 18% from the start of the quarter to its peak of $25/oz vs 14% by its gold counterpart, given its more volatile nature. Indeed, as the panic buying took hold, investors urged to commodities with safe-haven properties. However, in April, with China's lockdown conditions in full force, we saw silver erase most of its gains made this year, as it now trades at $22.90/oz. With 50% of the metal's demand coming from industrial uses, the near-complete shutdown of economic performance in China has driven the decline in industrial sentiment. Indeed, net length has softened, but only marginally, down to 41,28 contracts as of early May, down from the peak of 48,467 in mid-March. ETF remained broadly unchanged, in line with the quarter average, suggesting most of the price declines were led by industrial uses.

Silver Total ETF Holdings vs Silver Spot

The decline in spot prices is disproportionate to the ETF participation in recent weeks.



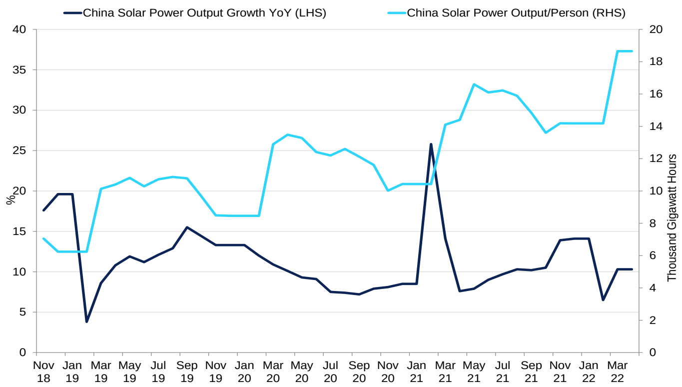
Source: Bloomberg

Outlook: Growing inflationary pressures gave precious metals a boost in the latter part of Q1 after their performance calmed following the spike in geopolitical tensions. However, once the Fed's hawkish tilt became evident, investors shifted their attention to treasury yields and the dollar, both of which continue to remain elevated. Indeed, in the first week of May, the Fed hiked the interest rates for the second time this year by 50bps, the steepest increase since 2000, and we are likely to see further rate hikes in June, and possibly, July of the same scale. With other economies either yet to begin the hiking cycle or now slowing the pace of the tightening, the focus has shifted to the US, which remained more isolated from the consequences of the crisis in Ukraine and shows stronger economic performance despite rising inflation. Indeed, despite inflation remaining at multi-decade highs, the markets are pricing in inflation to peak and decelerate its growth month-on-month and potential technical recession in Europe, which is conducive to lower overall demand for the metal. Moreover, with China yet to remove lockdown restrictions or introduce a set of concrete policy measures, silver demand remains on the downside, more so than for gold. The gold to silver ratio remained within range in Q1, as both metals moved in unison; however, we expect the divergence to widen, with silver seeing stronger downside pressures than gold.

With US markets pricing in six rate hikes this year alone, medium-term demand for silver should be on the downside. Indeed, a low-interest-rate environment has been prevalent since the Financial Crisis. Combined with low energy costs and an abundance of government subsidies, PV renewable capacity saw an incredible boost in its expansion in the early 2010s. However, the gradual pullback in government support, coupled with rising interest rates, could slow that potential, at least in the meantime. This could be especially prevalent this year, as economies that suffered the loss of energy imports from Russia are searching to find energy alternatives, which are likely to come in the form of fossil fuels.

China Solar Output Growth vs Power Output/Person

Solar power output remains lacklustre, and with the US similar downside momentum, global forecast is likely to deteriorate further.



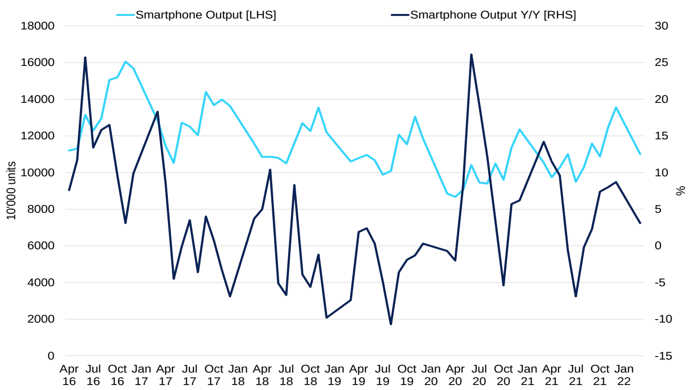
Source: Bloomberg

Moreover, US solar industry is warning about a slowdown in installations this year as global supply chain disruptions and the threat of the US tariffs on panel imports from Southeast Asia hit home. Indeed, following the US Commerce Department's trade probe into alleged tariff avoidance by Chinese panel makers, the US could impose tariffs on all four Southeast Asian nations that account for about 80% of the country's imports. Some companies are already stating that nearly 1GW of planner projects will be delayed this year; that is enough capacity to power nearly 190,000 homes. While this investigation is to go on until the summer months, this has brought uncertainty to the solar market outlook. According to the SEIA, solar installation forecasts for this year and next year are already down by 46%, due to the threat of new tariffs. More than 315 projects are already being cancelled or delayed. In Europe, the impacts of the geopolitical crisis are more evident in the longer term. The Potsdam Institute for Climate Impact Research and ETH Zurich calculate that this could result in 482 GW less renewable capacity being installed by 2030 in Europe, down to 610 GW from 1,092 GW. Photovoltaic capacity accounts for approximately 237 GW of that reduction. Photovoltaic silver demand is estimated to have been around 120moz last year, roughly 9% of total demand.

US solar installations should slow this year as global supply chain disruptions as well as the threat of the US tariffs on imports from Southeast Asia worsen the outlook.

China Smartphone Output vs Y/Y Change

Both the absolute and relative performance are showing significant declines in the first quarter of the year.



Source: NBS

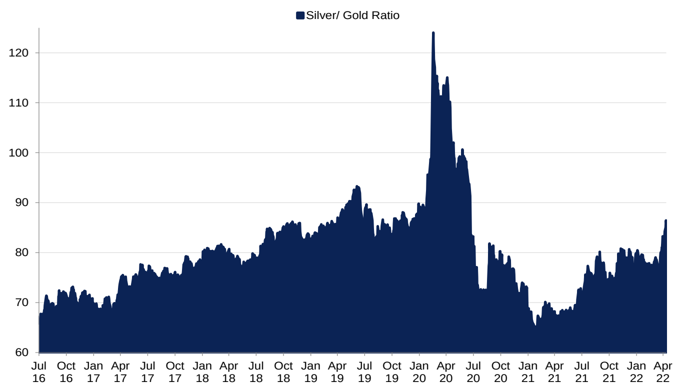
Moreover, near term consumer electronics demand for silver is facing further headwinds. After dipping in 2020, silver electrical and electronics demand experienced growth of 10% in 2021 to around 335moz, over 25% of total global silver consumption. The growth of this market segment will continue this year and could exceed 350moz if the broader economic impacts of the conflict in Ukraine are not too severe or long-lasting. However, February's data for shipments of smartphones within China already show a fall of 32% y/y, down 8m units. The decline is attributed to a combination of unexpected and sporadic factory shutdowns owing to Covid outbreaks. Furthermore, inflation could squeeze disposable incomes, and rising costs could slow sales growth in Q2.

US Mint Silver American Eagle Q1 sales were down 37% y/y at 7.6moz, compared to more than 12moz the year before. Despite this, premiums on US Mint Silver Eagle coins have increased nearly 50% across large silver dealers, suggesting there was strong demand for coins relative to supply. In line with gold, silver jewellery sales slowed in Q1, driven primarily by declines in China, with Indian demand also on the downside. In April, the toughest lockdown conditions were introduced, and we expect the sales at Chinese retailers have deteriorated significantly. With India's covid outbreak behind and silver prices at February lows, the consumers might benefit from lower prices. Although jewellery demand continued to hold above the pandemic levels in 2020, it is yet to recover to pre-pandemic levels.

From the supply side, Russian output is 5% of total mined silver. Commodity exports from Russia have not been sanctioned, but it is possible that the silver exports could be indirectly impacted to some extent, as flights to Europe have been stopped and companies have been cutting links to Russia, creating the ban inadvertently. However, the loss of some silver exports would not have much impact on the market as the major trading centres are unaffected and have significant stocks. The LBMA reported 35,533t of silver bullion vaulted in London in January. Russian silver output in 2020 was 42.5kt, according to the Silver Institute.

Gold to Silver Ratio

The ratio has been mostly intact in Q1, however, we expect the divergence to widen in Q2.



Source: Bloomberg

Palladium

Spot Palladium
$/Oz

Sentiment

Softer Auto Market	Softer Industrial Demand	Supply from Russia	Supply Chain Bottlenecks
↓	↓	↑	↑

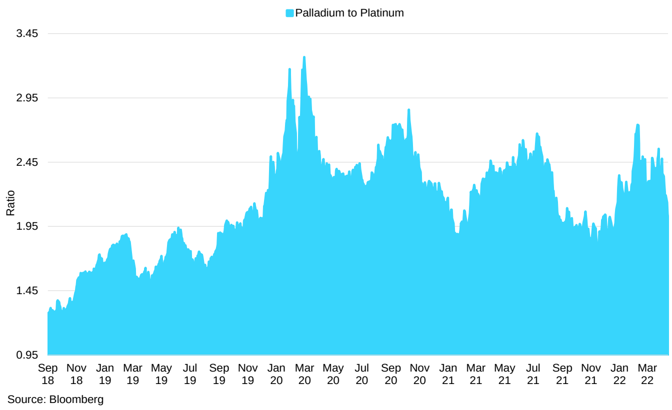
Q1 Review: Palladium prices outperformed other metals this quarter, as the metal shot up to record highs of $3,440/oz after sanctions on Russia, which controls 40% of the global output, brought the supply side into question. However, as time went on, uncertainty diminished, and so have the prices. The fact prices have returned to pre-invasion levels suggests markets have priced in risks to be less impactful on the metal availability than previously thought. Indeed, the spike in palladium took place two weeks following the invasion, as end-users bought to ensure their supply ahead of the sanctions. This would explain the limited increase in ETFs, suggesting relative lower participation of the funds. Recently, the palladium spread flipped into contango for the first time since Feb, suggesting ample supply conditions from Russia. The likelihood is that the metal will continue to reach the market, although capacity has diminished.

Outlook: S&P Global Mobility slashed its 2022 global car production projections by 2.6m for 2022 and 2023, to 81.6m and 88.5m units, respectively. In Europe, the forecast has been downgraded by 1.7m, down by 14%. The largest portion of the shortfall is lost demand in Russia and Ukraine. Of that number, 700,000 lost units result from continuing semiconductor supply issues combined with the need to find alternative sources for Ukrainian-made wiring harnesses for European OEMs. This forecast loss to production numbers could result in a reduction of around 250koz in global palladium demand in 2022. This has caused some car plants to be temporarily shut down, affecting both the internal combustion engine and battery electric vehicle production. The wiring harness market is more globally diversified and less capital-intensive than the automotive chip market.

While Western European auto production has had its bounce-back dampened, the region's PGM demand is forecast to grow by 7% year on year, surpassing 1.3moz of palladium in 2022 as the semiconductor chip shortage is expected to be mostly overcome later this year. Taking the impact of the Ukraine conflict into account, markets are predicted to have small surpluses this year. However, the chip shortage could worsen as 50% of the neon supply (used in chip fabrication) comes from Ukrainian suppliers that are now non- operational, and Covid-related lockdowns continue in chip fabrication hubs in China. That puts automotive palladium demand at risk of weakening further.

Palladium to Platinum Cross

The The ratio has softened somewhat following the crisis in Ukraine, however, still remains historically high.



With palladium supply already under significant pressure due to strong auto demand and diminishing inventories, the bound of waves of sanctions on Russia meant that the supply outlook was brought into question. In particular, London Platinum & Palladium Market suspended two state-owned Russian refiners from delivering its goods, followed by suspension of warrant and delivery status until further notice. This has added to market concerns about supply and fuelled the price to the upside, as two exchanges represent large trading markets for both metals. As a result, the palladium market should remain in tighter conditions relative to platinum, with Russia's restrictions adding uncertainty to the supply side. However, with the auto market outlook set to remain muted until later in the year, as supply chain bottlenecks ease, we expect palladium price performance to be capped on the upside.

With palladium supply already under significant pressure, the bound of waves of sanctions on Russia meant that the supply outlook was brought into question.

Platinum

Spot Platinum $/Oz

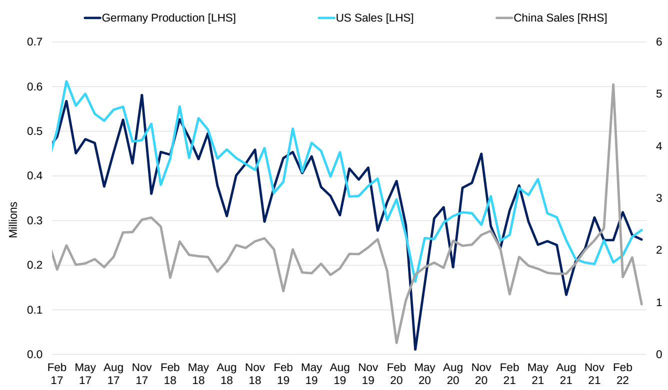
Sentiment

Softer Auto Market	Softer Industrial Demand	Supply from Russia	Supply Chain Bottlenecks

Q1 Review: Platinum rallied during the quarter, gaining as much as 26% to find resistance at $1,180/oz. Prices have since fallen but struggled to break below $900/oz at the time of writing. ETF holdings, however, weakened substantially, falling to 3.410m, levels not seen since August 2020. More so, the net position is about to flip into negative territory, something not seen since the beginning of this year. Light vehicle production recovered somewhat across the major sellers, such as the US, Europe and China, in Q1. However, chip shortage issues are set to persist into the H2 2022, stalling lead times in the meantime. Indeed, increased production of vehicles does not seem to directly translate into higher vehicle sales; while demand remains strong, extended lead times mean that supply is tight.

US, Germany, and China Passenger Vehicle Market

Europe and China are to be particularly impacted by the result of geopolitical tensions and lockdown conditions, US vehicle sales are seen recovering.



Source: CAAM, VDA, Marklines

Outlook: The slowdown of the Chinese jewellery market is expected to continue this year by another 5% as Chinese economic growth eases further, according to Heraeus. Demand increases in Japan and India should partially offset this, but overall global demand is forecast to dip by 2% to 1.7moz this year. China is the largest platinum jewellery market at 870koz, accounting for 50% of worldwide demand. However, platinum jewellery demand in China has been contracting for several years and is predicted to slip by 1% this year. If China continues to pursue a zero covid policy, the risk is that continued lockdowns in major industrial and population centres will further reduce demand for jewellery and vehicles

Globally, light-vehicle production numbers have been downgraded from 93m to 91m for 2023. This downgrade could be explained by the consequences of the crisis in Ukraine and its consequences on the global supply chain disruptions. While the bulk of sanctions against Russia has been introduced, further uncertainty surrounding additional bans prevail, and possible production losses in China are skewing the demand to the downside. The biggest bulk of immediate production losses comes from Russia and European plants, impacted by the ongoing semiconductor chip shortage from the situation in Ukraine. If light-vehicle production were to return to 2020 levels of 75m units, this would result in a loss of demand of 1.6moz of palladium, and 570koz of platinum, moving both markets into surpluses. Demand for autos is likely to subside further, urging prices for platinum and palladium to fall, but tightness will prevail given the lack of material.

The divergence in prices, as well as uncertainty surrounding the availability of palladium in the longer term, might be one of the strongest pushes for automakers to switch. This trend began years ago, but manufacturers lacked the incentive to commit. Palladium prices, however, are likely to remain elevated given the deficit. Now, this could push long-term demand for platinum higher.

From the supply side, Russia's influence over platinum is less than over palladium, but data from elsewhere point to muted production for this year. Implats has reduced its guidance for PGM production for its financial year to June this year. The refined platinum output was revised from 1.58-1.64moz to 1.43-1.47moz, given the operational issues suffered at Canada operations. Any build-up in un-smelted material will likely be processed in the second half of the year. Furthermore, after a year of stockpiled material's processing boosted output, a modest decline in refined platinum production from South Africa to 4.4moz is predicted for 2022, according to WPIC.

Appendix

Global
Global Manufacturing PMI 27

Tin
ICDX & LME Tin Price 34

Global

Global Manufacturing PMI

Source: Bloomberg

Date	USA (S&P Global)	China (Caixin)	Eurozone (S&P Global)	Japan (Jibun)	Emerging Markets (S&P Global)
Dec-2018	53.80	49.70	51.40	52.60	50.30
Jan-2019	54.90	48.30	50.50	50.30	49.50
Feb-2019	53.00	49.90	49.30	48.90	50.60
Mar-2019	52.40	50.80	47.50	49.20	51.00
Apr-2019	52.60	50.20	47.90	50.20	50.50
May-2019	50.50	50.20	47.70	49.80	50.40
Jun-2019	50.60	49.40	47.60	49.30	49.90
Jul-2019	50.40	49.90	46.50	49.40	50.10
Aug-2019	50.30	50.40	47.00	49.30	50.40
Sep-2019	51.10	51.40	45.70	48.90	51.00
Oct-2019	51.30	51.70	45.90	48.40	51.00
Nov-2019	52.60	51.80	46.90	48.90	51.10
Dec-2019	52.40	51.50	46.30	48.40	51.00
Jan-2020	51.90	51.10	47.90	48.80	51.00
Feb-2020	50.70	40.30	49.20	47.80	44.60
Mar-2020	48.50	50.10	44.50	44.80	49.00
Apr-2020	36.10	49.40	33.40	41.90	42.70
May-2020	39.80	50.70	39.40	38.40	45.40
Jun-2020	49.80	51.20	47.40	40.10	49.60
Jul-2020	50.90	52.80	51.80	45.20	51.40
Aug-2020	531.00	53.10	51.70	47.20	52.50
Sep-2020	53.20	53.00	53.70	47.70	52.80
Oct-2020	53.40	53.60	54.80	48.70	53.40
Nov-2020	56.70	54.90	53.80	49.00	53.90
Dec-2020	57.10	53.00	55.20	50.00	52.80
Jan-2021	59.20	51.50	54.80	49.80	52.10
Feb-2021	58.60	50.90	57.90	51.40	51.50
Mar-2021	59.10	50.60	62.50	52.70	51.30
Apr-2021	60.60	51.90	63.30	53.60	52.20
May-2021	62.10	52.00	61.30	53.00	52.00
Jun-2021	62.10	51.30	61.40	52.40	51.30
Jul-2021	63.40	50.30	62.80	53.00	50.70
Aug-2021	61.10	49.20	61.40	52.70	49.60
Sep-2021	60.70	50.00	58.60	51.50	50.80
Oct-2021	58.40	50.60	58.30	53.20	51.60
Nov-2021	58.30	49.90	58.40	54.50	51.20
Dec-2021	57.70	50.90	58.00	54.30	51.70
Jan-2022	55.50	49.10	58.70	55.40	50.00
Feb-2022	57.30	50.40	58.20	52.70	50.90
Mar-2022	58.80	49.20	56.50	54.10	49.20
Apr-2022	59.20	48.10	55.50	53.50	48.10
Jan-2022	55.50	49.10	58.70	55.40	50.00
Feb-2022	57.30	50.40	58.20	52.70	50.90
Mar-2022	58.80	49.20	56.50	54.10	49.20
Apr-2022	59.20	48.10	55.50	53.50	48.10

Tin

ICDX & LME Tin Price

Source: LME, ICDX

	ICDX	LME Cash	LME premium to ICDX
01-Mar-19	21790	21710	-80
04-Apr-19	21515	21524	9
02-May-19	19685	19639	-46
03-Jun-19	18770	19350	580
01-Jul-19	18840	18890	50
02-Aug-19	17280	16971	-309
02-Sep-19	15775	16812	1037
01-Oct-19	16030	16228	198
04-Nov-19	16515	16398	-117
04-Dec-19	16750	16772	22
03-Jan-20	17120	16801	-319
04-Feb-20	16250	16337	87
03-Mar-20	16225	16741	516
01-Apr-20	14225	14411	186
04-May-20	14980	15193	213
02-Jun-20	15640	16160	520
01-Jul-20	16825	16857	32
04-Aug-20	17750	17767	17
01-Sep-20	17830	18205	375
01-Oct-20	17380	17254	-126
02-Nov-20	17915	17769	-146
01-Dec-20	19315	18897	-418
07-Jan-21	21880	21310	-570
01-Feb-21	24140	24158	18
01-Mar-21	27780	23739	-4041
01-Apr-21	27760	26678	-1082
03-May-21	32950	28990	-3960
01-Jun-21	33895	30723	-3172
01-Jul-21	34150	31294	-2856
02-Aug-21	35920	34830	-1090
01-Sep-21	35085	33550	-1535
01-Oct-21	37750	33835	-3915
01-Nov-21	40060	36970	-3090
01-Dec-21	41200	39086	-2114
04-Jan-22	40300	39195	-1105
01-Feb-22	43465	43180	-285
01-Mar-22	45700	46035	335
04-Apr-22	44360	44960	600
09-May-22	41150	37348	-3802
04-Apr-22	44360	44960	600
09-May-22	41150	37348	-3802
04-Jan-22	40300	39195	-1105
01-Feb-22	43465	43180	-285
01-Mar-22	45700	46035	335
04-Apr-22	44360	44960	600
09-May-22	41150	37348	-3802

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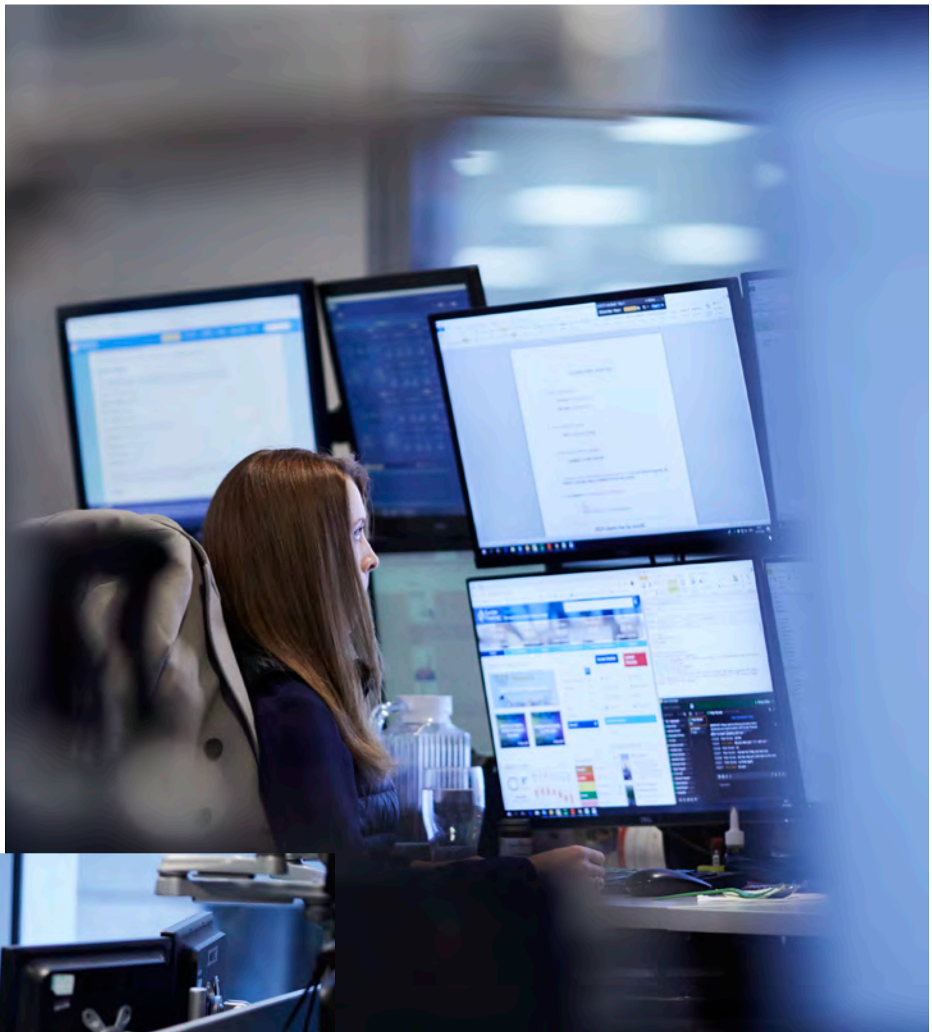

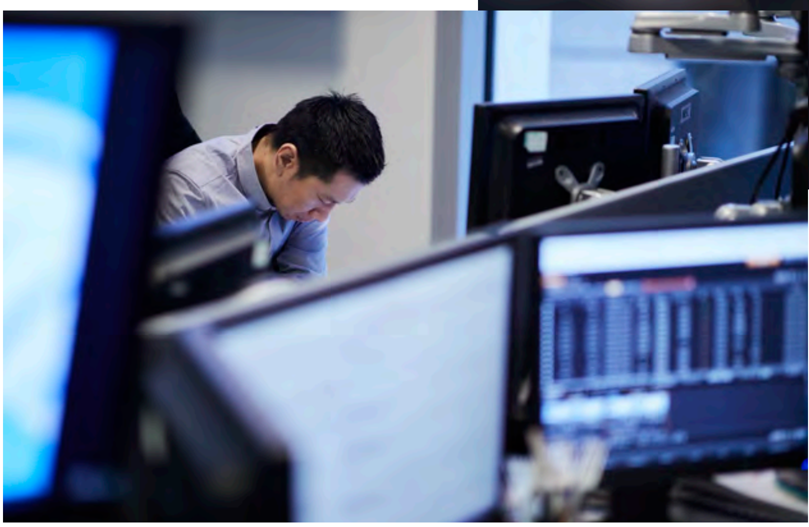

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