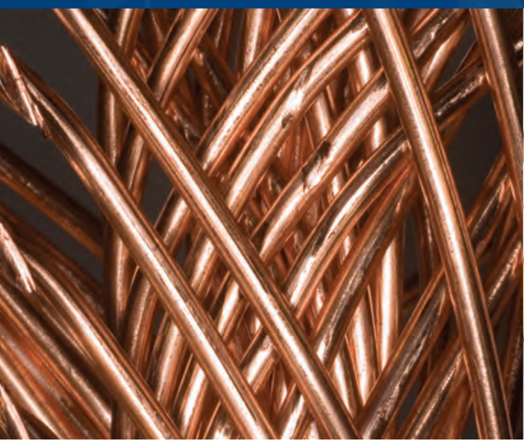
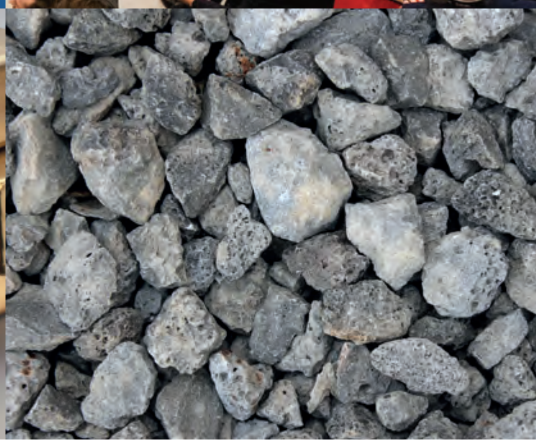
Quarterly
Metals Report

Sucden Financial
Established 1973

October 2019

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





Q4 2019

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Published by Sucden Financial Limited on Tuesday 22nd October 2019

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Summary

Short-term sentiment remains dictated by trade war headlines, cautious trading techniques, a strong U.S. dollar and soft headline economic indicators providing further headwinds to the market. The question now becomes, is the cyclical slowdown too far along to be saved by the removal of political uncertainty? Until we see trade tariffs start to reduce or be removed, relief rallies may struggle to maintain conviction. End user demand is weak, therefore we maintain our view that metals prices will remain under pressure in Q4. But is the tide turning?

Aluminium – Construction indicators in Europe are weak and we expect this to continue in Q4, providing headwinds to extrusion demand. The improvement in aluminium sheet for autos is a small bright spot amidst a weak demand outlook. Chinese exports have started to decline in recent months but output remains strong despite poor macroeconomic indicators in China and externally. Despite the market deficit, market sentiment is poor and assuming there is no trade resolution we expect the flat prices to be bid towards $1,650/t, with the upside at $1,950/t.

Copper - China's downstream copper sentiment started to improve marginally in September but end-user demand is still weak. Near term sentiment is driven by the trade war and investors struggle to hold significant positions on the flat prices. The physical market is lackluster and a pickup in demand would have a significant impact on the fundamental balance. Headline data is weak and we expect prices to oscillate between $5,500-$5,800/t.

Lead - Port Pirie has compounded the fundamental woes for lead and the controversy around the temporary re-starting of the old sinter plant highlights the environmental rhetoric that is expected to grip metals markets going forward. Lead demand is in high season as organisations prepare for the western hemisphere's winter. German industrial and manufacturing data exemplifies the subdued demand outlook at this time; an improvement in auto demand would provide further tailwinds to prices. We expect the majority of trading to take place between $2,020-$2,270/t.

Nickel - Indonesia's export ban drastically shifted the fundamental outlook for nickel in 2020. The drawdown in exchange inventories and rising Indonesian exports can be attributed to stainless steel mills re-stocking into 2020. We expect prices to remain on trend in Q4, but performance in the week starting October 14th outlines the impact of trade war sentiment. We anticipate a volatile Q4 for nickel and prices to be well supported towards $15,500/t, but to struggle towards $18,500/t.

Tin – Semiconductor sales continue to improve on a month-on-month basis which provides a more positive tone for 2020, along with lithium ion battery production. The incessant decline in tin prices on SHFE and LME has reduced profit margins for miners and trade houses, prompting a reduction in tin concentrate production. Range 15,500-19,000/t.

Zinc – Refined zinc production in China continues to improve; August output was 528,000 tonnes, up 18.9% y/y. This is yet to translate into a fundamental surplus but we attribute this to poor demand conditions. The temporary closure of Skorpion Zinc outlines the market is not out the woods yet. The backwardated cash to 3-month spread shows some tightness in the market and the LME banding indicates some larger short positions down the curve. Range: $2,100-$2,500/t.

Iron Ore & Steel - Chinese crude steel production picked up pace in September to 87.25m tonnes; however output outside of China was subdued once again. Chinese imports of iron ore reached 99.36m tonnes in September bringing imports for the first 9 months to 874m tonnes, down 2.4% y/y. We expect iron ore prices to remain under pressure as Brazil output and exports gather pace. Steel margins have started to recover as input costs fall, boosting output. Range $75-$90/t.

Gold - Investor demand along with Central banks increasing bullion content in their reserves continues to support gold prices. More depressing news coming from the US and Germany should spur speculative demand, as uncertainty drives investors for a safe haven. With negative yielding debt at record highs, gold will continue to act as a value storing asset. Range: $1,445-$1,575/oz.

Silver – Investor appetite for silver has improved significantly exemplified by the CFTC managed money net length and ETF total known holdings, up 115% and 17.6% in Q3 respectively. Risk appetite in the market has dissipated fuelling demand for safe haven assets. The positive correlation between safe haven assets and the dollar provides a conundrum but we expect silver prices to remain on trend towards $20/oz.

Palladium - We maintain our view on palladium, due to consumption favouring petrol over diesel vehicles, as new emission regulations became active in Q3. All known ETF holdings are at record highs, supporting palladium's bullish momentum. However, with lower auto production in China and Europe, demand for the precious metal should be more muted than in Q3. Range: $1,615-1,900/oz.

Platinum - With all eyes set on the Association of Mineworkers and Construction Union to conciliate the dispute between Sibanye Gold Ltd. and the miners, prices in Q4 should remain responsive to any dispute improvements. Global slowdown in auto manufacturing should present some headwinds for platinum use in the industry, however, with stronger investment demand; the surplus is projected to go down to 345koz. Range: $875-965/oz.

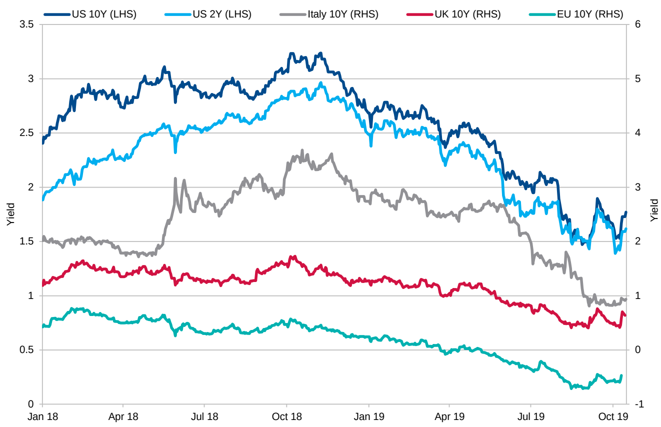
Market Overview

Global Outlook: Prominent impacts of the trade war, coupled with enduring global growth concerns, triggered a "risk-off" reaction across world markets: credit spreads diverged, inflation expectations dropped considerably, and 10-year bond yields from developed economies fell by an alarming 30–70 basis points (bps). In the US, the yield curve inverted between the two and the ten-year Treasury yields for the first time since 2006. Amidst weakening fundamentals, the US and European central banks cut rates, and the Bank of England kept its policy rate on hold as it looked for more clarity around a Brexit outcome. The MSCI World index gained 3% q/q, mainly supported by the resilience of the US domestic market to the external shocks of the trade spat. However, markets perception of a recession in the next 18 months has grown stronger, supported by WTO downgrading their 2019 and 2020 forecast to 1.2% and 2.7% respectively.

With around $14.8tn of negative-yielding global debt, investors turned to the US bond market and gold for benefits of greater returns. With VIX Q3 average below the December sell-off levels, we believe that equities are still slow to price in economic and political headwinds. However, given December tariffs are intact, we see equities growing at a much slower pace this quarter as acute pressures feed through to investor sentiment.

Developed Economies Yields

We expect the 2 and 10 year US yields to widen.



Source: Bloomberg

Ever since the world's leading central banks resorted to ultra-loose monetary policies to deflect recession; weak economic data has been perceived as a sign of further stimulus measures, instilling confidence in markets and lifting asset prices. At the time of writing, the S&P index gained 0.35% since July, indicative of investor uncertainty in the markets. It is believed that a recession is coming up in 2020, given that the US still has room to cut rates. The Fed signalled further balance sheet expansion to stimulate the fading US economy. This is, however, not the case for Europe and Japan, whose interest rates are already below zero and further rate cuts would only weigh consumer spending.

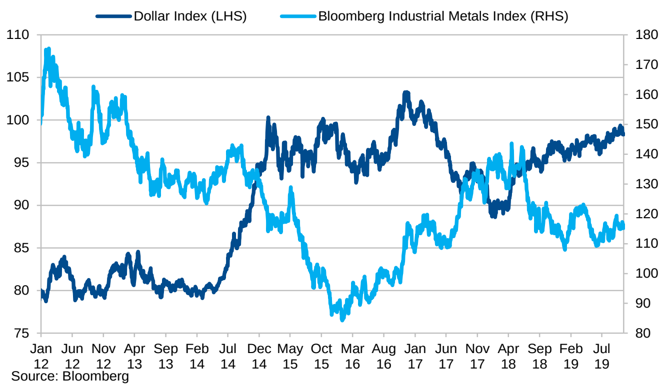
This quarter, the oil market has faced significant supply disruptions, and yet prices remain stuck in a $55-65/bl range. The lowest OPEC+ production levels seen in 16 years, 28.45mbpd in September, along with drone attacks on Saudi Aramco' energy infrastructure sent prices higher to $71.9/bl in September. However, with the Kingdom's ability to quickly stabilise production to their pre-attack output levels, market fears have turned back to the growing risks to oil demand. By the end of the quarter, oil came close to the lowest level in almost two months as America's crude inventories increased by more than 3.1m barrels a day, and slowing growth in the US labour market added pessimism to the demand outlook. According to the IEA, the global demand has been downgraded to 1.1m barrels a day in 2019 and 1.3m in 2020.

According to Russian representatives, the slowdown of global demand for crude has been acknowledged by the producers; and further production cuts should keep the market 'balanced'. Overall, crude supplies from the Middle East fell to the lowest levels since January 2017, shipping an average of 14.81m bpd of crude and condensate in September. China continues to import a relatively small amount of oil from the Persian Gulf, despite the White House's sanctions on the OPEC producer. The PRC imported 208kbpd of oil from Iran in June, almost 60% y/y. In Q4, we see further cuts in oil production as exporters adjust to lower demand levels. Given the persistent weakness in global demand in 2020, OPEC+ might extend their agreement further past their current deal termination in Q1 2020.

Industrial metals seesawed through Q3 2019, with LME Index losing 5.5% in August before recovering back to 2,870 in September, as trade war sentiment triggered market volatility and Chinese stimulus packages did not bolster confidence in the nation's manufacturing performance. The US manufacturing readings were pointing to the impacts of the US-China trade war, as trade flows are forecast to grow at the weakest rate this year, amid rising tariffs and cooling growth. Likewise, strong dollar performance has put a cap on industrial metal performance. We believe industrial metals will remain under pressure in Q4 as end-user demand is poor, exemplified by manufacturing and industrial indicators across major economies. Progress in the trade war will provide some upside but until a deal can be struck we favour selling rallies. We must also consider the time lag from a trade resolution to improved demand conditions in the underlying commodities.

Dollar Index and Industrial Metal Performance

The softer dollar will elevate the pressure off the industrial metal performance.



Source: Bloomberg

In Europe, manufacturing PMI declined to 45.7, 7-year lows, as output, new orders, and purchasing all fell sharply during September. The region's manufacturing downturn was led in the main by rapidly deteriorating operating conditions in Germany, whereas Greece proved to be the most resilient of the bloc. US September manufacturing PMI improved marginally from August lows to 51.1 in September, though overall, the sector still struggled to perform well, posting its worst quarter since 2009. Expansions in production and new orders remained modest, leading to a moderate increase in new hires. We see business confidence deteriorating further in 2019, as poor labour performance keeps the demand subdued. China's manufacturing sector improved marginally in overall operating conditions in September. With September tariffs already active, most of the production was redirected to other Asian economies. Yuan appreciation meanwhile contributed to a rise in average input costs.

US: In Q3, the US economy has shown to be resilient to the impacts of the trade war, as tight labour markets, stalling manufacturing performance and at-bay inflation have kept the US economic performance healthy despite global deceleration adding pressure to the economy. The US posted a 2.0% q/q growth in Q2, above the 1.1% figure in Q4 2018. The yield curve inversion seemed to spook investors but only slightly, and equities continued to pare substantial gains despite overly negative global rhetoric. The greenback joined gold as a safe-haven asset, gaining 3.80% q/q, as many developed and emerging economies took a hit by the impacts of slowing trade flows and investors rushed to the dollar for yield in risk-off environment.

As of October, this supporting rhetoric seems to subside as data showed signs of domestic deterioration with manufacturing hitting 10-year lows and the ADP Employment Change performing below market's expectations despite some improvements made in the trade war negotiations, we see the manufacturing performance drifting further down as manufacturers downgrade their inventories and hire less to fit lower demand. All eyes are now set on retail sales and personal consumption (October 30 release), the more accurate indicators of domestic performance in the US, to determine the true state of the economy.

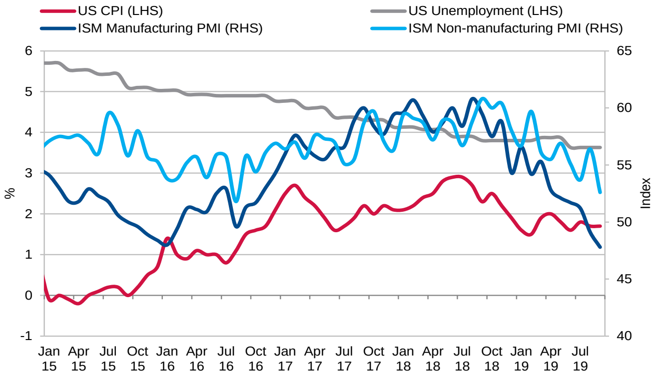
US-China trade flows have weakened substantially, where the trade gap narrowed to $30b once again, justifying a tougher stance on trade negotiations in August. Overall, the US trade deficit widened further to -$54.9b in August, as imports from China were substituted for other Asia and South American economies. In August, however, both import and export levels have outperformed market expectations, as American manufacturers front-loaded before the introduction of the tariffs in September. Thus, we see September data moderating downwards marginally, as the impacts of additional tariffs will be notably felt by the exporters.

In September, the Institute for Supply Management's factory index fell to 47.8, the lowest since 2009. The ISM non-manufacturing index followed suit contracting to 52.6, indicating that the manufacturing downturn is starting to feed through into services. Likewise, the employment measure declined to the lowest level since January 2016. The US added 135k new jobs in the private sector, below market expectations and down from 156.6k in the previous month. The survey showed that wages continued to increase at 5.34%, with average hourly earnings up 3.2% y/y, the same rate increase as in June. Unemployment drifted further down to 3.63% in the same period; however, we do expect this value to be higher for the Q3 release.

With fears intensifying in H2 2019, the markets are pricing in recession closely to 2020, from 2020-21 period earlier this year. Both fiscal and monetary policies are expansionary; the Federal Reserve has limited itself to a number of measures to support growth. Stress in the funding markets and trade conflicts provide further headwinds in Q4 and investors perceive greater risks to the downside, shown by the two and ten-year yield curve inversion. The US president is entering the 2020 election with a weakening economy, threat of impeachment and poor employment in areas that voted him in 2016. Given the endurance of downbeat economics, in the best case scenario, given the endurance of downbeat economics, we might see a lift or a postponement of the December trade tariffs.

US Domestic Performance

Poor manufacturing data is feeding through to the non-manufacturing PMI.



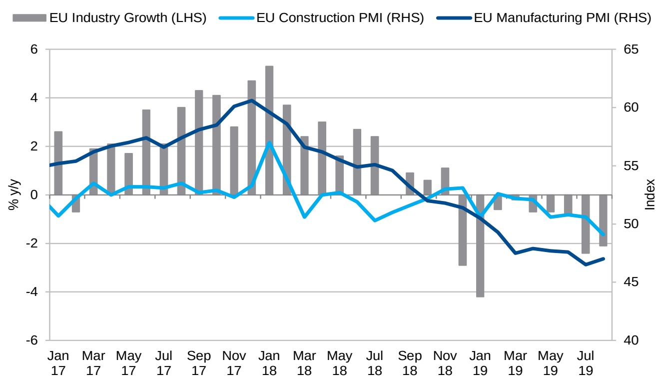
Source: Bloomberg

Eurozone: The bloc's growth dragged into five-year low, with Germany teetering on the brink of recession, Brexit uncertainties and weak headline indicators from their two largest trade partners exacerbating downside momentum. It is increasingly clear that Europe is now headed in a direction that involves a risk of a general recession. Q2 economic performance stood at 0.2% q/q, and we see further slowdown in growth in the upcoming quarter. Disappointing German manufacturing performance in Q3 has continued to descend further into contractionary territory, with Markit PMI falling to 41.7 in September from 53.7 a year earlier, sending the Eurozone manufacturing PMI from 53.2 to 45.7 in the same period.

With Europe's economy slowing, inflation remains relatively dormant at 0.9% y/y in September. The European Central Bank decided to cut the deposit rate deeper into negative territory by 10bps, restart €2.6tn worth of stimulus measures, and change its TLTRO III's. With Christine Lagarde coming in as ECB President on November 1st, markets do not expect a major shift in the monetary policy trajectory. In her first comments on monetary policy since the election, she stated that she does not believe that the ECB has hit the 'effective lower bound'. Yet it could be argued that, with interest rates already historically low, monetary policy is inadequate to the task of boosting growth. Indeed, the euro is seen at its lowest levels since 2017, and markets are pricing in higher probability of a recession.

European Manufacturing and Industrial Market

EU Construction PMI becomes contractionary for the first time in 3 years.



Source: Bloomberg

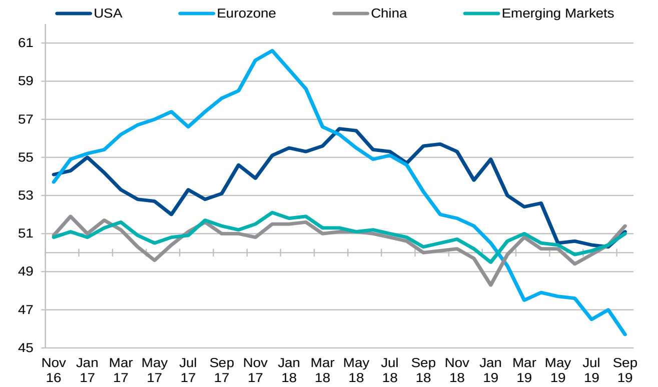
Bond yields have fallen to record lows, with Germany 10-year yields tracing at -0.59%. Germany contracted 0.1% q/q for the first time since Q3 2018, as exports fell 8% y/y. We believe that a combination of expansionary fiscal policy and a further injection of cash into long-term investment projects could help revive the economy that is half-way through to be performing in recession. Yields on Italian 10-year bonds have sunk to record lows, converging with the German bund, as the collapse of the Italian government, and the announcement of a new coalition took the European markets by storm. A unified government would alleviate these pressures off Italy, and a conclusive agreement about the fiscal policy trajectory would ease the bloc's sentiment in Q4.

Warning signs have arisen as the US looks to impose $7.5bn worth of tariffs on the bloc following the dispute over illegal government subsidies to Airbus. This could disrupt the industry, decreasing holiday sales and hurt the employment at 14,000 food retailers across the US, according to the Specialty Food Association. In response, the EU introduced counter-tariffs on $3bn worth of agriculture, steel and other products. With most of Trump's focus on US-Sino relations in Q3, the EU was prompted to halt trade talks with the United States and look for alternative trade allies. The trade bloc deal between the EU and Mercosur countries (Argentina, Brazil, Paraguay, Uruguay, and Venezuela) signed in Q3 means that EU nations will ensure easier access to South America. Further trade agreements with Vietnam, Canada and Japan could in part offset the dependence on the UK and US.

In the UK, economic growth fell by -0.2% over Q2 for the first time in 7 years, with Brexit uncertainty and stockpiling ahead of the original Brexit date. Now, with unwound inventories, we believe manufacturing performance will subside further, slower demand from China, the US and Europe will also add pressure to UK exports. BoE officials are feeling under pressure to follow through with the rate cuts, after keeping the monetary policy unchanged in September. However, this is less likely should the proposed Brexit deal pass through the UK Parliament in October.

Global Manufacturing PMI

The EU takes the biggest hit, while other developed economies remain resilient.



Source: Bloomberg

China: In Q3, China cools at a more moderate rate than other developed economies. GDP growth remained within the set-out target; however, the nation grew at the historic low pace of 6.25% y/y. Equities lost some of their strength on the news of weaker growth, with Shanghai Composite declining 1.26% over the quarter but gaining 18% YTD. Industrial production continues to grow 4.4% y/y, however, at a much slower pace than in previous months. The Yuan has gained 0.96% intraday in October on the news of a roll out of a currency pact with the United States, which could help maintain the currency below 7.14 to the dollar. This would add much needed tailwinds to industrial production in the medium-term given this agreement would come into power in Q4 2019.

China continues to endure the impacts of the trade war, with the country's imports declining as much as 5.6% y/y in August. Exports fell 1.0% in August, mainly as manufactured goods were re-exported to the US through other Asian economies. Although, some seemingly progressive trade talks have taken place, Chinese businesses remain cautious about their investment projects in the medium-term.

To ease the impacts of an overinflated trade war, the Chinese government revamped its benchmark rate, the Loan Prime Rate, along with a cut in banks' reserve ratios. These changes distance China from the state of full government control, a system that has led the country through the years of its double-digit expansion. Further relaxation of subsidies towards state-owned enterprises should ease the burden of 'zombie' companies, those that would fail without government intervention. Though it is still holding off on cutting borrowing costs more broadly, we see additional fiscal stimulus measures by the end of the year in a way that will support domestic demand.

The manufacturing purchasing managers' index rose to 49.8, above the survey forecast, but data continues to contract for the 5th month in a row. It is forecast that in the fourth quarter, domestic demand will continue to slow down, supporting economic cooling. Domestically, consumer spending has risen 0.1% in August, below market expectations. This figure is at 6-months lows, indicating consumers' are cutting down on purchases.

Emerging Markets: Global growth jitters and the impacts of market risk aversion have had a significant impact on emerging economies this quarter. Equities in the developed market fluctuated with modest growth over the quarter. This, however, did not follow for emerging markets, that took the hit from the impacts of the trade war along with the stronger dollar. MSCI EM Index lost 7.29% q/q and underperformed the growth of the MSCI World.

In August, negative sentiment was compounded as manufacturing and labour performance deteriorated. In other Asian economies, the data was mixed. While Singapore experienced the worst growth in 10 years, Vietnam, Philippines and Indonesian growth were strong at 7.31%, 5.5% and 5.05% y/y respectively. This might be in part to the case of 'trans-shipping', when goods would be re-exported to the US from China. Overall, MSCI Asia ex-Japan performance registered negative returns as neighbouring countries bore the burden of Chinese poor economic performance. We see emerging market indices performing marginally better than the ones of the developed economies as investors shift their negative sentiment towards American and European indices.

As a result of geopolitical turmoil and slowing demand for exports, including Venezuela, Argentina, and South Africa, paired the biggest losses. Hong Kong highlighted the emerging market news in August, as riots took to the streets in protest to promote the anti-extradition bill with China. The markets responded sharply with HK Hang Seng index performing at its weakest since January 2019, with markets pricing in a notable impact on other Asian economies.

A number of developing economies have already begun a session of fiscal and monetary easing to brace themselves from further deterioration by the US and China. In August alone, developing economies policymakers delivered a net of 14 interest rate cuts, the largest number since the previous financial crisis. In comparison to developed nations, emerging markets still have room to cut rates and apply fiscal stimulus; however, further currency devaluation would have a severe impact on their dollar-dependent debt.

Aluminium - Demand Struggles

LME Aluminium, 3MO ($)

Source: Bloomberg, 16.10.19

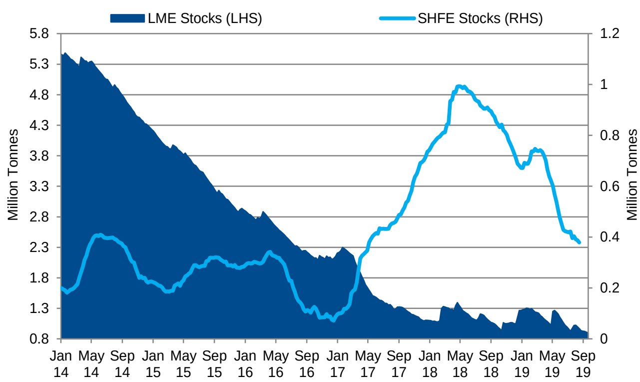
Summary

We maintain our view that lackluster construction and automotive demand in key regions will weigh on the fundamental deficit. However, the shift towards aluminium sheet could support aluminium consumption going forward. The Eurozone construction PMI was 49.1 in August with the German construction PMI at 46.3 in August. The decline in alumina prices has started to slow and the drop off in Chinese exports suggests a softening demand as well as capacity restraints in China. Market sentiment remains downbeat due to the trade war despite the decline in inventories. Whilst we believe there is potential upside for aluminium prices in Q4, we do not envisage prices holding above $1,950/t barring a trade war resolution.

Q3 Recap: Aluminium prices declined by 4.31% in Q3, as prices failed to gain a footing above $1,800/t, closing the quarter at $1,721.50/t. The intensification of the trade war in August, which saw new tariffs implemented in September, and the time of writing December. The delay to December was to protect U.S. consumers during Christmas shopping. Aluminium demand has been weak in major consuming regions despite the decline in LME stocks which have fallen 27% YTD and 6.23% in Q3. Costs for aluminium have also declined significantly due to the fall in alumina prices but weak end-user consumption in Q4 and 2020 is unlikely to see smelters benefit exponentially. We expect this to exert downward pressure on the Cash-3 month spreads, barring significant supply outages.

LME vs SHFE Stocks

SHFE stocks have seen considerable outflows in recent months.



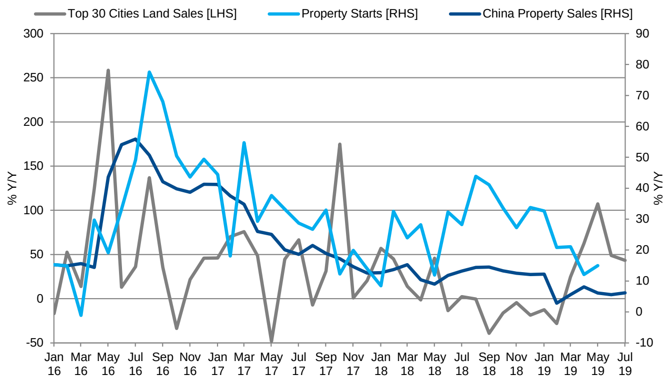
Source: Bloomberg

Outlook: Global economic data has deteriorated in recent months, causing a seismic shift in sentiment from global central banks towards an easing bias. Indeed, the global manufacturing PMIs remain weak, with most flirting oscillating between contractionary and expansionary, barring the U.S. which partially recovered in September to 51 from 50.3. The Eurozone is the worst performing at 45.6 but we may see this push back towards 50, in the coming months due to the monetary easing that ECB embarked on in their August meeting. However, we must consider the time lag for changing policy and also question the benefit of a 10bps cut further into negative rate territory. Easing from the Fed could benefit auto sales in the US which continue to suffer in 2019, to the detriment to aluminum demand. Poor Chinese data has caused the PBOC to support the economy; with China's all-system financing aggregate improving in August and September to 1,980bn yuan and 2,270bn yuan respectively. However, China's central bank governor has suggested they will not resort to 'flood like' stimulus.

China's property market is unlikely to be used a tool to stimulate the rest of the economy, but property investment grew at 10.5% y/y in August, however regulators are attempting to curb bond issuances by local governments. Not to great effect though, new local government bonds reached 2.8951tn yuan for the first 8 months of the year, 34% higher y/y. The ministry of finance suggests that outstanding government debt amounted to 21.41trn yuan, marginally below the 24.08trn ceiling set last year. According to the NBS, government driven infrastructure investment increased to 4.2%y/y in the first eight months of 2019. Value-added industrial output rose 4.4% y/y in August, down from 4.8% y/y the previous month. At the time of writing China's property sales and land sales in the top 30 cities have started to fall again, we believe this will negatively impact aluminium demand in the coming months. Property starts marginally improved in August to 6.7% y/y but we do not anticipate a succinct turn around in the coming months.

Chinese Property Market

Top 30 city land sales surge - may support property starts into 2020.



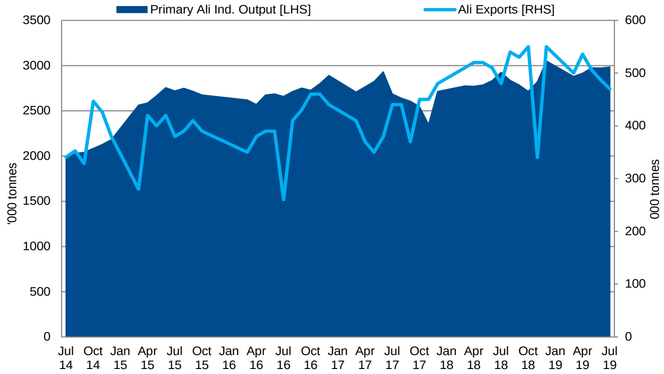
Source: Bloomberg

Germany, US, and Chinese auto sales continue to disappoint. While there has been a modest uptick in the Chinese auto market on a month on month basis, exemplified by total auto sales and production improving by 8% m/m and 10.3% m/m respectively. The sector declined 6.9% y/y and 0.5% y/y respectively on a year on year basis. The same applies for the more aluminum intensive commercial vehicles; sales and production improved 7.3% and 9% m/m respectively but sales were idown 2.8% y/y, according to China's Association of Automobile Manufacturers. Indeed, we expect Chinese sales to improve in the near term on a month on month basis. We maintain our view that commercial vehicles and light trucks are a boon for aluminum consumption. The adoption of aluminium sheet in vehicles is benefiting aluminium demand across the globe, in the US; shipments of aluminium sheet are up 11.8% y/y and 19.5% YTD according to July's data. Indeed, US sales of light truck vehicles continue to impress up 19.97%m/m in August and 16.39% y/y respectively. The shift towards the sheet is helping to lighten vehicles but also with current exchange prices low, it is beneficial for producers searching for better margins. According to SMM, producers are using aluminium sheets for engine and boot lids, and doors in medium to high end autos.

According to the National Bureau of Statistics, China produced 2.67m tonnes of primary aluminium, down 0.5% m/m and 0.3% y/y. This brings output to 23.47m tonnes through to the end of August up 1.4% y/y. There were outages in China which curtailed production at some smelters, caused the front month SHFE price to rally in August to the middle of September; peaking at 14,660 yuan per tonne. This incentivises production within China especially with alumina prices continuing to fall, exemplified by the the platts Alumina FOB Australia trading at $293.52/t as of September 30th, down 3.13% from the beginning of August. Production of aluminium products was 4.26m tonnes in August, up 0.7% y/y, according to the NBS. The World Bureau of Metals Statistics indicates that the primary aluminium balance through to August was a deficit of 651,000 tonnes, the deficit for 2018 as whole was 855,000 tonnes. Indeed, World Aluminium data outlined production in August was 3.05m tonnes in China down from 3.06m tonnes in July 2019; this brought global output for 2019 to 42.454m tonnes.

China Aluminium Exports & Production

Chinese exports declining despite strong m/m output growth and a weak CNY.



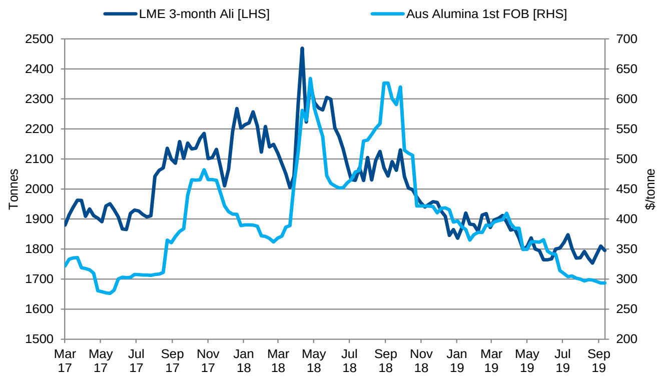
Source: NBS, Bloomberg

Exports of unwrought aluminium & aluminium products have fallen since the May high of 536,000 tonnes to 470,000 and 435,000 tonnes in August and September respectively. This was the lowest since February 2019; the latest figure outlines the impact of the trade war, lackluster demand for aluminium and also the supply outages in China prompting a tighter fundamental outlook within China. According to July data, Chinese PPS shipments have declined 29% y/y however, remain higher on a YTD basis by 10%. We believe this is due to the poor arbitrage opportunities. Poor demand within the bloc has kept consumption of rolled products muted, falling margins has reduced the competitiveness of the Chinese products and we could see imports into Europe continue to soften in the near term.

Extrusion demand has suffered in keeping with construction indicators, Eurozone construction PMI oscillates with contractionary and expansionary territory at 49.1 and 50.5 in August and September respectively. The EU Construction Main Factors Insufficient Demand index from the European commission hit the lowest level since 2007 in September at 23. We expect aluminium extrusion consumption to remain weak in the coming months despite the economic stimulus from the ECB. Investment in the Eurozone has suffered due to Brexit and weakening economic conditions, German construction is particularly weak with the Markit PMI at 46.3. Accordingly, industrial production including construction declined in July by 0.6% m/m, this was an improvement on the previous month at -1.1% m/m in June. Conversely, housing starts in the U.S. surged in August to 1,364,000 from 1,215,000 the month before, a rise of 12.3%. While the figure was a surprise, the leading indicator of residential permits rose 7.7 in July 2019. Mortgage applications in the U.S. declined by -10.1% in the week to September 20th 2019, falling from -0.1% the week previous, we await confirmation of the resilience to the housing sector but lower interest rates may be a boon for the sector.

Cash to 3-Month Spreads

The restoration of Alunorte capacity has weighed on alumina prices.



Source: Bloomberg, Platts

Copper - Copper Catches A Cold

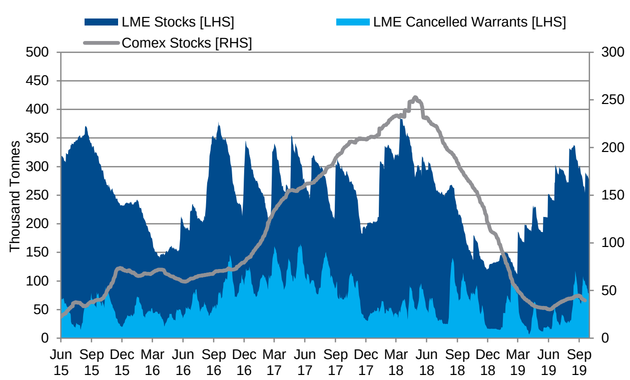
Summary

Copper prices face considerable headwinds in Q4, due to the strong dollar, rising inventories, weak renminbi, falling macro-economic indicators and risk aversion. Stimulus from central banks is expected to take time to filter into end-user demand. Indeed, investors anticipate the greenback to weaken in 2020 and may hold off purchases until then. There are signs of improved activity in China but we question the stability of these indicators in the medium term. Trade negotiations are on-going but until tariffs start to be reduced there is little change to the outlook.

Q3 Recap: Copper prices declined in Q3 by 5.32%, closing September at $5,725/t. This does not tell the full story, following the rejection of prices at the 100 DMA at $6,170/t, copper tested $5,518/t the lowest level since 2017. Inventories have been trending higher since the beginning of 2019, up 116% YTD but 9.5% in Q3 to 264k tonnes. Inventories are fractionally the all-time average of 289k tonnes but the cash to 3-month spread at $32/t contango does not suggest tightness in the market. This helps to affirm the premise of weak end user demand for copper. Indeed, global economic growth continues to moderate and the synchronised move by central banks to stimulate their economies, affirms what we have been saying in previous reports. We remain dubious if the loosening of monetary policy from the Fed, ECB, BOJ and BOE, to name a few, will provide enough support for refined copper demand to outstrip supply.

LME Copper vs COMEX Inventories

LME inventories have seen significant inflows as demand waivers.



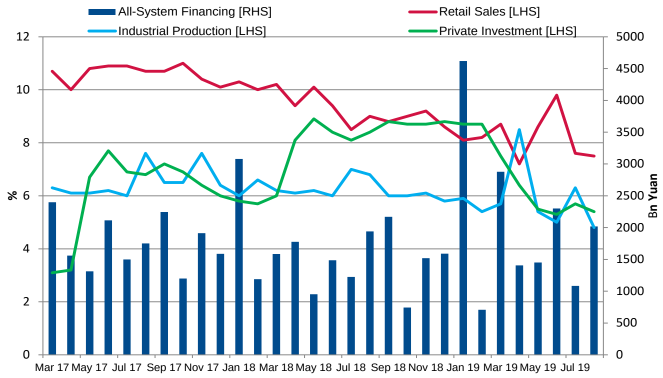
Source: Bloomberg,LME

The Federal Reserve has started to increase their spending by $186bn since the beginning of September, as they help provide liquidity for the repo market. Q2 GDP in the U.S. was 2% q/q, down from 3.1% in Q1. We anticipate growth to remain under pressure as the downturn filters into the services sector, outlined by the ISM non-manufacturing reading surprising to the downside at 52.6 in September. Personal consumption has been robust in 2019, with September's at 4.6% in Q2. However, we expect personal consumption to start to slow in the coming months which may provide some downside to U.S. GDP.

Outlook: China has suggested they will not use the property market to stimulate the economy, the PBOC have continued to reduce the RRR which they estimate has released 900bn yuan into the economy. Investment in the power grid has declined 15.2% through to the end of August 2019, which equates to 237.8bn yuan in the national power grid. This has provided significant headwinds to cable demand in 2019, with cable orders remaining weak since August. According to the Copper Alliance, power utility was 13.3% of the Chinese end-use market, consuming 3.86m tonnes of copper. Indeed, they estimate that electrical power within the building and construction sector consumed 6m tonnes of copper which equated to 20.6% of the end use market. Indeed, a decline in investment in construction (27.7% of China's copper market) and infrastructure which made up 16.17% of China's copper market in 2018. We expect demand for copper cables to remain weak in Q4, as local governments move ever closer to their 24trn yuan debt ceiling.

China Macro Indicators

Indicators continue to trend lower but retail sales have held up marginally.



Source:Bloomberg, PBOC

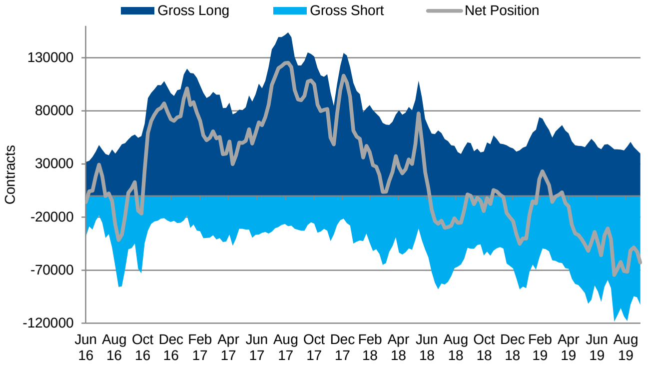
The synchronised downturn of headline economic indicators in major economies has caused significant risk aversion in the market. Over 20 central banks have cut interest rates so far this year in an attempt to support their dwindling economies amidst trade conflict, geo-political tensions and political uncertainty. Risk aversion is outlined by the gold copper ratio which trades at 8.446 as of October 10th, fractionally off the YTD high of 8.9945, the all-time high was in February 2009 at 10.318. The Fed has started to increase their balance sheet by $186bn in the last month alone, coupled with falling interest rates and the threat of impeachment on Donald Trump. Traditionally market expectations would indicate a weakness of the U.S. dollar. However, the U.S. economy is growing at 2% q/q in Q2 and U.S. yields are positive as opposed to other major economies, investors hunt for yield is helping to drive dollar strength, to the detriment of copper. Indeed, the weakness in the renminbi compounds headwinds for copper as Chinese demand is significantly impacted.

Automotive sales across the globe are weak and EVs, which are more copper intensive, and China is no exception. August production and sales figures in China for new electric vehicles were down 12.1% and 15.7% y/y respectively, however, through the first 8 months of 2019 reached 799,000 and 793,000 units respectively. Looking ahead, copper is an integral component to EVs and the charging infrastructure however, we do not expect a significant turnaround in EV sales in Q4 as Chinese consumers frontloaded their purchases in H1 2019 before subsidies were scaled back. We anticipate cable consumption to remain muted in Q4 due to subdued investment in the grid which is down 15.2% through to August to 237.8bn yuan. The increase in wire rod capacity is exemplified by 800kt wire rod facility at Jianxgi Copper's Guandong facility. Chinese production of copper and copper alloy products has improved 8.9% YTD y/y and prices could remain on the back foot despite the moderate bounce towards the end of September to 48,190 yuan/t up 570 yuan/t. Import losses reached the highest level in a week on 10th of October.

Chinese downstream copper production started to improve in September according to SMM, after contracting for the 3 months prior. SMM outlined that activity across construction, power, electronics, transportation, and home appliance sectors in China reached 51.11 up from 46.38 in August but smelter maintenance and closures have curtailed activity. Capacity constraints have hindered output; however SMM's index for copper production also became expansionary in September to 51.89 from 47.41. Customs data indicates that imports of copper concentrate reached 1.82m tonnes in August, down 12% y/y. The total for 2019 YTD reached 14.4m tonnes, an increase of 11% y/y. Tightness copper production has kept imports relatively subdued; refined copper imports reached 295,147 tonnes in August, down from 297,400 tonnes in July. Accordingly, imports of copper anode, blister copper from concentrate declined 11.73% y/y at 459,000 tonnes in H1 2019.

COMEX Managed Money Positioning

Investors increase their bearish bets on prices, despite negotiations.

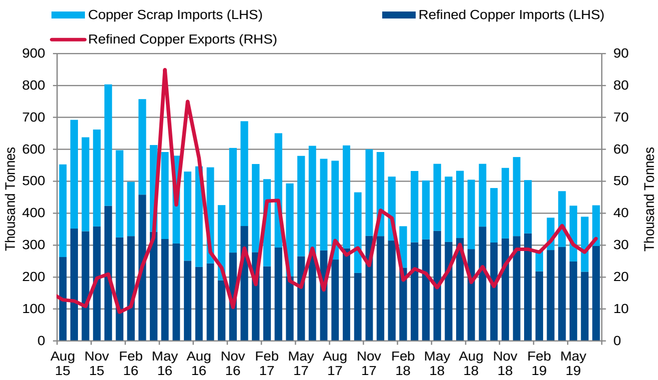


Source: Bloomberg, COMEX

Disruptions in Chile prompted August mining output to decline 0.4% to 3.76m tonnes, with Escondida output falling 8.5% y/y to 770,800 tonnes in August. Production at Collahuasi was near flat at 0.5% y/y to 352,500 tonnes; the majority of the growth came from Codelco whose output gained 9.3% y/y to 154,700 tonnes. Production for the first 8 months of the year is down 8.4% y/y to 1.06m tonnes, consequently exports into China have fallen but we remain concerned by the low ore grade and unrest in Chile. Concentrate supply has remained subdued in recent months and imported copper concentrate into China TC climbed to an avg $57/t as of October 16th, below cost of production for some. According to SMM, 70% of China's concentrate is seaborne leaving smelters in China vulnerable to TC/RCs. The physical market remains quiet with premiums subdued; an improvement in physical demand should have significant ramifications for the fundamental balance of copper.

China Scrap and Refined Copper Imports/Exports

Strong refined imports continue in Q3 as scrap market goes through changes.



Source: Bloomberg, Customs General Administration

The scrap market remains in transition following the category 6 and 7 bans which came into effect earlier this year. We continue to see scrap process in South East Asian, more specifically Malaysia and then imported into to China as a higher quality material. The domestic scrap market has been strong and while we anticipate the scrap regulations will remain stringent going forward which could support refined consumption. There is a possibility of category 6 copper scrap as 'renewable copper material' which would not be subject to import limits.

Lead - The Forgotten Star?

Source: Bloomberg, 16.10.19

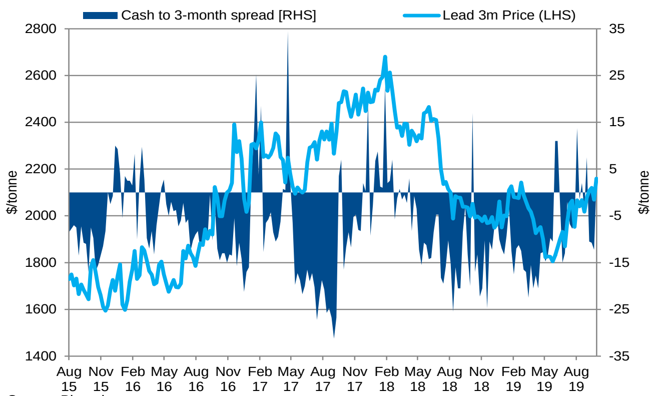
Summary

We maintain our constructive view on lead prices in Q4; operating rates for lead battery producers have improved in preparation for the northern hemisphere winter. Auto demand remains lackluster and this is expected to remain the same in Q4, however there are some structural shifts changing the market. We expect concentrate supply to remain tight in Q4; however the prospect of a moderate refined surplus in 2020 may cap prices.

Q3 recap: In our Q3 report, we outlined that supply constraints and low inventories would support lead demand despite weak auto demand. Auto production continues to slow in major economies, Germany's manufacturing, auto production and industrial orders are declining on a year-on-year basis outlining weak demand for metals. Germany auto production improved in August to -8.3% y/y from –27.2% y/y but the sector continues to be in decline. Prices on the LME gained 12% in Q3 to $2,135/t as supply outages at Port Pirie curtailed concentrate supply, giving rise to SHFE prices. The front month lead contract increased 6.3% to 17,005yuan/t. The cash to 3-month spread has started to tighten once again and trades at $3.50/t contango as of October 4th. Investment funds on the LME have been increasing their net position since July and reached 7,168 contracts, with trading volumes on other metals thin. The compelling fundamental story could see further flows into lead.

Cash to 3-Month Spread vs LME 3-Month Price

The contango has remained intact despite the rally.



Source: Bloomberg

Outlook: The fundamental tightness in the refined and concentrate lead market looks set to continue Q4. The closure of Port Pirie's Top Submerged Lance (TSL) furnace and declaration of force majeure has caused Trafigura to re-start an old high-polluting sinter plant on September 16th. Due to the age of the reopened plant and the environmental impact we expect the Environmental Protection Agency (EPA) to place strict controls on the sinter plant as the site is already under considerable emission scrutiny from local groups. This could hinder the productivity of the sinter plant at the detriment to the lead market. The cumulative output loss of the furnace failures at Port Pirie could reach 70,000 tonnes in 2019. The restart of the sinter plant suggests that the TSL furnace has significant issues which may take time to fix; we wait with bated breath for an announcement from Port Pirie.

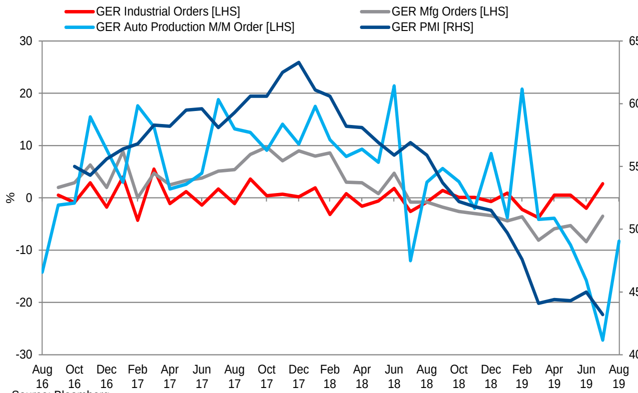
TCs for imported lead increased to $80-110/dmt, an increase of $70/dmt to the average of $95/dmt as of October 11th, we have also seen TCs quoted around $100/t CIP MCP with spot TC plus arbitrage value averaged $137/t of concentrate in September. Miners seem more comfortable to pay slightly higher prices per tonne of concentrate. There has been little change in the domestic TC for lead concentrate, which averages the same as our previous report RMB1,850/mt. The concentrate market remains considerably tighter with Wood Mackenzie having production at 32 days of requirement; accordingly their refined stock days of consumption have fallen significantly to 30 days as in Q3 and is forecast to fall further to 28 days in Q4.

There are reports that other smelters outside of China have rejected concentrate as they cannot process more material, in an attempt to boost supply. However, some smelters have increased their acceptance of low-grade concentrate due to the high-grade shortage. China's lead concentrate production has remained lackluster with

China's lead concentrate production at 103,000 tonnes in July, leaving output for the first 7 months of 2019 at 638,000 tonnes down 5.7% on 2018. Refined output in China improved to 484,000 tonnes in August, up 13.3% y/y. Indeed, lead imports of concentrate and ore reached 183,000 tonnes (gross weight) in August up 29% y/y. Total mine output for 2019 reached 3.96m tonnes in August up from 3.09m tonnes for the first 8 months of 2018, and we see the lead deficit through to August at 170,000 tonnes. The temporary production cuts in September due to smelter maintenance could have taken 10-15,000 tonnes of lead ingot production out of the market.

German Manufacturing and Industrial Market

German economic data remains weak as European struggles worsen.



Source: Bloomberg

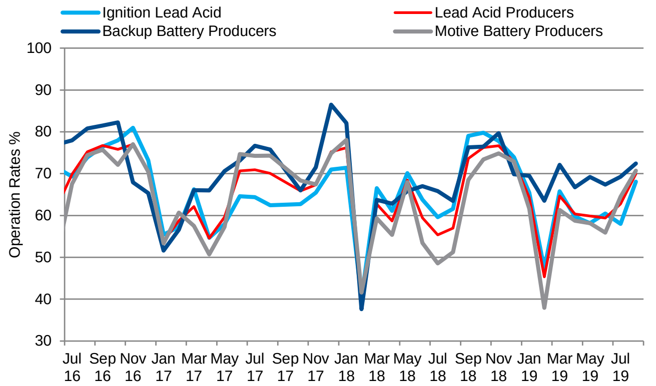
From a demand perspective, weak industrial data has provided headwinds to lead prices, but investors can be buoyed by the positive performance in the price action under such conditions. German IFO auto production orders have been in constant decline since February 2019, July's production declined by 15.1% m/m, which was the lowest since 2012. August orders rebounded slightly and declined at 7.7% m/m with production declining 13.3% m/m. Total European vehicle sales improved in Q2 totaling 4.826m vehicles up from 4.629m.

Economic conditions in Europe are weak, outlined by their stimulus package introduced by the ECB in their latest meeting. This could boost auto sales somewhat however, the lackluster performance can be attributed to the trade war and structural shifts towards new emissions standards and also ride hailing and car sharing. The tariffs have had a significant impact on the auto market but the structural shifts within the market could provide significant headwinds to the lead market. The new emissions standards indicate that by July 2020, all light vehicles need to comply by the China 6a emission regulations, reason for the weak Chinese auto orders is destocking from dealers. Another explanation for poor auto order is the ride hailing market, China has 459m customers with turnover for the sector reportedly $53bn; compared to the 66 million users in the U.S.

Chinese lead battery production has started to rise as we approach peak season, China produced 112m kVAh of lead batteries through to the end of July 2019 up 4% y/y. Output in July was 14.9% y/y to 17.5m kVAh but peak season is approaching outlined by the increase in operation rates for Chinese battery producers in recent months. However, environmental restrictions in China, specifically inHebei and Henan may inhibit lead smelters output. Refined lead social inventories declined by 9,000 tonnes in August as purchases started to improve. China's lead scrap recycled start-type battery ex-VAT have consolidated in recent months, declining -0.65% in through to October 16th to RMB8,175/t, YTD performance is down -6.84%. Accordingly, the price of lead scrap recycled deep cycle battery ex-VAT have declined by 2.7% in Q3 to RMB8,925/t as of October 16th.

China Battery Operation Rates

Operation rates have fallen at Chinese battery producers.

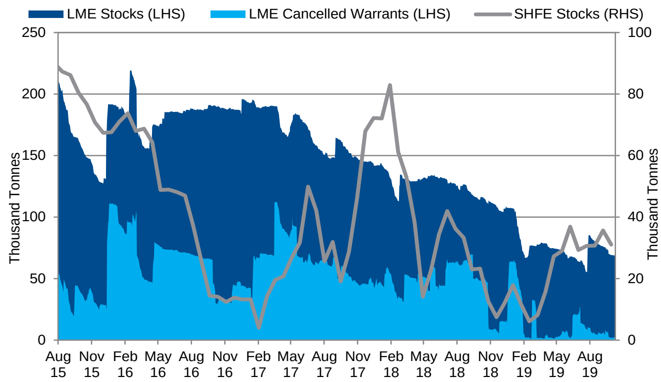


Source: Bloomberg, SMM

Mobile phone output declined 6.2% y/y in August at 14,523,100 units which could reduce phone battery demand; however China Mobile are planning to increase their lead battery purchases by 953m Ah commencing in H2 2019. China's e-bike production has fallen sharply after the implementation of national standards for e-bikes. Output fell by 9% y/y in 2.4m in June; YTD production has increased 8.4% in 2019. Large e-bike producers have consolidated their market share as smaller producers have closed down.

LME Lead Warehouse Stocks vs SHFE Deliveralble Stocks

Exchange inventories diverge as material flows into SHFE warehouses.



Source: Bloomberg

Cash-3s spread tightened into $30/t back in August but has since weakened out to $4/t contango as of October 16th. The near term demand for lead as producers increase their purchases ahead of the busy production season as producers prepare for winter could strengthen cash prices which may cause the spread to tighten. The incessant decline in exchange inventories since 2011 are likely to support the flat price the coming months. Global LME inventories have declined to 69,150 tonnes as of October 16th. SHFE inventories have fallen to 15,622 tonnes as of Ocotober 16th 2019. Seasonality of SHFE inventories suggests we could see withdrawals until December when we start to see re-stocking. We expect inventories to continue to fall supporting cash and 3-month prices on the LME and SHFE.

Nickel - Indonesia Rock The Boat Again

Source: Bloomberg, 18.10.19

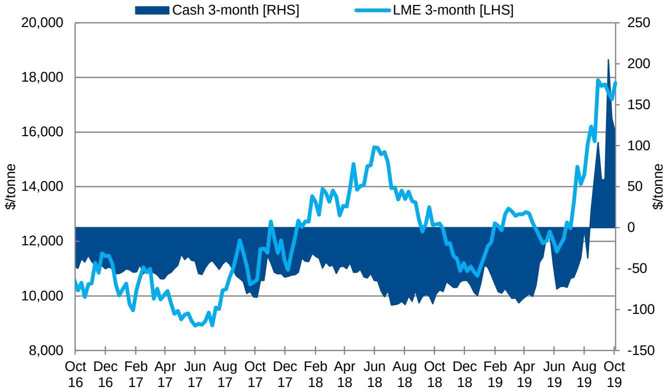
Summary

We expect nickel exports from Indonesia to be strong in the last months of 2019. In our view capacity in the Philippines will struggle to make up for the loss of Indonesian supply and a lot is dependent on the level of inventory in China at mills. We could see a shift towards chrome stainless steel in China is supply of nickel becomes that tight in 2020. Nickel pig iron is paramount to the fundamental outlook for nickel in 2020 but we expect the market Chinese nickel production to weaken next year. The fundamental outlook for nickel is strong and we expect price to remain on trend.

Q3 Recap: Nickel shorts had a quarter to forget, prices gained 33.4% from July to the end of September. Nickel fundamentals changed drastically in Q3 as the Indonesian government brought forward the ban on nickel ore exports from 2022 to January 1st 2020. This caused a knee jerk reaction from investors with prices surging higher. The 3-month LME contract continued to break key technical levels and systems affirmed the trend. Prices failed into $19,000/t as the dust settled and investors took stock at the long term implications to fundamentals.

LME 3-Month Prices vs Cash to 3-Month Spread

Prices & spreads have tightened significantly outlining the fundamental changes.



Source: Bloomberg

Stainless steel prices rallied as input costs increase and supply for 2020 and 2021 is in jeopardy. Nickel stocks have continued to decline in recent months and since the start of October from withdrawals of material from LME warehouses have increased significantly. LME inventories stand at 94,134 down 40.4% in October alone, helping to keep momentum on the upside. SHFE deliverable stocks have climbed higher in Q3 to 23,196 tonnes. Investment Funds sentiment shows buying a marginal net long of 7,087 contracts as of October 4th, according to the LME commitment of traders' data. Stainless steel prices have improved in recent weeks according to SMM, with prices of 304/2B coil –EM and 201/2B coil averaging 16,100 and 8,050 yuan/t respectively as of October 14th.

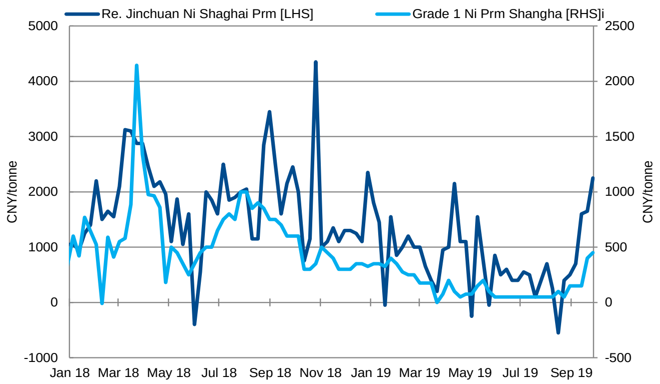
Outlook: Indonesia's banning of nickel ore exports has caused considerable changes to sentiment in the nickel market. Previously, Indonesia had only been exporting ore grades below 1.7% nickel but the most recent ban outlined Indonesia's desire to preserve known nickel reserves and resources. The Ministry of Energy and Mineral Resources have suggested that in their latest statement in September that current known reserves equated to 2,800mt which is 41.1m tonnes of nickel. The total number of export permits was 36.7Mwmt and ore exports reached 12.369Mwmt, even though some of these permits expired in September there remains significant capacity for Indonesian exports to surge in the remaining months of 2019. Indeed, exports surged in August by 26.5%. China was the destination for the majority of this metal, importing 5.72m tonnes of nickel ore and concentrate in August, up 5.5% from July 2019. Nickel ore inventories at Chinese ports have a seen significant inflow of material with stocks up 740,000wmt to the week October 11th, inventories closed at 13.11mwmt. Accordingly, Shanghai bonded nickel inventories dropped marginally to 24,700/t as losses on imported material increased to 10,000 yuan/t.

There are limitations to the amount of nickel ore that can be exported due to ship availability, port capacity and mining speed. However, Filipino exports were strong in August at 3.99m tonnes up 13.2%

m/m, although on a year-on-year basis, exports were down 16.8%. We caveat this with the fact that due to monsoon season starting in October, there is a seasonal uptick in exports in August and September. Filipino miners are likely to benefit from the higher exchange prices which may incentivise production next year, in an attempt to offset potential losses from Indonesia. However, we remain doubtful that the Philippines can completely offset production losses from Indonesia due to resource depletion and lower grade ore. Indeed, the Philippines suspended nickel mining in the southern regions as the regional government conducts an audit. Due to these constraints it looks unlikely that the Phillippines can make up for the loss in production from Indonesia. Nickel ore freight rates from the Philippines to Lianyungang port have declined in recent weeks to avg $12.95/t; rates from Indonesia have also declined to avg $17.5/t. Prices for Ni 1.65%, Fe 15-25% FOB and CIF at $42.50/t and $67.50/t, up from $41/t and $62/t, respectively from September 16th as of October 16th according to SMM.

Nickel Premiums

Shanghai premiums have risen significantly since Indonesia's announcements.

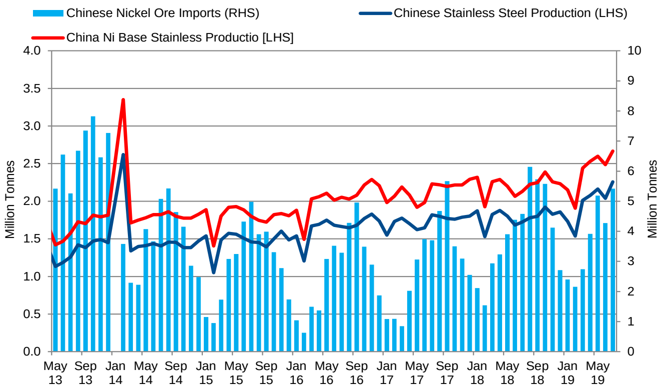


Source: Bloomberg, SMM

NPI production is key going forward but we do not expect Chinese output to increase from nearly 600,000 tonnes of production this year. As mentioned above, we expect exports from Indonesia to increase in the coming months as they boost inventory going into next year. The tightness in the nickel market next year is vastly dependent on stock levels in China but Chinese NPI 8-12% spot prices have reached 1,255 yuan/mtu on October 14th. Wood Mackenzie suggests that nickel in NPI in China for 2020 could reach 575,000 tonnes, under the assumption that the top NPI producers in China hold at least 4 months stock. In 2020 the impact on Indonesian production of NPI could be limited as Tsingshan look set to add further production lines in the remaining months of 2019. The investment in Indonesia is exemplified by Virtue Dragon's potential of 35 RKEF lines in Konawe which may increase output by 250,000 tonnes.

Chinese Nickel Ore Imports vs Stainless Steel Production

We expect ore imports to increase significantly in Q4.



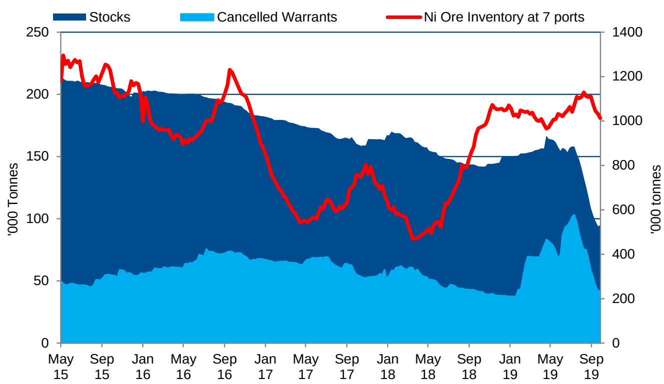
Source: Bloomberg

China's stainless steel output declined in September by 5% m/m to 2.47m tonnes of stainless; however production improved by 8.38% y/y. 300 series stainless reached 1.16m tonnes down, 2.1% y/y and 5.74% m/m, the decline in output was attributed to limited raw material availability which could see 300 series output decline into 2020 and next year as nickel availability declines. We may see mills favour the production of 200-series which contains less nickel, however 200 series output declined to 896,000 and 400 series production increased to 416,000 tonnes. According to SMM, stainless steel output may fall further in October as series 200 mills are unable to produce at a loss. The EU has opened an anti-dumping investigation against Chinese and Indonesian HRC exports, suggesting provisional measured should be imposed to help protect domestic producers. The European Commission has suggested duties of up to 66%.

The impact on the battery market has been significant as nickel sulphate returned to premium over class 1 Ni briquette in September. China's production of battery and electroplating-grade nickel sulphate improved by 5.48% in September, indeed Shanghai Changjiang nickel sulphate spot prices reached 34,500 yuan/t as of October 14th, battery production has started to increase, up 10% m/m in September bringing YTD growth to 51%. Export orders remain strong for batteries even if the domestic market remains relatively week due to the reduction in NEV subsidies. Production and sales of NEVs declined in September to 89,000 & 80,000 units respectively, a decline of 29.9% and 34.2% respectively year-on-year. Alternatively, YTD figures amounted to 872,000 units, 20.8% higher y/y. Data from the China Association of Automobile Manufacturers as of October 14th marked the 15th consecutive month that car sales have declined, weakening 5.2% y/y to 2.27m units.

LME Nickel Inventory vs Ni Ore Inventory at 7 Major Ports China

Withdrawals from LME warehouses continue at a steady clip.



Source: Bloomberg

Tin - Demand Shows Improvement

Summary

The inflow of material into LME warehouses has exerted considerable downward pressure on tin prices despite leading producers curtailing output. Semiconductor sales are showing signs of improvement on a month-on-month basis which should provide moderate support for tin going forward. We expect the cash to 3-month spread to start tighten as the curtailment of output due to limited concentrate availability is felt in the supply chain. The trade war continues to dampen market sentiment, but in our view, investors may look back on the current price level favourably.

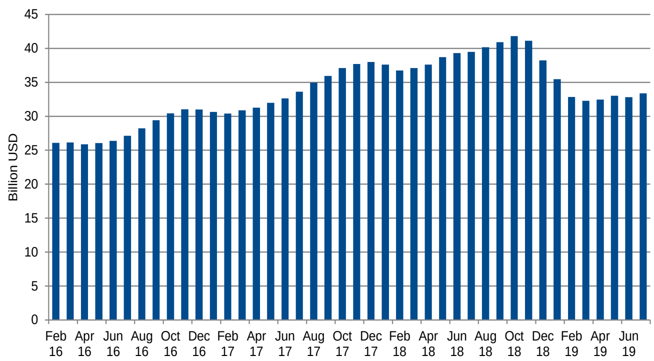
Q3 Recap: Tin prices continued to weaken in Q3 as momentum favoured the downside, falling 15.9% to $15,9525/t. Selling pressure has been relentless as risk aversion dominates the metals market. Trade war sentiment continues to weigh on the market but economic data in the U.S. and China is weakening and the need for a deal is rising. A 'Phase 1' deal has been announced but there is inconsistency on what has been agreed from either China and the U.S. December's tariffs are still expected to be imposed at this time and tensions remain high after the House of Representatives passed a bill supporting Hong Kong's protests. Semiconductor sales are weak on year-on-year basis but the month-on-month figures are showing signs of promise.

LME inventories have continued to rise in recent months to 6,800 tonnes, bringing the YTD rise to 213.4%. The juxtaposition of the inflow of tin into LME warehouses at a time when smelters are curtailing production due to insufficient concentrate supply has puzzled investors. We expect inventories to cap gains for tin prices going forward, even with stronger semiconductor figures on a month-on-month basis. SHFE inventories have declined to 4,415 tonnes from 8,392 tonnes.

Outlook: Semiconductor sales remain down on a year-on-year basis; with July's worldwide sales of $33.4bn down 15.5 % y/y; accordingly, month-on-month sales grew 1.7%. The boost came from stronger sales across the board; Asia Pacific saw the strong sales up 3.1% with the U.S. up 2.5%. However, the dire economic situation in Europe was exemplified by July's decline in sales by 0.5%. We expect semiconductor sales to remain soft in Q4 with forecasted sales to be $406.6bn in 2019, down 13.3% y/y according to the World Semiconductor Trade Statistics (WSTS). Indeed, due to the weak sales figures in 2019, we anticipate a positive response from the semiconductor sales in 2020 as companies adjust to the tariffs. The WSTS believes that growth in 2020 will come from optoelectronics, with the sector set to grow by 8.2%. The impact on the tin market will help boost demand in 2020 at a time when leading producers are cutting production due to low prices and a lack of concentrate.

Global Semiconductor Sales

Semiconductor sales are starting to recover which is a boon for tin.



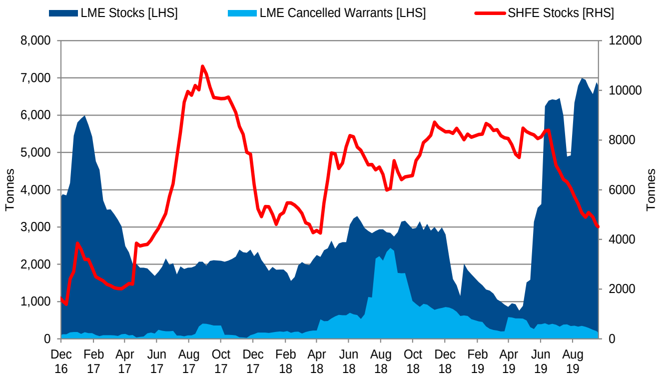
Source: Bloomberg

tin producer, has bucked the trend by suggesting that their tin production will not fall in 2019. The company has indicated that their production will increase in 2020 as new mines come online, increasing the tin ore availability for smelters. This is consistent with our previous report which stated that MSC were increasing output at their hydraulic mine and their aim to increase productivity to 10 tonnes a day. The increase in investment and output from MSC is a stark contrast to China's Yunnan Tin and Indonesia PT Timah who have indicated they'd reduce output by approximately 30,000 tonnes.

The incessant decline in tin prices on SHFE and LME has reduced profit margins for miners and trade houses, prompting a reduction in tin concentrate production. Accordingly, concentrate availability has declined and smelters have had to reduce treatment charges to encourage miners to sell their product, resulting in reduced profits. In response smelters have reduced output, in some cases producers will pause output, but the restart depends on concentrate availability.

LME and SHFE Stocks

Refined material is available despite lack of concentrate in the market.

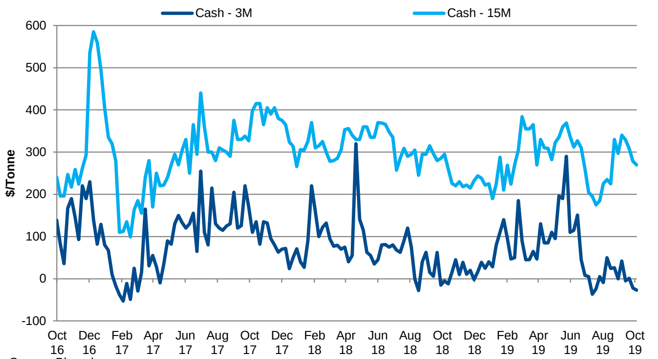


Source: Bloomberg

The weak tin production is exemplified by China's refined production declining 8% y/y through the first 7 months of the year. Chinese tin imports decreased by 20%, with the majority of this decline coming from Myanmar whose imports have declined 28% y/y. The drop off in available concentrate has led to weaker domestic output by 2,000 tonnes in 2019 due to Yinman Mining's Baiyinchagan mine closure in Inner Mongolia. Chinese customs data indicates that imports of unwrought tin & alloys have declined since June, to 217 tonnes in July. We expect this to continue in the near term as smelter stocks have declined and reducing the probability of smelters increasing output, in the near-term.

Tin Calendar Spreads

Inflow of metal into warehouses together with weak demand weigh on spreads.

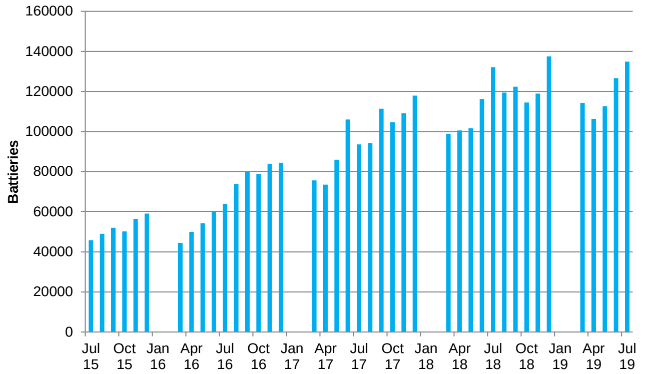


Source: Bloomberg

The LME cash to 3-month spread has oscillated around $0/t in recent weeks, flirting with backwardation and contango. The large inflow of material into LME warehouses has facilitated the weakness in the cash to 3-month spreads as tightness has been alleviated in the near term. Due to the curtailment of capacity in China, we believe spreads will start to tighten to once again as we move in 2020. This should give support to the flat price, however, LME inventories are sufficient to cover production shortfall in the near term. Indeed, semiconductor sales are weak on a year-on-year basis and the trade war is far from resolved at the time of writing. The best-case scenario is that tariffs set to be imposed in December are not put in place and the U.S. and China show progress during negotiations. Even if this happens, global economic growth is slowing significantly which would provide headwinds to demand.

Lithium Ion Battery Production China

Production of Lithium-ion batteries trend higher.



Source: Bloomberg

A bright spot for tin demand is its use in lithium-ion batteries. This may immunise tin demand slightly to a global recession, as the world will likely continue to move towards a greener future. Chinese output of lithium-ion batteries continues to improve, up 7.8% y/y in August. The market continues to grow despite poor EV sales in China due to a reduction in subsidies. August EV sales declined 16% y/y to 85,000 units, with total auto sales fell to 1.65m units. Unfortunately, China cannot just blame tariffs for the slowdown exemplified by Chinese manufacture BYD sales declining 23% y/y in August. Despite the poor vehicle sales, China's battery manufacturers saw net profit surge higher in through to the end of July 2019. Total profit increased by 63.7% y/y to 16.47bn yuan according to the Ministry of Industry and Information Technology. The output of lithium-ion batteries fell moderately month on month in August to 134.07m units from 134.9m units in July, bringing total output to 9.38bn units through to the end of August 2019.

Zinc - The Invisible Surplus

Source: Bloomberg, 16.10.19

Summary

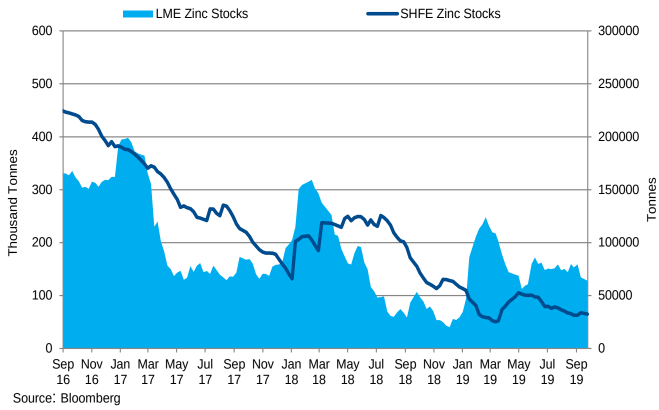
Chinese refined production is improving as outlined by NBS data; we expect this to continue in the coming months. Galvanizing sheet in China remains in growth even if the home appliance output is mixed. Housing completions in China are positive but the strict lending regulations for real estate may soften home appliance demand in 2020. TCs have shown signs of improvement and we could see prices supported by environmental output cuts and positive trade war headlines improving risk appetite but the temporary closure of Skorpion Zinc outlines ore shortage.

Q3 Recap: Consistent with Q2 report, zinc prices remained on the back foot. The trend continued with the 3 month LME price falling 11.5% to a low of $2,205/t. Prices gained ground in September to close Q3 at down 4.48% at $2,378/t. The perceived increase in refined output has caused futures to decline but the increased supply is yet to feed into the market due to environmental outages. However, market sentiment is poor and end user demand is muted. Chinese refined output continues to strengthen but the cash to 3-month spread has tightened into $40.50/t backwardation as of October 3rd. The LME bandings show that there are five 5-9% long positions in the December contract but more importantly there are four 5-9% short positions in the front month and with the spread in backwardation, rolling their position will become more expensive.

LME inventories have continued to decline in recent months, falling 30.6% to 66,750 at the end of Q3. SHFE stocks fell 19.8% to 64,095 tonnes at the end of September from 79,896 tonnes at the beginning of the quarter. The demand outlook for zinc looks uninspiring in Q4 and 2020 which could looks set to cause zinc prices to remain on the back foot. Consequently, we expect the fundamental balance to push towards surplus next year but U.S. and Chinese data continues to weaken and the White House may need a trade deal to go into the election on the front foot.

LME Stocks vs SHFE

LME and SHFE inventories fall but at a slower pace.



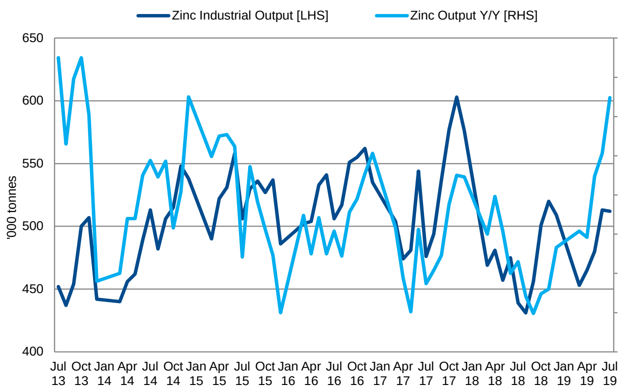
Source: Bloomberg

Outlook: It is another case of déjà vu as trade talks between the U.S. and China amounted to no progress but actually intensified the trade war. The imposition of new tariffs on China and the U.S. compounded downside sentiment for zinc. The delay of some tariffs to December did nothing for trade optimism and at the time of writing we do not envisage progress in the upcoming negotiations in October. However, one bright spot which could present a platform for progress is the subtle amendments made to intellectual property rights in the country. The revisions will mean firms obtaining trade information through 'hacking' or assisting breach of confidentiality will be penalised. Indeed, firms will also be penalised for trademark squatting.

Environmental inspections caused some Chinese smelters to cut production, however this did little to support the prices due to the negative impact on market sentiment due to the trade war. Even though output was hindered due to the environmental cuts, NBS data suggests that refined zinc production in China improved in August to 528,000 tonnes bringing accumulated production for 2019 to 4,034,000 . Production on a year-on-year basis continues to impress with growth of 18.9% according to NBS. Prices on the LME have suffered due to the perceived increase in refined supply and the trade war sentiment. However, even though concentrate availability and refined output have improved, the market remains in deficit. The magnitude of the deficit varies from depending on the research house with the WMBS indicating the refined zinc deficit through to the end of July was 6kt, compared to 64kt in 2018; conversely, Wood Mackenzie has a deficit for 2019 at 634,000 tonnes.

Zinc Output vs Zinc Output Y/Y

Output started recovering in recent months but remains below 17 & 18 levels.



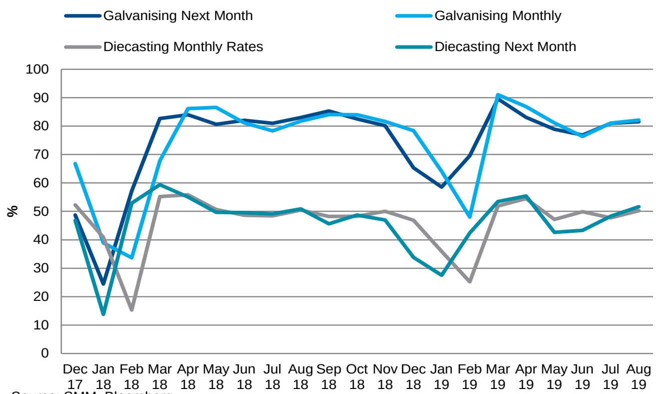
Source: NBS, Bloomberg

The increase in concentrate availability is starting to filter into higher refined production. However, the weak demand picture has helped narrow the fundamental deficit. The increase in refined output as shown by NBS has not been seen in SHFE or LME stocks; however SMM data suggests that social inventories are starting to rise even if shanghai-bonded zinc stocks declined 3,200 tonnes to 86,100 in the week up to September 20th 2019. Chinese customs data indicates that imports of refined zinc have fallen from their April 2019 peak of 77,594 tonnes to 40,166 tonnes in July 2019. Chinese concentrate imports also climbed in July to 286,000 tonnes (gross weight), bringing cumulative imports through to the end of July to 800,000 of zinc compared to 856,000 in 2018. The TC for imported zinc concentrate continued to rise to $270-290/t as of October 16st, the average $280/t is up by $40/t. Contra to this, Chinese exports of unwrought zinc & alloys sky rocketed to 16,593 tonnes in July but weakened in August to 6,036, both figures are a far cry from May's figure of 978 tonnes.

Premium data suggests that spot trades are thin despite the low prices and the protracted weakening we have seen in cash to 3 month spread. China's central bank continues to inject liquidity into the market and The State Council also outlined 20 new measures to help promote consumer spending. Even though economic growth in China has slowed to 6.2% y/y in Q2 2019 consumer spending was 60.1% of economic growth in H1 2019. Indeed, home appliance output was mixed in August with NBS data suggesting refrigerator output was down 5.2% m/m at 7,017,000 units up 2.8% y/y, air conditioner production also declined in August to 14,332,000 units, down 2.9 y/y. Looking ahead, there remains spare capacity in the residential industry sector with housing completions growing in 2019. The restrictions on residential lending in China could trigger sluggish property starts into 2020, acting as headwind to home appliance sales and zinc prices.

Zinc Operation Rates

Zinc Operation rates have increased marginally but remain below Q2 levels.

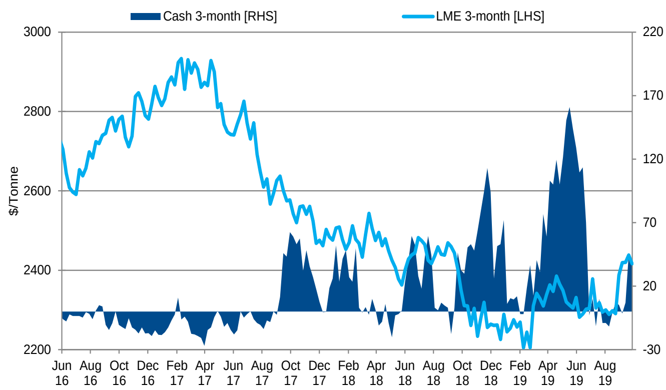


Source: SMM, Bloomberg

Production of metallic coated galvanized sheet in China has been strong in 2019, up 5.5% y/y; through to the end of June output had reached 26.4m tonnes up 5.7% y/y. Conversely, total U.S. shipments of galvanized sheet have declined 5.1% y/y in 2019 and 3.6% YTD. SMM data suggests that galvanizing operation rates improved in July to 81.01%, with August rates expected to remain around 81%. We expect these levels to remains high in the next couple of months but spot trades in the zinc market remain thin, outlined by recent premium data. Galvanizers raw material days of inventory have been in steady decline since edging higher in April after the seasonal re-stocking in December through to February; stock days stood at 7.4 days in July. The resurgence in photo-voltaic cell capacity could help support galvanized sheet in China as it is used in the frames for the solar panels.

Zinc 3-Month Price vs Cash 3-Month Spread

Cash to 3s are tight despite the soft demand and strong output.



Source: Bloomberg

The cash to 3-month spread has moved back into backwardation, reaching $50/t back on October 1st, the spread has weakened to $22.25/t back as of October 16th. There is one category 2 banding long position in October and 2 in December, which is worth noting. Operation rates are starting to improve but bonded zinc trades remain thin, premiums for bill of lading in Shanghai stood at $90-100/t CIF and warrants in Shanghai bonded warehouses quoted at $100-110/t as of September 24th. We do not expect zinc demand to outperform in Q4, especially with having weakened significantly in recent months. We expect strong performance in the flat price to come from further capacity cuts due to environmental inspections and positive headlines regarding the trade war. Investment funds on the LME reduce their net short position in recent weeks to nearly flat; there is capacity in the market on the upside but we expect the downward trend to remain intact assuming there is no trade resolution.

Iron Ore & Steel - Steel Output Rebounds

Source: Bloomberg, 16.10.19

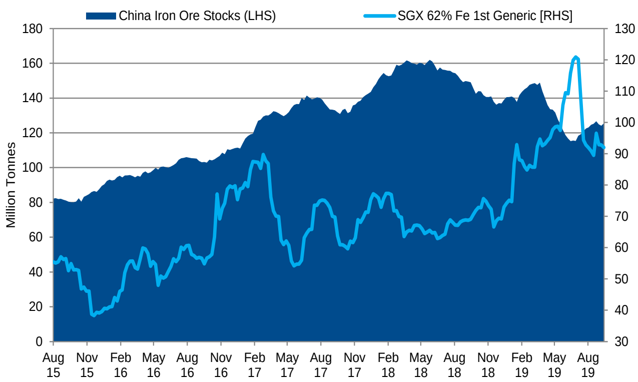
Summary

Chinese crude steel production picked up the pace in September to 87.25m tonnes; however output outside of China was subdued once again. Steel demand faces headwinds from strict property financing regulations, however local government bond issuances are approaching their 24.08trn yuan ceiling for 2019 at 21.41trn yuan. Environmental production cuts could support prices in the coming months which could offset weaker demand from China. Iron ore exports from Brazil are recovering and while output is not completely stable, we expect prices to start to fall.

Q3 Recap: Rebar prices faded in Q3 as selling pressure caused SHFE January futures prices to fall 7% in the 3 months to the end of September, to 3,485yuan/t. Weakening economic data in China and reluctance from Beijing to support the economy using the property market weighed on prices. Steel margins have started to recover as input costs decline, exemplified by the fall in iron ore prices. The SXG TSI iron ore futures contract has consolidated in recent weeks above $90/t. The resurgence of Brazilian production exerted downward pressure on iron ore prices falling 17.4% in Q3. Chinese port inventories have started to rise and this could put downward pressure on prices with the forward curve in backwardation.

Steelhome China vs SGX 62% Fe Price

Rising imports and Brazil production softens outlook.



Source: Bloomberg

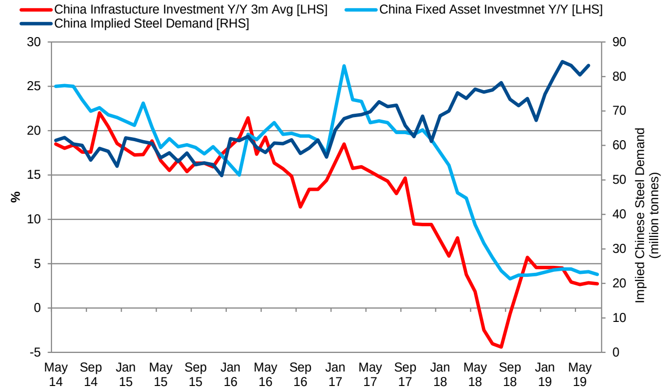
Outlook: The Chinese economy is on the back foot with industrial production sliding further in August to 4.4% y/y but 5.6% YTD y/y. However, property investment continues to outpace other indicators, growing at 10.5% y/y in August but strict property financing regulations are hindering the industry. Chinese regulators confirmed in July that the property market should not be used to stimulate short-term economic growth. Policy makers want developers to control bond issuance to keep debt levels down but this decline in growth needs to be offset elsewhere, as the property industry is estimated to equate to 20% of China's GDP growth. This helps to explain the reductions in RRR in recent months in an attempt to boost investment in the Chinese economy and release liquidity into the economy.

Property finance controls have boosted investment in infrastructure, exemplified by local governments who have continued to issue bonds. New local government bonds reached 2.8951tn yuan for the first 8 months of the year, 34% higher y/y, 40% of the bonds are going towards building government subsidised housing. The ministry of finance suggests that outstanding government debt amounted to 21.41trn yuan, marginally below the 24.08trn ceiling set last year. China property starts continue to fall, reaching 8.9% y/y in August according to the NBS.

Despite weakening macroeconomic indicators and seasonality, implied steel demand rebounded in September to 83.034m tonnes towards the May high of 84.33m tonnes. In keeping with consumption, steel production edged higher in September to 87.25m tonnes but has softened in recent months. Strong demand for iron ore and steel production levels suggests we could see prices remain on the back foot in the near term but production curbs are set to be stronger although we are yet to see evidence of that. In the longer run, steel consumption looks to be peaking, especially given the significantly slower growth in Chinese infrastructure investment and fixed asset investment.

China Investment X Implied Steel Demand

The disconnect between steel demand and investment continues.

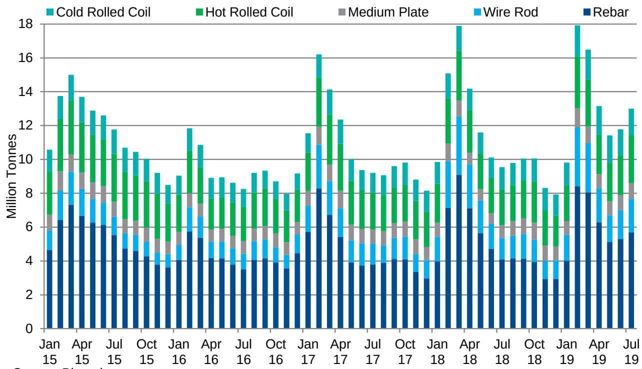


Source: NBS, CEIC,Bloomberg

Accordingly, Crude steel output improved in September to 87.25m tonnes, form 85.22m tonnes the month prior. August's figure is still 1.85m tonnes below May's record output and we partially attribute this to strong steel margins last year, meaning producers are more comfortable to produce at a narrow loss this year. According to SMM, Chinese electric arc furnace (EAF) steelmakers have reduced operations due to limited scrap availability as lower steel prices hindered margins, SMM estimate that 1 tonne of steel scrap cost 2,300-2,500 yuan/t at the beginning of September. EAF steelmakers saw margins fall to 208.71 yuan/t at the beginning of September 2019 and this could continue as weak demand conditions linger in China. Rebar prices weakened once again after partially recovering in September, the January 2020 contract trades at 3,323 yuan/t as production curbs ease.

Chinese Finished Steel Inventories

Inventories remain high on a historical level for this time of year.



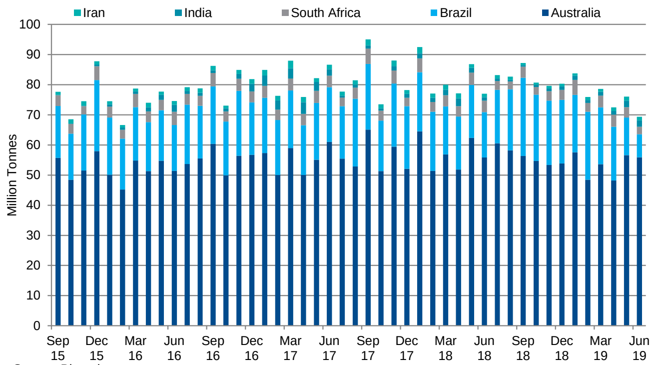
Source: Bloomberg

Finished steel inventories increased in July which is unusual for this time of year; however it does affirm the poor demand conditions. Rebar, wire rod and medium plate steel inventories all increased in August, even though environmental restrictions limit production in key steel regions such as Beijing, Hebei, Tianjin and Xingtai a province in Hebei. Appetite for cold-rolled steel has seen inventories decline in 2019, demand for 1.0mm cold-rolled steel has widened between 5.5mm hot-rolled steel in September. Cold-rolled steel demand outstripped hot-rolled steel as home appliance and car manufacturers re-stock ahead of peak season. NBS data suggests that output of home appliances has started to fall but we could see demand improve in the coming months. Conversely, the auto sector is weak, August production and sales of passenger cars declined 0.7% and 7.7% y/y respectively.

The Ministry of Ecology and Environment released details of upcoming environmental restrictions due to the smog-control plan. Hebei, Beijing, and Tianjin will be subject to restrictions from October 1st to March 31st 2020. Indeed, restrictions come after Shanghai released a statement outlining cutbacks due to construction works and Xingtai indicated anti-pollution plans where steel mills and blast furnaces will face restrictions. Production of hot-rolled steel suffered in September due to maintenance works which may impact cold-rolling output in the coming months. HRC profit margins improved in August according to Mysteel, with month-on-month recovery to $15/t with medium plate margins gained to RMB 29/t. Input prices for steelmakers have fallen in recent months, benefiting the profit margins. The SGX TSI FOB Australian coking coal has fallen incessantly since reaching a high for the year in May at $199/t; prices have since fallen to $141.30/t as of October 16th. Indeed, the first generic coking coal contract on the Dalian exchange have fallen 9.82% since the July to $1,299.5/t as of October 16th.

Top 5 China Iron Ore Imports

Chinese imports bounce back strongly.



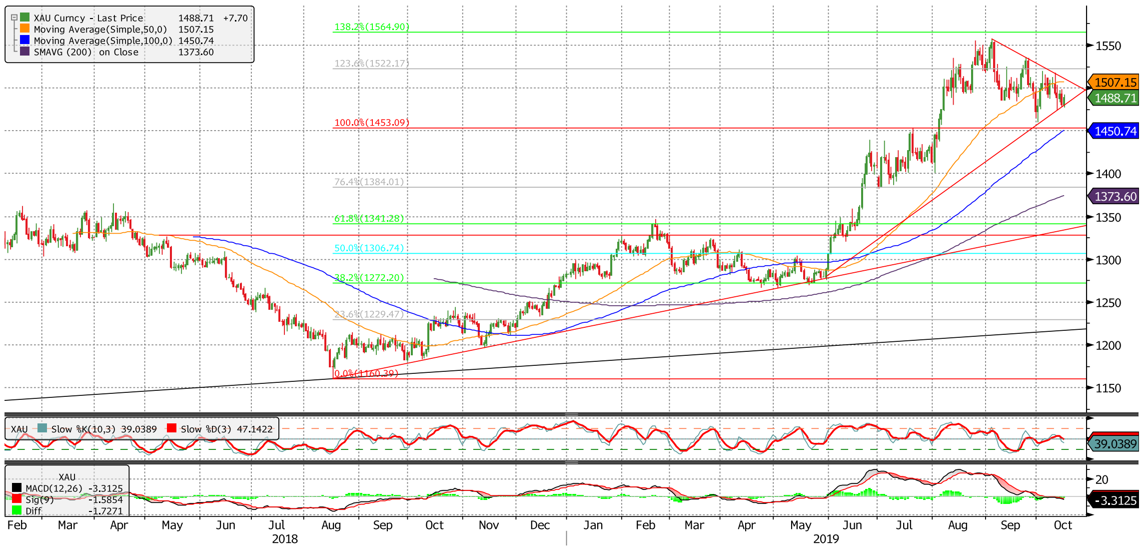
Source: Bloomberg

Chinese iron ore imports have remained strong in recent months, consistent with our previous report, total Chinese iron ore imports reached 99.36m tonnes in September up from 94.85m tonnes in August and we expect imports to remain elevated in the coming months. The first 9-months of the year, seaborne iron ore reached 784m tonnes, down 2.4% y/y. Other than EAF steelmakers, margins have recovered and this could support demand for iron ore. Indeed, the significant decline of imports from Brazil in H1 2019 caused Chinese port stocks to fall to 115m tonnes, down in June 2019, down from 148.9m tonnes in April 2019. We expect restocking of port stocks to continue in the coming months which could weigh on iron ore prices. According to Wood Mackenzie, Vale production is running at 345m tonnes of annual capacity and still has 30m tonnes idled that could come back online in the next year and a half.

There is a question mark over how long Australia can uphold strong shipments of high quality iron ore. Arrivals at Chinese ports fell 2.67m tones in the week to September 24th to 11.26m tonnes. Shipments leaving Australia declined 1.15m tonnes, however we anticipate rising Brazil exports to offset this loss. The decline in iron ore prices is expected to put pressure on inefficient high cost producers in China. We anticipate domestic production to remain elevated in the coming months as prices are likely to remain around current levels. Steel production has been strong and we expect this to continue, supporting iron ore demand. We could see producers start to revert back to higher quality fines in 2020 widening the spread between 63% Fe and 65% Fe.

Gold - Largest ETF Holdings In 6 Years

Spot Gold $/Oz



Source: Bloomberg, 16.10.19

Summary

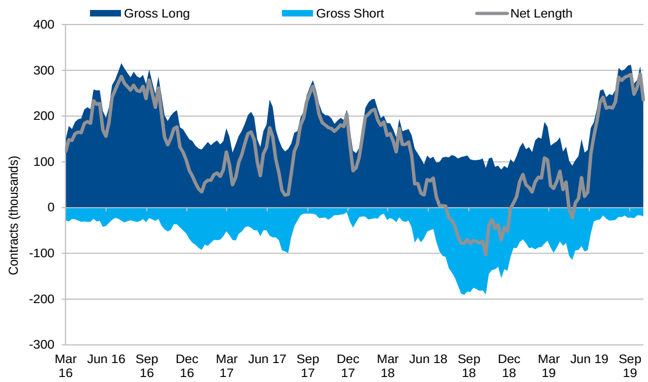
With a deteriorating global outlook, driven by the US-Sino trade war, we believe investors' appetite for gold will increase further into Q4. Potential deterioration with China in regards to trade war negotiations will add to the precious metal rally and further interest rate cuts will boost pessimistic global outlook. Europe and the US remain the biggest gold-backed ETF investors, where poor labour performance and Brexit uncertainty add to market demand for a safe-haven asset.

Q3 Recap: Gold prices rocketed to multi-year highs, overtaking palladium once again, as trade tensions between the US and China, continuing unrest in the Middle East and uncertainty in regards to Brexit in Europe drove the prices to a six-year high. The safe-haven asset has been responsive to the outcomes of trade talks, and the further announcement by Trump to increase tariffs on China in August has pared the biggest gold gains, up 12.68% to $1,557/oz. Central bank buying and strong ETF inflows were the most prominent supporters behind the gold rally.

By the end of the quarter, bullion prices eased amid expectations of the trade war resolution. At the time of writing, gold is at $1,509/oz. Monetary policy easing did not prove to be effective in driving investors away from the precious metal. In part, this can be attributed to markets pricing in rate cuts prior to the official statement, whereas global trade unpredictability drove investors to gold as a safe-haven. The 90-day volatility has fluctuated this year, especially in September, gaining 6.03% amid China-US disputes. Thus, given its responsiveness to market conditions and unpredictability of politics in the markets, the short-term outlook remains unclear. However, we do see gold's outlook pick up to the upside in Q4, largely supported by a deteriorating domestic economy in the US and trade disputes.

COMEX Managed Money Net Positions

Global headwinds have added to 3-year net length highs.



Source: Bloomberg

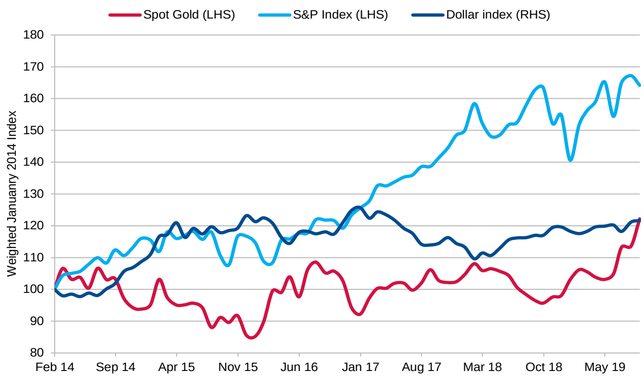
Outlook: Investors around the world have been drawn to gold at a time of negative bond yields, which has further increased the appeal of gold relative to bonds. In October, COMEX non-commercial net long positions are tracing above 0.35m contracts, returning to August highs. North America and Europe remain the biggest contributors to gold-backed ETF inflows, where negative manufacturing production and Brexit uncertainty has urged investors into safe-haven investing. The inflows from the US were supported by continued tension with various trade partners, as well as expectations of lower interest rates and deteriorating headline economic indicators. CFTC total open interest picked up to 1.17m contracts in October, the record high since 1995.

Private investors have begun to shift their holdings of gold from Hong Kong, as the financial centre faced the worst political crisis since the handover to Chinese sovereignty in 1997. The new destinations of HK gold are Singapore and Switzerland, where geopolitical situations remain calm, and the metal reserves are safer. China's net monthly gold imports via Hong Kong in August rose above 60% to 12.997t, after falling to their lowest in more than eight years in July. This could be attributed to China partially lifting restrictions on Hong Kong gold trade flows into China. China imported much more through Switzerland and Singapore than it did via Hong Kong amid months-long political unrest in the biggest physical gateway gold port.

We see gold to continue its bullish momentum; given no significant improvements in the trade negotiations are made. However, as recessionary fears loom over the markets, and yields continue to trace at record lows, investors will shift away from low-yielding returns towards the precious metal. Gold will be seen as a more prominent source of both insurance and diversification over the next quarter. In the long-term, we believe that gold will perform strongly once US monetary policy starts approaching near-zero rates, and further fiscal stimulus in many economies will make the markets question expectations of long-term inflation stability.

Gold, Equities and Dollar Performance

S&P is seen outperforming gold and greenback thanks to cheap global credit.

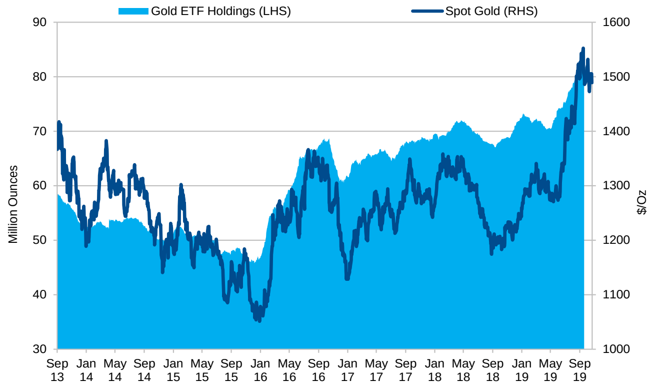


Source: Bloomberg

The correlation between equities and gold has diverged further into negative territory, despite both market indicators growing together so far in 2019. Gold has always been seen as a safe-haven; it is considered to be an inflation hedge as well as a diversifier and enduring store of value, thus correlates negatively to equity growth. This relationship, however, did not seem to hold over the course of Q3. Gold, dollar and S&P equities have all made some decent gains over the quarter, as American growth resilience beat expectation. We attribute to cheap debt fuelling record level of company buy-outs as well as the market's inability to price in lower economic performance in the US.

Gold ETF Holdings vs Spot Price

The gold spot gained 21% YTD as ETF holdings reach 2012 highs.



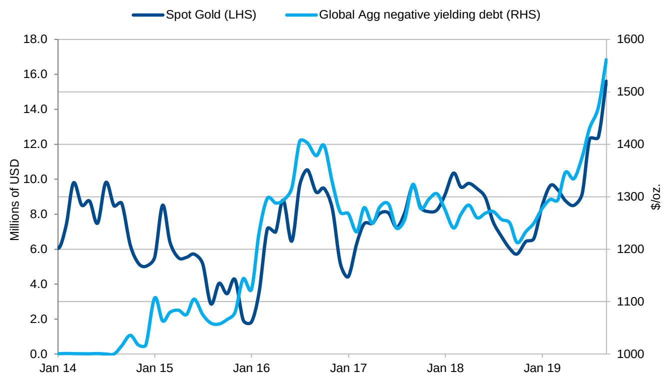
Source: Bloomberg

The risk-off appetite has been further outlined by total known ETF inflows reaching 2012-13 highs, 81moz in October. According to the World Gold Council, UK-listed ETFs attracted the most, given Brexit concerns and currency weakness. In the US, the growth was modest, adding 4.8t in Q2, despite higher-valued dollar gold price.

Central bank purchases continue to demand the gold for their reserves, driving the prices for gold even higher. In the first half of 2019, central bank demand was at the highest level since becoming net buyers in 2010. Their net purchases rose 47% y/y to 244.4t in Q2. Continued gold buying is a clear indication of the central banking community's mindset towards gold. Amid ongoing global struggles, emerging market banks were the biggest gold buyers, with Russian gold reserves increasing 38.7t in Q2 and Chinese growing 74t in H1 2019.

Gold and Global Debt

In a world of accumulating negative-yielding debt, gold tends to perform well.



Source: Bloomberg

In Q2, jewellery demand was modest; up 2% q/q as Indian buying was unable to catch up with a slowdown in China. Withering consumer sentiment and rallying gold prices have curtailed jewellery demand across China. Solid gains in both dollar and gold posed greater threats to gold buying in those markets where retail prices respond to underlying prices of the precious metal, including much of Asia and the Middle East. Indian jewellery purchasing had its best quarter in Q2 2019 since Q2 2017 amid wedding seasons taking place. Thus, we expect Q3 to pose much lower purchases as the impact of slowing global economy settles in India. Further increase of duty on gold sees a dampening effect on gold demand in India, especially as gold prices remain elevated. In China, jewellery demand dropped 4% YoY in Q2 to 137.8t as a price rally and retailer's promotional efforts can no longer tempt consumer demand.

Silver - Safe Havens Emerge From The Crowd

Spot Silver $/Oz

Source: Bloomberg, 16.10.19

Summary

While industrial demand for silver through solar panels is starting to wane, speculator demand is strong. Appetite for precious metals has been strong this year, exemplified by the inflow of funds into ETFs and rise in net longs on the commitment of traders. The trade war has taken its toll on solar panels with Huawei shutting down solar energy business in the U.S. We expect silver demand to remain strong and the recent pullback in prices may cause new long positions to re-enter the market after a period of profit taking.

Q3 Recap: Consistent with our previous report, silver has rallied strongly in recent months as macro-economic headwinds have been compounded. As the trade war intensified and central banks started monetary easing, precious metals and more specifically, silver were well bid. Silver prices increased 11.10% in Q3 from start to finish, but prices peaked at $19.6497/oz, up 28%. Spot silver prices have since reaffirmed support at $17/oz as the CFTC Comex silver non-commercial futures net positions have started to fall, suggesting some profit taking. U.S. data has held up relatively well in 2019 but we are now seeing signs of weakness in the labour market. Conversely personal consumption remains surged in Q2 to 4.6%, the highest since December 2017. The University of Michigan Consumer Sentiment Index has weakened in recent months and we expect personal consumption in the U.S. to start on a seasonally adjusted basis due to seasonal Christmas shopping.

Gold/Silver Ratio

Silver's outperformance of gold has caused the ratio to fall.

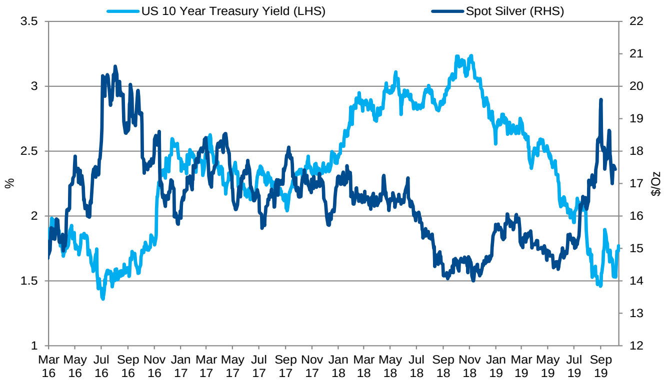
Source: Bloomberg

Downgrades to global economic growth and interest rate cuts in major economies are helping drive demand for precious metals. Furthermore, Barclay's global aggregate negatively yielding debt market value reached $17.037trn on August 28th but has since fallen to $14.23trn. The R2 correlation between the price of silver and the global aggregate negatively yielding debt is 0.349 from May to October 2nd, but increased significantly to 0.566 from August 31st 2019 to October 2nd. We expect geo-political tensions and slower economic growth to support silver prices.

Outlook: In our previous report, we suggested for the ratio to decline silver needed to outperform gold. In Q3 we saw the ratio close -0.30%, however this does not tell the full story. The strong performance of silver prices caused the ratio to reach the lowest point since August 2018 at 79.2394. Since then, spot gold prices have rallied causing the ratio to push back above 85. The long-term divergence between silver and gold is still intact and silver would need to considerably outperform gold for this relationship to change; we believe that the ratio will remain at historically high levels in the long run.

US 10-year Treasury Yield vs Spot Silver

Bond rally has acts as a headwind to prices.

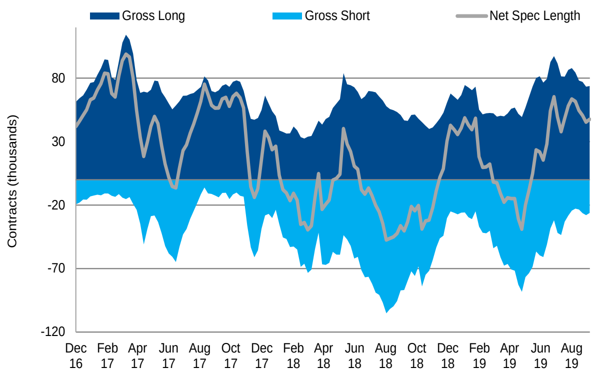


Source: Bloomberg

The interesting relationship between silver and the U.S. dollar has become more pronounced in Q3, the dollar index and precious metals had a positive correlation in Q3, R2 was 0.038 between July 3rd, 2019 and October 3rd 2019 which is extremely marginal. However, the relationship strengthened between August 3rd and October 3rd 2019, indeed U.S. government bonds yields weakened trading to 1.5769% as of October 3rd, yields have since rallied towards to 1.7325% but we expect this to soften back to 1.50%. The relationship outlines investors' drive for yield and also safe haven assets. Even with the Fed cutting interest rates and slowing GDP in the U.S., the 10yr yield is positive, a stark contrast to other major economy yields. Demand for the greenback is strong but the lack of liquidity in the repo markets is a significant threat to the global economy if this issue persists; this could further fuel speculator demand for silver.

COMEX Managed Money Positioning

Buying pressure has waned but the net length consolidates.

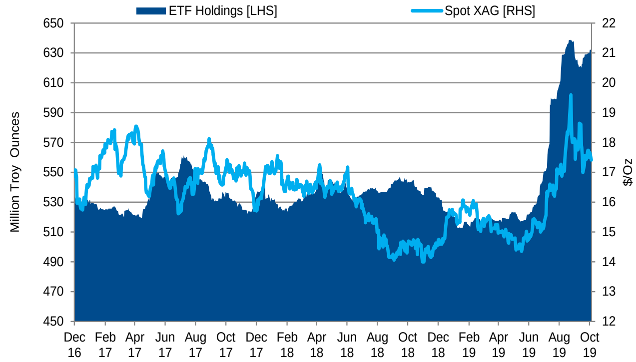


Source: Bloomberg

The silver managed money net length increased in Q3 by 115% to 50,634 contracts as of September 24th 2019. The pull back in prices can be attributed to long liquidations and according to CFTC data, the number of short traders has diminished significantly since May, from 74 to 52. Indeed, the increasing number of traders trading silver from the long side hit an all-time high in July at 146, as of October 16th there were 130. The record net length was in 2016 and as of September 24th, total traders in the silver market were 253 off the record of 275. This suggests that there is capacity for silver prices to continue to trend higher in the near term as haven demand strengthens.

Silver ETF Holdings vs Spot Price

ETF holdings have seen large inflows as speculators bet on higher prices.

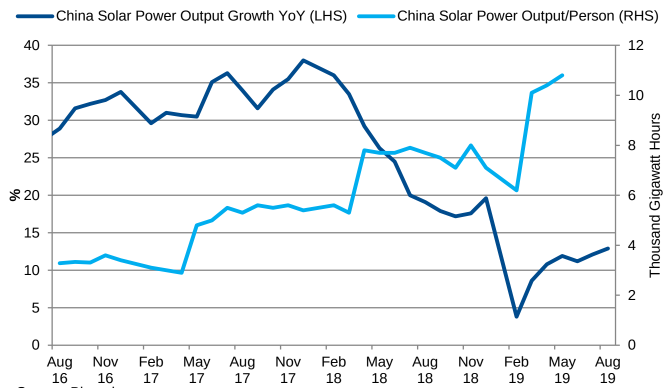


Source: Bloomberg

Known ETF holdings increased by 17.6% in Q3, rising to a record 639bn troy ounces as of August 30th. ETF holdings have marginally fallen to 630bn troy ounces and looking at the global economy, geo-political tensions, political uncertainty surrounding Brexit, the trade war and also murmur of impeachment of Donald Trump we expect appetite for silver to remain strong in Q4. Precious metal ETFs have seen significant inflows this year, up 15.34% to October 16th to $22.57bn. We expect this trend to continue for the above reasons. We believe global central banks will continue to stimulate their economies and the Fed will continue to cut rates in 2020 which is traditionally a boon for precious metals as economic uncertainty rises; this is exemplified by the NY Fed probability of a recession in the U.S. in 12 months rising to 37.93% as of August 31st. The demand for precious metals in recent months is outlined by the Philadelphia Gold & Silver Index has gained 27.23% YTD, the index gained 23.5% in Q3 to a high of 102.29 on August 28th but failed to hold onto gains softened to 88.40, up 6.75% for the quarter.

China Solar Power

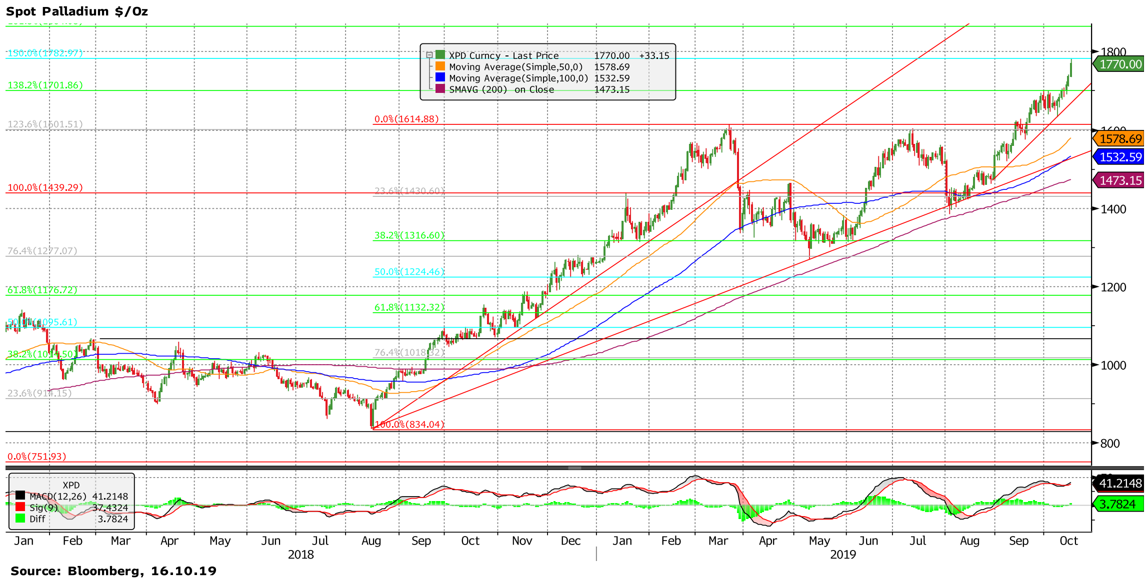
China's investment has trended lower but power output/capita is strong.



Source: Bloomberg

From an industrial standpoint, investment in clean energy has started to fall, in particular in China following the reduction of subsidies. While the government will favour wind and solar projects that generate electricity at the lowest prices, Chinese investment in clean energy has declined 60% in the last 2 years to less than $30bn for 2019, according to BNEF. However, production has continued to rise and efficiencies indicate that $1 of investment goes a lot further today than it did a decade ago. However, a shift in subsidies from the government and slowing economic growth may prompt a reduction in investment and installed solar panel capacity in 2020.

Palladium - Emission Regulations & Auto Demand



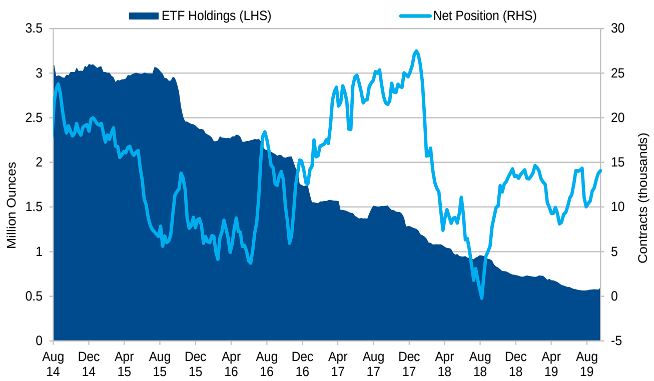
Summary

Palladium has remained on trend, with prices being well supported at $1,375/oz. in August to $1,702/oz. in September. A new round of emission regulations favouring petrol vehicles over diesel supported this rally. We see these regulations driving palladium consumption higher into Q4, however at a much more moderate rate, as slowing manufacturing performance and lower car sales in Germany and China provide further headwinds for global palladium use.

Q3 Recap: After hitting new all-time highs, there seems to be more room for further gains, as we see prices edge closer to $1,700/oz. in Q4 2019. Higher palladium prices in Q3, up 11.66% q/q, were supported by manufacturers trying to get hold of the precious metal ahead of the more stringent emission controls. This rally has spurred speculations of manufacturing shifts to platinum, a cheaper precious metal with similar properties, as their premium diverged past $700/oz. in September (historical high). We believe the palladium rally will continue into Q4, as data shown by CFTC net non-commercial combined has been increasing but remain considerably below the record high at 27,614 contracts in January 2019, with more traders in the market today. At the time of writing, the positions are trading at 12,806 net long from 1,100 in August 2018, the lowest level in over 15 years. From the supply side, the easing in production in H1 2019 was mostly driven by the release of the pipeline stocks, which have now exhausted its impacts into Q4.

ETF Holdings vs Palladium Net Position

ETF holdings are seen picking up in October from a multi-year decline.



Source: Bloomberg

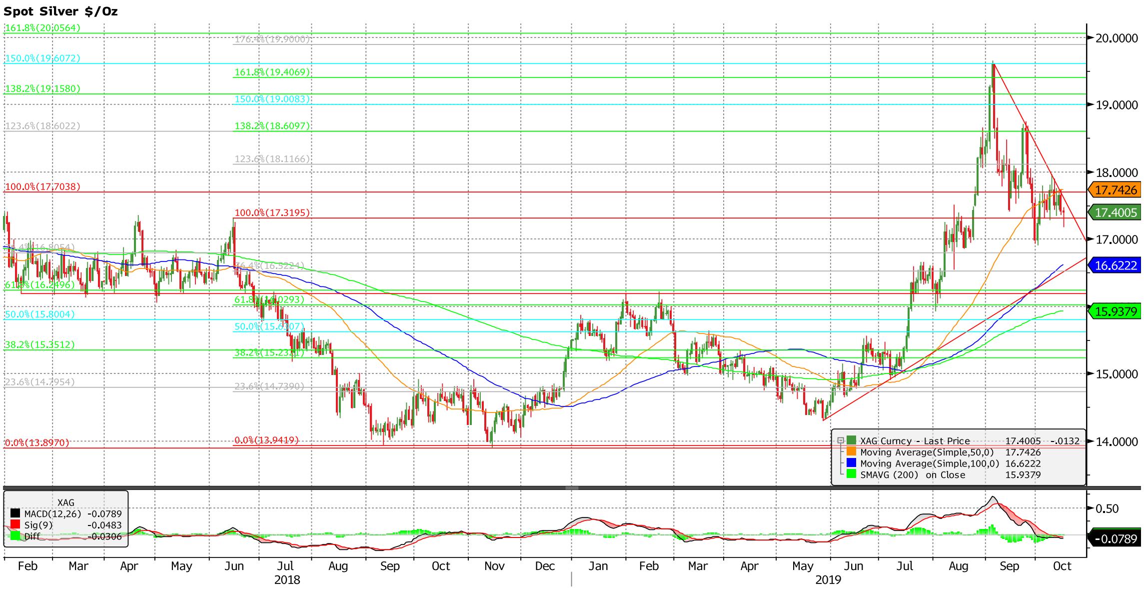
Outlook: Johnson Matthey expects palladium's eighth consecutive deficit in 2019 to be over 800koz with demand supported by China's implementation of the China 6a regulation, which is more stringent than US and EU regulations for diesel vehicles. In Q4, however, the signs of further weakness from the Chinese car market will keep demand more muted.

In the US, light truck sales increased, partially attributed to the relaxation of environmental standards. Indeed, the White House has stripped California of its right to set its own vehicle emissions standards and banned other states from setting similar rules. This could have a significant impact on commercial and light-truck sales, supporting further increase in sales in 2019. We see palladium's demand improving in Q4, however, at a much more moderate pace than before, as slowing manufacturing and labour activity drags on the economy.

In German automobile industry so far, production and exports of passenger vehicles have declined drastically, 11.73% and 14.35% YTD respectively. However, as new regulations towards the light commercial vehicles come into power, we see further preference for palladium over platinum in the long term. European cars now require an average fleet emission level of 147 g/km, in comparison to 175 g/km in 2017. Real Driving Emissions (RDE) tests that measure the pollutant cars produce when on the road are already underway in some parts of China and the EU and will become mandatory in 2020.

In the EU, diesel engines are now being phased out in favour of petrol vehicles with stricter emission standards, suggesting a further positive momentum for palladium-used converters. Convergence of platinum and palladium prices might add to manufacturers pausing their considerations for a switch away from palladium. We see the premium narrowing in the near-term. As new emission regulations come into force, palladium will likely be more in demand in the long-term.

Platinum - All Eyes On The Wage Dispute



Source: Bloomberg, 16.10.19

Summary

Platinum may claim 2019 as a turning point year despite a volatile first eight months. In Q3, platinum's spot price has jumped 19.91%, and we see more moderate gains made in Q4, given no resolution to South African wage disputes. All known ETF holdings grew to record highs at 3.304moz. in August; this was affirmed by the increase in the CFTC non-commercial net position which could suggest a continued buying pressure in the medium term.

Q3 Recap: Platinum prices picked up sharply in September amid Sibanye-Stillwater strikes taking a toll on one of the world largest precious metals mining companies. In Q3, platinum gained 14.98% q/q up to $998.21/oz. South African strikes and wage negotiations have provided prominent tailwinds to platinum prices in 2019, after last year's sharp losses amid production surplus. Prices declined in October to $870/oz. from $998.21/oz. in September amid Sibanye and Anglo American mines referring the wage dispute to AMCU for conciliation. We do not foresee any rapid improvements made on the wage negotiations in Q4, which should provide support for platinum prices.

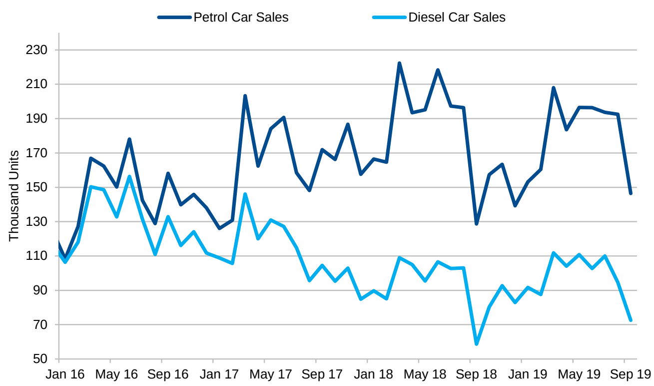
CFTC net non-commercial combined positions have increased drastically from net short of 1,153 contracts in February to a net length of 36,975 contracts as of September 10th, with record highs of 56,853 contracts in September 2016. Similarly, total known ETF holdings increased 7.75% in the quarter to 3.28m, the highest level since 2007, outlining strong speculator demand.

Outlook: According to the World Platinum Investment Council (WPIC), 2019 forecast stands at 345koz surplus, down from 375koz a quarter before. This is in line with a stronger increase in investment demand, offsetting lower jewellery and automotive sectors this year. Investment demand reached 855koz in H1'19, whereas jewellery and automotive fell 5% and 4% respectively. Global platinum demand stood at 1,890koz in Q2, 4% higher y/y, yielding a total surplus of 220koz in Q2.

German car manufacturing, however, presents downside risks to platinum in Q4. Passenger vehicle production continues to fall in August, losing 11.80% m/m, with new diesel registration vehicles following the trend. Due to pollution concerns, trade woes and slowing economies, the demand for diesel vehicles has been hit sharply. Petrol car sales have improved, outpacing diesel cars in their market share of German passenger car sales, up to 59.9% of petrol sales in September versus 52.2% in January 2017. Both types of cars are already required to be released in accordance with new Euro 6d regulations; however, diesel cars are further scrutinised to maintain a lower level of CO2 emissions per km driven. We see manufacturing car production slowing further down in 2019, especially the diesel versions, exemplified by European companies making promises to cut their diesel versions out by 2020-21. In the US and China, new passenger vehicles saw moderate increases in sales in August, 13.73% and 7.9% respectively. We attribute this to an increase in stockpiling by car dealerships ahead of the additional tariffs in September 2019, and do not foresee this trend to continue into Q4 2019.

Germany Petrol vs Diesel Cars

Petrol cars diverge further from diesel as new EU regulations come into force.



Source: Bloomberg

From the supply side, mining production is forecast to increase by 4% y/y, with refined production growth of 5% y/y, an indication of a drawdown from stocks adding most of the supply. A 3% growth in recycling will also contribute to higher production of precious metal. South African production, which contributes 73% of the world's platinum, is estimated to increase despite trade union disruptions.

Appendix

Global

Global Manufacturing PMI

Date	USA (Markit)	China (Caixin)	Eurozone (Markit)	Japan (Nikkei)	Emerging Markets (Markit)
Oct-2016	53.4	51.2	53.5	51.4	51.1
Nov-2016	54.1	50.9	53.7	51.3	50.8
Dec-2016	54.3	51.9	54.9	52.4	51.1
Jan-2017	55.0	51.0	55.2	52.7	50.8
Feb-2017	54.2	51.7	55.4	53.3	51.3
Mar-2017	53.3	51.2	56.2	52.4	51.6
Apr-2017	52.8	50.3	56.7	52.7	50.9
May-2017	52.7	49.6	57.0	53.1	50.6
Jun-2017	52.0	50.4	57.4	52.4	50.8
Jul-2017	53.3	51.1	56.6	52.1	50.9
Aug-2017	52.8	51.6	57.4	52.2	51.7
Sep-2017	53.1	51.0	58.1	52.9	51.3
Oct-2017	54.6	51.0	58.5	52.8	51.2
Nov-2017	53.9	50.8	60.1	53.6	51.6
Dec-2017	55.1	51.5	60.6	54.0	52.2
Jan-2018	55.5	51.5	59.6	54.8	51.9
Feb-2018	55.3	51.6	58.6	54.1	51.9
Mar-2018	55.6	51.0	56.6	53.1	51.3
Apr-2018	56.5	51.1	56.2	53.8	51.3
May-2018	56.4	51.1	55.5	52.8	51.1
Jun-2018	55.4	51.0	54.9	53.0	51.2
Jul-2018	55.3	50.8	55.1	52.3	51.0
Aug-2018	54.7	50.6	54.6	52.5	50.8
Sep-2018	55.6	50.0	53.2	52.5	50.3
Oct-2018	55.7	50.1	52.0	52.9	50.5
Nov-2018	55.3	50.2	51.8	52.2	50.8
Dec-2018	53.8	49.7	51.4	52.6	50.3
Jan-2019	54.9	48.3	50.5	50.3	49.5
Feb-2019	53.0	49.9	49.3	48.9	50.6
Mar-2019	52.4	50.8	47.5	49.2	51.0
Apr-2019	52.6	50.2	47.9	50.2	50.5
May-2019	50.5	50.2	47.7	49.8	50.4
Jun-2019	50.6	49.4	47.6	49.3	49.9
Jul-2019	50.4	49.9	46.5	49.4	50.1
Aug-2019	50.3	50.4	47.0	49.3	50.4
Sep-2019	51.1	51.4	45.7	48.9	51.0

Source: Bloomberg

Aluminium

Price Forecasts and China Quarterly Supply/Demand Balance (kt)

		Production	Consumption	Balance	Stocks Days Cons	SHFE Cash Price $/tonne
2016						
	Q1	7571	6527	1043	102	1693
	Q2	7932	8096	-163	82	1880
	Q3	8224	8217	8	81	1888
	Q4	8460	8825	-365	72	1997
	Total/Average	32187	31664	522	78	1952
2017						
	Q1	9042	7164	1878	109	1971
	Q2	9195	8795	400	94	2023
	Q3	8850	8897	-47	93	2316
	Q4	9123	9563	-440	83	2306
	Total/Average	36210	34419	1791	89	1867
2018						
	Q1	9096	7568	1529	118	2247
	Q2	9203	9316	-112	96	2271
	Q3	9382	9454	-72	95	2112
	Q4	9225	10182	-957	79	2003
	Total/Average	36906	36519	387	85	2154
2019						
	Q1	9011	7789	1222	113	2002
	Q2	9135	9603	-468	88	2055
	Q3	9146	9735	-589	82	2004
	Q4	9361	10469	-1107	67	
	Total/Average	36654	37596	-942	72	
2020						
	Q1	9412	8129	1283	96	
	Q2	9668	10003	-336	76	
	Q3	9843	10137	-294	73	
	Q4	9906	10905	-999	59	
	Total/Average	38829	39175	-346	63	
2021						
	Q1	9929	8519	1410	86	
	Q2	10068	10491	-423	67	
	Q3	10270	10638	-368	64	
	Q4	10345	11447	-1102	51	
	Total/Average	40611	41095	-483	54	

Source: Wood Mackenzie

Aluminium Forecasts

Global (Mt)	2016	%	2017	%	2018	%	2019	%	2020	%	2021	%
Alumina Production (SGA)	114.2	103.2%	122.8	7.5%	124.8	1.6%	125.7	0.7%	132.7	5.6%	137.2	3.4%
Aluminium Production	59.1	3.3%	63.5	7.6%	64.6	1.7%	65.1	0.8%	68.8	5.7%	71.2	3.4%
Consumption	59.6	5.5%	63.2	6.0%	65.4	3.6%	66.1	1.1%	68.2	3.1%	70.8	3.8%
Metal Market Balance	-0.5		0.4		-0.8		-1.0		0.7		0.4	
Stock Days of Consumption	82		80		73		66		68		68	
Alumina Market Balance	-1.0		-1.0		-2.9		0.4		0.5		0.8	
Stock Days of Requirement	49		42		33		34		34		34	
Prices												
Cash Aluminium ($/t)	1604		1968		2110		1804		1806		1819	
(c/lb)	73		89		96		82		82		82	
Spot Alumina ($/t)	254		354		474		344		333		320	

Source: Wood Mackenzie

Price Forecasts and World Quarterly Supply/Demand Balance (kt)

		Production	Consumption	Balance	Stocks Days Cons	LME Cash Price $/tonne
2016						
	Q1	14204	13418	786	99	1515
	Q2	14568	15273	-705	84	1571
	Q3	15016	15224	-208	83	1620
	Q4	15292	15679	-388	79	1710
	Total/Average	59081	59595	-514	82	1604
2017						
	Q1	15748	14264	1484	94	1849
	Q2	15959	16197	-208	83	1911
	Q3	15745	16110	-365	82	2011
	Q4	16062	16590	-528	77	2100
	Total/Average	63544	63162	382	80	1968
2018						
	Q1	15943	14738	1205	92	2158
	Q2	16109	16818	-709	77	2259
	Q3	16381	16701	-320	77	2055
	Q4	16211	17166	-955	70	1967
	Total/Average	64644	65423	-779	73	2110
2019						
	Q1	15900	14877	1023	85	1859
	Q2	16136	17009	-873	70	1793
	Q3	16398	16888	-491	68	1762
	Q4	16697	17350	-653	62	1803
	Total/Average	65130	66124	-994	66	1804
2020						
	Q1	16712	15336	137+	79	1790
	Q2	17107	17534	-426	67	1805
	Q3	17432	17412	19	67	1810
	Q4	17593	17903	-311	64	1818
	Total/Average	68844	68186	658	68	1806
2021						
	Q1	17397	15887	1510	80	1810
	Q2	17671	18193	-523	68	1815
	Q3	18020	18078	-58	68	1825
	Q4	18129	18608	-480	64	1825
	Total/Average	71216	70767	449	68	1819

Source: Wood Mackenzie

Copper

Copper Forecasts

Global (kt)	2018	%	2019	%	2020	%	2021	%
Total Mine Production	20808	3.4	20718	-0.4	21162	2.1	22057	4.2
Total Smelter Production	19448	2.0	19407	-0.2	20161	3.9	20999	4.2
Refined Production	23466	2.1	23538	0.3	23917	1.6	24655	3.1
Consumption	23530	2.1	23581	0.2	23940	1.5	24340	1.7
Concentrate Stock Change	4		-200		0		200	
Metal Market Balance	-64		-43		-24		315	
Metal Stocks - Days of Cons	67		66		65		69	
Prices								
Cash LME Price ($/t)	6523		6033		6725		6438	
(c/lb)	296		274		305		292	
Contract TC/RCs (c/lb excl pp) for 30% Cu Conc	21.1		20.7		18.4		20.1	
Contract Blister Europe ($/t)	165		160		158		187	

Source: Wood Mackenzie

Copper Concentrate Market TC/RCs

	Asia Term Contracts (Benchmark)			Far East Spot Market (CIF Asia) Miner Selling Terms to Merchants						
	2017	2018	2019	2016	2017	2018	2019			
	Ave	Ave	Ave	Ave	Ave	Q4	Q1	Apr	May	June
T/C ($/tonne Conc.)	92.50	82.25	80.80	87	73	76	50	43	35	42
R/C (c/lb Cu)	9.25	8.23	8.08	8.7	7.3	7.6	5.0	4.3	3.5	4.2
PP (c/lb Cu)										
Combined (c/lb) +	26.7	23.8	23.4	25.1	21.1	22.0	14.5	12.4	10.1	12.1
Combined (c/lb) #	23.7	21.1	20.7	22.3	18.7	19.5	12.9	11.0	9.0	10.8
				Chinese smelter buying terms (CIF basis)						
				2016	2017	2018	2019			
				Ave	Ave	Ave	Q2	Jul	Aug	Sep
T/C ($/tonne Conc.)				95	84	85	64	57	55	58
R/C (c/lb Cu)				9.5	8.4	8.5	6.4	5.7	5.5	5.8
PP (c/lb Cu)										
Combined (c/lb) +				27.5	24.3	24.6	18.5	16.5	15.9	16.8
Combined (c/lb) #				24.4	21.5	21.8	16.4	14.6	14.1	14.9
+ For a 25% copper concentrate										
# For a 30% copper concentrate										

Source: Wood Mackenzie

Price Forecasts & Quarterly Supply/Demand Balance

		Refined Production	Refined Consumption	Balance	Metal Stocks Days of Cons	Cash Price $/tonne	c/lb
2018							
	Q1	5876	5307	569	77	6960	316
	Q2	5834	6103	-269	73	6872	312
	Q3	5816	6154	-338	68	6105	277
	Q4	5939	5966	-27	67	6171	280
	Total/Avg	23466	23530	-64	67	6523	296
2019							
	Q1	5778	5314	464	74	6214	282
	Q2	5784	6108	-324	69	6112	277
	Q3	5983	6164	-181	67	5805	263
	Q4	5992	5994	-2	66	6000	272
	Total/Avg	23538	23581	-43	66	6033	274
2020							
	Q1	5977	5376	601	75	6150	279
	Q2	5977	6191	-213	71	6750	306
	Q3	5977	6291	-314	67	6950	315
	Q4	5985	6082	-98	65	7050	320
	Total/Avg	23917	23940	-24	65	6725	305
2021							
	Q1	6162	5478	684	74	6000	272
	Q2	6163	6290	-127	72	6400	290
	Q3	6164	6385	-220	69	6700	304
	Q4	6166	6187	-21	69	6650	302
	Total/Avg	24655	24340	315	69	6438	292

Source: Wood Mackenzie

Lead

Global Quarterly Supply/Demand Balance And Price Forecasts

		Refined Prod'n	Cons'n	Balance	Stock Days	$/tonne	c/lb
2017							
	Q1	2925	2861	64	44	2278	103.3
	Q2	3111	3210	-98	36	2164	98.2
	Q3	3179	3167	12	37	2333	105.8
	Q4	3256	3291	-35	35	2493	113.1
	Total/Avg	12472	12529	-58	37	2317	105.1
2018							
	Q1	2918	2897	21	40	2522	114.4
	Q2	3119	3255	-136	32	2387	108.3
	Q3	3194	3217	-23	32	2102	95.3
	Q4	3267	3342	-75	28	1963	89.0
	Total/Avg	12498	12711	-213	30	2243	101.8
2019							
	Q1	2961	2874	86	36	2036	92.4
	Q2	3152	3231	-79	30	1885	85.5
	Q3	3220	3195	25	31	2028	92.0
	Q4	3309	3323	-14	29	2050	93.0
	Total/Avg	12642	12624	18	31	2000	90.7
2020							
	Q1	3023	2914	109	37	2025	91.9
	Q2	3218	3276	-57	31	2000	90.7
	Q3	3293	3236	57	33	1975	89.6
	Q4	3382	3362	19	32	1975	89.6
	Total/Avg	12917	12788	128	34	1994	90.4

Source: Wood Mackenzie

Lead Forecasts

Global (kt)	2018	%	2019	%	2020	%	2021	%
Mine production	4616	1.3	4599	-0.4	4686	1.9	4761	1.6
Refined production	12498	0.2	12642	1.1	12902	2.1	12974	0.6
Consumption	12711	1.5	12624	-0.7	12788	1.3	12764	-0.2
Concentrate balance	28		-2		4		103	
In days of requirement	30		30		30		38	
Refined market balance	-213		18		114		210	
In days of requirement	30		31		34		40	
Prices								
Cash LME Price ($/t)	2243		2000		1994		1906	
(c/lb)	101.8		90.7		90.4		86.5	
Realised TCs ($/t conc)	106		100		113		130	

Source: Wood Mackenzie

Nickel

Global Nickel Quarterly Supply/Demand Balance - (kt)

		Refined Supplies	Refined Consumption	Balance	Cash Price $/tonne	c/lb	Stocks kt	Days of Cons
2018	Q1	541	573	-32	13283	603	1316	207
	Q2	553	582	-29	14463	656	1287	201
	Q3	553	549	4	13240	601	1291	216
	Q4	588	581	7	11469	520	1298	206
	Total/Avg	2235	2284	-50	13114	595		
2019	Q1	589	585	5	12385	562	1302	201
	Q2	591	610	-20	12259	556	1283	191
	Q3	608	625	-17	15608	708	1265	186
	Q4	625	603	22	16976	770	1287	196
	Total/Avg	2413	2424	-10	14307	649		
2020	Q1	615	609	6	16314	740	1293	191
	Q2	616	639	-24	17233	782	1270	181
	Q3	605	629	-24	17012	772	1245	182
	Q4	618	652	-34	17747	805	1212	171
	Total/Avg	2454	2529	-76	17077	775		
2021	Q1	603	631	-29	17894	812	1183	169
	Q2	605	648	-43	19474	883	1140	160
	Q3	606	653	-46	19915	903	1094	154
	Q4	608	677	-69	20283	920	1025	139
	Total/Avg	2422	2609	-187	19391	880		

Source: Wood Mackenzie

Nickel Forecasts

Global (kt)	2018		2019		2020		2021	
Mine Production	2280	+6.5%	2457	+7.8%	2367	-3.6%	2577	+8.9%
Smelter Production	2187	+6.0%	2327	+6.4%	2354	+1.2%	2310	-1.9%
Refined Production	2235	+6.3%	2413	+8.0%	2454	+1.7%	2422	-1.3%
Consumption	2284	+3.6%	2424	+6.1%	2529	+4.4%	2609	+3.2%
Market Balance	-50		-10		-76		-187	
Cash LME price								
($/t - Current)	13114		14307		17077		19391	
(c/lb - Current)	595		649		775		880	

Source: Wood Mackenzie

Tin

ICDX & LME Tin Price

	ICDX	LME Cash	LME premium to ICDX
01-Apr-16	16,800	16,743	-57
02-May-16	17,225	17,220	-5
01-Jun-16	16,300	16,200	-100
01-Jul-16	16,950	17,375	425
01-Aug-16	17,950	17,865	-85
01-Sep-16	19,000	19,165	165
03-Oct-16	20,150	20,060	-90
01-Nov-16	20,500	21,015	515
01-Dec-16	21,350	21,315	-35
03-Jan-17	21,100	21,094	-6
01-Feb-17	19,950	19,814	-136
01-Mar-17	19,300	19,500	200
03-Apr-17	20,100	20,084	-16
02-May-17	20,100	20,015	-85
02-Jun-17	20,425	20,420	-5
04-Jul-17	20,000	20,240	240
01-Aug-17	20,700	20,650	-50
04-Sep-17	20,880	20,985	105
03-Oct-17	20,700	20,954	254
01-Nov-17	19,650	19,535	-115
04-Dec-17	19,600	19,582	-18
02-Jan-18	20,100	20,112	12
01-Feb-18	21,820	21,550	-270
01-Mar-18	21,800	21,755	-45
02-Apr-18	21,100	21,252	152
01-May-18	21,375	21,340	-35
01-Jun-18	20,800	20,795	-5
02-Jul-18	19,850	19,825	-25
01-Aug-18	20,100	19,925	-175
03-Sep-18	19,200	18,895	-305
01-Oct-18	19,150	18,970	-180
01-Nov-18	19,180	19,115	-65
03-Dec-18	18,690	18,871	181
02-Jan-19	19,525	19,508	-17
01-Feb-19	20,750	20,985	235
01-Mar-19	21,790	21,710	-80
04-Apr-19	21,515	21,524	9
02-May-19	19,685	19,639	-46
03-Jun-19	18,770	19,350	580
01-Jul-19	18,840	18,890	50
02-Aug-19	17,280	16,971	-309
02-Sep-19	15,775	16,812	1,037
01-Oct-19	16,030	16,228	198

Source: LME, ICDX

Zinc

Price Forecasts and World Quarterly Supply/Demand Balance

		Refined Supplies	Refined Consumption	Balance	Metal Stocks Days of Cons	Cash $/tonne	Price c/lb
2017	Q1	3,344	3,524	-180	82	2,780	126.1
	Q2	3,324	3,602	-278	73	2,595	117.7
	Q3	3,349	3,545	-197	69	2,962	134.4
	Q4	3,514	3,567	-52	67	3,236	146.8
	Total/Avg	13,532	14,238	-706	67	2,895	131.3
2018	Q1	3,348	3,508	-160	64	3,421	155.2
	Q2	3,351	3,586	-235	57	3,112	141.1
	Q3	3,181	3,529	-348	49	2,537	115.1
	Q4	3,368	3,550	-182	44	2,630	119.3
	Total/Avg	13,248	14,173	-925	44	2,921	132.5
2019	Q1	3,251	3,470	-219	39	2,702	122.5
	Q2	3,423	3,547	-124	35	2,762	125.3
	Q3	3,483	3,491	-8	36	2,344	106.3
	Q4	3,518	3,512	6	35	2,300	104.3
	Total/Avg	13,676	14,020	-344	35	2,527	114.6
2020	Q1	3,488	3,513	-25	35	2,300	104.3
	Q2	3,582	3,591	-9	34	2,300	104.3
	Q3	3,585	3,534	51	36	2,300	104.3
	Q4	3,642	3,556	87	38	2,400	108.9
	Total/Avg	14,297	14,194	103	38	2,325	105.5

Source: Wood Mackenzie

Price Forecasts and World Quarterly Supply/Demand Balance

Global (kt)	2018	%	2019	%	2020	%	2021	%
Mine Production	12928	2.6	13424	3.8	14138	5.3	14383	1.7
Refined Production	13248	-2.1	13676	3.2	14297	4.5	14621	2.3
Consumption	14173	-0.5	14020	-1.1	14194	1.2	14400	1.5
Concentrate Market Balance	292		362		600		602	
Metal Market Balance	-925		-344		103		221	
Prices								
Cash LME Price ($/t)	2921		2527		2325		2571	
(c/lb)	133		115		105		117	
Realised TCs ($/t concentrate)	147		242		264		329	

Source: Wood Mackenzie

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October 2019

Quarterly Metals Report

Q4 2019

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