14 May 2020

Quintessentially PGMs

This Report Has Been Sanitized

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KEY TAKEAWAYS

COVID-19 affects both PGM supply and demand, with auto plants, mines and recycling collection networks all being impacted and in some cases, coming to a halt. The situation is still rapidly evolving and more impacts are yet to be seen with a possible risk of another COVID wave further disrupting the value chains while various government measures supporting the automotive industry could amend and accelerate the trajectory of the metals' offtake and recycling.

Palladium. Currently we see a balanced market in 2020 (previously forecast at -0.9 Moz excl. investment) with the oversupply in March-May being followed by the emerging deficits in H2 2020. Pd use is expected to decrease by -16% YoY (vs the anticipated +2% pre-COVID growth). Auto demand, which accounts for 80% of the global Pd consumption, is to drop by over -20%, according to our base case at the time of writing, but it will be partially offset by growing (+1...+3%) loadings per vehicle. Use in Dental applications is facing severe demand destruction while industrial demand should be impacted the least in 2020.

The total global Pd supply destruction is expected to reach -12% with mines being shut down in South Africa and North America in March and April. Disruption in recycling has been limited so far with a stronger market hit expected in H2 2020.

Palladium	2019	2020E
Demand ex. investment	+0.2 MOz +2%	-1.8 MOz -16%
Supply ex. stocks sales	+0.6 MOz +6%	-1.3 MOz -12%

Potential palladium physical shortages are seen less likely now with the market being more balanced after COVID. This improves sustainability of the Palladium market over the medium term. Pd supply base is also geographically diverse (Russia 29%, Africa 23%, North America 11% and Recycling 35%) providing more confidence to end-users.

Platinum. Palladium substitution with platinum, albeit being actively communicated by market participants, has not been implemented yet and thus has no immediate effect, it rather regarded a long-term prospect (estimated at ~100-200 koz pa after 2023-2024). Moreover, refined Pt supply (incl. scrap) is highly dependent on Africa (~60% in 2019) - a region, which is being challenged by multi-year underinvestment, electricity supply issues, and unpredictable COVID impacts. All that creates wide-spread concerns among consumers over the long-term supply availability, which, in turn, results in a slower progress in the metal mix's changes.

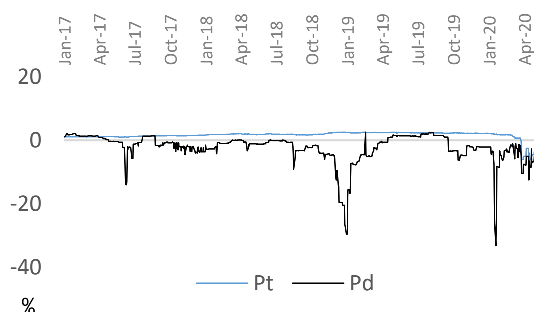
Platinum market is oversupplied in the medium run, with +0.6 Moz of industrial surpluses forecast for 2020. LDV and HDV production is likely to fall more than LGV. Closed stores and weak consumer confidence have also severely affected jewellery sales. However, South African supply might ramp up slower than expected with social distancing potentially disrupting the operation more than currently expected, possibly resulting in lower surpluses.

Platinum	2019	2020E
Demand excl. investment	-0.4 MOz -5%	-1.3 MOz -17%
Supply excl. stocks sales	+0.1 MOz +2%	-1.5 MOz -19%

MARKET SENTIMENT

Since the last (November 2019) issue of *Quintessentially PGMs*, Palladium price continued its rally from the levels of $1800/oz up to the historical highs of $2795/oz on 28th February 2020.

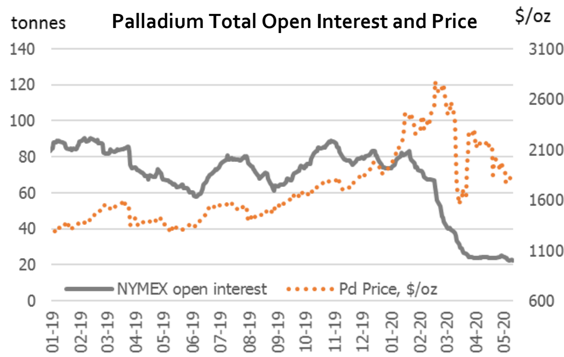
The reason for this rally has already been discussed extensively: shortages of ingots in the spot market and high physical demand for palladium and rhodium (both predominantly destined for deliveries to China) have lead to a surge in the cost of borrowing and spot prices. Palladium short-term lease rates climbed from 5% p.a. in the late 2019 to 20-40% p.a in Jan and Feb 2020.



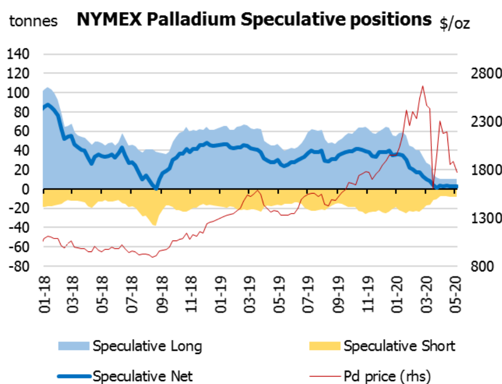
Discounts for palladium sponge in spot market (up to -$8/oz in Q4 2019) reduced to nil, thus evidencing the shortage of metal in general, regardless of its form.

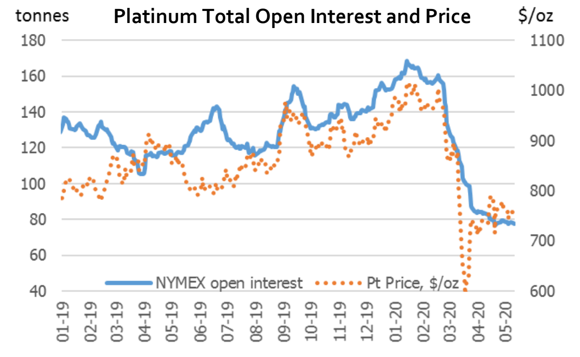
While in December 2019 alone, Chinese car production grew by +8%, BEV manufacturing in China still fell by -4% YOY in 2019 to just 1.2 mln units. It led the market to realise that the ambitious plan of the Chinese government to have 2 mln EVs in 2020 would not be fulfilled, and ICE would still remain the preferred option for the months to come. The January monetary stimulus in China and the expectation of a trade deal between the US and China have improved the markets. Loadings were increasing considerably as well with China progressing to China-6b standard ahead of schedule. Metal inventories (especially rhodium) held by the car-makers and fabricators were still limited. We saw some active buying and strong production before the Chinese New Year – market participants were anticipating further price uplift for palladium and rhodium during the holidays. Also, early in the year, we saw considerable challenges to the South Africa's power supply.

Rhodium prices (a good lead indicator for palladium prices) sky-rocketed from $6,000/oz in December to $14,000 in early March. When physically lacking rhodium, car-makers are forced to increase their palladium loadings substantially.

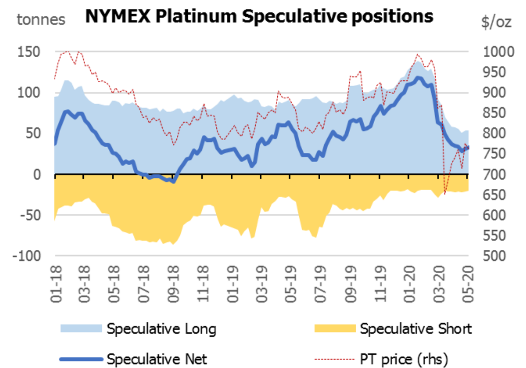


However, starting from March, due to shutdowns in car and catalyst fabrication (as non-essential industries), palladium price fell sharply to under $1600 by 18th March but rapidly restored to $2400 with further corrections in April to the current level of $1800-1900/oz. NYMEX and OTC trade has significantly contracted over the same period.





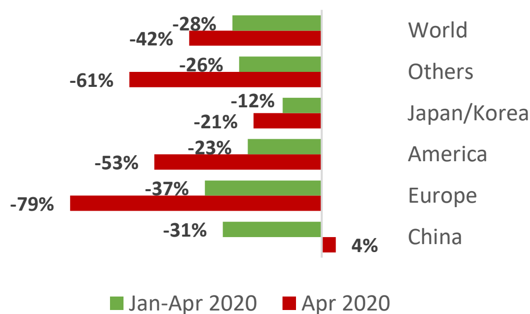
Platinum price shrivelled in March from $1000 to $600 but partly recovered afterwards to the current levels on the back of news stream from Africa. The trading volumes and open interest for Pt also decreased considerably in March and April.



GLOBAL PGM DEMAND

AUTOMOTIVE

Vehicle production has been halted in major regions due to COVID-19, with a slow recovery in output expected to lead to a 20 mln unit cut - down to 71 mln units for 2020. The result is a -1.6Moz (-17%) impact on 2020 Pd automotive demand and -0.7Moz (-21%) for Pt.



Source: LMC Automotive, IHS, Automotive associations

February-March lockdowns in China have caused a loss of -1.2 mln vehicles. In March and April, the virus hit hard the rest of the world resulting in over 50% of global car-making capacity being idled. Autocats were also affected by lockdowns as non-essential production.

Demand in China is starting to rebound now - the retail sales of the passenger car market in China are demonstrating a V-shape recovery. After the outbreak of the epidemic at the beginning of this year, the monthly change of the auto sales from January to April was -18%, -79%, -44%, +4% YoY. The staggering demand for travel after the epidemic has a strong effect on the auto market, spurred by government incentives and offsetting immediate negative impact of the quarantine on the purchasing power.

Data out of China continue to improve as heavy truck sales increased +52% YoY in April, with all of the ten largest Chinese truck companies achieving a double-digit growth. According to the First Commercial Vehicle Network, year-to-date sales reached 454k units, up +2% YoY. The data are encouraging, with pent-up demand being quickly realised post-virus.

As an aftermath of the COVID pandemic, we see a clear trend towards individual mobility since people want to avoid less safe public transport, taxis, car sharing etc. It is believed that up to 80% of the suburban and underground trains' as well as buses' and trams' capacity has to be restricted now in order to enable adequate social distancing and prevent contagion. Restrictions on the use of the mass transit systems as well as fears of being too close to a stranger (e.g. in a taxi or even a moderately full underground train) greatly encourage a much higher level of personal car ownership and use.

Interestingly, the COVID-19 lockdowns have also distorted traditional trade routes, including smuggling from Hong Kong into Mainland China. Officially recorded metal imports into China were up +125% in Q1. Our analysis of trade flows in China & Hong Kong against the supply/demand balance in China has revealed that possible smuggling of Pd ingots into Mainland China well exceeded 50 t - i.e. 75% of import requirements in 2019.

Industry experts and our clients are concerned that in other parts of the world, auto sales would not recover as quickly as in China. In April, sales in Germany were down -60% YoY, with the rest of Europe down -85% as some major markets like Italy, Spain or the UK came to a full stop (-96...-98%). Sales in North America were down -50%, and they were down -80% in South America. While automakers are beginning to reopen their factories, OEMs have warned that their production could soon stop again if deliveries do not pick up.

According to the LMC Automotive analysis, the global sales of light vehicles is likely to drop over -20% from 90m vehicles in 2019 to 70m vehicles in 2020. Europe is forecast to be hit the most with about -6m vehicles being lost, the US market falling by -5m, China by -3m and -6m vehicles in other regions. However, possible new waves of COVID outbreaks would result in a higher magnitude of losses going forward.

The government support and its impact on sales is yet to be seen. After the 5th May video conference between the German Chancellor Angela Merkel and the German automakers' top executives, including Volkswagen Group, BMW and Daimler, the German government and the industry has convene a working group to discuss the efforts to revive the Europe's largest economy. The results are to be presented in early June. While the Federal Government is considering a broader stimulus package, the Prime-Ministers of the states of Bavaria, Baden-Wuerttemberg and Lower Saxony are backing an alternative plan to pay a subsidy of €4,000 ($4,400) for the low-emissions cars as well as a €1,000 scrapping incentive.

In the US, automakers would be able to apply for relief via a $500 bln fund for loans to distressed companies. This might provide more room for OEMs to push sales and accelerate recovery.

Aside from advocating for the government stimulus measures, OEMs are adapting its financing and leasing offers to make the down payments more palatable. Some financing offers will be stretched to 72 months, instead of the current 36, and the car companies will offer some unemployment insurance, which allows new car buyers to suspend their payments if they lose their job.

The BEV (no PGM used) output in China has been underperforming since July 2019, and the COVID shock hasn't changed this trajectory. According to CAAM, NEV output fell by -27% in April YoY and -43% YTD. The rest of subsidies will be cut by -10% this year, and then by further -20% in 2021, and -30% in 2022. To be eligible for a subsidy, the price of a new energy car has to be less than CNY300k though. This cap can favour higher ICE sales and higher PGM offtakes in the region as a result.

The full COVID impact on BEVs in Europe is yet to be seen. The BEV sales in March were stronger than those of ICE and rose by +7%. Having said that, it is still unclear if the Europeans would be able to maintain the subsidies while the customers would still be willing to pay a premium for the electric vehicles -- especially when the oil prices are so low and the cost of running an ICE vehicle has reduced significantly. One has also to remember that the battery value chain in Europe is still at the stage of formation. Should the European BEV orders grow considerably now, the European producers will, de facto, end up supporting the Chinese and the Korean suppliers. It remains to be seen if it is fully understood and taken on-board by the European producers as well as if the European political authorities would wish to support it now. What we do know though is that the European car manufactures have already asked the European Commission to revise its CO_2 reduction goals or provide a waiver, which may support the share of the more profitable ICE vehicles' producers in Europe.

After having observed higher loadings in 2019, we expect this trend to continue in 2020 but the growth will be lower – only +1...+3% on average:

- China +5...+7% (assuming 85% China-6 - compliant vehicles in 2020 vs 70% in 2019)
- Europe +3...+5% (assuming positive impact on RDE)
- USA +1...+3% (assuming higher SUV/truck share due to low gasoline prices)
- Other regions -1...-3% (engine downsizing, thrifting in Japan)

However, there is a risk to these loadings forecast as we might see some thrifting in China (especially among non-JV OEMs) or in Europe where OEMs have been overloading catalysts facing new RDE rules after the Dieselgate. Also, loadings can be impacted by the vehicle mix – it is still too premature to say what sales strategy would outperform and how engine size trend would evolve post-COVID.

Some further concerns were also raised in the market about moving back to China-5 or China-6a. On 30th April, the Chinese government announced that the cities and provinces that hadn't already implemented China-6, had a six-month extension that allowed them to sell and register the China-5 - compliant cars up to the end of the year. For the cities that have already adopted the China-6 standard, there is a six-month extension for the transition from PN12 to PN11 standard for the PM emissions (i.e. from $6{\cdot}10^{12}$/km to $6{\cdot}10^{11}$/km), again taking us to the year-end.

China emissions legislation

	Type approval test type	China 5 = Euro 5	China 6		
	Implementation Date	Jan 2017 - gasoline Jan 2018 - diesel	Jul 2020, either version a or b		Jul 2023
			China 6a	**China 6b**	China 6b
Type I	Driving cycle	NEDC	WLTC	**WLTC**	WLTC
	THC(mg/km)	100	100	**50** -50%	50
	NMHC(mg/km)	68	68	**35** -49%	35
	NOx(mg/km)	60	60	**35** -42%	35
	CO(mg/km)	1000	700 -33%	**500** -29%	500
	N_2O(mg/km)	-	20	**20**	20
	PM(mg/km)	4.5	4.5	**3** -33%	3
	PN(#/km)	-	6×10^{11}	$\mathbf{6 \times 10^{11}}$	6×10^{11}
Type II	Driving cycle	Double idle	RDE recorded		RDE enforced, CF NOx 2.1, PN 2.1 (TBC)
Type V	Durability(km)	160K	160K		200K

Source: Johnson Matthey

We don't expect these amendments to the regulation to have a sizeable impact on loadings. Mostly, the car-makers have already switched to China-6b and we see no evidence of switching back. These six-month extensions are rather to legalise the sales of cars from the stock (~2.5 mln units at the end of March) and support the dealerships.

As a factor impacting metal demand, we should also mention logistics disruptions and the impact of the non-synchronised quarantine implementation across different regions, which challenge complex automotive value chains. In the short run, *Just In Time* concept is likely to be reshaped resulting in inventory management stretching from 30-50 days to 60-90 days, in some cases. Potentially, it creates additional demand for the metal in the beginning but destocking afterwards would create a downward pressure for the demand. This creates additional uncertainty for forecasting as the timeline as well as the extent of the stock adjustment remains unknown.

We also see the risk that the secondary car market could be flooded by the fleet of the struggling car-sharing business as we expect wide-spread downsizing or bankruptcies across this particular public transport sector in the post-COVID environment. Potentially, this can cap the demand for new cars but it is extremely hard to evaluate the likely number of bankruptcies as we don't know for how long COVID is going to impact this market and what measures the governments would undertake in order to support this sector. It is fair to say though that higher demand in the secondary car market should also limit car scrappage rate and, consequently, the Pd and Pt recycling volumes. We also anticipate the average car ownership length in the coming years to increase at least as much as after the 2008 global financial crisis. All that may partly offset some negative effects that lower sales of new vehicles would have on Pt and Pd demand.

In our last issue, we have commented on palladium substitution with platinum, explaining that it is not as simple technology-wise as it may sound. Earlier this year, statements were made by some South African mining houses as well as a fabricator indicating that there was an available technology that could replace some of the palladium with platinum. This technology would be implemented by some American OEMs for several platforms of SUVs and trucks. OEMs are currently testing this solution. Subject to testing, it could be implemented for 2023-2024 models onwards. Substitution will be made in a close-coupled autocatalyst, allowing up to 30% of palladium to be substituted out. This translates into 100-200koz assuming up to 50% of platforms being converted. We believe it is highly unlikely that OEMs would rely solely on one solution and one fabricator.

INDUSTRIAL

Chemical and petrochemical demand is likely to be impacted moderately as the ongoing PGM 'top ups' are still being required, albeit at a reduced level due to lower capacity utilisation and fewer catalyst change-outs. New plants are likely to be delayed but it would not immediately impact the current year's offtake. China still dominates the offtake this year, reflecting the government's desire to reduce its dependence on imported petrochemicals.

Glass industry is expected to underperform due to lower demand for new capacities in fiberglass and LCD, thus impacting negatively the Pt offtake in the sector.

We see the use of palladium in electronics (contacts and palladium-silver paste for MLCC) decreasing this year down to 0.7 MOz on the back of softening electronic sales. However, the shift towards 5G should somewhat offset the lower demand in other areas: for example, Chinese shipments of mobile phones were +14% YoY in April. Also, the COVID-induced 'working from home' regime potentially should also increase the demand for laptops and TVs; however, Q1 showed the opposite due to disruptions in supply value chains and the immediate demand shock.

This year, we forecast platinum demand in the electronics to be broadly steady at 0.2 MOz. The cost advantage of HDDs has been reduced due to lower prices and performance improvement of SSDs (Pt-free). However, the total demand for HDDs is likely to be still supported by higher storage capacity demand of big data due to the extended quarantine: in April only, over 3 bln people worldwide had to stay at home while their service providers had to increase capacities respectively.

JEWELLERY

Jewellery is the second most important industry for platinum demand, which accounts for a third of the metal's offtake.

Chinese platinum jewellers expect at least a -20% decline in 2020, compared with 2019. One of the main reasons for that is the high surcharge in platinum jewellery fabrication and the scrapping price, which is relatively low in comparison to the historical platinum prices of selling back to shops and refiners. Psychologically, the consumer confidence in platinum was shattered when the platinum price dropped below gold for the first time in decades and stayed there.

The wholesalers in Shenzhen bought all their platinum jewellery inventory from the manufacturers that had sourced platinum from SGE in March (over 350 koz). Retail purchases are expected to return to Shenzhen after the lifting of the lockdown in China.

In April, Shenzhen jewellers were focusing on their gold jewellery fabrication being exported to Hong Kong due to the high spread between the mainland China and Hong Kong prices peaking over US$50/oz.

ICBC and BOC have a platinum investment product available for the general public. It is not a physical clearing product, but a finance investment product for betting on the price movements. While there is some demand for platinum investment products, it is still not enough to offset the decline in jewellery demand.

In general, after the COVID lockdowns, people are more likely to use their expendable income for travelling and entertainment with the platinum jewellery ranking rather low on their priority list, most probably.

MEDICAL

Palladium use in medical applications is experiencing thrifting and substitution. In Japan, the largest market for

NORNICKEL

palladium-based dentistry, the state-governed insurance program has started covering ceramic materials usage in rear teeth prosthetics, putting downward pressure on the palladium use by the industry. This year, palladium use in this industry is expected to decrease by over -30% down to 0.2 MOz. The price is regulated by the state and is being set twice a year. As a result, because of the sudden Pd price rally, the insurance guide price was -30% lower in April than the actual spot price. The next price revision should happen in June. Having said that, in the current COVID environment, the general public refrains from going to the dentists unless they are in acute pain.

Interestingly, according to the Ministry of health of Japan, Kinpala dental alloy production in Jan was 4.2 t gross (or 25 koz palladium contained), demonstrating an impressive +9% YoY growth. We attribute that to the substantial growth of the scrap availability because of the record peak in the Pd prices.

GLOBAL PGM SUPPLY

In 2020, primary refined palladium and platinum output is forecast to decrease by -15% and -20% to 6.0 and 4.8 Moz respectively.

RUSSIA

On 30th April, Nornickel released its Q1-2020 production report confirming that all production assets of the Company operated in a business-as-usual mode, while dedicated COVID-19 emergency response teams continuously monitored the situation on sites. Owing to its vertically-integrated business model with the in-house energy and transport infrastructure, Nornickel has not been experiencing so far any disruption to either its operations or logistics.

The volumes of saleable metals were mostly affected by the pre-commissioning of the new chlorine leaching refining shop at Kola MMC. Nickel output was down –10% Y-o-Y, while palladium and platinum production decreased –27% and –25% respectively. As a result, the Company built up temporarily nickel and (to a lesser extent) PGMs work-in-progress material inventories. Nornickel expects its saleable metal production volumes to recover on course of this year as the accumulated work-in-progress inventory will be steadily released following the gradual ramp-up of the new refining shop at Kola MMC. Therefore, the Company confirms its full year 2020 production guidance for palladium in the range of 2,648-2,777 koz and platinum in the range of 611-675 koz given at the Capital Markets Day in November 2019.

In spite of the significant contraction of the global demand for metals, including those that the Company produces, because of the COVID-related business shutdown across pretty much all the key geographies, Nornickel is not having any issues with sales of its products. As of today, there have been only a few requests from the clients to postpone or to cancel insignificant volumes of deliveries that have been promptly redirected to other buyers.

Despite cancellations of passenger flights, PGM deliveries to clients are not affected and are carried out via freight flights. Overall, there is a good flow of precious metals from the country. After the decision of the Bank of Russia to defer purchases of gold mined in Russia, commercial banks are arranging the charter planes in order to supply gold and silver to the International markets. This channel can also be used by Nornickel, if necessary.

SOUTH AFRICA

We expect the output in South Africa to drop by about -30% to 3.2 Moz Pt and 1.8 Moz Pd in 2020. This forecast incorporates the release of WIP stocks at various stages of processing. The stock is estimated at 500-600 koz 6E in intermediates.

South African mines were put on care and maintenance on 26th March for 21 days due to COVID. Underground mining re-opened last week with 50% employees being allowed to return while open pits have been operational at low utilization rates. The transition from the strict lockdown to getting back to more or less conventional employment has proved to be very challenging for the workers and staff on sites as well as in terms of work place organisation, health and safety, and new working arrangements for specific technological processes. We are hearing that work permits need to be handed in person now. Gatherings of more than 50 persons are still banned, which makes routine safety, technological, planning and work briefings for ~150 thousand people on site rather complicated.

Also, a 50% employees roll-out inevitably translates into sub-50% production rates (30-40% at best, most likely): because essential support roles still have to be rolled-out almost fully just to maintain the operation going, the 50% restriction results in disproportionately cutting the roll-out of the underground miners responsible for extracting the ore, the most.

Amplats was continuing reduced operations at the Mogalakwena and Mototolo mines with material smelted. These assets are rolling back to work plan while Rustenburg is changing its process route.

Earlier this year, Anglo had to do repairs in its convertor plant (ACP). While on maintenance, the company was unable to process the smelter output. Anglo Platinum has announced the completion of repairs to the Phase B unit at the ACP plant, with expected full production by 12th May, two weeks ahead of schedule. This means Anglo will be able to refine its PGM production and will begin releasing inventory from the pipeline.

Nevertheless, Anglo has also given a force majeure notice earlier, and it still remains in effect for refined metal customers as refining does require time.

Implats has decreased FY2020 refined production guidance from 3.0-3.4 Moz 6E to 2.0-2.6 Moz, assuming production rates of 30-40% in May-June. When the company issued a force majeure warning earlier this year,

the majority of Implats' customers had chosen to receive their metal on a delayed delivery schedule and, where logistics had allowed, the deliveries took place in April 2020.

Northam Platinum hasn't issued the new guidance yet, but since the processing chain of this operation involves logistics to Germany (Heraeus), it poses a potential risk of the delayed shipments eventually impacting the refined output, although it is hard to estimate the probability.

Sibanye-Stillwater hasn't provided any production guidance for the year yet either. Q1 output in South Africa (excluding Marikana which was acquired in Q2 2019) was down 6-7% for Pt & Pd YoY. Marikana showed -22% result YoY. South African CAPEX for PGM assets was cut by -29%.

Following completion of the repairs at the Amplats converter plant, Sibanye is resuming deliveries of concentrate. The majority of the outstanding metal credits resulting from the plant failure are expected to be delivered by the end of July 2020.

During the lockdown, PGM deliveries from South Africa were disrupted because of passenger flights cancellations. The usage of freight flights was difficult due to safety issues.

There is another risk to our South Africa production forecast: the country is going into winter now. Stringent COVID-related health and safety checks could result in extended periods of lower staff attendance as people with seasonal flu symptoms would be asked to self-isolate and stay at home. A high rate of HIV-positive employees (over 20% among miners, in some cases) also poses an additional risk of further significant impacts should COVID outbreaks happen in local communities.

ZIMBABWE

Zimbabwean operations have received a special dispensation to continue but the refined output, being dependent on SA refineries, is curtailed. Matte production at Zimplats was up +6% in Q1. Mimosa was -2% in Q1 while Unki showed +13% due to improved concentrator throughput and recovery on the back of the increasing mining volumes.

In the mid-run, production in this country will not undergo any significant changes as the existing players are not willing to expand their projects while the newcomers (like Darwendale, Karo) are struggling with fund raising – a difficult task until both the political climate and market conditions improve.

NORTH AMERICA

North American operations are disrupted less than in South Africa. The largest player – Stillwater – showed +8% in Q1. North American Palladium (acquired by Implats in late 2019) has been shut down since 13th April when one employee died of COVID. Nickel operations - Glencore's Raglan and Vale's Voicey's Bay – have also been impacted. Sibanye Stillwater has demobilized contractors at Blitz, reducing its CAPEX by -$60m to $200-220m. PGM sales in March 2020 were affected by delay in the refined metal's release. This refined production was released and sold in April 2020.

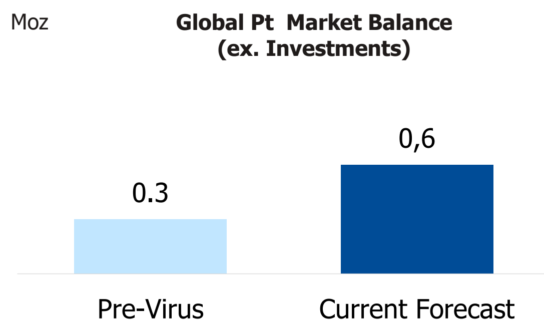
RECYCLING

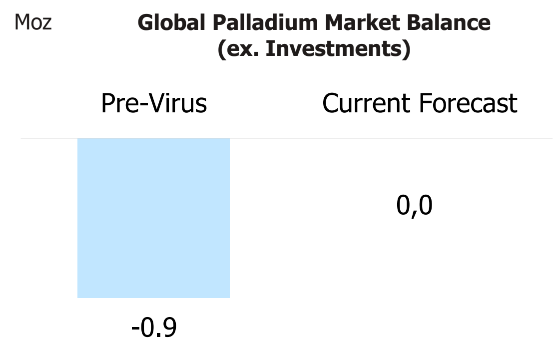
So far, we haven't seen significant impacts of COVID on recycling. Refineries haven't stopped the operation during the quarantine. Processors reveal that, because of smelting and refining bottlenecks associated with capacity closures and Si-C based challenges prior to COVID (extensively discussed in last issues of *Quintessentially PGMs*), the feed availability is still ample.

However, lower collections rates since April due to travel restrictions as well as lower car sales this year will inevitably hit the recycling rates in H2 2020. This year, we forecast palladium and platinum recycling to decrease by about -5%...-15%. The magnitude of this drop would depend on the possible 'cash-for-clunkers' programs, which are yet to be announced by the governments in various regions.

The long-term growth of palladium recycling from the automotive catalysts is still driven by higher metal loadings in vehicles as well as growing vehicles production. The greatest growth is expected in China where the catalyst recycling market is still underdeveloped but is forecast to overtake the Japanese and European markets by 2030. We are seeing the refining capacities being upgraded, e.g. recent news from Jinchuan about doubling their PGM refining capacity to 10 tonnes pa.

MARKET BALANCE





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GLOSSARY OF TERMS

Abbreviation	Term
$	US Dollar
BEV	Battery Electric Vehicle
COVID-19	Coronavirus
HDD	Hard disk drive
HDV	Heavy Duty Diesel Vehicle
ICE	Internal Combustion Engine
kOz	Thousand troy ounces
LDV	Light Duty Diesel Vehicle
LGV	Light Duty Gasoline Vehicle
MLCC	Multilayer ceramic capacitor
MOz	Million troy ounces
NAP	North American Palladium
NYMEX	New York Mercantile Exchange
NEVs	New Energy Vehicles (electric vehicles and plug-in hybrids)
OEMs	Original equipment manufacturers
OTC	Over-the-counter
oz	Troy ounce
pa	per annum
PGM(s)	Platinum group metals
RDE	Real driving emissions test
SDD	Solid-state drive
SiC	Silicon carbide
VAT	Value-added tax
WLTC	Worldwide harmonized Light vehicles Test Procedure
YoY	Year over year
YTD	Year-to-date

ICBC Standard Bank

14 May 2020

Macro Drivers and Financial Flows

Eye of the Coronavirus storm

Global

Commodities | Strategy

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Macro Drivers and Financial Flows

Normal considerations of macro-economic trends and their influences on commodities markets and other asset prices have been set aside for the time being. The influence of the Covid-19 pandemic is unprecedented and will dominate monetary policy, fiscal policy, business and consumer investment and spending, and metals demand for the next several quarters, if not years.

Some historical comparisons are relevant but all come with large caveats when trying to forecast forward consumption patterns. This has not been a typical debt or leverage bubble that has burst, and the collapse in demand that is resulting in extraordinarily sharp contractions in economic activity has not been as a result of central banks raising rates to reign in exuberance or a supply side shock to inflation.

In terms of the pace and trajectory of recoveries, our core assumption is that the next three to five years will have some similarities to the period after the 2008 global financial crisis, and some elements will resemble the period following the Asian financial crisis of the late 1990s. We are seeing 'v'-shaped recoveries in many asset prices but economic growth is much more likely to be an extended 'u'-shape... and it is likely to be two or three quarters for the bottom of that U to become apparent.

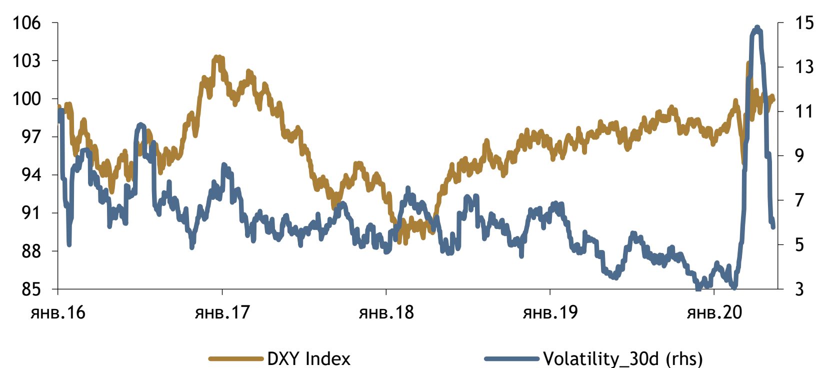
The world is only just emerging from the liquidity part of this crisis; the solvency chapter is now beginning. The "how do we pay for all this?" conclusion is still to come and might turn out to be a very unhappy ending.

Another rush for dollars

The immediate effect of the spread of Covid-19 to become a global pandemic was to trigger a rush for dollar liquidity. This period had some similarities to 2008 – a rapidly accelerating cycle of collapsing asset prices as leveraged positions had to be unwound at any cost, widening bid/offer spreads, withdrawal of credit facilities, falling liquidity, surging volatility, and a rush to US Treasuries and gold (although gold too saw sizable selling as holders of metal sought to raise dollars in March).

Despite the slide in US Treasury yields, short-term dollar interest rates in the interbank market jumped as institutions and corporates of all types sought to bolster balance sheets – there was, for example, a spate of large multinationals drawing down on revolving credit facilities during March and April. Credit spreads jumped at the same time, reminiscent of the global financial crisis.

Volatility off the scale but in times of crisis the USD still preferred

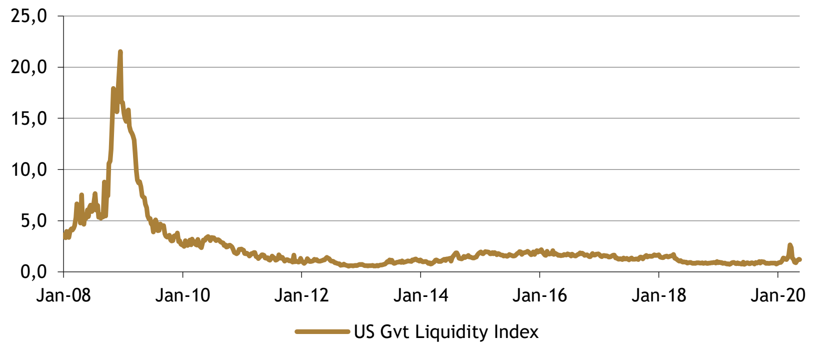


Source: The Bloomberg™ Professional service

However, the experience of the GFC, and the importance of providing (almost) unlimited liquidity to the global financial system, was a lesson well learned by central

banks. The US Federal Reserve, the PBOC, the ECB, the BOE and other G20 central banks undertook rapid expansion of swap lines and short-term open market operations to push liquidity into the interbank markets.

USD liquidity at the sovereign and interbank level showed some signs of stress but nothing like 2008



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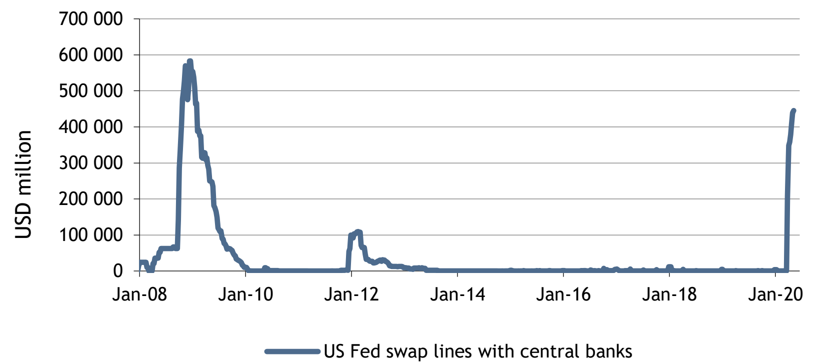
Partly due to the rapid provision of swap lines and open market operations



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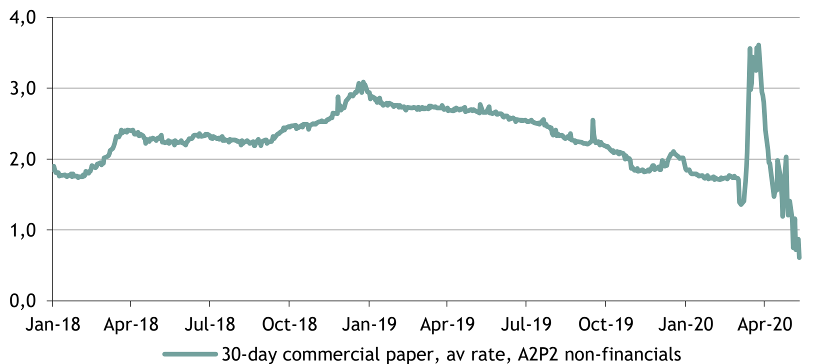
That, together with the previous strengthening of banks' capital and liquidity positions since the GFC, prevented systemic problems arising in the banking sector. However, pricing of short term credit jumped as credit spreads widened but then fell back as banks were incentivised to push cheap funds out to clients.

Corporate funding rates have fallen back – but who is borrowing and why?



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But now the key issue has become demand for credit, not the supply or price of it. The corollary is what is the cheap credit that does get drawn going to be used for –

refinancing, dividends, share-buy backs, covering customer defaults, employee redundancy payments, business closure costs.... or even productive investment?

Commodities slide

The effect on commodity prices was marked. The LME 3 month nickel price fell 24% from mid-January to late Marc. The effect on palladium was even more pronounced, with the price falling by almost 50% from a peak close to $2,900 in February to a low of $1,495 in mid-March. Even that was overshadowed by the collapse in crude oil prices, with front month Brent futures dropping almost 80% from around $77/bbl in January to $16/bbl in April.

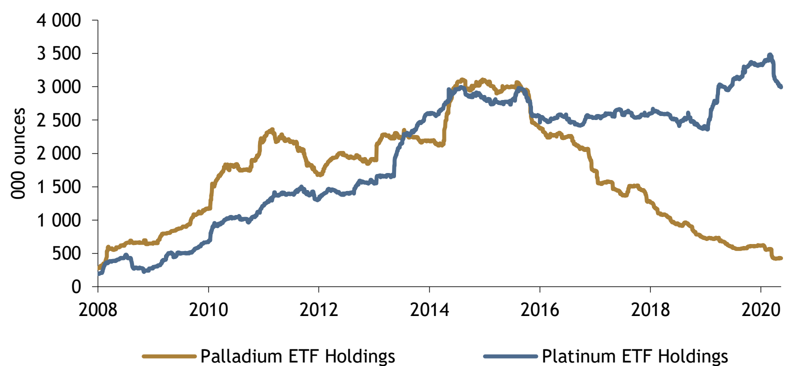
The divergence in performance reflected idiosyncratic factors related to the underlying supply/demand balance for each commodity, investor positioning ahead of the Covid-19 pandemic developing, and market expectations of the short to medium term potential effects on demand.

Crude oil markets had entered the year with concerns about excess supply exceeding softening demand already starting to emerge, and disagreements within OPEC about what measures to take. With China being the dominant importer of crude, the spreading lockdown through February had a rapid effect on actual demand and inventories of crude in storage, which fed through to prices. The effect was magnified by the unwinding of some still sizeable net long positions in both WTI and Brent.

Palladium – real volatility

Palladium was still very much a preferred commodity for investors to be long of at the start of this year. A large accumulated deficit between mine + scrap supply and demand had resulted in refined inventories of physical metal being drawn out of exchange traded investment products, reducing near-market refined stocks.

Palladium EFTs had been largely liquidated by the start of this year



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The high cost of financing inventories, with the metal in backwardation, had also reduced working inventories throughout parts of the supply chain. Nevertheless, coming in to the Covid-19 crisis there was still a net non-commercial long Nymex futures position of more than 1 million oz. We believe there was also a meaningful amount of physical metal held outside of exchange-traded products by investors.

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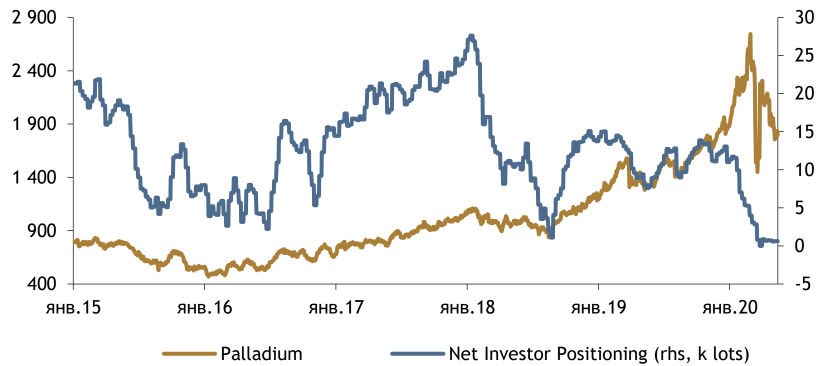
Palladium: the net long position dropped to the lowest level for several years



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In addition, consistent forward hedging by consumers meant that sizeable balances were being leant to the market. The recycling sector had also grown considerably over the previous three to four years.

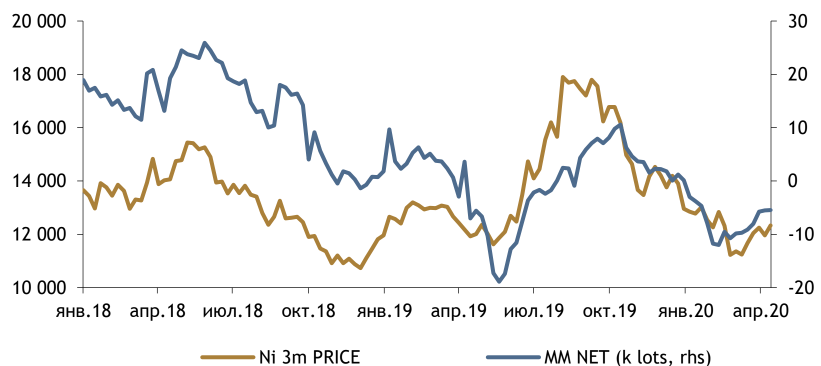
Consequently, as the effect on first Chinese then global auto sales became apparent, the price started to collapse, volatility jumped, and bid-offer spreads (both in spot and forwards) widened markedly as uncertainty grew. Even for a relatively small commodity market like palladium, the price performance was exceptional as speculators started shorting the metal: the palladium spot price traded in a $660 range on 12th March – an almost 29% swing from high to low on the day.

Despite that, the OTC and futures markets continued to function. Palladium then turned around and rallied sharply into quarter end as speculator and dealer short positions were covered.

Nickel – more balanced

Nickel prices reacted more moderately (and its rare one can say that!) than palladium. Prices and investor positioning were less elevated coming in to the start of 2020. The trade battle between China and the US and slowing economic growth globally (including a contraction in Chinese auto sales) had already reduced speculative interest in the metal, while inventories were not far from seasonal norms. In essence, the metal had less far to fall.

LME data suggest fund positions in nickel were neutral coming in to 2020



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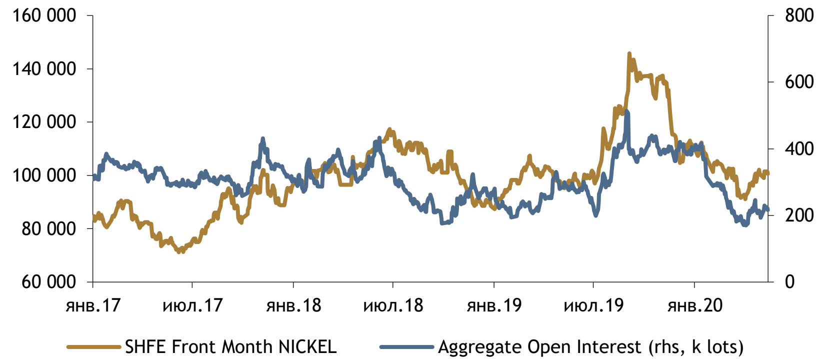
SHFE open interest also suggest moderate speculative length liquidated in Q1

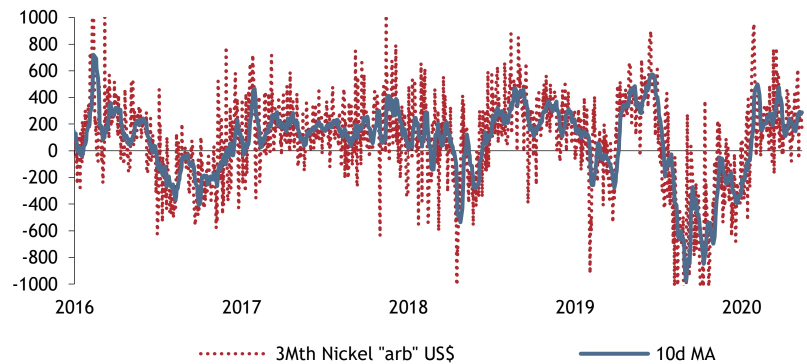


Source: The Bloomberg™ Professional service

The immediate supply chain disruptions have now largely dissipated. In most locations, logistics are working and warehouses are accessible. However, backlogs are still being worked through the system given the different lags between production restarting and product moving from nickel mines, NPI plants, ferronickel furnaces, and stainless mills.

One consequence is that in China, stainless steel inventories are still relatively high but NPI stocks are lower than normal. Therefore, as mills ramp back up demand for refined nickel has temporarily increased and SHFE nickel stocks are being drawn down as a result. However, the import arbitrage window has closed (LME more expensive than SHFE) and, not surprisingly with European and US economies some weeks behind China in terms of re-opening, LME inventories are building in the opposite direction.

SHFE / LME arbitrage window has closed for imports



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What now?

The divergence between commodity prices from April onwards has been notable. Nickel has managed to sustain a slow recovery (albeit that now looks to be running out of momentum) that has very closely tracked the performance of copper. Palladium, however, has fallen back steadily and is giving very little indication of having found a sustainable bottom, where short-term supply and demand are in equilibrium.

This may simply be a function of where you take your starting point from… looking at prices normalised to the beginning of the year, palladium is still ahead of copper and nickel but all metals are down for the year to date: palladium may simply be catching down to the other metals after its previous outperformance.

But we do still believe there is a fundamental overlay that matters as well. There is no effective marginal cost of production or traditional cost curve for palladium. With the exception of a small proportion of mined supply, it is a by-product or co-product of nickel and / or platinum. And with the majority of production coming from South Africa and Russia, where local currencies have depreciated sharply, producers are still generating very healthy margins and cash flows.

There is also little flexibility in supply (it is quite inelastic) an extended production cycle (typically 8-12 weeks from mined ore to refined product).

On the demand side, palladium is more heavily exposed to China than many metals, and that demand is concentrated in one particular sector – the auto industry.

For nickel, a cost curve consideration is still often used in framing the question of where the low point in price might be. The fourth quartile of producers starts at around $11,000/tonne. But even so, that is only of limited use as costs are not static (energy input prices will be coming down quickly for many producers; financing costs may come down for stronger names) and there is a good argument that costs follow price, not the other way round.

What is more important is that both supply and demand are more diverse (geographically and by type). And demand is exposed to various end use sectors, driven both by infrastructure and by durable and consumer goods.

Our view is that the fundamentals, as discussed in the Norilsk Nickel 'Quintessentially' reports and others, definitely do matter and will have a significant influence going forward. There will be divergence across commodities and metals – a rising tide of cheap liquidity appears to be lifting most equities markets at present but will not be floating all commodity boats in the near future in our view.

Determining the likely direction of prices for the remainder of the year, or even the remainder of Q2, comes with as much uncertainty as forecasting any other financial or economic data series at present.

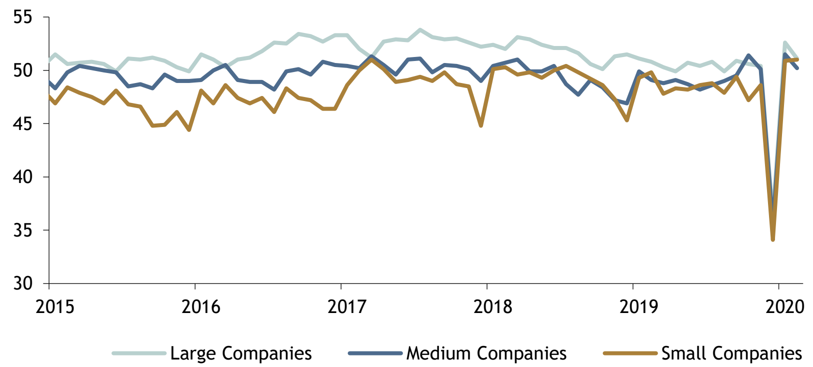
Even gauging where consensus is in order to take a contrarian position is not straightforward and it is very difficult to gauge what markets are currently pricing in as a most likely outcome.

However, the US and China will continue to drive both sentiment and global activity to a large degree. Against a backdrop of already difficult trade relations and a US presidential election campaign that is about to move into top gear, the risks for commodities seem skewed towards further disappointment, at least through to Q4 this year.

The initial 'bad news' of the effects of the virus on corporate earnings, consumer spending, and employment during the first four months of the year has been absorbed. Comprehensive monetary, fiscal and direct state support, as well as staggered returns to work across the worst hit countries, drove the relief rally through April and in to May. We expect that to start fading into the northern hemisphere summer. Month-on-month data will look good for the next few months we think but year-on-year comparisons will be awful, and corporate estimates of future production, sales and earnings will most probably continue to be highly uncertain (or absent).

The counter-argument to that would be that the economic disruption was not caused by demand weakness but by state intervention. The same state intervention has been supporting incomes, and as restrictions on work and travel are lifted, the demand will turn out to have been deferred only temporarily. The remarkable fall then snap-back in Chinese PMI data could superficially support that argument:

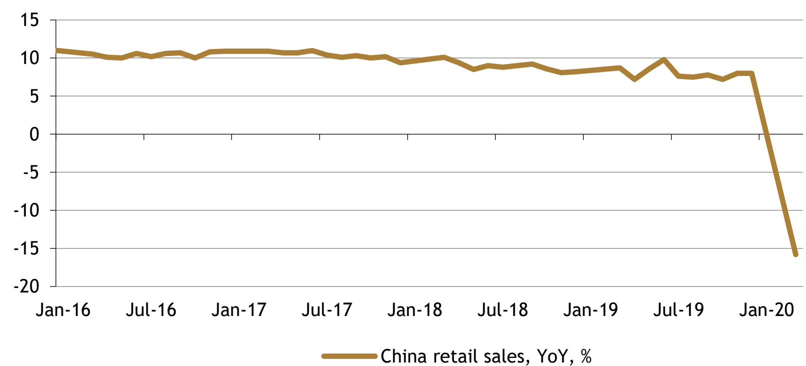
Chinese manufacturing PMIs – truly unprecedented collapse then rebound



Source: The Bloomberg™ Professional service

That seems unlikely to be transmitted into the broader economy in the short term in our view. Policymakers will undoubtedly announce more direct and indirect stimulus measures. But personal incomes have taken a hit and confidence will remain subdued in our judgement, even if further outbreaks of Covid-19 are rapidly and tightly controlled.

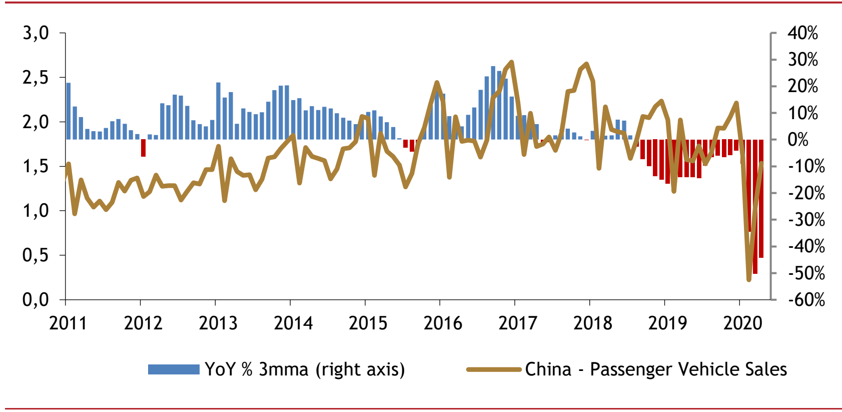
Retail sales are unlikely to recover as rapidly



Source: The Bloomberg™ Professional service

In particular, we doubt that spending on big-ticket items such as cars will recover to pre-Covid-19 levels any time soon. As elsewhere, credit for private business has been cut back, notwithstanding policy efforts to support borrowing. Infrastructure investment will focus specific areas, including high-speed rail, 5G data network, and big data/artificial intelligence. We will not see broad investment in the capital stock as before.

We expect recovery in autos sales to pre-pandemic levels in China, as elsewhere, to take months, if not years



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One bright point in this for nickel, if not for palladium in the very long term, is that support for build out of electric vehicle charging stations is likely to increase substantially, and it would not be surprising to see new energy vehicle sales re-emphasised via stimulus. But with crude oil around $25/bbl, replicating that in North America or emerging markets is unlikely.

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