HERAEUS Precious Appraisal

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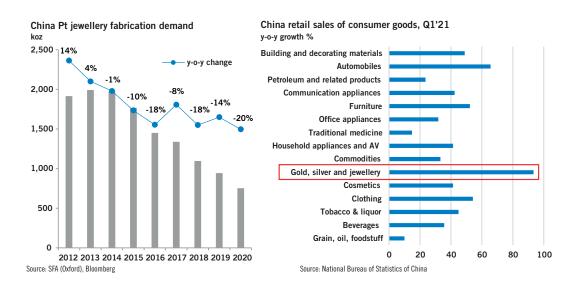
Heraeus



Can a rising platinum price trigger a shift in sentiment for China's jewellery?

The decline in gross demand for platinum jewellery was accelerated by the pandemic last year, as a challenging macroeconomic environment and restrictions imposed on the retail sector weighed on sales globally. Platinum jewellery fabrication is estimated to have fallen from 2 moz in 2019 to 1.5 moz last year. As the largest jewellery market, China saw the greatest fall in volume terms (-190 koz), although it was the least bad performer on a percentage basis (-20%). Chinese platinum demand has been in decline since it peaked at 1.9 moz in 2013, so the drop last year was actually close to the average decline of the previous six years (-175 koz). Jewellery fabrication accounted for 28% of total platinum demand last year.

China's jewellery market appears to be reversing its fate so far in 2021. Sales of gold, silver and jewellery recorded year-on-year growth of 93% in Q1'21, significantly higher than any other consumer market (source: NBS). Key jewellery brands have reported a similar trend, while acknowledging the low base of last year. Chow Tai Fook's retail sales surged by 152.6% year-on-year in the three months to March 2021. For platinum jewellery specifically, same-store sales growth was +79.6% year-on-year in mainland China and +62.8% year-on-year in Hong Kong and Macau during Q1'21.



A rising price could be redefining the meaning of value attached to platinum jewellery. Historically, Chinese retailers sold jewellery based on weight and the spot market price at the time, which is displayed in the shops. As the platinum price fell after 2011, consumers could see the value of platinum jewellery declining. Weight-based pricing had low margins and retailers converted to more piece-based pricing, but this jewellery is typically lighter in weight. Now the platinum price is on an upward trajectory, consumers could see jewellery as a good investment which might help to lift sales. The platinum price has outperformed gold so far this year, gaining 7.3% in the year-to-date compared to gold's 7.4% contraction, and is expected to remain well-supported by strong automotive and industrial demand in 2021.

PRECIOUS METALS REVIEW

Gold

		Close	Weekly change	High	Date	Low	Date		
\$/	'oz	1,776	-0.15%	1,798	22/04/2021	1,764	20/04/2021		
€/	'oz	1,472	-0.88%	1,497	21/04/2021	1,463	20/04/2021		

Growing demand for gold from Central European banks. Hungary tripled its gold reserves to a record high of 94.5 tonnes last month, representing one of the largest single monthly central bank gold acquisitions over the last decade. The purchase was the largest monthly inflow since June 2019 when Poland bought 94.9 tonnes of gold (source: World Gold Council). The Polish central bank recently signalled its interest in acquiring a further 100 tonnes in the future. After a slow start to the year, recent activity from Hungary and Poland improves the outlook for central bank demand in 2021, although purchasing is still expected to fall below the record levels Until April last year, when it paused its gold-buying programme, Russia's central bank was the largest purchaser of gold. The move signalled to its gold producers to export more and bring foreign currency into the country after oil (its primary export) prices crashed. The recovery in the oil price may enable Russia to resume buying gold, which would also be a significant boost for central bank demand. Net purchases from central banks accounted for 272.9 tonnes of gold last year. The upward momentum of the gold price faded but with the dollar dropping and bond yields slipping lower, the price should be supported.

of	dei	mand	seen	in	previous	years

Silver

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ų			Close	Weekly change	High	Date	Low	Date
	\$/	0Z	26.01	-0.16%	26.65	21/04/2021	25.64	19/04/2021
	€/	0Z	21.55	-0.93%	22.15	21/04/2021	21.31	20/04/2021

Polysilicon price spikes could delay PV projects, with possible impacts on demand for silver paste. The price of polysilicon has jumped by more than 200% over the past 12 months. Initially, this was a result of factory shutdowns during the height of the pandemic, but more recently was compounded by the strong rebound in demand from the photovoltaic (PV) industry. Polysilicon is an essential component in the manufacture of solar cells. New polysilicon capacity is expected to come on-stream by the end of the year but supply could remain tight until then. High prices for other raw materials, including solar glass and wafers, are adding further pressure

to manufacturers' margins and are likely to impact downstream demand in the PV market this year. The declining price of solar modules has helped to boost solar uptake over the past decade, but current high prices of raw materials used in PV cells could limit growth this year by affecting the financials of projects and delaying their commissioning, ultimately weighing on demand for silver paste. The global PV industry accounted for around 10% of physical silver demand in 2019 at 98.7 moz (source: The Silver Institute). Silver followed gold lower last week but remains favoured once upward momentum returns.

78 F	Pt P	Platinum								
-		Close	Weekly change	High	Date	Low	Date			
	\$/oz	1,232	2.18%	1,254	23/04/2021	1,185	20/04/2021			
	€/oz	1,021	1.43%	1,037	23/04/2021	985	20/04/2021			

Long-term support for platinum from heavy-duty fuel **cell electric powertrains.** Volvo Trucks is aiming for 50% of its European truck sales to be electric by 2030. The world's second-largest truck manufacturer has announced three new electric trucks designed for intercity transport and urban construction, and production is due to start in the second half of next year. However, the limitation on range and the weight of batteries is expected to limit BEV uptake for the largest, long-distance heavy-duty vehicles. For these trucks, Volvo is directing its R&D towards platinum-rich fuel cell electric powertrains. A joint venture with Daimler aims to start customer tests in 2024, with production in the second half of the decade. 2 | HERAEUS PRECIOUS APPRAISAL

Long-haul trucking is expected to become one of the first segments to make hydrogen economic, achieving total cost of ownership parity with diesel by the end of the decade, without additional incentives. The hydrogen economy is forecast to become a significant end-use for platinum, with demand ramping up considerably by late 2020s.

The platinum price has been range-bound for several weeks and may remain so while investment demand is lacklustre. ETF holdings have slipped by 34 koz during April.

PRECIOUS METALS REVIEW



Palladium

ę		Close	Weekly change	High	Date	Low	Date
	\$/oz	2,863	3.46%	2,930	23/04/2021	2,726	20/04/2021
	€/oz	2,372	2.69%	2,424	23/04/2021	2,265	20/04/2021

Nornickel's palladium output increased 40% year-onyear to 766 koz in Q1'21. The rise was attributed to the ramp-up of a new precious metals production line at Kola MMC which resulted in a decrease of the work-in-progress inventory. Owing to the Oktyabrsky mine recovering to full capacity by the end of April (ahead of schedule), Nornickel has raised its full-year production guidance slightly to 2,350-2,410 koz of palladium. However, this is still ~460 koz lower than output in 2020 (-16%) and

~520 koz lower than in 2019 (-18%). With reduced supply from the world's largest palladium producer, the market is expected to be exceptionally tight this year with an estimated deficit close to 1 moz. Restricted supply and strong automotive demand to meet tightening emissions standards are set to keep prices firm. The price moved to a new record high of \$2,930/oz last week as the market adjusts. However, market liquidity has not deteriorated as lease rates are still relatively low.

Rhodium, Ruthenium, Iridium

Rn-		Rhodium	Ruthenium	Iridium
	Reporting week	\$29,900/oz	\$465/oz	\$6,750/oz
	Previous week	\$30,200/oz	\$465/oz	\$6,750/oz

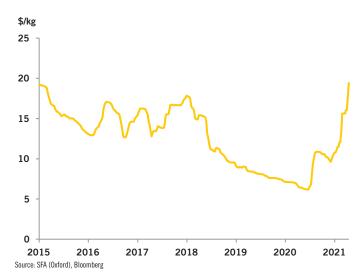
Refined production of the small PGMs (plus gold) from Anglo American Platinum rose by 13% to 198.2 koz in **Q1'21**, compared to the same period last year. Output was also 17% higher than in Q4'20 as Anglo's processing assets returned to normal operating capacity. The Anglo Converter Plant, which was closed at various points through 2020, is reportedly performing better than expectations. Despite this, the trading sales volume of small PGMs was ~18 koz in the reporting period on top of sales of own production. The Amandelbult mine returning

to normal production capacity and completion of the concentrator de-bottlenecking project at Mototolo are both positive moves for the small PGMs' markets going forward, owing to the high proportion of rhodium, iridium and ruthenium mined and processed from UG2 ore at the mines. The rhodium price pulled back below \$30,000/oz last week while ruthenium and iridium held steady.

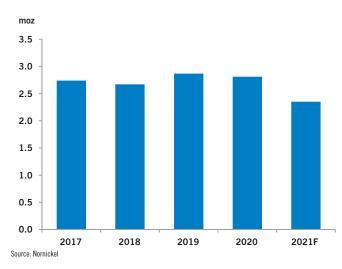


TRENDS AND INVESTMENTS

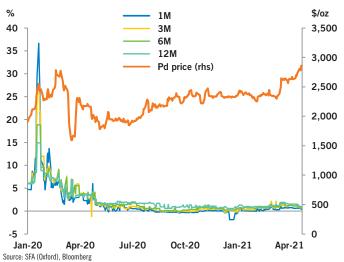
PV-grade polysilicon spot price



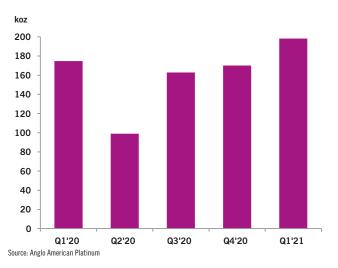
Nornickel palladium output



Palladium lease rates



Anglo Ir, Ru, Rh (+Au) refined production



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