



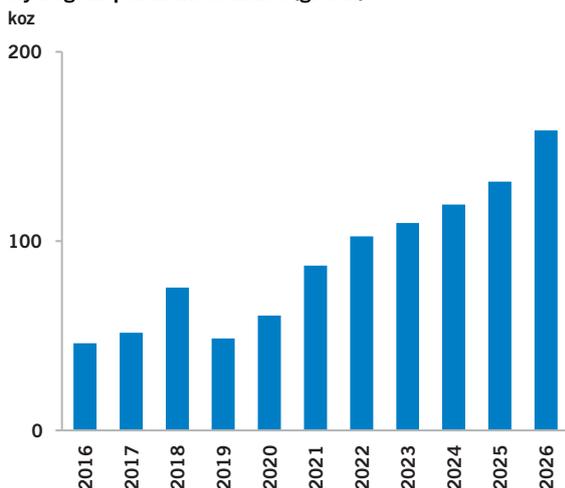
## MARKET SPOTLIGHT

### Tokyo 2020: fortune or flop for hydrogen?

Japan had planned to use the 2020 Summer Olympic Games as a platform to showcase the potential for hydrogen as a fuel of the future and central to achieving net-zero emissions by 2050. Organisers intended multiple uses of hydrogen in the Tokyo Games this summer, including the world's first fully sustainable hydrogen-powered Olympic Village, fuel cell electric vehicles (FCEVs) used as the official Olympic vehicles and hydrogen to fuel the Olympic flame cauldron. In the same way that the Tokyo 1964 Olympics left the Shinkansen high-speed railway as its legacy, it was hoped that Tokyo 2020 would mark a significant milestone in the hydrogen history books. In reality, given how much the Games have been scaled-back this year owing to the pandemic, the spotlight on hydrogen has been somewhat absent.

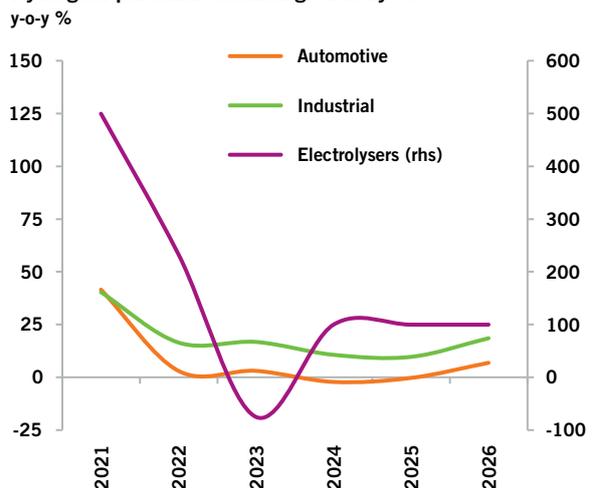
However, Japan's bet on hydrogen is bigger than just the Olympics, as it pursues its Hydrogen Strategy roadmap, including targets for hydrogen and fuel cell costs and deployment as well as a refuelling infrastructure plan. Japan also has its sights set on energy-intensive applications where emissions are difficult to abate, such as heavy industry. In June, Japan's Ministry of Economy, Trade and Industry (METI) revealed a plan to reduce carbon emissions from steelmaking by switching to hydrogen-based DRI (direct-reduction iron) technology. Japanese conglomerate Mitsubishi Heavy Industries is also building a zero-carbon steel plant in Austria, which will use hydrogen instead of coal.

Hydrogen: platinum demand (global)



Source: SFA (Oxford). Note: industrial fuel cells includes stationary and non-road applications such as trains, materials handling equipment etc.

Hydrogen: platinum demand growth by sector



On a global scale, industrial proton-exchange membrane (PEM) fuel cells are expected to contribute most of hydrogen-related platinum demand over the next five years, but electrolysers contribute the most demand growth. Heavy industrial applications including oil refining, chemicals and iron and steel currently account for almost 20% of global CO<sub>2</sub> emissions. Hydrogen is well-suited to help decarbonise these sectors, as it can be stored, combusted and combined in chemical reactions in similar ways to fossil fuels. Over the forecast period, PEM electrolyser demand is expected to scale up rapidly, albeit from a low base. Automotive fuel cell platinum demand is forecast to begin to ramp up from 2030. There are still significant barriers to the widespread uptake of light-duty FCEVs, such as fuelling infrastructure and cost, although heavy-duty FCEVs are already gaining traction as they are less suited to battery power.



# PRECIOUS METALS REVIEW

## 79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,823	1.11%	1,833	29/07/2021	1,793	28/07/2021
€/oz	1,536	0.23%	1,542	29/07/2021	1,518	27/07/2021

**H1'21 gold demand was down 10% year-on-year to 1,833.1 tonnes** (source: World Gold Council), as the economic impact of the pandemic and intermittent restrictions continue to weigh on consumer purchasing, particularly in the second-largest market of India. In H1'21, gold jewellery demand in India was 157.6 tonnes, still down 46% on pre-pandemic (2019) levels. Total gold jewellery demand in the first half of the year, 873.7 tonnes, was 17% below the 2015-2019 average. In China, however, gold jewellery demand reached a six-year high for H1 of 340.7 tonnes, although this was skewed to Q1'21 when a lower domestic gold price and

the Chinese New Year boosted sales. An uptick in bar and coin sales in Q2'21 was more than offset by significant ETF outflows, which saw total investment demand during H1'21 sink 60% year-on-year to 455.9 tonnes. Overall, the demand outlook for gold is weaker than anticipated at the start of the year. Jewellery demand is expected to improve in H2'21 as restrictions in India ease, but the economic fallout of the pandemic has been significant and global consumer demand is predicted to remain below the long-term average (3,474 tonnes) this year. The dollar weakened last week which helped to lift gold but the dollar could remain a headwind in the near term.

## 47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	25.55	1.34%	25.80	29/07/2021	24.50	27/07/2021
€/oz	21.53	0.46%	21.70	29/07/2021	20.70	27/07/2021

**Primary silver supply is increasing through 2021.** Mining companies are now reporting their second-quarter production and several are anticipating further improvement in output in the second half of the year. Coeur reported silver production of 2.6 moz in Q2'21, up from 2.4 moz in Q1'21. The company expects further gains in H2'21 and so should easily reach its guidance of

9.7-12.5 moz of silver for the year. Around 26% of mined silver comes from primary silver mines, with the rest being a by-product of lead/zinc, copper and gold mining. The silver price is still consolidating last year's gains and so could move sideways for some time yet.

## 78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,046	-1.39%	1,084	29/07/2021	1,039	30/07/2021
€/oz	881	-2.28%	912	29/07/2021	875	30/07/2021

**Impala Platinum's 6E<sup>1</sup> PGM refined output rose to 3.27 moz in the 12 months ending June 2021**, a 16.3% increase compared to the same period in the last financial year which included significant disruption associated with Covid (mine closures). Despite Covid-related operational setbacks continuing into the first half of FY'21 (July-December 2020), Impala's refined production has rebounded higher than pre-pandemic levels (3.07 moz in FY'19). However, this is largely due to the inclusion of Impala Canada for a full reporting period for the first time, which accounted for 260 koz of 6E PGMs in FY'21.

In general, South African producers are now operating comfortably at pre-pandemic levels. Including the release of work-in-progress stock, refined platinum output from South Africa is expected to reach 4.5 moz this year, up from 3.2 moz in 2020 and 4.4 moz in 2019. Industrial demand has rebounded this year but investment demand has been weaker than last year, and while that is the case the price may well continue to trade sideways.

<sup>1</sup>6E refers to platinum, palladium, rhodium, gold, iridium and ruthenium.



# PRECIOUS METALS REVIEW

## <sup>46</sup>Pd Palladium

	Close	Weekly change	High	Date	Low	Date
\$/oz	2,646	-1.28%	2,710	26/07/2021	2,593	27/07/2021
€/oz	2,230	-1.96%	2,296	26/07/2021	2,193	27/07/2021

### New-vehicle shortages finally outstrip demand in the US.

Sales of new vehicles are expected to reach 1,187,300 units in July, a 3.7% increase year-on-year but well below the sales pace seen earlier in 2021 (source: JD Power, LMC Automotive) as record low vehicle inventory starts to weigh on demand. Inventory levels are not likely to improve meaningfully moving into August as the shortage of new vehicles, a result of the ongoing chip shortage, shows no sign of easing. The latest estimate from AutoForecast Solutions calculates that the chip crisis has removed around 5.6 million vehicles from

production in the year to date. However, this is at the higher end of estimates, with most forecasts in the region of 2-3 million units for the full year. The North American light-vehicle market has been particularly affected by the chip shortage, and automotive palladium demand has already been revised down by >100 koz to account for this (>250 koz globally). If the chip shortage and the resultant impact on vehicle production does not ease in H2'21, then this will partially offset the lower supply from Nornickel. The lowest refined volume of palladium is expected during Q3'21, which is supporting the price.

## <sup>45</sup>Rh <sup>44</sup>Ru <sup>77</sup>Ir Rhodium, Ruthenium, Iridium

	Rhodium	Ruthenium	Iridium
Reporting week	\$19,850/oz	\$795/oz	\$5,850/oz
Previous week	\$20,050/oz	\$795/oz	\$5,950/oz

**Impala's sales volumes were boosted by destocking of ruthenium in FY'21, prompted by strong demand and high prices.** In the 12 months ending June 2021, the ruthenium price averaged \$405/oz, compared to \$265/oz in the same period last year. After reaching a record high of \$945/oz in May, the price has pulled back slightly to just under \$800/oz, which is still significantly above the long-term average. Small PGM prices are expected to soften further moving into the second half of 2021 with

increased processing of work-in-progress stock that built up during 2020 owing to smelter outages. However, with strong demand forecast, prices for all three metals are likely to remain elevated by historical standards.

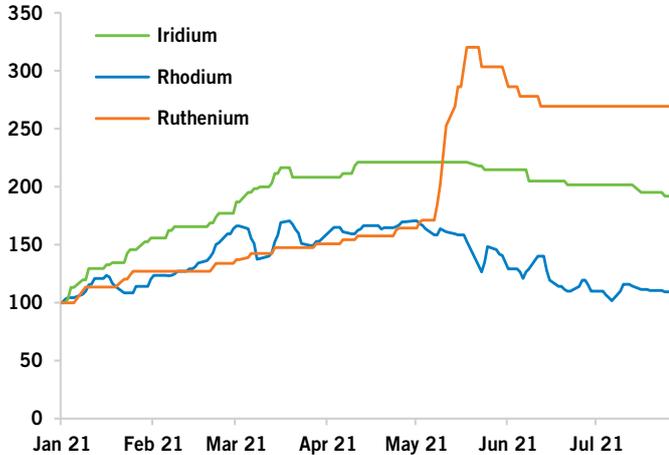
The rhodium and iridium prices both eased back again last week, while the ruthenium price remained unchanged for the sixth week in a row.



# TRENDS AND INVESTMENTS

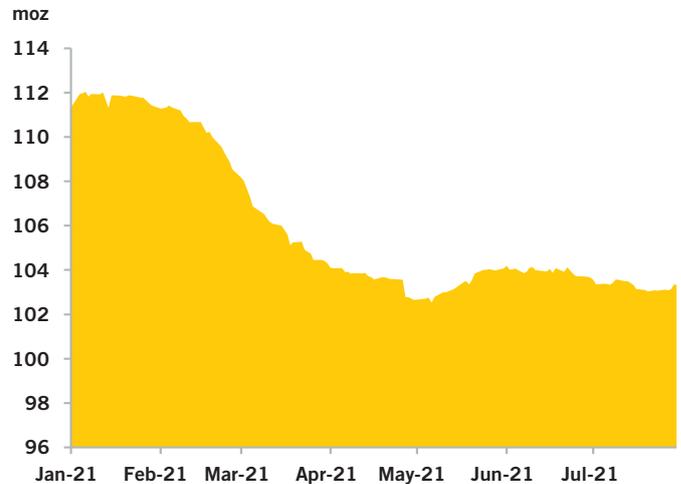
## Small PGM prices

Indexed to 100 from 4 Jan 2021



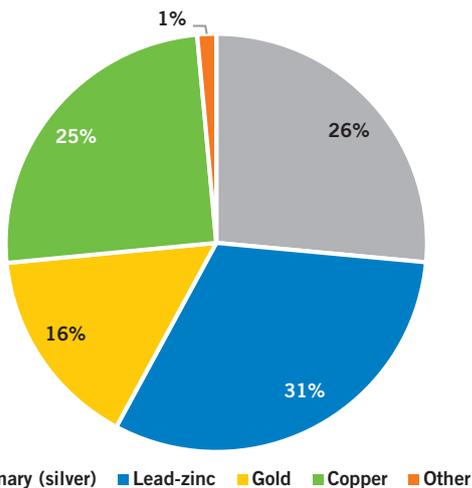
Source: SFA (Oxford), Heraeus

## Gold ETFs



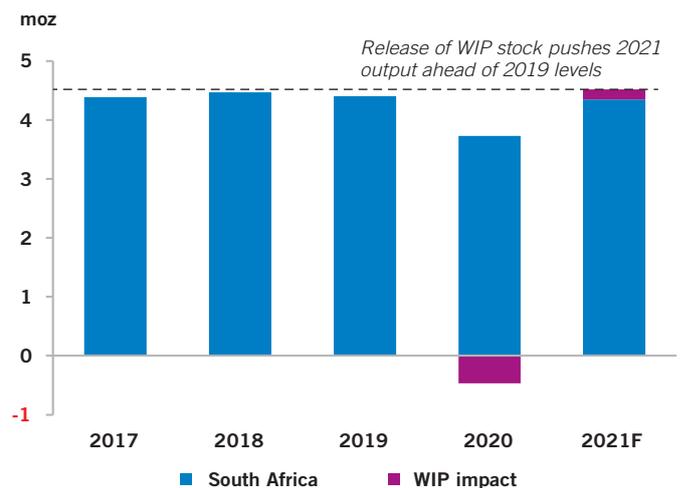
Source: SFA (Oxford), Bloomberg

## Silver supply by source



Source: SFA (Oxford)

## SA platinum supply



Source: SFA (Oxford)

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