

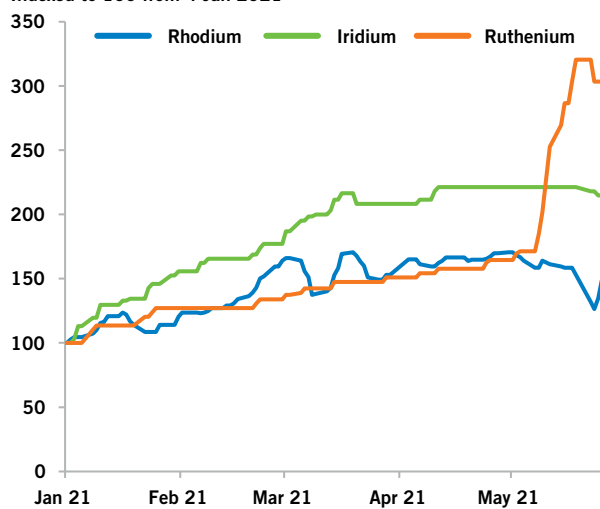


MARKET SPOTLIGHT

Is history repeating itself or just rhyming for ruthenium?

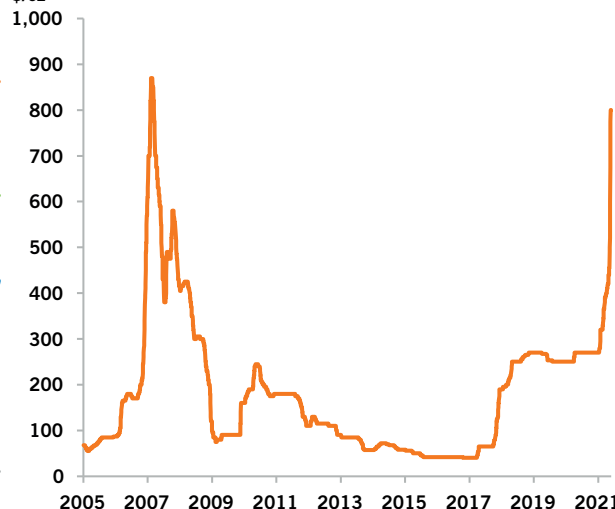
The ruthenium price almost doubled in the last month, rising from \$485/oz to \$945/oz, a new price record. The previous highest price was \$870/oz in 2007, which was a result of the “pixie dust” hard disk drive (HDD) demand spike which caused ruthenium demand to more than double in just a couple of years. Ruthenium was incorporated into HDDs in the early 2000s and the rapid growth in computing dramatically lifted HDD demand.

Small PGM prices
Indexed to 100 from 4 Jan 2021



Source: SFA (Oxford), Heraeus

Ruthenium price
\$/oz



A new cryptocurrency has been blamed for raising hard disk drive (HDD) demand. It is called Chia, and rather than requiring processing power like Bitcoin to “mine” new coins, it relies instead on having a large data storage capacity. This has reportedly lifted demand for high-capacity HDDs. However, the upturn in HDD sales related to Chia is estimated only to be around 3% of quarterly global sales. While that may have resulted in temporary shortages of HDDs in some regions, this is nothing like the growth seen in the mid-2000s, and it is unlikely to have impacted the ruthenium price.

However, ruthenium electrical demand is steady. Data storage requirements such as for cloud storage are rising, lifting high-capacity HDD demand, but other HDD market segments have seen demand fall. Overall, ruthenium electrical demand is forecast to be little changed this year as declining unit sales of HDDs are roughly offset by having more platters per HDD unit.

The ruthenium price could follow rhodium and iridium lower. Once the price started rising, there may have been a snowball effect. Having seen what happened with rhodium and iridium prices, some industrial users may have tried to acquire the metal before the price rallied too far, with the result that this pushed the price up further. However, the market appears to be well supplied. The production of small PGMs from South Africa should be more or less back to normal now that last year’s processing problems have been overcome and will increase as stocks are processed later this year. This suggests that the price could have difficulty holding at record levels and could slip lower, along with rhodium and iridium prices.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,896	1.10%	1,913	26/05/2021	1,873	25/05/2021
€/oz	1,555	0.97%	1,564	26/05/2021	1,532	25/05/2021

Indian consumer gold demand hit by ongoing pandemic restrictions. Retail demand for gold slowed in April owing to the impact of the pandemic on consumer confidence, according to the World Gold Council (WGC). Although essential businesses remained open, many states enforced localised lockdowns which prevented in-store purchases of gold. Pent-up demand from weddings originally planned during 2020 (and subsequently cancelled or postponed) was expected to lift demand this year, but anecdotal reports indicate that wedding postponements increased again last month in light of the ongoing Covid-19 situation in India. Rural districts – a major source of gold demand – have been particularly

hard-hit by rising cases of Covid-19. Retail demand is expected to have remained muted during May and market sentiment on the major gold-buying festival of Akshaya Tritiya (14 May) was unseasonably weak. Consumer gold demand (jewellery + bars and coin) in India during Q1'21 increased by 37% year-on-year to 140 tonnes (source: WGC) but was below the long-term average (200 t). As the second-largest consumer gold market in the world (446.4 tonnes in 2020), ongoing restrictions in India are likely to limit gold demand this year. For now, the price is expected to continue to move higher while inflation remains the main concern.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	27.82	1.55%	28.23	26/05/2021	27.40	28/05/2021
€/oz	22.81	1.40%	23.08	26/05/2021	22.45	25/05/2021

The world's largest silver producer is growing its mine supply. Fresnillo has revealed guidance for its attributable silver production over the next 2-3 years, which reaches in excess of 70 moz by 2022. Silver production is expected to be in the range of 53.5-59.5 moz (including slipstream) this year, but the commissioning of Juanicipio in Q4'21 will lift silver volumes thereafter. Fresnillo expects to ramp-up Juanicipio to 40-50% of nameplate capacity by the end of 2021. The project is forecast to produce 11.7 moz of silver annually once fully

operational. Fresnillo produced 53 moz silver last year, making it the largest primary silver producer in the world (7% of global mine supply). The Silver Institute expects global silver mine supply to reach 848.5 moz this year, +8% year-on-year, as mining operations recover from pandemic-related disruption. Silver should typically outperform gold in an uptrend but has been unable to do that recently. If the price can close above \$29/oz, it could gain some more upside momentum.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,180	0.53%	1,216	26/05/2021	1,163	24/05/2021
€/oz	968	0.39%	995	26/05/2021	954	24/05/2021

Platinum demand in the hydrogen economy is driven in the near-term by electrolyser projects, some of which rely on platinum-rich catalysts to produce green hydrogen, while the decarbonisation of industry and transport offers longer-term opportunities. In the EU, green hydrogen is being promoted as a central part of the region's Green Deal, and the pipeline for electrolyser capacity continues to grow. Cummins and leading energy company, Iberdrola have announced further green hydrogen projects in Spain, including a new €50 million proton-exchange membrane (PEM) electrolyser plant that will be scalable

to more than 1GW/year, making it one of the largest green hydrogen plants in the world. Platinum demand from the hydrogen sector (automotive fuel cells + electrolysers + industrial) is forecast to increase by several thousand ounces this year with continued long-term growth thereafter. The platinum price has been well-supported this year by growing momentum in the hydrogen economy, as well as the prospect of a narrowing industrial market surplus from the substitution of palladium in three-way autocatalysts. In the short term, the price is expected to trade sideways to lower.



PRECIOUS METALS REVIEW

⁴⁶ Pd **Palladium**

	Close	Weekly change	High	Date	Low	Date
\$/oz	2,827	1.66%	2,840	27/05/2021	2,728	24/05/2021
€/oz	2,319	1.65%	2,329	28/05/2021	2,231	25/05/2021

In line with current forecasts, Nornickel expects the palladium market deficit to widen to 0.9 moz in 2021

owing to concentrator issues and the flooding incident at its Oktyabrsky and Taimyrsky mines earlier in the year. The impact on the market is expected to be greatest toward the end of 2021, owing to the long processing pipeline. However, the world's largest palladium producer expects to partially ease the deficit through supply from stocks which were produced by Nornickel last year but not sold, as well as work-in-progress material and additional liquidity from its Global Palladium Fund if needed. Nornickel had previously downgraded its palladium production guidance by -400 koz in 2021 owing to the impact of operations incidents on

supply, but the Group expects to fulfil its contractual obligations this year. Over the next two years, palladium production is expected to be ~2.8 moz per annum, owing to scheduled maintenance at the Nadezhda smelter. Open-pit mining at the South Cluster project is on track to commence in Q2'21, which will add a further 780-850 koz PGMs a year. In its 10-year view, Nornickel intends to increase the combined platinum and palladium output by 35-45% to 4.8-5.1 moz per annum. It remains to be seen whether the additional palladium will be needed in the long term as forecasts for BEVs are being raised on a regular basis. This year, the market is in deficit and that will support a higher average price than last year.

⁷⁷ Ir ⁴⁴ Ru ⁴⁵ Rh **Rhodium, Ruthenium, Iridium**

	Rhodium	Ruthenium	Iridium
Reporting week	\$26,950/oz	\$895/oz	\$6,550/oz
Previous week	\$27,750/oz	\$945/oz	\$6,750/oz

There has been an improvement in rhodium availability and the price dropped sharply last week before recovering somewhat. Any end users that have delayed purchases

may be looking to buy the dip and so the price could remain volatile. The iridium price slipped from its record high last week, and ruthenium followed.



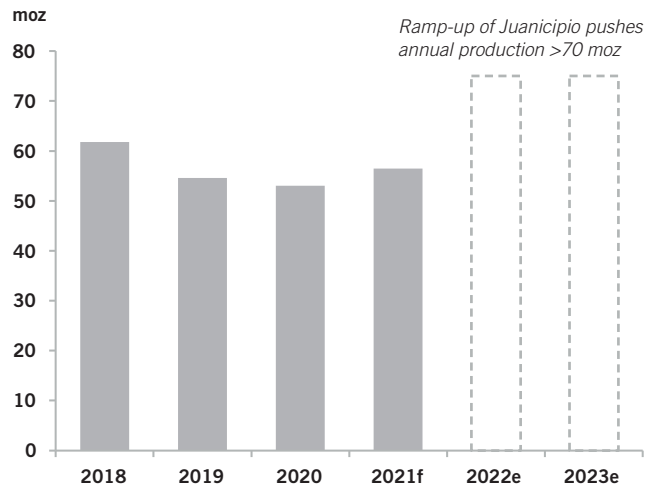
TRENDS AND INVESTMENTS

Gold:silver ratio



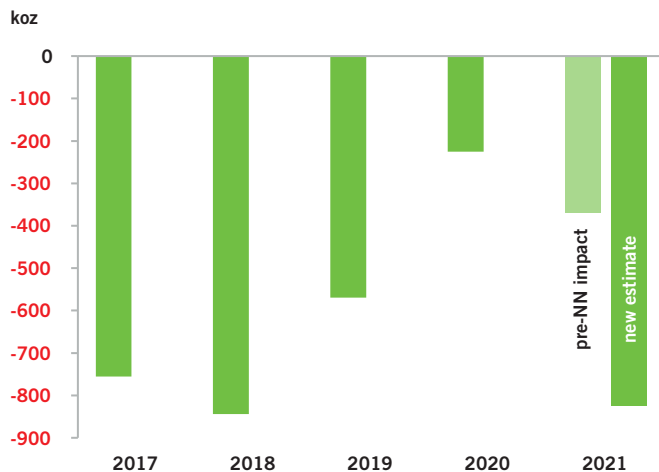
Source: SFA (Oxford), Heraeus

Fresnillo silver production



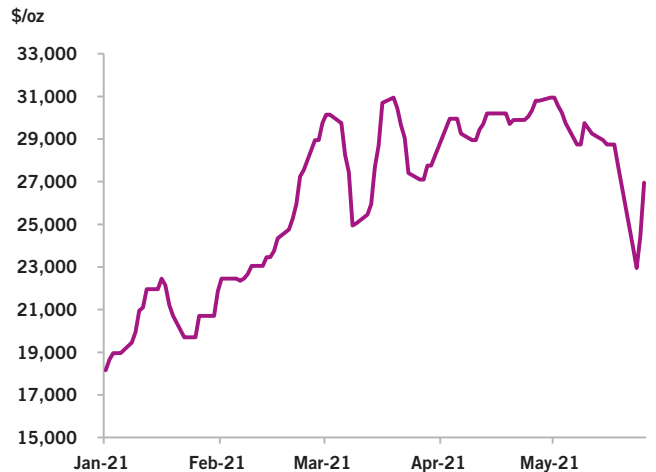
Source: SFA (Oxford), Fresnillo. Note: production refers to Fresnillo attributable production, plus ounces registered through Silverstream Contract

Palladium market balance



Source: SFA (Oxford)

Rhodium price



Source: SFA (Oxford), Heraeus

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