



MARKET SPOTLIGHT

Bigger is better: storage growth boosts ruthenium demand

The ruthenium market is predicted to be close to balance by the end of the year. In H1'20, end-user stocks were likely to have been drawn down as a result of disruption to South African mine supply, which has temporarily pushed the market into deficit. Once supply returns, the market is forecast to equilibrate. However, with robust demand anticipated from 2021, firmer prices could be expected.

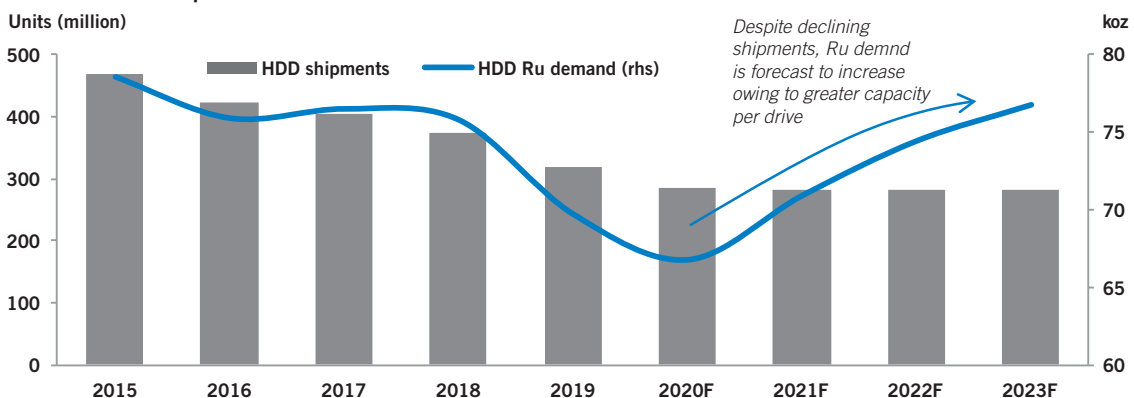
There is growing demand for high-purity ruthenium targets used in hard disks. Ruthenium is used in hard-disk drives (HDDs) to help orientate the magnetic grains and reduce the interference between layers of the hard disk. In June 2018, Furuya Metal announced an investment to expand the ruthenium refining capability of its Tsuchiura Plant in Japan in response to rising demand for high-purity ruthenium in hard disks. Furuya planned to boost capacity to approximately 60 t per year by December 2019, an almost 50% increase.

With the rapid expansion of data centres worldwide, the number of hard disks in a drive continues to grow. Demand for storage is being driven by growth in cloud storage, heightened this year owing to the millions of people working remotely. The use of ruthenium means that each magnetic domain occupies a smaller area of the disk surface, delivering higher areal densities than hard disks containing base metals.

Ruthenium is also considered a key material for the next-generation semiconductor memory known as spin-transfer torque magneto-resistive random-access memory (STT-MRAM). Furuya cited STT-MRAM demand taking off from 2020 as one of the drivers behind its ruthenium refining capacity expansion. Requirements for semiconductor memory are being driven by emerging technologies such as artificial intelligence and autonomous vehicles.

Despite declining HDD shipments, capacity per drive is expected to grow at an increasing rate from 2020, supporting ruthenium usage. Demand for solid-disk drives (SDDs), which do not contain ruthenium, is also estimated to increase, but HDDs are likely to retain a significant cost advantage (\$/GB) for high-volume data storage for the foreseeable future which will sustain demand. The electrical sector, including HDDs, semiconductor memory, chip resistors and other components, is the largest end-user of ruthenium, accounting for 35% of consumption in 2019 (344 koz).

Hard-disk drive shipments vs. Ruthenium demand





PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,798	1.27%	1,818	08/07/2020	1,774	07/07/2020
€/oz	1,589	0.62%	1,605	10/07/2020	1,570	06/07/2020

Investors offset weak central bank buying. Gold purchasing by central banks totalled 39.8 t in May, taking sales for the first five months of the year to 181 t. This is 31% lower than the same period in 2019. Only two central banks, in Turkey and Uzbekistan, increased reserves by over 1 t or more in May (36.8 t and 6.8 t respectively). Gold now accounts for 36.4% of Turkey's foreign reserves (source: IMF). Central banks are expected to remain net buyers in 2020, but the level of purchasing is likely to be lower than the record levels of 2018 (656.2 t) and 2019 (650.3 t). However, weaker central bank buying is likely to be offset by investment

demand this year. Inflows into gold-backed ETFs in the first half of 2020 have exceeded any other annual inflow on record and remain at an all-time high of 108.1 moz. The gold price pushed through \$1,800/oz last week for the first time since 2011, but failed to hold it and closed just 1.3% up.

A new meaning of safe haven? An Indian businessman has paid \$4,000 for a bespoke gold face mask to protect him from coronavirus (not recommended by the World Health Organisation). The mask weighs around 2 oz and took craftsmen eight days to make.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	18.69	3.54%	19.04	09/07/2020	17.99	07/07/2020
€/oz	16.51	2.86%	16.80	09/07/2020	15.96	07/07/2020

The silver price followed gold's ascent last week and managed to outperform, reaching \$19/oz for the first time since September. It then fell back but closed the week up 3.5%. However, due to its industrial exposure, the market remains vulnerable to the impact of further lockdowns.

Industrial silver consumption, which includes ethylene oxide (EO) as well as photovoltaic and electrical uses, is expected to drop significantly this year. Silver catalysts

used in the manufacture of EO accounted for 5.4 moz of silver in 2018. Silver is only partially consumed in the process, and is recycled every 18-36 months, thus generating only modest top-up demand. As a result, demand for silver is more dependent on new EO capacity builds, but the rate of expansion is estimated to slow this year owing to the impact of COVID-19, i.e. fewer new catalysts will be required.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	838	3.14%	862	09/07/2020	817	06/07/2020
€/oz	741	2.52%	759	09/07/2020	722	06/07/2020

The platinum price reached the \$860/oz resistance level last week but failed to push through. The price closed up 3.1% but further downside is expected owing to the poor fundamental outlook.

Will a lack of subsidies leave the UK in the pit lane? Sales of new cars in the UK were down by 34.9% year-on-year in June, at 145,377 units. Half-year sales fell by 48.5% with just 653,502 registrations, the lowest level since 1971 (source: SMMT). According to a What Car? survey, a third of potential car buyers in the UK are delaying a purchase in the hope of a government incentive scheme, yet the UK remains the only one of

the major European car markets with no targeted aid for its ailing auto industry. Most recently, Italy introduced incentives to boost sales of combustion engine cars, as well as electrified vehicles (unlike Germany which is solely targeted at zero-emission vehicles). France and Spain have also announced generous subsidy and/or scrappage programmes. Nevertheless, European car sales are forecast to decline by 25.7% this year (source: LMC Automotive), resulting in a loss of around 270 koz of platinum demand. Despite a declining diesel market share, European automakers remain the largest end-users of platinum (~15% of total demand).



PRECIOUS METALS REVIEW

⁴⁶ Pd **Palladium**

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,972	2.18%	2,005	09/07/2020	1,907	07/07/2020
€/oz	1,741	1.45%	1,768	09/07/2020	1,690	08/07/2020

India's auto forecast slashed by almost half for 2020.

India's car industry is one of the worst affected among the world's leading markets owing to the impact of a strict national lockdown, with a 49% decline in light-vehicle sales predicted this year, compared to the pre-pandemic outlook (source: LMC Automotive), to 1.74 million units. This far exceeds even the worst case scenarios for the US, China or Europe. Additionally, India's recovery is likely to be much more drawn out. The country's bleak outlook

has resulted in downward revisions to PGM autocatalyst demand, including around 25 koz of palladium (-9% year-on-year).

The palladium price made a run at \$2,000/oz last week, but is still trading roughly sideways. The price is vulnerable to slipping further as the market is now expected to be close to balance this year.

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

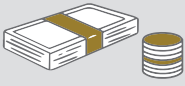
	Rhodium	Ruthenium	Iridium
Reporting week	\$8,950/oz	\$295/oz	\$1,650/oz
Previous week	\$8,950/oz	\$295/oz	\$1,650/oz

Environmental legislation will sustain electrochemical demand for iridium and ruthenium.

Owing to stronger demand in line with increasingly stringent environmental regulations, Industrie De Nora has launched a standalone company to expand its water treatment portfolio. Iridium and ruthenium are used as electrode coatings across a variety of industries, including swimming pool chlorination, ship ballast water treatment and marine

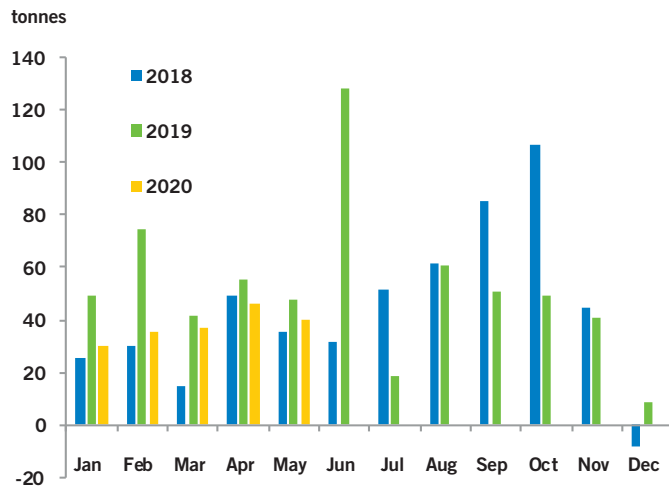
sewage treatment. Electrochemical uses such as these account for around 18% of ruthenium consumption and 26% of iridium.

Despite strong momentum in other precious metals this week, the rhodium, ruthenium and iridium prices remained unchanged. As off-exchange metals, they are less reactive to sudden changes in the market.



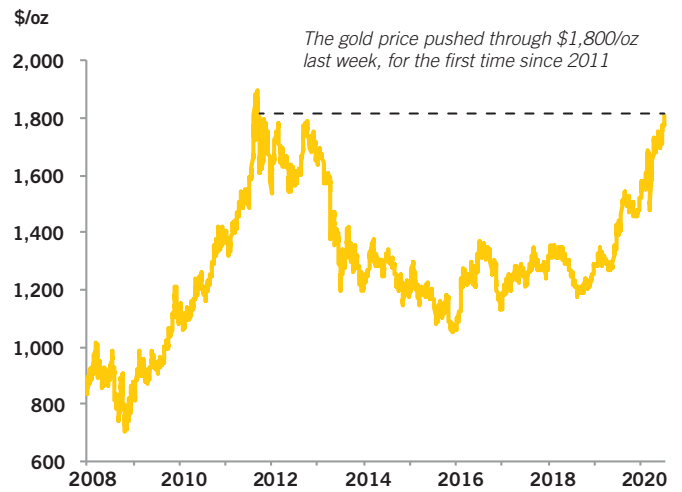
TRENDS AND INVESTMENTS

Central bank gold demand



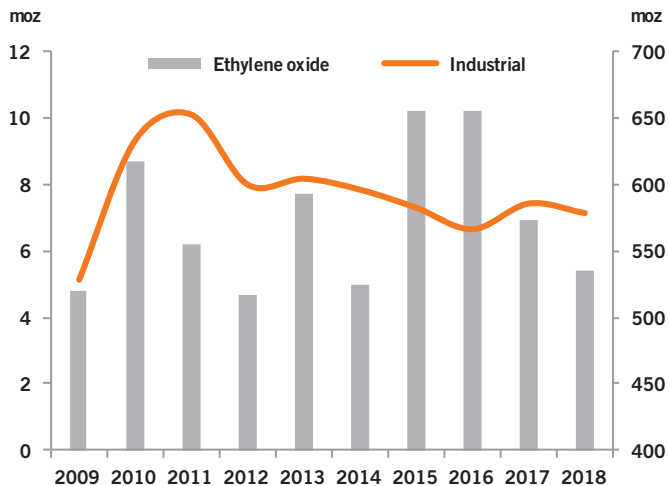
Source: World Gold Council, IMF

Gold price



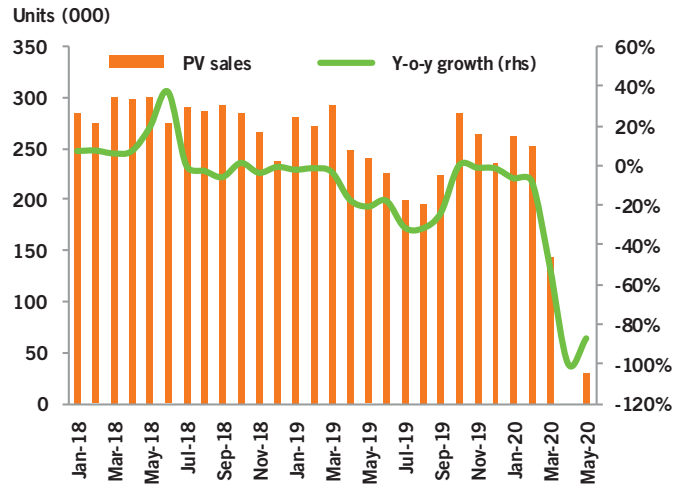
Source: SFA (Oxford), Bloomberg

Industrial silver demand



Source: The Silver Institute

India passenger vehicle sales



Source: SFA (Oxford), FADA

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