

# PRECIOUS APPRAISAL

No. 3  
7<sup>th</sup> February 2022



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## MARKET SPOTLIGHT

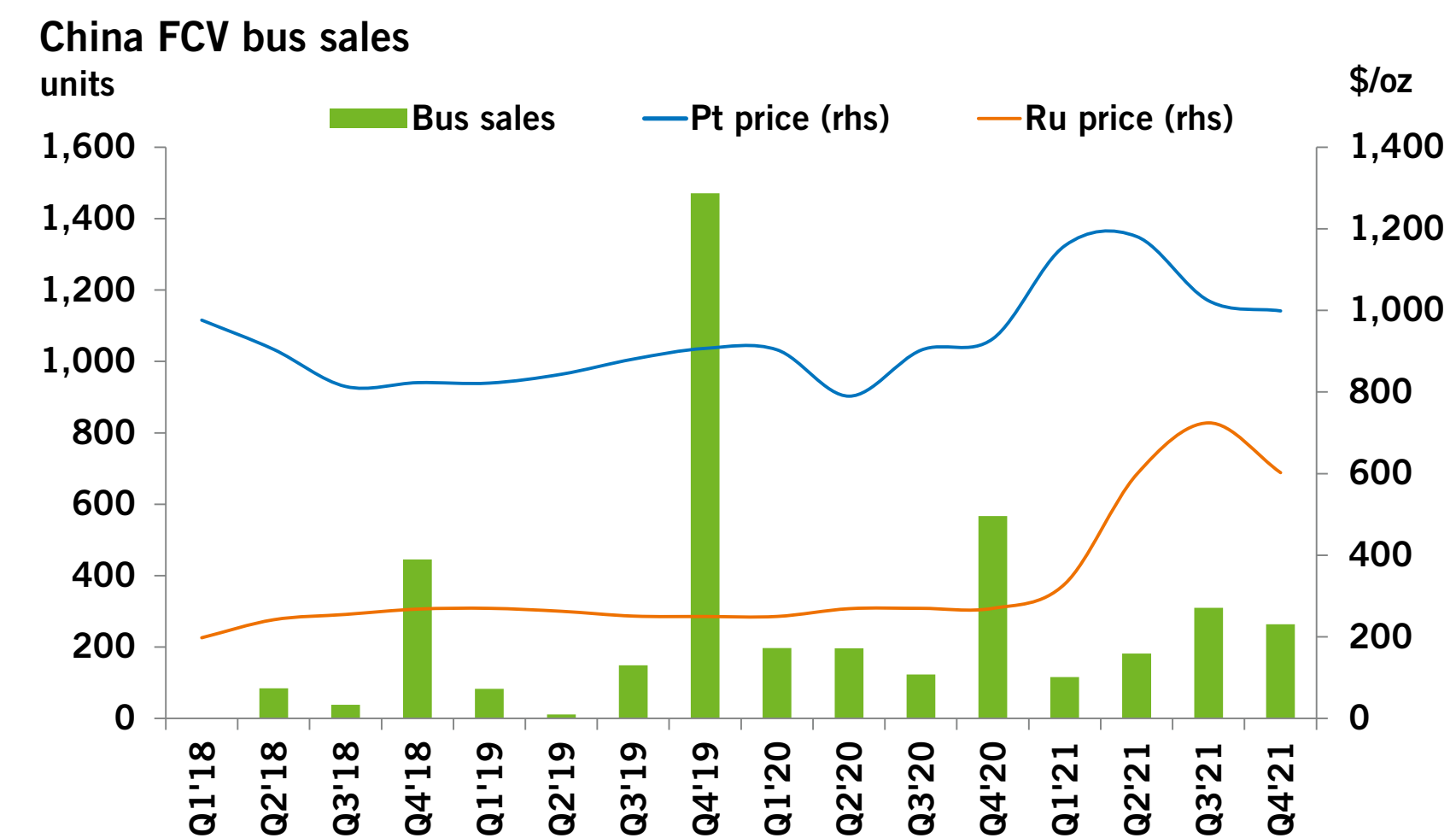
### A great leap forward for fuel cell vehicles?

**Alongside athletic skills, the current Winter Olympics in China are showcasing hydrogen-fuelled public transport.** The Tokyo Olympics in summer 2021 featured 100 hydrogen fuel cell buses as part of Japan’s demonstration of the possibilities of a hydrogen energy infrastructure. The Beijing Winter Olympic Games go one better with a fleet of 655 proton exchange membrane (PEM) fuel cell buses being used to shuttle spectators around the city of Zhangjiakou, the main competition site. This mountain sports centre, 180 km north-west of Beijing, is rich in renewable wind and solar power resources and is China’s first National Renewable Energy Demonstration Zone, set up to explore energy transition pathways. A further 212 fuel cell buses will be used in the alpine skiing and bobsleigh competition zone at Yanqing. Beijing received 30 buses in December 2021 for use as shuttle and tourism transport as part of a 100-vehicle demonstration project.

**China has very ambitious plans for commercial fuel cell vehicles.** Over the last seven years, China’s commercial fuel cell vehicle (FCV) production amounted to around 5,500 vehicles. Over 80% of these were buses. The national FCV plan established in April 2020 targets output of 50,000 by 2025 and 1 million in 2030. Instead of subsidising the price of FCVs, as in the soon-to-expire New Energy Vehicle programme for promoting the purchase of electric cars by consumers, China introduced a four-year pilot programme in the form of financial awards from central government for FCV research, development and demonstration applications.

**This is a testing time for fuel cell buses.** High profile demonstration projects are useful for proving vehicle performance and reliability and for collecting operating data, but the outcome might not always be favourable for fuel cell technology. In Montpellier in the south of France, the local administration last month cancelled an investment of €29 million in a fleet of 51 fuel cell buses because their operating cost would have been six times higher than their battery-electric equivalents.

**Platinum demand for commercial FCVs is beginning to accumulate.** It is only a small proportion of total industrial demand at present, but the bus programmes in place in 2022 are likely to account for several thousand ounces of metal. Realisation of long-term ambitions for bus and truck fleets would see demand for platinum becoming significant during the decades ahead.



Source: SFA (Oxford), China Automotive Information Net

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# PRECIOUS METALS REVIEW

## Gold



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,807	1.21%	1,815	04/02/2022	1,787	31/01/2022
€/oz	1,578	-1.38%	1,608	31/01/2022	1,568	04/02/2022

**A 10% rise in demand for gold in 2021.** The increase reported by the World Gold Council clawed back much of the demand lost after the onset of the pandemic in 2020. Jewellery fabrication was up by 67% as consumer demand recovered, with purchases in the last quarter becoming the strongest since the second quarter of 2013. Bar and coin demand rose by 31%, reflecting investors’ growing concerns about inflation, while central bank purchases were up by 82%, to lift global gold reserves to the highest level for nearly 30 years. The only disappointment was the 173-tonne decline in ETF holdings following an 874-tonne increase in 2020.

**Interest rates are not on the rise everywhere to combat inflation.** Last Thursday, the Bank of England raised its base lending rate for the second successive month to 0.5%, as inflation reached an official 5.4% rate in December 2021. On the same day, the European Central Bank Monetary Policy Committee met and decided to leave its rates unchanged, even though Eurozone inflation in January reached 5.1%. However, the ECB shifted position in the press conference and is no longer ruling out a rate rise this year. The gradual change to a more hawkish policy has begun, but that leaves the ECB many months behind the Fed. Expectations are rising in the US that the Fed will raise rates by half a percentage point in March, with further increases to come later in the year. Investors will have to decide whether monetary authorities are over-cautious about raising rates. If investors think inflation will continue to run hot, the gold price should benefit.

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### Silver



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	22.48	0.99%	23.05	01/02/2022	22.01	03/02/2022
€/oz	19.62	-1.62%	20.47	01/02/2022	19.32	03/02/2022

**Silver investment has got off to a good start in 2022.** The US Mint sold just over 5 moz of American Eagle silver coins in January, up 4.7% from 2021, and the highest January total since 2017. Investors have also been adding to their fund holdings, with ETFs increasing by almost 12.5 moz to 886.7 moz. After reaching \$24/oz, the price is back near \$22/oz, which is a support level that has stopped declines over the last 18 months. However, if the price breaks that support, it could drop sharply.

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### Platinum

78  
Pt

	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,025	1.68%	1,050	01/02/2022	1,011	31/01/2022
€/oz	895	-0.82%	932	01/02/2022	887	04/02/2022

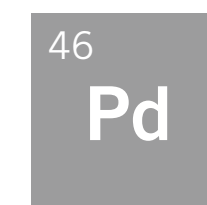
**No change to platinum production outlook for 2022 as more South African PGM producer results come in.** Impala reported group production of 1.62 moz (6E) (~730 koz Pt) for the second half of 2021. This was 5% lower than the previous year owing to the timing of processing plant maintenance. The company also stated that it would be conducting a full rebuild of a smelter, rather than the partial rebuild scheduled for Q1'22, and that it would take around four months. Production guidance has not been changed, and, Impala has spare capacity at other furnaces, so it is unlikely that there will be any impact on refined output. The platinum market is expected to have a large surplus this year (ex. investment). The platinum price tends to perform well in the first few months of the year, but the price has stalled having climbed above \$1,000/oz.

**Kroondal's mine life doubled.** Sibanye-Stillwater is to assume full ownership of Kroondal, and shafts that had run out of reserves can continue to operate by accessing ground in the contiguous Rustenburg operation, extending the mine's life to 2029. Last year Kroondal produced 255 koz of platinum.

**China is not alone in planning to increase the use of commercial fuel cell vehicles.** South Korea's two port cities, Busan and Ulsan, along with the southern province of Gyeongsang, together plan to introduce 624 Hyundai fuel cell buses, with the goal of replacing ICE-powered public buses by 2025. There is also a steady flow of announcements of the introduction of fuel cell buses in European countries. Last month, the Hydrogen Fuel Cell Council, an educational and advocacy group of public transit agencies and FCV suppliers, was formed in the US to advance the use of fuel cell buses in the public transport sector.

# PRECIOUS METALS REVIEW

## Palladium



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	2,301	-3.13%	2,454	31/01/2022	2,281	04/02/2022
€/oz	2,009	-5.49%	2,187	31/01/2022	1,997	04/02/2022

**Palladium prices reached a five-month high last week.** The spot price on 31 January reached \$2,454/oz before pulling back to \$2,300/oz, still powerfully supported by the threat of a Russian invasion of Ukraine and the potential impact of any sanctions imposed on Russia as a result. Lease rates have also moved modestly higher. The price could remain elevated for as long as the present crisis persists.

**Palladium auto demand might hold up for longer if battery materials supply tightens.** US auto companies are investing heavily in the domestic manufacture of electric cars and pickup trucks as well as the lithium-ion batteries that they need. General Motors last week revealed a \$6.6 bn spend in two plants in Michigan, following similar projects announced by Ford in Kentucky and Tennessee in 2021. However, relatively little money is being invested in the US to mine and fabricate the raw materials such as lithium, nickel and the intermediate products made from them. Chinese players currently dominate the market in these areas, which could be a problem for BEV supply if global demand for battery materials should tighten or if trade friction were to increase, as the lead time to develop a new mine is typically a long one. In these circumstances, any slackening of growth in BEV production could extend the life expectancy of internal combustion-powered vehicles, and the demand for palladium to go with them.

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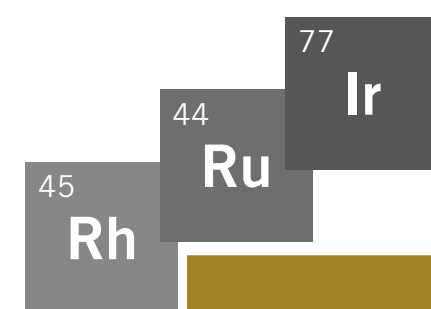
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### Rhodium, Ruthenium, Iridium



	RHODIUM	RUTHENIUM	IRIDIUM
Reporting Week	\$18,250/oz	\$575/oz	\$4,200/oz
Previous Week	\$18,300/oz	\$575/oz	\$4,150/oz

**PEM electrolyser installations continue to provide incremental iridium demand.** Ammonia producer Yara has signed a contract with Linde Engineering for construction and delivery of a green hydrogen demonstration plant at Yara's ammonia production facility at Porsgrunn in Norway. The project will demonstrate that ammonia produced using renewable energy can reduce the amount of carbon dioxide emitted in fertiliser production. The project will use PEM technology and will be the second 24 MW PEM electrolysis plant designed and constructed by Linde Engineering; the first is now being built at the Leuna chemical complex in Germany.

**Impala's smelter rebuild is unlikely to impact the rhodium market.** There is sufficient spare processing capacity and, even if there were to be a stock build in the short term, that stock would be processed over the next few months, so for the calendar year there is likely to be no impact.

The small PGM prices diverged last week as iridium moved higher and rhodium slipped back slightly, while ruthenium held steady.

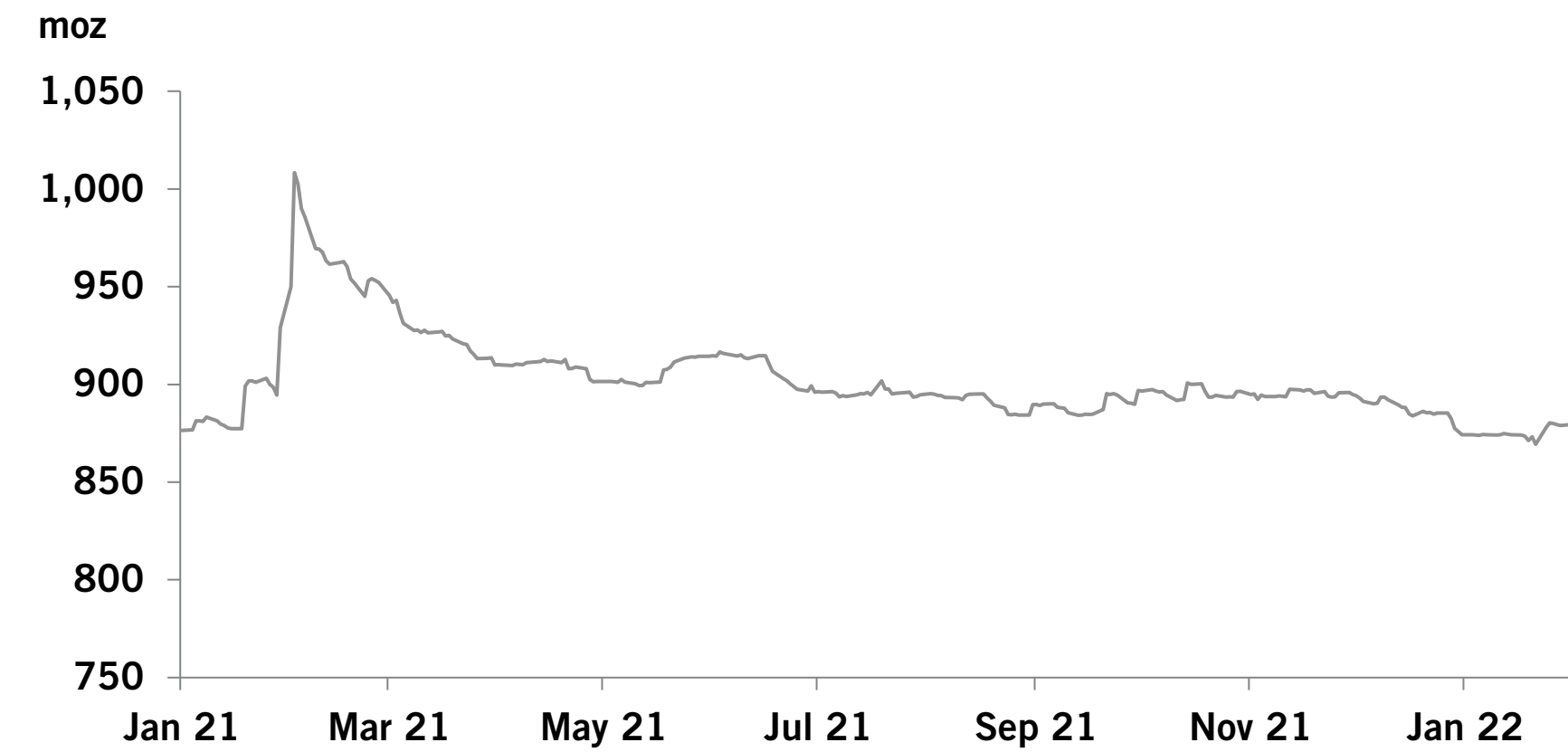
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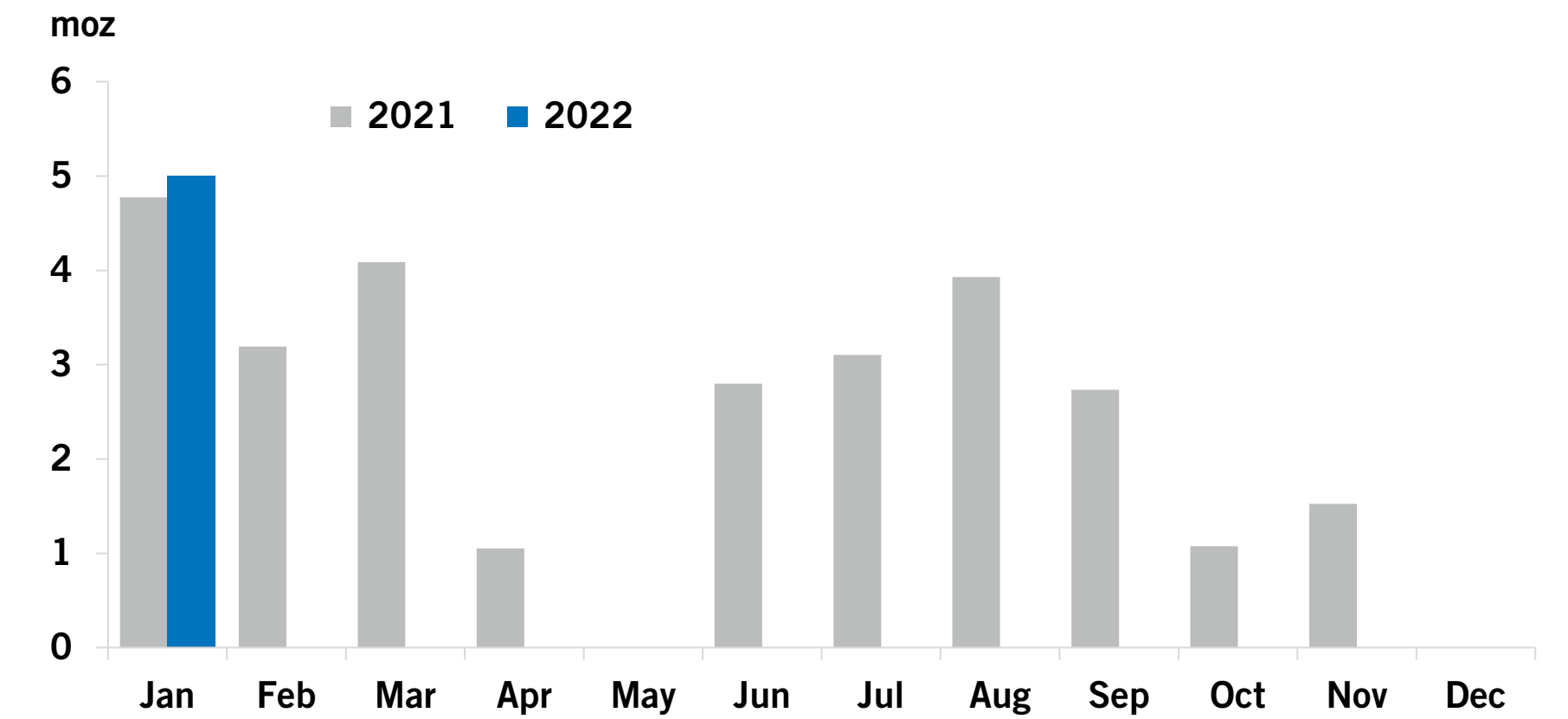
# TRENDS AND INVESTMENTS

## Silver ETF holdings



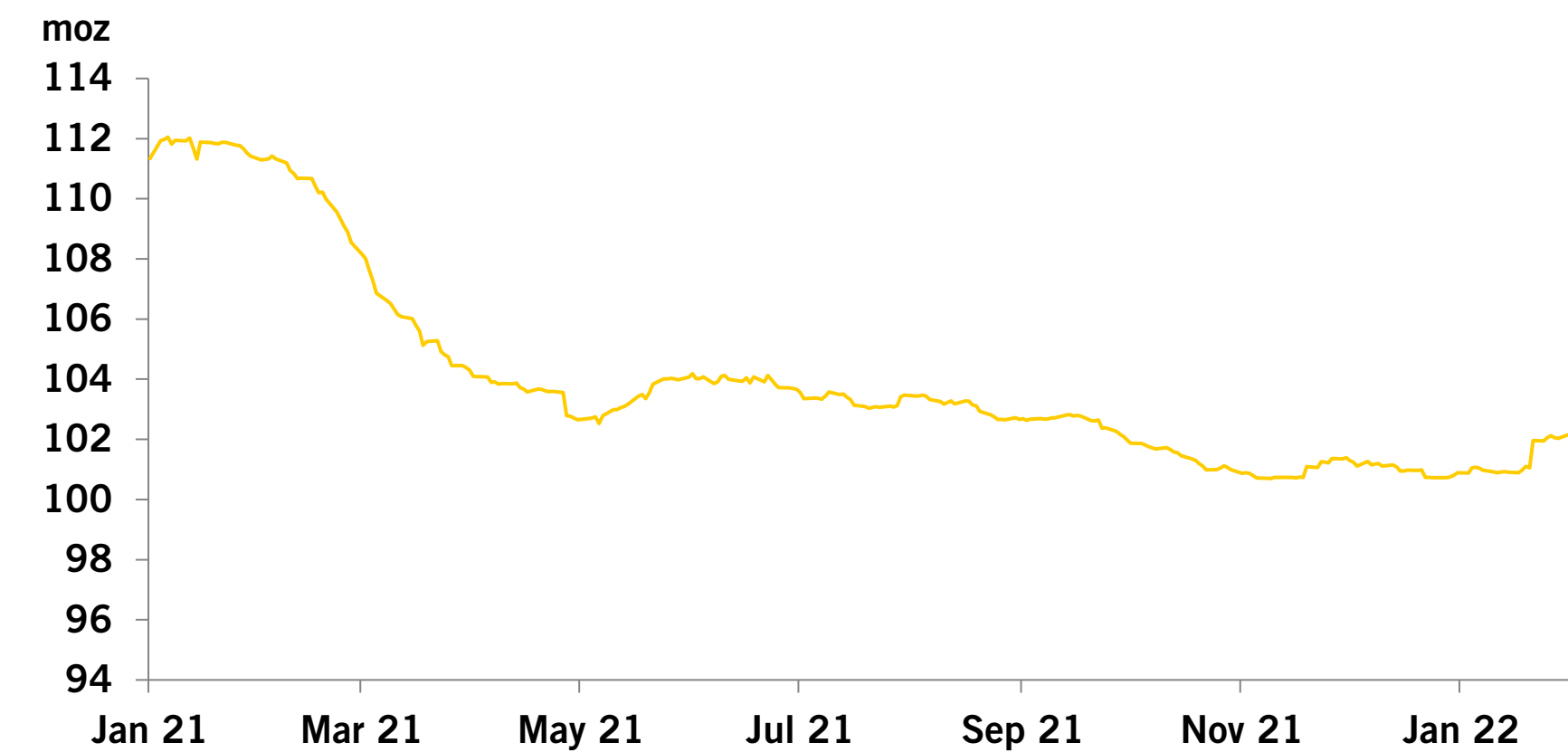
Source: SFA (Oxford), Bloomberg

## American Eagle silver coin sales



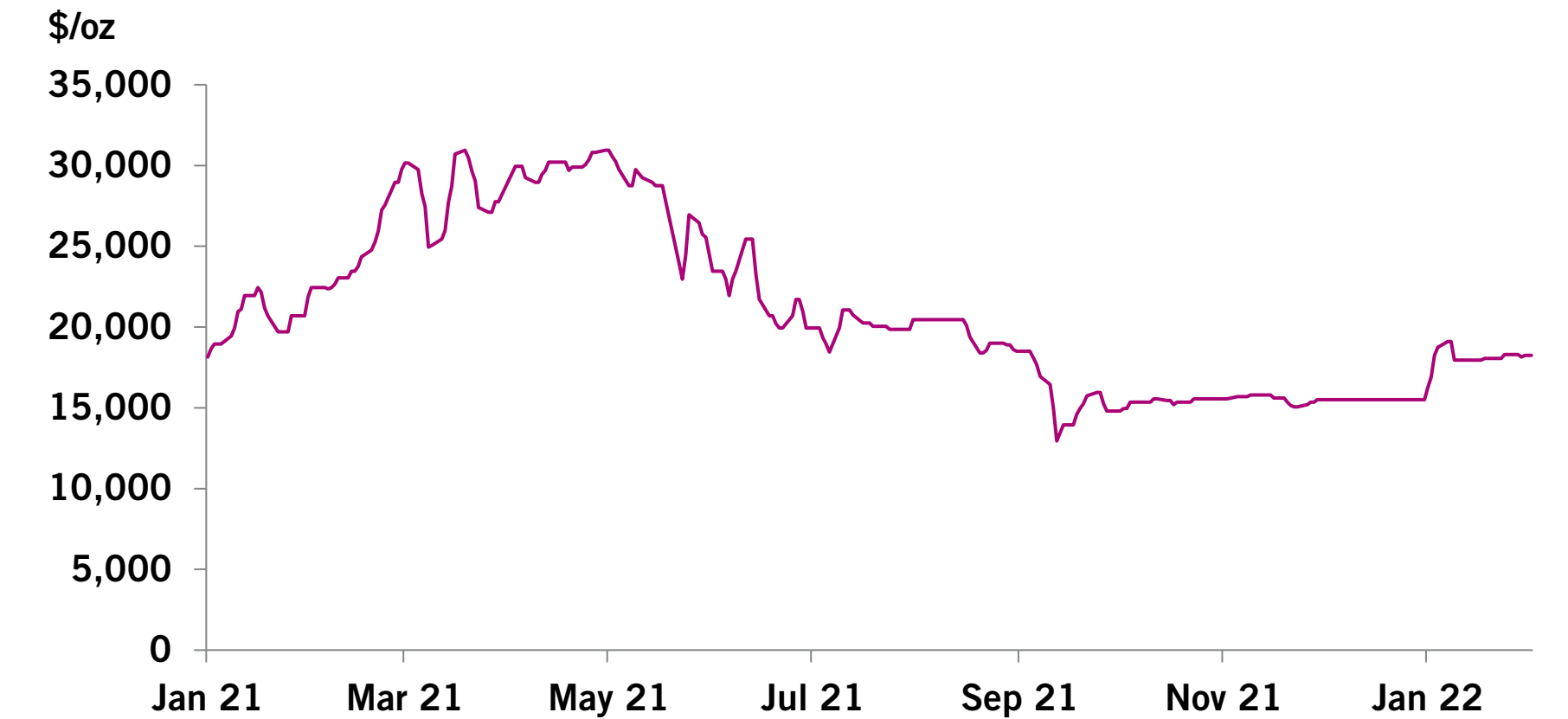
Source: SFA (Oxford), US Mint

## Gold ETF holdings



Source: SFA (Oxford), Bloomberg

## Rhodium price



Source: SFA (Oxford), Heraeus Precious Metals



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