

PRECIOUS APPRAISAL

No. 4
14th February 2022



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MARKET SPOTLIGHT

Will Euro 7 boost PGM demand in Europe, or crush ICE?

Euro 7 emissions standards are on the way and will be critical for internal combustion engine (ICE) vehicles, and hence PGM demand in Europe. The regulations were originally expected to be announced in 2021. Feedback on the EU’s impact assessment has closed, but discussions are ongoing. The new rules could come into force as early as 2025, but the delay in agreeing them could push that back by a year or two.

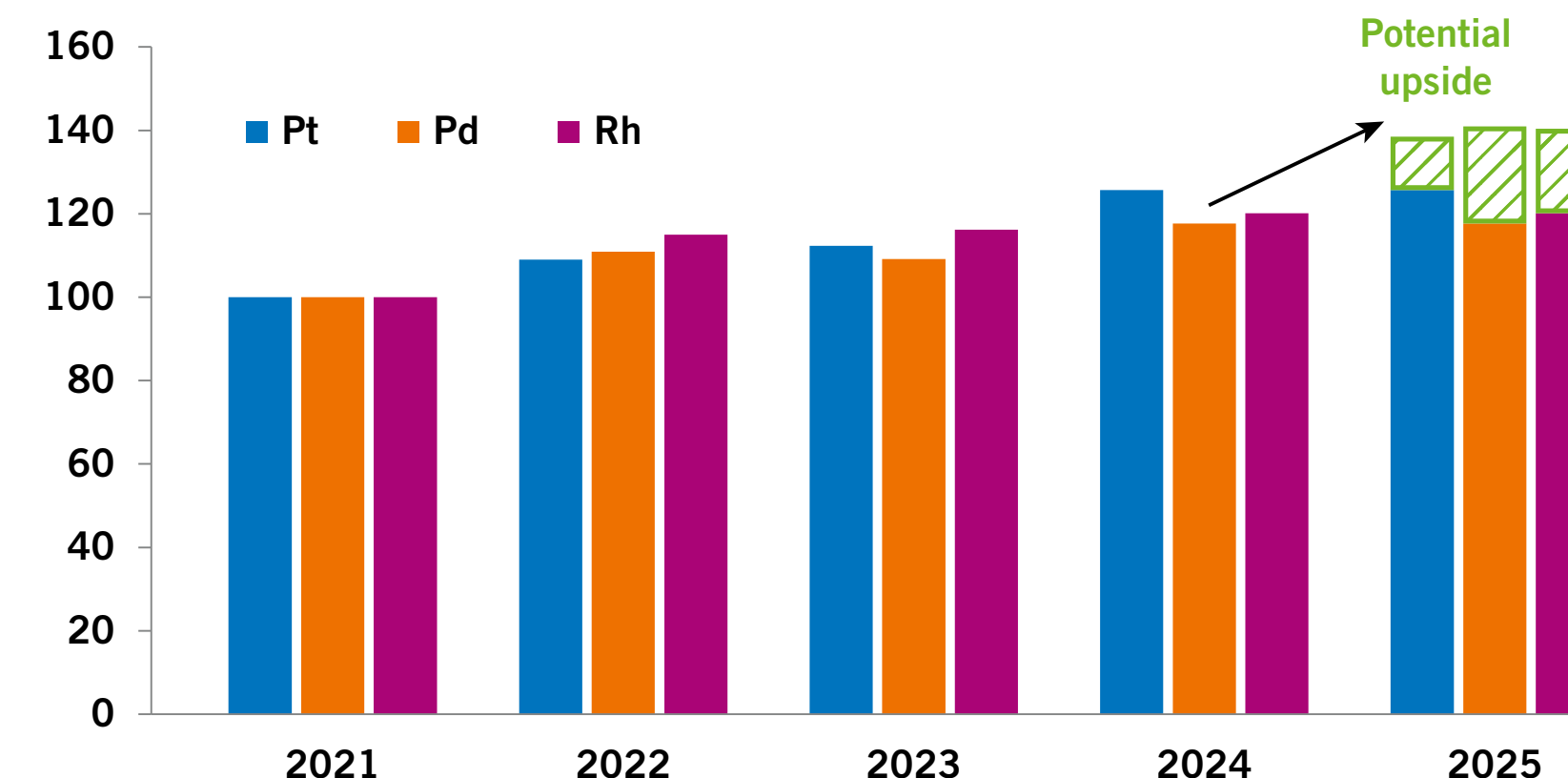
The new standards are aimed at improving air quality, especially in urban areas. There is much debate about whether air quality can be sufficiently improved by upgrading a far higher proportion of the on-road fleet to Euro 6 levels, by scrapping older vehicles or banning them from cities, or whether tighter emissions standards for new vehicles will be needed. The three options cover: harmonising the standards for cars, vans, trucks and buses, simplifying the tests, and reducing costs; stricter emissions standards, with the possible addition of new limits for emissions that are not currently regulated; and tighter standards with onboard emissions monitoring.

For ICE vehicles, Euro 7 could mean more PGM demand to meet tighter emissions limits, but the risk is that it could also become too expensive to make ICE cars that meet the new emissions standards. Most automakers’ new model announcements make it clear that they intend to continue to develop ICE platforms compliant with Euro 7 rather than abandoning the ICE. Extensive hybridisation is likely to be used. Nissan has said Euro 7 will raise the costs of developing ICEs to unsustainable levels and has stopped gasoline engine development for the European market.

Potential PGM demand upside could be considerable. Assuming a similar jump in autocatalyst loadings as for earlier tightening of standards, European PGM demand could increase by several hundred thousand ounces. The BEV market share is growing rapidly, reaching 9.1% in 2021 (source: ACEA), and that additional demand takes account of BEVs potentially exceeding 20% of light-vehicle sales in 2025.

Palladium and rhodium would benefit the most, as the majority of cars will still be gasoline or gasoline hybrids. Diesel cars’ share of the market may be only 12% in 2025. Platinum demand would also receive a boost from its use in gasoline autocatalysts and commercial vehicles, which will still be mostly diesel. This year, automotive palladium demand from Western Europe is forecast to be ~1.5 moz as vehicle production is predicted to recover from the semiconductor chip shortage. The global recovery could move the palladium and rhodium markets into deficit. With ICE vehicle production forecast to grow further by 2025, the introduction of Euro 7 could keep the palladium and rhodium markets tighter for longer, supporting prices.

W. European automotive demand
Indexed to 2021



Source: SFA (Oxford)

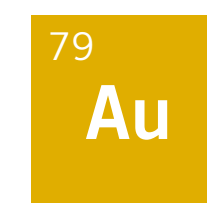
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PRECIOUS METALS REVIEW

Gold



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,837	1.65%	1,842	10/02/2022	1,810	07/02/2022
€/oz	1,611	2.08%	1,611	11/02/2022	1,582	07/02/2022

January's physical gold demand was broadly positive. Net global inflows to ETFs were 46 tonnes, with North American and European purchases significantly outweighing outflows from funds in Asia. Sales of American Eagle bullion coins, at 181,500 oz, were the third-highest January total on record. Gold withdrawals on the Shanghai Gold Exchange, a good proxy for overall gold demand in China, were up 16% from January 2021 at 185.5 tonnes. However, in India demand was reported to be weaker owing to the reintroduction of Covid restrictions in the New Year, and investors holding back in case changes in gold taxes were announced in the national budget on 1 February (in the event, no tax changes were made).

The gold price pushed higher last week, despite an increase in bond yields and a stronger dollar. With a stable US jobless rate of 4% in January (a level which is defined by the Federal Reserve as full employment) and the CPI for January coming in at 7.5%, the Fed is still a month away from its first rate hike. The gold price has been trading in a narrowing range, but, with real interest rates increasingly negative, it is on the verge of breaking out higher with \$1,875/oz the first hurdle.

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Silver



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	23.28	3.66%	23.72	10/02/2022	22.70	07/02/2022
€/oz	20.42	4.09%	20.65	10/02/2022	19.85	07/02/2022

Silver demand is set to increase in 2022. Silver demand could exceed 1.1 billion ounces this year as industrial demand, jewellery demand and investment are all projected to rise (source: The Silver Institute). The shift to renewable energy continues to drive solar power installations and photovoltaic demand for silver is expected to expand, even with ongoing thrifting. Silver use in electronics is also predicted to increase with the roll-out of 5G networks supporting smartphone demand. However, silver demand also went up in 2021, including solid investment demand, but that did little to help lift the price. The interplay between inflation, inflation expectations and central bank policy could have more influence on the price. The upside is favoured, with silver expected to outperform gold once the price starts to climb.

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Platinum

⁷⁸ Pt	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,021	-0.35%	1,060	10/02/2022	1,007	08/02/2022
€/oz	895	0.04%	923	10/02/2022	882	08/02/2022

Decarbonising platinum production in South Africa. For the second year in a row, the White & Case annual survey of industry participants reports that the biggest single risk for mining and metals is ESG (environmental, social and governance). Demonstrating good ESG credentials can be achieved by involvement in the energy transition, which is a box easily ticked by PGM producers in South Africa with their suite of useful new energy metals such as iridium, ruthenium, and by-products nickel, copper and cobalt, in addition to platinum. Another requirement is to reduce in-house operating emissions, which is problematic when the South African power grid is based on coal-fired electricity generation. Minor platinum producer Tharisa (~100 koz Pt per year) was the latest producer to announce a plan to develop a 40 MW solar farm at its chrome and PGM mine on the Western Bushveld. Tharisa is a shallow mine without a PGM smelter and its power requirement is therefore relatively small.

The major producers all have plans to install solar and wind generation capacity to reduce their carbon emissions. The government allows a maximum of 100 MW of permitted self-generated power. For major producers with deep vertical shafts hoisting miners and materials and high energy needs from pyrometallurgical plants, the challenge – and cost – of reducing carbon emissions will be a lot greater.

Platinum traded in a tight range last week, holding between technical resistance around \$1,060/oz and support at \$1,000/oz. Speculative net long futures positions on NYMEX have more than doubled since the start of the year, but, while 0.7 moz is high compared to the last six months, it is less than half the level of 12 months ago, leaving room for more upside.

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Palladium

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Pd

	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	2,204	-4.22%	2,334	10/02/2022	2,175	07/02/2022
€/oz	1,928	-4.05%	2,045	10/02/2022	1,909	07/02/2022

European passenger car sales are forecast to recover in 2022, supporting palladium demand. With supplies of semiconductor chips to the auto industry expected to stabilise this year, the European Automobile Manufacturers' Association (ACEA) forecasts that passenger car registrations in the EU will return to growth, rising by 7.9% to reach 10.5 million units. However, this would still be almost 20% below the pre-crisis sales levels of 2019. ACEA wants the European Union to reduce its reliance on overseas suppliers to avoid such damage to strategic European industries in the future. Last Tuesday, the EU unveiled a €43 bn plan to provide for state aid to promote research and production of advanced technology chips within Europe, following a \$52 bn subsidy introduced by the US government for the same purpose. As if to reinforce this priority, Toyota reported that its global vehicle production for the fiscal year to March 2022 would be half a million units below the forecast it issued in September 2021, while Volkswagen, describing chip supply as 'volatile', does not expect the global shortage of semiconductors to end this year.

Palladium automotive demand is set to rise this year with the increase in vehicle production and, as long as the chip shortage does not lead to another year of missed forecasts, that could move the market into deficit, supporting the price.

Heraeus and BASF are creating a joint venture company in China to combine their expertise and provide a world class recycling solution.

The company will enable the circular economy through recycling spent catalysts, including autocatalysts. Autocatalysts will become an increasingly important source of PGMs for recycling as growing numbers of cars are scrapped each year in China. With the introduction of China 5 and, more recently, China 6 legislation, the metal content of the catalysts has increased, particularly palladium but also rhodium. The amount of metal recycled could grow rapidly over the next few years, potentially exceeding 0.5 moz of palladium.

New palladium production in Russia has been financed. Russian Platinum announced that it has acquired the financing with which to begin the development of its Chernogorskoye resource located near Nor Nickel's infrastructure in the Taimyr Peninsula. The resources are planned to be extracted through an open pit, and a nearby processing plant and smelter will be built. Commissioning of the mining and processing complex is scheduled for 2024. At full production, the mine could produce around 700 koz of palladium.

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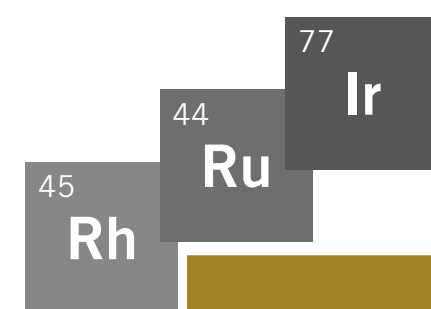
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Rhodium, Ruthenium, Iridium



	RHODIUM	RUTHENIUM	IRIDIUM
Reporting Week	\$19,700/oz	\$575/oz	\$4,200/oz
Previous Week	\$18,250/oz	\$575/oz	\$4,200/oz

The rhodium price surged by \$1,450/oz last week. The rhodium market has tightened. With the end of the Chinese New Year holiday, Chinese buyers have returned to the market. After climbing sharply at the start of the year, the rhodium price was relatively stable for several weeks. It is possible that some end users were waiting for the price to pull back, but with the price starting to rally, are buying some metal now to avoid possibly paying more later. The iridium and ruthenium prices held steady.

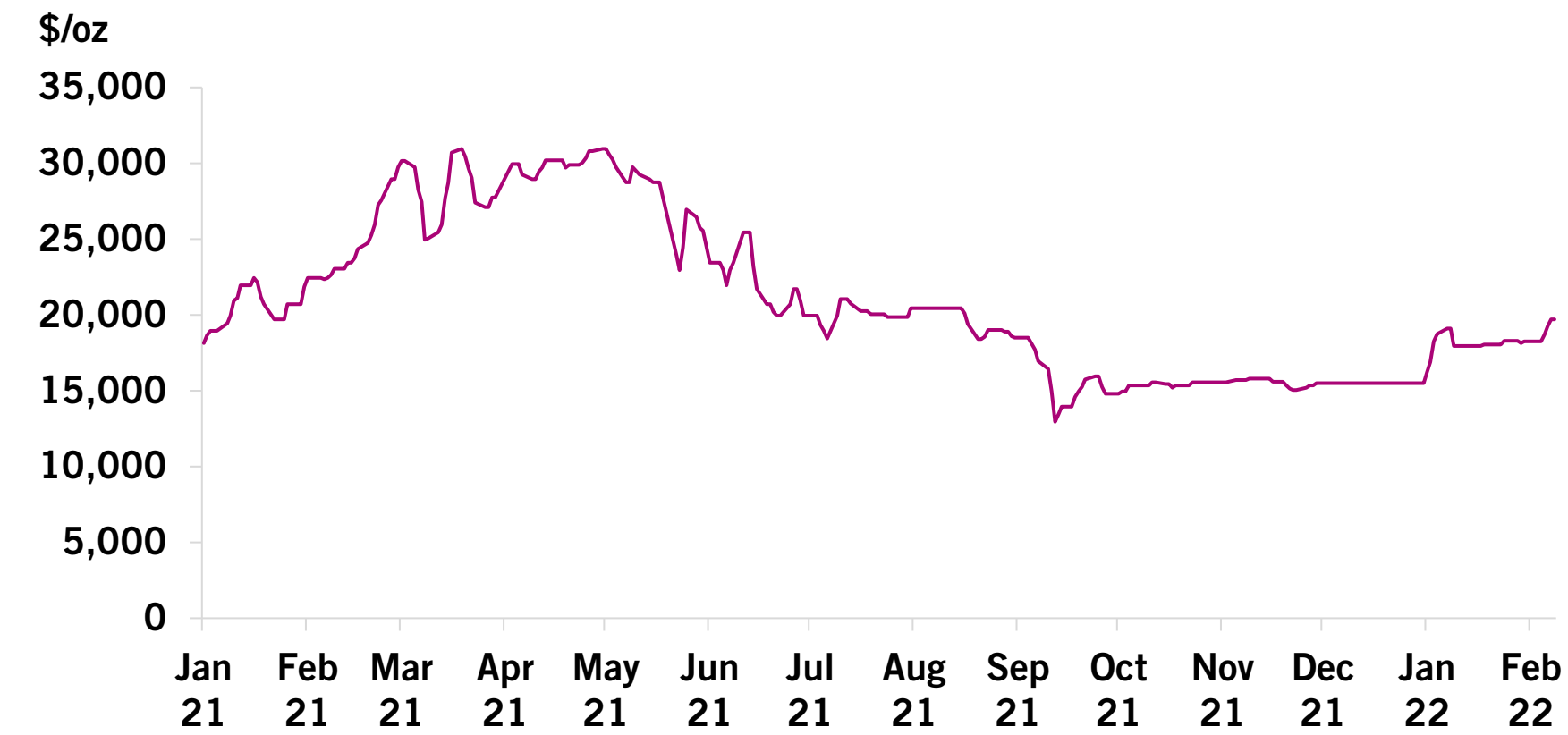
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TRENDS AND INVESTMENTS

Rhodium price



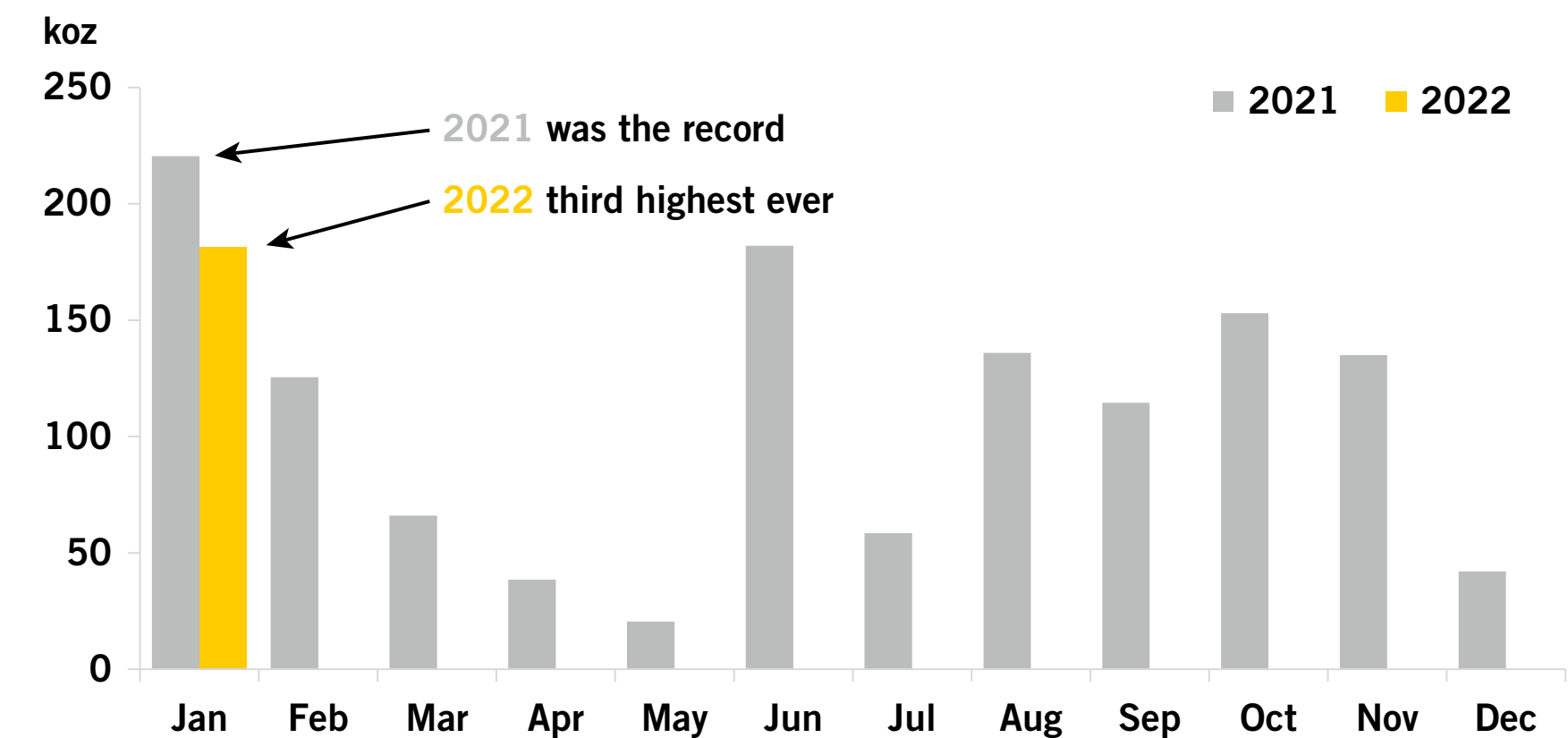
Source: SFA (Oxford), Heraeus Precious Metals

Platinum non-commercial net position



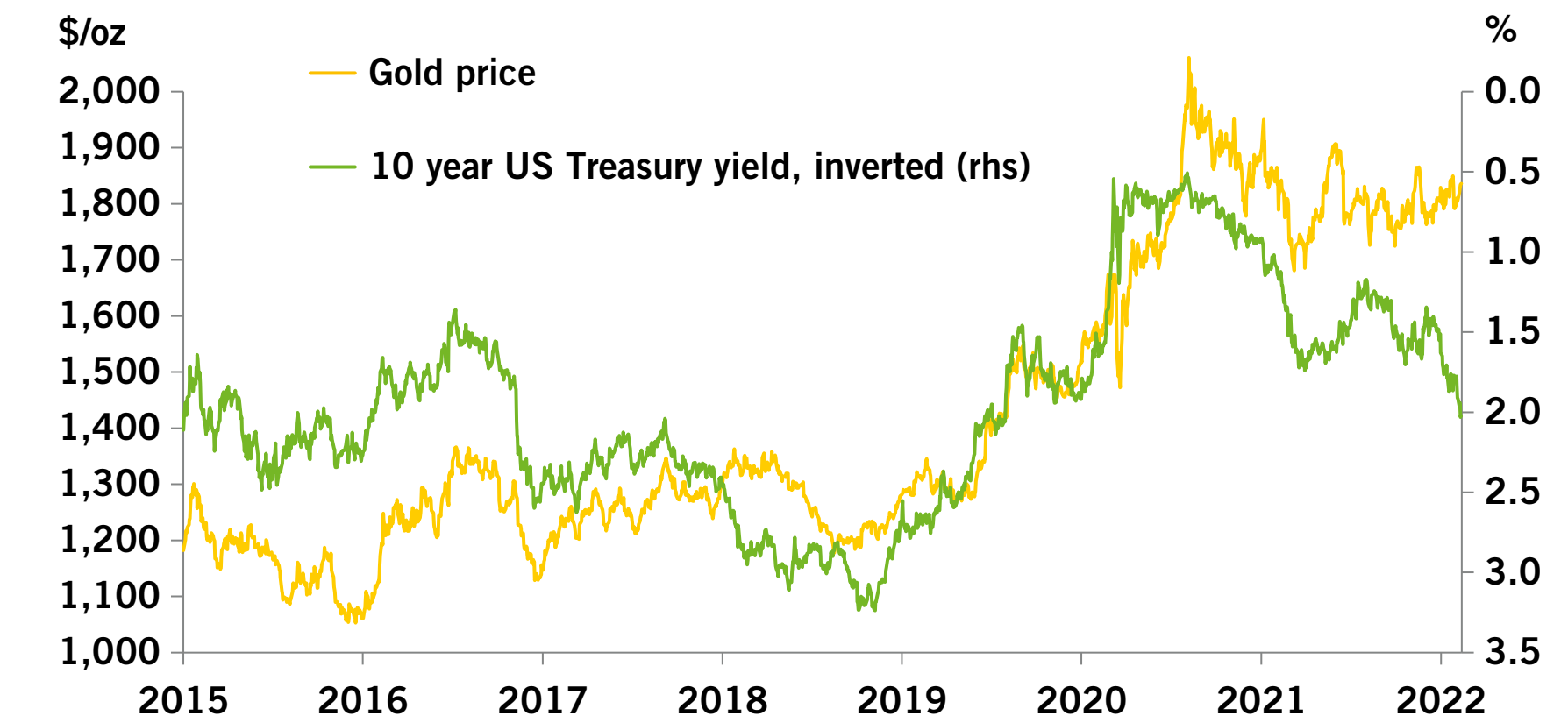
Source: SFA (Oxford), Bloomberg

American Eagle gold coin sales



Source: SFA (Oxford), Bloomberg

Gold price vs 10-year treasury yield



Source: SFA (Oxford), Bloomberg

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