

PRECIOUS APPRAISAL

No. 38
21st November 2022



- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

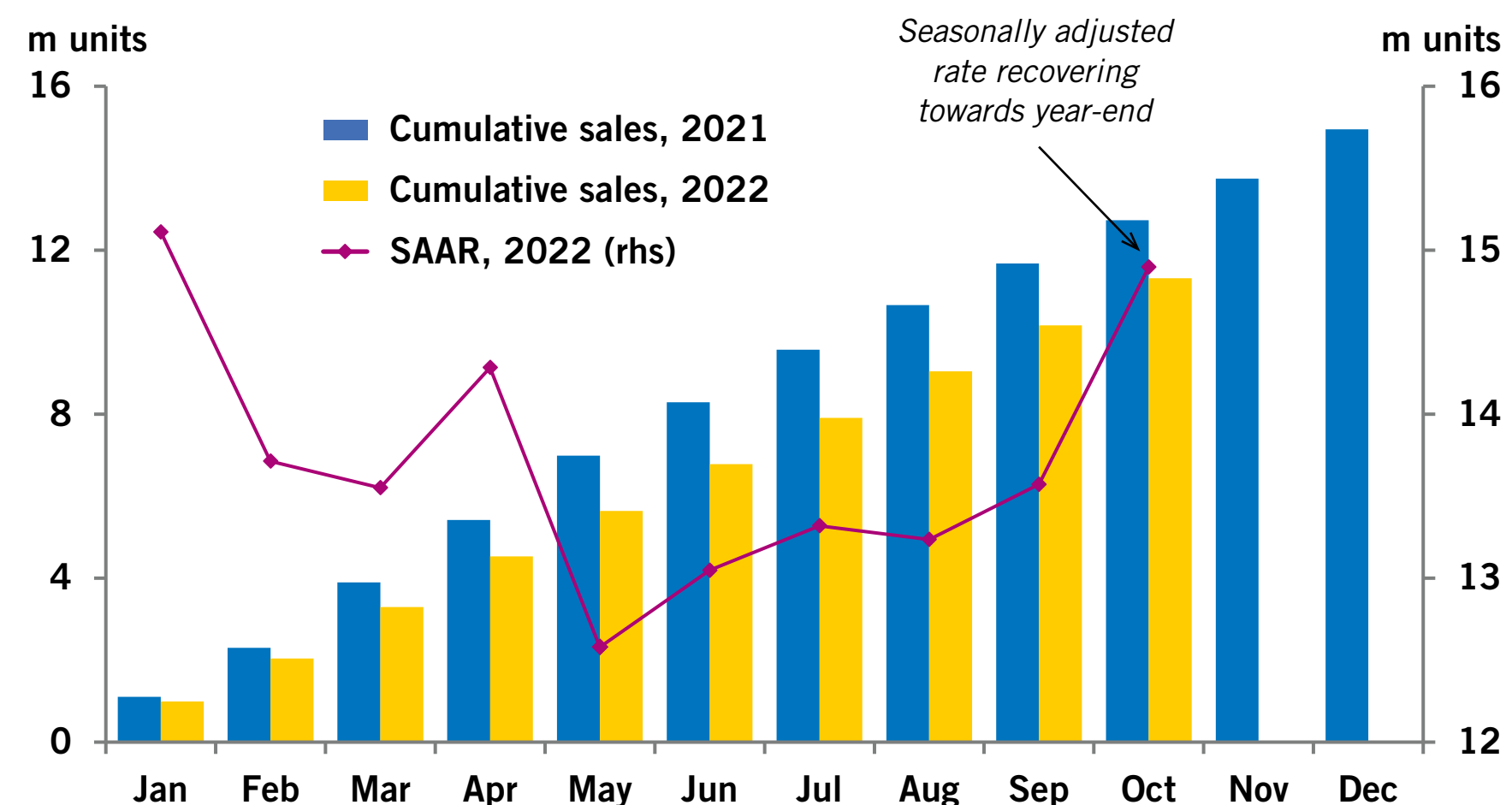
MARKET SPOTLIGHT

Older cars present a new problem for scrap palladium supply

More than 80% of global secondary palladium supply comes from recycled autocatalysts, with the rest accounted for by waste electronics and jewellery. The US is responsible for more than half of all autocatalyst recycling in terms of secondary palladium supply.

A combination of factors has led to a projected reduction in scrappage rates in 2022. Light-vehicle sales in the US have reached 11.3 million in the year to October, down by 11% from 12.7 million in the same period last year. Showrooms in the US have been feeling the strain of this bottleneck, as inventory levels sank to their lowest since records began. With new vehicle availability constrained, second-hand car prices surged. Drivers held on to their current cars longer, reducing the scrappage rates of older vehicles and resulting in lower levels of secondary PGMs from recycled autocatalysts.

US light-vehicle sales underperforming year-on-year



Source: SFA (Oxford), US Bureau of Economic Analysis. Note: SAAR = seasonally adjusted annual rate

Automotive production problems are predicted to ease into next year. Days' supply of inventory has begun to recover, improving by 35% year-on-year in October to a still low 35 days. Additionally, US light-vehicle sales (seasonally adjusted) reached their highest level last month since January. Forecasts for next year see automotive production growing moderately, although still hampered by the automotive chip shortage, possibly into at least the middle of the year. This should help grow dealer inventories and new light-vehicle sales further, in principle helping scrappage rates recover.

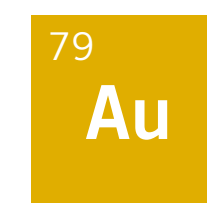
The number of second-hand vehicles flowing back into the market could remain restricted. Recovering production and light-vehicle sales in 2023 should lead to more older cars being scrapped and thus improve secondary PGM supply compared to 2022. However, the risk of recession in the US is high. In this case, weaker consumer demand would likely limit sales and the scrappage of older vehicles. Autocatalyst scrap palladium supply fell by 4.5% and 7.7% during the financial crisis and the post-Covid recession respectively. The Federal Reserve is expected to continue raising interest rates at the first two meetings in 2023, also potentially pressuring new car sales and preserving strength in the second-hand market. Aggressive interest rate hikes, combined with record high average new light-vehicle prices have resulted in lower affordability, with monthly loan repayments of over \$1,000 becoming more common.

Secondary PGM supply could contract next year if economic conditions worsen. This year, an estimated 25% (~2.7 moz) of total palladium supply will come from recycled metal. The palladium market is currently forecast to be in a surplus of >500 koz in 2023, after swinging from a deficit this year, partly as a result of stock that built up in 2022 owing to delayed smelter maintenance. A reduction in secondary supply would reduce this surplus, but in a recessionary environment the price could still face downward pressure.

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Gold



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,754	-0.53%	1,787	15/11/2022	1,750	18/11/2022
€/oz	1,695	-0.68%	1,733	15/11/2022	1,694	18/11/2022

The gold price fell last week as the US bond yield curve inverted by the largest amount in 40 years. Last week, remarks by Federal Reserve members and the fastest growth in US retail sales in eight months reduced market expectations of an earlier pivot in monetary policy. Goldman Sachs raised its forecast for peak US interest rates to between 5% and 5.25%, from 4.75% to 5% previously. The dollar regained some strength during the week, resulting in a small decline in the gold price from three-month highs earlier in the week of \$1,786.61/oz. The US Treasury 10-two-year yield spread fell to -0.665 during the week, to mark the lowest level since February 1982. An inverted yield curve has historically been a sign that the US economy is on the cusp of a recession.

ETF investors have not chased the recent gold rally. Month-to-date, the gold price has improved by 7.3% whilst ETF holdings have decreased by 0.9%.

PRECIOUS APPRAISAL

21st November 2022

01 MARKET SPOTLIGHT

02 GOLD

03 SILVER

04 PLATINUM

05 PALLADIUM

06 RHODIUM, RUTHENIUM, IRIDIUM

07 TRENDS AND INVESTMENTS

08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Silver



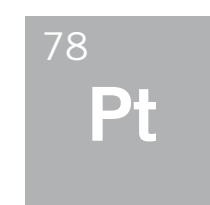
	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	21.04	-2.08%	22.25	15/11/2022	20.76	17/11/2022
€/oz	20.33	-2.25%	21.41	15/11/2022	20.11	17/11/2022

London silver vault levels slide in October. Silver stocks in London vaults shrank to 852 moz, the lowest level since the LBMA started recording data in 2016, down 2.2% month-on-month. One reason for the fall in registered stocks may be the migration of metal to the East to satisfy demand from India. India's silver imports have skyrocketed year-on-year, and the annualised rate of imports is on track to break records, potentially reaching 10,000 tonnes (352 moz). This is equivalent to ~45% of estimated global mine supply this year. Even with demand at this level, the effect on the silver price should be minimal, owing to other large stocks of above-ground metal in storage in other locations which is available to end users.

Silver fell by more than 2% last week, particularly in the latter stages, as the dollar strengthened against the euro and the pound. The decline came after silver tested and failed to break above \$22/oz, an important price level for silver in the last 18-24 months. Silver now looks likely to fall back below \$20/oz before seeing any further gains.

PRECIOUS METALS REVIEW

Platinum



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	985	-4.12%	1,040	15/11/2022	981	17/11/2022
€/oz	952	-7.32%	995	15/11/2022	947	18/11/2022

Mine supply from South Africa could continue to be curbed into next year.

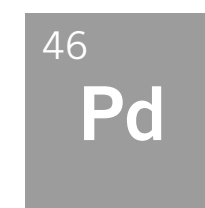
South Africa’s state electricity provider, Eskom, has announced that the country should brace for an increased risk of load-shedding over the next 6-12 months as it conducts major repairs on the aging fleet of primarily coal-fired power plants. So far in 2022, there have been more than 100 days of rolling power cuts, known as loadshedding in South Africa, making 2022 the worst year for power cuts since they were introduced in late 2007. Load-shedding mainly affects PGM processing facilities and can lead to a build-up of in-process stock at mine sites. Load-shedding has contributed to lower mine output in South Africa, which fell by 4.5% year-on-year in September and led to a build-up of ~100 koz of unprocessed PGMs at mine sites belonging to the three largest PGM miners. By extending this increased load-shedding schedule over the South African summer and into 2023, refined production of platinum may be hindered and delay the release to market of additional stock build-up from the Polokwane smelter which has been offline since Q3’22. A decrease in material reaching the market should not affect the platinum market as it is still expected to be well supplied and remain in surplus in 2023.

Relaxation of Covid rules puts growth in the spotlight in China.

As the largest regional consumer of platinum in terms of automotive, jewellery, and industrial demand, the recent relaxation of some Covid testing restrictions could be positive for global demand. Platinum demand in China is forecast to fall modestly year-on-year to 2.5 moz, almost double total demand from Western Europe. The Xi government released a new 20-point plan to begin the easing of its Zero-Covid policy, although most measures related to testing rather than the more impactful lockdowns. The manufacturing purchasing managers index (PMI) for China in October fell back below 50, where it has spent most of the year, indicating a contraction in manufacturing output. The most recent relaxation of some Covid restrictions potentially paves the way for further loosening in 2023. This could be accompanied by platinum demand growth, particularly in the automotive and industrial sectors.

PRECIOUS METALS REVIEW

Palladium



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,962	-2.61%	2,118	15/11/2022	1,957	18/11/2022
€/oz	1,897	-2.98%	2,043	15/11/2022	1,890	18/11/2022

European Union car sales are on track to finish the year strongly.

Passenger car sales in the EU grew by 12.2% year-on-year in October to 746,000 units sold, compared to 665,000 units in the previous year. This marks the third consecutive month of growth in sales and the largest increase since the 2021 recovery from the Covid pandemic. In the short term, the palladium price may benefit somewhat from improving sales. However, with the Eurozone forecast to enter a recession in 2023, passenger car sales are unlikely to maintain strength and palladium demand in the region may fall year-on-year as a result.

UK tax rises may slow BEV uptake marginally.

The latest change to UK fiscal policy includes scrapping the road tax exemption for BEVs from 2025. Year-to-date, BEVs have taken 15% of the market share of new vehicle sales in the UK. Sales so far this year are 176,000 units, making the country the second largest market in Europe after Germany. At present, BEV owners are not liable to pay road tax in the UK as part of a government incentive to reduce the cost of ownership and improve the uptake of battery-powered cars. The removal of this benefit will add to the cost of ownership of a BEV, potentially supporting ICE sales for longer. Global palladium autocatalyst demand is forecast to reach 7.8 moz in 2023, but will begin to decline by the end of the decade as the transition to battery mobility ramps up to meet climate change goals. The UK government plans to ban the sale of ICE-only vehicles from 2030, so the change to the road tax regulations will soften the blow of the loss of fuel duty to the national budget.

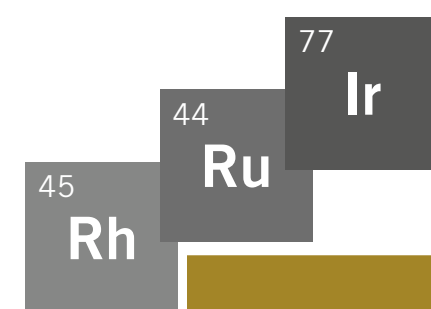
PRECIOUS APPRAISAL

21st November 2022

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIDIUM**
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

PRECIOUS METALS REVIEW

Rhodium, Ruthenium, Iridium



	RHODIUM	RUTHENIUM	IRIDIUM
Reporting Week	\$14,450/oz	\$505/oz	\$4,050/oz
Previous Week	\$14,700/oz	\$505/oz	\$4,050/oz

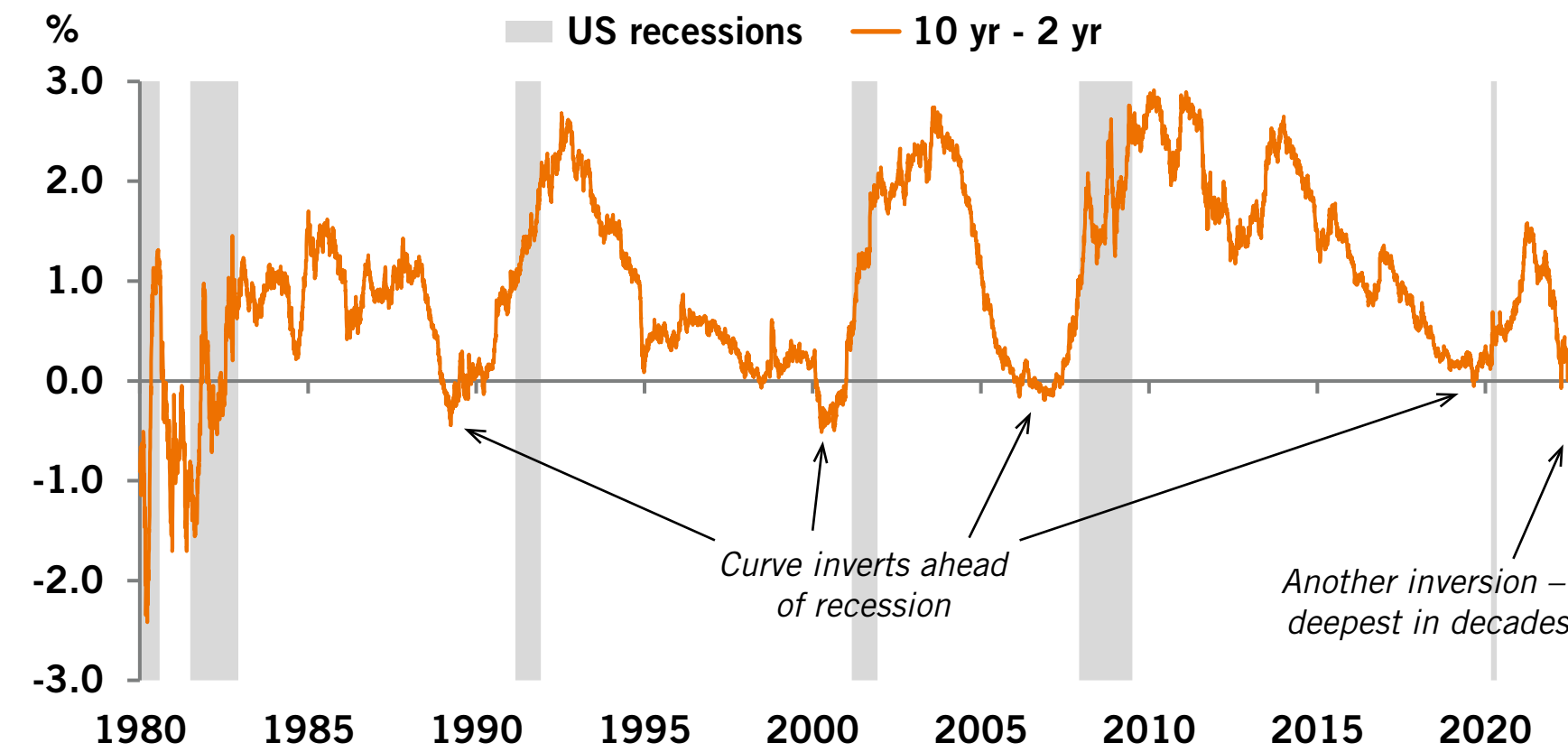
Near-term challenges for ruthenium demand in HDDs. The worsening global macroeconomic outlook is prompting major hard disk consumers and distributors to reduce orders and clear inventories. Seagate (~44% of the hard disk manufacturing market) shipped 188 exabytes of hard drive capacity in Q3'22, a 24% quarter-on-quarter decline and the lowest level since Q3'20. Ruthenium demand for hard drives is related to the memory capacity shipped, as metal content is dependent upon the capacity of a drive. Composite electronics sector PMI growth has been slowing since mid-2021, and as of October is near-neutral. The average memory capacity of hard drives shipped is on an upward trend thanks to the increasing density of data writing and addition of platters, on which data is stored. This is favourable for ruthenium demand as it is used on the platters where data is encoded. Longer-term, the outlook for ruthenium demand from large-scale data storage centres remains supported thanks to the increasing use of cloud storage.

Rhodium saw a small decline last Friday as ruthenium and iridium remained stable at \$505/oz and \$4,050/oz respectively.

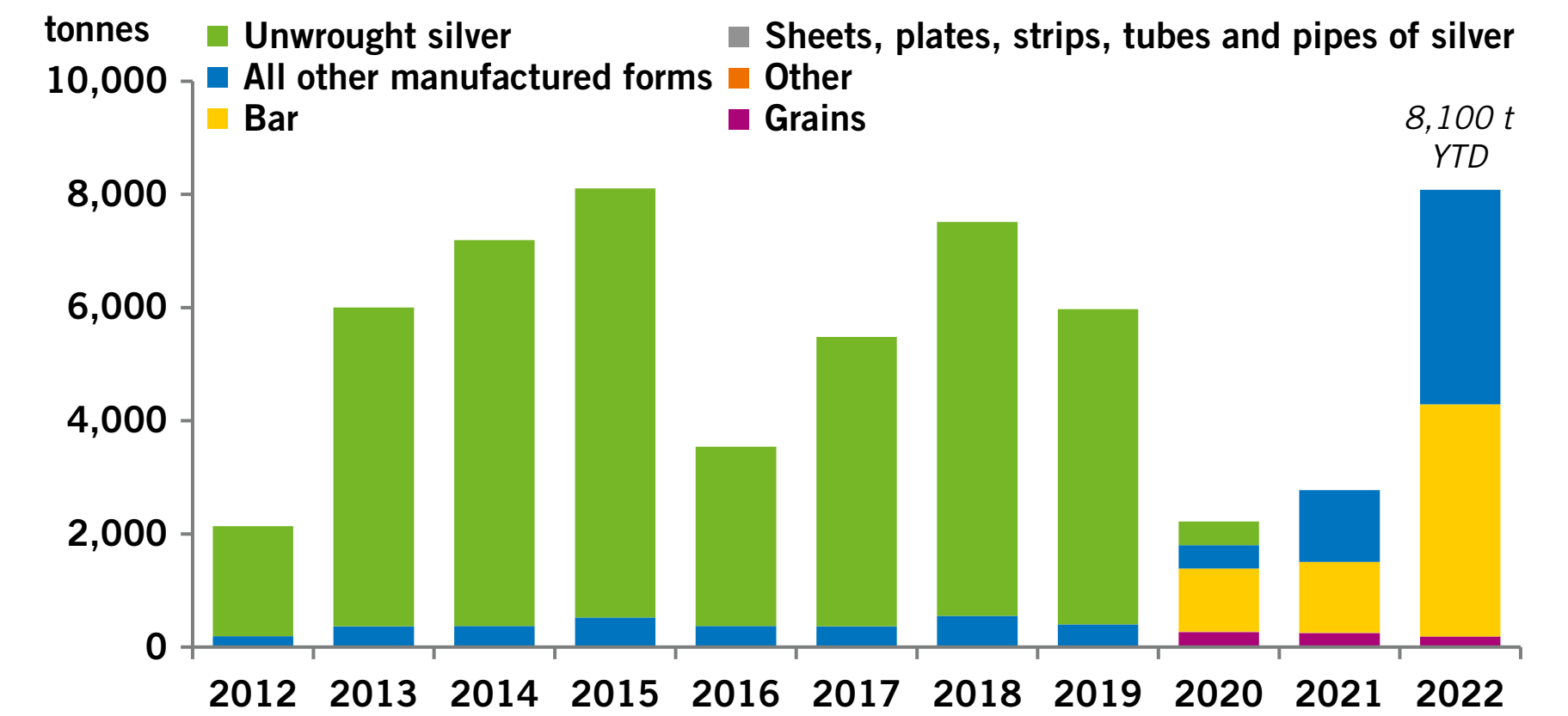
- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 ABOUT HERAEUS

TRENDS AND INVESTMENTS

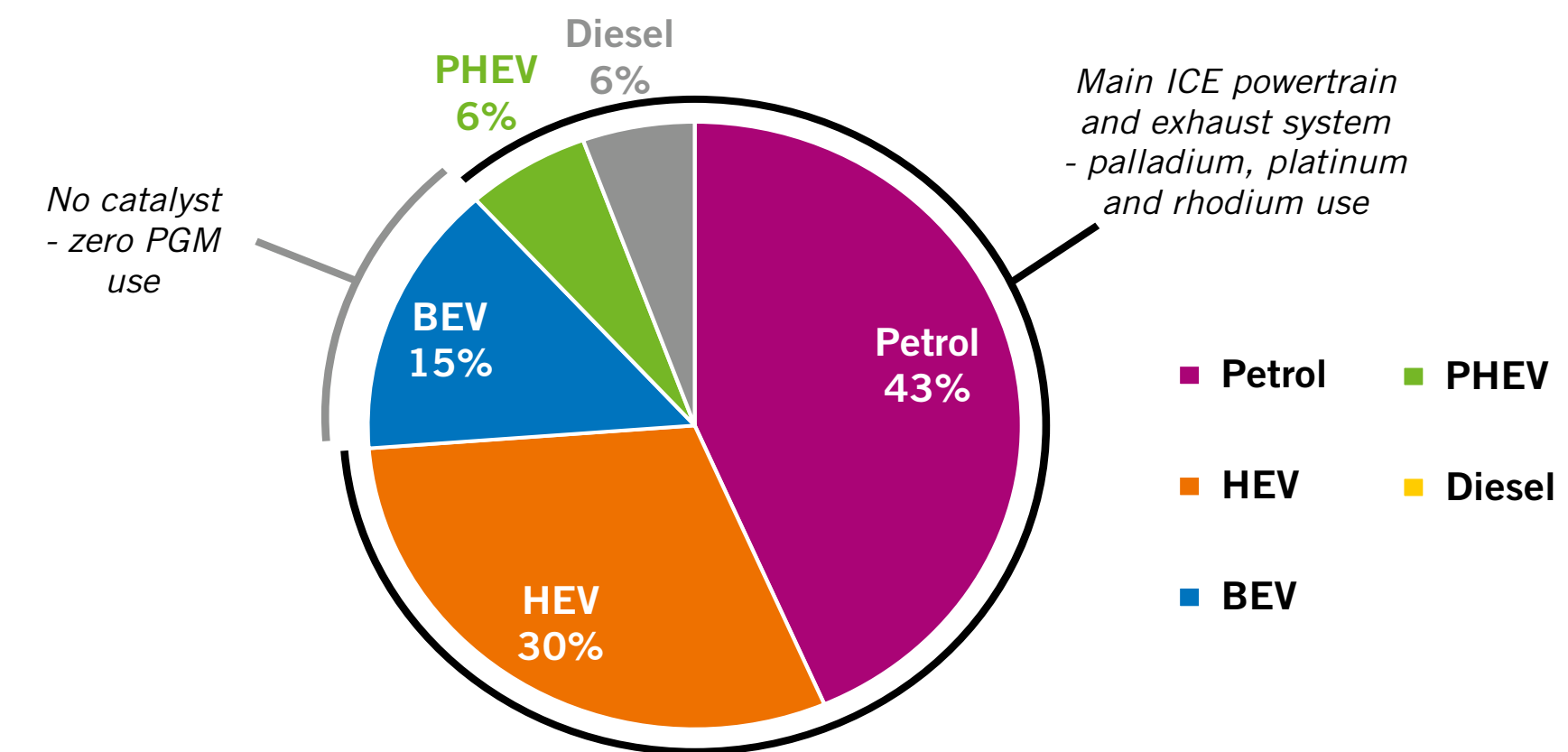
US Treasury 10-year - 2-year note spread



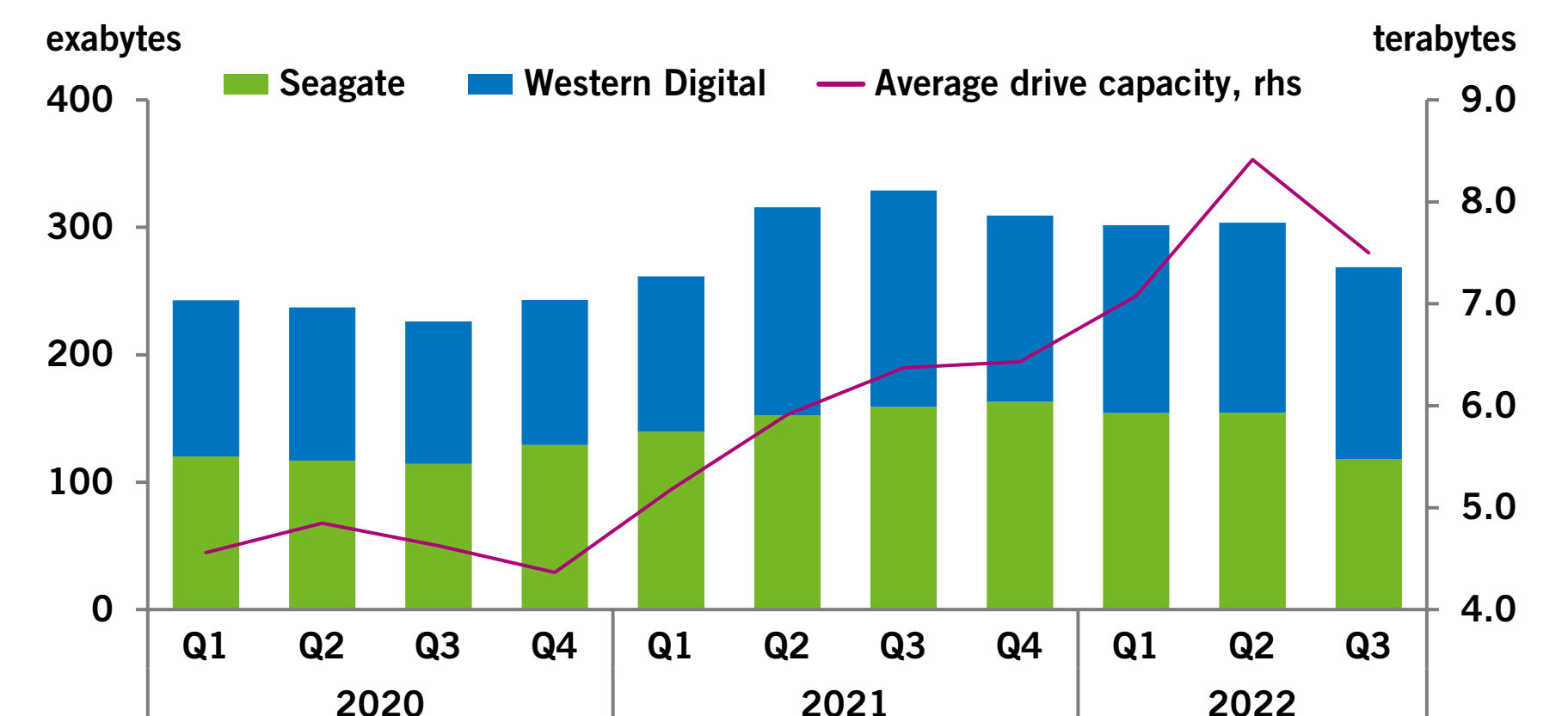
India silver imports history



UK car registrations YTD by powertrain



Hard-disk shipments vs. average drive capacity



PRECIOUS APPRAISAL

21st November 2022

- 01 MARKET SPOTLIGHT
- 02 GOLD
- 03 SILVER
- 04 PLATINUM
- 05 PALLADIUM
- 06 RHODIUM, RUTHENIUM, IRIIDIUM
- 07 TRENDS AND INVESTMENTS
- 08 **ABOUT HERAEUS**

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