

PRECIOUS APPRAISAL



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MARKET SPOTLIGHT

Gold taking pole position in 2023; rhodium has fallen to the back of the pack

Gold has been the outperformer in spite of a hawkish Fed and sky-high yields. The gold price is currently 8.4% higher than at the start of the year. The gold price has traded up past \$2,000/oz a number of times this year, surpassing expectations, though with the Fed yet to cut interest rates it has not been able to sustain these rallies. Investment demand from ETFs has disappointed, with outflows continuing all year. ETF holdings are now 6.5 moz lower than at the start of January.

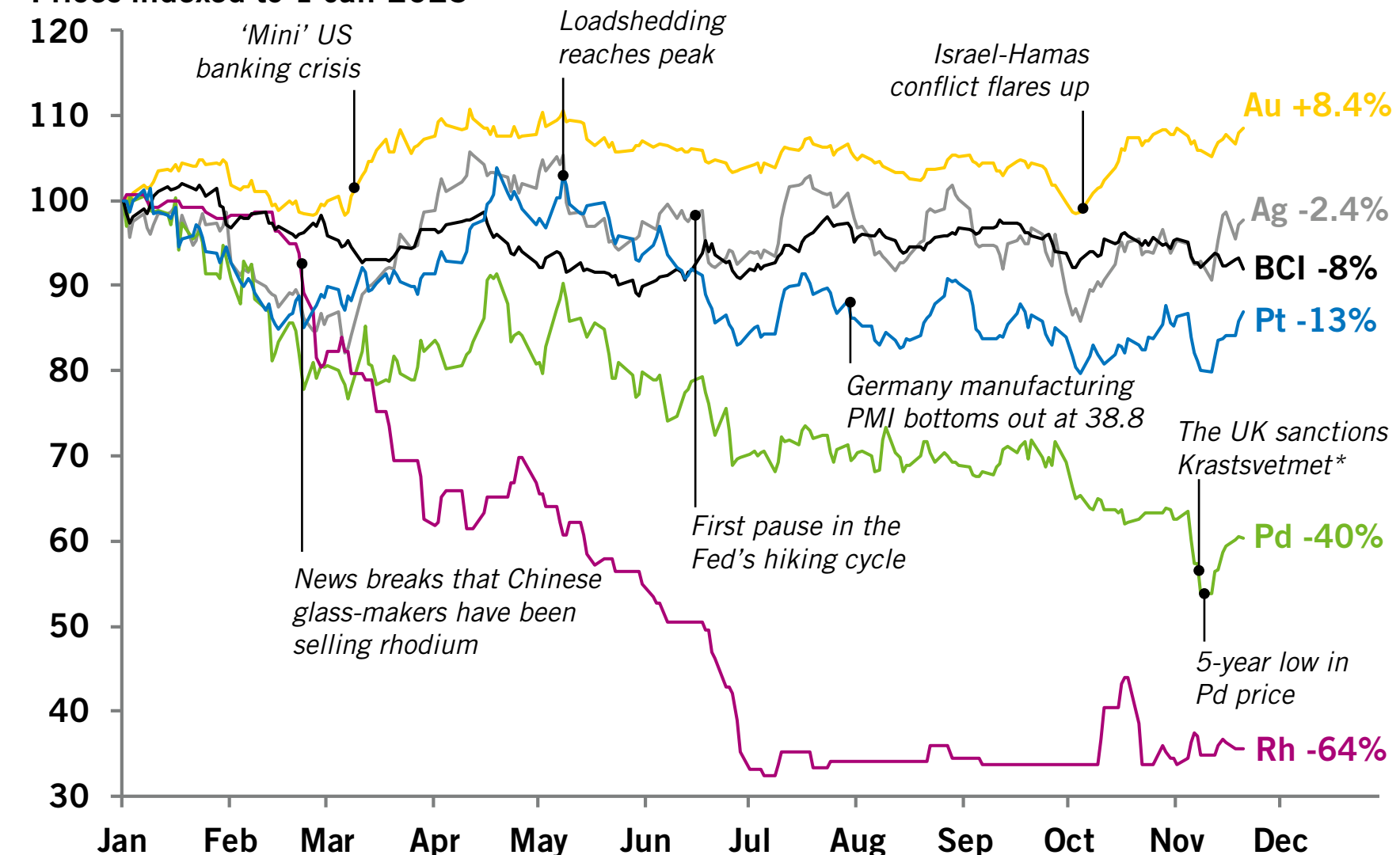
Solar industry demand helped silver resist downside pressure from weak macroeconomics and strong interest rates. China’s persistent push to add solar generation capacity means the country is now far ahead of schedule in terms of new solar installations. This has helped to offset a decline in demand from Europe due to general economic weakness, and means that the silver price has, despite underperforming gold, held up relatively well in 2023.

Stock sales have depressed the palladium and rhodium prices. Palladium’s pricing weakness is not a symptom of weak end-use demand. Light-vehicle production forecasts have been repeatedly revised higher throughout this year and are now expected to reach 89 million units. Some of the excess stock accumulated by industry over supply concerns (invasion of Ukraine, load-shedding in South Africa) has been drawn down, resulting in lower volumes of new metal purchases and/or liquidating stock on the spot market. As prices have declined, the short position of market speculators has grown to a record size, leaving palladium open to a possible short-covering rally in the short term. The rhodium price has more than halved this year, falling from \$13,750/oz to \$4,900/oz. Despite higher demand from the automotive industry, end-user stock sales from the Chinese glass sector overwhelmed the market.

Fewer supply concerns and a weak rand have been a headwind for platinum. Since load-shedding intensity peaked in May, the platinum price has been in a general state of decline. The concern that power curtailment would adversely impact platinum supply has eased. The rand-dollar ratio has also weakened from 13.9 to 18.8. Historically, the platinum price tends to depreciate as the rand weakens against the dollar.

2023 has been a bad year for PGMs

Prices indexed to 1 Jan 2023



Source: SFA (Oxford), Heraeus, Bloomberg. Note: BCI = Bloomberg Commodity Index. *Kratsvetmet is Normickel's PGM refiner.

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Gold



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	2,000	0.95%	2,008	21/11/2023	1,966	20/11/2023
€/oz	1,829	0.43%	1,842	22/11/2023	1,799	20/11/2023

Gold higher but waiting for a catalyst. The gold price was hovering just below \$2,000/oz for much of last week thanks to traders' shifting assessment of the Fed's interest rate path weakening the dollar. However, to move higher the gold price probably needs the Fed to make the first move in lowering its baseline interest rate. If the ECB lags the Fed in cutting interest rates, as it did in raising them, this should support the dollar gold price, while in euros relative currency strength could be a headwind.

Gold could see a seasonal boost in December. The last 10 years, on average, have seen a 2.05% gain for gold. Every year since 2017 has seen a positive return during the holiday season.

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Silver



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	24.26	2.21%	24.30	24/11/2023	23.25	20/11/2023
€/oz	22.19	1.70%	22.21	24/11/2023	21.28	20/11/2023

Silver production in Central and South America will be lower this year.

Workers at Las Bambas mine in Peru have announced their intention to begin an indefinite strike at the mine. In 2022, Las Bambas produced 3.9 moz of silver. Las Bambas paused operations earlier in the year owing to blockades on key roads, and also in November 2022 following separate protests. Interruptions have impacted silver byproduct supply, but are also potentially affecting production from the region by discouraging investment in future supply. Peru is the third-largest silver producer, though output has been in decline since 2016. In January to September this year, production was 3.5% lower year-on-year at 71 moz. In Panama, progress in resolving permitting and social concerns has regressed at First Quantum's Cobre Panama mine, and production has now been halted. In 2022, the mine produced 2.8 moz of silver. Already this year ~16 moz of production was lost in Mexico as Newmont's Peñasquito mine was closed for three months during industrial action.

The silver price was subdued last week, trading mainly between \$23.60/oz and \$24.00/oz before moving higher on Friday, cementing a 2.2% gain. Like gold, December seasonality tends to be positive for silver.

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Platinum

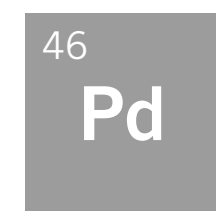
⁷⁸ Pt	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	931	3.75%	944	22/11/2023	898	20/11/2023
€/oz	852	3.25%	866	22/11/2023	822	20/11/2023

Once diesel's largest market, Europe's sales are now in the minority. The diesel combustion engine market share in Europe has been in decline for a number of years, and has shrunk from 36.7% in 2018 to just 12% of all new registrations in October this year, less than battery electric vehicles (BEVs) for the first time. As of October, year-to-date sales of BEVs have overtaken those of diesel passenger vehicles (excluding hybrids) in the EU and by the end of the year could surpass the total including diesel hybrids. Looking back a decade, platinum demand from diesel autocatalysts in Western Europe accounted for 97% of the region's platinum autocatalyst demand. However, this year diesel autocatalysts are forecast to make up just 51% of Western Europe's platinum autocatalyst demand. The shift is mainly the result of lower diesel passenger vehicle sales, and the increase in substitution of more platinum into gasoline autocatalysts in the last few years. In aggregate, platinum demand from diesel passenger cars has fallen from ~1 moz to <250 koz over the last decade.

The platinum price rose last week, outperforming gold and pushing platinum's discount to gold lower, having been at a record of \$1,092/oz earlier in November. By the end of the week, the platinum price stood at \$931/oz.

PRECIOUS METALS REVIEW

Palladium



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,072	2.01%	1,095	21/11/2023	1,044	24/11/2023
€/oz	981	1.52%	1,000	21/11/2023	957	24/11/2023

A recovery in light-vehicle sales does not mean more palladium demand in Europe. Now on track to reach 10.5 million units this year, the jump in sales from 9.7 million in 2022 has been fuelled by greater vehicle availability as supply chain pressures have eased, allowing higher production volumes. This year has been better than expected for vehicle sales, with the most growth from the BEV sector. Passenger vehicle palladium demand is forecast to be around 975 koz this year, down slightly from last year, as the increasing market share of BEVs and substitution of some platinum for some palladium offset the overall healthy vehicle sales growth. That said, there are cracks starting to show in the BEV market. In its Autumn Statement, the UK Office for Budget Responsibility cut its four-year forecast for the share of BEVs in new vehicles sales to 38% in 2027 from 67%, as was stated in March, citing higher upfront costs of BEVs compared to ICE vehicles and higher interest rates beginning to have a greater influence on consumer behaviour as early adopters give way to the wider market.

Palladium finished the week’s trading above \$1,000/oz for the second consecutive week, and is now at \$1,072/oz.

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Rhodium, Ruthenium, Iridium



	RHODIUM	RUTHENIUM	IRIDIUM
Reporting Week	\$4,900/oz	\$475/oz	\$5,500/oz
Previous Week	\$5,000/oz	\$475/oz	\$5,500/oz

Non-US hydrogen players are after US funding. More significant players are entering the US hydrogen market on the supply side following the allocation in October of \$7 billion in funding for seven regional US hydrogen hubs. ITM Power aims to supply its proton exchange membrane electrolyzers to the US market, and Fortesque has announced its intention to spend ~\$700 million on two green hydrogen production sites, the larger of which is to be based in the US. Fortesque's US project is expected to use an alkaline electrolyser. Through boosting cheap green hydrogen production in the US with the benefit of per-kilo credits, end-uses in mobility that utilise ruthenium-platinum catalysts are more likely to be popularised, potentially providing a lift to future PGM demand.

The iridium and ruthenium prices remained steady last week. Rhodium, on the other hand, saw some pressure, falling 2% week-on-week to \$4,900/oz.

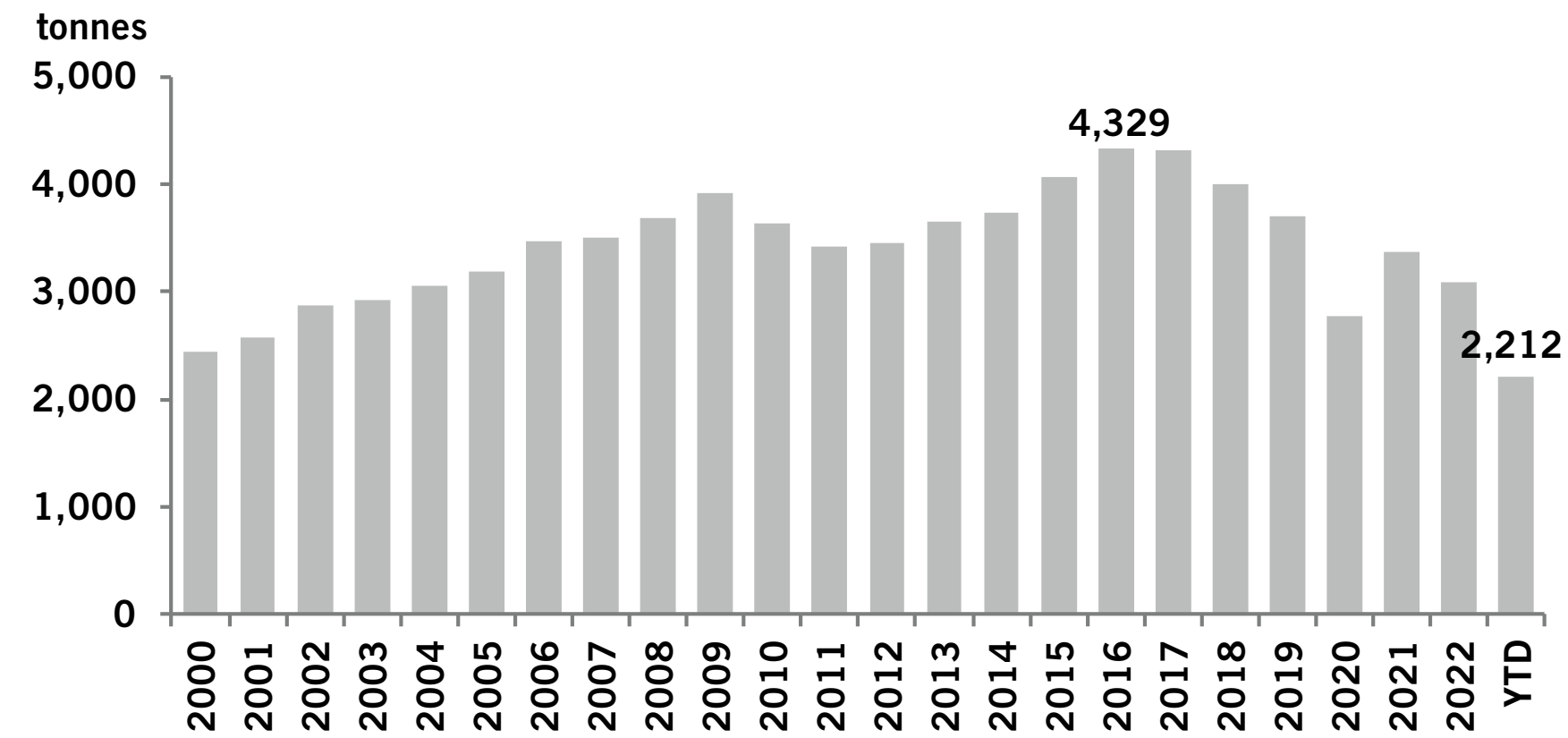
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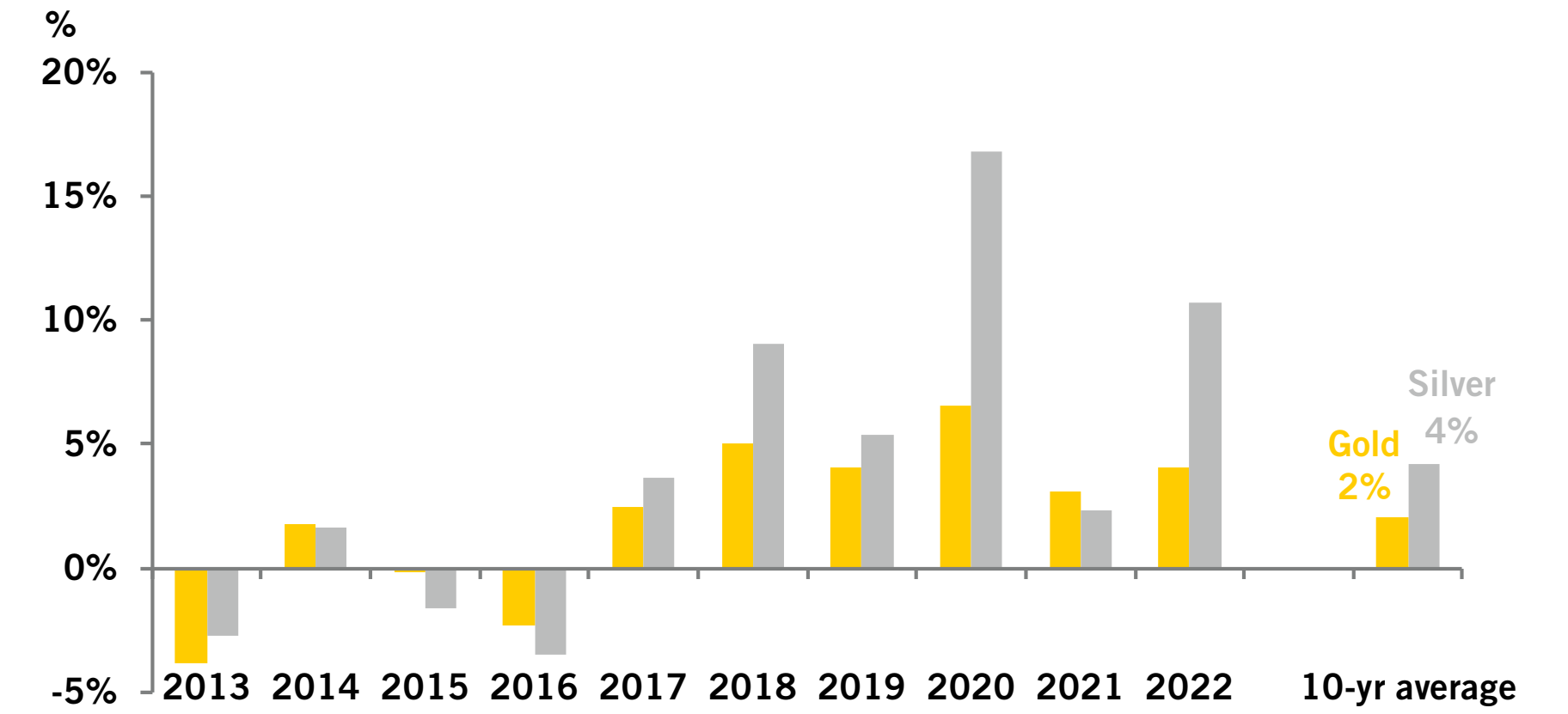
TRENDS AND INVESTMENTS

Peru silver production



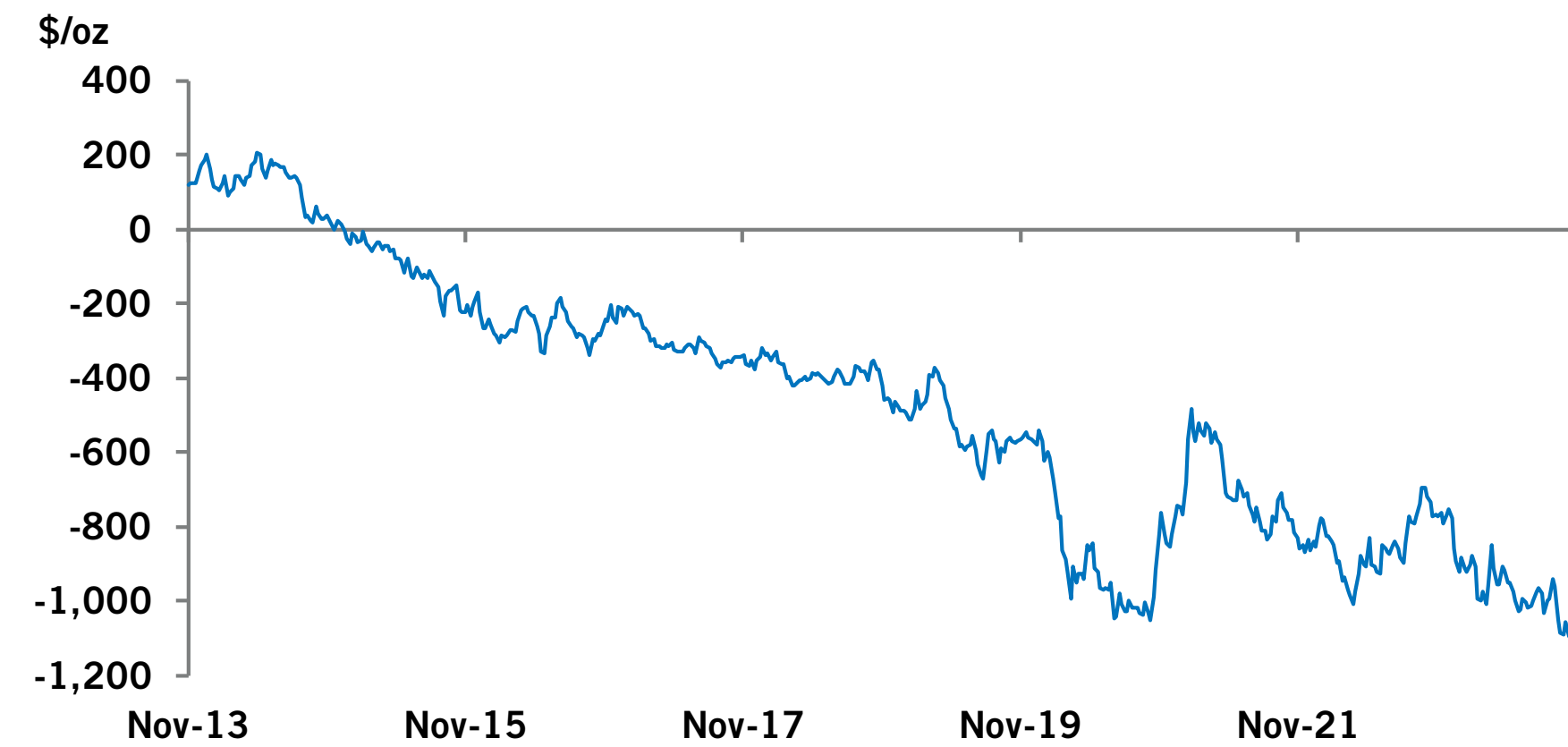
Source: SFA (Oxford), Peru Ministry of Energy and Mines

Gold and silver December returns



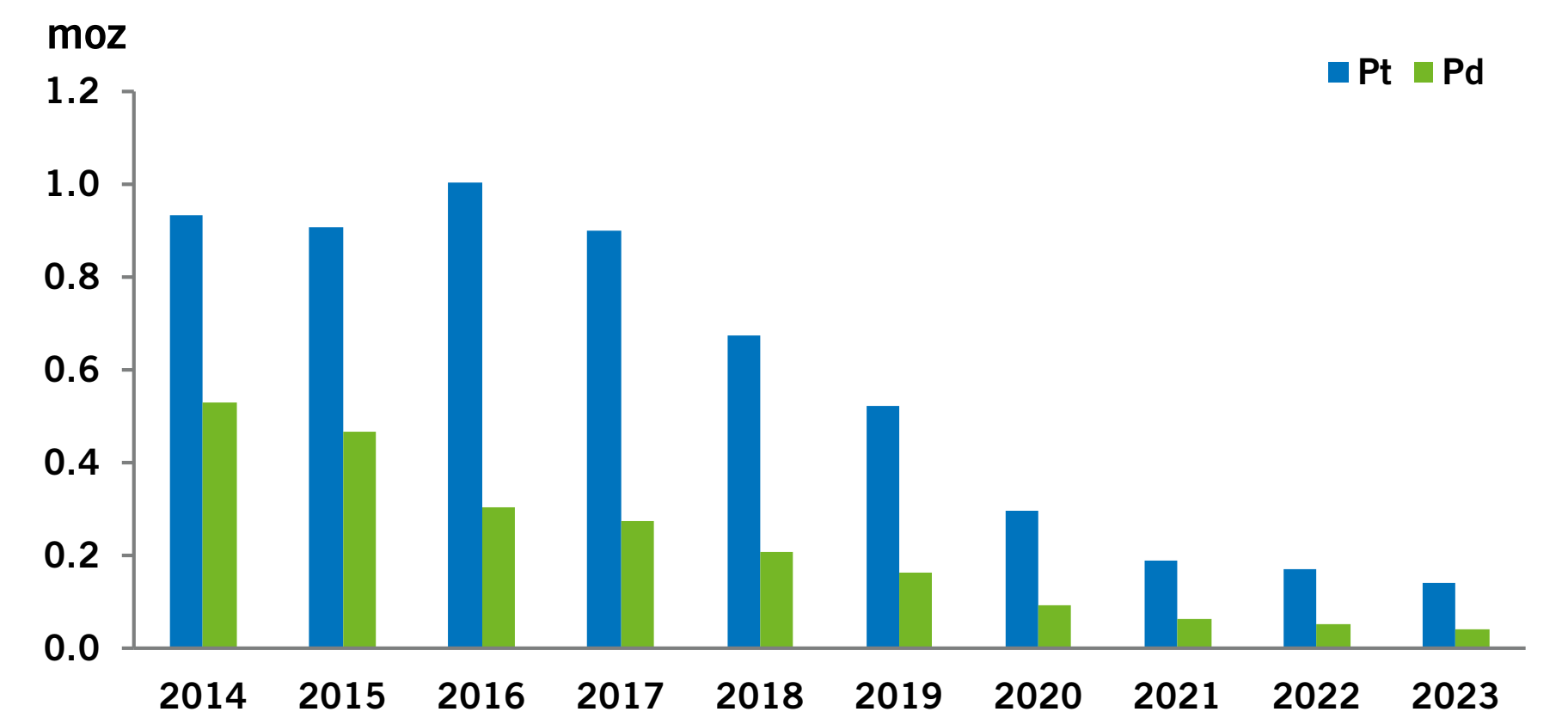
Source: SFA (Oxford), Bloomberg

Platinum-gold price spread



Source: SFA (Oxford), Bloomberg

W. Europe diesel autocatalyst PGM demand



Source: SFA (Oxford). Note: Includes only pure ICE diesel powertrains.

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