

PRECIOUS APPRAISAL

No. 16
29th April 2024

01 MARKET SPOTLIGHT

02 GOLD

03 SILVER

04 PLATINUM

05 PALLADIUM

06 RHODIUM, RUTHENIUM, IRIIDIUM

07 TRENDS AND INVESTMENTS

08 ABOUT HERAEUS

MARKET SPOTLIGHT

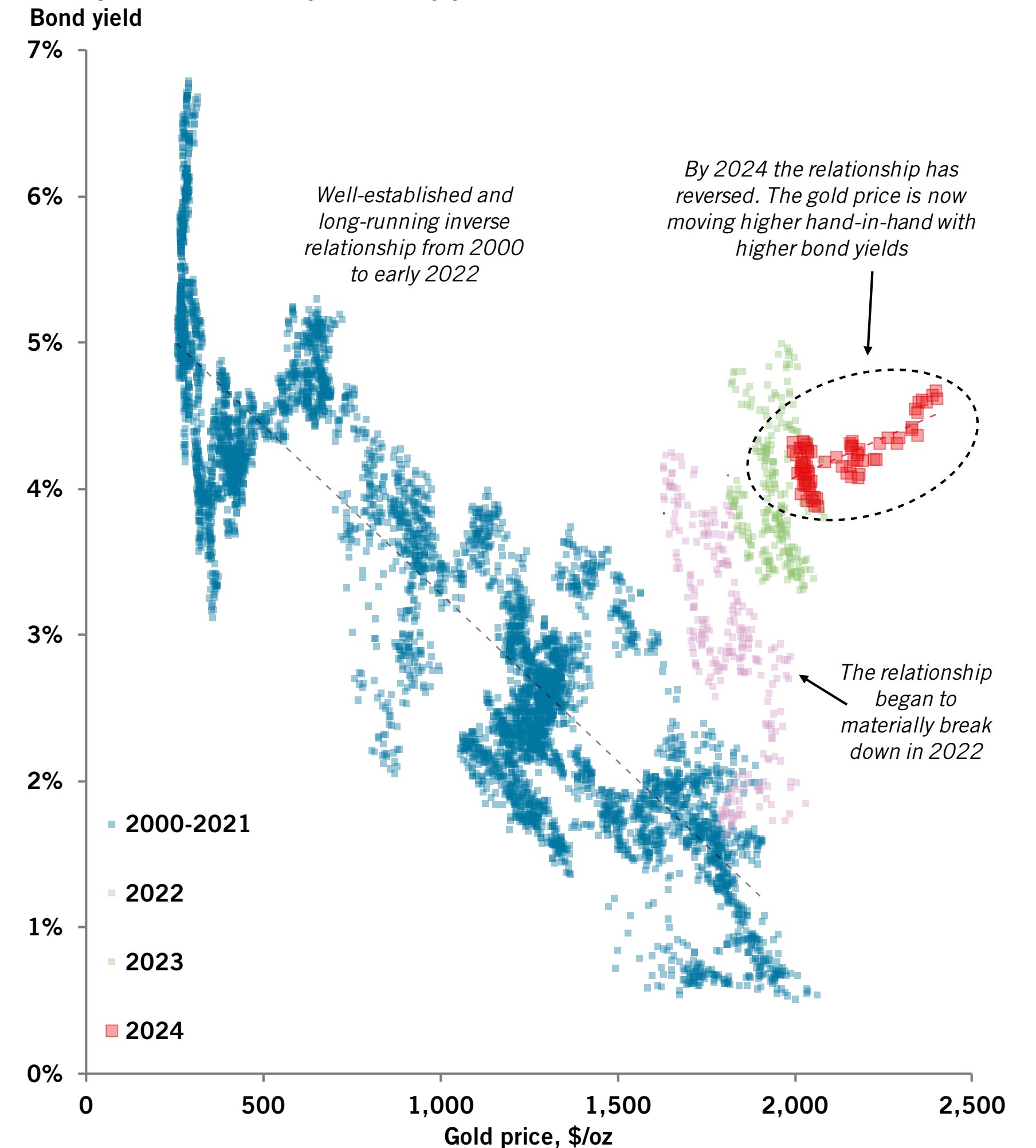
Alternative drivers help gold defy typical headwinds

One of the most well-defined relationships between the gold price and other financial products has broken down over the last 24 months. Since around the year 2000, gold has exhibited a relatively strong inverse relationship with yields on the 10-year US Treasury note. This is to be expected as the non-yielding nature of bullion means that as the coupon paid on very low-risk US government debt rises, the opportunity cost of holding gold also rises, and the interest in buying falls. Thus far in 2024, bond yields have risen as a reaction to pared back expectations for interest rate cuts owing to stronger than expected US labour and inflation data. Meanwhile, gold has made successive all-time highs, with particular strength shown in the last month prior to the recent correction.

Price driving power is shifting from the West to the East. The fundamental drivers of the gold price change over time, and for now the dollar and US yields have taken a back seat. Strong physical demand from Chinese investors and the People's Bank of China are contributing to the froth in the gold market. China is the largest market for retail gold demand, and struggles in the property sector along with a long drawdown in the Chinese stock market may have pushed more investors into gold. This is evidenced by a sharp jump in gold trading volumes on the Shanghai Gold Exchange and its sister, the Shanghai Futures Exchange.

Correlation does not equal causation. Higher gold prices coinciding with higher US Treasury yields does not necessarily mean higher yields are now driving the gold price. For now, other factors appear to be outweighing the yields' influence on the gold price. Reserve asset diversification and global geopolitical instability are boosting gold's appeal as a hard asset, particularly as US government debt obligations rise over the next few years.

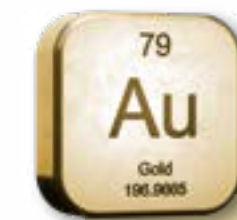
Gold price vs. US 10-yr Treasury yield



Source: SFA (Oxford), Bloomberg. Note: Daily average data.

PRECIOUS METALS REVIEW

Gold



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	2,337	-2.42%	2,364	22/04/2024	2,292	23/04/2024
€/oz	2,187	-2.71%	2,218	22/04/2024	2,150	23/04/2024

Cooling Middle East tensions take some momentum from the gold price. Gold had retreated to \$2,337/oz by Friday, after experiencing the largest one-day drop in two years earlier in the week. Two failed attempts to gain a foothold above \$2,400/oz signalled the start of the correction, though there are upside factors that could push prices higher again. Last Thursday’s US GDP Q1’24 release surprised to the downside – coming in at 1.6% quarter-on-quarter, versus expectations of 2.5%, thereby impacting the dollar and helping gold gain some ground above \$2,310/oz. Theoretically, weaker economic growth should prompt the Fed to act faster, though hotter inflation, and a firm jobs market overshadowed weaker growth, and in reaction, the options market reduced its rate cut expectations late last week. The Fed is expected to hold rates this week, with a cut now only priced in for December. Traders see just 33bp of interest rate cuts by year-end (source: Bloomberg), down significantly from the more than six 25bp cuts expected at the beginning of 2024.

Chinese investors played a key role in the price rally in April. A weaker yuan, a volatile stock market and lower deposit rates compared to other advanced economies motivated investors to find alternatives for their savings. Customs data shows China imported 565.9 tonnes of gold in Q1’24, a 34.2% year-on-year increase. The surge in physical demand corroborates reports that mini gold bullions are becoming popular among young retail investors.

PRECIOUS METALS REVIEW

Silver



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	27.25	-4.84%	27.88	22/04/2024	26.67	23/04/2024
€/oz	25.50	-5.12%	26.16	22/04/2024	24.72	22/04/2024

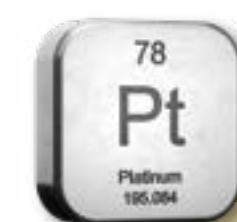
Silver supply is forecast to drop despite Mexico’s production rebound.

Global silver supply is forecast to fall by ~1% this year to 824 moz, from 831 moz last year (source: The Silver Institute), marking the second year of decline. Newmont reported that it expects silver production to bounce back to 34 moz this year, an increase of 16 moz versus last year when the Mexican Peñasquito mine suffered a quarter of lost production owing to industrial action. Additionally, Fresnillo’s Juanicipio mine, also in Mexico, is now fully ramped up, producing 2.5 moz in Q1’24 after having been in pre-production this time last year. However, offsetting improvements in Mexican supply is a potential decline in production from Peru, the third-largest silver producer. Several of Peru’s largest mines are struggling with permitting issues and this is expected to negatively impact the country’s production.

Silver trailed gold’s retreat this week. On Friday, silver closed at \$27.25/oz, nearly 5% below last week’s close. US Mint sales reached 8.3 moz in Q1’24, a 44% year-on-year increase. However, it is partially offset by the Perth Mint’s lower sales of 2.6 moz in Q1’24 (a 41.9% year-on-year decrease).

PRECIOUS METALS REVIEW

Platinum



	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	914	-2.17%	931	22/04/2024	898	25/04/2024
€/oz	856	-2.46%	874	22/04/2024	841	25/04/2024

Anglo American Platinum’s production falls more than usual in Q1. Anglo American Platinum’s mined production from its own assets declined by 14% year-on-year in Q1’24 to 504 koz in 6E terms (Pt, Pd, Rh, Ru, Ir + Au), including a 13% drop in mined platinum production to 229 koz in the quarter. Output tends to be lowest in the first quarter owing to annual stock counts and a return to operations following the Christmas holidays. This drop is larger than usual owing to lower production rates at Amandelbult and Mototolo mines. Both mines suffered from operational difficulties in the first three months of the year, including the impact of restructuring at Amandelbult. Based on Q1’24 production, Anglo American Platinum is on track to hit the bottom of its guidance range for the year, including the assumption that quarterly production rates usually pick up later in the year. Therefore, South African platinum production is set to remain flat, assuming limited external disruptions.

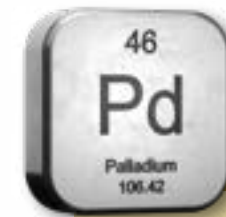
PGMs to be excluded from Anglo-American-BHP critical minerals mega-merger. BHP’s takeover bid for Anglo American Platinum’s largest shareholder and parent company would require the spin-out of the latter’s South African PGM business. Potential effects on PGM production are currently unknown. However, BHP has until 22 May to launch an official bid for Anglo American, at which point more information may become available. As of last Friday, Anglo American had rejected the initial proposal. Anglo American Platinum is the largest platinum producer in the world and is expected to produce ~20% of global primary supply in 2024.

The platinum price is returning to the \$900/oz region, having briefly peaked above \$1,000/oz a couple of weeks ago. In nominal terms, platinum and palladium have fallen by a similar amount in the last fortnight, but palladium has outperformed in relative terms. By the end of last week, the platinum price stood at \$914/oz.

- 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

Palladium



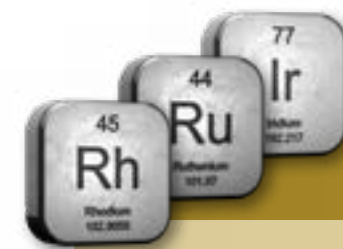
	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	961	-6.42%	1,035	24/04/2024	955	26/04/2024
€/oz	899	-6.70%	967	22/04/2024	895	26/04/2024

There are signs that Russian primary supply could outperform this year. In the first quarter, Nornickel produced 745 koz of palladium, representing a modest 3% increase year-on-year. This level of quarterly production is higher than expected. On an annualised basis, this level of output is equal to 2.98 moz, almost 26% more than the mid-point of the production guidance for 2024 provided at the beginning of the year. While Nornickel has a track record of underestimating its performance in guidance figures, this would be a significant surprise to the upside. However, given that Nornickel carried out smelter maintenance in Q1'24, refined palladium production is likely to fall on a quarterly basis as the effect of this works its way through the refinery. Russia is forecast to produce 2,451 koz of palladium this year, equal to a 9% decline year-on-year. However, if Nornickel does outperform its guidance, production could be more in line with that in 2023.

The palladium price fell for a second consecutive week to 26 April, breaking through support at \$1,000/oz which has been a key level since the previous high of \$1,127/oz at the beginning of March.

PRECIOUS METALS REVIEW

Rhodium, Ruthenium, Iridium



	RHODIUM	RUTHENIUM	IRIDIUM
Reporting Week	\$5,250/oz	\$435/oz	\$5,300/oz
Previous Edition	\$5,275/oz	\$435/oz	\$5,300/oz

Europe’s fuel cell truck pilot fleet is expected to expand. Daimler Truck intends to launch a test fleet of fuel cell trucks onto Europe’s roads later this year, with INEOS now confirmed as a participant alongside Amazon and others. Development of commercially available versions are expected to enter production in the next few years, though the expectation is that initial numbers will be a fraction of the 280,000 unit European market. The test truck covered 1,000 km in road trials last year, proving the viability of hydrogen-powered freight solutions. It also demonstrated the potential for future rollout to directly support ruthenium and platinum demand in fuel cells, and iridium demand in electrolytic green hydrogen production. However, development is still in the early stages and there is also the threat of battery electric alternatives that offer a similar performance.

Last week the rhodium price dropped by \$25/oz to \$5,250/oz, though the price remains near its highest point year-to-date. The iridium and ruthenium prices again remained stable week-on-week, but are both lower year-to-date.

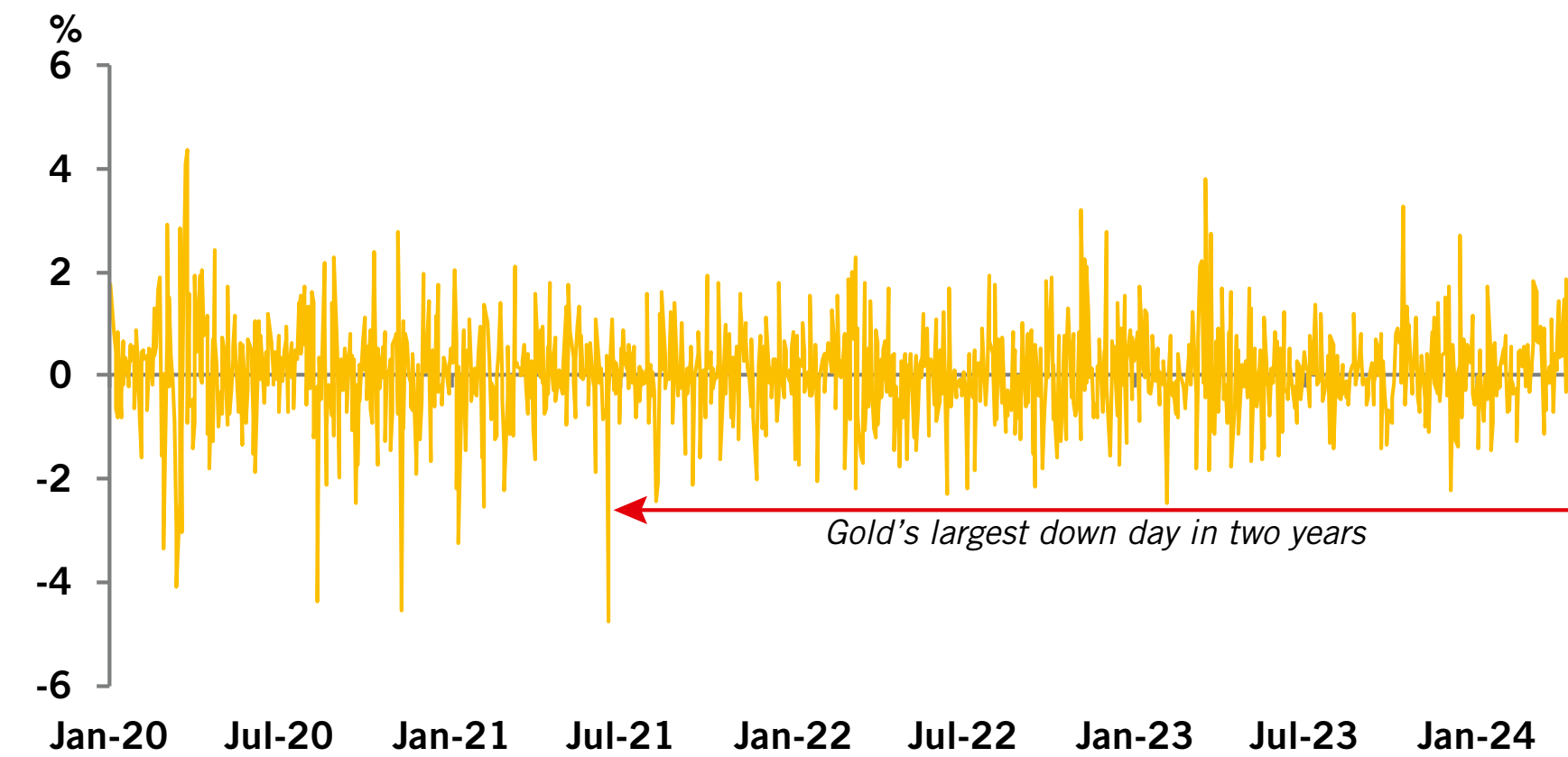
PRECIOUS APPRAISAL

29th April 2024

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

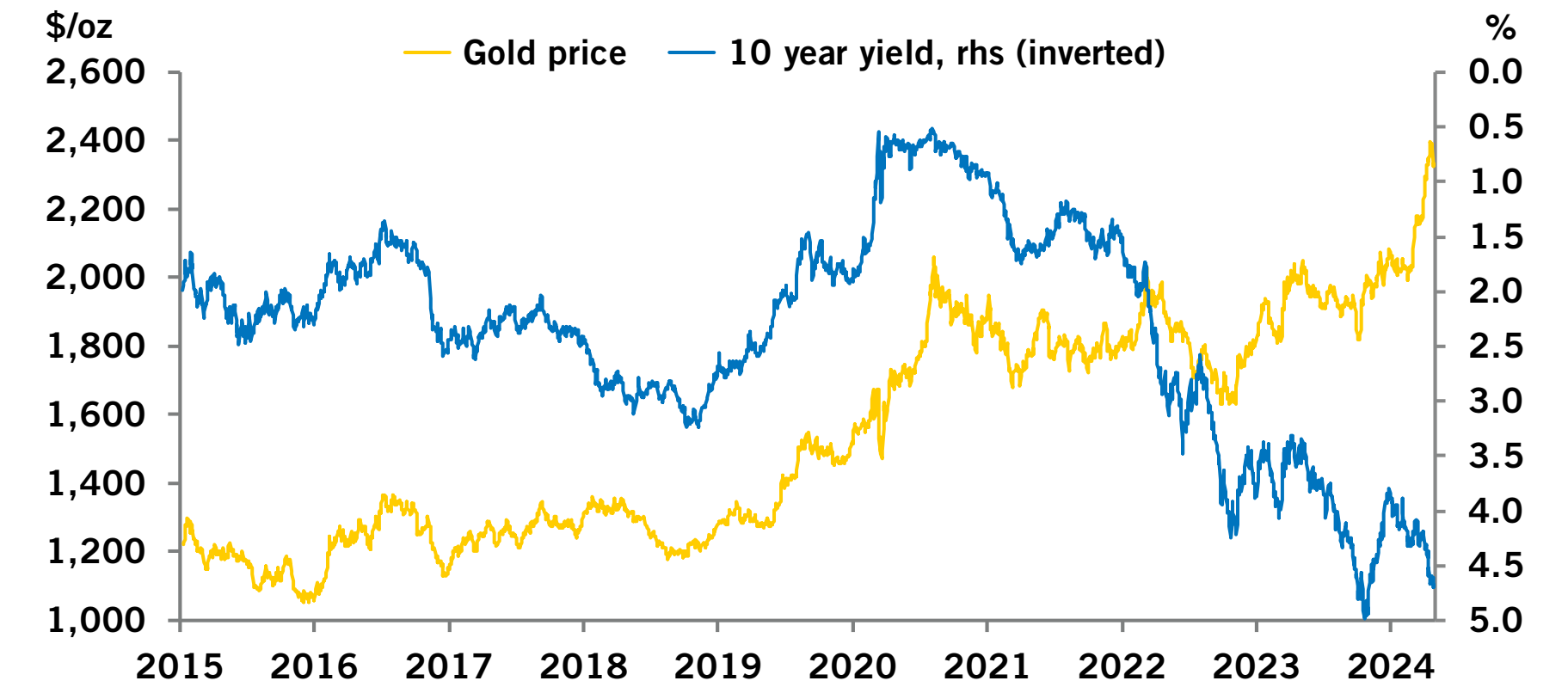
TRENDS AND INVESTMENTS

Gold price one day change, %



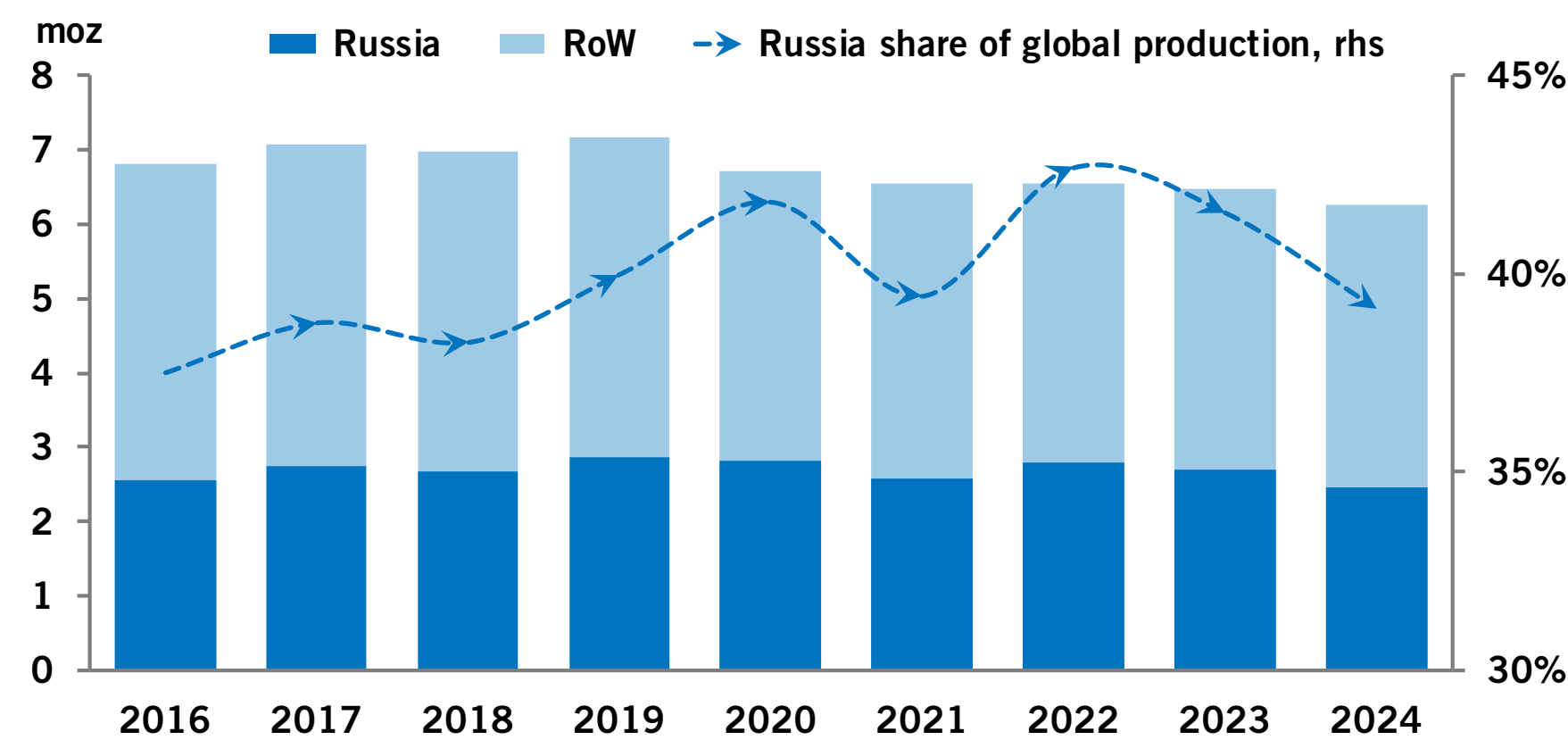
Source: SFA (Oxford), Bloomberg

Gold price vs. US 10-yr Treasury yield



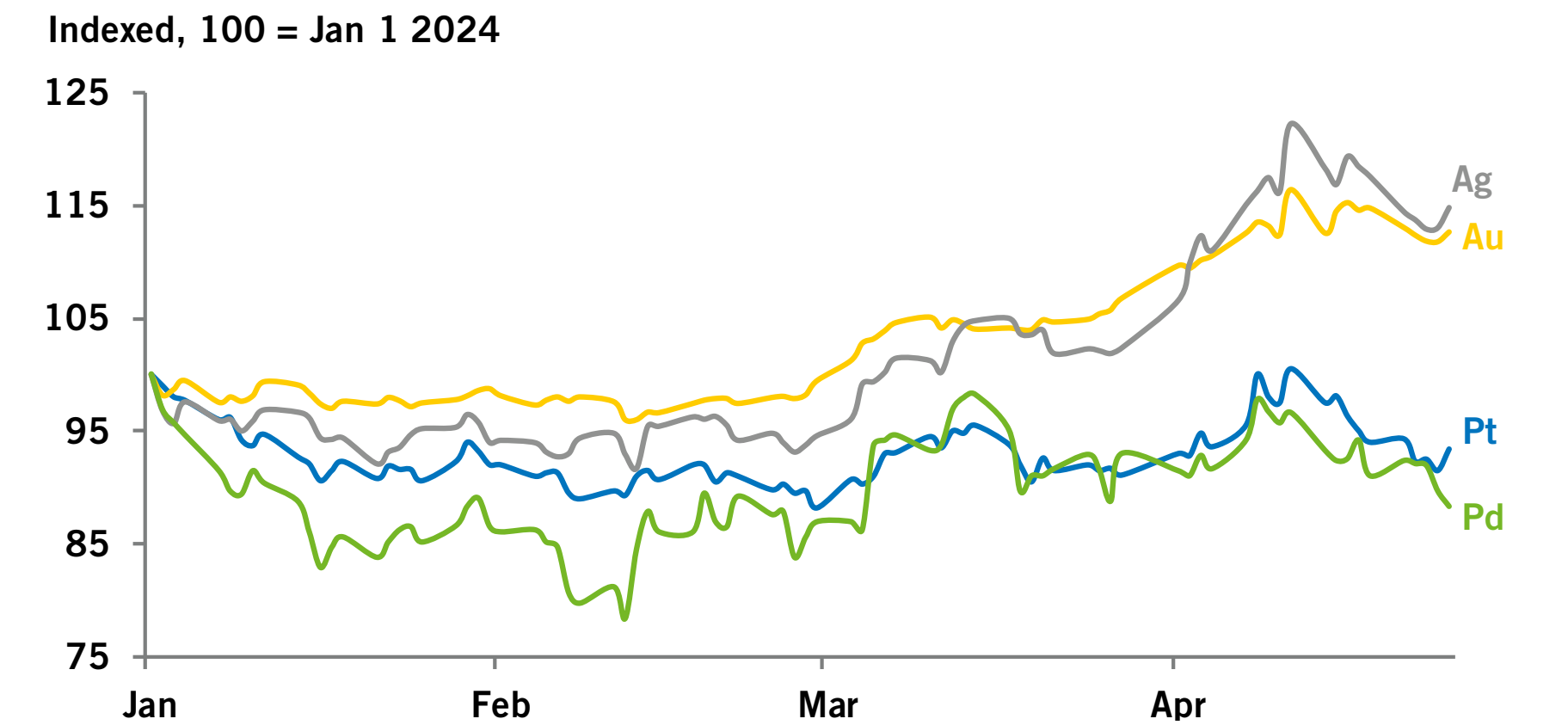
Source: SFA (Oxford), Bloomberg

Global mined palladium production



Source: SFA (Oxford)

Precious metal price performance, YTD



Source: SFA (Oxford), Bloomberg

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

ABOUT HERAEUS

Learn more about important trends in the precious metals markets on a weekly basis with our Heraeus Precious Appraisal. **Please subscribe: www.herae.us/trading-market-report.**

Heraeus Precious Metals

Europe, Middle East, Africa & other regions

Phone: +49 6181 35 2750

tradinghu@heraeus.com

South East Asia

Phone: +852 2773 1733

tradinghk@heraeus.com

USA

Phone: +1 212 752 2180

tradingny@heraeus.com

China

Phone: +86 21 3357 5658

tradingsh@heraeus.com



The Heraeus Group is a broadly diversified and globally leading family-owned technology company, headquartered in Hanau, Germany. The company's roots go back to a family pharmacy started in 1660. Today, Heraeus bundles diverse activities in the Business Platforms Metals and Recycling, Health, Semiconductor and Electronics as well as Industrials. Customers benefit from innovative technologies and solutions based on broad materials expertise and technological leadership.

Heraeus Precious Metals is globally leading in the precious metals industry. The company is part of the Heraeus Group and covers the value chain from trading to precious metals products to recycling. In addition to gold and silver, it also has extensive expertise in all platinum group metals.

The Heraeus Precious Appraisal is produced in collaboration with:

SFA (Oxford) Ltd

United Kingdom

Phone: +44 1865 784366

www.sfa-oxford.com

The Oxford Science Park,
Oxford, United Kingdom, OX4 4GA



consulting analysts in tomorrow's commodities and technologies

Disclaimer

This document is being supplied to the recipient only, on the basis that the recipient is reasonably believed to be a professional market participant in the precious metals market. It is directed exclusively at entrepreneurs and especially not intended for the use of consumers.

The material contained in this document has no regard to the specific investment objectives, financial situation or particular need of any specific recipient or organisation. It is not provided as part of a contractual relationship. It is not and should not be construed as an offer to sell or the solicitation of an offer to purchase or subscribe for any investment or as advice on the merits of making any investment.

This report has been compiled using information obtained from sources that Heraeus and SFA (Oxford) Ltd ("SFA") believe to be reliable but which they have not independently verified. Further, the analysis and opinions set out in this document, including any forward-looking statements, constitute a judgment as of the date of the document and are subject to change without notice.

There is no assurance that any forward-looking statements will materialize. Therefore, neither SFA nor Heraeus warrants the accuracy and completeness of the data and analysis contained in this document.

Heraeus and SFA assume no liability for any losses or damages of whatsoever kind, resulting from whatever cause, through the use of or reliance on any information contained in this document. However, in so far as a liability claim exists under German law, Heraeus and SFA shall have unlimited liability for willful or grossly negligent breach of duty.

Unless expressly permitted by law, no part of this document may be reproduced or distributed in any manner without written permission of Heraeus. Heraeus specifically prohibits the redistribution of this document, via the internet or otherwise, to non-professional or private investors and neither Heraeus nor SFA accepts any liability whatsoever for the actions of third parties in reliance on this document.