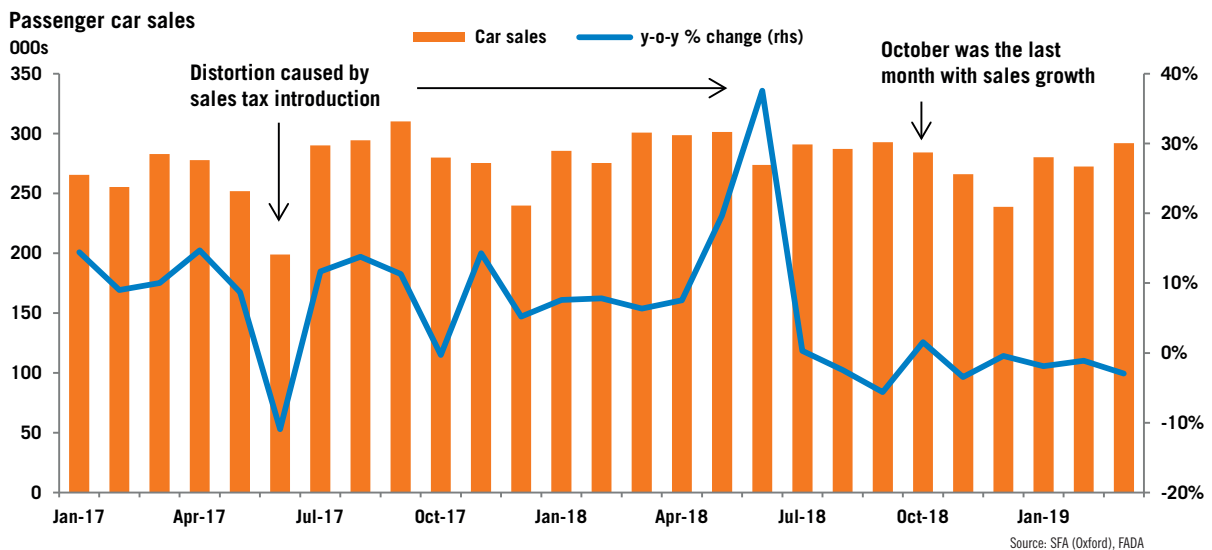


MARKET SPOTLIGHT

Indian auto sales slow but higher PGM gearing ahead

Early indications are that passenger car sales in India have fallen in April, making it a sixth consecutive year-on-year decline. Tight credit conditions, weak consumer sentiment and a reluctance to purchase ahead of the general election have all impacted car sales in the last few months. However, consumer confidence surveys show improving sentiment and sales are expected to recover once the election finishes later in May. India is the fifth largest passenger car market globally with sales of 3.3 million units in 2018. Many of the cars sold are small vehicles and the market has a diesel share of around 30%.



India is introducing tighter emissions legislation (Bharat 6) in April 2020. Maruti, which has an approximately 50% share of the passenger car market, has announced it will phase out small diesel engines from April 2020 owing to the increased costs of aftertreatment making small diesel cars too expensive.

The Indian car market's diesel share is expected to fall, and palladium and rhodium demand will benefit from increased gasoline vehicle sales and the higher loadings in autocatalysts needed to meet the new emissions targets. Along with growth in car sales elsewhere, this will keep the palladium market in deficit and the rhodium market will be close to being balanced, which should support prices in the medium term.

However, platinum demand is predicted to continue to grow in India. Despite the anticipated decline in diesel share, the overall growth in the car market means that diesel sales numbers are likely to be stable. Once the increase in loadings required by Bharat 6 is taken into account, flat sales still result in stronger platinum demand. In addition, India is a large market for commercial vehicles which are predominantly diesel and which will also need higher autocatalyst loadings from next year, and this will boost platinum demand. Overall, the platinum market is expected to remain in surplus, so the price is likely to remain subdued.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,280	-0.58%	1,287	01/05/2019	1,266	02/05/2019
€/oz	1,144	-0.90%	1,151	29/04/2019	1,131	02/05/2019

Fed knocks gold down. It was a matter of expectations being misaligned. With the market pricing-in a high chance of a rate cut this year, all it took was the Fed chairman saying that low inflation was transitory for markets to reassess that assumption and push up bond yields and sell off gold. Gold fell by \$8/oz during the Fed's press conference and it has continued to slide. At present, investors are not showing much enthusiasm for gold as ETF holdings have edged lower. With the S&P 500 Index hitting a record high last week, equities have taken most of the attention. When equity volatility picks up, as it inevitably will, gold should get more of a bid as investors remember why it is a safe haven.

Strong central bank buying continued in Q1. Central banks added 4.5 moz of gold to their reserves in the first quarter (source: World Gold Council), of which Russia and China combined bought more than half, at 2.8 moz. Last year saw 12.1 moz of central bank gold purchases (9% of total demand), the highest level for decades. This year has started even more strongly so if central banks keep buying at a similar rate, 2019 could set a new record.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	14.94	-0.83%	15.05	29/04/2019	14.56	02/05/2019
€/oz	13.35	-1.13%	13.48	29/04/2019	13.02	02/05/2019

Silver: collectors are buying, investors are selling. The US Mint sold 1.2 moz of silver American Eagle coins in April (+31% year-on-year), putting year-to-date sales at 8.2 moz, a 37% rise on 2018. The silver price has continued to slide, averaging \$15.04/oz in April, so the coins are

cheap for collectors. Meanwhile, investors have sold 5.2 moz from ETFs this year. Silver has continued to underperform gold and the gold:silver ratio has moved back to 86. Without more enthusiasm from investors, the silver price will continue to struggle.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	869	-3.27%	901	30/04/2019	845	03/05/2019
€/oz	777	-3.56%	807	29/04/2019	756	03/05/2019

Major auto parts supplier invests in fuel cell vehicles. Bosch is aiming to commercialise a polymer-electrolyte membrane (PEM) fuel cell system (which uses platinum) for vehicles by 2022 in partnership with PowerCell, a leading developer of fuel-cell stacks in Sweden. The fuel cells will initially be targeted at commercial vehicles as they are required to meet lower CO2 targets in 2025 and 2030. Bosch predicts that 20% of all electric vehicles in 2030 will be fuel-cell powered, which would create roughly 400 koz of platinum demand. However, a much wider network of hydrogen fuelling stations and a fall in the price of hydrogen will both be required for fuel cells to see long-term success. Bosch's involvement is a vote of confidence for fuel cells.

A big win for the ANC in the South African election could ease business for platinum miners, improve political stability and increase foreign investment. This would give the ANC's leader and South African president, Cyril Ramaphosa, a mandate to root out corruption from his divided party and take a harder line with issues that are holding back the economy, such as power supplier Eskom. A stronger pro-business government would make it easier for PGM miners to raise money and create jobs.



PRECIOUS METALS REVIEW

⁴⁶Pd Palladium

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,367	-6.09%	1,461	29/04/2019	1,315	01/05/2019
€/oz	1,222	-6.39%	1,309	29/04/2019	1,170	01/05/2019

Palladium market tightness easing. The palladium price opened last week at its highest level for a month, but hit resistance on Monday and slumped almost \$100/oz on the day. The sharp decline makes it look as if the longs are nervous that the price could go lower and took profits at the best price they could. ETF holdings have fallen by 55 koz (-7.5%) since the price peaked on 21 March. Despite last week's fall, palladium is still up over 8% year-to-date. Metal availability appears to have improved and market conditions have eased, with the level of backwardation in the futures market shrinking and lease rates falling back to their lowest level in over a year. The price is still trading above the recent low of \$1,320/oz, but if that level gives way palladium could be in for another sharp drop.

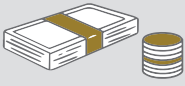
Nornickel boosted Q1'19 palladium output by 31% year-on-year to 770 koz as stockpiled material was processed. Nornickel is the largest producer of palladium with output of 2.7 moz in 2018, 38% of total mine supply. Towards the end of last year the company built up a stockpile of work-in-progress material caused by downtime at some processing facilities. The majority of the stockpile has been processed in Q1'19. This supply of metal may have contributed to the easing of market conditions over the last month. However, annual guidance for Nornickel remains unchanged at 2.77-2.80 moz of palladium, so this development does not affect the sizeable market deficit expected for 2019.

⁴⁵Rh ⁴⁴Ru ⁷⁷Ir Rhodium, Ruthenium, Iridium

	Rhodium	Ruthenium	Iridium
Reporting week	\$2,925/oz	\$260/oz	\$1,460/oz
Previous week	\$2,950/oz	\$260/oz	\$1,460/oz

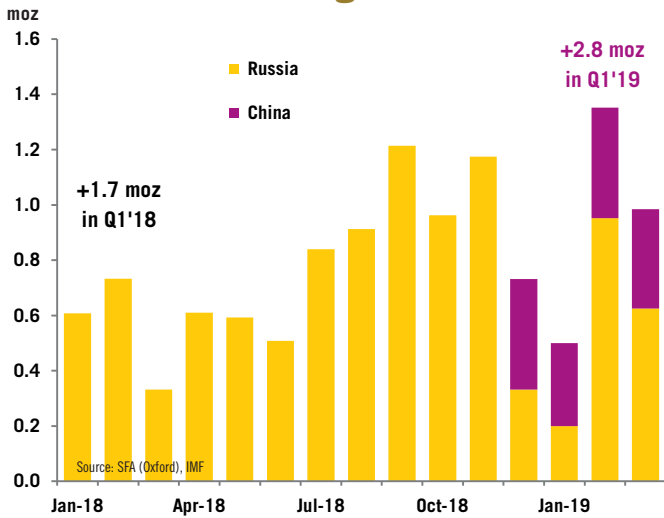
Hard disk drive deliveries declined at a double-digit rate in Q1'19. HDD production accounted for 80 koz of ruthenium demand in 2018, 7% of total demand. Sales of HDDs by Seagate and Western Digital, the two largest companies in the sector, saw year-on-year declines of 12% and 24%, respectively, in Q1'19. This is a faster contraction than that seen in Q4'18 for Seagate, but slower for Western Digital. HDDs have been suffering from competition with solid-state drives in the personal

computer market. Expectations are that enterprise demand for cloud storage and big data should return the market to growth later this year or in 2020. The rhodium price slipped \$25/oz to \$2,925/oz, showing some resilience when compared to palladium's price decline last week. Ruthenium and iridium prices remain unchanged.

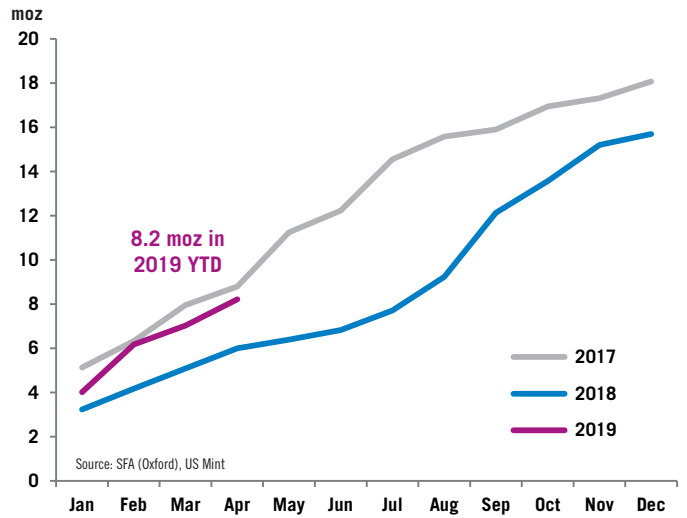


TRENDS AND INVESTMENTS

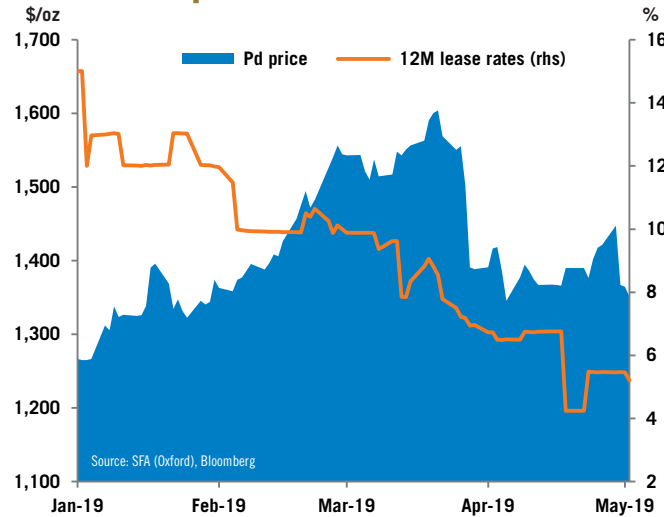
Growth in national gold reserves



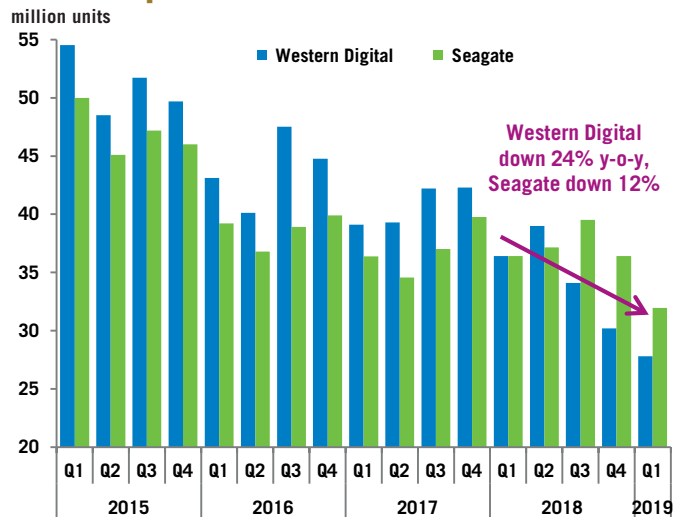
Cumulative US Mint silver coin sales



Palladium price and lease rates



HDD shipments



Heraeus Precious Metals

Europe, Middle East, Africa & other regions
 Phone: +49 6181 35 2750
 edelmetallhandel@heraeus.com

South East Asia
 Phone: +852 2773 1733
 tradinghk@heraeus.com

United States of America
 Phone: +1 212 752 2180
 tradingny@heraeus.com

China
 Phone: +86 21 3357 5658
 tradingsh@heraeus.com

The HERAEUS PRECIOUS APPRAISAL 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

www.herae.us/trading-market-report

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. Prices quoted are interbank (offer) prices for gold, silver, platinum and palladium. Rhodium, ruthenium and iridium quotes reflect the Heraeus offer price at the time of writing.