

HERAEUS PRECIOUS APPRAISAL

Heraeus

Ed. 11
8th April 2019



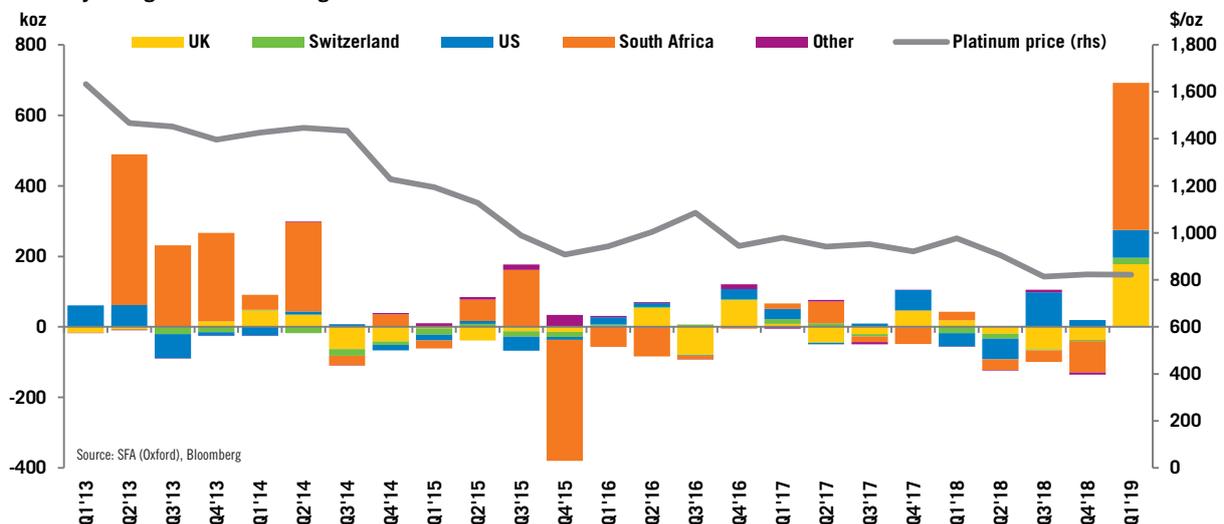
MARKET SPOTLIGHT

Platinum ETF holdings surge, but price to remain subdued

Platinum ETFs have risen by 666 koz in the first quarter of 2019, the largest quarterly inflow ever seen. Most of the investor interest has come from South Africa where ETFs have gained 392 koz. The UK was the next largest source of purchases, with investors adding 177 koz to their holdings, and US investors bought 79 koz.

Institutional investors have been increasing their exposure to platinum. PIMCO has noted that platinum is cheap relative to other precious metals. In March, platinum was trading at the widest discount to gold and palladium ever seen: -\$530/oz and -\$745/oz respectively. South African investors are betting on a platinum price recovery as the rise in the prices of the other metals produced with platinum is expected to lift platinum too. There may also be a rotation from mining equities, which have performed very well, to platinum as it is perceived to be undervalued.

Quarterly change in Pt ETF holdings



South African investors may think platinum could be substituted back into gasoline autocatalysts, replacing some palladium. This is unlikely, but the institutions' investment horizon could be up to five years. The relative cost of the metals is only one consideration for auto makers. Palladium's supply is much more geographically diversified than platinum's, reducing reliance on South Africa. Auto manufacturers' R&D effort is being focused on developing electric vehicles and complying with tightening emissions legislation. Fleets have just become aligned with WLTP and RDE rules in Europe and there is no appetite to change catalyst formulations, when missing CO₂ emissions targets could lead to large fines. South African investors may also be investing in platinum as a hedge against a weakening rand.

Global ETF holdings have reached a record level at just above 3.0 moz. This is a 25% gain in ETF holdings this year, but price has risen by only 8% (\$62/oz), so ETF investment is not driving the price. **The fundamental picture for platinum is weak and the price is likely to remain subdued.**



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,292	-0.27%	1,297	01/04/2019	1,281	04/04/2019
€/oz	1,152	-0.20%	1,155	02/04/2019	1,142	04/04/2019

Stock market rebound reduces gold's appeal. The US equities market has recovered 14% in 2019 (S&P 500) and is within a couple of percentage points of a new all-time high. The Shanghai Composite has also gained 30% so far this year. This has lessened the appeal of safe havens, so the gold price gained only 1% in Q1'19 after twice failing to hold gains above \$1,310/oz. Gold ETF holdings have risen only 1.2% year-to-date and speculators' positioning in gold futures has also been little changed around a middle-of-the-range level.

Economic releases have been mixed. Last week, US and China Purchasing Managers' Indexes turned upwards but US retail sales and durable goods orders declined. The economic outlook could also shift when Brexit and the US-China trade dispute are finally concluded. The yield curve inversion suggests a recession will occur in about a year's time, which would boost safe haven demand and push up the gold price. For now, the price looks likely to move sideways around the \$1,300/oz level.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	15.14	-0.05%	15.22	01/04/2019	14.90	04/04/2019
€/oz	13.49	0.01%	13.80	04/04/2019	13.09	04/04/2019

Silver coin sales are recovering but still remain historically weak. The US Mint and Perth Mint's combined silver coin sales in the first quarter have risen 15% year-on-year to 9.4 moz but are a third lower than they were in Q1'15. Sales in March fell by 5.6% to 1.79 moz compared to a year earlier. Annual silver coin sales peaked in 2015 at 59 moz for the two Mints combined, accounting for 5.1% of global silver demand, with the silver price averaging \$15.71/oz that year. Last year, global coin sales dropped to 24.9 moz despite silver

averaging exactly the same price. This was due to a lack of price direction and underperformance compared to gold; the gold:silver ratio rose from a low of 66 in 2016 to a high of 86 in 2018. With only a partial recovery in sales so far this year, silver demand from coins looks likely to remain weak in the context of total demand. Silver usually outperforms gold in a rising price environment but has not done so this year. If gold moves sideways, silver could show further weakness and lead the gold:silver ratio to a new 26-year high.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	899	5.89%	909	05/04/2019	843	01/04/2019
€/oz	802	6.03%	810	05/04/2019	751	01/04/2019

Platinum reaches 10-month high. The platinum price gained \$50/oz last week as it broke through initial resistance at \$890/oz. It could be difficult to sustain the rally with further resistance around \$900/oz-\$910/oz.

Larger EVs are a headwind for diesel in Europe. In its first month of sales in Europe, the Tesla Model 3 was the best-selling sedan in its class, which was previously composed primarily of diesels from BMW, Audi and Mercedes-Benz. The majority of electric cars in Europe to date have been in the mostly gasoline-powered small car category. Consequently, the primary impact of EV growth has been on palladium demand. However, many of the major automakers entering the EV market in 2019 are

doing so with SUVs, including Audi, Mercedes-Benz and Volvo, adding to recent releases from Jaguar, Hyundai and Kia. In 2017, diesel powered only one in five small cars but more than one in two SUVs. In the future the EV impact on PGMs will be more evenly split than it has been in the past. The share of fully electric cars in Europe is expected to triple by 2021 and could result in a drop of 20 koz in annual platinum demand. EVs still carry a price premium and it remains to be seen how much this will limit sales growth. The European diesel market accounts for 1.2 moz of platinum demand, a sixth of global consumption. With the platinum market already in surplus, the price is likely to continue falling over the next few years.



PRECIOUS METALS REVIEW

46 Pd Palladium

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,379	0.40%	1,446	03/04/2019	1,323	05/04/2019
€/oz	1,230	0.37%	1,286	03/04/2019	1,181	05/04/2019

The palladium price looks to be stabilising. The price rose to a mid-week high of \$1,446/oz last week, before setting a new low of \$1,323/oz on Friday. However, the price rebounded strongly to end the week marginally up, suggesting it could show more strength in the near-term.

US auto sales picked up in March, beating all forecasts. The seasonally adjusted annualised rate (SAAR) of sales came in at 17.5 million for March, up 0.6% year-on-year. However, total sales for Q1 were down 3.2% year-on-year. Automotive sales forecasts for 2019 range from 16.8 million to 17.0 million units, equivalent to declines of -2.7% to -1.6%, but a pick-up in sales is anticipated later in the year. The main risk is that further economic weakness will result in a continued decline in sales. If annual sales were to miss forecasts by 1% it would reduce palladium demand by 17 koz. The shift from cars to SUVs has been slowing as the market share of sedans has stabilised at around 31%. The trend has been positive for palladium demand due to it increasing average vehicle loadings. The tailwinds for palladium demand are easing, but even a relatively substantial reduction in car sales would still leave the overall market in deficit and sustain a high palladium price.

Production of passenger cars fell in 2018 for the first time since 2009. Global production declined by 3.0% to 70.5 million cars last year, according to the OICA. The number of passenger cars made in the three largest markets of China, Western Europe and North America fell -4.1%, -5.6% and -11.7%, respectively, and make up 17%, 15% and 18% of total palladium demand. All three markets have seen year-to-date car sales continue to fall in 2019 and may struggle to make up growth in the second half of the year as consumers become more cautious about the economy and the risk of a recession. Currently, global production is expected to expand in 2019 as production in China and the Rest of the World grows while the declines in North America and Western Europe slow. Palladium demand from passenger cars increased in 2018 due to higher loadings from tightening emissions standards, accounting for 56% of the total 10 moz market, and is forecast to rise again in 2019.

45 Rh 44 Ru 77 Ir Rhodium, Ruthenium, Iridium

	Rhodium	Ruthenium	Iridium
Reporting week	\$3,000/oz	\$270/oz	\$1,460/oz
Previous week	\$3,100/oz	\$275/oz	\$1,460/oz

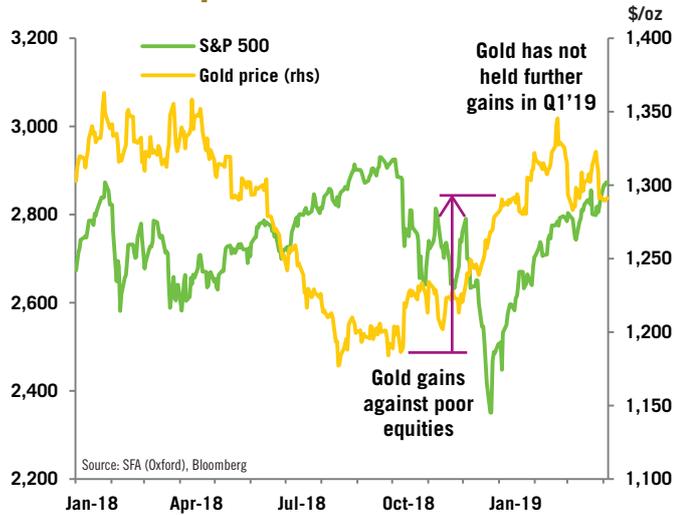
The rhodium price continued its decline last week. Unlike palladium, rhodium did not see its price bounce after the sharp drop at the end of March and has fallen by another \$100/oz (-3.2%) to \$3,000/oz. Some profit-taking from the rhodium ETFs has been observed;

holdings have declined 2.9% to 35.7 koz since the price peaked at \$3,335/oz. Ruthenium also fell \$5/oz on a slight softening in demand but iridium remains unchanged.

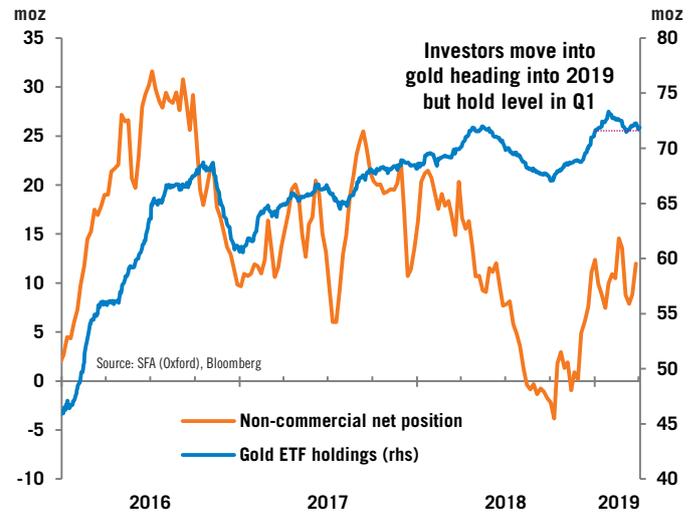


TRENDS AND INVESTMENTS

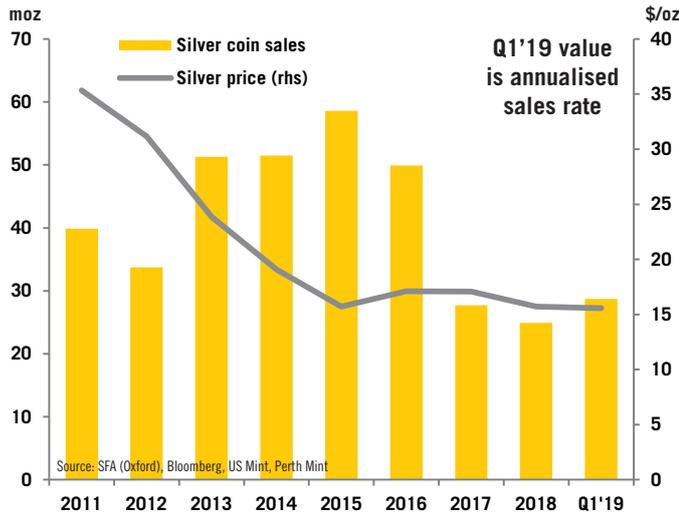
Gold and equities



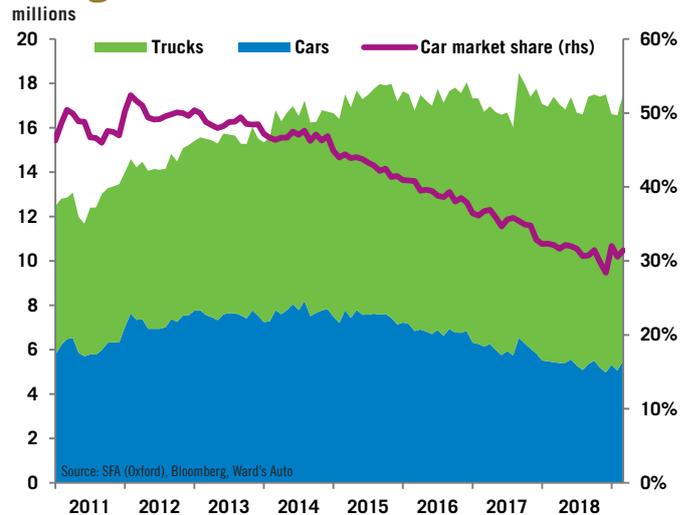
Gold investor movements



Silver coin sales (US + Perth Mint)



US light vehicle sales



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



consulting analysts in tomorrow's commodities and technologies

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.