



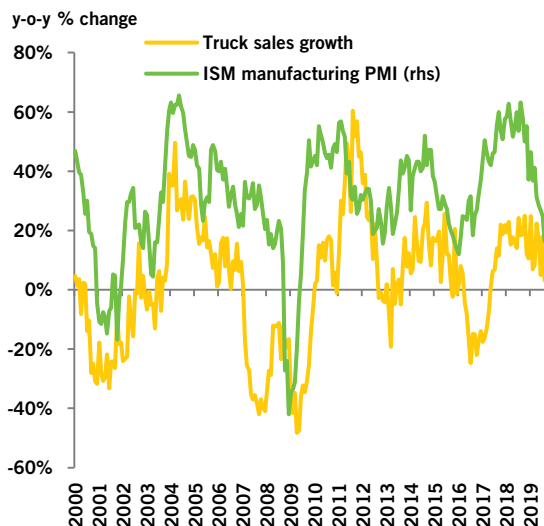
MARKET SPOTLIGHT

Reversing US trucks could signal lower palladium and rhodium prices

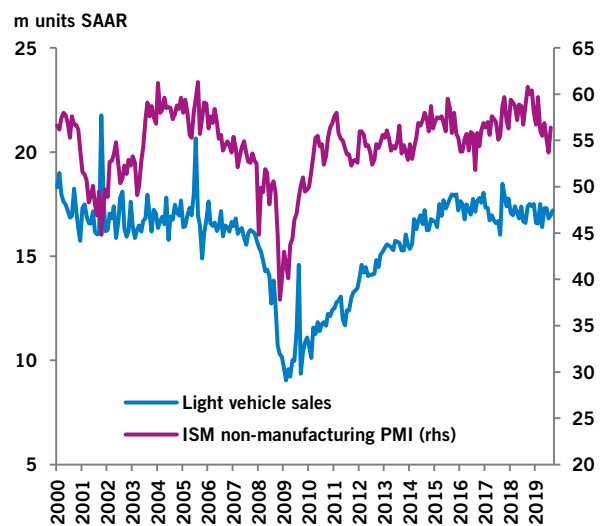
Changes in US truck sales follow changes in the manufacturing PMI. The ISM manufacturing PMI slipped to 47.8 in September (a value below 50 indicates decreasing activity), while the ISM non-manufacturing PMI fell sharply to 52.6. Heavy-duty truck sales are currently at a healthy level in unit terms, but they are now declining year-on-year. In addition, new orders for heavy-duty trucks have collapsed, so production is likely to be cut. Navistar has around 18% of the US truck and bus market. The company recently announced production cuts for medium-duty trucks (Class 5-7) where inventories are rising despite positive sales figures.

Platinum demand will be hit by the slowdown in heavy-duty truck sales as the trucks are diesel-powered. **However, it is what the PMIs mean for the rest of the economy that has more serious implications for palladium and rhodium.**

US Class 4-8 truck sales



US light vehicle sales



Source: SFA (Oxford), Bloomberg, ISM, Ward's Auto

The details of the manufacturing PMI are concerning for the broader US economy. New orders are falling and employment has contracted. If this continues, production will decline and job cuts will follow which will ultimately impact consumer spending. Manufacturing is the fifth-largest employment sector in the US. For now, the services sector and consumer spending are still growing. However, should the weakness in manufacturing feed through into the rest of the economy this would have a greater negative impact on consumer spending.

Light-vehicle production in the US is expected to increase slightly in 2020. Tightening emissions legislation is requiring higher autocatalyst loadings which, as the US is a gasoline-dominated market, means higher demand for palladium and rhodium. However, **if consumer spending weakens, this would hit palladium and rhodium demand via lower light-vehicle sales.**



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,504	0.65%	1,520	03/10/2019	1,459	01/10/2019
€/oz	1,370	0.36%	1,382	03/10/2019	1,339	01/10/2019

Strong dollar hit gold. The gold price suffered a big drop last Monday as the dollar strengthened, but, with stock markets retreating, gold provided a safe haven and the price recovered over the rest of the week. The gold price could remain volatile as sentiment around trade and political risks shift. The non-commercial net long futures position as of 24 September was 31.2 moz, the second-highest level ever. This near-record speculative futures position on COMEX suggests that a lot of the bullish news has already been acted on, which could make it harder for the price to move higher in the short term.

CBGA RIP. The fourth and final Central Bank Gold Agreement (CBGA) ended last Monday. The first agreement came into force in 1999 and put a 400 t per year limit on European central bank sales of gold. Times have changed and an agreement is unnecessary as European central bank gold sales are now very small. Indeed, central banks have been net purchasers of gold since 2010, and added 651 t to their reserves in 2018 (source: World Gold Council). Central bank gold purchases continue, with over 400 t being acquired in the first seven months of the year.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	17.48	0.15%	17.80	03/10/2019	16.90	01/10/2019
€/oz	15.94	-0.12%	16.20	03/10/2019	15.52	01/10/2019

Rise in automated vehicle technology could increase the demand for silver. Chemicals derived from ethylene oxide (EO), which is produced using a silver catalyst, are used in a wide variety of products. These products include high-performing brake fluids needed in vehicles with advanced driver assistance systems. Silver demand from the EO market dipped to 5.4 moz in 2018 (source: The Silver Institute) owing to a lack of new installations. BASF, the largest European producer of EO, plans to increase its production capacity by almost 50%.

Silver's price moves mirrored gold last week. The price slumped on Monday in tandem with gold and then recovered. The gold:silver ratio held at around 85. The speculative interest in silver futures is more subdued than in gold at less than half its all-time high, so if silver starts to outperform gold there is more room for silver speculative positions to increase.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	879	-5.79%	933	30/09/2019	871	02/10/2019
€/oz	800	-6.09%	853	30/09/2019	796	04/10/2019

South African platinum producer wage dispute continues. Arbitration in the wage negotiations between the AMCU, the majority union for platinum mineworkers, and Anglo American Platinum and Sibanye-Stillwater has moved to the Commission for Conciliation, Mediation and Arbitration (CCMA). An attempt will be made to resolve the dispute within 30 days, which, if unsuccessful, could lead to a strike. The two companies account for around 2.2 moz of platinum production per year or 36% of global primary supply.

More platinum supply is on the horizon. Wesizwe has confirmed its Bakubung mine is on track to begin production in Q3'20. The mine is platinum-rich and is planned to produce around 65 koz of platinum per year at full capacity. While PGM production is profitable, new supply will continue to come onto the market. The platinum market is predicted to remain in surplus next year and so the price is expected to remain weak.



PRECIOUS METALS REVIEW

⁴⁶ Pd **Palladium**

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,673	-0.71%	1,702	30/09/2019	1,639	02/10/2019
€/oz	1,524	-0.91%	1,559	30/09/2019	1,498	03/10/2019

The palladium spot price hit an all-time high of \$1,702/oz last Monday. Lease rates are elevated and the futures curve is in backwardation, indicating the market is tight. With tightening emissions legislation requiring more metal to be used in autocatalysts, demand should remain robust and a deficit market is expected next year. This suggests the trend of rising prices will continue.

US auto sales continue to slide. Light-vehicle sales in the US were significantly lower year-on-year in September, but fewer selling days this year had a major impact. The seasonally adjusted annual rate (SAAR) was down just 0.7% year-on-year at 17.19 million units (source: BEA). Year-to-date sales have averaged 16.96 million (SAAR),

down 1.1% compared to the same period in 2018. While sales might be edging lower in the US, tighter emissions standards mean that autocatalyst palladium usage is still expected to increase. The US automotive demand for palladium is around 2 moz, the second-largest after China.

Are thefts a reason to go BEV? Thieves are cashing in on the high palladium price. The Metropolitan Police in London reported that 2,894 catalytic converter units were stolen in the first half of the year, 73% more than all reported cases in 2018. Hybrid cars were particularly being targeted.

⁴⁵ Rh ⁴⁴ Ru ⁷⁷ Ir **Rhodium, Ruthenium, Iridium**

	Rhodium	Ruthenium	Iridium
Reporting week	\$5,200/oz	\$250/oz	\$1,500/oz
Previous week	\$5,350/oz	\$250/oz	\$1,490/oz

Ruthenium's catalytic properties keep it in focus for R&D efforts. A joint venture between the University of Warwick in the UK and Chinese industrial materials company, GoldenKeys High-tech Materials, has produced a ruthenium catalyst to make chemicals used in the pharmaceutical industry that is more efficient than those currently on the market. While there is a long way to go

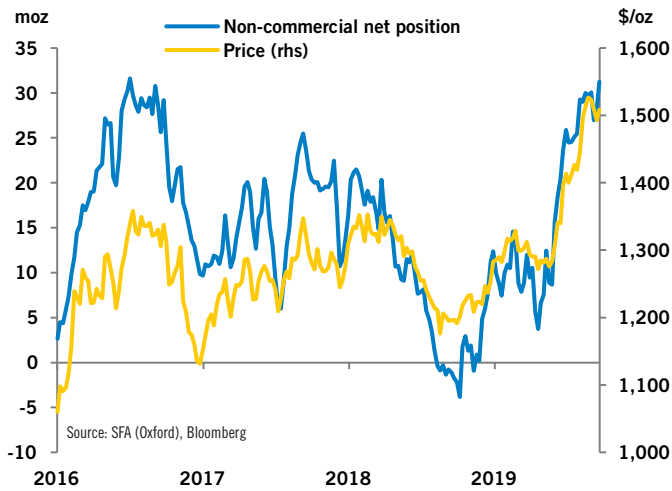
from the laboratory to commercial production, this shows that ruthenium's unique properties should keep it in demand.

The rhodium price slipped \$150/oz last week, but the market is still seeing strong demand from China. Iridium gained \$10 and the ruthenium price was unchanged.

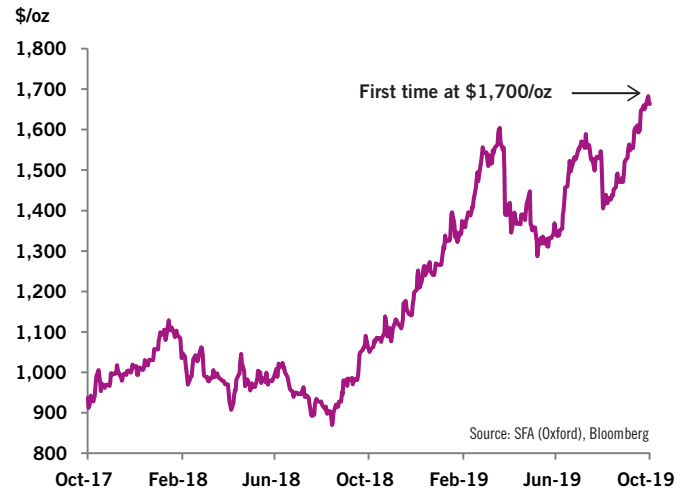


TRENDS AND INVESTMENTS

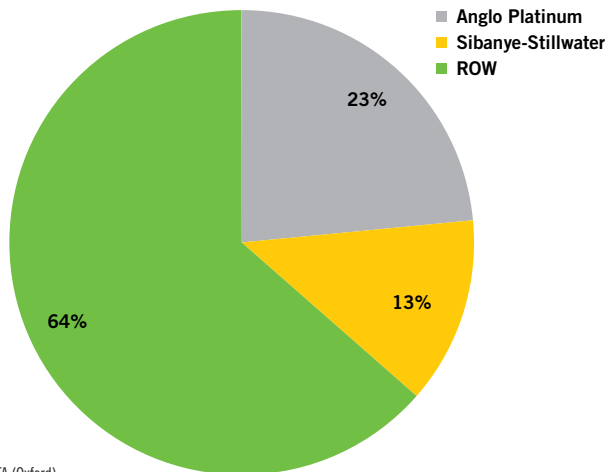
Gold price and net speculative position



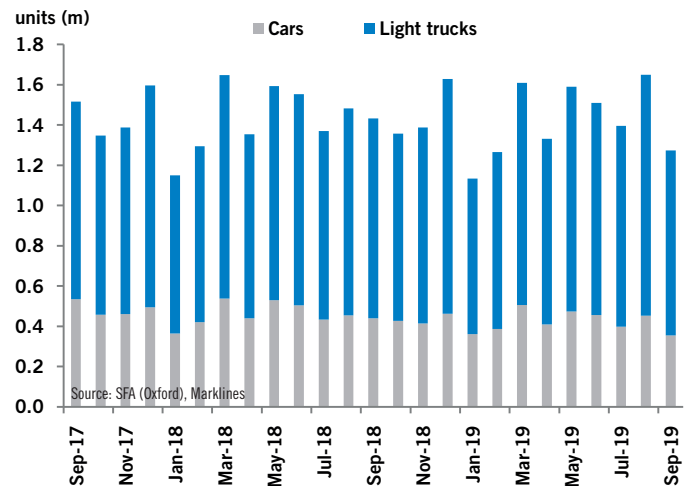
Palladium price



Global platinum production 2018



US auto 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

www.herae.us/trading-market-report

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

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.