

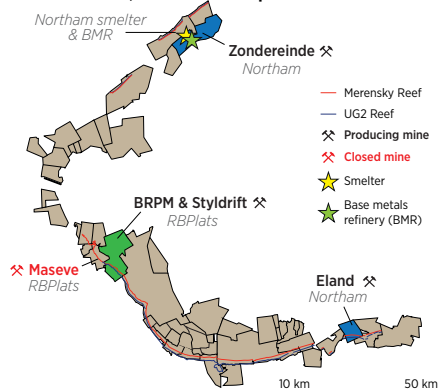


MARKET SPOTLIGHT

Increased M&A and expansion could unlock future PGM supply

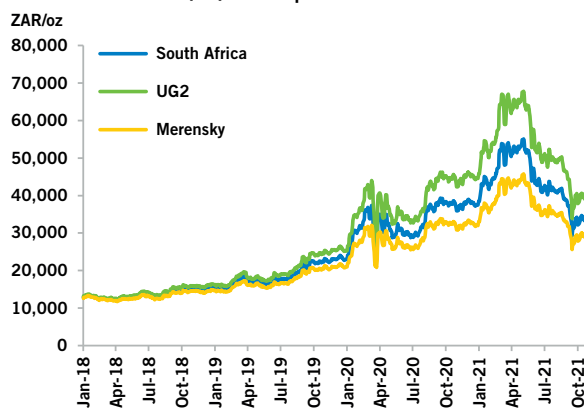
As PGM miners seek to strengthen and diversify their portfolios, merger and acquisition (M&A) activity and investment in brownfield expansion in South Africa are picking up. Northam Platinum has acquired a 32.8% interest in Royal Bafokeng Platinum (RBP) with an option to increase to 34.9%, despite previously announced takeover talks with Impala Platinum (IMP). The transaction will diversify Northam's portfolio with exposure to a shallow, long-life asset and could also provide a platform for combined business operations in the future. RBP manages two mines, BRPM and Styldrift, on the Western Limb of the Bushveld Complex, mining mostly Merensky ore (platinum-rich) and accounting for around 260 koz of platinum annually. Styldrift is a new mechanised mine currently ramping up to steady state. Northam's annual refined platinum output is over 400 koz.

Relative location of Northam & RBP assets on the Western Limb, Bushveld Complex in South Africa



Source: SFA (Oxford), Bloomberg

South African PGM (4E) basket price



Brownfield projects are being incentivised by high PGM prices. Even taking into account the recent fall in the PGM basket price, producers have plenty of cash available for greater brownfield investment to extend the life of mines and replace depleting output. The K4 shaft (Sibanye-Stillwater – SSW) has been restarted, while the Two Rivers Merensky expansion (IMP) and Klipfontein open-pit project (SSW) have also been approved. The Der Brochen project (Anglo American Platinum – AAP) and Marula extension project (IMP) are both up for Board approval in Q4'21. The sale of the Bokoni mine, jointly owned by AAP and Atlatsa Resources, is reported to be concluding which could signal a restart.

Depleting platinum mine supply, combined with growing demand, could push the market into deficit by the mid to late 2020s. While the development of projects may seem illogical given the current market surplus for platinum, strategic investments are required now to secure platinum and small PGM supply over the longer term to help offset projected depletion.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,864	2.73%	1,869	10/11/2021	1,813	08/11/2021
€/oz	1,629	3.82%	1,629	12/11/2021	1,566	08/11/2021

Gold broke out last week as US inflation surged to a 31-year high. The Consumer Price Index rose by 6.2% in October, the sharpest year-on-year increase since 1990, reinforcing the view that inflationary pressures are proving more persistent than expected (i.e. not transitory). Earlier this month the Federal Reserve announced plans to begin scaling back its \$120 bn/month asset purchase programme. Recent data is strengthening prospects that

the Fed will raise interest rates next year, despite the chairman, Jay Powell's, resistance. Rising interest rates could be bearish for gold as it increases the opportunity cost of holding gold. However, in the near term, while the ultra-low interest rate policy continues, real interest rates are becoming even more negative and the outlook for gold is positive.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	25.24	4.89%	25.39	12/11/2021	24.03	09/11/2021
€/oz	22.06	6.00%	22.17	12/11/2021	20.75	09/11/2021

Silver also traded upwards last week on the back of the higher inflation data from the US, moving back above \$25/oz for the first time since August. Silver outperformed gold last week, with the gold:silver ratio coming down to around 74 (from 79 a few weeks ago).

This is close to the level of the same time last year when the price was benefitting from a rebound in industrial activity and strong ETF demand. If the rally continues then silver should outperform gold.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,083	4.43%	1,096	11/11/2021	1,038	08/11/2021
€/oz	947	5.52%	956	12/11/2021	898	08/11/2021

The platinum market remains in surplus, and fundamentals suggest that the platinum price should be weaker. However, platinum followed gold higher as its discount to gold is still significant. Inopportunistly, the auto demand upside from the Euro 7 emissions standard is expected only from 2025 onwards, and is likely to be the last emissions standard for combustion engines starting in Europe then spreading to China and the RoW. The exact demand requirement (platinum catalyst loading) and technological implications remain unknown, making market forecasting difficult to extrapolate.

That said, Impala Platinum is confident about a platinum price recovery and has been focusing on its long-term growth options in southern Africa. The company has recently announced plans to develop a base metals refinery (BMR) plant in Zimbabwe as it expands production there, in addition to the expansion of the Two Rivers mine on the Eastern Limb in South Africa, where a new operation will exploit the platinum-rich Merensky Reef. Impala also owns a 15% stake in the Waterberg greenfield project located on the Northern Limb. It is expected to produce 420 koz 4E (including an estimated 120 koz Pt) at steady state if developed.



PRECIOUS METALS REVIEW

⁴⁶Pd Palladium

	Close	Weekly change	High	Date	Low	Date
\$/oz	2,095	3.24%	2,108	09/11/2021	2,005	10/11/2021
€/oz	1,831	4.23%	1,831	12/11/2021	1,734	10/11/2021

No shine for car sales in China's 'Silver October'.

The world's largest gasoline market recorded a sixth consecutive month of declining car sales in October, falling 9.6% year-on-year to 2.33 million units (source: China Association of Automobile Manufacturers). 'Golden September' and 'Silver October' are considered the high season for car sales, with customers typically returning to make big-ticket purchases after the summer. However, there has been no such fortune for the market, and therefore for automotive palladium demand, this year. Ongoing supply chain disruption owing to the

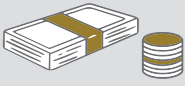
semiconductor chip shortage is not expected to be rectified until late 2022 or early 2023. This, in addition to economic headwinds, is likely to continue to restrain output and drag on the post-pandemic recovery. The current global light-vehicle sales outlook of around 80.2 million units positions 2021 well below the 2019 pre-pandemic benchmark (88.7 million units). Autocatalyst palladium demand this year is also forecast to be >750 koz lower than in 2019. The palladium price rose last week but the auto sector's problems are likely to continue to weigh on the price.

⁴⁵Rh ⁴⁴Ru ⁷⁷Ir Rhodium, Ruthenium, Iridium

	Rhodium	Ruthenium	Iridium
Reporting week	\$15,800/oz	\$620/oz	\$4,350/oz
Previous week	\$15,550/oz	\$595/oz	\$4,750/oz

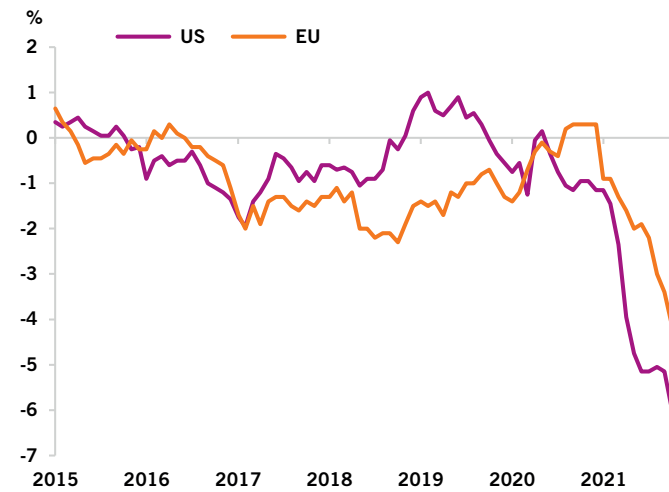
Higher productivity in Q4'21 could improve small PGM availability. Mine workers in South Africa often work additional shifts ahead of the summer holiday for the Christmas and New Year period, resulting in higher productivity in Q4. In addition, producers with results at the end of the calendar year will also be motivated to

produce as much metal as possible. Liquidity has been improving since AAP began processing the stockpiled material which built up during 2020 and this has seen small PGM prices soften slightly. The rhodium price edged up 1.6% last week, while ruthenium rose by 4.2% and iridium dropped 8.4%.



TRENDS AND INVESTMENTS

Real interest rates



Source: SFA (Oxford), Bloomberg

Gold price



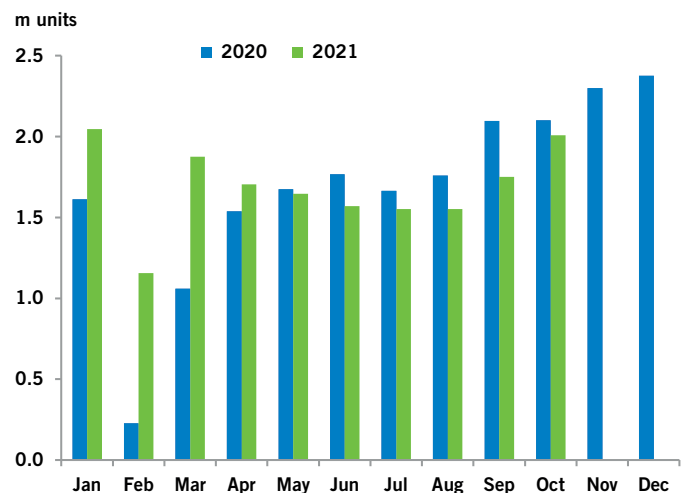
Source: SFA (Oxford), Bloomberg

Gold:silver ratio



Source: SFA (Oxford), Heraeus Precious Metals

China auto sales



Source: SFA (Oxford), China Automotive Information Net

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

Heraeus Precious Metals imprint can be found [here](#)

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.