



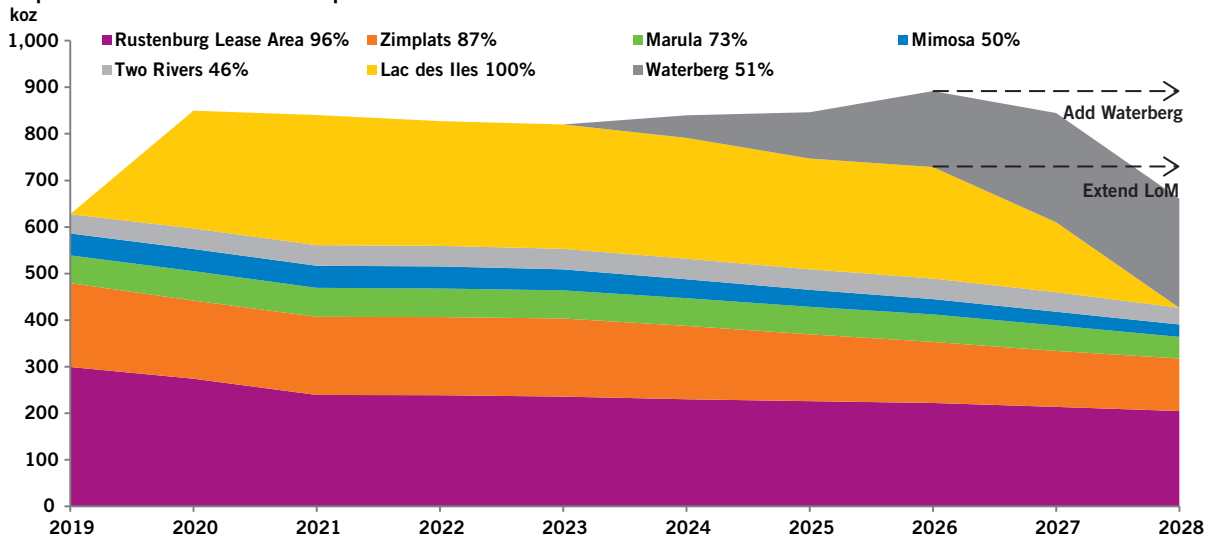
MARKET SPOTLIGHT

Implats aligns its output more closely with future order books

Impala Platinum (Implats) is acquiring North American Palladium (NAP) for ~\$758 million. Implats will gain an existing mine, Lac des Iles, which is a primary palladium mine. It has very small amounts of platinum, gold and copper by-products. This will provide Implats with immediate low-cost palladium production at a time when palladium prices are very high and are expected to remain high. NAP reported all-in sustaining costs of \$875/oz in H1'19, against an average palladium price of \$1,411/oz. The acquisition reduces the combined company's average cost of production. Lac des Iles is situated in Canada so this also provides geographic diversification of production and reduces the company's exposure to high-cost, deep-level conventional mining. **The acquisition does not add any extra palladium production to the market.**

Impala's output moves closer to what the market requires. Based on 2018 production, the addition of Lac des Iles' output to that of Implats increases attributable palladium output by 37% to 887 koz and Implats' palladium output stays fairly stable going forward. This reduces the ratio of the company's platinum to palladium production significantly from 1.71:1 to 1.27:1. The ratio of platinum to palladium demand globally (excl. investment) in 2018 was 0.70:1, and palladium demand is expected to grow faster than platinum demand. Implats has the potential to maintain or increase its palladium production. Lac des Iles' life-of-mine could be extended beyond 2027. Should the Waterberg project be given the green light, palladium production could hold above 800 koz p.a.

Impala Platinum attributable Pd production



Source: SFA (Oxford), company reports

The palladium market is expected to remain in deficit going forward. Supply growth is failing to keep up with rising demand. This is due to a combination of stronger auto sales and the higher autocatalyst loadings required in China, the US and Western Europe to meet tightening emissions legislation. Therefore, the palladium price is expected to rise further in the medium term.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,482	-1.47%	1,517	09/10/2019	1,474	11/10/2019
€/oz	1,342	-2.05%	1,381	09/10/2019	1,334	11/10/2019

Gold ETF investors are betting on higher prices. Global ETF holdings reached a new record high at 84.0 moz, surpassing the previous record from 2012. However, futures speculators do not entirely agree as the specs' net long position fell back from 31 moz to 26 moz in the week to 1 October. Given the fragile global economic situation, the fact that central banks are back in easing mode and the likelihood of another Fed rate cut in October, it seems reasonable to think that there is more upside for gold ahead. However, right now the price is struggling to stay above \$1,500/oz. After a rally that has lifted the price by 17% this year, some further

consolidation and sideways price action is possible in the short term.

Gold purchases by central banks more than doubled in August from the previous month, with net purchases totalling 59.9 t. Purchases were dominated by Turkey and Russia, which added 41.8 t and 11.3 t of gold to their reserves, respectively. Gold now represents 19% of Turkey's total reserves at 362.5 t. Russia remains the highest purchaser of gold year-to-date, with 117.4 t added this year (source: World Gold Council).

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	17.49	0.06%	17.96	09/10/2019	17.27	08/10/2019
€/oz	15.85	-0.56%	16.36	09/10/2019	15.71	11/10/2019

Semiconductor sales are down but EVs are pushing production up. Global semiconductor sales were down 15.9% in August, compared to the same period in 2018, but production is likely to expand over the next two years due to stronger demand from the electric vehicle industry. Bosch, the sixth-largest producer of semiconductors for the automotive industry, is on track to begin production at its new €1 billion fabrication facility in Dresden, Germany, in H1'21. Silver usage in electrical and electronic applications is 24% of total demand. The

current poor semiconductor sales suggest electrical and electronic demand for silver could struggle this year. The number of components containing semiconductors is increasing in conventional cars, but EVs could have twice as many, so if EV demand continues to grow this will support silver demand in the years ahead.

With the prices rising last week, silver recovered a little ground on gold, but if the correction continues the gold:silver ratio could expand again.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	889	1.21%	906	11/10/2019	874	07/10/2019
€/oz	806	0.69%	822	11/10/2019	796	07/10/2019

New platinum council aims to boost China's platinum jewellery market. As part of its ongoing marketing efforts, Platinum Guild International (PGI) has opened an outlet in Shenzhen to showcase new jewellery designs and collections from a selection of retailers. This follows the creation of the Platinum Advisory Council. The council represents brands, retailers and distributors in China, and acts as a platform to promote the growth of the country's

platinum jewellery market. China is the largest jewellery market for platinum, accounting for around 1.2 moz in 2018. The jewellery manufacturers of Shenzhen alone represent 70% of the country's production. However, demand in China has fallen by around 50% since 2013, and is set to fall further in 2019 so the market is definitely in need of support.



PRECIOUS METALS REVIEW

46 Pd Palladium

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,694	1.21%	1,708	11/10/2019	1,632	08/10/2019
€/oz	1,534	0.63%	1,551	11/10/2019	1,487	08/10/2019

UK car registrations declined in September but petrol increased its market share. Passenger car sales were up 1.3% in the UK in September. However, sales fell 2.5% in the first nine months of the year, compared to the same period in 2018. Sales of diesel models plummeted 20.6% year-to-date, while demand for petrol cars rose by 2.6% (source: Society of Motor Manufacturers and Traders). September saw a 3.3 percentage point increase in the petrol market share to 65.4% year-to-date. UK car sales account for around 10% of palladium demand in Europe, or 190 koz.

The UK's sales increase of 1.3% year-on-year in September was the smallest gain among the five largest European markets (Germany: 22%, Spain: 18%, France: 16%, Italy: 13%). It is possible that consumers are

delaying making large purchases due to uncertainty over the outcome of Brexit. Other countries saw much larger gains owing to the weak sales in September 2018 which were impacted by sales being brought forward into August 2018 ahead of the introduction of the new WLTP (Worldwide Harmonised Light Vehicle Test Procedure) regulations.

Further consolidation in the PGM industry. Impala Platinum has acquired North American Palladium (NAP), a primary palladium miner. This reduces the number of primary PGM mining companies to eight, with production dominated by Anglo American Platinum, Sibanye-Stillwater and Impala (85% based on palladium production). The other major source of mined PGMs is as a by-product of nickel mining.

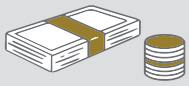
45 Rh 44 Ru 77 Ir Rhodium, Ruthenium, Iridium

	Rhodium	Ruthenium	Iridium
Reporting week	\$5,400/oz	\$250/oz	\$1,500/oz
Previous week	\$5,200/oz	\$250/oz	\$1,500/oz

Glencore is on to a winner with new iridium-ruthenium anodes. Outotec, a leading developer of mining technologies, has agreed a contract to supply Glencore's Nikkelverk copper refinery in Norway with 5,000 units of mixed metal oxide (typically iridium plus some ruthenium) coated titanium anodes. The refinery in Kristiansand uses a process known as electrowinning to recover copper. In the process, anodes and cathodes are used to separate out copper metal from solution. The new anodes significantly reduce energy consumption and are

more efficient than the existing traditional lead anodes. Electrochemical applications account for around 62 koz of iridium a year, which is almost a quarter of global demand for the metal.

Despite slipping initially, ongoing tightness in the rhodium market saw the price rally by \$250/oz in two days to end the week \$200/oz higher, while ruthenium and iridium prices were unchanged.

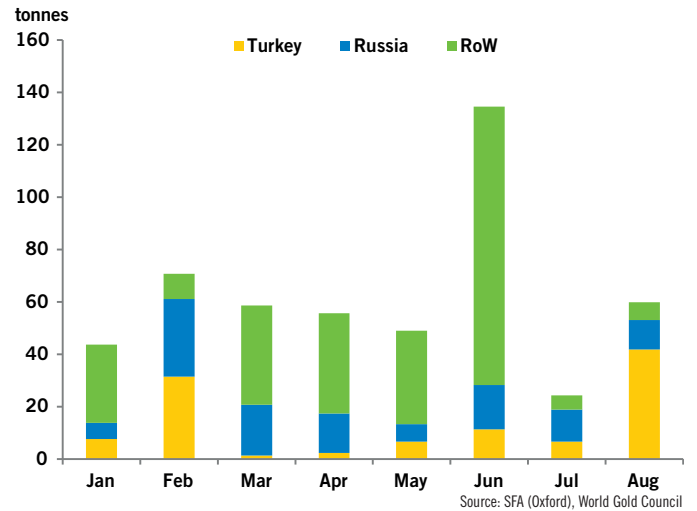


TRENDS AND INVESTMENTS

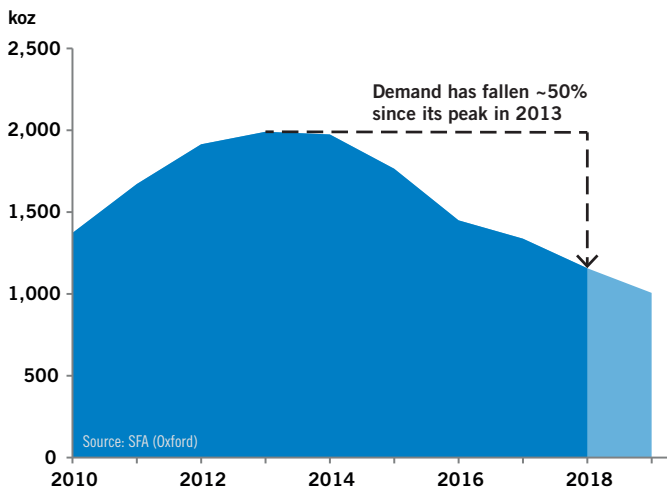
Global gold ETF holdings



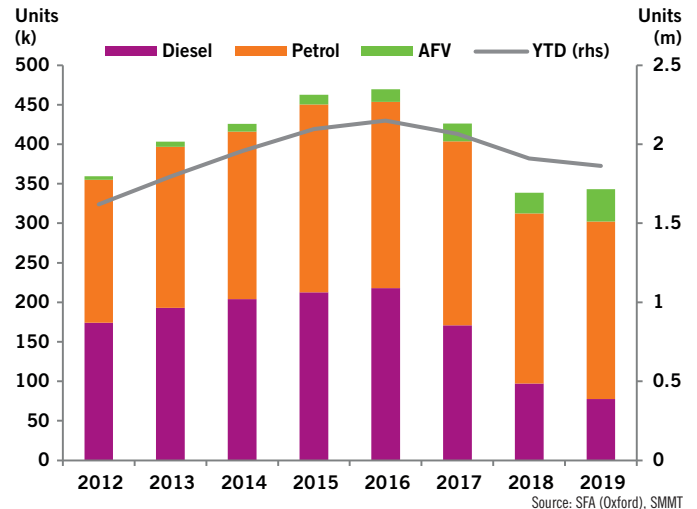
Gold purchases by central banks in 2019



China platinum jewellery demand



UK car sales in September



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