



MARKET SPOTLIGHT

Can expanding hydrogen mobility fuel platinum's future?

The rise of fuel cell electric vehicles (FCEVs) is anticipated to boost platinum demand. Fuel cell vehicles rely on a hydrogen fuel cell stack which uses platinum catalysts in its electrodes.

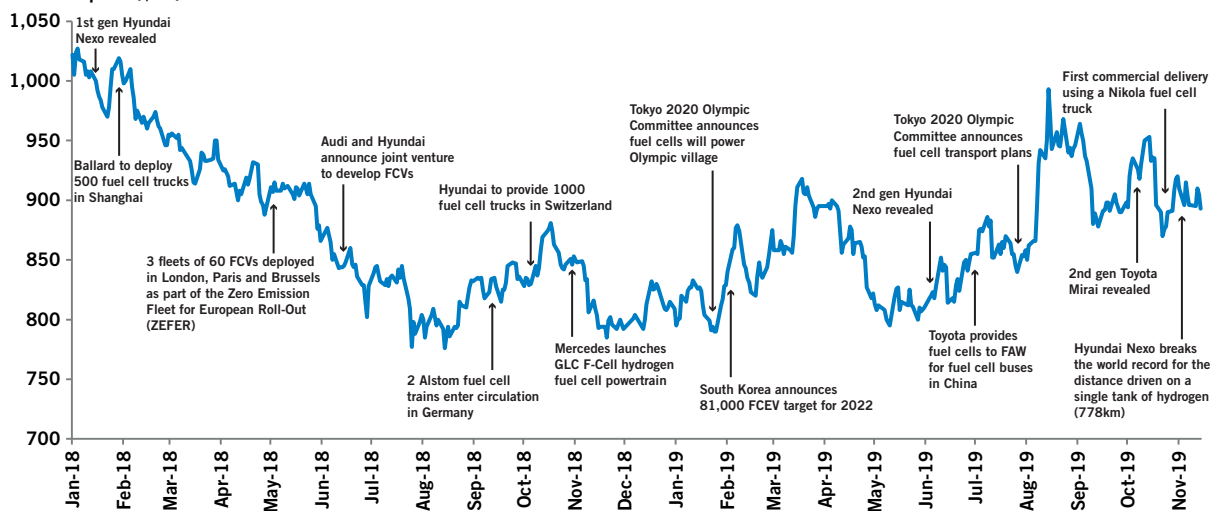
In the short term, increased thrifting will outweigh sales growth to reduce platinum demand from fuel cells. The platinum content of a car's fuel cell stack has decreased from 30-80 g in early vehicles to 10 g in the second generation Toyota Mirai, which enters production in 2020. With reduced platinum content and improving economies of scale, price parity to battery electric vehicles (BEVs) is achievable.

Adoption of fuel cells in commercial vehicles may offset the slow growth of passenger cars. Unlike BEVs, FCEVs have a long range and can be refuelled quickly, making them suitable as commercial vehicles. Hyundai, Cummins and Nikola have all revealed details of heavy-duty fuel cell trucks, some of which have entered production this year. The platinum content of these trucks is currently more than double that of a passenger car. Growing adoption of fuel cells for non-road vehicles, such as trains, forklifts and mining equipment, provides further demand upside.

The hydrogen vision is becoming a reality in Asia. The Tokyo 2020 Olympic Committee has partnered with Toyota to provide fuel cell transport for the Olympic Games, including 500 Mirai cars and 100 Sora buses. The 6,000 unit Olympic village will also be powered by fuel cells. Japan aims to have 40,000 FCEVs on the road by 2020, supported by generous government subsidies and a rapidly expanding infrastructure network. South Korea also has strong incentives, and is aiming for 81,000 FCEVs and 310 fuelling stations by 2022.

Developments in the fuel cell market

Platinum price (\$/oz)



Source: SFA (Oxford), Bloomberg, press releases

Due in part to the declining popularity of diesel cars, the platinum price is yet to respond to growing demand from the fuel cell market, but future growth is supported by major international and national government legislation. **Demand from the fuel cell market has the potential to exceed 1 moz in the long term.**



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,461	-0.25%	1,484	04/12/2019	1,454	02/12/2019
€/oz	1,322	-0.54%	1,342	05/12/2019	1,318	03/12/2019

Gold received another 'risk-off' boost last week, with equity markets selling off from recent highs at the start of the week as hopes of an imminent trade deal between China and the US receded following another Trump tweet. Stock markets recovered and gold fell back following the strong US non-farm payroll report. Speculative futures' net long positions in gold edged down to 27.2 moz on 26 November. If the US imposes the delayed tariffs on Chinese imports on 15 December, gold could continue to rally without the spec position declining to more average levels first.

Newmont-Goldcorp hits a gold rush. Newmont-Goldcorp has provided a five-year outlook, with gold production rising gradually until 2024. Production guidance for 2020 is 6.7 moz of gold, 1.5 moz higher than in 2019, primarily due to what will be a full year of consolidated Goldcorp assets. Mine production is expected to increase to between 6.5 and 7 moz over the next five years. With its merger in April 2019, Newmont-Goldcorp became the largest gold producer in the world, now accounting for around 6% of global mine supply.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	16.58	-2.50%	17.33	04/12/2019	16.54	06/12/2019
€/oz	15.00	-2.78%	15.64	04/12/2019	14.64	06/12/2019

Physical silver ETF demand dropped in November. Global silver ETF holdings fell 10.5 moz (-1.5%) during November as small gains in some countries were outweighed by falls in the US and UK of 6.0 moz and 5.5 moz respectively. Despite the decline in November, ETF holdings are still up by 86 moz (+14%) so far this year. Physical offtake from retail investors in Europe, however, held up well with good demand for 1kg, 5 kg and 15 kg bars. While the gold price is not making much headway, the silver price is likely to continue to underperform gold.

Tariffs have left the US solar market in the shade. The US is predicted to lead the expansion of the global photovoltaic (PV) market next year as Chinese demand slows, but high tariffs on solar imports have proved to be a huge obstacle to its growth. The Section 201 tariff was implemented in 2018 and applied to all imports of PV cells and modules to the US. The tariff began at 30% in 2018, and decreases by 5% each year until 2021. The Solar Energy Industries Association estimates the tariffs have led to a loss of 10.5 GW in solar installations since their implementation, which equates to around 10% of the global PV installations last year and 8 moz of silver.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	896	-0.27%	916	04/12/2019	885	05/12/2019
€/oz	811	-0.55%	827	04/12/2019	798	05/12/2019

The UK diesel market shrinks as electric vehicles take the reins. Year-on-year sales of new passenger cars in Europe rose on average by 2.7% in November, boosted by Germany which increased by 9.7% to 299,127 units (source: KBA). The UK was the only major European market that witnessed a decline, by 1.3% to 156,621 units, but was met with record demand for electric vehicles (source: SMMT). One in ten new registrations in the UK last month was an alternatively fuelled vehicle. The market share of diesel cars across Europe continued

to contract in November, driven by the UK which plummeted 8.8 percentage points to 23.6% from last November. The European market accounted for around 1.2 moz of platinum in 2018, roughly 40% of global autocatalyst demand, but in light of declining diesel demand it is estimated to shrink by around 10% this year. The two major consumption segments, jewellery and automotive, remain weak. With gold remaining supported investors are currently absorbing the surplus platinum.



PRECIOUS METALS REVIEW

⁴⁶Pd **Palladium**

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,878	2.07%	1,882	06/12/2019	1,837	02/12/2019
€/oz	1,699	1.98%	1,702	06/12/2019	1,664	03/12/2019

Higher palladium loadings will compensate for slow car sales. New vehicle sales in the US gained 1.9% year-on-year to 1,413,514 units in November. The increase was driven by demand for light trucks, which climbed by 6.4% to 1,036,106 units (source: MarkLines). Despite promising sales figures, General Motors, Ford and Nissan have all announced details of retrenchments as demand has consistently fallen short of production in the year to date. The US is the second-largest gasoline market after China, representing 20% of the global market. American-

made light vehicles accounted for around a quarter of global autocatalyst palladium demand last year at ~2 moz. Despite declining car sales, the palladium price is expected to benefit from stricter tailpipe emissions standards in some of the largest markets such as India (Bharat VI) and China (China 6a), which require higher loadings of palladium in order to conform. Palladium has continued to hit record highs. Price momentum is still strong and so higher prices are expected.

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

	Rhodium	Ruthenium	Iridium
Reporting week	\$6,050/oz	\$250/oz	\$1,500/oz
Previous week	\$6,000/oz	\$250/oz	\$1,500/oz

Mixed outlook for small metals' demand. Furuya reported that demand for iridium crucibles in the US was strong in Q3. However, orders for iridium crucibles for lithium tantalite single crystal growth equipment for surface acoustic wave (SAW) devices for smartphones were slow. Sufficient capacity is already in place as smartphone sales growth has not been as high as anticipated. The crucibles are part of electrical demand which represents 30% of total iridium demand.

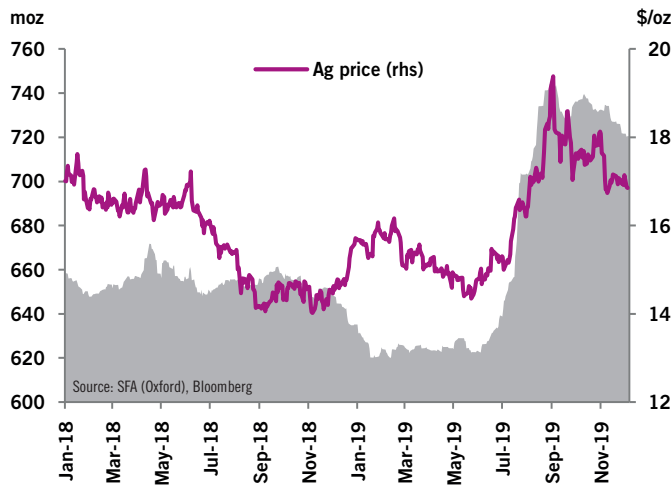
Furuya also noted that orders for ruthenium targets to make hard disk drives (HDDs) bottomed out and are starting to recover. HDDs account for around 80 koz, or 7%, of global ruthenium demand and that is expected to increase as storage capacity requirements grow.

The rhodium price held \$6,000/oz for most of last week, but ended the week up \$50/oz. The ruthenium and iridium prices were flat.

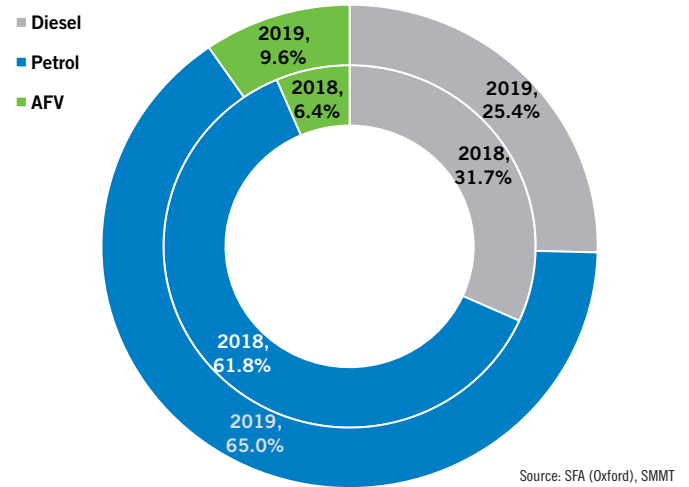


TRENDS AND INVESTMENTS

Global silver ETF holdings



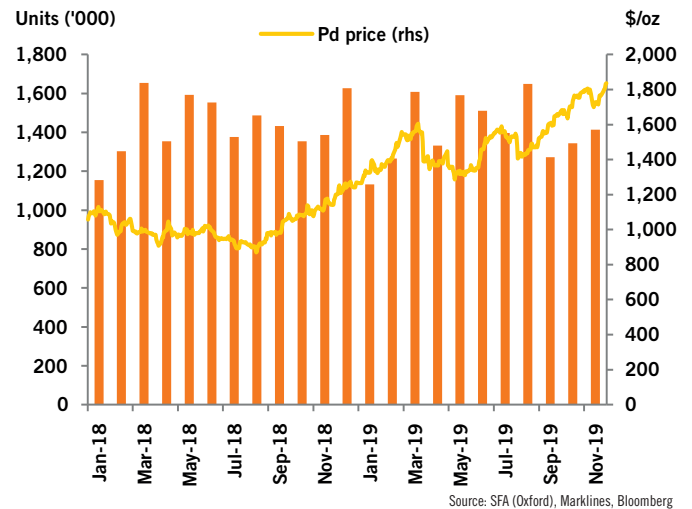
UK passenger car market share (YTD)



Palladium price



US light vehicle sales



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