



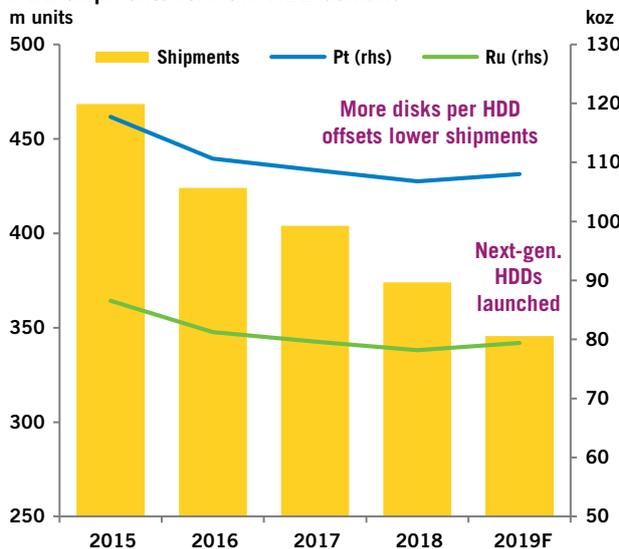
MARKET SPOTLIGHT

Ruthenium demand set to fall, but not because of its high price!

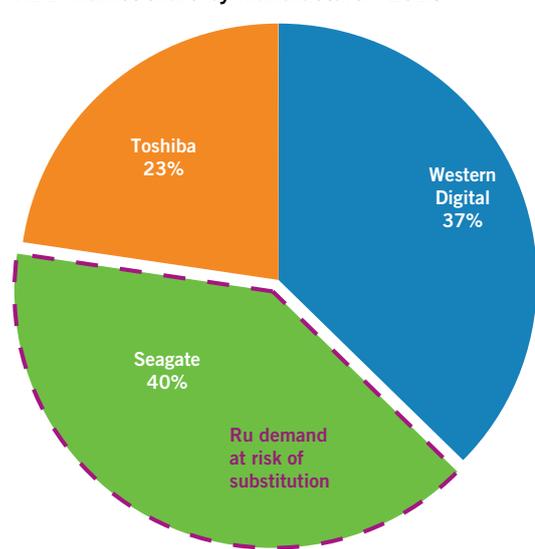
Technological substitution could put downward pressure on the ruthenium price. Hard disk drives (HDDs) are losing market share to solid-state drives (SSDs) which contain no ruthenium. In addition, the largest HDD manufacturer, Seagate, is launching its next-generation HDD technology this year, which also does not utilise ruthenium (for technological rather than price reasons). Consequently, as Seagate accounts for around 40% of the market, there is a sizeable downside risk to ruthenium demand in HDDs, which may lead to a drop in the ruthenium price.

The two largest HDD manufacturers are both launching their next-generation drives this year, but are backing different technologies. Western Digital's new HDD technology will continue to use ruthenium in the same proportion as current HDDs. In contrast, **Seagate's next-generation HDDs will no longer require any ruthenium at all**, although they will use more platinum. Seagate's technology, if successful, is therefore likely to weaken ruthenium demand in HDDs.

HDD shipments vs. PGM HDD demand



HDD market share by manufacturer: 2018



Source: SFA (Oxford), Western Digital, Seagate, Coughlin Associates

However, there will be a transitional period during which Seagate sells both its current and next-generation HDDs, with the new technology being used only for the high-capacity enterprise market initially. As this transitional period may last for a few years, the resulting **gradual reduction in demand could coincide with steadily falling primary supply from South Africa**, where high palladium prices incentivise ruthenium-poor orebodies, which may just simply maintain the market status quo and current prices.

HDD deliveries are forecast to fall by 8% year-on-year to around 346 million units in 2019, according to Coughlin Associates. Nonetheless, the total number of disks used should increase slightly (i.e. more disks per HDD), keeping platinum and ruthenium demand at 2018 levels this year. In 2018, HDDs accounted for just 1% (~110 koz) of total platinum demand but around 7% (~80 koz) of global ruthenium requirements, meaning **any technological substitution may soften the ruthenium price** but is not expected to have any impact on the platinum price.



PRECIOUS METALS REVIEW

79 Au Gold

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,504	3.98%	1,510	07/08/2019	1,453	05/08/2019
€/oz	1,340	2.97%	1,349	08/08/2019	1,300	05/08/2019

Gold is overbought. With the China-US trade war recasting into a currency war, investors have sought the safety of gold, lifting the price above \$1,500/oz for the first time since 2013. The US has branded China a currency manipulator after the yuan/dollar exchange rate exceeded 7 for the first time since 2008. Price momentum is strong, but the sharp rally has resulted in the gold price becoming overbought. The near-term upside may be limited by a region of resistance at \$1,525/oz-\$1,530/oz which was the support level that broke when the gold price collapsed in 2013.

China's gold production and consumption both decreased in H1'19. China is the largest gold producing and

consuming nation. Production in the first half of the year was 6.6% lower year-on-year at 235 t (source: China Gold Association). At the same time gold consumption was 524 t, down 3.3%, mostly owing to a sharp decline in investment demand. Gold bar purchases totalled 111 t in H1, a drop of 17% year-on-year, and gold coin sales were 3 t, 29% lower than in H1'18. Industrial usage was marginally lower at 51 t. However, gold jewellery purchases were 2% higher at 359 t. The combination of a rapidly rising gold price and a weakening yuan has lifted the gold price in China to its highest level for seven years. This is likely to keep demand subdued in the second half of the year.

47 Ag Silver

	Close	Weekly change	High	Date	Low	Date
\$/oz	17.00	4.36%	17.25	07/08/2019	16.26	05/08/2019
€/oz	15.16	3.36%	15.37	07/08/2019	14.55	05/08/2019

Silver has breached \$17/oz for the first time in over a year. Similarly to gold, it has become overbought in response to the escalating trade war between the US and China. However, unlike gold there is not a notable resistance level just above the price, so silver could continue to outperform gold.

Pan American Silver's annual output has been revised lower on operational setbacks, despite solid Q2 results. Pan American Silver (the world's sixth-largest silver

producer) has reduced its annual production guidance from its May forecast of 26.5-27.5 moz, to 25.2-26.2 moz. Silver production of 6.47 moz has been reported for Q2'19, a 3% increase from Q2'18, driven mainly by higher yield from the La Colorada, Dolores and Huaron operations. However, with suspended development at the COSE project following a fatality in June, silver production from Manantial Espejo will be limited.

78 Pt Platinum

	Close	Weekly change	High	Date	Low	Date
\$/oz	863	1.26%	870	07/08/2019	844	06/08/2019
€/oz	769	0.37%	777	08/08/2019	755	07/08/2019

Project issues slow production ramp-up for Royal Bafokeng Platinum (RBP). RBP mines 6% of South African platinum output. The company reduced its production guidance to 430-440 4E koz (4E: Pt, Pd, Rh, Au) from 450-480 4E koz owing to operational and staff recruitment difficulties. In the first half of the year

4E production was 199 koz, of which approximately 115 koz was platinum. Production will expand in H2, but not by as much as originally projected, although the impact on platinum output will be small. Since the market is in surplus, the platinum price is expected to continue to slide lower.



PRECIOUS METALS REVIEW

⁴⁶ Pd Palladium

	Close	Weekly change	High	Date	Low	Date
\$/oz	1,435	1.05%	1,454	05/08/2019	1,400	05/08/2019
€/oz	1,279	0.19%	1,297	05/08/2019	1,250	07/08/2019

Chinese car sales fell further in July. The China Passenger Car Association has indicated that retail sales of passenger vehicles in the first four weeks of July were down 16% year-on-year, suggesting the full-month figure will record a significant fall. This would continue the long-term trend of declining car sales, with just a single month of growth in the past year. China is the largest passenger vehicle market, with sales of 28 million units in 2018. This represented 2 moz or 19% of total global palladium demand.

The China Association of Automobile Manufacturers has predicted a sales decline of 5% for passenger vehicles this year, which would take annual sales down to 26.6 million units, but that is now looking optimistic. A 10% decline would cut palladium usage by 80 koz to less than 2 moz, even with the higher autocatalyst loadings required to meet China 6 emissions standards that have been introduced in some regions in July. While this would not be enough to balance the palladium market, it would

reduce the deficit and could ease some of the upside pressure on the price. However, car sales are expected to return to growth next year, as is automotive palladium demand. This would keep the market in deficit and so the palladium price should ultimately move higher.

Could the palladium rally be over? While the palladium market's fundamentals suggest higher prices in the medium term, the recent price action is sending a different signal. In July the palladium price reached \$1,600/oz for the second time, but has since fallen back. This has left behind a potential double top price pattern. Double top patterns indicate reversals in the price trend. The change of trend to lower prices will be confirmed if the palladium price closes below the May low of \$1,293/oz. The price reaction to what looks likely to have been another poor month for Chinese auto sales could give some indication of which way the trend will develop.

⁴⁵ Rh ⁴⁴ Ru ⁷⁷ Ir Rhodium, Ruthenium, Iridium

	Rhodium	Ruthenium	Iridium
Reporting week	\$3,750/oz	\$250/oz	\$1,460/oz
Previous week	\$3,625/oz	\$250/oz	\$1,460/oz

Rhodium has so far shrugged off the weak car sales figures and the sell-off in palladium. This is a little surprising as both metals' major source of demand is for petrol vehicle autocatalysts, for which China is the largest market. However, a small, illiquid market and a shortage

of immediate supply have boosted prices, with the price rallying by \$125/oz over the week to \$3,750/oz.

Ruthenium and iridium prices were unchanged.

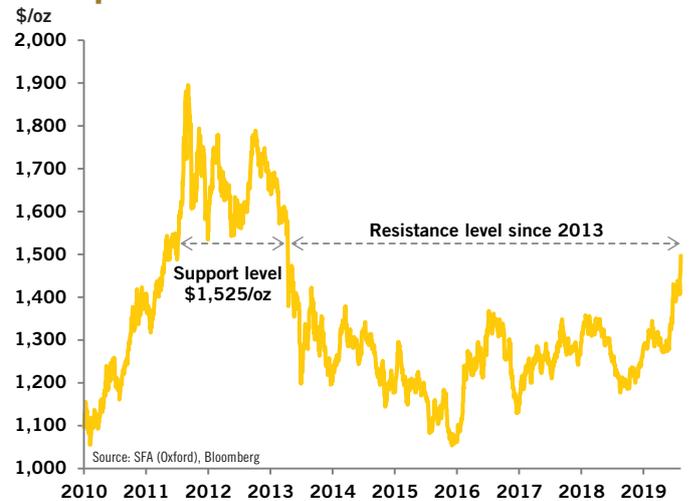


TRENDS AND INVESTMENTS

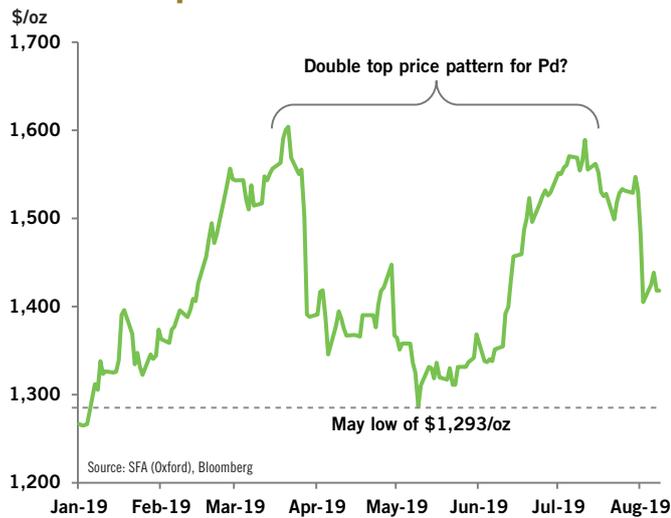
Chinese gold price



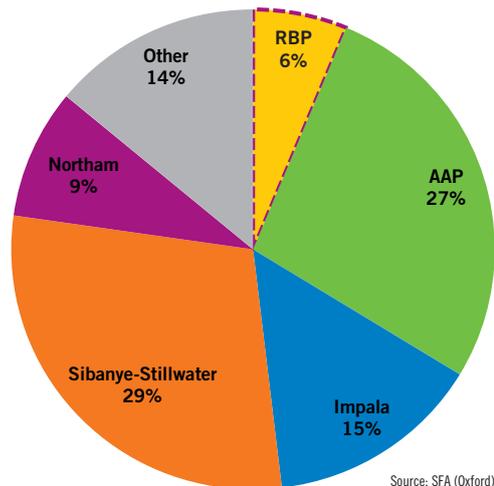
Gold price



Palladium price



South African Pt production, 2019F



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