Heraeus



11th July 2022

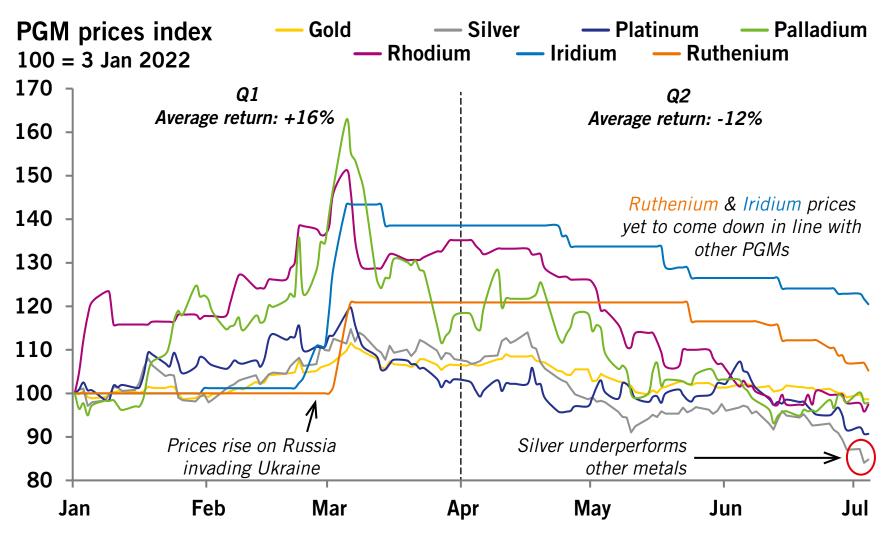
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MARKET SPOTLIGHT

Recession fears claw back commodity price gains from the first quarter of 2022

The last quarter saw the worst decline in metal prices since the 2008 financial crash. Silver was the underperformer of the precious metals, falling by more than 10% to a 23-month low of \$20.40/oz by the end of June, and is now trading below \$19.30/oz. In contrast, the iridium price performed strongest, remaining elevated after the rally following the invasion of Ukraine. The smallest precious metal by production volume finished the half at \$5,100/oz, 23% higher than in January, after dropping 14% from the March high of \$5,950/oz.

The PGMs rallied in Q1 but fell in Q2. Signs of a recovery in automotive chip supply, combined with an anticipated post-Covid rebound in auto sales, supported the palladium and rhodium prices early in the year. Adding to this support was the invasion of Ukraine in late February which sparked fears that 40% of global palladium supply could be cut off. Supply-side concerns have since given way to the threat of demand losses owing to deteriorating economic conditions, and prices have fallen.



A US recession could already be underway. The US posted negative growth in real GDP in Q1, and the Atlanta Fed's real-time GDP tracker shows a second quarter of contraction could follow – two consecutive quarters of contraction being a rule of thumb for identifying a recession. Stocks, bonds and metals are all down, with copper (a bellwether for the economy) setting its lowest close in 19 months last week, down 30% from highs in Q1. The oil price has also dipped below \$100/barrel for the first time since late April. The financial markets have posted a rare second straight quarter of negative returns in both stocks and bonds, which historically would be unlikely to continue into the third quarter.

Precious metals' prices may decline further. Metal prices took four to six months to fall from peak to trough during the 2008 downturn. Given that metal prices peaked in March, price risk is still to the downside. Supply risks are receding while a recession is more likely. Russia is still exporting metal and the potential impact from any strikes in South Africa has lessened as only one major producer-union wage deal is outstanding. Price spikes related to any further real or perceived supply shocks in the second half will likely be short lived owing to the deteriorating economic outlook and weakening demand fundamentals. Iridium and ruthenium prices have not fallen in line with the other precious metals and are still at historically high levels. This leaves them vulnerable to a larger price decline if economies slow or contract, reducing demand.

Source: SFA (Oxford), Heraeus, Bloomberg

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PRECIOUS METALS REVIEW

79 **Au**

Gold

	CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
\$/oz	1,743	-3.54%	1,812	04/07/2022	1,732	06/07/2022
€/oz	1,712	-1.37%	1,754	05/07/2022	1,703	06/07/2022

Indian gold imports may become a casualty of higher tax. In May, gold imports into India surged 822% year-on-year to 102 tonnes owing to higher sales around religious festivals and cooling of the gold price. June statistics also show elevated imports at just over 80 tonnes for the month, 3.7 times greater than the imports in June 2021. This jump in imports has increased the current account deficit of the country, prompting the government to raise the import duty on gold from 7.5% to 12.5%. The higher tax is likely to reduce demand and imports of gold in the coming months to some extent as the increased costs are passed on to price-sensitive consumers. However, the recent drop in the price will help to offset the tax increase.

Central banks continue to add to gold reserves. May was the second month in a row that central banks recorded a net increase in gold reserves after a small net reduction of 5 tonnes in March. A total of 35 tonnes was added, primarily by Turkey which added 13 tonnes to reserves in the month. Turkey has increased its gold reserves more than any other country so far in 2022, by a total of 56 tonnes. Egypt has added the second-largest amount at 44.2 tonnes, of which 44 tonnes was added in February alone. Global net purchases are down 76% year-on-year in the period January-May, from 320 tonnes in 2021. The same period in 2021 was dominated by a large one-off purchase by Japan and unusual buying by the Thai central bank. However, this year's total is still more than 50% lower than the average for the last five years (source: World Gold Council).

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Silver

47	Ag								
			CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE	
		\$/oz	19.29	-2.74%	20.20	05/07/2022	18.93	06/07/2022	
		€/oz	18.96	-0.57%	19.36	05/07/2022	18.47	06/07/2022	

Sticky prices on American Silver Eagles slow demand. Month-on-month sales from the US Mint have fallen by 36%, from 1.35 moz in May to 861 koz in June, and year-to-date sales of 10.6 moz are also down compared to the long-term average of 17.7 moz. The silver price settled at around \$19.30/oz last week after sliding for most of June. Despite this, the retail cost of American Silver Eagle coins stayed high, at around \$35/oz, representing a premium of approximately 80% on top of the spot price, which appears to be high enough to impact demand.

Over 1 billion dollars' worth of silver sold from global silver ETFs since the beginning of May. Investor sentiment for silver has been weakening with the price, as demonstrated by declining ETF holdings. Since the start of May, more than 65.6 moz has been removed from ETF holdings, 13 moz of which was on 6 July following a 5.1% drop in the silver price during the prior trading session.

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Platinum

70	Pt								
			CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE	
		\$/oz	895	1.39%	902	08/07/2022	849	06/07/2022	
		€/oz	879	-0.42%	886	08/07/2022	835	06/07/2022	

Outlook for power stability looks brighter in South Africa. Eskom and workers' unions have signed a wage agreement that will allow a more reliable power supply as workers return to work. Recently, Stage 6 blackouts have been implemented, meaning most South Africans were without power for six hours a day. Stage 6 is a level at which PGM production could be affected. This was scaled back to Stage 2 by this week, meaning less disruption to electricity supply and little risk of lost PGM output.

Platinum yet to regain its shine with investors. The second quarter of 2022 was the fourth straight quarter with a decrease in global platinum ETF holdings, matching the year-long streak of consecutive outflows from Q4'15 to Q3'16. The average price for that period was \$978/oz, compared to \$1,003/oz over the last four quarters. From Q4'15 to Q3'16, a total of 466 koz was sold, while the net platinum sales from funds since Q3'21 are 36% higher at 633 koz, leaving total global holdings at 3.3 moz. The price has broken support at \$900/oz and is vulnerable to further declines, which could also see more sales from ETFs.

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Palladium

40	Pd							
			CLOSE	WEEKLY CHANGE	HIGH	DATE	LOW	DATE
		\$/oz	2,138	8.82%	2,163	08/07/2022	1,896	05/07/2022
		€/oz	2,100	11.33%	2,119	08/07/2022	1,844	05/07/2022

Access to Stillwater mine in Montana is improving. A temporary access road is open at the site of the US's largest primary PGM-producing mine, allowing access for staff to carry out maintenance. The mine has been shut since a portion of the main road was damaged during flooding on 13 June. The mine was expected to produce approximately 500 koz of palladium in 2022 before this event, and account for 60% of Sibanye-Stillwater's North American primary production. According to Stillwater's management, the mine is due to be closed for another 2-3 weeks.

Shortage of semiconductor chips continues to plague auto manufacturers.

In the last week, North American and European vehicle factories had to cut 104,000 units from production schedules owing to chip shortages. As of May, it was estimated that a total of 2.5 million light-vehicle units would be lost by year-end, and these latest cuts increase this to at least 2.6 million. This reduction will constrain sales growth, dampening the Covid rebound in several markets, and consequently reduce forecast growth in palladium demand in autocatalysts. Although the palladium price has rebounded, the demand outlook appears to be worsening, suggesting that there may be limited upside from current levels.

New European emissions standards announcement delayed to October.

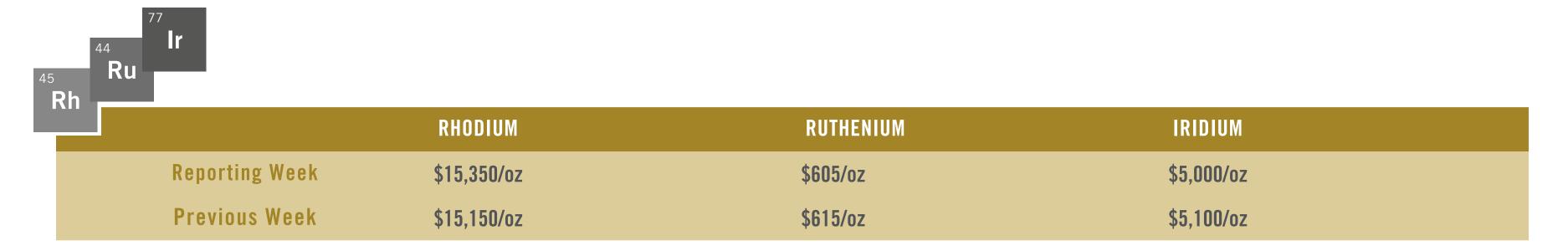
Expected initially in 2021, the Euro 7 emissions control announcement has been postponed until October 2022. The new legislation is assumed to include more stringent CO2, NOx and particulate limits for new cars. This could be achieved by increasing the amount of PGMs (primarily palladium and rhodium) in autocatalysts, and therefore could be positive for PGM demand.

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PRECIOUS METALS REVIEW

Rhodium, Ruthenium, Iridium



Green hydrogen deployment opportunities are growing in the UK. BP and BOC have completed a feasibility study into the supply and distribution of hydrogen for heavy-duty transport for the UK. Fuel cells are preferable to batteries for heavy-duty trucks due to faster refuelling and longer ranges. As the UK attempts to meet its climate goals, haulage will be important as it accounts for approximately 16% of on-road tailpipe emissions. The key for implementation of this transition will be the refuelling/charging network. Another significant demand area for green hydrogen in the near future is blending in natural gas networks for heating. Britain's gas network is aiming to replace 20% of the natural gas currently in use with hydrogen by winter 2023. If the hydrogen for this can be supplied using proton exchange membrane (PEM) electrolysis, that would help to lift iridium demand.

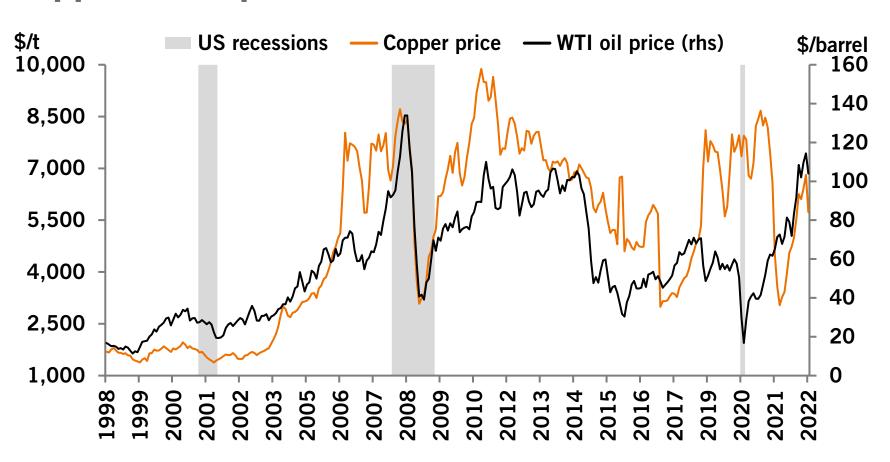
The iridium and ruthenium prices declined for a second consecutive week. Iridium was down \$100/oz (-1.9%), ruthenium fell by \$10/oz (-1.6%). Rhodium rose marginally to \$15,350/oz from \$15,150/oz (+1%).

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TRENDS AND INVESTMENTS

Copper vs oil price



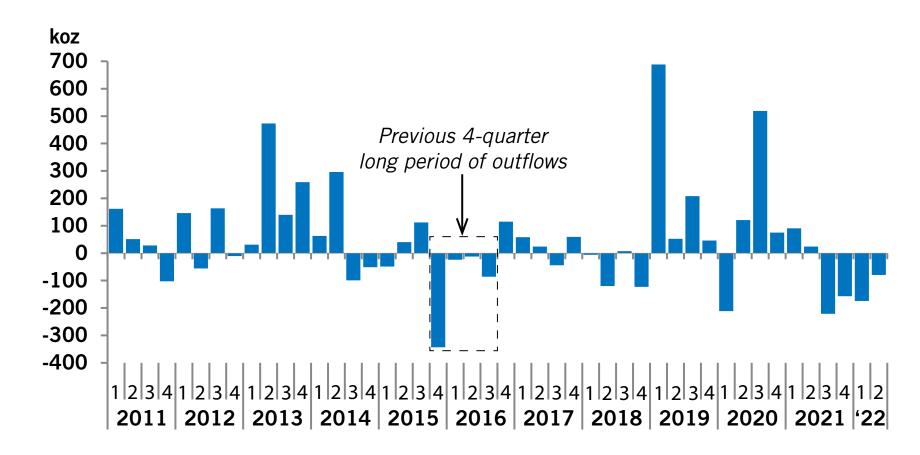
Source: SFA (Oxford), Bloomberg

Silver ETF holdings



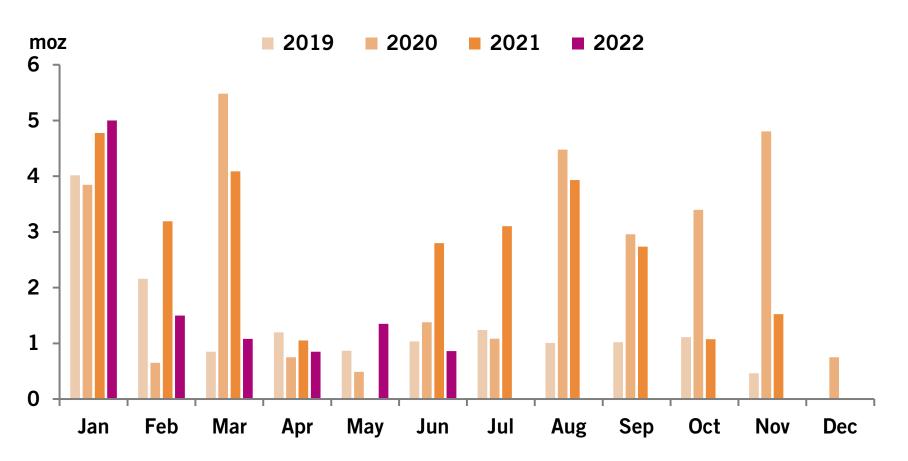
Source: SFA (Oxford), Bloomberg

Quarterly change in Pt ETF holdings



Source: SFA (Oxford), Bloomberg

Silver American Eagle sales



Source: SFA (Oxford), US Mint

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The Heraeus Precious Appraisal is produced in collaboration with:

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