



Issue 492

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Metals Focus

Precious Metals Weekly

Gold

Remains capped below \$1,930 as investors await the outcome of Fed, ECB and Bank of England meetings.

Silver

India raised the silver bullion import duty from 10.75% to 15%, and from 9.21% to 14.35% on silver doré.

Platinum

Johnson Matthey has partnered with Plug Power to build a 5GW catalyst coated membrane facility, with plans to scale this up to 10GW.

Palladium

Toyota December car sales fell by 1.7% y/y to 918k units, while their 2022 total was flat at 10.5m units.

Prospects for South African PGM Supply as the Energy Crisis Deepens

After experiencing an average growth rate of around 4% p.a. in the 1990s, South African platinum supply surpassed 4Moz for the first time around the turn of the century. Subsequently, until the advent of COVID, South African supply only once fell below 4Moz, a result of the wide-scale strikes in 2014. However, twice now in the past three years we estimate output has failed to reach 4Moz and again expect national supply to fall below that benchmark in 2023. While there are many reasons for lower output from the largest global platinum producer, at present, the country's energy crisis represents one of the greatest risks to security of supply.

Several factors are behind Eskom's (the national utility) inability to meet electricity demand, a detailed examination of which is beyond the scope of this article. However, the three major drivers are: continued failures and delays at Eskom's two newest power stations Medupi and Kusile, declining availability of the aging power generation fleet, and an extended shutdown for refuelling and maintenance at the Koeberg nuclear power plant.

The availability of Eskom's power generation fleet against its potential maximum capacity, known as the energy availability factor (EAF), has been precipitately falling in recent years, averaging just 51% thus far in 2023, against a planned 65% and down from 78% in FY2018. While Eskom's most recent system adequacy outlook, released in October, did not envisage such a low current EAF, its low scenario did anticipate declining plant performance and a worsening ability for power



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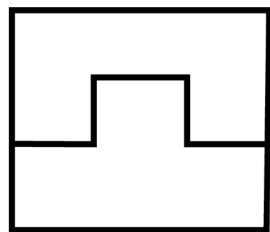
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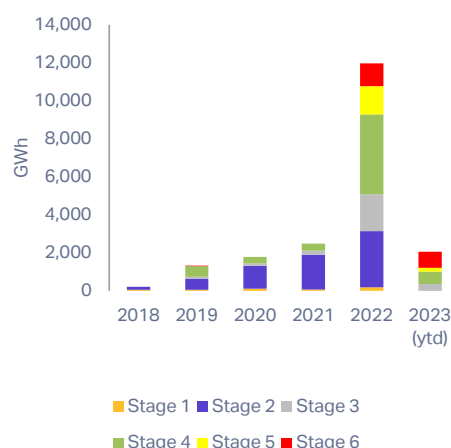


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South African Cumulative Load Shedding by Year



Sourc: EskomSePush, Eskom, Metals Focus

generation to meet demand. While the outlook is uncertain, the generation shortfall is expected to continue to deteriorate throughout 2023 and into 2024, with the potential for some recovery towards end-2024 as Kusile and Medupi are scheduled to ramp-up. Major intervention will be required to halt the forecast longer-term decline.

The energy shortfall is most visible through load shedding, a series of rolling blackouts imposed on Eskom's residential customers to prevent a total collapse of the grid. As an intensive energy user, PGM producers are not subject to load shedding. Instead, a regime of load curtailment is applied, whereby producers are required to reduce their energy demand. There is no simple comparison between announced load shedding and the impact on PGM producers. However, historically, a rule of thumb has been: Stage 1 & 2 – no impact, Stage 3 & 4 – 10% load curtailment, Stage 5 – 15%, Stage 6 – 20%. More recently however, as the situation has deteriorated, this rule of thumb would appear to be breaking down as the crisis deteriorates. There is also speculation as to the political will of continued extreme levels of residential load shedding a year out from a general election.

The actual impact on PGM supply disruption at different levels and frequencies of load curtailment is extremely variable and operation specific. PGM production is energy intensive, with the industry utilising around 12 terawatt-hours of electrical energy per annum, 6% of Eskom's total energy production. When load curtailment is enacted, PGM producers have a hierarchy of processes where energy usage can be cut, with a focus on minimizing any impact on production. Around 70% of South African PGM production is integrated, whereby a company has complete ownership of the metal throughout the value chain: mining, concentrating and smelting. Theoretically, this portion of mined output is the most protected because producers have the option to reduce electricity consumption where there is sufficient capacity to catch-up, thus limiting the impact on production. For an integrated producer at lower levels of curtailment, the energy-intensive smelter load can be reduced. While this does impact smelter throughput, in theory, any in-process inventory build can be caught-up. Higher levels of curtailment require the stoppage of other energy-intensive, low-ounce-impact processes like tailing retreatment and fine grinding mills, affecting PGM recovery. At even higher levels, concentrating and mining will be curtailed.

Non-integrated producers do not have the same flexibility of curtailing their downstream processing load and so, in principle, are more exposed. The ability to continue mining under higher levels of load curtailment is extremely operation-specific. For deep operations, with high cooling and ventilation requirements, that rely on vertical shafts for personnel transport, mining is stopped at higher levels of

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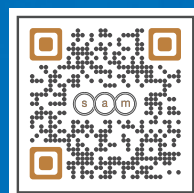
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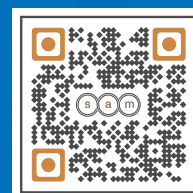
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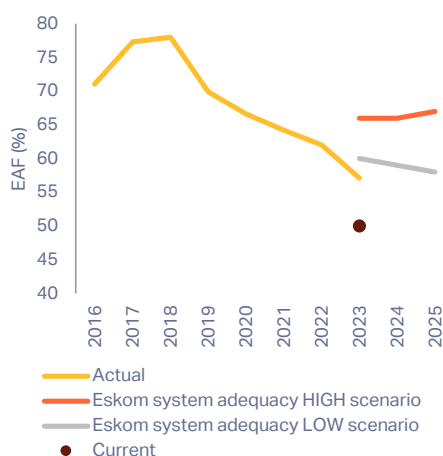


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Eskom System Adequacy Forecast



Source: Eskom, Metals Focus

load curtailment, while shallower ore bodies (accessed by decline) can continue to operate.

Reduced smelter capacity through load curtailment theoretically should only defer production. Critically, in part a consequence of increased smelter maintenance and unplanned shutdowns over the past three years, smelter capacity has been constrained, and so producers have struggled to process excess semi-finished inventory. Amplats entered 2023 with PGM 350koz of excess inventory, primarily due to the Polokwane smelter rebuild. While Eskom load curtailment provides a significant headwind in their ability to release the inventory, other factors are at play. The Polokwane smelter largely processes lower grade Mogalakwena concentrate. This higher-than-normal ratio of lower grade material will be a constraint on the ACP, which, in combination with load curtailment, means Amplats are guiding that they will be unable to process the entire backlog in 2023. Implats started FY2023 with PGM 40koz of excess inventory, as a result of the Number 4 furnace rebuild, and this volume is set to further increase due to the constrained capacity.

While Eskom load shedding represents the greatest foreseeable risk to SA supply this year, it is important to contextualize the scale of the losses in 2022. We will not have an exact number until the production reports are released over the following weeks, but we estimate Eskom load curtailment resulted in the region of 150koz of lost PGM production. This figure is dwarfed by other disruptions experienced in 2022, which totalled around PGM 0.7Moz, predominately composed of the Polokwane smelter rebuild delay, in addition to safety stoppages and community protests.

Predicting the scale of the losses in 2023 is challenging but more than likely the figure will exceed 2022 as the load curtailment increases and certain thresholds are crossed. However, integrated producers should have the greatest ability to significantly reduce power consumption while maintaining high percentages of planned ounces. The extreme risk would be realized if there is an extended processing infrastructure shutdown, as was the case in 2020 and 2022. The combination of load curtailment and producers' inability to clear excess semi-processed inventories would result in deeper deficits for platinum, palladium and rhodium than already forecast. Following the pandemic, PGM mine supply has become increasingly volatile and harder to forecast, a trend which is being amplified by the South African energy crisis.



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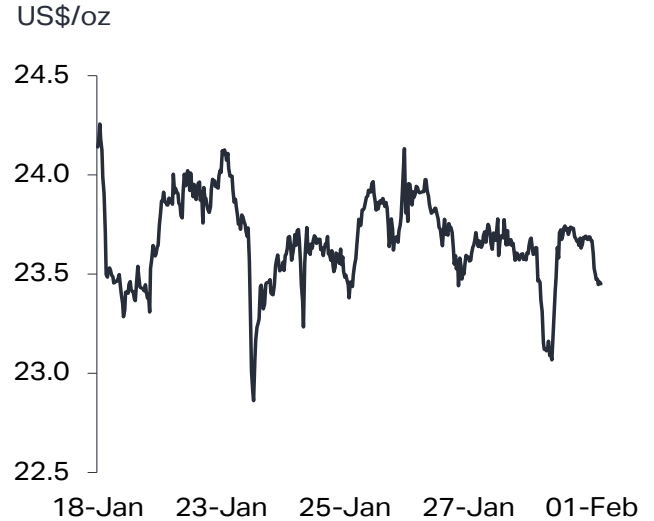
Charts - Precious Metal Prices, US\$/oz

Gold



Source: Bloomberg

Silver



Source: Bloomberg

Platinum



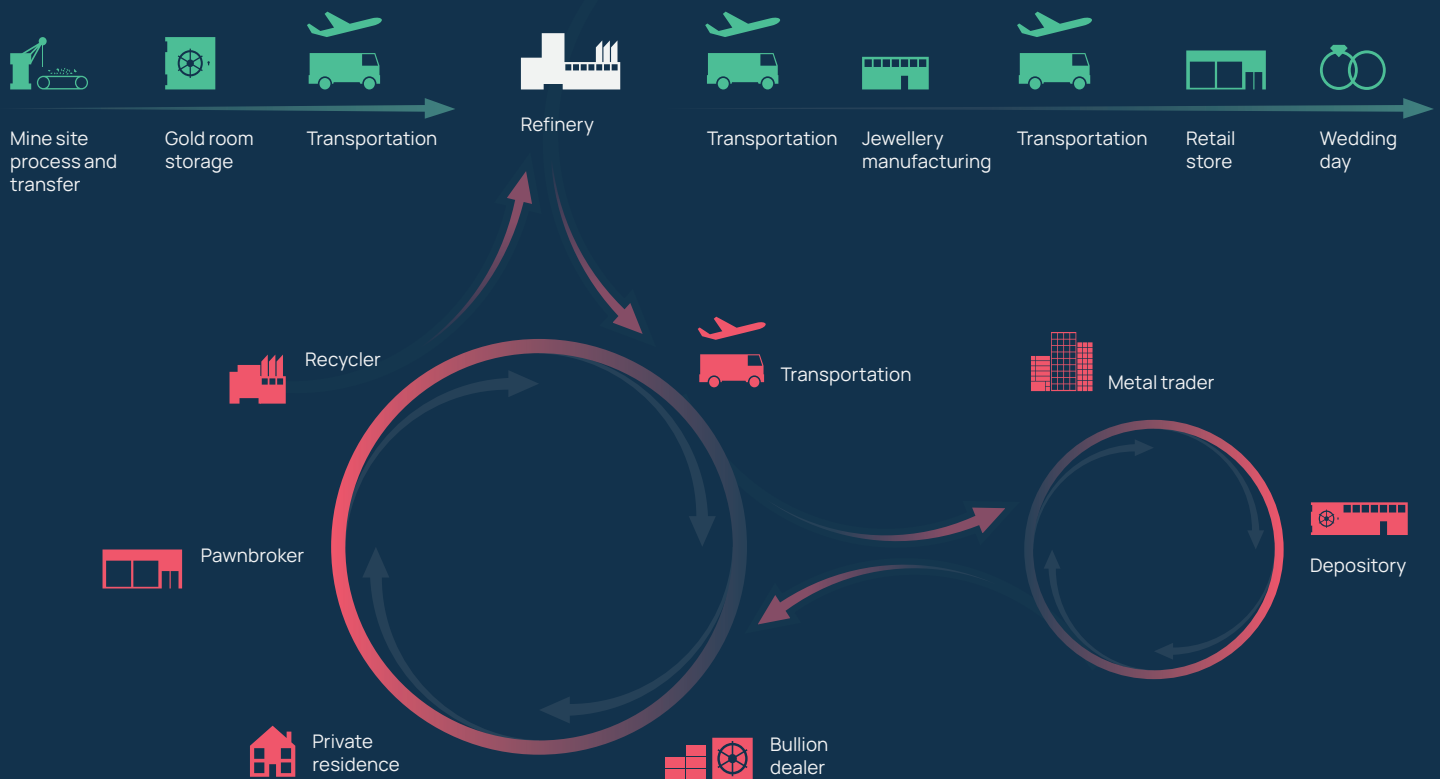
Source: Bloomberg

Palladium



Source: Bloomberg

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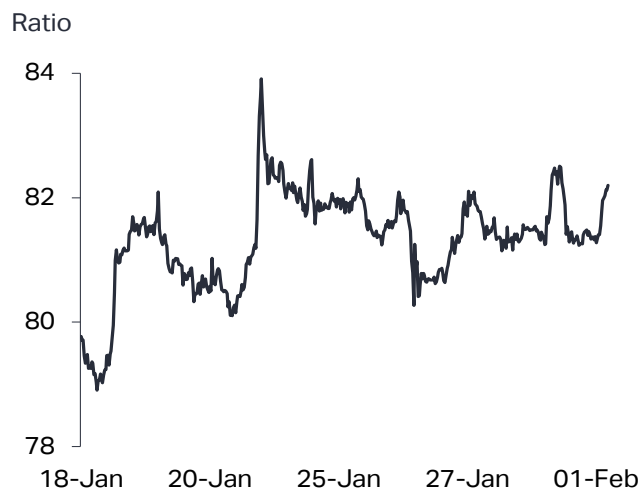
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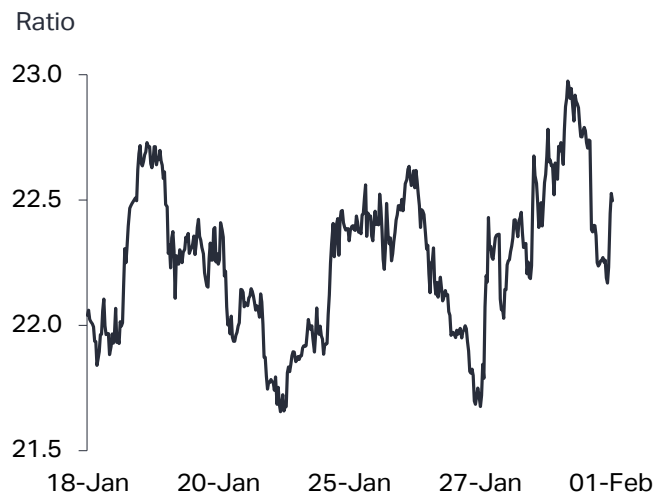
Charts - Ratios & Spreads

Gold:Silver Ratio



Source: Bloomberg

Gold:Oil (Brent) Ratio



Source: Bloomberg

Platinum-Gold Discount, US\$/oz



Source: Bloomberg

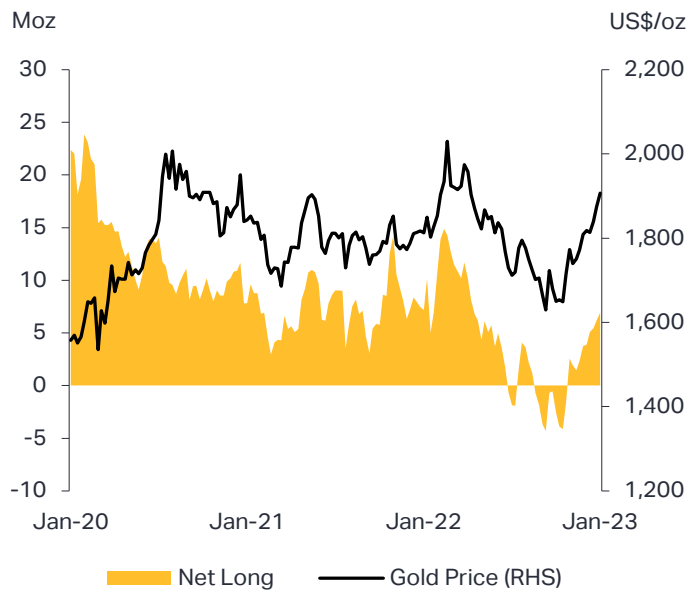
Platinum-Palladium Discount, US\$/oz



Source: Bloomberg

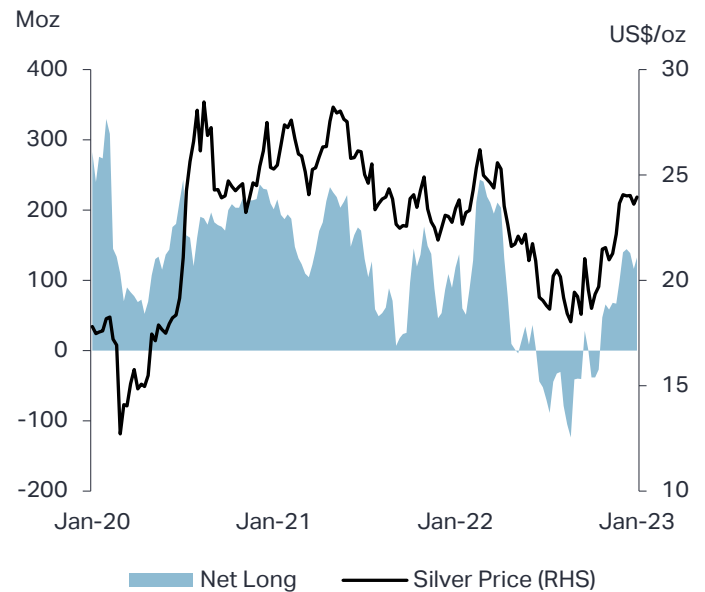
Charts - CME Futures Net Positions*

Gold



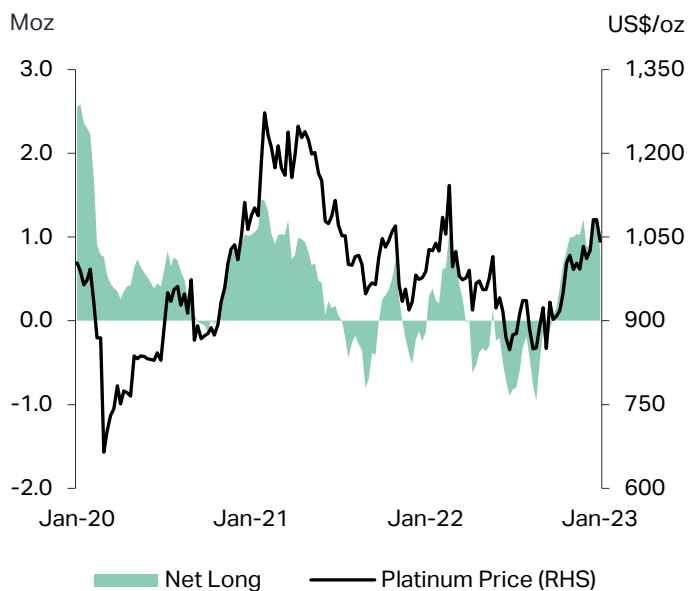
*Managed money positions; Source: Bloomberg

Silver



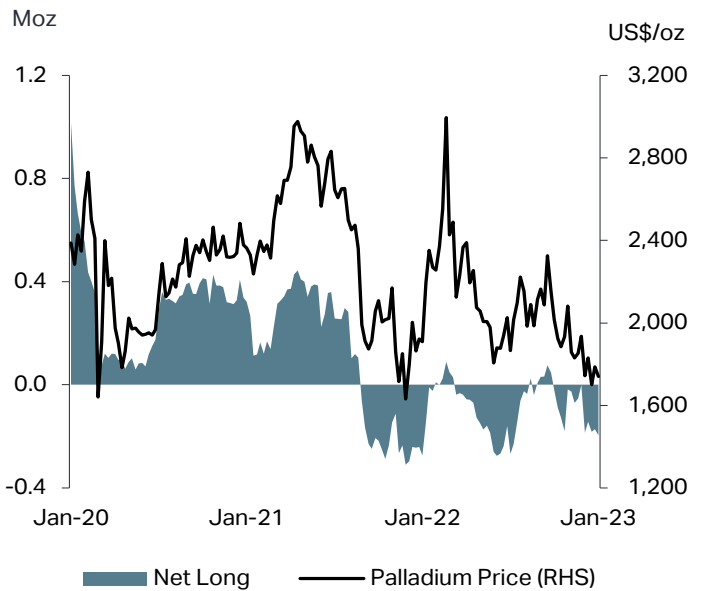
*Managed money positions; Source: Bloomberg

Platinum



*Managed money positions; Source: Bloomberg

Palladium



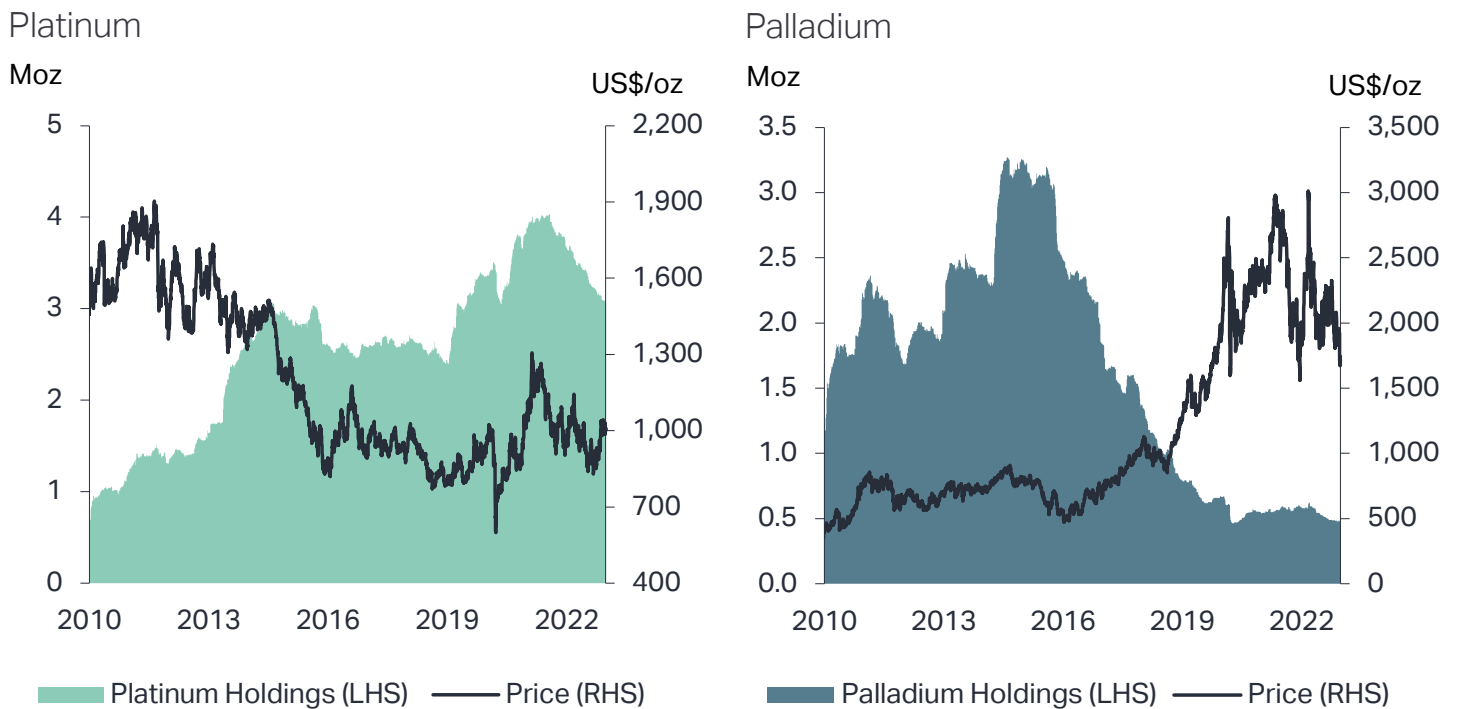
*Managed money positions; Source: Bloomberg

Charts - ETP Holdings



Source: Bloomberg

Source: Bloomberg



Source: Bloomberg

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