

Sustained recycling challenges could deepen platinum supply-demand deficits

Factors constraining autocatalyst supply suggest that challenges previously deemed short-term may be multi-year considerations. In our latest *Platinum Quarterly* ([link](#)), recycled platinum supply increases 7% year-on-year in 2024. However this is 17% below the ten-year average, and if recycling rates remain constrained projected platinum deficits from 2025-2027 could deepen by ~300 koz p.a.

Platinum recycling supply remained consistent between 2013 to 2021 (fig. 1), averaging just shy of 2 Moz p.a. The trends during that period were increasing automotive recycling offsetting declining jewellery recycling. Shrinking jewellery recycling stems from lower platinum jewellery demand resulting in fewer trade-ins (fig. 4). Increasing automotive recycling was a function of the end-of-life vehicles being scrapped having progressively higher PGM loadings due to historical tightening of emissions limits. However, since 2022, there has been a major cut to automotive recycling.

Lower scrap automotive supply was initially attributed to suppressed new vehicle production due to disruptions associated with COVID and the semiconductor shortage as a lack of new vehicles was forcing consumers to run old vehicles for longer. However, new LV production has now recovered from sub-80M units in 2020 and 2021 to almost 90M units this year (projected), and yet automotive recycling supply has continued to shrink. We ascribe lower recycling rates to three factors.

Edward Sterck
Director of Research
+44 203 696 8786
esterck@platinuminvestment.com

Wade Napier
Analyst
wnapier@platinuminvestment.com

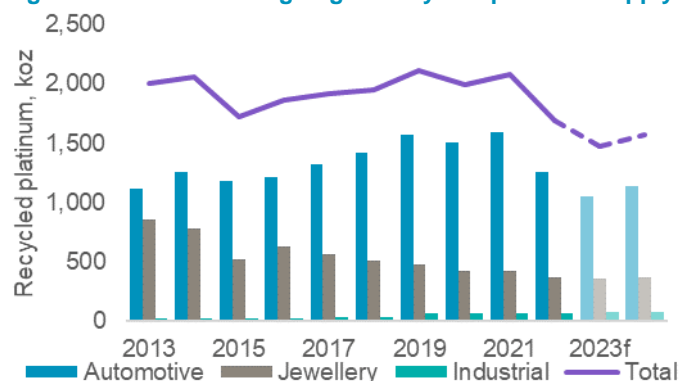
Jacob Hayhurst-Worthington
Associate Analyst
jworthington@platinuminvestment.com

Brendan Clifford
Head of Institutional Distribution
+44 203 696 8778
bclifford@platinuminvestment.com

World Platinum Investment Council
www.platinuminvestment.com
166 Piccadilly,
London, W1J 9EF

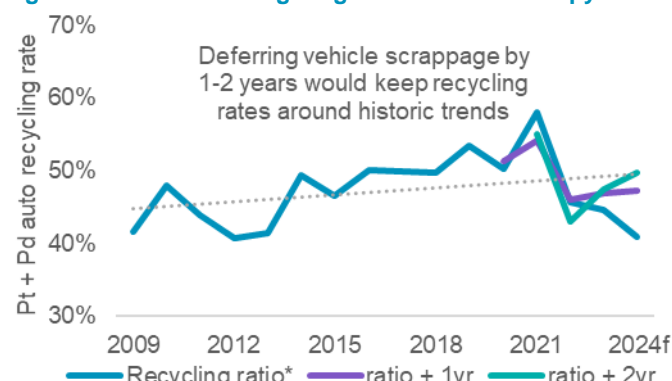
07 December 2023

Fig 1. Automotive is weighing on recycled platinum supply



Source: SFA (Oxford) 2013 to 2018, Metals Focus 2019 to 2024f, WPIC Research

Fig 2. Vehicles are taking longer to reach the scrapyards



Source: Johnson Matthey (2009-2012), SFA (Oxford) 2013-2018, Metals Focus (2019-2024f), WPIC research, *13-year lag between use and recovery

1) Lifestyle shifts with the emergence of work-from-home practices have reduced annual vehicle mileage by ~5% (fig. 7). 2) Vehicle affordability has deteriorated. WPIC estimates car repayments have increased 22% since 2020 (fig. 6) following US interest rates hikes (190bps YTD) and higher car prices (new and second-hand car prices are >20% higher than in 2020). Extended vehicle ownership defers catalysts reaching the scrapyards for recycling. PGM recycling rates as a ratio of secondary supply over historic demand have increased steadily (fig. 2) until 2022 and beyond where the ratio has sharply receded. However, if vehicle ownership is extended by one to two years due to lifestyle and affordability factors, the recycling ratio no longer materially deviates from the historic trend. 3) A 40% YTD decline in PGM basket prices (fig. 8) could defer the supply response with recyclers reportedly hoarding spent catalysts in hopes of higher prices.

The circularity of PGMs supports metal returning to the market. However, should automotive recycling rates not recover and stabilise at 2024 levels, platinum supply could be reduced by 900 koz between 2025f to 2027f. This accentuates platinum supply-side risks and market deficits. Furthermore, Palladium markets could take longer before entering surpluses.

Recycled platinum supply in 2024f is forecast to be 17% less than the ten-year average

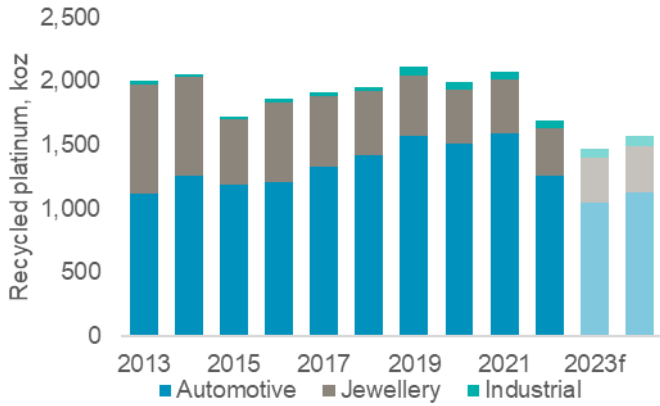
Ownership habits, the cost-of-living crisis, and possible stockpiling are restricting spent catalyst supply

Weak autocatalyst recycling is impacting platinum supply by ~300 koz p.a

Platinum's attraction as an investment asset arises from:

- WPIC research indicates the platinum market entering a period of consecutive supply deficits from 2023
- Platinum supply remains challenged, both from primary mining and secondary recycling
- Automotive platinum demand growth should continue into 2024f due principally to substitution of platinum for palladium in gasoline vehicles
- Platinum is a critical mineral in the global energy transition underpinning a key role in the hydrogen economy
- The platinum price remains historically undervalued and significantly below both gold and palladium

Figure 3: Lower end-of-life vehicle supply is suppressing secondary platinum supply between 2022 to 2024f



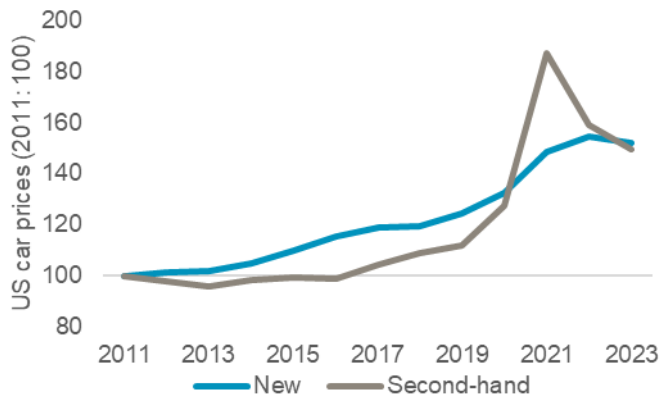
Source: SFA (Oxford) 2013 to 2018, Metals Focus 2019 to 2024f, WPIC Research

Figure 4: Platinum jewellery recycling has slowed on wider trade-in spreads and broader price depreciation



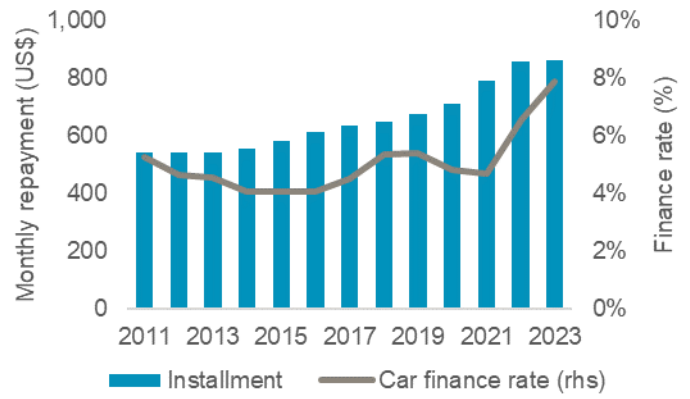
Source: SFA (Oxford) 2013 to 2018, Metals Focus 2019 to 2024f, WPIC Research

Figure 5: Despite some easing in 2023, both new and second-hand car prices are >20% higher than in 2020, both in the US and other geographies



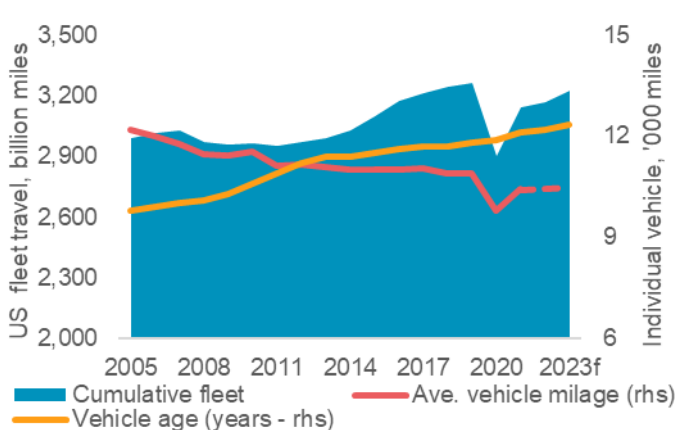
Source: Federal Reserve, Manheim, WPIC research

Figure 6: Monthly car repayments have increased by 22% since 2020 due to higher interest rates and underlying car prices



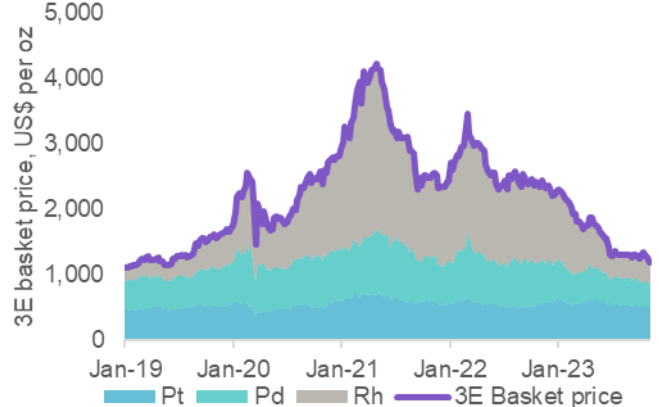
Source: Federal Reserve, Bloomberg, WPIC research

Figure 7: Vehicle age growth has accelerated with changing consumer behaviours such as work-from-home reducing annual mileage by 5%



Source: Bloomberg Intelligence, WPIC research

Figure 8: Declining palladium and rhodium prices have lower PGM basket prices ~40% YTD leading to some hoarding of catalysts for potential future price rises



Source: Bloomberg, WPIC research

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