

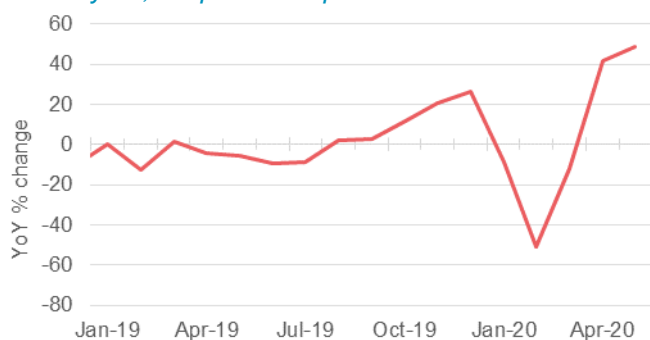
## Headline vehicle sales data masks positive platinum automotive demand trends

2020 has seen the auto sector significantly negatively impacted by COVID-19 and by the end of June global light vehicle sales had contracted 30% YoY, with European sales down 43%. Automotive demand accounts for c.40% of annual platinum demand and these headline trends negatively impacted platinum investor sentiment. **However, the aggregate data hide several positive platinum and diesel trends.**

The most visible, yet under-reported, trend over the first 5 months of the year has been the quick recovery in Chinese heavy-duty vehicle (HDV) production; 90% of which have diesel engines. COVID-19 driven factory shutdowns in China reduced HDV production in February by 51% YoY and led to auto market commentators forecasting double digit contractions for 2020. However, **cumulative Chinese HDV production from January to May 2020 is almost 8% higher than in 2019. Should HD vehicle production from June to December 2020 remain at the same level as in 2019, this together with actual sales will increase platinum demand in 2020 by between 14 koz and 85 koz**, depending on the portion of China VI emissions compliant vehicles automakers choose to produce over the remainder of the year.

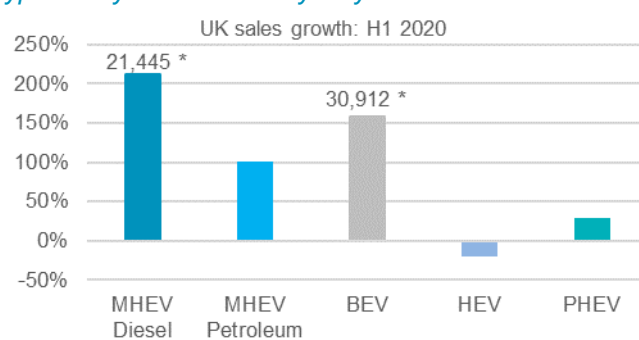
**Sales of mild-hybrid diesel cars in Europe have bucked the down trend in overall European light vehicle sales this year.** In the UK, diesel mild-hybrid sales surged by 211% YoY in H1 2020, double the rate of growth in gasoline hybrids. Similarly, in Spain H1 diesel-hybrid sales were up 44% with gasoline hybrid sales down -9%. Total hybrid sales in H1 in Germany were up by 55%, helped by German automakers such as Audi, BMW and Mercedes offering diesel-hybrids across more of their model ranges. **Growing diesel-hybrid sales have helped stabilise Europe's diesel market share at c.30% this year, with new model launches likely to reverse its downtrend in recent years.**

*Chinese Jan-May heavy-duty vehicle production is up 8% year-on-year, despite the impact of COVID-19*



Source: China Automotive Information Net, WPIC Research

*UK diesel mild-hybrid sales are growing faster than other types of hybrid and battery only vehicles in 2020*



Source: SMMT, WPIC Research. Note: \* H1 sales volumes

**COVID-19 driven disruption costs and sales losses further incentivise automakers to accelerate substitution of platinum for palladium in autocatalysts to mitigate lost profit.** Indeed, despite sales of gasoline vehicles falling more in 2020 than those of diesel vehicles, palladium's large premium to platinum increased, averaging \$1,300/oz in H1'20 (\$755/oz in H2'19). In 2018, substitution efforts focussed on the low temperature gasoline V6 and V8 engines in the US typically found in the Ford F150, Dodge Ram and similar vehicles. Annually this segment accounts for nearly 3 million vehicles. If 40% of palladium were substituted by platinum in models launched in 2019 and 2020 (c.30% of annual sales in 2020), **this would increase automotive platinum demand in 2020 by 93 koz, saving \$142 per vehicle.**

**The COVID-19 pandemic has increased the financial imperative for automakers to substitute platinum for scarce, expensive palladium which could see material substitution in 2020 rather than 2021**

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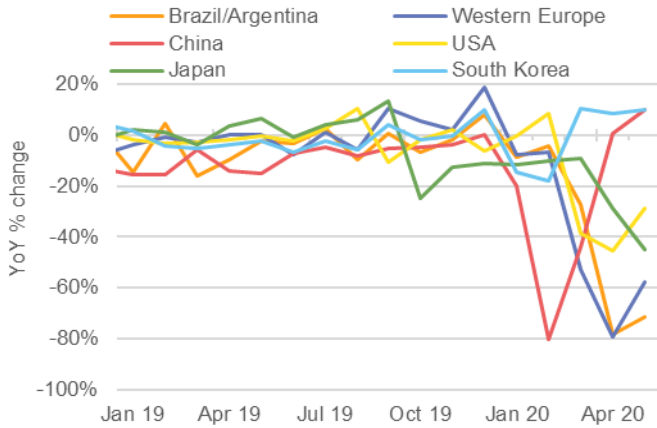
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July 2020

**Platinum's attraction as an investment asset arises from:**

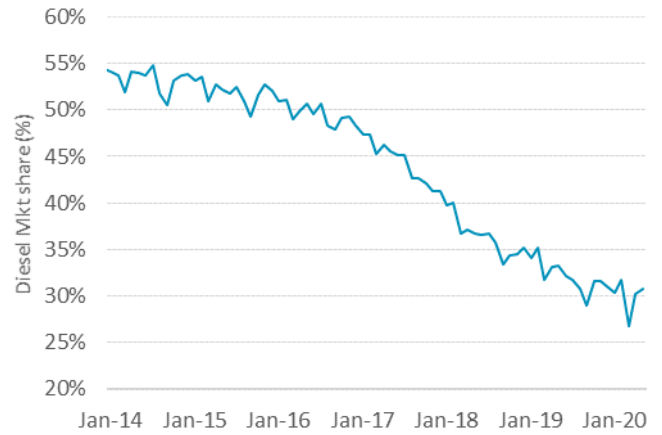
- Supply is relatively constrained with limited investment in new platinum group metal (PGM) mines
- Platinum price is near all-time lows relative to gold and at record lows relative to palladium
- Total PGM demand growth should continue due to increasingly restrictive emissions rules
- Market balance and price mismatches between palladium and platinum argues for substitution
- Investment demand has surged as institutions begin to factor low price and positive fundamental outlook

**Figure 1: Most major auto markets appear to have bottomed before or by April (YoY change in monthly sales,%)**



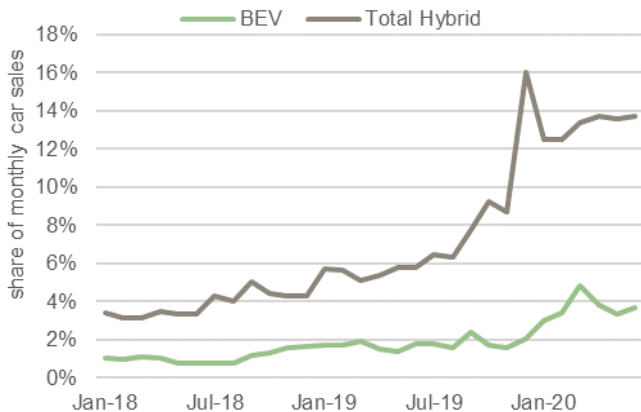
Source: LMC Automotive, WPIC Research

**Figure 2: Mild-hybrid diesel sales help stabilise Western Europe's diesel share at 30% of Light Vehicles in 2020**



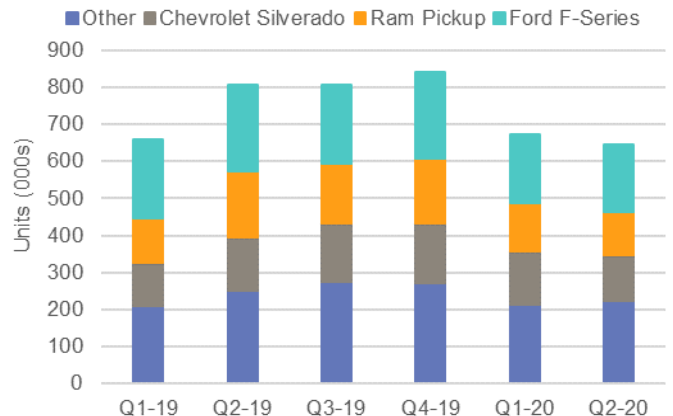
Source: LMC Automotive, WPIC Research

**Figure 3: In key European markets such as Germany, BEVs struggle to make headway compared to hybrids**



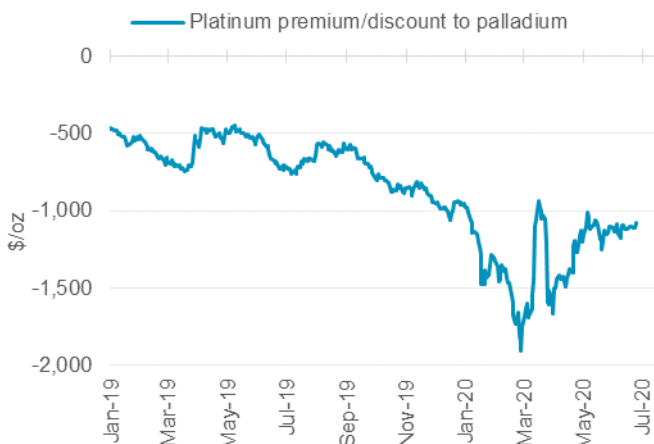
Source: KBA, WPIC Research

**Figure 4: US pickup truck sales have held up during H1-2020, down only 10% vs. total US auto sales down 24%**



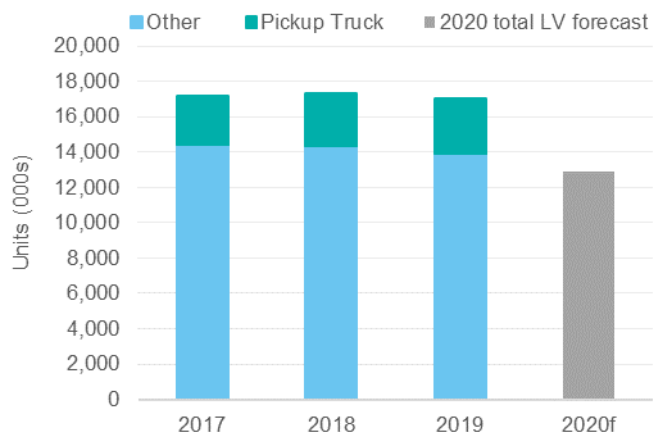
Source: CarSalesBase, GoodCarBadCAR.net, WPIC Research

**Figure 5: Platinum discount to palladium has deepened in 2020, increasing incentives for automakers to substitute Pt for Pd to bolster COVID-19 impacted margins**



Source: Bloomberg, WPIC Research

**Figure 6: Pickup trucks have typically accounted for c18% of US LV sales in recent years. However, in H1-2020, accounted for c.21% of auto sales**



Source: CarSalesBase, GoodCarBadCAR.net, Cox Automotive, WPIC Research

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