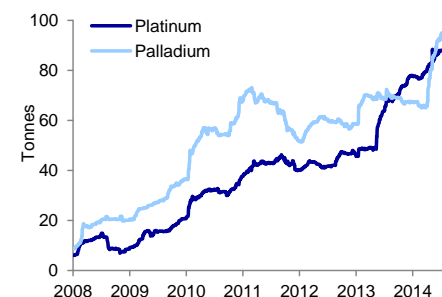




# PGMs: Rhodium The Come Back Kid

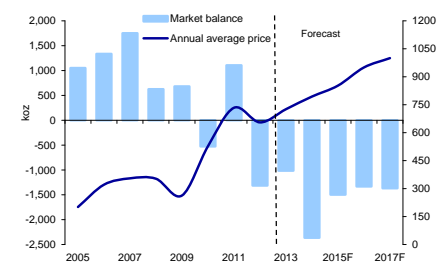
- There has been a significant divergence of performance within the precious metals complex over the past 18 months.
- On the one hand, gold and silver prices have been trading lower while on the other PGM prices have been more robust, with palladium prices hitting their highest levels since February 2001.
- Unlike parts of the energy and industrial metals complex where supply growth has been strong, production growth in the PGM sector has been weak with strike action in South Africa inflicting significant costs to the complex.
- We estimate that platinum palladium and rhodium production in South Africa will be down 29%, 37% and 26% respectively in 2014 compared to our estimates at the start of the year. Moreover, we see a permanent reduction in South African productive capacity following strike action.
- As a result, South African PGM production is unlikely to return to pre-strike levels and consequently we view market deficits in platinum, palladium and rhodium as being larger and more durable than before.
- Within the complex, we view fundamentals as strongest in palladium. However, a more constructive outlook for rhodium is also appearing.
- In terms of palladium demand, the US and China remain the dominant players. In China, PGMs will play a significant role in reducing the country's pollution problem. The combination of low car penetration compared to other more developed markets and increasing emissions standards will mean that China will be the largest single source of increased autocat demand for the PGMs.
- The increasing penetration of gasoline engines in Europe would also suggest that upside risks for palladium demand may even exist in the event of a European recovery.
- Whilst the medium term outlook for palladium remains robust, we think the risks of a price correction, greater than the "usual" USD100/oz magnitude is rising. Investor net longs are at a near-term high, and we have seen the first signs of palladium outflows of the ETF. We think the catalyst to a sharp liquidation in net longs on the Nymex and further ETF outflows could potentially be weaker-than-anticipated China vehicle sales growth, especially given the tough comps in H2.
- There is also an increasingly strong fundamental picture emerging for rhodium. Not only is rhodium the most effective of the PGM group at treating NOx emissions it is also benefiting from the rapid gains in palladium prices, which will increase the appeal of rhodium on a price comparison basis. While rhodium inventories are high currently, they are forecast to fall modestly over time and hit critically low levels by 2016.
- While rhodium ETFs have enjoyed fresh inflows, the scale of holdings relative to market size and above ground inventories is relatively low compared to the other PGMs. Consequently, we see room for more inflows into rhodium ETFs, particularly if the scale of inflows into platinum and palladium markets is a reliable guide.

Figure 1: Holdings in platinum and palladium ETFs



Source: Bloomberg Finance LP

Figure 2: Palladium market balance



Sources: Deutsche Bank, Johnson Matthey, Bloomberg Finance LP

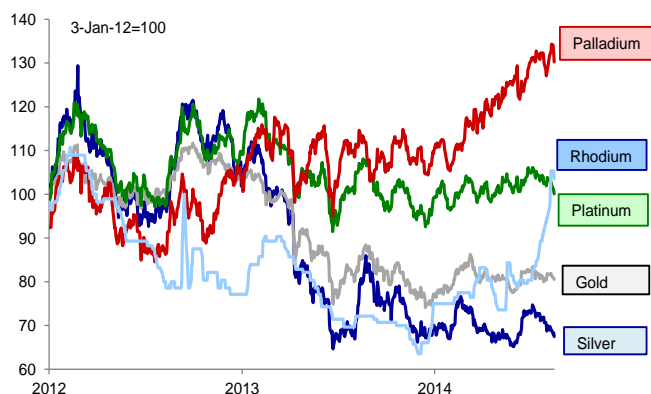


In this article, we explore prospects for the PGM sector. Unlike gold and silver which have been contaminated by their close ties to the US dollar, the S&P500 and US real interest rates, PGM prices have historically exhibited a low correlation to financial markets and instead been more focused on internal supply-demand fundamentals and investment flows. This appears to be substantiated in the relatively mixed performance across the sector over the past 18 months with gold and silver being dragged lower while the performance of the PGM sector has been more robust with palladium prices now at their highest levels since February 2001, Figure 3.

One of the distinctive features of the PGM sector versus other parts of the commodities complex is the relatively subdued production growth outlook. Figure 3 examines supply growth across a number of metals markets from 2010 to 2016. It reveals that despite modest supply growth over the next few years, production levels for platinum, palladium and rhodium will be close to or below the levels that existed at the start of the decade. In contrast, supply growth across the industrial metals complex is significantly stronger with production of aluminium, copper and lead over 20% higher by 2016 compared to 2010 levels.

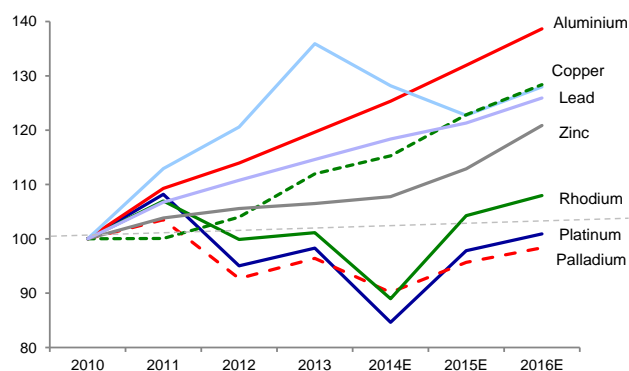
The lackluster outlook for supply growth across the PGM sector has been aggravated by strike action in South Africa. The PGM sector has significant exposure to South Africa with around 56% of world production of platinum and rhodium occurring in the country. Even though South Africa's share of palladium production is relatively low at 27%, if we include Russian production this figure rises to 62% of global supply. While an embargo on Russian commodity exports appears a low-probability event, events in Ukraine may have also have played a role in increasing market concern towards trade-related supply disruptions.

Figure 3: Precious metals performance since 2012



Sources: Deutsche Bank, Bloomberg Finance LP

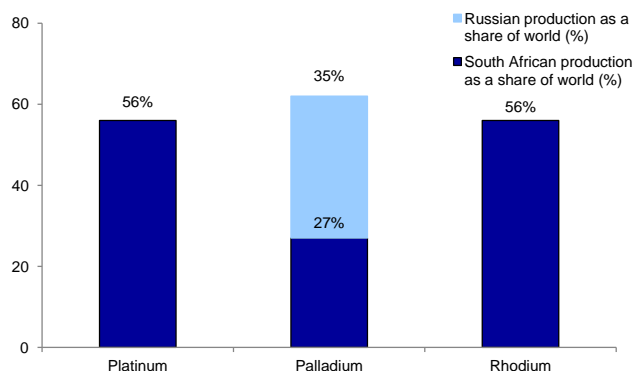
Figure 4: Supply growth across the metals sector



Sources: Deutsche Bank, Wood MacKenzie

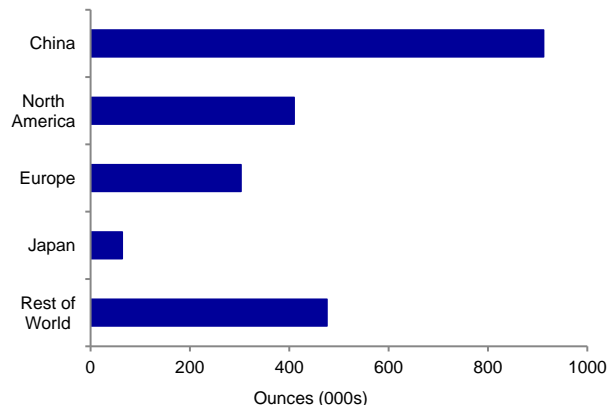


Figure 5: PGM exposure to South Africa



Sources: Deutsche Bank

Figure 6: Palladium demand growth linked to autocats by region from 2013 to 2020



Sources: Deutsche Bank, JMAT, Bloomberg Finance LP

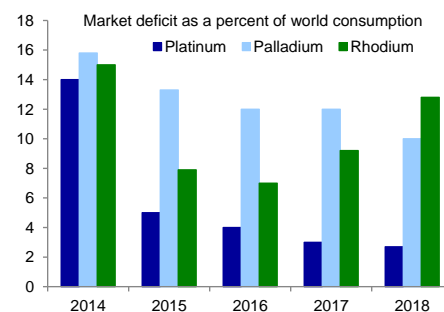
Alongside subdued supply growth, the PGM sector enjoys strong demand side trends. Indeed palladium and rhodium are closely tied to the fast growing gasoline markets of the US and China. Increased gasoline penetration in Europe will also skew upside risks to palladium demand in the event of an eventual recovery in European demand. However, of the group, China is set to be the major driver of tightening physical fundamentals across the PGM sector and specifically palladium and rhodium. This will be driven by efforts to balance the growth in car ownership with combating the country's pollution problem.

We estimate that the combination of low car penetration compared to other more developed markets and increasing emission standards will mean China will be the largest single source of increased autocat demand for palladium, rhodium and even platinum between now and the end of the decade. Figure 6 shows that between 2013 and 2020 global palladium demand growth for autocats will rise 2,166,000 ounces of which China will represent just under 1,000,000 or 44%. The equivalent figures for platinum and rhodium are 23% and 30% respectively.

While inventories are high across the PGM complex, market deficits over the coming years alongside increased ETF inflows will push inventory to consumption ratios down to critically low levels. Last month in the Commodities Quarterly report we attempted to establish which markets would experience significant inventory drawdown in response to market deficits and at what point inventories would hit levels that could trigger a more rapid appreciation in PGM prices. We showed that platinum inventories would only fall to 2007 levels by the end of the decade, but depending on ETF flows and how tightly this metal is held, the physical squeeze could occur as soon as next year. For palladium, inventories were estimated to drop to 2001 levels by 2018, but if ETF flows continued then physical tightness could start to take hold in 2016. A similar timeframe was seen for the rhodium market.

However, we find that ETF flows have been relatively modest into the rhodium market up until now. Indeed compared to market size and above ground inventories, there remains considerable room for more inflows if the platinum and palladium markets are a guide, Figure 9. Indeed the rapid price gains in palladium will increase the attractiveness of rhodium added to which rhodium is the most effective PGM at treating NOx emissions.

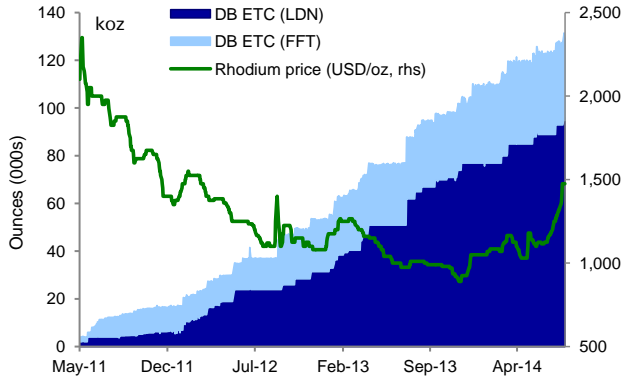
Figure 7: Market deficits relative to global demand



Sources: Deutsche Bank

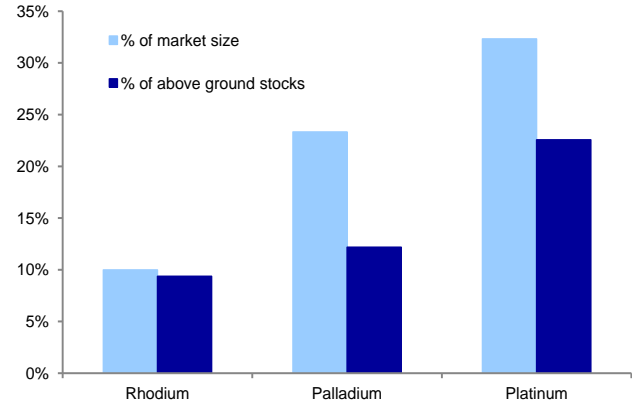


Figure 8: Steady inflows into rhodium ETFs



Sources: Deutsche Bank, JMAT, SFA Oxford, Bloomberg Finance LP

Figure 9: The size of PGM ETFs relative to market size and above ground stocks

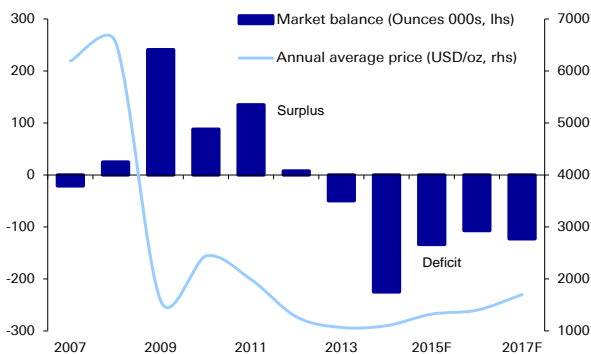


Sources: Deutsche Bank, JMAT, SFA Oxford, Bloomberg Finance LP

Short-term risks in palladium are building

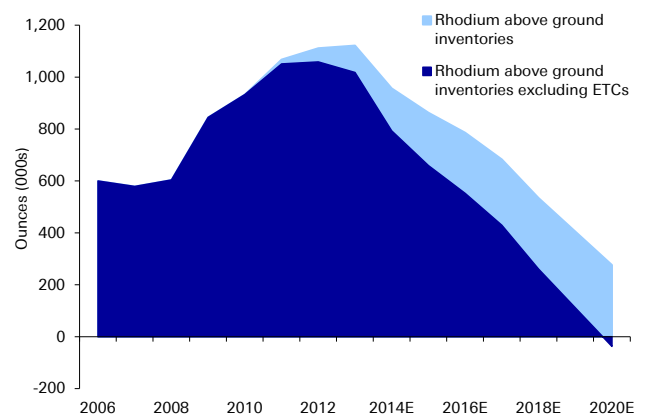
Relative positioning risks and potential portfolio adjustments may also be constructive towards rhodium but short term problematic for palladium. Indeed whilst we continue to believe in the long-term fundamentals of palladium, the market is prone to price corrections of around USD100/oz, or even USD200/oz as was the case in September 2011. Corrections of such magnitude have typically been driven by a sharp reduction in net speculative length on Nymex. Larger sell-offs, in order of USD200/oz have historically been a combination of both a reduction in speculative length and an outflows from palladium ETFs.

Figure 10: Rhodium supply-demand balance



Sources: Deutsche Bank, LMAT, SFA Oxford, Bloomberg Finance LP

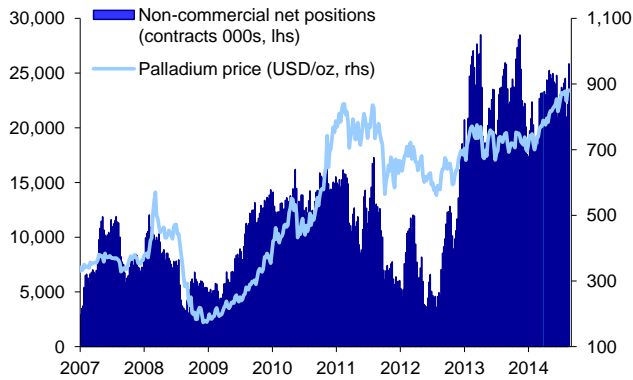
Figure 11: Autocats demand will drive the drawdown in rhodium inventories



Sources: Deutsche Bank, Thomson Reuters, GFMS

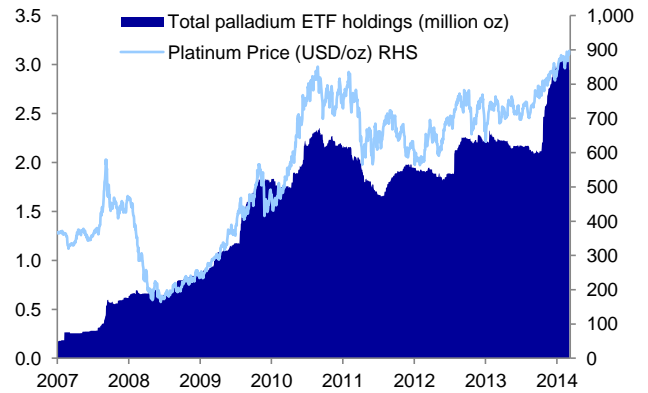


Figure 12: Non commercial net palladium positions on the Nymex



Source: Reuters, CFTC, Deutsche Bank

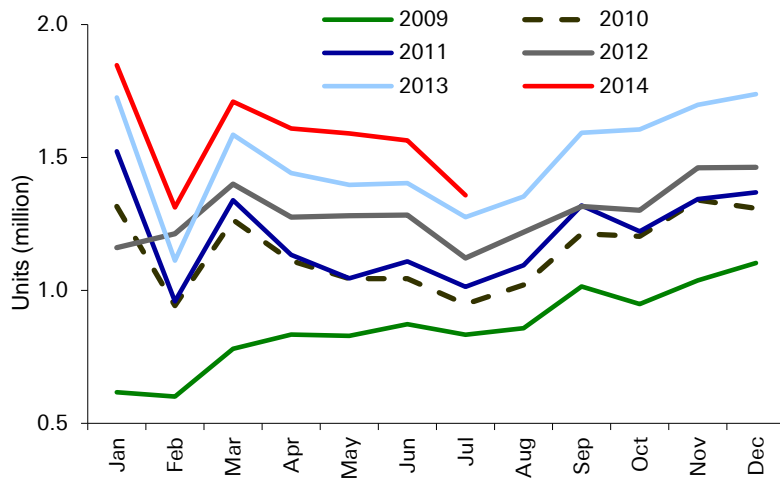
Figure 13: Total palladium ETF holdings (Moz)



Source: Bloomberg Finance LP, Deutsche Bank

One of the catalysts that precipitated the fall in palladium prices was the deceleration in Chinese auto sales in the second half of 2011, which was particularly weak on a year on year basis given strong sales figures in the same period a year earlier. Chinese auto sales have been very strong in the first half 2014, up 10.6% versus last year. Whilst we do not anticipate Chinese vehicle sales to correct sharply during the second half of this year, we are going to experience a period of tough comparisons compared to last year. Even if sales remain robust, we are likely to see only marginal growth in sales compared to 2013, Figure 14. The combination of long investor positioning, a period of strong ETF inflows and the potential of optically weaker Chinese vehicle sales raises the risk of a price correction, possibly more than the “usual” USD100/oz magnitude, is therefore a potential hazard.

Figure 14: Chinese passenger vehicle sales (monthly)



Source: CAAM, Deutsche Bank



## Conclusion

Unlike gold and silver, the PGM complex has historically displayed a low correlation to US interest rates, the S&P500 and the US dollar. We believe this will prove beneficial to this part of the precious metals complex since gold and silver are likely to have contend with a turn higher in US real interest rates and advances in the US dollar over the coming year.

More importantly, physical fundamentals across the PGM sector are set to tighten further over coming years as supply growth in South Africa disappoints, and as the fast growing car markets in China and the US provide strong demand outlook for autocats in both markets. We expect this will be particularly beneficial to palladium and rhodium where we see market deficits persisting for longer.

Inflows into PGM ETFs also provide the potential to tighten physical fundamentals still further. Indeed on our assumptions inventories for platinum, palladium and rhodium are set to hit critically low levels from as early as next year and into 2016. Of the group, we would view rhodium as underpriced and where ETF holdings are small when measured versus market size and versus above ground inventories.

Figure 15: DB precious metal price forecasts

	2013	2014	2015	2016	2017	Expected %age change from current spot to 2017
Gold	1413	1258	1163	1150	1125	-13%
Silver	24	20	20	19	19	-4%
Platinum	1487	1467	1575	1650	1750	22%
Palladium	726	793	853	950	1000	11%
Rhodium	1067	1102	1325	1400	1700	28%

Source: Deutsche Bank (Forecasts published on 2 July 2014 in the Commodities Quarterly report)

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# Appendix 1

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