

PGM annual outlook

Platinum was the precious metals underperformer in 2018 down 15%, while Palladium and Rhodium strongly outperformed all metals and most macro assets driven by palladiums +15% and rhodium's +43% annual gains. Palladium stole the show overtaking the price of Gold in December 18 marking a year in which PGMs generally garnered more attention than Gold & Silver. Rhodium peaked at \$2600 and palladium at \$1270 (despite 2H'18 growth slowdown fears and a slaughtering in other industrial metals), overall solidifying that the 'auto bid' is alive and well driven by catalyst technological changes implemented years ago that seem divorced from the production ratio.

Please see recent full fundamental update on both Platinum ([here](#)) and Palladium ([here](#)) in 2018. 2019 outlooks on Platinum on page 3, on palladium on page 4. Pricing tables on page 2; some takeaways below:

- 2018 was the year US politics, tariffs and threat of specifically targeting the auto industry helped trigger dislocations *across* PGM pricing (e.g.: historical palladium-platinum premium) and *within* PGMs (e.g.: steep palladium backwardation). That's because since 2015, automakers are required to meet increasingly complex regulatory requirements "by any means necessary" and will front-load metal requirements for fear of supply-chains being potentially disrupted due to trade wars/concerns/tariffs.
- Investors shouldn't shoulder *all* the blame for palladiums rise as paper positioning is 50% less than peak positioning.
- The costs of simply hedging equal parts (1:1:1) Platinum:Palladium:Rhodium is \$4500, only 25% above the 20 year average price and still 63% below peak basket PGM prices seen in 2008, arguing (from this perspective), that price pain isn't quite here to induce thrifting and substitution away from palladium toward platinum.
- There's been a notable ability for producer-related selling to cap any potential out sized price spikes in front month Palladium flat prices (given the dislocations in physical forward markets, flat prices should've been more erratic), but they haven't been able to control the Palladium forward curve
- Structurally, palladium should continue to outperform platinum unless both US and Chinese auto sales really crater (i.e.: double digit annualized growth rates). Tactically however, there will be opportunities to play:
 - Platinum from the long side (favorable risk-reward on generalist 'overflow' from rising gold prices, potential sustained Fed pause which'll unlock EM growth outperformance in time, potential for relatively cheap under owned assets to perform, thawing sentiment on increasing substitution talk, S.A strike & political risk)
 - Palladium from the short-side as downside risks grow from a *sentiment* perspective given the expected slowdown in US growth (peak auto sales and peak \$ behind us), slower than expected Chinese growth (closer to 6 than 6.5%), and sustainably lower macro risk assets. The palladium curve should remain in a structural backwardation with deficits forecasted out the next few years despite the view that front month lease rates should unwind some, not all of their 2018 price spikes.

CONTACTS

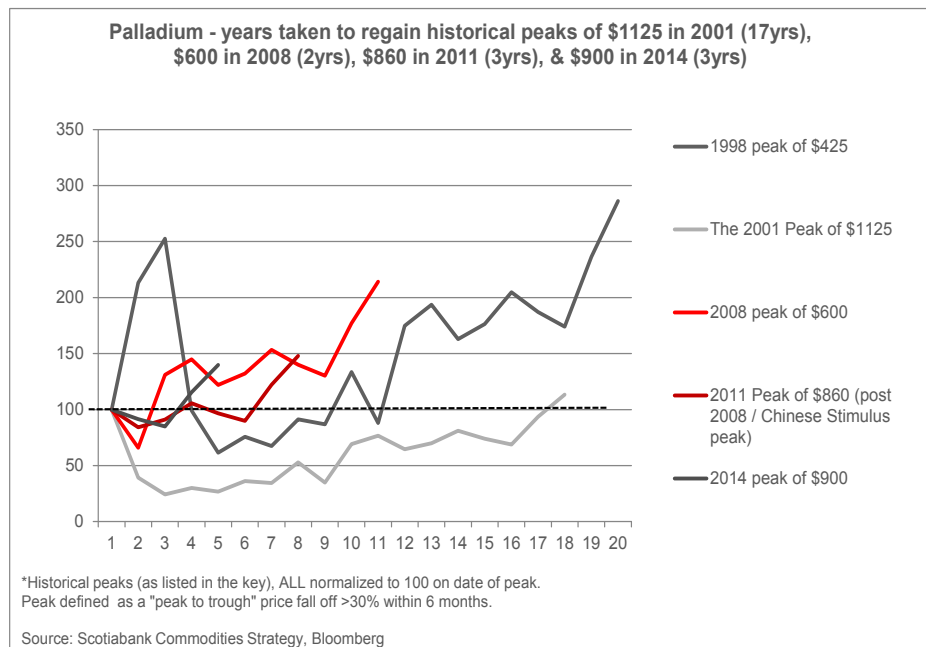
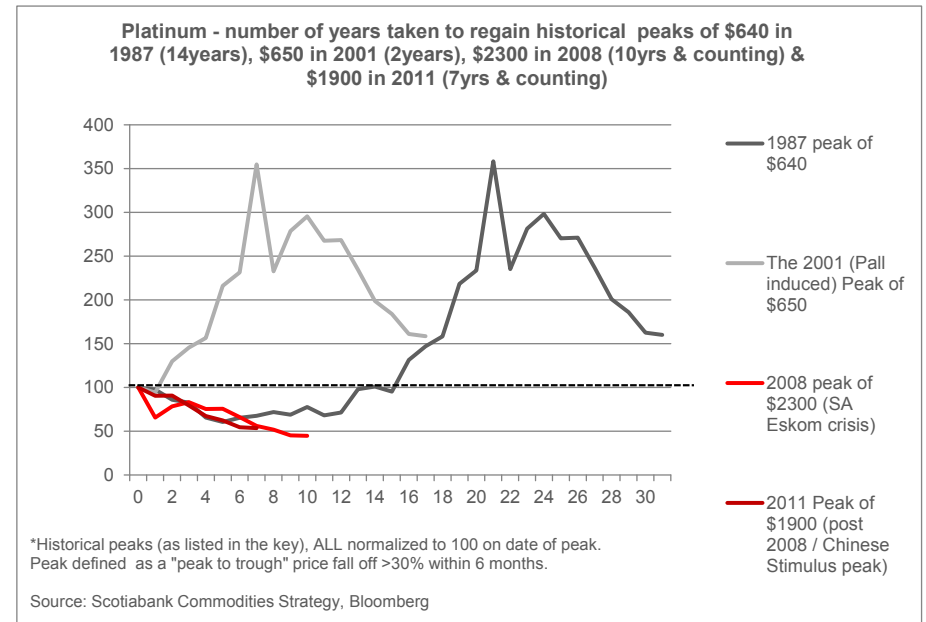
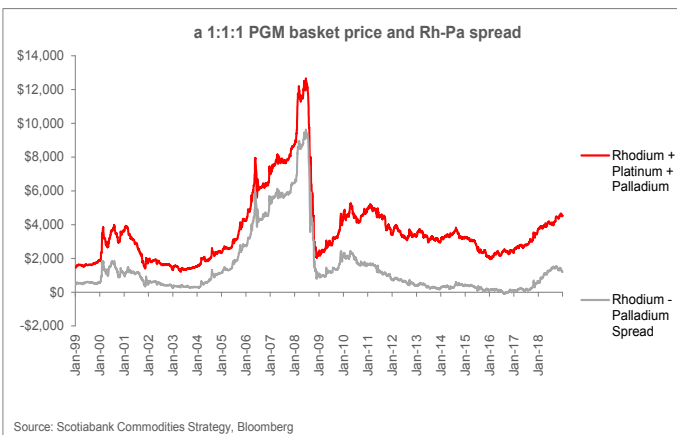
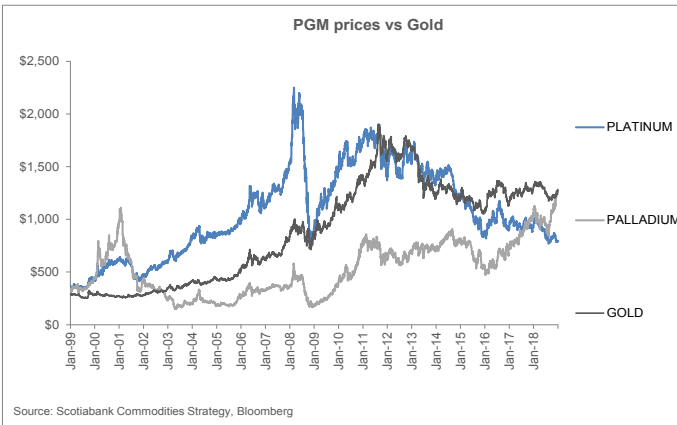
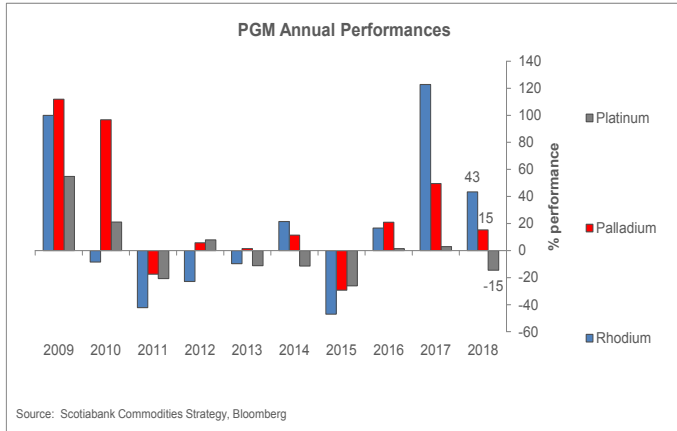
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Platinum

Summary of factors driving 2018 platinum weakness:

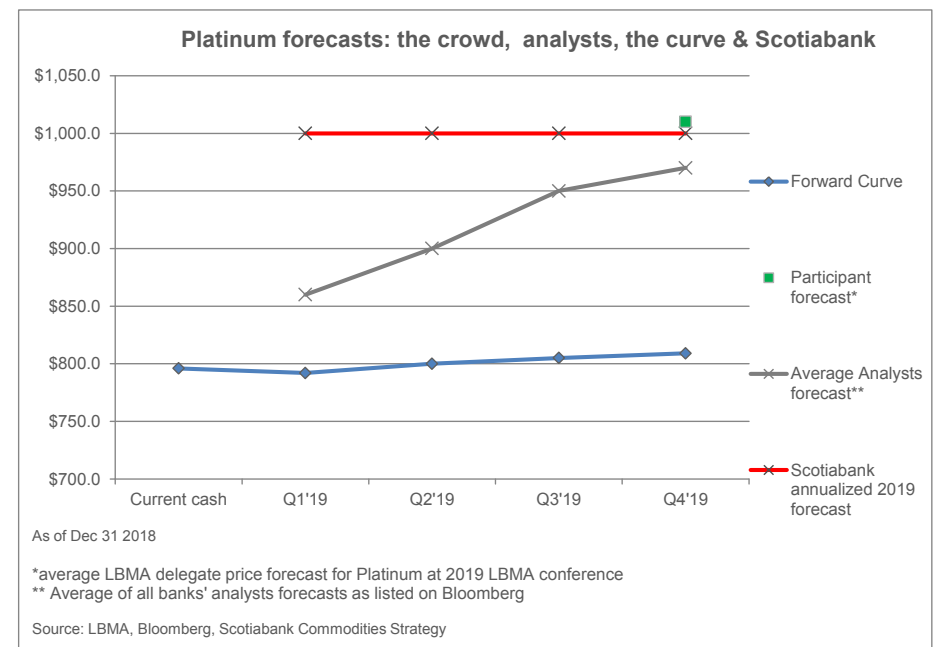
- Falling diesel market share in Europe (to ~35% in 2018 from 45% in 2017) and weak Chinese jewelry demand due to weakened consumer sentiment
- Lack of investor participation, lack of a convincing story, but more importantly investor liquidation *and* fresh shorts as the \$ dominates suppressed prices; paper and ETFs together liquidated 530k oz in 2018, its worst annual outflow
- ZAR depreciation and byproduct (Palladium & Rhodium) outperformance cushion SA producer margins and delays expected and warranted production cuts
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Outlook for 2019:

- SA primary supply should remain flat—to lower in 2019, with downside risks (in supply estimates) stemming from any notable post-merger volume restructuring from LMI/SGL and if AMCU (or post election-related) strikes crop up.
- Given relatively subdued platinum prices and the absence of diesel scrap-page schemes, recycling supply in 2019 should be a non-factor (flat)
- Jewelry demand from China should continue to trend lower impacted by trade war uncertainty, the fact that platinum is cheaper than Gold (its lost its lux appeal) and generally lower Chinese GDP. This loss should more than offset the bright spot of Indian jewelry demand, one which is coming off a low base
- European regulations confused the auto market and subsequent data (auto sales & loadings) in 2018. However, with the adoption of RDE (Real Driving Emissions) tests, Euro6 and a shift in consumer preferences globally (not only in the US) to SUVs/crossovers, more stringent regulations & higher loadings are expected in 2020-21. Substitution (toward Platinum, away from palladium) will happen (and quietly) in time, and sentiment should thaw before that
- HDD demand has been solid (Chinese & US truck sales) and together with fuel cells, the attention they've attracted is enough to show off peak-bearish platinum sentiment is behind us, despite their combined small market share.
- Platinum should remain in a structural surplus in 2019 around 500K oz. However, the steep discount to both gold (-\$500) and palladium (-\$470) and extreme investor exodus argues that higher prices in 2019 is fair.

Platinum prices, on an annual basis, have underperformed Gold since 2013, and palladium since 2012, and have remained historically low and dormant for 7 years and counting since its last cyclical peak, as foundations are formed.

Platinum should average \$1000 in 2019, which is above most analysts forecasts and the street. This is a fairer price given expected buoyant Gold prices (Plat-Gold spread to be closer to -\$200 not -\$500 as the market searches for depressed real assets on a lower \$), supply-side risks, and as peak bearish sentiment is behind us as focus switches from lack of supply discipline to hopes of substitution. Contrarian trades (bullish unloved short trades like Platinum and bearish consensus longs) is an investment theme that started in Q4'18 and is gaining momentum; Platinum is simply 'high-beta gold' that has opportunistic risk-reward profile on any upside data/growth surprises. Platinum won't enter a next bullrun but it should reset higher reflective of its peers prices



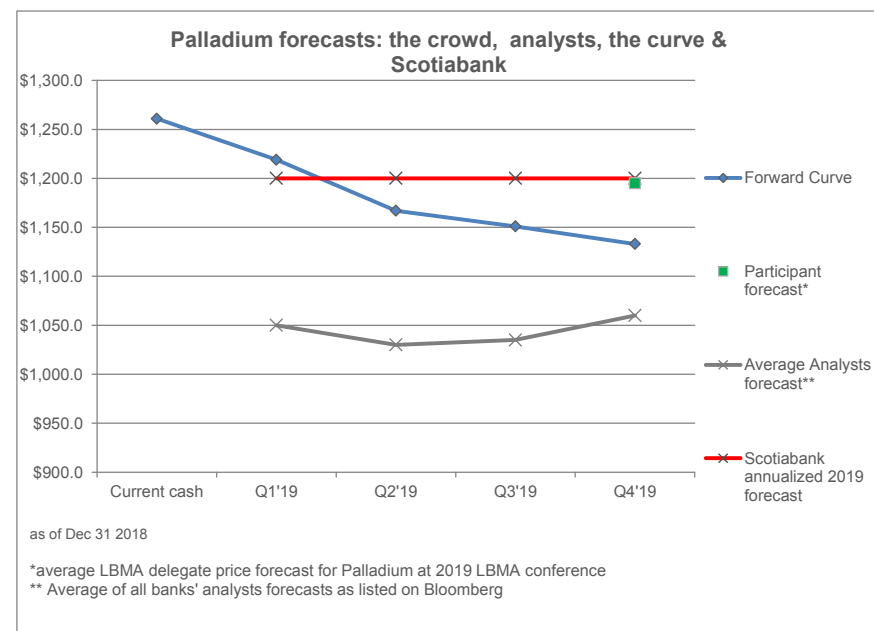
Summary of factors driving 2018 palladium strength:

- Demand from overall gasoline markets is still growing due largely to tighter environmental regulations (China 5 standards), strong EM sales growth (India & Asian countries), and diesels loss (in Western Europe)
- Market acceptance that Electric Vehicles are not an immediate threat, as gasoline hybrids (which contain PGMs, but are palladium-rich) are the key conduit and expected to be a dominant part of EV mix in the medium term
- 2018 supply-side bottlenecks plagued the market due to work-in-progress material at South African smelters, Norilsk reconfiguring feed at its Harjavalta smelter and bottlenecks in the US secondary (recycling) supply chains (as they dealt with the threat of diesel autocatalysts)

Outlook for 2019:

- China and US growth and subsequently auto demand take center stage again in 2019. With peak US auto sales fears put to rest in 2018 given vehicle sales grew at a total of 17.1mn units last year (their second highest year on record), these bearish palladium bets were not wrong, just early. As the US expansion cools and higher rates pass through to consumer spending & sentiment, Scotiabank Economics expects US vehicles to fall sub 17mn units (first time since 2014) in 2019, leading to flat-to-lower Palladium demand in 2019.
- With the ongoing trade war negatively impacting Chinese consumer sentiment AND a cyclical slowdown in overall growth, total Chinese vehicle sales in 2018 were down 1.7%. However given the sharp slowdown in 2h'18, and the authorities pledge to increase fiscal support, to keep 2019 growth "within a reasonable range", and to cut taxes more aggressively in 2019, the combination of 1) looser credit, 2) a potential auto tax cut, 3) a real seriousness about pollution reduction and a shift to tighter emission regulations (China 6a and China 6b from 2020), 4) expanding fabrication lead times (given the uncertainty around global supply chains due to protectionist policies), Palladium demand should remain robust in 2019 (and not necessarily led by stronger China auto sales).
- Russia and South African supply should remain largely flat in 2019 (with downside strike risks possible) with N.A adding ~80K oz and only material additional supply growth to emerge in 2020 (Norilsk's South Cluster, SAs Northern limb)
- The substitution threat (favoring higher platinum & lower palladium) should be slow, phased in and not overnight as 1) autos aren't too concerned with longerterm availability given supply expansions are palladium-rich, 2) the focus for auto R&D is on adopting EVs and they'll "do whatever it takes" to meet increasingly complex regulatory requirements post-dieselgate, 3) rising, but not historically higher PGM basket prices

Palladiums bullrun arguably began in the beginning of 2016 and is the longest in history (at 36 months, its longer than the 2008-2011 and 1998-2001 bullrun). Unlike platinum prices, palladium has remained historically high and volatile with large dislocations *within* its market (between sponge, forward rates, cash and futures prices). 2019 should be more of the same— higher price floors on average (Palladium averaged \$1030 in 2018 and should average \$1200 in 2019), a persistently structurally backwardated market with episodes of extreme tightness and volatility in front month lease/forward rates, especially during periods of unresolved trade disputes. However, there's a wide margin of error on forecasts as large risks lurk in the form of 1) a large sustained fall in either Chinese or US auto sales on the back of higher interest rates and/or trade war and growth concerns impacting consumer confidence, 2) faster than expected shift in auto substitution away from palladium, 3) quicker industrial (lease) demand destruction which could send recycled material into overdrive, 4) risk of hitting liquidity potholes given the major risk-off shifts in macro markets (recall SPX was very correlated to Pall strength pre-summer 2018), recent lack of visible market liquidity in major asset classes (SPX moves in Dec'18; JPY on Jan 3 '19) and historically (in 2001 Palladium collapsed \$300 in 1 month)



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