Metals Strategy: Platinum Week wrap-up

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Platinum Week in a picture:

This tube poster sums up the dominant theme behind most conversations at platinum week – theres a serious commitment from the top to decarbonize (in Londons case, with various emission zones) – and PGMs want to be a part of the cleaning up the publics air.

Platinum Week wrapped up last week, with record attendees* descending on Oxford and London for the opportunity to network amongst an increasingly expanding number of industry-sponsored events and presentations. The below is a review of the week from several perspective; it is NOT a summary of every presentation or seminar (there were ~20!), but please reach out if there are questions around any topic, theme or presentation referenced.

The majority of presentation topics were centered around neat, new and interesting uses for platinum in both the short-term and long-term as well as informing industry participants on the convergence of two critical demand sensitive drivers - emission legislation and autocatalyst technology. That's a far cry from a decade ago where the focus sat squarely on the supply-side (mine safety, skills, supply costs, recycling etc.), given PGM prices were at the low-end of the cycle.

Key PGM themes that gained traction

Emission regulations: becoming stricter and more complicated, faster than technology changes: the war on pollution theme thread itself through all conversations, as participants become familiar with the emission standards targets/timetable which will impact all autocatalyst technologies depending on the region, legislation & required targets. The key takeaway is that while traditionally regulators focused on reducing emissions by tightening limits (where expected PGM loadings could be fairly well 'accounted' for), **regulators are now tightening the restrictions on *how* vehicles are tested** (e.g.: RDE testing), while vehicles also need to comply with broad CO2 tightening standards (IPCCs 1.5% target). For example, even if emissions standards are not changed, more PGMs are still required in order for vehicles to 'pass' increasingly tougher tests. The rules of the game has changed from the top, in an auto industry that is has not yet emerged from the 2015 demand and brand shock (diesel demand share is still falling), which ultimately further complicates the debate on whether autos / OEMS are substituting and changing the catalyst mix

Key PGM themes that gained traction

- **EVs: friend or foe?** Theres an acceptance that the decision between “us” (traditional ICE engines containing PGMs) vs “them” (Electric Vehicles with no catalyst) is overly simplified; there will be a mix of fuel uses, in which EVs are likely to dominate in areas notable for short distances, Hybrids & Plug-in Hybrids more widely used, with FCEVs dominating the medium to long-range distances. EVs has been the new kid on the block driven by Teslas image, but cracks are emerging this year with China dialing back their commitment (by cutting subsidies), while autos (Toyota) are ramping up their commitment to hybrids as the most cost effective and practical way to meet new legislation. Overall, there is a sense that **R&D will target hybridization at least until the EV inflection point (2025), that EV targets are simply too aggressive, and the EV industry is still suffering from a structural chicken/egg problem** (does investment into the grid & charging stations come first, *then* the investment into making vehicles affordable, or vice versa). Surprisingly, the combined threat of a trade/ cold war and a potential imminent recession, wasn't discussed in detail. The new trade normal certainly fosters a protectionist stance in which R&D and technological developments are unlikely to be shared, which from a big picture perspective, limits EV progression. Similarly, the debate of the effects of a recession on decarbonizing the global economy is also interesting – emission ambitions either get dialed back and fall down the priority list OR it a palatable and publically acceptable (green) project which fiscal and/or monetary response can target.

- **Substitution – occurring, but does it really matter in the short-term:** The idea of end-users switching toward Platinum was a large central theme and one which dictated overall market conversation arguably since Palladium overtook Platinum prices. It is incrementally occurring and likely in North America (PD-rich diesel catalysts) and China, but less so in Europe (who have been contending with the effect of regulations / testing such as WLTP & RDE). However, the **question should be just how much demand is switching and if this is more than enough to offset the decline in jewelry demand AND the increase in SA supply. Current Platinum price action (flat price, forward curve and sponge) suggests any recent incremental switching is very small.** While the $500 Palladium premium to platinum was a well-cited “trigger level” at PT Week for substitution, this is oversimplified as that price level will need to be *sustained* and there are many considerations that are factored in by the OEM before any business case is made (namely: 1. Price difference, 2. Supply security and availability, 3. Adherence to emission regulations). Tighter regulations (3) is the dominant hurdle for substitution and given that the catalyst structure is increasingly more complex, this makes any technical changes extremely challenging and costly. That's in addition to the other limiting factor – Platinum is not stable >1000degrees so it struggles with the life of the auto, while Palladium does better.

- **Supply response – what do producers chose**: the focus centered on the immediate supply response via scrap recycling, and the longer-term one around expanding (primary) Palladium-rich ore bodies. The increasingly accepted view is that refineries are operating close to capacity limits (thus are more selective with the materials they accept creating bottlenecks/longer lead times for this lower grade/contaminated scrap); US scrap recycling is not the savior the market is/was looking for. On the flipside, the more important theme that should've been debated further is **that Palladiums deficit is platinums structural supply impediment; spending more to crank up PGM production (since Palladium cannot be mined in isolation) and capitalize on record palladium prices just leaves expands platinums surplus even more**, even if only Palladium-rich ore bodies are targeted. Producers choices – which metal to favor, or save – in time will be clearer.

- **Platinum jewelry overhang – the scape goat:** fixing the Chinese jewelry market (since 2012, 1m oz of Platinum jewelry demand has been lost) has been an accepted necessity, since it has offset almost all the solid work done in industrial growth and higher loadings. Interesting, its not as simple as getting the price above gold and driving home the idea that Platinum is a giffen good; PGIs analysis shows Platinum has still retained it brand as a premium product (the consumer is not aware of the actual price, and thus Platinums strong brand equity, established years ago, reduces price sensitivity). The funding of jewelry initiatives (which has fallen down the priority list for producers) seemed to be the easy scape goat for structurally shrinking demand, but further studies probably should be done on the correlation between marketing campaigns/ budgets and Chinese Platinum demand, especially given generational shifts in buying trends and very different global growth rates now vs 10years ago; **Platinum is widely known as the party metal, and global growth is not at partying levels.**

- **Platinum Investor demand – the savior:** the resounding focus of strong investor inflows (ETF have accumulated almost 700K oz in Q1'19) and the subsequent bullish spin that market derived from that was exaggerated. All S&D reports that factored in investment demand played up the fact that Platinum has now swung into a deficit. Yes, on paper it has. Unfortunately there was little discussion behind the lack of price reaction when Platinum investors accumulated 70% (in 3months) of what jewelry lost (in 5years) – a $50 price rally is a sad underperformance and that in of itself should be respected. We have always argued that these "inflows" is not fresh buying and that metal has simply shifted from (unknown) off-exchange inventories, to (known) on-exchange inventories. To frame it another way, the market argued that Palladium ETF outflows recently supported the notion of a deficit (metals shifted to where it was needed drawn in by premiums); thus Platinum ETF inflows supports the notion of a large surplus. Overall, either the buying is not real or there are more above stocks than most forecast.

- **Overall sentiment: participants were tentatively positive**, which is best earmarked by the Rand PGM Basket (the 4E Rand Basket price hit R20K earlier in 2019 but has since retraced). The precious industry is very familiar with false starts in both short-term prices and cycles, and given the fact that SA producers were in "'panic" mode for almost the past decade, a Rand basket rally for 3+ months implies they are only in the early stages of the recovery (not yet a "picnic"). So with theres a sense of cautious optimism amongst producers, while end-users are increasingly being compelled to be alert and adaptable (where possible); overall there more focus on the PGM sector relative to any other precious metal (and vs previous years) which is never a bad thing.

<u>The Market & S&D Outlook: our views:</u>
Please see summary in table below of all S&D outlooks presented at Platinum week

Platinum

- **Balances: the "market consensus"** (i.e.: the average of all balances, excluding investment demand) **is Platinum's surplus is expected to grow by 370K oz (67%) in 2019, to >900K oz.**

- **Most constructive takeaway: Heavy Duty Diesel** (this was perhaps underappreciated; as one lowers and decarbonize Light Vehicles, the big boys (busses, trucks) need to follow suit and meet the series of more stringent and more complex emission regulations)

- **Most unconstructive takeaway: the reliance of the industry on strong investor** inflows as a key driver to flip the balance into a deficit. If prices had really rallied, then further questions are not warranted, but it didn't, so there should be a caution around the shifting of metal on/off exchange and the reliance on this.

- The intention of most presentations was **to 'Make Platinum Great Again'** (more so than in the past) given the focus on very large investment demand in the short-term (ETF inflows of 700K oz), the increase in loadings with modern diesel in the medium term (HDD growth in Europe; Jaguar is investing in 2020-21 compliant vehicles now), new & interesting uses (using 3d printing in casting Platinum) and longer-term growth areas (Platinums use in chemotherapy, Fuel Cells). Tactical investors still favor platinum as the preferred risk-reward trade versus Palladium, and they're not wrong. **However in an environment where data (above ground stocks, S&D balances) is questionable and platinum remains a macro (gold-correlated) asset, price action (sponge, forward curve) and flows (trade data) are better indicators of any discernable substitution.**

- The Platinum negatives discussed include the reduction in strike risk (after Sibanye Gold wage negotiation resolution) in the short-term, and the (unknown) level of above ground stocks which continues to be a a real (and sentiment) overhang in the medium term. Jewelry demand (almost accepted to be in structural decline?) and the trickiness of Platinums performance in high temperatures which impacts / limits its use in both jewelry and certain autocatalysts systems, was well noted.

Palladium:

- **Balances: the “market consensus” (i.e.: the average of balances, excluding investment demand) for Palladiums deficit is expected remain roughly the same in 2019, at 840K oz**.
- **Most constructive takeaway:** the market will remain in structural deficit for the foreseeable medium term due to the complexity of catalyst technologies and emission regulations; obviously barring a cratering in auto sales and/or a recession.
- **Most unconstructive takeaway:** the lack of discussion around manufacturers WIP inventories ahead of ahead of vehicle production in the face of slowing global sales.
- There weren’t many presentations geared directly to Palladium; **the market seemed content that prices will be contained around current levels, with some near-term downside risk, but overall it should remain in a structural deficit, volatile and ‘in vogue’ for years to come**. Some key structural drivers of Palladium should continue to keep prices in a broad $1250-$1450 range, all else equal on the macro front. The WIP material from SA has largely worked its way through to the market, which removes further short-term headwinds. The fact that industrial users consumption trends can switch *within* Palladium (from leasing to purchasing) but not to alternative metals suggest theres limited substitution occurring, while auto / OEMs are hamstrung and in a “do whatever it takes” mode to meet (current and future) emission regulations. Any price rises arguably have been somewhat maintained by some degree of unknown stocks (whether that’s unknown Soviet-era stocks that have been relocated from Swiss & UK vaults, or manufacturers WIP inventories).

Rhodium

- **Rhodium was very topical throughout the week, largely deemed the canary in the coalmine into auto buying trends across the other PGMs**.
- The lack of a substitute for its use in reducing NOx emissions and it relative technical supremacy (Rhodium is ~6x more efficient than PD in an autocat system) ensures auto demand should hit double digit growth in 2019 according to JM, which would offset any thrifting in the industrial sector (highlighting how responsive these participants have become in contrast to Palladium ones).
- Rhodium balances are, however, quite puzzling in light of 2018 price action (an average 40K oz surplus yet Rhodium was the best performing metal up 50% in 2018). So while SA supply is the swing factor looking ahead, a mild surplus shouldn’t frighten a “well-respected” market that is still relatively cheap vs Palladium and vs historical levels.

The attendees (graph 1)

- **If the SFA lectures is any indication (and it usually is, since it is not complimentary) of overall Platinum Week attendance, there were a record 140 attendees over in Oxford for the 2 day event, with multiples more likely at Platinum Week**.

- Producers represented the largest share of participants at almost 30%, which is not surprising given the rise in the Rand PGM Basket and topical structural issues such as catalyst changes in a decarbonizing world being critical factors for the long-term outlook of their industry.

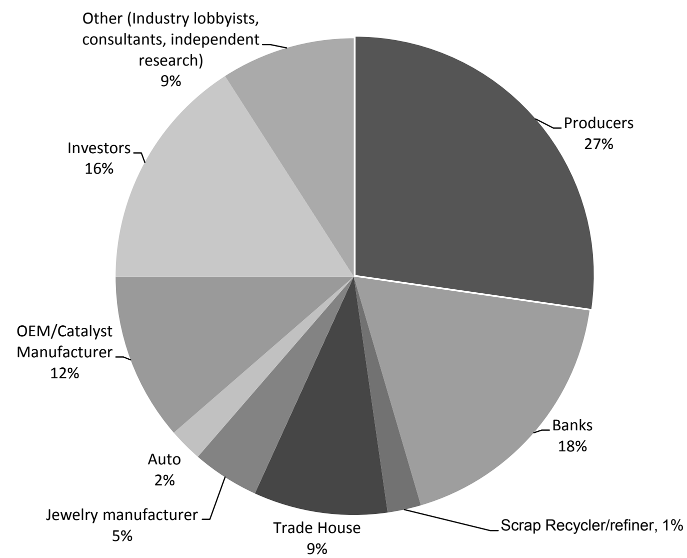
- There was limited attendance by automakers, representing only 1%, despite the conversation of substitution toward Platinum being driven by SFAs lecture topic "Time for Adoption", which continued with the LPPM Seminar ("Low Emissions with Modern Diesel cars", "Air Pollution Drivers for change"). **However, this underrepresentation was more than offset by a large presence from the OEMs (at 12%).**

- **Investors represented 16% which is interesting** since it far outweighs the investor participation at the LBMA (Gold) conference in Boston at 2%. Tactical investor participation in the form of ETF inflows (in Q1'19) was a centerpiece of all presentations and in S&D balances; longer-term/strategic investment participants are perhaps intrigued and interested in target/M&A opportunities given the demand cycle turn (technology and legislation changes) in the face of underinvestment supply gaps. PGMs are one of the few commodities shifting through a cycle turn and structural shift in demand profiles, and these occur only every couple of years.

The Format: Events, presentations and panels:

- Traditionally, the week was mostly centered around 1-on-1 individual meetings, but increasingly now, there are more events dedicated to both open and restricted informational panels, seminars & presentations which are well attended. The focus is now on content, education and the sharing of information and differing views as the landscape continues to evolve from the JM/Anglo de-coupling. There is a more obvious shift recently with producers taking their marketing, content and market analysis in house (Sibanye-Stillwaters purchase of SFA, the shift of sell side research analysts to producers) highlighting that despite the democratization of information, S&D balances and views, there still seems to a be distrust of the numbers/data.

Breakdown of company type at Platinum Week



*Number of firms at SFA Lectures/Conference as a rough (but smaller) indication of the market share of each industry group at Platinum Week. This is not an exact representation of the number of delegates.

Source: SFA Oxford, Scotiabank Commodities Strategy

SUMMARY OF INDUSTRY 2018-2019 SUPPLY/DEMAND BALANCES					
	MARKET BALANCE, K OZ			Short-term price Forecast*	Comment
PLATINUM	**2018**	**2019**	**2020**		
WPIC	670	375			Surplus in 2019 to shrink to 375K oz. (from 670K oz.) owing to strong investment demand (the ~700k oz. of ETF inflows) that more than offsets softer demand in the automotive and jewelry segments. Above ground stocks at 4.1m oz.
WPIC, ex investment demand	685	1160			
SFA	685	1185		$825	Additional supply from SA (due to the processing of WIP concentrate built up in 2018 due to smelter rebuilds and new builds) may cut short the Q1 price rally, and prices likely to trade back to $800 in 2019
Metals Focus	349	630		$875	Above-ground stocks to continue rising to 9.7m oz. by 2019 year-end, compared to 6.9m oz. at the start of this decade, as another surplus (almost double 2018s surplus) is expected; that's primarily driven by strong gains in SA mine output with several demand losses in key sectors.
Metals Focus, ex physical investment demand	738	962			
JM	372	-127			The swing into a deficit in 2019 is also due to a resurgence in investor activity outweighing modest falls in industrial and jewelry demand; stricter HDD emissions legislation enforced in China and India could drive a tentative recovery in auto demand. Expensive palladium prices could boost platinum use in diesel catalysts, but substitution in gasoline applications is more challenging.
JM, ex investment demand	439	731			
Nornickel*	300	-200	50		A slight platinum surplus will remain, however, if high demand from investors continues, the market will be close to balance or even a deficit. Real demand still lags supply but that is already reflected in the price and upside risk is rising especially as the auto industry & lobbying institutions intensify efforts to recover the image of diesel for both consumers and authorities.
Nornickel*, ex investment demand	400	600			
BASF	343	855			
Average of ADJUSTED Balances (excluding investment demand):	**548**	**916**			

Reports:
[WPIC_ Platinum_Quarterly_Q1_2019]
[Nornickel May 2019 report]
[JM PGM report May 2019]

Notes:
1. See Johnson Mattheys Full report with a special feature on Emission Regulation from page 14
2. "Proactive steps to boost Platinum demand", Benny Oeyen, Anglo American
3. "Why should the automotive market switch back to Platinum", Dr. Matthias Dorn, BASF
4. "Keeping Platinum Jewelry an aspiration for new customers worldwide", Tim Schlick, Platinum Guild International
5. "A view from Southern Africa", Emma Townsend, Implats
6. Most presentations (Heraeus's "Setting the Agenda for the year ahead" presented by SFA; Metals Focus Release) highlighted investment demand and many included them in their end S&D balances
7. "Platinum for the Long-haul: its evolving role in Heavy Duty Vehicles" Alex Woodrow, KGP
8. "The Platinum Standard 2019" Beresford Clarke, SFA
9. "Casting a wider net: from aerospace technology to platinum jewelry", Teresa Frye, TechForm Advanced Casting Technology
10. "Platinums growing role in the fight against cancer", Federic Buhler, Heraeus Deutschland GmbH
11. JMs report touched on this saying "we consider autocatalyst demand to occur at the time of vehicle production, because the precise timing of physical metal acquisition is not easy to determine. During periods of sharply rising loadings – as is the case in Europe and China at present – there may be significant increases in manufacturers' work-in-progress inventories of PGM ahead of vehicle production."

PALLADIUM	2018	2019	2020	Short-term price Forecast*	Comment
SFA	-830	-385		$1,325	Price rally is expected to take a pause in 2019 with limited price upside in the next 6 months as there is some slack in the market driven from increased SA supply (as indicated by loosening lease rates). However, ongoing structural deficits and tightening emission regulations (especially in China), suggest a rally after that.
Metals Focus	-821	-574		$1,490	Stocks have fallen and expected to draw to 12.9m oz. by yearend (vs 17.7m oz. at the end of 2010) as auto-catalyst demand will rise by 3.6% in 2019 to a record high of 8.6m oz. driven by tighter emissions standards that require higher loadings for most regions, as well as an increased market share for gasoline vehicles in Europe
Metals Focus, ex physical investment demand	-827	-565			
JM	-121	-809			Deficit to widen dramatically in 2019 (demand up 9%!) with stricter emissions legislation forecast to trigger a step change in Chinese auto demand which will more than offset the rising recoveries from autocatalyst scrap, while primary shipments are expected to be flat.
JM, ex investment demand	-695	-1119			
Nornickel	-600	-700	-900		Smaller 2019 deficit than previous report (worse than expected auto production), but 2020 deficit to swell due to tightening emissions regulations
BASF	-1314	-1426			
Average of ADJUSTED Balances (excluding investment demand):	**-853**	**-839**			

RHODIUM	2018	2019	2020	Short-term price Forecast*	Comment
SFA	15	85		$2,820	Potential oversupply from SA could dampen the market in 2019 but the timing of when this excess concentrate and some growth from Rhodium-rich UG2 ores is the swing factor.
JM	65	44			As China 6 legislation is phased in under the 'Blue Sky Protection Plan' from July 2019, there's a game changing shift in loadings which will help drive global autocatalyst demand by 10%, outweighing further thrifting in the glass industry. However, with primary supplies expected to rise by 5% due to the release of pipeline inventories, the market is expected to remain in a moderate surplus.

Notes:
*Nornickels Platinum balance includes investment (ETF) demand, while their Palladium deficit excludes investor positioning
SFA balances are industrial balances and exclude investment demand (ETFs, net futures positioning, physical investment demand)
JM balances include investment demand
Metals Focus balances include physical investment demand (coin, bar demand) only

SFA price forecast is 6 month
Metals Focus price forecast is 2019 annual average

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