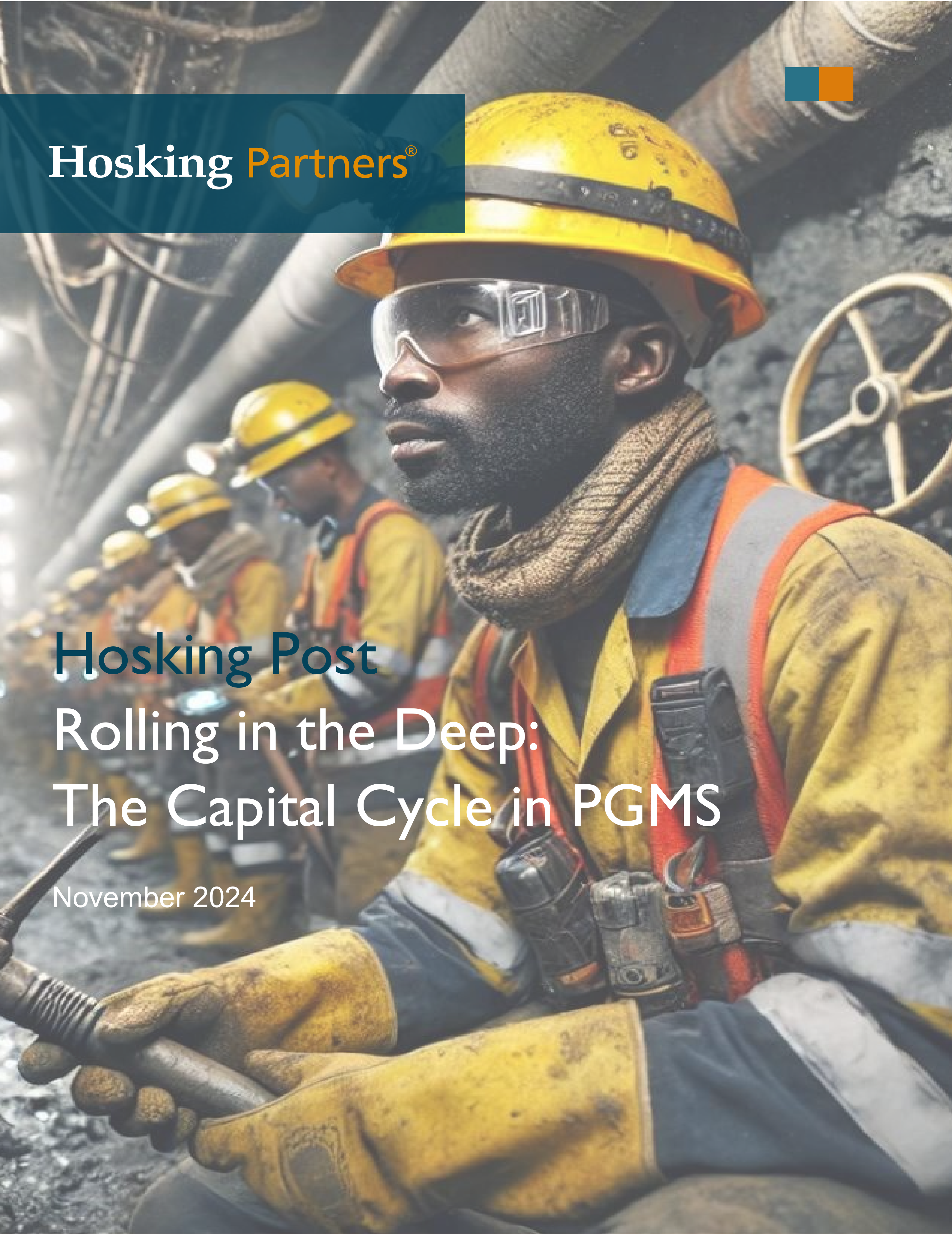

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Rolling in the Deep: The Capital Cycle in PGMS

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A CAPITAL CYCLE IN PGMS

There's a fire starting in my heart

Reaching a fever pitch and it's bringing me out the dark

Adele, Rolling in the Deep

The concept that narratives drive asset prices is becoming ever more mainstream.[1] While the business of Wall Street may be the business of Hollywood, the team at Hosking Partners view storytelling of "new paradigms" with caution. We all have natural contrarian instincts. And where high-priced stocks, rising valuations, and "the future" are concerned, we are wired to cynicism.

The capital cycle complements this contrarianism and is built upon the observation that, over the long run, a company's return on capital, not a story around future profitability, determines investor returns. Fundamentally, the more capital that enters an industry, all else equal, the lower returns are for the remaining capital and vice versa. To understand the flow of capital, one must have a disciplined focus on industry capacity or supply, which is measurable, rather than predictions of *demand*, which are ultimately stories about the future.

The capital cycle provides a framework for avoiding demand-narrative bubbles and unearthing overlooked opportunities, such as the one we are currently seeing in the miners of platinum group metals (PGMs) today. Not content to accept the depressed market narrative on PGMs, we recently embarked on an investment trip to South Africa's Rustenberg Platinum Belt, where we met with management of the four major PGM producers – Northam Platinum, Impala Platinum, Sibanye Stillwater and Anglo American Platinum – and ventured more than 1km underground during a site visit to Sibanye Stillwater's K4 Marikana Shaft. The trip provided a window into the supply-constrained, deep value, capital cycle PGM investment case.

On a personal level, the trip underground was a genuine life experience. One that confounded many preconceptions of deep level, non-mechanised mining. We expected a dark, cramped, hot, and entirely male-dominated space but were surprised that the majority of the areas we toured were well ventilated, bright and open. Some 40% of employees at the K4 shaft were women (still a positive

[1] See the excellent work of Ben Hunt and Team at https://www.epsilontheory.com/ for up-to-date work that builds on the reflexivity concept introduced by George Soros in The Alchemy of Finance (Wiley, 1987).

outlier in the industry, which is diversifying but at a lower rate). It gave us an insight into the post-Marikana tragedy South Africa mining world, where stakeholder capitalism (something your author was cynical of given the history of South Africa) was brought to life at the mine face. We will be exploring the important topics of workplace safety and labour relations, areas of frequent management engagement for us, in a separate active ownership report, where we will share our takeaways from the trip.

From an investment perspective, we came away with a clear picture: the industry has under-invested for a decade. Primary supply deficits are structural and run into the 2030s. Equity prices, however, discount continued low prices, unfeasibly short asset lives of PGM mines and are firmly in the ‘deep value’ category. A substantial margin of safety is offered to investors via replacement cost analysis of above ground smelting and refining assets, and multi-bagger upside is present should PGM prices ever recover to historic pricing norms vis-à-vis precious metals. It was an experience that we won’t forget - mixing left brain analytical excitement with the right brain emotional experience of seeing the remarkable people who do this important work.

PGMs and ‘Price is news’

The low prices observed in PGMs - platinum, palladium, and associated metals[2] - are in large part driven by a powerful *demand* narrative. According to the World Platinum Investment Council (WPIC), some 65% of all PGMs mined are used in auto catalysts for internal combustion engine vehicles (ICEs). The metals are essential to meeting ever-increasing environmental standards. PGMs have

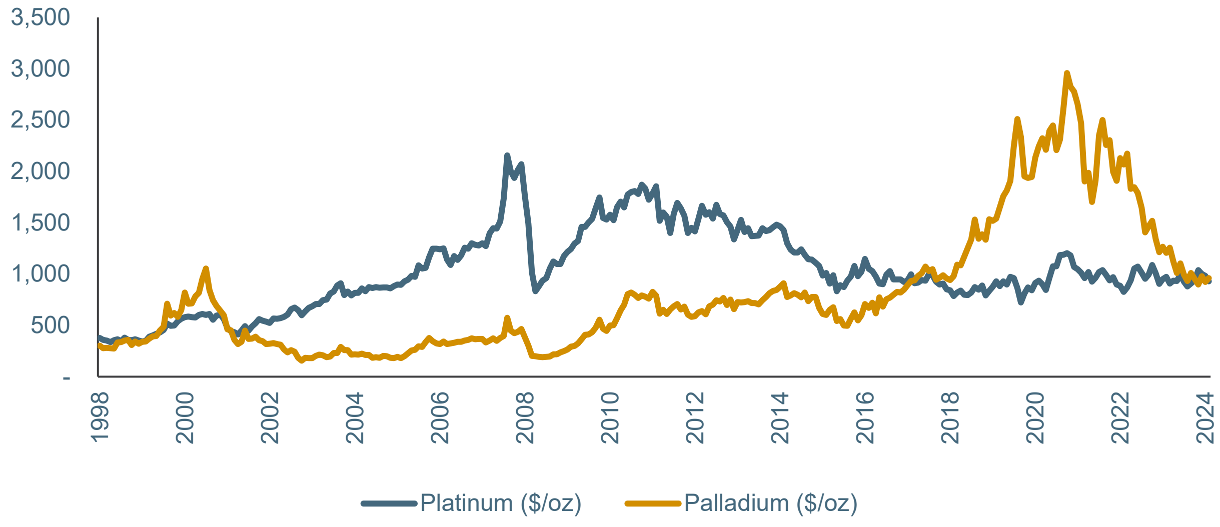
[2] The so-called “6E basket” of PGMs includes Platinum, Palladium, Rhodium, Ruthenium, Osmium and Iridium.

powerful air quality ameliorating properties, so much so that automobiles today produce around 1/100th of the noxious fumes emitted by vehicles back in the post-war period. Whilst these metals have other uses, the primary driver of demand remains as catalysts in ICEs and hybrid vehicles.

The market narrative around rapid electric vehicle (EV) adoption suggests that the future for ICEs is bleak. EVs were expected to experience a Sigmoid or 'S-curve' of rapid, exponential adoption, following in the pattern of prior historic adoptions of revolutionary technology, providing us with bountiful new industries and cleaner, greener mass transport all within a decade or so. A win-win for all! Moreover, governments, at least in the richer areas of the world, are moving at speed to legislate against the sale of ICEs. Consensus suggests that rapid replacement of the existing ICE fleet would, therefore, leave a PGM demand runway of a just decade or so.

Later in this piece we offer an alternative vision for the speed at which ICEs are replaced by EVs. Indeed, the row-back has started – as of September 2024, YoY global battery electric vehicle penetration is flat ex-China according to analysts at CLSA. Our long-held view is that all demand projections are inherently unreliable. Plausible or not, the negative PGM demand narrative, together with OEM supply-chain issues, a glut of recycled material and concerns over Russian 'stockpiles' (an ever-present commodity market bogey man!), has depressed the price basket to generational lows. Fertile ground for contrarian investors!

Platinum and Palladium – 25 years of going nowhere

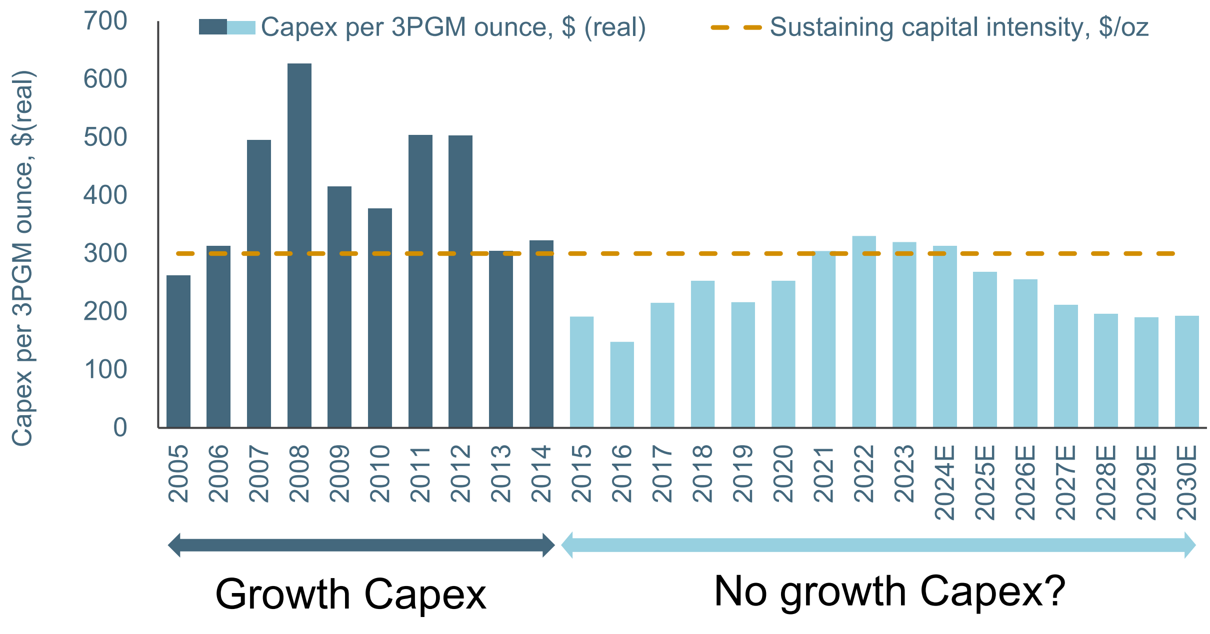


Source: Hosking Partners. FactSet. For period 31 Jul 1989 to 31 Aug 2024

PGMs have now fallen in value, in real terms, over the last three decades. An extraordinary result given these are rare precious metals in a world of unorthodox monetary policy – platinum is some 15x rarer than gold with reference to annual production. The price of platinum – which for the last century has had an approximate 1-for-1 price relationship with the gold price – is now close to an all-time relative low: $1003 per ounce of platinum set against $2720[3] for an ounce of gold, a considerable margin of safety in platinum and PGMs more broadly should the last century be a relevant pricing yardstick.

Like so many other commodities dug out of the material world, capital expenditure at the PGM miners has been curtailed over the past decade. A hang over from the mining 'super cycle' and associated capital profligacy that destroyed many reputations. Added to this are industry-specific concerns about future demand for the product, coupled with the geographic concentration of the industry - South Africa, Russia and Zimbabwe make up around 90%+ of primary supply[4] and are unlikely to go on a capital spending spree in the near term. The bar to new supply, should prices rise, is high.

Reduced Capex = Reduced Supply



Source: UBS. Sector Keys: South African Mining. 09 Sep 2024. Capital intensity ($/oz real). Johnson Matthey Company date, UBS estimates.

[3] Prices as at 21 October 2024
[4] Source: U.S Geological Survey, Mineral Commodity Summaries, January 2024

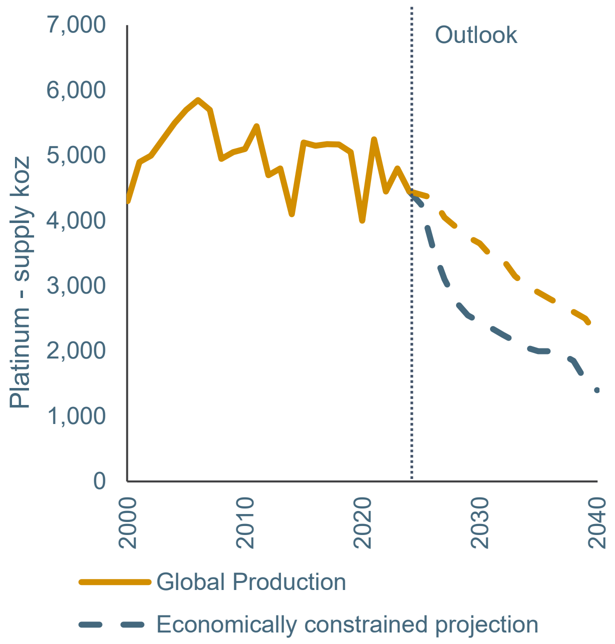
As shown in the chart above, the PGM industry has under-invested in growth capex since 2014. Industry capital expenditures, roughly speaking, have averaged around $240 per ounce in the past decade. This is some $175 below the level of capital spend in the prior decade, a period in which primary PGM supply actively *declined*. There will be much debate about what is the ‘sustaining level’ of capital required to keep the ore bodies productive. A conservative calculation suggests that the industry has underspent on sustaining capital by some $150 per ounce for the last decade. The cumulative underspend is, therefore, some $18bn.[5] In the context of the $21bn[6] combined market cap of the listed South African PGM companies,[7] the $18bn cumulative capex underspend is a Mount Everest of an obstacle to overcome should primary supply be required to grow.

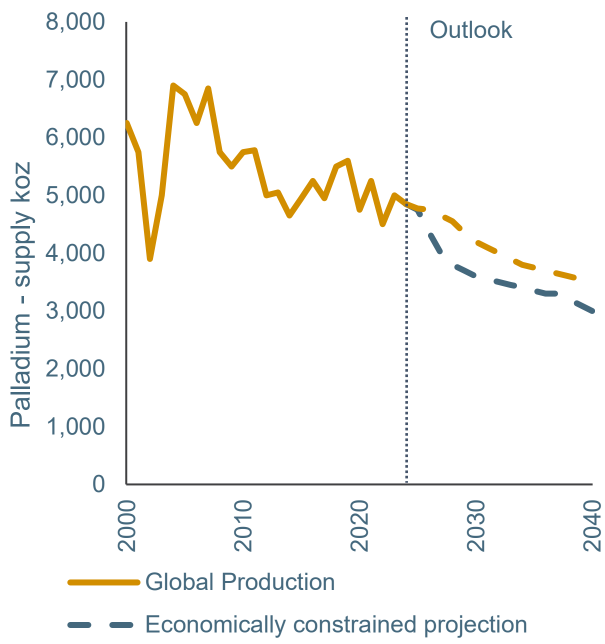
This stark figure illustrates one of the key learnings from the four and half decades of capital cycle analysis. Namely, at the low point of capital cycles, the low valuations of companies in-and-of-themselves present a constraint on industry expansion. It is oft said that the cure for low prices is low prices; we would add another prescription: low valuations.

The lack of investment in additional supply over the past decade has set the stage for major deficits. It bears re-iterating: primary supply of PGMs peaked in 2007 and has fallen ever since. PGM demand only reached its peak a decade later in 2019. According to the World Platinum Investment Council (WPIC) primary platinum supply (5.5m ounces) and recycling (1.5m ounces) are some 1m short of demand in 2024, a situation that continues for the remainder of this decade. In palladium, the current deficit is close to 1.5m ounces after the recent shuttering of Sibanye Stillwater’s Stillwater West mine, which took an additional 200k ounces, nearly 3% of annual production. This sets up a situation where the PGM market is in deficit of up to 15% of primary and recycled material in the short and medium term.[8] Whilst above ground stocks and investor holdings remain – and with the caveat that the ability to get a view on the Russian material is low – these levels of deficits are likely to spur some price reaction.

[5] Hosking Partners. $150 per oz multiples by the annual 12m primary production over 10 years
[6] As at 24 October 2024
[7] Anglo American Platinum, Impala Platinum, Sibanye Stillwater, Northam Platinum, Sylvania Platinum, Platinum Group Metals
[8] https://www.sibanyestillwater.com/news-investors/presenations/Society of economic geologists - PGM markets

Supply is coming down, fast





Source: Northam Platinum Holdings Limited operational and financial results for the year ended 30 June 2024. Northam Platinum presentation 30 Aug 2024.

Will this situation of deficits and low prices persist? We think this is unlikely. At current prices approximately one-third of the PGM mining industry cost curve is loss making – a threshold that typically sees corrective supply action, despite the strong ‘barriers to exit’ that exist in labour heavy, deep level mining. The longevity of the up-cycle is unclear. And whilst the barriers to exit in PGM supply are high, the barriers to substantial new material are no less formidable. South Africa accounts for approximately 70% of primary global PGM production, with the other 30% coming primarily from Zimbabwe and Russia. Multi-billion-dollar growth capital projects are simply absent from such geographies. Sanctions, political instability, corruption, and lack of adequate infrastructure are likely to remain major hurdles to PGM mine expansion, let alone greenfield development or processing capacity. PGM processing has been particularly hard hit via the decade-long issues with ESKOM, the South African state energy firm, with rolling blackouts leading to ‘load shedding’ and further disincentives to invest. Given all this, we would expect PGM prices to rise 50% from current pricing before substantial new capacity is added.

Deep value

For global equity investors, this poorly performing, capital intensive, ICE-exposed sector in South Africa has been easy to ignore. Valuations are such that rational capital allocators running these companies should be looking to reduce the capital employed, as we saw last quarter with the curtailment of production at Stillwater West. Valuations have compressed such that the industry is priced well below its replacement cost. In our meeting with Impala, management indicated it would cost $8-10bn to replicate just the company's smelting and refinery assets vs. an enterprise value for Impala of $4.5bn. Investors in Impala pay 50c on the $ for one of the two major smelting assets for the entire industry – with substantial strategic value – and get 55m of proven PGM reserves (c 20 years production) and an operating business that delivered $1.1bn of free cash flow for each of the past 5 years for free.

The Great ICE Replacement Theory

Implicit in such extreme valuations is the consensus view that not only will PGM prices fall further but that asset life for most of the producing mines is short, perhaps just a decade. This view is anchored in the rapid demise of the ICE narrative. While we are supply focused and do not claim superior insight into this demand story, we would point readers to the work of Rob West at Thunder Said Energy. Rob has drawn data on the 50 most popular ICEs and EVs sold in the US during 2024. The findings are stark. EVs are 50% more expensive than comparable ICEs with an average sticker price of $47k, or equal to approximately one year, post tax average household income. Moreover, the fully-loaded running costs – that account for depreciation and battery life - are around 40% higher for EVs vs ICEs. Not surprisingly, therefore, the highest levels of penetration are in US households that earn over $250k per year, and even then, are likely to be owned as a second vehicle. As one moves down the income spectrum, the adoption rates of EVs fall dramatically. For EVs to have wholesale adoption across the entire vehicle fleet, these need to be mass adopted by lower income groups.

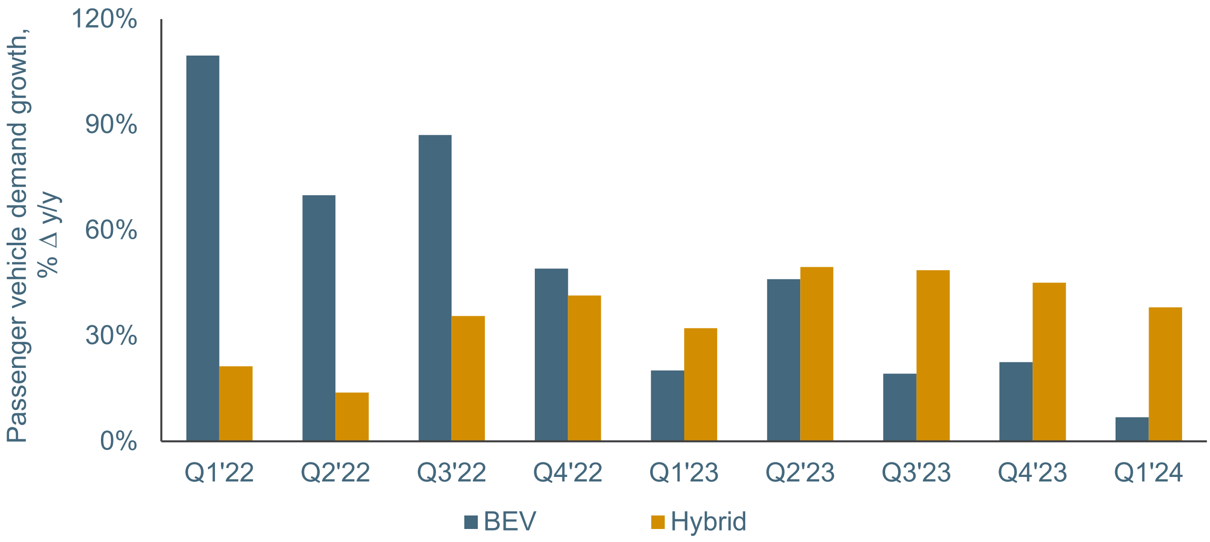
Perhaps cheap Chinese vehicles will, post tariffs, fill the void. However, the massive slowdown in EV sales in the Western world[9] (Europe-wide EV sales fell 44% in August 2024) as subsidies have been rolled off is a major warning sign that the adoption curve of EVs is unlikely to replicate those of fridges or televisions in 1960s US, which took around 10 years to go from 0 to 100%. These technologies were groundbreaking as they provided night and day improvements on prior technology (the larder!).

[9] (https://www.reuters.com/business/autos-transportation/eu-car-sales-3-year-low-august-ev-sales-down-439-acea-says-2024-09-19/)

Without a fridge, your food went bad! Ergo, buying a fridge dramatically increased consumer surplus. This does not appear to be the case for EVs, where range anxiety and expensive charging (for those without the luxury of a driveway option) weigh on the upside. Perhaps we should entertain the idea of a world in which EVs end up penetrating the higher income segments of two thirds of the developed world population? Such a set up would, to put it mildly, be bullish for PGM demand.

Moreover, hybrid vehicles, which appear to be the unsubsidized consumer's choice given their improved range, actually have *higher* loadings of PGMs than existing ICEs by up to 15%.[10] The data below suggests that EV growth has slowed in the last two years, with the baton being handed to hybrids. Indeed, even in China – the country with the most attractive EV pricing and infrastructure – the entire growth in EVs over the past two years has come from plug-in hybrid EVs, which have an ICE engine.[11] If EV demand is plateauing in China, could it have peaked in the rest of the world? If so, it is plausible that, in the short term, demand for PGMs could rise.

Electronic Vehicle and Hybrid sales growth

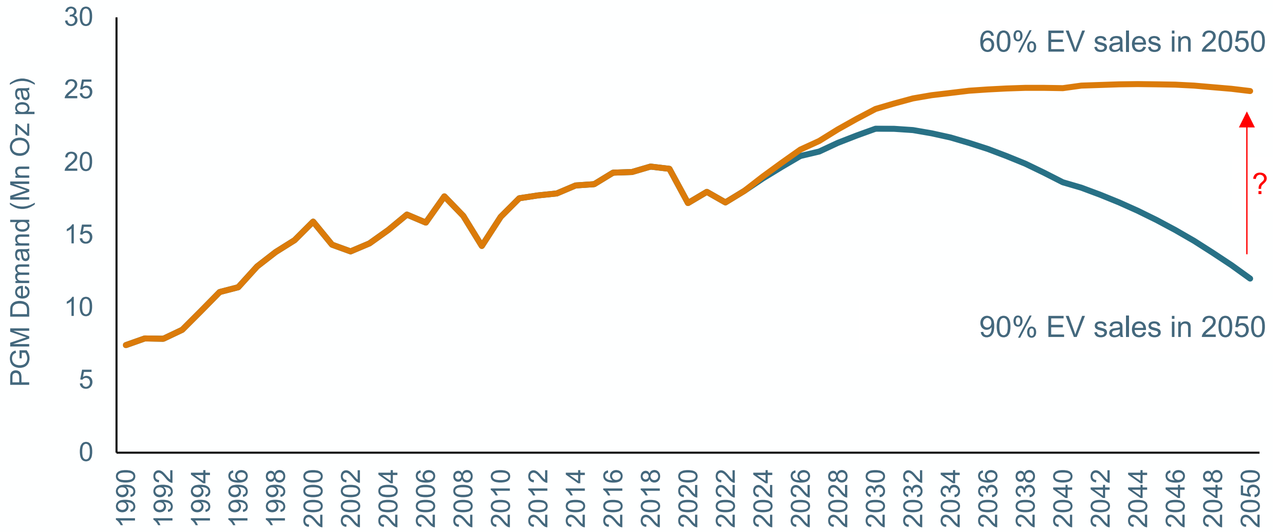


Source: World Platinum Investment Council. Platinum Essentials. 31 Jul 2024. Bloomberg, ACEA, CAAM, WPIC Research, Cumulative China, Europe and US.

We offer no forecast, but the data below modelled by Rob West outlines the extraordinary sensitivity to the endpoint of EVs and the resultant demand for PGMs.

[10] WPIC
[11] CLSA 'Gaining Traction', 10/10/2024

What happens if…



Source: Thunder Said Energy, data shows PGM demand encompassing platinum, palladium and rhodium. Sep 2024.

How do we take advantage of this compelling opportunity?

One of the great advantages of Hosking Partners' diversified approach is that we can express our capital cycle analysis via a basket of stocks. We do not have to 'pick one stock'. We are not tied to a 40 or 50 stock portfolio. As we outlined in our piece on Copper, the risk in individual mines, be it geological, political, or even labour related, is high and idiosyncratic. As a result, small and mid-cap mining shares are harder to own in more concentrated portfolios that must, for the sake of structure not alpha, be more risk averse. However, our diversification is risk mitigating and allows us to invest in less popular but no less compelling areas. Our approach is to be 'approximately right' with a basket of five PGM producers.[12] In doing so we have diversified, as much as practical, idiosyncratic company risk, whilst retaining upside to the industry supply outlook.

Four of the five companies in our basket are South African primary producers, with reserves to sustain production for at least two decades – albeit this would be contingent on the basket price rising significantly from the existing c$1000 level. At current PGM prices, the basket has a mid-single figure return on invested capital. In ZAR terms, this is sub cost of capital return. In earning multiple terms, the group has a one-year forward EV/EBITDA multiple of approximately 4x. Were platinum to recover its long term 1-for-1 relationship with gold, the underlying earning multiple for these companies would be below 1x.

[12] Sibanye Stillwater, Anglo American Platinum, Impala Platinum, Northam Platinum and Sylvania Platinum

Individually, each of the companies exhibit differing operational and financial leverage characteristics. The largest position, Impala Platinum, represents a c50% discount-to-replacement cost opportunity. Anglo American Platinum possesses much of the 'prime' real estate in terms of ore quality and has the distinction of being 'on sale' by virtue of parent Anglo American being a forced seller of its three-quarter stake in the company. Northam Platinum has one of the strongest balance sheets in the industry, having grown production from 250k to 1m ounces in the past 10 years without any increase in share count, and Sibanye Stillwater, whilst heavily indebted after some questionable battery-metal M&A, has the strongest gearing to any basket price recovery. The fifth basket member – London-listed Sylvania Platinum - is a chrome tailings treatment operator which recovers PGMs at low costs and has a market cap of just $165m, net cash of $100m and normalised earning power of $25-30m. All in, we feel the substantial individual risks associated with each company are dispersed within the basket and believe that these stocks offer multi-bagger potential in a recovering basket price scenario.

The value is deep, the future is bright

Having spent a week in South Africa earlier this month, we came away with the view that regardless of the commodity price direction, the 'endpoint' for the industry is further consolidation. With 30% of the industry losing money on a mine-by-mine basis, the immediate priority is survival via further capacity shut down and growth project cancellations. Longer term, the huge areas of overlapping mine geography and material smelting and processing synergies are too large to ignore. In 2016, there were eight listed South African PGM miners.[13] Today there are five, but we do not believe this to be the end point. We expect to see that number move toward two to three in the coming years and will be lobbying management to make this happen. The decisions of industry leader Anglo American Platinum as it leaves the London-listed mother ship will be crucial in this regard. As we saw with Sibanye's acquisition of Lonmin in 2018, the results of mergers benefit not just shareholders but all stakeholders – more business stability, better wages, and a more stable tax base. We hope that South Africa Inc gets behind this call for further consolidation, with all the benefits that would entail.

On a human level, having spent (an admittedly very short) time underground with the miners who do this extraordinary work, the need for this industry to not let this crisis go to waste was brought home.

[13] Paul Dunne, CEO of Northam Platinum

With sustained primary deficits baked-in until 2030 – even under a scenario of rapid price appreciation – there is an opportunity in the next year or so for management teams to create lasting economic value on top of any PGM basket price appreciation. We have come for the supply deficits, but we will stay around if the industry consolidates. We are, for now, in deep!

DJANGO DAVIDSON
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