Platinum Group Metals (PGMs)

Analyzing Recent Price Trends

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Key Takeaways

In this review, we examine the multifaceted reasons behind the recent price decline of PGMs and provide insights into the industry's prospects and explore how the intricate relationship between technological advancements, environmental regulations, emerging markets, recycling trends, macro-economic factors, consumer preferences, supply chain resilience, and government policies is shaping the future of PGMs in terms of supply, demand, and pricing.

We believe the recent price decline is largely driven by short to medium term demand and supply dynamics where demand has not been able to keep up with excess supply. Excess supply, including stocks, which started in late 2023 has continued into 2024. And while in recent times supply has slowed, it is still more than demand which is growing but at a much slower pace. The price drop is also partially due to how supplies from the main PGM producers from South Africa and Russia haven't been disrupted as much as the industry predicted since the outbreak of Russia/Ukraine war started. Additionally, currency fluctuations and production cost inflation have squeezed margins and worsened profitability forcing mines to increase production to reduce unit costs, sell excess inventory to generate more cash, slash capital spending, renegotiate supply agreements. Furthermore, South Africa is the world's largest platinum producer and one of the largest producers of other PGMs, which make a significant contribution to the country's foreign exchange earnings, job creation and the overall economy. The financial health of the sector therefore has broader implications, not just for PGM prices, but also for the country and elections expected later this year. This means producers have been reluctant to scale down production in response to demand dropping, which would have helped prices. (though Anglo American Platinum, the world's largest producer of the precious metal, and whose profits slumped by 71% in 2023, has indicted it plans to cut thousands of jobs at its mines in South Africa but not stated when and we anticipate it will be after elections).

This also means that for most of 2024, we expect prices to stay low especially with above ground PGMs stocks still in play, leading to excess supply over demand, though we expect the gap to narrow throughout the year. At current prices though, the sector is incapable of being profitable suggesting most producers will be expected to run losses In 2024 with some smaller producers likely going out of business.

However, we believe over the the medium to longer term prices will probably start to pick up from 2025. As the auto industry adjusts to tighter emissions regulations, catalytic converters are requiring higher loadings of PGMs, meaning that demand for PGMs is likely to build and remain high for the next several years. PGMs are also facing increasing demand specifically for its use in the production of green hydrogen, which is an emerging sector that is expected to be an important part of the energy transition. Further, they also have many potential applications in the de-carbonisation of the energy transition and chemical industries as well as production of sustainable aviation fuel. They could also play a vital role in the health, electronics, pharmaceutical manufacturing, and other sectors thanks to their stability, corrosion resistance, high melting points and catalytic activity. New uses are promising for creating substantial demand, and these alternatives – driven by innovation and investment – will eventually make up for any decrease in automotive demand, potentially leading to stability or growth in the PGMs market. However, many of these alternative-use applications are still in development.

Summary

- Price reductions are not mainly driven by systemic industry challenges but reflect temporary demand/ supply dynamics. Industry has already demonstrated its resilience against global shocks.
- With price reductions being temporary we expect demand to rise gradually while supply slows down but from late 2024 into 2025
- Most producers will record losses in 2024, with some smaller producers likely going out of business. PGM prices will likely persists though at those prices, are not sufficient for industry players to stay profitable. Industry will return to profitability from 2025 and substantial restructuring will take place in 2024 and early 2025 including labor cuts.

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Background Information

Platinum Group Metals (PGMs) is the catch-all name used to describe a set of six metallic elements that are highly similar, but individually unique, in terms of their physical and chemical properties, occurrence in nature, and uses. These metals, which tend to occur together, include Platinum (Pt), Palladium (Pd), Rhodium (Rh), Ruthenium (Ru), Iridium (Ir), and Osmium (Os).

Globally, the reserves of these precious metals amount to approximately 70,000 tonnes (c.2.2 billion troy ounces) and most of these are largely concentrated in South Africa (90.1%). The distribution of PGM deposits also extends to Russia (6.4%), Zimbabwe (1.7%), United States (1.3%) and Canada(0.4%).

A small number of major producers account for most of the world's output of platinum group metals (PGMs), with Anglo American Platinum and Impala Platinum of South Africa, Norilsk Nickel of Russia, Vale and North American Palladium of Canada being the top producers. Additionally, producers in countries like Zimbabwe and the United States also boast of significant production capabilities, albeit to a lesser extent compared to the primary players.

Platinum group metals (PGM) have varying degrees of importance across the globe as they form critical inputs employed for the production processes of various industries. In the automotive industry, which is a major market accounting for more than 60% of PGM uses, PGMs (especially palladium and platinum) are used for catalytic converters to mitigate harmful emissions from vehicles.

PGMs are also apt for making various chemical catalysts that facilitate processes in the refining of petroleum, chemical manufacturing, and the pharmaceutical industries. In addition, because of their durability, resistance to corrosion and other superior properties, PGMs are also used in components such as hard disk drives, contacts, and electrodes in the production of electronics.

The jewelry industry also greatly depends on the durability, aesthetic appeal, and other qualities that the use of platinum and palladium confers on the production of high-end luxury items. These precious metals are also used in a variety of other industries, including glass manufacture, aircraft, and renewable energy technologies like fuel cells.

Platinum group metals Factsheet

Market Value	**$14.8 billion**
Top producers	South Africa, Russia, Zimbabwe
Strategic markets	Automotive, Jewellery, Electrical, Electronics, Chemicals, Glass, Petroleum, Medical, others
Reserves	Deposit: c.70,000 Tonnes
Period	c.200 years demand
Reserve distribution	South Africa (90.1%), Russia (6.4%), Zimbabwe (1.7%), United States (1.3%) and Canada (0.4%)

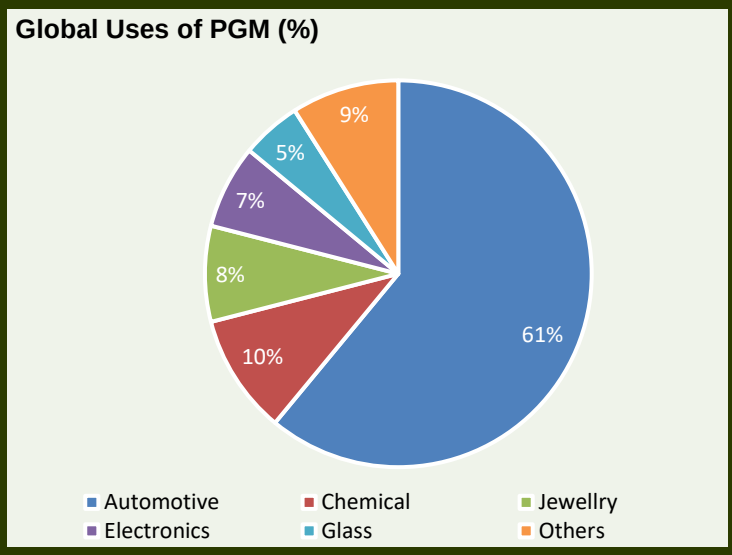

Figure 1: Global Uses of PGM (%)

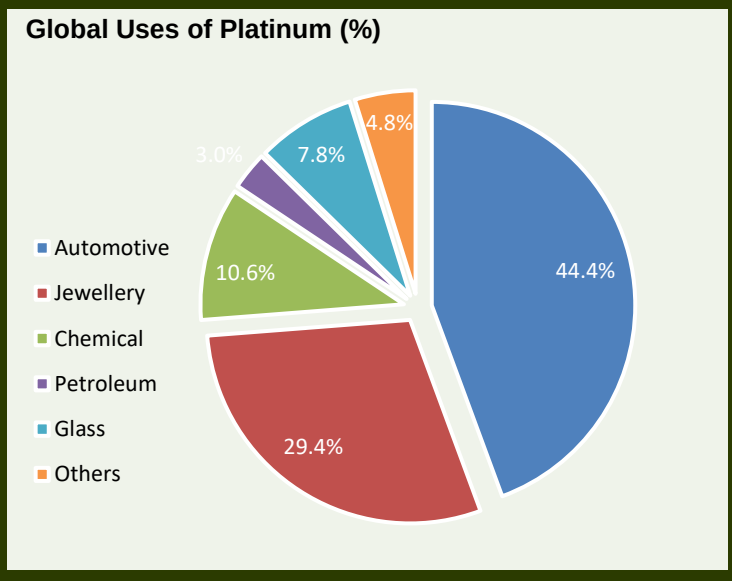

Figure 2: Global Uses of Platinum(%)

Source: WPIC

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Recent trends in the PGM market

Recent trends in the PGM market

The platinum group metals (PGM) market is historically known to be subject to disruptions from various sources including technological advancements, environmental regulations, and fluctuations in demand from automotive, jewellery, and electronics industries. In recent times, however, major producers have had to grapple with significant plunge in the market prices of PGMs despite supply deficits being recorded.

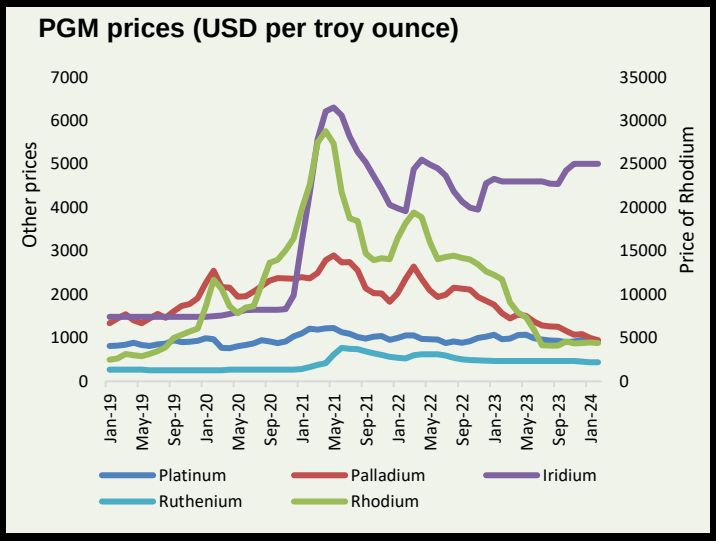

Figure 3 : PGM prices (USD per troy ounce)
Source: Matthey

Changes in PGM prices

	2023			2024		
	Jan-01	Dec-29	% change	Jan-02	Feb-20	% change
Platinum	1,090	1,020	-6.4%	993	915	-7.9%
Palladium	1,813	1,125	-37.9%	1,110	995	-10.4%
Rhodium	12,250	4,500	-63.3%	4,500	4,650	3.3%
Iridium	4,700	5,000	6.4%	5,000	5,000	-
Ruthenium	485	450	-7.2%	450	450	-

Source: Matthey

Most hit among the PGMs is Palladium and Rhodium whose prices plummeted by about 38% and 63%, respectively, between January 2023 and December 2023. The current bearish sentiment comes after a long bullish run which saw both precious metals trading at their all-time highest in 2021, with Rhodium trading in the region of $30,000 per troy ounce.

On the supply front, the world produced an estimated 7,079koz of platinum in 2023, marking a slight 2.51% decrease from the global output in 2022. Most of this output as expected, came from South Africa where production was nevertheless stalled by various challenges including electricity problems, high input costs and an elevated interest rate environment. In terms of demand, however, the World Platinum Investment Council (WPIC) documents that despite the numerous headwinds that confronted the global economy, the demand for platinum surged by 26% to an estimated 8,150koz in 2023. The demand uptick for PGMs was majorly driven by increasing global demand and production of electric vehicles on the back of stricter emissions regulations imposed by governments across the globe and the consequent gradual shift to more environmentally compliant vehicles. Accounting for most of the production recorded in 2023 is China who topped the global board in the sales of Electric Vehicles (EV), reaching 9.49 million units, higher than any other country in the world. However, production in major supply centers was not as disrupted as earlier expected by the market as the output losses in South Africa was later offset by improved production in other areas, including Zimbabwe, Russia and North America. This kept global output in 2023 almost at par with 2022 output. The supply of platinum was also assisted by a 13% increase in recycled platinum which settled at 1,567koz in 2023 relative to the 1,471koz recorded in the year before. The consequence was that supply remained well above demand going into 2024 and accordingly prices have dropped substantially in response.

Platinum supply-demand balance (koz)

Year	Supply	Demand	Deficit	Stocks*
2020	6,902	7,768	- 865	2,592
2021	8,282	6,988	1,294	3,886
2022	7,261	6,461	800	4,687
2023e	7,079	8,150	- 1,071	3,615
2024f	7,310	7,663	- 353	3,262

*Note: e and f denote estimated and forecast values while * denotes above ground stock*
Source: WPIC

Due to the huge supply/demand deficit arising from supply outpacing demand in the PGM market, the prices of these precious metals have trended very low. While supply has also declined in recent times it has still stayed well ahead of demand which is growing much slower. Supply has remained relatively strong and unresponsive to price cuts largely due to producers attempting to address resultant losses by increasing supply to reduce unit costs of production and address challenges of currency fluctuations and rising production costs. In addition, some PGMs (especially Rhodium) are also relatively illiquid as a significant percentage of new supplies find their way directly to the core market based on existing long-term/forward contracts to car manufacturers and glass fabricators.

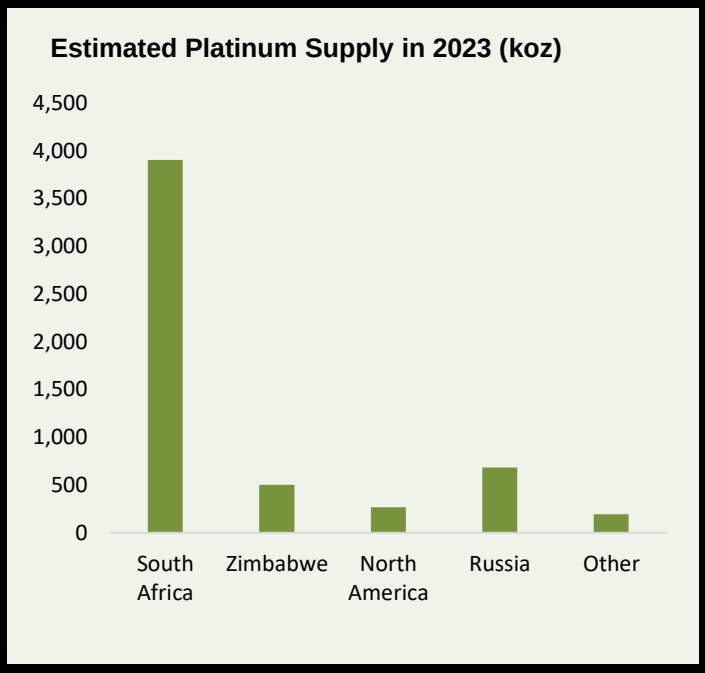

Figure 4: Estimated Platinum Supply in 2023 (koz)
Source: WPIC

Coupled with high input costs in an inflationary and high interest rate environment, the ensuing low market price for PGM and the harsh global macroeconomic environment continues to weigh significantly on the performance and profitability of PGM producers in Africa and across the globe.

In response, strategic PGM producers affected by the new price environment are now restructuring to manage cost pressures and scaling back on capital expenditure in 2024, impacting not only the workforce but also production plans. For example, South Africa-based Tharisa PLC has recently suspended building its Karo PGM mine in Zimbabwe, an investment valued at $391 million, to 2025 because of current weak platinum group metal (PGM) basket prices and uncertainties surrounding the near term global economic outlook.

This halt to investment comes on the back of the company realising an average PGM basket price of $1,893 per ounce in the year ended Sept.30, a 26% shortfall from the average of $2,564 realised per ounce in the same period in 2022.

Also reflective of the weakness in the macroeconomic environment and lower PGM prices is the financial results of Anglo American Platinum for the year end 2023. The company posted an EBITDA of R24 billion, representing a 67% decline compared to 2022 mainly driven by a 35% decrease in the PGM dollar basket price, most notably palladium and rhodium. For Anglo American Platinum, some of the increase in production costs were offset by increasing sales volumes by 2% in 2023.

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Implications of the Trend

Implications of the Trend

01

Lower investment and long-term constrain on future supply

The scale and duration of the decline in PGM prices has the potential to discourage investors from investing in mineral exploration. Mining companies are already faced with reduced revenue streams and squeezed profitability margins as PGM prices continue to soften, prompting cautious approaches to capital expenditure. This cautious sentiment could translate into a massive scale-back of exploration efforts as companies prioritize cost-cutting measures to weather the downturn, including shutting down uncompetitive mines and laying off staff. In the long-term, the consequent diminution in PGM exploration could constrain future supply levels and potentially lead to price volatility..

02

Set back for global energy transition

The lower investment and long-term constrain on future supply that the recent downward trend in PGM prices may engender poses a major setback risk for the global energy transition agenda, particularly in the advancement of clean energy technologies. PGMs, especially platinum and palladium, are used in making catalytic converters for internal combustion engines and other crucial components for reducing emissions and facilitating the transition towards cleaner energy sources.

03

Job losses as costly mines get shut down

The downturn in PGM prices may also sustain the wave of potential mine closures and subsequent job losses, amplifying economic hardships. With margins squeezed by declining prices, mining companies are forced to consider cutting costs, often resulting in the closure of unprofitable mines and layoff of workers. In South Africa, Anglo American Platinum and Sibanye Stillwater have already indicated that the current environment may cause about 3,700 and 4,000 job losses, respectively, as they cut costs and close uncompetitive mines to keep their businesses afloat.

Implications of the Trend

04 Economic Diversification Challenges

The prolonged downturn in PGM prices could pose challenges to regions heavily dependent on PGM mining, such as South Africa. PGMs for example constitute about 50% of its total resource basket. These areas may find it difficult to diversify their economies, as the mining sector's decline affects overall economic stability. Governments and local communities need to explore alternative sources of income and economic activities to mitigate the impact of a single-sector economic downturn.

05 Impact on Research and Development

Diminished investment in PGM exploration and mining activities could have broader consequences for research and development in the field. Innovations and technological advancements related to PGM applications in various industries, including catalysis and electronics, may face a slowdown. This stagnation in R&D could, in the long run, impede progress in leveraging PGMs for emerging technologies and applications.

06 Supply Chain Disruptions

The current trend may disrupt the PGM supply chain, affecting industries that rely heavily on these metals. Sectors such as automotive, electronics, and renewable energy, which use PGMs in various applications, might face challenges in securing a stable supply. This, in turn, could lead to production delays, increased costs, and potential innovation setbacks within these industries.

07 Technological Shifts and Substitution

Continuous declines in PGM prices may lead industries to explore alternative materials or technologies that can substitute PGMs in various applications. This could drive innovation in finding substitutes, potentially impacting the long-term demand for PGMs in specific industries.

Outlook –Demand and Supply

Based on a holistic consideration of the changing PGM market landscape in response to technological advancements, environmental regulations, and changing global demand patterns, we present the following brief outlook for the demand, supply and pricing of PGMs.

Demand Outlook

On the horizon, we anticipate a steady rise in demand in the medium to long term driven by the growing response of the automotive industry to tighter regulations on emissions. Catalytic converters will require more loadings of platinum group metals (PGM), thereby creating higher demand for platinum. In addition, we also expect the demand for PGMs to be boosted by their increasing use in the production of green hydrogen in an emerging sector that is expected to play a central role in global energy transition moves. This suggests market correction in about a year or two with prices rising steadily within the period. Furthermore, while industry demand has so far been resilient against direct disruptions due to geopolitical factors, in major PGM producing countries such as Russia and South Africa, they can nevertheless affect the market indirectly by influencing demand in major PGMs consuming countries such as in China, the Euro Area and the USA.

Technological Advances and Environmental Regulations are not only crucial for supply but are equally impactful on the demand side. Innovations in automotive technology, driven by a response to tighter emissions regulations, are anticipated to increase the demand for PGMs, especially platinum. Environmental regulations across major consuming countries can indirectly affect the demand for PGMs. Furthermore, exploring emerging markets beyond current major consumers and understanding their influence on demand and supply dynamics will be essential. Recycling trends will play a dual role in meeting demand sustainably and influencing industry practices.

Supply Outlook

At the same time, we forecast current supply will slow heading towards equilibrium, with tendencies for price increases. In light of 2024 being an election year in South Africa and considering that the mining sector is an important lifeline of the country's economy, particularly as the leading source of PGMs in the world, the likelihood of a substantial decrease in production and supply seems low given its critical impact on employment, output and export earnings.

Furthermore, while the industry has so far been resilient against direct supply disruptions due to geopolitical factors, political instability in major PGM producing countries (e.g., South Africa, Russia), they remain risks to output. A significant decline in output could pose a threat to livelihoods and damage political scorecards, underscoring the need to maintain output at stable levels. Another factor that will tend to keep production stable in the immediate term is that major players in the mining sector are offsetting the characteristically huge fixed costs associated with mines with moderate increases in production.

Technological Advances and Environmental Regulations are pivotal factors shaping the future of PGM supply. Continued advancements, particularly in automotive technologies, could impact PGM demand as newer applications emerge. Simultaneously, stringent environmental regulations are expected to fuel the adoption of PGMs in green technologies, influencing both supply and demand dynamics. As industries evolve, the role of technological innovation in PGM extraction and processing may further impact the overall supply chain. The emergence of new production centers and the effectiveness of recycling initiatives will also contribute to shaping the supply landscape.

In the near term, however, we expect the supply of PGMs to retreat significantly as firms increasingly cut back on investments in the mining and exploration of PGMs because the lower price is a strong disincentive to production and supply. Production is likely to be cut significantly and resources will move out of the sector until the prices of PGMs are restored to levels that guarantee profits.

Price Outlook

Macro-Economic Factors play a significant role in determining PGM prices. Broader economic trends, including inflation, interest rates, and global economic stability, can influence production decisions and market dynamics. Furthermore, changing consumer preferences especially in sectors that use PGMs in high quantities like automotive and jewelry, and assessing how these shifts impact PGM demand and consequently, prices matters. Supply chain resilience and the ability to navigate external shocks, such as geopolitical events, will be critical for maintaining market stability. Furthermore, government policies, both in major producing and consuming countries will shape the PGM market, impacting industry practices and price trends.

Since aboveground stocks are a major factor that have subdued the prices of PGMs by keeping supply above otherwise strong global demand for the metals, our expectation is that PGM prices are likely to remain dampened, oscillating at little variance from current levels, until these aboveground stocks which stood at an estimated 3,615koz at the end of 2023 hit a threshold where a higher price incentive will be required to deliver more PGMs to the market. Also, a market-disrupting demand of a scale so large as to speedily deplete above ground may reduce the time to price recovery.

Below are some useful forecasts for precious metals:

Price forecasts

	Spot	Q1 24	Q2 24	Q3 24	Q4 24	2024	2025	2026	2027
Gold $/t oz	2028.7385	2027.8689	2049.8382	2081.4219	2107.4484	2066.8504	2166.29	2272.0185	2327.3827
Forecast (Median)		2020	2050	2077.5	2100	2042.5	2050	1900	1807
Diff (Median - Curr)		-7.8689	0.1618	-3.9219	-7.4484	-24.3504	-116.29	-372.0185	-520.3827
Platinum $/t oz	909.515	916.859	918.3016	927.3938	935.1097	924.4456	952.9847	979.9446	992.5
Forecast (Median)		950	987.5	1050	1082.5	998.75	1200	1250	1372
Diff (Median - Curr)		33.141	69.1984	122.6063	147.3903	74.3044	247.0153	270.0554	379.5
Palladium $/t oz	990.96	978.218	988.4508	998.0594	1006.4	992.8652	1037.8932	1088.2636	
Forecast (Median)		1050	1100	1110	1100	1130	1100	1190	1135
Diff (Median - Curr)		71.782	111.5492	111.9406	93.6	137.1348	62.1068	101.7364	
Copper $/mt	8500	8388.319	8507.9647	8537.0468	8551.2097	8496.9409	8560.5889	8560.3464	8546.6516
Forecast (Median)		8390	8500	8750	9000	8610	9038.9404	9250	9539
Diff (Median - Curr)		1.681	-7.9647	212.9532	448.7903	113.0591	478.3516	689.6536	992.3484
Nickel $/mt	16347	16131.4098	16382.746	16639.2969	16893.8871	16513.86	17429.9157	18213.2209	18992.6466
Forecast (Median)		16700	16516.8447	16850	17242.5	17000	17967	19180	20250
Diff (Median - Curr)		568.5902	134.0987	210.7031	348.6129	486.14	537.0843	966.7791	1257.3534
Cobalt $/lb	12.9								
Forecast (Median)		15.5	15	14.8	14.9	14.8	15.88	16.89	18.99
Diff (Median - Curr)									
Rhodium $/oz	4650								
Forecast (Median)		4000	4164	5000	4000	4500	5000	5000	5132.5
Diff (Median - Curr)									

Source: Bloomberg