

# What Really Drives White Metals Prices

## Silver, Platinum, and Palladium

The purpose of this article is to examine and explicate the variety of market forces that drive white metals—silver, platinum, and palladium—prices worldwide. When it comes to overall behavior, the white metals can be distinguished from gold in a number of ways. Most importantly, their performance tends to be much more closely correlated to other commodities, whereas gold, as an important inflation hedge and defensive asset for those concerned with fiat currency, is much more closely tied to Treasuries and central bank policy.

By contrast, silver, platinum, and palladium by-and-large respond positively to increased economic activity. When markets are buoyant and growth is robust, demand for these metals tends to increase. Within this group of three metals, silver tends to be the most strongly correlated to gold, as both silver and gold have been seen by the investing community as serving pseudo-monetary purposes. Silver and platinum have both demonstrated fairly close ties to gold performance over recent years—respectively, silver and platinum monthly returns have exhibited a 0.7 and 0.57 correlation with gold since 1993, while palladium’s much lower correlation of 0.25 underscores its primarily industrial role.

Although both silver and platinum are heavily used in jewelry and are invested in bar and coin form, more than half of silver’s and close to 70% of platinum’s use is in industrial applications as well as automobile components.

The value of all three of these precious metals has fallen in recent years, in part thanks to China’s moderating demand as it adjusts to a slower pace of economic growth. While China’s demand for silver and platinum has gone down in recent years, its appetite for palladium is as strong as ever due to its heavy use in catalytic converters and pollution abatement technologies. Although China’s industrial output growth fell from a high of nearly 20% year-over-year in mid-2010, it seems to have found a base, after posting growth of 6% year-over-year almost every month in 2015.

If and when white metals prices experience a very strong price recovery, they could be slowed somewhat as scrap metal supplies come on-stream. When prices are weak, scrap suppliers hold off on selling, but are likely to enter the market to take advantage of higher prices.

## Deficit as % of Demand

Source: ETF Securities, Johnson Matthey, GFMS. As of November 2015.



## Silver: Overall Picture

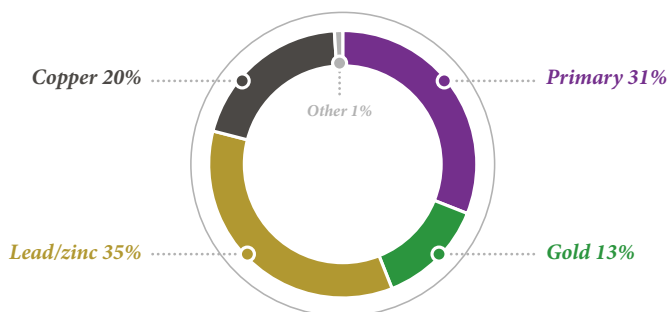
Silver is probably the white metal that investors are most familiar with. It can be seen in such prosaic products as jewelry and silverware, as well as coins and medals. Other common uses have included photography and electronics, though industrial applications account for the majority (55%) of silver's usage worldwide.

## Silver supply drivers

While overall silver stocks are high globally, over the last few years silver has experienced what is known as a "supply deficit," as annual production has been less than the demand for the metal, gradually eating away at current stocks. What many investors may not realize is that only 25% of silver production is derived from silver mines; the rest—roughly 75%—is a byproduct of mining for other metals, most notably lead, zinc, copper, and gold. As of year-end 2015, as mining capital expenditures for these other metals has been scaled back in response to relatively low prices, silver production has correspondingly fallen.

### Sources of Silver Supply

Source: ETF Securities, GFMS. As of May 2015.



## Silver demand drivers

Although it may not be the first thing that comes to investors' minds when they think of silver, industrial applications are a significant demand driver, accounting for more than half of the precious metal's usage worldwide. Silver's unique characteristics include its outstanding thermal and electrical conductivity, along with its ductility, malleability, optical reflectivity, and antibacterial properties. These features make the precious metal invaluable as an input in myriad industrial applications including electrical components, batteries, photovoltaics (solar panels), auto parts, pollution abatement technology, ethylene oxide (an important chemical precursor), as well as brazing alloys and solders.

Of the white metals, silver also tracks gold most closely, boasting a correlation of 0.8 over the past five years. Since gold is seen as a defensive asset in times of expanded bank balance sheets or quantitative easing programs by central banks, monetary policy tends to have a "shadow impact" on silver—far less so than gold,

but still noticeable. Lastly, albeit accounting for just 20% of silver use worldwide, it's worth noting that jewelry demand has held more or less stable over the past decade.

## Looking forward

Deep capital expenditures cuts in the industrial metals space is likely to have a significant effect on silver supplies, as the majority of silver is mined as a byproduct of zinc and copper. In the context of weakening global demand, especially from China, low commodity prices have reduced production incentives. Looking forward, as the global growth outlook improves, demand for commodities, including silver, is likely to rise.

## Platinum: overall picture

Though platinum is commonly known as a precious metal, often found in jewelry, many might be surprised to learn that this accounts for just 30% of its usage worldwide. The vast majority of platinum is used in a wide variety of industrial and automotive applications, especially pollution abatement.

## Platinum supply drivers

Unlike silver, which is produced as a byproduct of mining for other minerals, platinum is typically mined for directly. Supply is extremely concentrated, with South Africa accounting for about 80% of platinum production worldwide. The country has been undergoing frequent labor and energy security issues in recent years. While the depreciating South African Rand has insulated its miners from the price weakness of platinum for some time, as the South African Reserve Bank raises interest rates to stamp out inflation, this insulation is likely to evaporate. With a stronger currency, miners are likely to pare back on new capital expenditures as well as mining activity.

## Platinum demand drivers

Applications which account for platinum demand can be broken down as follows: 30% in jewelry, 40% automotive, 25% industrial, and about 5% investment/bullion. Platinum's unique properties, including its remarkable resistance to corrosion and its low reactivity, lend it to a range of industrial applications, including laboratory equipment, electrical contacts, electronics components, and more.

Platinum's most notable use, however, is in catalytic converters. A key pollution abatement technology, catalytic converters are emissions control devices that convert toxic chemicals in exhaust gases into less toxic pollutants. By law, every car in the United States produced after 1975 must have one. On average, a catalytic converter contains between 3-7 grams of platinum. For this reason, platinum demand can be somewhat sensitive to environmental regulations around the world. For example, India

is expected to leapfrog from “Euro4”-like emissions regulations and implement an even tighter emissions regimen resembling “Euro6” guidelines. Such a scheme would likely increase the demand for platinum, which is a key component in catalytic converters.

### ZAR buffets platinum rebound

Source: Bloomberg, ETF Securities. Data as of May 2016.



### Looking forward

Though platinum is used in a variety of ways, the most notable variable affecting its demand going forward is emissions standards and environmental regulations. In 2015, Europe rolled out more stringent emissions standards. Since Europe has a higher proportion of diesel automobiles, and platinum loadings are heavier in catalysts for this type of engine, it is likely that these tightened emissions standards will drive platinum demand higher in 2016. Moreover, should emissions standards be tightened elsewhere, it will likely have a similar effect on platinum demand.

On the supply side, because of its extreme concentration in South Africa, platinum investors will likely find themselves keeping a close eye on developments in the country. A strengthening South African Rand could see platinum miners cutting back on production.

### Palladium: overall picture

Of the three white metals, palladium is probably the least familiar to investors. Unlike silver and platinum, both of which see significant use in jewelry as precious metals, palladium is overwhelmingly used in industrial and automotive applications; only 2% of it finds its way into jewelry. As an industrial metal, palladium also sees a far weaker correlation to gold—just 0.25—compared to silver (0.7) and platinum (0.57).

### Palladium supply drivers

Similar to platinum, palladium supply is somewhat concentrated, though not as severely. Two countries, Russia and South Africa,

together account for roughly 90% of worldwide production (about 40 to 45% apiece). Infrastructure problems in either country can contribute to supply constraints; electricity, which is crucial in the smelting process, can be intermittent, and poor roads can cause product delivery issues as well.

### Palladium demand drivers

Demand for palladium is dominated by its use in pollution abatement technologies, which account for 80% of its demand. The metal is frequently used alongside platinum in catalytic converters, fulfilling a very similar function. When it comes to emissions regulations, as with platinum, so with palladium: tightening pollution control regimes around the world would have a positive effect on demand for the metal. Apart from catalytic converters, palladium sees usage in a wide range of industrial applications, including fuel cells, dentistry, and medicine.

### Looking forward

In the context of tightening emissions standards, demand for palladium is likely to increase in 2016. On the supply side, infrastructure issues in South Africa could hamper production, while developments in South Africa, particularly a strengthening Rand (as previously mentioned in the “Platinum” section) could give miners a reason to cut back on production.

### Conclusion

Though clearly subject to a variety of market forces, the white metals as a group are strongly impacted by industrial demand. Most notably, platinum and palladium play key roles in emissions reduction technologies in catalytic converters. Though all are somewhat correlated with gold (silver most of all), they respond less strongly to monetary policy. As China’s industrial output finds its base, demand for white metals is likely to rise, and so could prices if supply deficits become more pronounced.

*Disclosure*

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The value of the Shares relates directly to the value of the platinum, palladium or silver held by the Trusts and fluctuations in the price of platinum, palladium and silver could materially adversely affect an investment in the Shares. Several factors may affect the price of platinum, palladium or silver including:

- A change in economic conditions, such as a recession, can adversely affect the price of silver palladium and platinum. Silver, palladium and platinum are used in a wide range of industrial applications, and an economic downturn could have a negative impact on its demand and, consequently, its price and the price of the Shares;
- Investors' expectations with respect to the rate of inflation;
- Currency exchange rates;
- Interest rates;
- Investment and trading activities of hedge funds and commodity funds; and
- Global or regional political, economic or financial events and situations. Should there be an increase in the level of hedge activity of palladium, platinum or silver held by the Trusts or producing companies, it could cause a decline in world platinum, palladium and silver prices, adversely affecting the price of the Shares.

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Correlation – Financial correlations measure the relationship between the changes of two or more financial variables in time.

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