Heraeus



EUR/USD

Ø 2015: 1,1095

High 2015 : 1,2102

High 2015: 1.295 \$/oz

Low 2015: 1,0496

US key interest rate shapes the global economy in 2016

Planned Fed measures already widely factored in

The dominant theme of 2015, just as in the previous year, was the anticipated drifting apart of the US and EU Central Bank policies and economies. The rapid rise in value of the USD and the corresponding fall of the EUR occurred mainly in the first quarter, at a time when the first rate hike by the Fed was already being expected. In March, the EUR fell to its lowest level in 13 years: 1.0456 EUR/USD. The US economy is recovering much slower than it used to in the wake of a recession. Besides, the impact of higher US key interest rates on the global economy will certainly come under scrutiny. Higher US interest rates in conjunction with lower interest rates in other economies will initially result in an appreciation of the US dollar. While this is beneficial to export-oriented nations on the one hand, it also serves to increase the portion of public debt of these same nations that is calculated in USD. A too strong and rapid revaluation of the US currency could lead to undesirable distortions. In addition, both public and private sectors are still allowing immense debts to pile up in amounts that are well above European levels. In view of these two aspects, expectations are that the Fed will announce only four small rate hikes of approximately 0.25% each in the course of 2016. Conversely, on the European side we are seeing the ECB intending to further relax its monetary policy through a series of exceptional measures and extensive bond purchases right through to 2017. Notwithstanding, in our opinion these measures are already factored into the EUR/USD exchange rate. For these very reasons, there is a greater probability that the Fed will increase the interest rates more slowly than currently forecasted. We therefore see good support in the first half of 2016 at the 1.05 EUR/USD level with the Euro trading sideways to higher in 2016.

Ø 2015: 1.159 \$/oz

Gold

Scarcer supply and demand revival

Cautious optimism regarding gold's performance

Traditionally the dollar exerts the largest influence on gold. The impact of the low gold price will increasingly affect the supply side. Whilst the supply of scrap has been decreasing for several years, mine production still managed to remain at a stable level. Some analysts even predict a new record year for 2015. The years of declining prices meant that many gold miners were no longer able to cover their costs. The result were mine closures while new exploration projects were brought to a halt. We therefore expect to see a slight drop on the supply side in 2016.



Low 2015: 1.049 \$/oz

The demand side continues to be dominated by the jewelry industry, the investment sector and Central Bank purchases. Despite jewelry demand having fallen in 2015, we anticipate a recovery in 2016: In China, where we have increasingly witnessed investments in the equity markets, we nonetheless expect stronger demand reflecting a slight overall recovery of the country's economy in the course of the year. In India, gold demand could rise in line with the reduction of import restrictions. The lower oil price should in general generate cash availability in most of the economies for purchasing precious metal. With regard to investment demand, we foresee an all in all sideward development. Even if ETF (Exchange Traded Fund) outflows slow down, the interest in coins and bars will vary significantly depending on the price. Observations at the end of 2015 have shown that investor interest is kindled markedly by lower prices. In phases of sideward moving or higher prices, investors react far more cautiously. Once again, in 2016 central banks will act as buyers – and this for the seventh consecutive year. This applies in particular to the Russian and Chinese Central Banks followed by the Central Banks of other economically emerging nations who are striving to diversify their reserves.

Scarcer supply and demand revival

In summary, we remain cautiously optimistic for gold in 2016. Temporary price dips could spin the price below the magic 1,000 \$/ oz mark. Nevertheless, the bulk of the price corrections should now lie behind us. For the first half of 2016, we expect a trading range of between 970 \$/oz and 1,250 \$/oz.

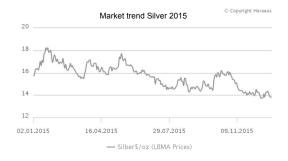
Silver

Ø 2015: 15,68 \$/oz Hoch: 18,23 \$/oz Tief: 13,71 \$/oz

Silver will outperform gold

Slight demand increase while mine production stagnates

Last year proved to be very unstable for silver with an opening at 15.65 \$/oz and a trading range (intraday based) between 13.65 \$/oz and 18.50 \$/oz, showing an overall performance of -12%. The most crucial period was between mid-May and late July 2015, when silver prices decreased from 17 \$/oz to 14.50 \$/oz. During this time, the economic situation of the United States showed improvement and the expected more restrictive monetary policy in the US was factored in. During this phase, silver exaggerated the movements of its big brother, gold, once again. However, taking the year as a whole the gold / silver ratio was in the end more or less unchanged, with silver performing marginally weaker by 1.9%. The Silver Institute and GFMS anticipated a stagnant mine production for 2015 and for the third time in a row a physical supply-demand deficit.



"Thrifting" (reduction of the silver content) in the area of solar pastes continues,

but a significantly higher global demand for solar cells more than compensates for this. Consumption in the electronics and manufacturing sectors will primarily depend on the economic development in China. Overall, we expect a further increase in global industrial demand. Furthermore, looking at the jewelry demand, we see the positive trend continuing as well. Based on global economic recovery and a soft landing scenario for China, we predict a slightly better development in silver than in gold. Additionally, we expect increasing interest in silver investments. Whilst private investors showed a predominant interest in bullion and especially coins in 2015, leading to record sales levels, we believe that 2016 will also see the return of institutional investors. For the first time in the history of the ETFs, there was an occurrence of substantial outflows amounting to some 16 million ounces.

But this bottomed out in November and once the price stabilized around 14 \$/oz, stocks were notably increased spurred by the lower level. Also during previous rate hike cycles gold and silver often traded higher only six months after the hike, rather than right at the outset. The Fed's announcement on December 16 resulted in a clearer idea as well as added security surrounding the Fed's rate path in 2016. There is a high probability that the Fed will act in a measured way with respect to any hikes. This, in turn, should be beneficial for silver resulting in higher price levels. In the first half of the year, we expect the silver price to range between 12.50 \$/oz and 17.00 \$/oz, trading on average at 15.25 \$/oz.

Ø 2015: 1.053 \$/oz

Platinum

Platinum hits 7-year low in 2015

No turnaround expected

2015 was not a good year for platinum: The metal started at 1,210 \$/oz and lost nearly a third of its value in the course of the year. This weak performance was driven by stagnant demand, high inventories, liquidation of ETF stocks, pending interest rate decisions, the weak Chinese market as well as the strong USD. These same drivers will be just as relevant in 2016 in determining which direction the metal will take. The dominant topics in the 3rd quarter were then VW and the emissions scandal. The resulting impact on platinum, however, is still unclear. Opinions range between a



Low: 827 \$/oz

High: 1.285 \$/oz

farewell to diesel technology and thus a decreasing demand for platinum, and by contrast, a rising demand for the metal due to the call for higher precious metal loadings to ensure compliance with emission limits in the future. After recovering from the strike in 2014, the mining industry in South Africa has been under pressure since last year due to falling platinum prices. Anglo, Impala and Lonmin led the way in initiating measures to safeguard the companies' survival, ranging from restructuring to shaft shutdowns with redundancies as well as cash infusions - all of which will still have an impact in 2016. Increased mine supply, expected to reach 4.3 million ounces this year, which effectively would mean the highest production volume since 2011, will meet demand similar to the 2015 levels. It is thus clear that the market is not in a deficit, but rather in a supply surplus. While 80% of the South African mines are currently losing money due to the decreased platinum price, they are simultaneously trying to secure mine revenues at the low price level. At the same time, the platinum recycling volume decreased by 13%. With regard to the future revenue structures of the South African mines the USD/ZAR FX rate will remain crucial. On platinum's demand side, the need for automotive catalysts accounts for the major share, taking up 42% of the total supply on average over the last three years. Of great significance to the consumption of platinum is this regard the requirement to comply with the Euro 6 standard since September 2015. Even only slight growth, which a number of experts are predicting, will help to support the market. Platinum used in connection with jewelry amounted on average to at least 37.5%.

Platinum hits 7-year low in 2015

Here China and India dominate the market, with India most likely able to partially absorb the flagging Chinese demand. From various industries such as glass, chemical and electronics further growth impulses are expected, when the global economy improves. Overall, we can expect a continuation of the low price level this year and a rather reserved mood prevailing in the commodities sector. If platinum continues to fall due to the strong USD, the focus will be definitely on the 800 \$/oz mark. Nevertheless, low prices will provide an incentive to cover shorts and to go long. The automotive industry in particular could seize the opportunity to hedge supplies in the longer term. For the first half of 2016, we expect platinum to range between 750 \$/oz and 1025 \$/oz, trading on average at around 890 \$/oz.

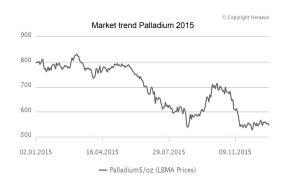
Palladium

Ø 2015: 690 \$/oz High: 831 \$/oz Low: 528 \$/oz

"Metal of the hour" disappoints in 2015 Palladium looking for fresh momentum

After the turbulent strikes in South Africa in 2014 – during which palladium had generally become the "metal of the hour" – it proved to be a big disappointment last year, seemingly losing all its support:

Early 2015 palladium was still able to hold firm its position above 725 \$/oz and the price rocketed in March to the year's high of 835 \$/oz with sponge premiums of more than 10 \$/oz being paid in peak periods. Mid-June the precious metal then broke below the 725 \$/oz mark and fell steadily to a low of 518 \$/ oz. There was no recovery since with palladium enjoying only a brief upward tendency before stabilizing since November in a range of between 525 \$/oz and 570 \$/oz.Even the emission scandal could only provide a brief moment of regeneration. Speculation was that palladium would come under the tighter scrutiny of the automotive manufacturers and this in turn would promote an upswing. However, there were no signs of this before year-end.



As was the case with platinum, output of palladium increased in 2015. This will

weigh on potential price recoveries over the next few months. Additionally there is a sense of reluctance on the part of the consumers despite the massive drop in prices since mid-year. It is therefore questionable, just when the bottom will be reached and consumption of palladium resumes. Growth will go ahead in the automotive sector. However, we do not expect China to exert any sustainable demand impulses. Due to the generally weak performance in the commodity markets, we see only limited potential for investor demand. Comparing palladium's primary production per annum with its overall consumption, there is still an existing supply deficit, and this should have a positive influence on the price development in the medium and long term. Due to the weak economic development in the emerging markets, which may continue for a while, we do not expect any quick turnaround. We therefore envisage a trading range between 450 \$/oz and 650 \$/oz with an average of 550 \$/oz.

Rhodium, Ruthenium, Iridium

Rhodium – 2015's biggest loser amongst the precious metals Ruthenium stable, Iridium with moderate changes

Rhodium was at the bottom of the precious metal league in 2015 – which is a big surprise considering the overall economic situation. In comparison to other precious metals, rhodium has one great advantage: The automotive industry is still extremely dependent on it since it requires more metal for the production of automotive catalysts, than the mines annually produce. The large buffer of rhodium stems from recycling, which nowadays accounts for approximately 30% of the metal's total supply. In the light of this, it is hard to understand why rhodium lost almost 50% of its value in 2015. The highest traded price of 1.250 \$/oz was recorded in early January, the lowest at 650 \$/oz was reached in late December. Hence, rhodium steadily lost value, apart from a few brief exceptions. The first reason was that rhodium no longer managed to generate great confidence amongst investors and ultimately this fact tipped the scales against its favor. Secondly, the large mines self-marketed the metal on a grand scale and this did not exactly foster trust on the part of the consumers. The 5-year average stands at 1,300 \$/oz and thus still above the first traded price of the year.

Looking ahead to the first 6 months of 2016 we envisage a range of between 500 \$/oz and 750 \$/oz. At the low price level, recycling becomes far less attractive and given lower supply, there is subsequently reduced pressure on the price. A newly launched ETF by a large bank could also provide some level of support. Since we are trading on a 12.5-year-low, it is quite conceivable that investors may benefit from this opportunity to enter the market.

The robust automotive industry and the prevailing strong demand from the chemical and glass industries also lead us to believe that the rhodium price will soon bottom out. The mining industry has certainly experienced one of the most difficult years in its history. Everything possible is being done to prevent the price decline, including measures that are not always pleasant.

Ruthenium stable, Iridium with moderate changes

Ruthenium was unfortunately yet another metal, which did not experienced its heyday in 2015. Once again, we have a metal that is highly dependent on one particular industry, in this instance the electronics industry. Steadily improving recycling processes have enabled significant yields in this field. But demand also remains very high based on the increasing need for data storage. The requirements from other industrial sectors also using ruthenium, such as the chemical and electrochemical industries, are robust, but regrettably, the volumes are too low to have any major influence on the price. The price curve ran analogous to rhodium: The highest price (60 \$/oz) was noted at the beginning of the year and the lowest (42 \$/oz) at the end. For the coming months, we foresee only marginal movement and little potential. We expect the prices to range in a narrow band between 32 \$/oz and 47 \$/oz.

Iridium was the only "minor" PGM with a more volatile price, but in fact, the absolute changes were more moderate. The highest level was reached with 580 \$/oz and the lowest with 500 \$/oz. Yet the smallest of all precious metals has the widest range of applications: Chemical and electrochemical products, spark plugs, medical technology and crucibles for the semiconductor industry are responsible for a major share of the consumption. We anticipate that demand will remain stable among these consumers. Looking ahead, we envisage a price range of between 490 \$/oz and 570 \$/oz for the next 6 months.

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