

OUTLOOK

- **Platinum is expected to remain close to balance in 2011.**
- **A modest increase in platinum supplies, with strong underlying production in South Africa and North America, is anticipated this year.**
- **Gross automotive and industrial demand for platinum should increase as economic growth continues worldwide. Jewellery demand should remain steady.**
- **Palladium is anticipated to be in deficit again in 2011.**
- **Supplies of palladium are forecast to decrease overall with sales from Russian state stocks much lower than in the previous three years.**
- **Palladium demand is expected to grow in line with higher purchasing by the automotive and chemical sectors, particularly in emerging markets.**

OVERVIEW

Despite fears of a ‘double dip’ recession during 2010, most countries continued on a path to economic recovery. Moderate GDP growth is widely expected this year, with the US policy of ‘quantitative easing’ credited with increasing liquidity and lifting American consumers’ confidence, although unemployment remains high. In Europe, the outcomes of various national austerity measures are still uncertain, with the potential for a slowdown in consumer spending that might negatively affect near-term economic performance. Growth in emerging markets such as China and India continues to be strong, although there are signs that high commodity prices and inflationary pressures may impact future prospects.

The global economy remains vulnerable to external factors which have the potential to impact pgm demand. As in 2010, it is possible that a sovereign debt crisis in Europe, concerns over sluggish recovery in the US, or further interest rate rises in China may undermine growth. Recent events in Japan, and in the Middle East and North Africa have highlighted that external shocks can have a substantial impact on the pgm markets, at least in the short term.

The earthquake and tsunami which affected Japan in March 2011 had the immediate effect of slowing demand for pgm as vehicle and other industrial production stopped for several days. A consequent lack of components also affected some overseas factories. Japan accounted for 15% of worldwide platinum and palladium demand in 2010, with both metals mainly used in the autocatalyst sector. In the short term, purchases of vehicles and electronics in the domestic market will be delayed while exports from Japan will also be affected. The disaster may have longer-term effects on pgm demand caused by shortages of Japanese electrical components, which would have a global impact on vehicle production. Eventually, there will clearly be potential for a recovery in domestic demand.

Political uncertainty in the Middle East and North Africa has weighed on pgm because of the potential impact on oil supply and commodity price inflation, although to date this has affected pgm prices rather than demand. Political unrest, beginning in Tunisia and Egypt in January 2011 and spreading to other countries in the region, initially had the effect of driving up industrial commodity prices alongside crude oil and safe haven investments such as gold. PGM prices fell as fears emerged that oil price rises could precipitate a slowdown in the world economy through inflationary effects, reducing consumption and affecting demand for pgm.

However, despite these downward pressures, continuing economic growth across the world is driving demand for platinum in industrial uses, particularly glass and chemical catalyst manufacture and in diesel autocatalysts; and for palladium in electronics manufacturing and in emissions control catalysts for gasoline vehicles, especially in China. The growth of new consumer-driven technologies and applications such as LED backlit televisions is expected to result in acceleration of demand for the minor pgm. Promising new growth areas also beckon: for example the use of pgm in fuel cell technologies and in non-road emissions control, although these markets are in their infancy and the full impact of their growth will be felt beyond 2011. These good prospects should continue to support pgm demand and also pgm prices.

The jewellery sector will continue to be an important area of demand for platinum but will be less so for palladium. Platinum jewellery demand remains robust in China and there has been improvement in North America and Europe. Palladium has a niche as a jewellery metal in the UK and US. Demand in China, although significant, is not growing at present.

In April 2011, it was announced that two physically-backed exchange traded funds (ETFs) in platinum and palladium would be launched in London. The investment market for physically-backed platinum and palladium should continue to be a substantial area of demand this year.

PLATINUM

The outlook for platinum supplies is cautiously optimistic. In South Africa, mine output is expected to increase through a combination of ramp-up from new or expanded operations, improvement of underperforming operations and additional output from reopened shafts. On the demand side, we believe that there will be steadily increasing purchases from the auto and industrial sectors this year. We expect the platinum market will therefore remain close to balance in 2011.

In total, the South African platinum industry has the potential to increase production by around 5% in 2011, due to recovery at underperforming mines and the reopening of operations previously closed due to low prices or geological issues. However, strikes and stoppages are factors which have impeded expansion in recent years and could do so again in 2011. In the longer term, the strong rand, inflation and availability of electricity could threaten future expansion.

In Zimbabwe, we expect production to increase this year. From a low base, pgm production has ramped up steadily over the past six years due to new investment by South African producers. Anglo American Platinum's newly commissioned Unki East mine is forecast to contribute up to 30,000 oz of production in 2011; metal from this operation will be refined in South Africa but included in our estimates of Zimbabwean supplies. Output from Zimplats and Mimosa is not set to change significantly this year, with recent expansions now operating at full capacity. However, construction of a second phase of expansion at Zimplats is now underway: this will involve the construction of a third underground mine and another concentrator module at Ngezi, increasing the company's annual platinum output to 270,000 oz by 2014.

Zimbabwe has large pgm resources but there is significant uncertainty about the eventual impact of measures to increase indigenous investment in the Zimbabwean mining industry. Regulations published in March 2011 called for all foreign-owned mines to submit plans to the government within 45 days on how they intend to transfer 51% of equity to local owners, and to implement those plans within six months of approval. These regulations seek to implement the Indigenisation and Economic Empowerment Act, first published in 2007. Mining companies with operations in Zimbabwe are currently engaged in discussions with the authorities to establish how they will comply with the Act, and at the time of writing it was too early to say whether this will affect investment in the mining sector in the longer term. Some companies have

already earned empowerment credits in Zimbabwe through infrastructure development and the transfer of mineral rights.

Platinum production in Russia is expected to remain flat. In 2011, Norilsk Nickel intends to increase output of ore in order to maintain primary metal production from lower grade deposits. Above-ground sources of pgm, for example tailings and stored pyrrhotite concentrate, should continue to augment supplies. Alluvial material from operations in the Russian Far East should also contribute to supplies again this year.

North American platinum production should rise this year. Output from Xstrata's Sudbury operations should increase with additional metal coming from the new Nickel Rim South mine, which exploits a pgm-rich ore body. Production of pgm from Vale's Sudbury mines, which was badly affected by a year-long strike during 2009 to 2010, is expected to recover in 2011. Stillwater Mining Company plans to increase output slightly by reopening the east side of the operation at the Stillwater mine, which closed previously due to high costs.

Recycling of platinum is forecast to increase once again in 2011, with much of that growth being apparent in the automotive recycling sector as more end-of-life vehicles with highly loaded catalysts are returned.

We expect gross demand for platinum will increase in 2011. Platinum in autocatalysts is forecast to continue to benefit from recovery in the automotive sector, albeit at a slower rate than in 2010. Barring a major decline in consumer confidence, global vehicle production is expected to rise again in 2011. Substitution of platinum with palladium in diesel autocatalysts is likely to continue, with its effects being felt most in Europe, although platinum will remain the largest constituent. Without the distorting effects of car scrappage schemes in most countries in Europe, diesels should continue to represent a high proportion of the total vehicle market, thus benefiting platinum. We believe there will continue to be good growth in platinum demand from the diesel vehicle sector in North America, with expansion of the light duty diesel market and higher production of heavy duty trucks. Expansion of production of light duty vehicles in the Rest of the World region is also expected to continue, boosting platinum as well as palladium demand.

Gross demand for platinum jewellery in 2011 is likely to be at least at the 2010 level. The introduction of lighter weight platinum jewellery products in North America to meet key retail price points, which began in late 2010, is an interesting area for potential future consumer demand. The European jewellery sector is expected to be healthy with firm demand for women's bridal jewellery, although economic uncertainty

could depress demand for fashion jewellery. Economic growth, which gives consumers the spending power to buy platinum jewellery as well as other discretionary luxury items, is key to the Chinese jewellery sector, and this should remain strong in 2011. Purchasing of platinum in the first quarter of 2011 by jewellery manufacturers was at similar levels to the same period in 2010 despite the firm price. The jewellery outlook for Japan is less certain, especially given recent events, but we do expect some slowing of demand this year.

Industrial demand for platinum will benefit from economic growth and improving consumer confidence in many markets this year. Unemployment in Europe declined in the first quarter of 2011, although problems persist in the countries most severely affected by the eurozone crisis. In the US, although unemployment is high overall, recovery in the labour market was beginning to be apparent in early 2011.

In the opening months of the year, manufacturing output in China grew despite government measures to curb high inflation. These positive trends are expected to result in higher levels of consumer demand for a range of products, from plastics to electrical goods, that will increase capacity utilisation in chemical and electrical manufacturing. This should help drive higher manufacturing levels in the electrical and chemical sectors. A number of plant expansions are already underway in China, and this will continue to support pgm demand in 2011.

In the glass industry, there could be a slowing of platinum demand in 2011 as less new glass fibre capacity is installed and returns from older facilities are used to meet some of the industry's requirements. The building of new petroleum refining capacity, for example to satisfy growing demand for transport fuel in India, should add new platinum demand in 2011 after several years in which plant was under-utilised.

Physical platinum investment is expected to continue to influence the price in 2011, with the price in turn largely determining the dynamics of investment. One sensitivity is if, when, and how much profit-taking in platinum ETFs will take place this year given that ETF holdings in early 2011 stood at near-record levels. Significant buying during the period of rising prices at the end of 2010 suggests that ETFs are likely to be a significant part of overall platinum demand. There was relatively little profit-taking in the first three months of 2011, despite a downward correction in the price. Overall, with a low interest rate environment and strong fundamentals, physical investment demand for platinum should remain strong, with perhaps some profit-taking occurring in the more mature funds, as was seen last year.

PALLADIUM

Palladium supplies are forecast to decline slightly in 2011 as a reduction in the sales of Russian state stocks is partly offset by an increase in production elsewhere. With demand from the automotive and industrial sectors expected to remain strong in 2011, the palladium market should again be in fundamental deficit in 2011.

Supplies of newly-mined palladium from South Africa are anticipated to increase in 2011, reflecting continued recovery at some larger operations, and a ramp-up at the palladium-rich Mogalakwena mine. There will also be further gains in palladium output in Zimbabwe, as the Unki mine comes on stream; Zimbabwean pgm ores contain a relatively high proportion of palladium.

Russian primary supplies are forecast to remain steady in 2011. Norilsk plans to increase disseminated ore production to compensate for lower production from richer ore bodies. Sales of palladium from Russian state stocks are expected to total several hundred thousand ounces, a substantial addition to supplies in 2011, but will fall short of the million or so ounces which were sold from state stocks in each of the last three years.

Supplies of palladium from North America are anticipated to increase this year due to higher mined output. We anticipate a substantial increase in sales from North American Palladium. Although the mine reopened in April 2010, it has a long refining pipeline and only small amounts of metal were sold in 2010. Higher output from Xstrata in 2011 is expected mainly due to the first full year of production from Nickel Rim South. This mine has high grades for the Sudbury area, and its opening has increased the overall grade of ore mined in Sudbury.

We believe recycling of palladium will increase once again in 2011 as growth in new car sales has a commensurate impact on the number of end-of-life vehicles being scrapped. Recycling of palladium from the electrical sector is also expected to rise as old electronic items are scrapped.

Palladium demand should be strong again in 2011, but rates of growth may slow compared with last year. Automotive demand for palladium is set to rise in line with increased car production, particularly in emerging markets such as China. The spectacular recovery seen in the automotive industry in 2010 is unlikely to be matched in 2011 but there should be another increase in production, driven by strong underlying sales. Growth in the use of palladium in Europe will be enhanced by further substitution of palladium for some platinum in diesel aftertreatment formulations.

Industrial purchasing of palladium should continue to benefit from economic growth around the world, as demand for consumer products increases and palladium use in manufacturing of chemical and electrical products rises. Demand for palladium in the chemical sector is expected to grow in China, India and Saudi Arabia as new upstream purified terephthalic acid (PTA) manufacturing plants employing palladium process catalysts are built. Elsewhere, higher rates of plant utilisation should increase demand for top-up catalyst. In the high end of the electrical sector, the long-term trend of increasing loadings of palladium in multi-layer ceramic capacitors (MLCCs) is expected to continue. The increasing complexity of electronic devices also means that generally more MLCCs per device will be needed. This, together with strong consumer purchasing, should help increase demand for palladium in electrical applications.

We cannot be as confident about the prospects for demand for palladium in jewellery. Demand in China, though still meaningful, has lost impetus because of a historic lack of marketing and a change in trade profitability as the price rises. However, palladium should maintain a niche position in European and North American markets as an alternative to white gold in men's wedding bands.

Physical investment demand for palladium continued to be popular in the opening weeks of 2011 with total ETF volumes standing at 2.2 million ounces at the end of March 2011. ETFs are likely to continue to attract investor interest but profit-taking may again net off some new demand, particularly in the more mature funds.

OTHER PGM

We anticipate the rhodium market will be in surplus in 2011. Supplies of rhodium are expected to increase as underlying mine output improves in South Africa due to a combination of recovery of production at older operations, ramping-up at newer mines, and the reopening of some UG2 shafts. Production in Russia and other regions is forecast to be flat. Demand for rhodium will remain strong.

With another strong year forecast in the auto sector, demand for rhodium in autocatalysts will grow in 2011. China and the Rest of the World region are expected to lead this increase with rapid rises in vehicle production and thus in demand for rhodium in TWCs. Elsewhere, rhodium autocatalyst demand is forecast to be flat as automakers continue to introduce lower rhodium loadings in aftertreatment systems.

Demand for rhodium in the glass industry is expected to

remain buoyant in 2011 as manufacturers continue to use high rhodium content alloy in TFT-LCD glass manufacturing facilities. Strong growth in consumer demand for electronic devices including TVs, in which TFT-LCD display glass is used, is expected to drive this. Glass producers continue to increase the rhodium content of their alloys in order to improve the durability of components and extend the working lifetime of plants. Regionally, demand will be highest in China and the Rest of the World region where new manufacturing capacity is due to be installed. Demand for rhodium in process catalysts is also anticipated to increase in 2011 as higher rates of plant utilisation stimulate top-up demand.

Ruthenium demand is forecast to enjoy another strong year as purchases from the electrical and electrochemical sectors continue at a high level. Some dampening of demand for ruthenium in hard disk drives is likely in 2011 given the exceptional level of stock building in 2010. Overall, demand is likely to be slightly lower than in 2010 but considerably higher than in 2009.

Continued economic growth around the world is anticipated to result in higher consumer and business demand for electrical equipment, particularly hard disk drives. Ruthenium benefited from an exceptional year of sales across the hard disk industry in 2010 as manufacturers rebuilt their inventories. Although there is unlikely to be a repeat of the significant increase in working stocks of ruthenium amongst manufacturers as seen last year, demand for hard disk drives in various consumer electronic devices is forecast to sustain ruthenium purchasing at a high level.

Electrochemical demand for ruthenium should continue to increase in 2011. Slightly softer demand in China will be offset by rises in other regions as new and replacement capacity is built in the chlor-alkali industry. Purchasing of ruthenium for the chemical sector will also continue to increase with higher rates of capacity utilisation, driven by downstream demand, stimulating the need to top-up process catalysts.

Iridium demand is forecast to be lower in 2011 than the exceptional level seen last year. Purchases of iridium crucibles for use in the production of LEDs are expected to weaken as manufacturer inventories are high following a good deal of stock building in 2010. Electrochemical demand is anticipated to soften slightly as the modernisation of the Chinese chlor-alkali industry nears completion. Demand for iridium-tipped spark plugs should continue to grow in line with the increase in global vehicle production. Although total demand will be lower than in 2010, it is likely to be significantly higher than in 2009.