

Platinum|2003

Interim Review

Johnson Matthey

18th November 2003

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Welcome to the launch of the Johnson Matthey Platinum 2003 Interim Review.

Today we will be presenting our forecasts of supply and demand for platinum and palladium in 2003 and discussing some of the issues which will affect these markets over the next year or so.

These are interesting times for platinum, with the price at 23-year highs, so let's begin with a summary of the platinum market as we see it in 2003.

Platinum

- **Demand edges up to 6.59 million oz**
- **Purchases for jewellery in China & Japan drop**
- **Diesel sales drive record autocatalyst demand**
- **Output rises in S. Africa but falls in N. America**
- **Market deficit reduced but remains substantial**
- **Funds contribute to price strength**

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Demand will set another new high this year of 6.59 million oz - but this represents only a marginal increase since 2002.

Demand for platinum from Chinese jewellery manufacturers will drop for the first time since the market began to develop in the mid-1990s. Demand in Japan will be sharply lower than last year.

In the autocatalyst sector, we have been seeing increased demand for platinum catalysts for diesel vehicles in Europe and Japan. And in North America demand for platinum will increase because there has been less use of platinum inventories by the auto industry.

Production of platinum in South Africa will grow steadily this year, although by less than had been expected, whilst North American output will drop sharply.

Overall, the platinum market will remain significantly in deficit.

The platinum price has continued the rally which began 2 years ago, with speculative buying by funds contributing to recent price strength.

Platinum Demand by Application

'000 oz	2002	2003	% change
Autocatalyst: gross	2,640	3,180	20

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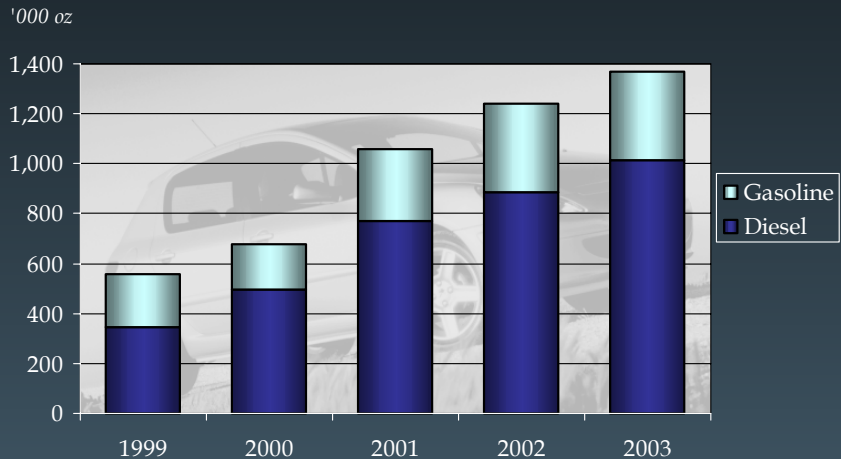
Examining demand first, the major shift this year has been in the autocatalyst sector.

Gross demand (purchases of metal) from auto companies will jump by 20 per cent to a record total of 3.18 million oz in 2003.

In North America, the inventory adjustments of 2002 will not be repeated this year and so purchases of the metal will increase.

In addition, we are seeing the introduction in the USA of new vehicles using platinum-based catalyst systems – reflecting emissions system development decisions taken as much as two years ago.

European Demand for Platinum in Autocatalysts 1999 - 2003



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A major component of the growth in autocatalyst demand for platinum in 2003 will be the continuing rise in sales of diesel cars in Europe.

With diesel cars forecast to account for 43 per cent of the European new car market, this sector will account for just over 1 million oz of platinum demand in 2003 - around one-third of the total global autocatalyst demand for platinum.

Demand from the European gasoline autocatalyst sector, however, will be largely flat compared with 2002.

Autocatalyst demand - Japan

Tokyo HDD retrofit
boosts Pt demand



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In Japan, autocatalyst demand for platinum will get a boost from the application, last month, of legislation requiring the retrofitting of catalysts and particulate filters to heavy duty diesel trucks operating in the Tokyo metropolitan area.

Every truck in Tokyo is now supposed to carry a sticker like this to certify compliance with the new rules.

Platinum Demand by Application

'000 oz	2002	2003	% change
Autocatalyst: gross	2,640	3,180	20
recovery	(570)	(650)	14

Recovery of platinum from recycled autocatalysts is expected to climb to 650,000 oz. Much of the increase will be in Europe, where the recycling infrastructure continues to develop and expand, and where the proportion of cars being scrapped that are fitted with catalytic converters is rising.

Platinum Demand by Application

'000 oz	2002	2003	% change
Autocatalyst: gross	2,640	3,180	20
recovery	(570)	(650)	14
Jewellery	2,820	2,450	(13)

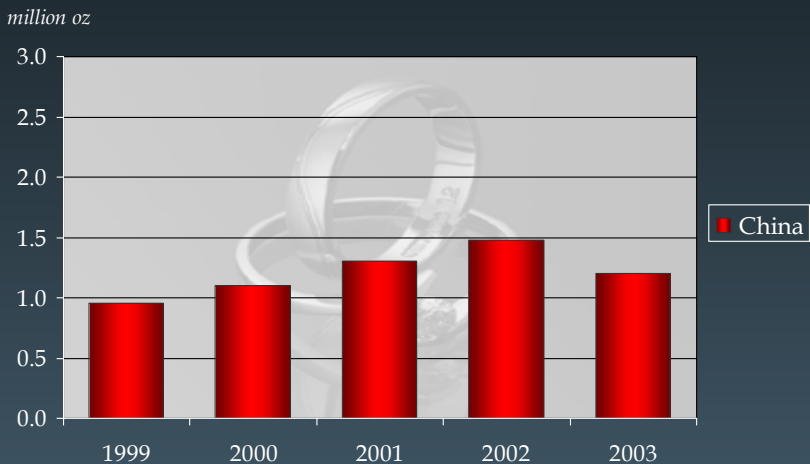
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Offsetting a large part of the rise in autocatalyst demand is a 13 per cent decline in jewellery demand.

We are forecasting that demand for platinum from jewellery fabricators will fall this year to 2.45 million oz, with lower purchases in the principal markets of China and Japan.

Demand for Platinum in Jewellery 1999 - 2003



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Chinese demand for platinum used in jewellery will drop for the first time since the market began to develop in the mid 1990s. We expect demand to fall by 19 per cent to 1.2 million oz.

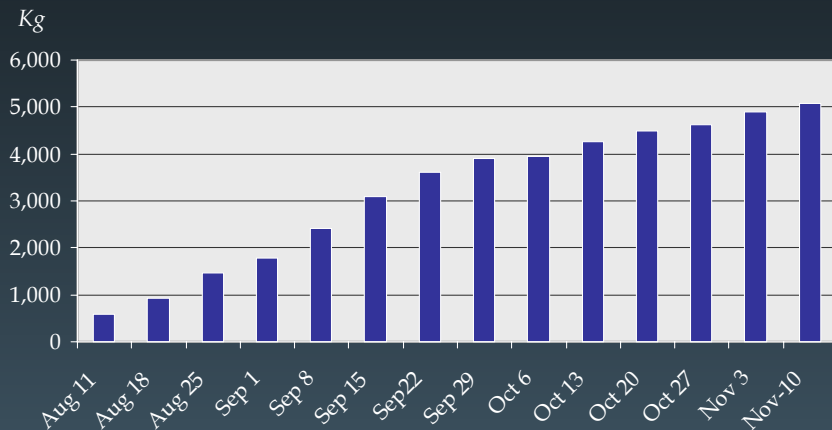
Chinese consumers remain enthusiastic buyers of platinum jewellery, despite higher prices in the stores. But rapid rises in the spot price have squeezed manufacturing margins, causing many jewellery manufacturers to hold back from buying metal, waiting until there is a dip in the spot price or until retail prices are raised.

In addition, the pace of expansion of platinum jewellery manufacturing has slowed as lower margins make the business less attractive to new entrants.

The outbreak of SARS during the first half of the year did not have as severe an impact as we had expected six months ago. As it turned out, its effect on retail sales of platinum jewellery was temporary and mainly limited to city centre retailers in the larger cities .

The more significant effect of SARS was to force some smaller fabricators and wholesalers to withdraw permanently from the platinum jewellery business.

SGE: growth in platinum trade 11 Aug – 14 Nov 2003



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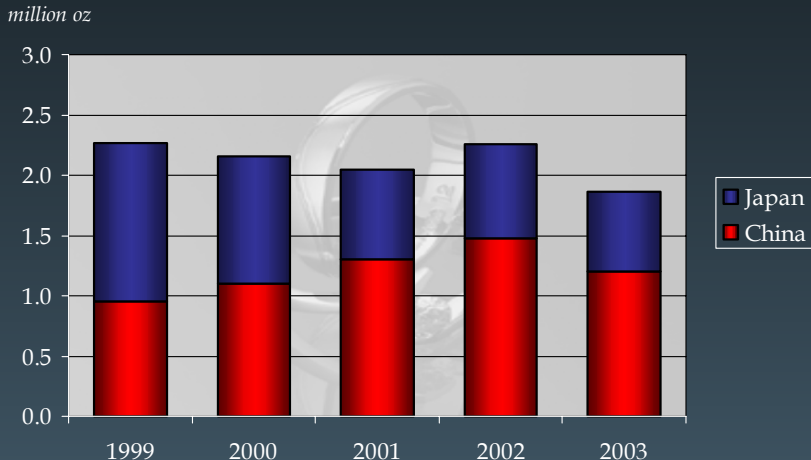
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A positive development for the platinum jewellery trade in China, however, was the introduction of platinum trading on the Shanghai Gold Exchange in mid-August.

With this move, the taxation of platinum was brought into line with that of gold, and platinum traded through the SGE is effectively free of Value Added Tax.

Our chart shows the cumulative volume of platinum sold through the Exchange since trading began. The total reported volume of platinum traded for the period 11th August to 14th November was more than 5 tonnes (over 160,000 oz). This is an annualised rate in excess of 20 tonnes, or more than half of our forecast for demand in China this year.

Demand for Platinum in Jewellery 1999 - 2003



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Japanese demand for platinum in jewellery will also drop in 2003 – we expect a fall of 15 per cent to 665,000 oz, approximately half the level of demand four years ago.

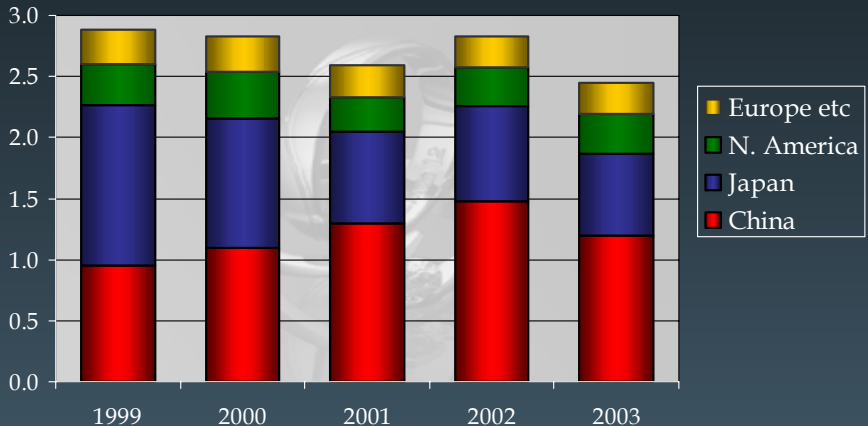
Purchases of platinum by Japanese jewellery manufacturers have been reduced by an unexpectedly high level of inventory recycling, primarily because of a rise in jewellery company bankruptcies, leading to large-scale liquidation of stocks.

At the retail level, sales of platinum fashion jewellery are also expected to decline again in 2003, in common with the jewellery sector as a whole, but platinum has also come under further pressure from lower-priced white gold items.

The bridal sector remains the core of the Japanese platinum jewellery market, but even here demand is set to weaken as the marriage rate declines.

Demand for Platinum in Jewellery 1998 - 2002

million oz



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We do not expect much change in the level of demand in other jewellery markets. North American consumers have been fairly cautious in their spending on luxury items and retailers are hoping that sales of platinum jewellery will be good in the run up to Christmas.

In Europe, platinum continues to rapidly gain market share in the UK bridal sector but sales of precious metal jewellery in Germany remain depressed.

Platinum Demand by Application

'000 oz	2002	2003	% change
Autocatalyst: gross	2,640	3,180	20
recovery	(570)	(650)	14
Jewellery	2,820	2,450	(13)
Industrial	1,590	1,600	1
Investment	80	10	(88)
TOTAL DEMAND	6,560	6,590	0.5

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Industrial demand for platinum is forecast to be virtually level with 2003.

Demand for platinum from the bulk chemical and nitric acid industries will be down, but it will increase for silicone manufacture, for biomedical components and for fuel cell development programmes.

Our investment numbers measure retail physical investment in the form of platinum bars and coins. Net demand from investors is expected to slump to just 10,000 oz this year. Higher platinum prices have stimulated an increased rate of sales back to the market in Japan, and have cut demand for platinum bullion coins in North America.

In total, demand for platinum in 2003 will edge up by 30,000 oz to 6.59 million oz – the slowest growth in the market for more than a decade.

Turning now to platinum supply:

Platinum Supply by Region

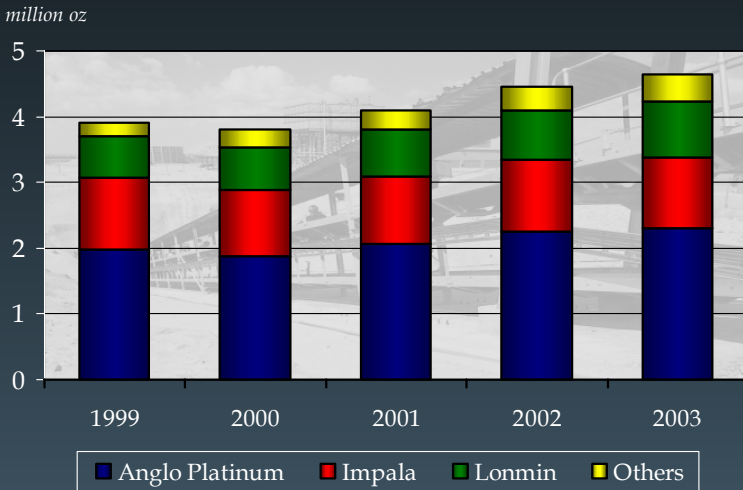
'000 oz	2002	2003	% change
South Africa	4,450	4,650	4.5

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South African output will again lead growth in the supply of platinum in 2003, rising by 4.5 per cent to 4.65 million oz.

Expanding South African Supply



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South African mines are currently expanding.

We can look at this in more detail:

Anglo Platinum expects to refine 2.3 million ounces in 2003. That is a 2 per cent increase on the year before but less than the 2.4 million oz the company had intended to produce when the year began. The simultaneous commissioning of a new smelter, slag cleaning furnace and converting process combined to tie up 164,000 oz of platinum in Anglo's refining pipeline. Much of this is due to be released before the end of December 2003.

At Impala, mining operations were disrupted by a 10-day strike in March but overall platinum output from the company's core lease area should be broadly in line with the year before. The Crocodile River mine, however (in which Impala holds an 83% interest) has been struggling with geological problems and Impala is expected to make a decision on the mine's future before the end of the year.

Lonmin is set for a strong year of production from its expanding mines on the western limb of the Bushveld, despite the disruption caused by the explosion at its smelter at the end of 2002.

Other South African production - from Northam Platinum, Aquarius and Southern Era - is increasing.

Platinum Supply by Region

'000 oz	2002	2003	% change
South Africa	4,450	4,650	4.5
Russia	980	950	(3)
Others	540	510	(5.5)
TOTAL SUPPLY	5,970	6,110	2

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Russian shipments of platinum are projected to slip to 950,000 oz, more in line with production, although our forecast also allows for a certain level of sales from government stocks.

Elsewhere, rising production in Zimbabwe will be more than offset by a sharp fall in North American output as a result of Inco having exhausted a pgm-rich ore-body in 2002 and having suffered a three month strike this summer.

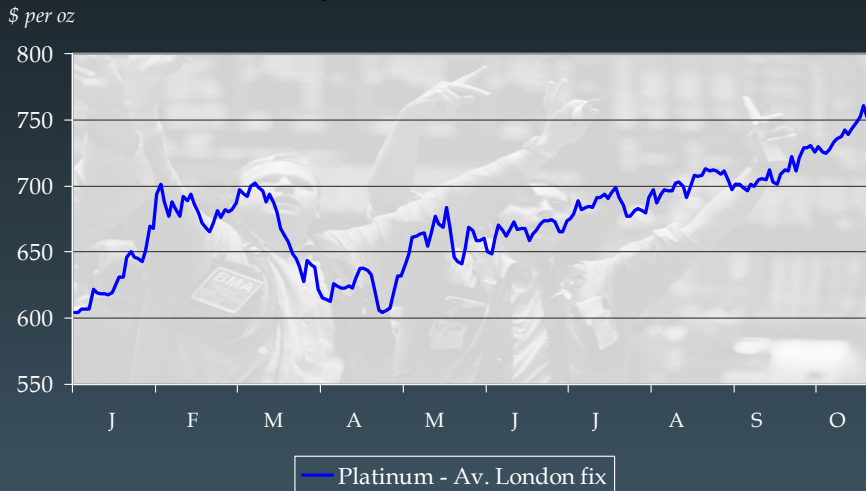
Total platinum supplies, therefore, are expected to rise by just 2 per cent to 6.11 million oz.

Platinum Supply and Demand

'000 oz	2002	2003	% change
Demand	6,560	6,590	0.5
Supply	5,970	6,110	2
Movements in Stocks	(590)	(480)	

Even though supplies will increase at a faster rate than demand this year, we predict that they will fall short of demand by 480,000 oz and the market will therefore have drawn on stocks for a 5th successive year.

Platinum Price January – October 2003



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The continuing tightness in the physical market has underpinned the platinum price during 2003.

The price rallied from \$600 at the start of the year to over \$700 between February and March. After slipping back close to \$600 in April, the upward momentum resumed, and by the end of October platinum had breached \$760 – a price not seen since March 1980.

Speculative money, however, has arguably had a great effect on the metal's price.

Platinum – NYMEX speculative longs versus price, Jan – Oct 2003



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This chart shows the development of the net speculative long position in platinum futures on NYMEX during the last 10 months.

Hedge funds have been active in platinum and most other dollar-denominated commodities, partly in reaction to the weakness of the US currency and partly to diversify portfolios away from equities and fixed income assets.

Comparing the net speculative position with the average fixing price of platinum, it is apparent that this fund activity has had a strong influence on the price – firstly through a sharp bout of long liquidation in mid to late March, then by a steady rebuilding of long exposure by funds from May onwards.

Similar activity has been seen on the Tokyo Commodities Market, and a significant volume of over-the-counter buying of both physical platinum and options has also been noted.

Moving on now to look at palladium:

Palladium

- **Demand recovers to 5.65 million oz**
- **Much less use of inventories by auto companies**
- **Stocks no longer affecting electronics sector**
- **Russian sales rebound to 2.95 million oz**
- **Surplus continues to grow**

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Palladium demand is expected to recover to 5.65 million oz in 2003, a 16 per cent improvement on the year before.

There has been much less use of palladium stocks by the auto industry this year, leading to a revival in demand.

In the electronics industry, significant inventories of palladium were worked off during 2002 and so purchases of the metal have also jumped in this sector.

On the supply side, Russian sales of palladium are forecast to rise by over 50 per cent to 2.95 million oz.

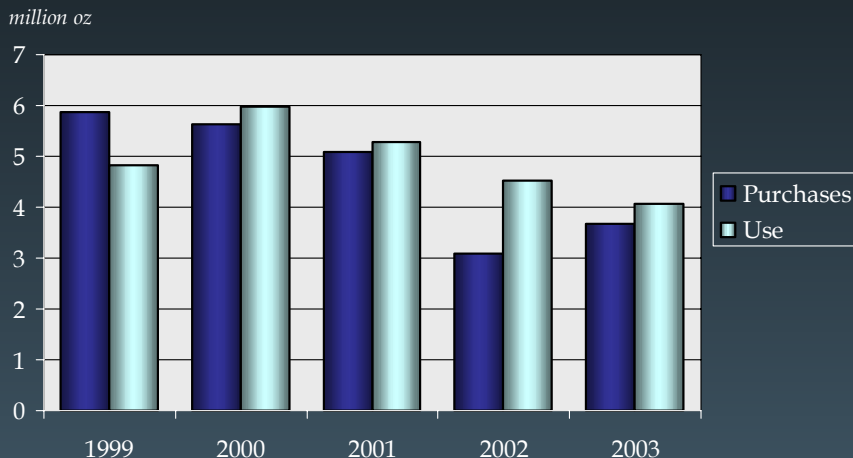
And although demand has recovered, we expect supply to exceed it again this year.

Palladium Demand by Application

<i>'000 oz</i>	2002	2003	% change
Autocatalyst: gross	3,090	3,670	19

The autocatalyst sector is the prime mover of demand for palladium this year, with demand forecast to surge by 19 per cent to 3.67 million oz.

Palladium Autocatalyst Demand 1999 - 2003



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This is, however, well below the peak demand of recent years.

The dark blue bars on this chart indicate our estimates of purchases of palladium by the auto industry and reflect the effects of stock building by auto companies in the late 1990s followed by inventory run downs since then.

The scale of the stock accumulation and subsequent use is apparent if we compare demand for palladium with its actual use in autocatalysts, shown by the light blue bars. 1999 was the last year in a period of significant stock building, and has been followed by four years of inventory depletion.

Note that actual use of palladium on catalysts has been going down since 2001. This is due to thrifting of palladium (primarily by US auto companies) and due to the loss of market share by gasoline cars in Europe, the majority of which use palladium-based catalysts, to diesel cars which use platinum-only catalysts.

Palladium Demand by Application

'000 oz	2002	2003	% change
Autocatalyst: gross	3,090	3,670	19
recovery	(370)	(410)	11
Electronics	750	985	31

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The volume of palladium recovered from recycled autocatalysts is projected to increase by 11 per cent to 410,000 oz in 2003, driven by rising recycling rates in Europe.

Demand for palladium in the electronics industry will climb by almost one-third, reaching a forecast 985,000 oz – mainly because component manufacturers worked off substantial inventories during 2002 and so have purchased more metal this year.

The underlying use of the metal is weakening, however, due to three major trends:

Palladium Demand by Application Electronics

- **Thriftig**
- **Miniaturisation**
- **Substitution**

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Manufacturers of both multi-layer ceramic capacitors and hybrid integrated circuits have reduced the amount of palladium per component;

Miniaturisation is a continuing trend that is reducing the size of components such as capacitors and consequently the amount of raw materials used;

And although shipments of capacitors are expected to grow rapidly in 2003, the effect of this on palladium demand will be largely offset by further growth in the market share taken by nickel-based products.

Palladium Demand by Application

'000 oz	2002	2003	% change
Autocatalyst: gross	3,090	3,670	19
recovery	(370)	(410)	11
Electronics	750	985	31
Dental and Other	1,380	1,405	2
TOTAL DEMAND	4,850	5,650	16.5

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The fall in the price of palladium, coupled with the rise in the price of gold, will enable palladium-based dental alloys to regain some market share in North America and Japan this year. In Europe, however, the substitution of palladium by alternative alloys and ceramics that occurred between 1998 and 2001 appears to have become permanent.

In total, demand for palladium is forecast to rise by 16 per cent to 5.65 million oz.

Palladium Supply by Region

'000 oz	2002	2003	% change
Russia	1,930	2,950	53

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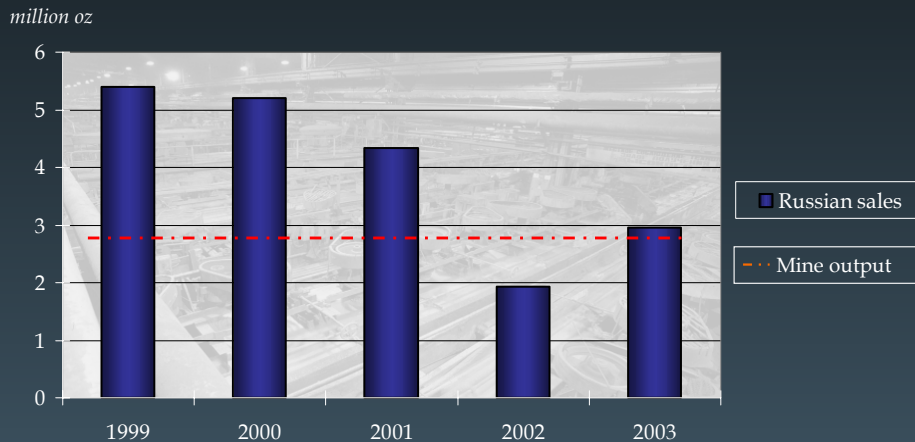
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Supplies, however, are also going to rise substantially in 2003.

Russian sales of the metal are forecast to jump by 53 per cent to 2.95 million oz.

Norilsk Nickel held back from the spot market in 2002 in an effort to support the palladium price (supported by the state treasury, Gokhran). This year, however, Norilsk expects to sell its full output and, as with platinum, we expect that a small amount of government stock will also find its way to the market.

Russian Palladium Sales 1999 - 2003



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This chart shows the pattern of Russian palladium sales over the last five years: substantial sales from central government stocks between 1999 and 2001, Norilsk's suspension of spot sales in 2002, and shipments recovering to more closely reflect mine production this year.

I should point out that the 877,000 oz of palladium transferred to Stillwater Mining earlier this year, as part payment for Norilsk's taking a majority shareholding in the company, are not included in our supply figures.

Palladium Supply by Region

'000 oz	2002	2003	% change
Russia	1,930	2,950	53
South Africa	2,160	2,280	5.5
North America	990	850	(14)
Others	170	240	41
TOTAL SUPPLY	5,250	6,320	20

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In South Africa, palladium output will rise slightly faster than platinum production as new projects mining the relatively palladium rich UG2 reef begin to account for a greater proportion of the total volume of ore mined.

In North America, however, Stillwater Mining Company has reduced production at its Stillwater Mine as part of its restructuring efforts and output at Inco will fall, alongside the drop in platinum production.

Other supply will rise as platinum mines in Zimbabwe expand.

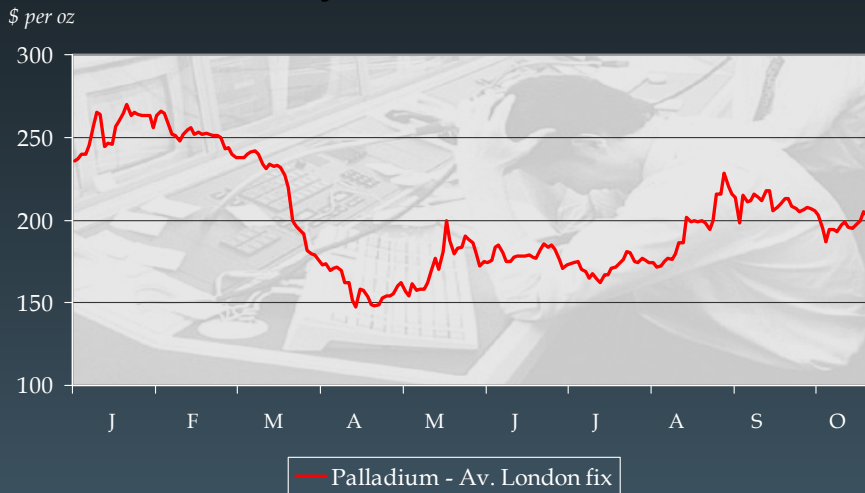
In total, palladium supplies are forecast to grow by 20 per cent to 6.32 million oz.

Palladium Supply and Demand

<i>'000 oz</i>	2002	2003	% change
Demand	4,850	5,650	16.5
Supply	5,250	6,320	20
Movements in Stocks	400	670	

Although demand for palladium is recovering, supply is growing even more rapidly and the surplus is set to widen to 670,000 oz.

Palladium Price January – October 2003

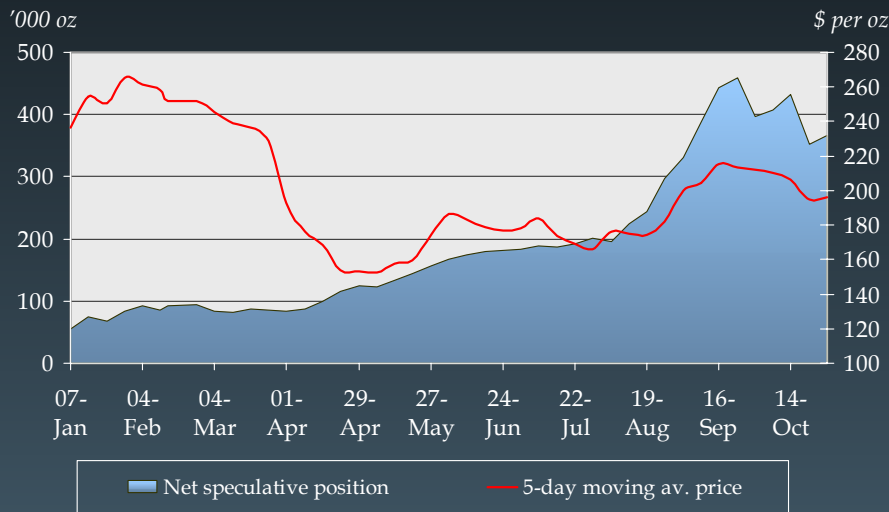


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With the market fundamentals weak, the palladium price dropped from around \$250 in January this year to a low of \$144 in April. As with platinum, however, fund activity has increased since then and has supported the price.

Palladium – NYMEX speculative longs versus price, Jan – Oct 2003



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Both smaller speculators and funds built up substantial long positions on NYMEX from April onwards, the buying accelerating in August and driving a rally in the palladium price up to a peak of just over \$230 in September. A degree of long liquidation during October resulted in the price easing back towards \$200.

Now to move on to review the key market issues for platinum and palladium.

Key Issues

- **Auto industry**
 - **diesel car sales**
 - **emissions legislation**
 - **HDD retrofitting**
 - **changing pgm ratios & thrifting**

In the auto industry, diesel car sales are almost certainly going to drive further growth in demand for platinum in Europe as the market share of diesels increases.

Emissions legislation is continuing to tighten in Europe, North America and Japan, as well as in new markets such as China and India, and this will continue to have a broadly positive impact on platinum and palladium use.

Retrofitting of platinum diesel oxidation catalysts and particulate filters to heavy duty vehicles is becoming increasingly common. In Japan, other major cities may follow the example set by Tokyo; in the USA and Europe there are government programmes to support retrofits.

With the current price differential between platinum and palladium, there is likely to be some switching to palladium autocatalysts on gasoline vehicles by the auto industry. This will take place incrementally as new vehicle models are introduced, but the effect on palladium demand might not be as great as some would expect, due to the intensive thrifting of palladium on catalysts that has occurred over the last two to three years.

Key Issues

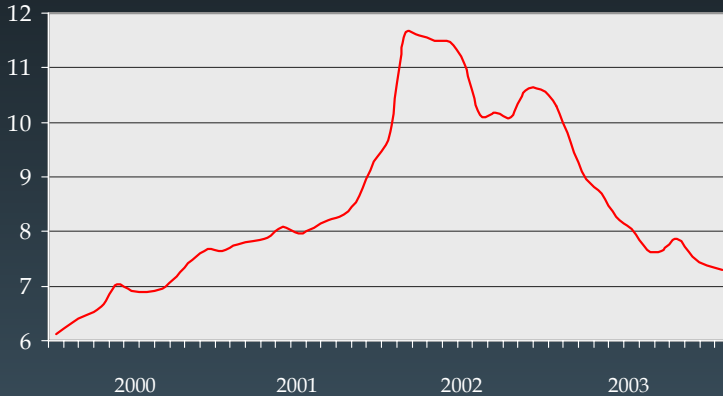
- **Auto industry**
- **Chinese jewellery demand**
- **South African mine expansions**
 - PGM prices versus rand strength

The main influence on the level of Chinese jewellery demand for platinum will continue to be the profit margins available to manufacturers, which in turn depends on the relationship between the platinum spot price and retail prices of platinum jewellery.

On the supply side, the pace of South African mine expansions will have an important bearing on the platinum market going forward. A growing concern for South African producers is the recent strength of the Rand.

Monthly average rand:\$ rate Jan 2000 – Sept 2003

rand:\$



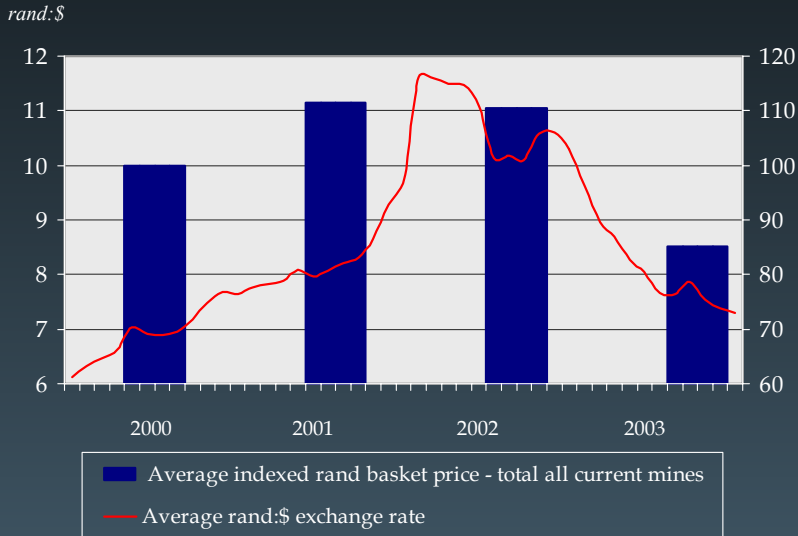
— Average \$:rand exchange rate

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The Rand : dollar exchange rate has been volatile during the last four years, as demonstrated by this chart. A weak Rand has been strongly supportive for the revenues of pgm producers. Since early last year, however, the Rand has gained ground and the dollar has weakened, reducing the returns for the South African platinum mining industry.

Indexed average PGM Basket Price Jan 2000 – Sept 2003

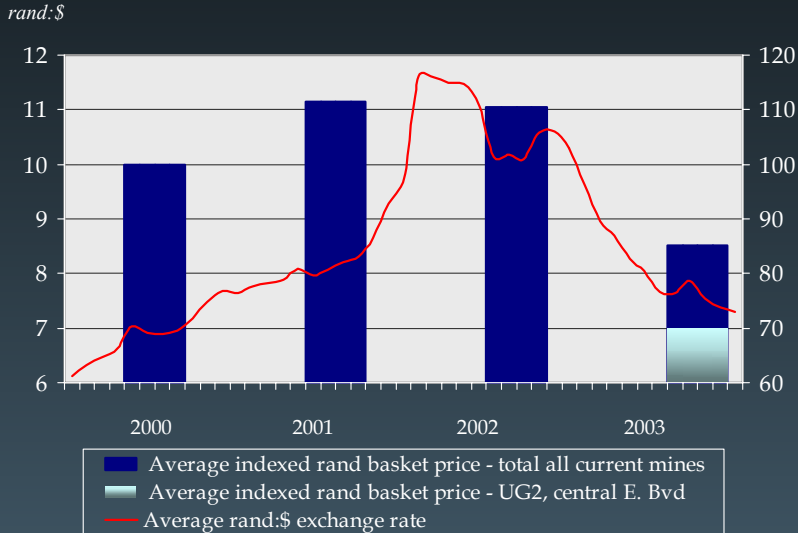


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The Rand this year has been a little weaker against the dollar than it was in 2000, but the dollar values of palladium and rhodium have dropped dramatically, outweighing the rise in the value of platinum. As a result, the average Rand pgm basket price in 2003 to date is some way below the level of 3 years ago.

Indexed average PGM Basket Price Jan 2000 – Sept 2003



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This is of key importance for several of the proposed new mines on the Eastern limb of the Bushveld complex as the UG2 ore that would be mined contains a significantly higher proportion of palladium and minor pgm than either the Merensky Reef or UG2 on the Western side of the Bushveld.

In addition to the weakening basket price, producers' costs have been rising well above the rate of inflation in areas such as labour and healthcare.

Key Issues

- **Auto industry**
- **Chinese jewellery demand**
- **South African mine expansions**
 - PGM prices versus Rand strength & inflation
 - **Legislative programme**

The outlook in South Africa is further complicated by mining legislation, with the proposed royalty bill in particular causing some unease within the mining industry as a whole.

Key Issues

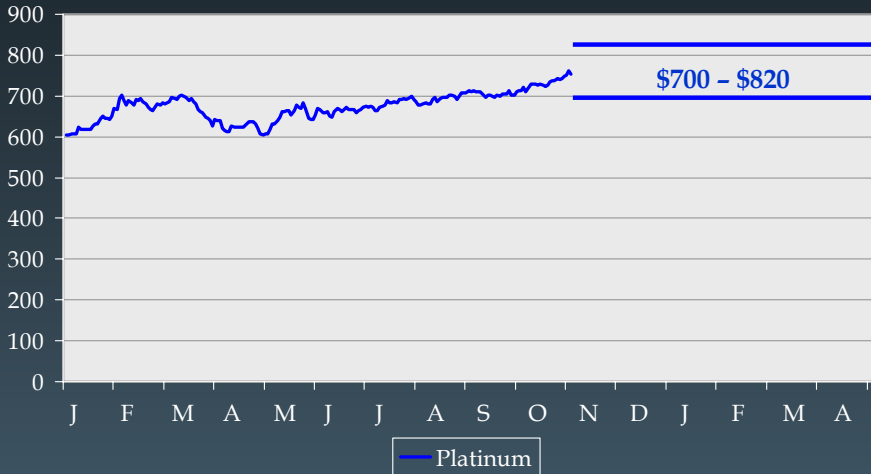
- Auto industry
- Chinese jewellery demand
- South African mine expansions
- **Palladium stocks**
- **Fund activity**

Stocks of palladium are still held by the Russian government, as well as by Stillwater Mining in the USA, and any substantial disposal of metal from these reserves would clearly have the potential to influence the market.

Finally, fund activity is expected to continue to have a large bearing on the price of both platinum and palladium in the short term, whether through further accumulation of long positions or liquidation of those already held.

Forecast Prices For The Next 6 Months

\$ per oz



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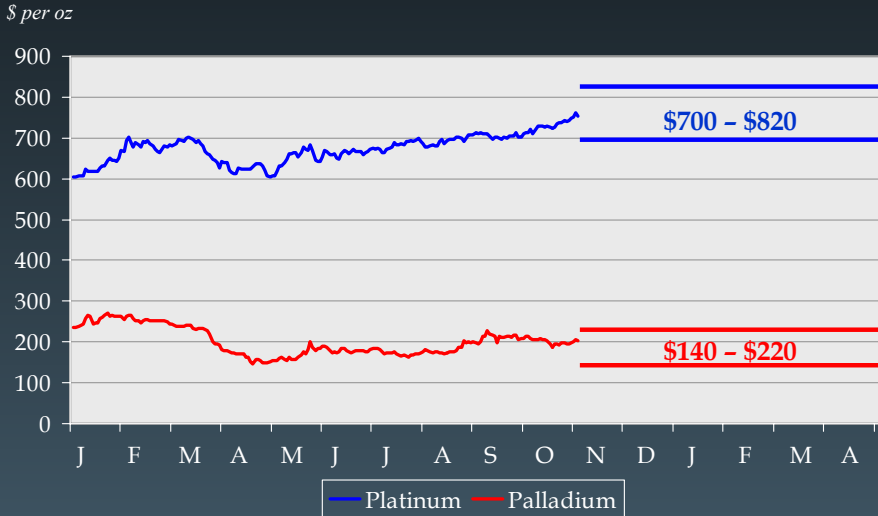
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So, with all that in mind, what does Johnson Matthey forecast for platinum and palladium prices over the next six months?

We believe platinum would be well supported by physical purchasing from China and elsewhere should there be a price decline. On the other hand, further fund buying of the metal has the potential to push the price above \$800 on the upside.

As a result, we forecast a range of \$700 to \$820 an ounce for platinum over the next six months.

Forecast Prices For The Next 6 Months



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For palladium, the fundamentals are likely to remain weak.

The continuation of the current oversupply should put a cap on the price, while a liquidation of fund long positions or any substantial increase in sales of Russian government or other stocks could trigger a price decline.

Our forecast for palladium is therefore \$140 to \$220 an ounce.

That concludes the presentation.