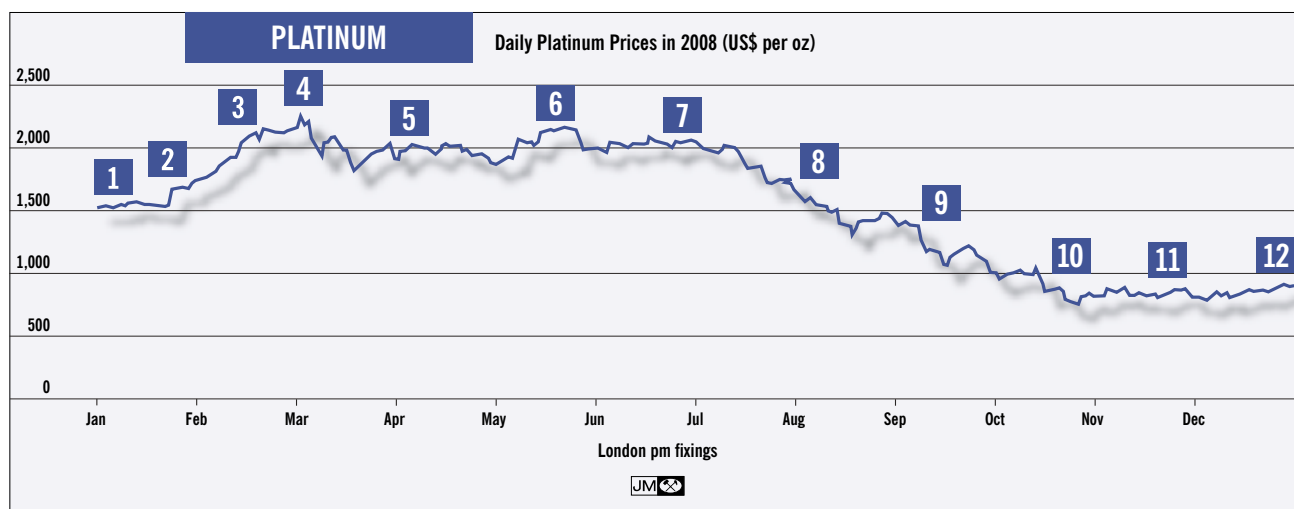


PRICES & FUTURES MARKETS



Supply disruption and strong investor interest drove platinum to record highs in the first half of 2008 before a collapse in confidence in the global economy sent the price crashing lower in the second half of the year.

2008 was an extraordinary year for the platinum market. The price started January at \$1,530 and ended the year at \$899. However, it did climb to an all-time record high of \$2,276 in March, demonstrating the enormous volatility throughout almost the entire year. In fact, the year can readily be split into two halves: for the first six months, supply disruptions in South Africa, good end-user purchasing and strong fund interest boosted the platinum price to record levels; in the second half of the year, a resurgent US Dollar, global economic worries and plunging vehicle sales drove the price lower, to levels not seen since 2005.

1 The platinum price had climbed steadily during 2007, driven by a weak US Dollar and strong commodity prices and this momentum continued into 2008. The first fix of the year was \$1,530, a little below the December 2007 record high of \$1,544.

The dollar continued its slide and platinum reached a new record of \$1,555 on the 9th of **January**. There were many more record prices to come in the following months. Even at this early point of the year, worries over losses at the major international banks were causing volatility in commodity prices: alternative investments became more attractive than equities to many funds but every fall on the

stock markets drove sales of commodities to cover losses elsewhere. In January, this mix of activity was largely positive for the platinum price, although it did introduce very high intra-day volatility.

The prospects of a cut in US interest rates depressed the dollar on the 14th and very healthy buying of platinum on the Shanghai Gold Exchange (SGE) sent the price to \$1,589. A sharp drop in share prices drove sales of gold and other metals and the price slipped to \$1,522 – the lowest price during the first half of 2008 – on the 22nd of January.

When US interest rates were cut by three quarters of a per cent later that day, this supported the price. On the 23rd, Anglo Platinum announced the short-term closure of its Amandelbult mine due to flooding, driving the price rapidly higher, to \$1,591 on the 24th.

2 The most important moment in the first half of 2008 came on the 25th of January when the electricity supply problems, which had been occurring in South Africa since late 2007, intensified. With power outages increasing in number and becoming impossible to forecast, the mining industry stopped almost all of its activities. With the market already tight, platinum leapt higher in response to \$1,681 that day.

3 Mining restarted in South Africa in late January but the price continued to rise. Investors saw an opportunity and quickly started to build large positions through the two European Exchange Traded Funds (ETFs) – over 105,000 oz of metal was bought in one month.

The price rose to \$1,716 on the 29th before Eskom,

Average PGM Prices in \$ per oz			
	2007	2008	Change
Platinum	1,303.70	1,576.20	21%
Palladium	354.85	351.90	(1%)
Rhodium	6,190.55	6,563.90	6%
Ruthenium	579.60	322.55	(44%)
Iridium	446.95	450.05	1%

Platinum and palladium prices are averages of London am and pm fixings. Other pgm prices are averages of Johnson Matthey European Base Prices.

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the South African power utility, announced that it could supply 90 per cent of the mines' power requirements. The price stabilised but, on the 31st, Eskom was forced to admit that it could not achieve even this target and the price started to climb again.

Platinum moved over \$1,800 on the 6th of **February** despite a fall in physical purchasing in response to the rising price. It was further boosted by unfounded rumours that Russian exports could not meet contractual obligations. Japanese futures investors then took charge and propelled the price higher still. On the 11th, Anglo Platinum reduced its production forecast, generating yet more fund buying, and platinum shot to \$2,010 on the 14th.

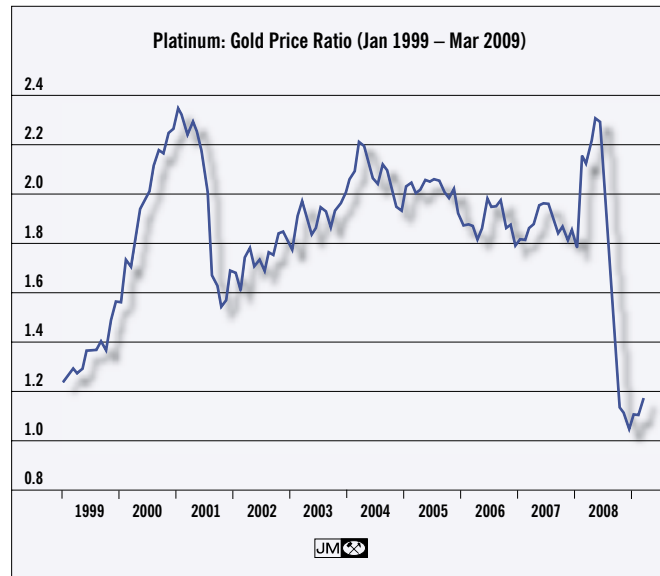
Each dip in the price was met with good physical buying and a rising gold price helped to drive platinum onwards. Just as importantly, the temporary closure of Anglo Platinum's Polokwane smelter on the 15th of February cut metal supply further. ETF buying continued and platinum leapt to \$2,180 on the 21st.

4 Platinum continued to climb in early **March**. Gold approached \$1,000, the dollar remained weak and large amounts of forward purchasing drove platinum to an all-time high of \$2,276 on the 4th of March. This marked the highest point for the price during 2008.

5 Investors now took some of their profits, selling platinum and driving the price lower. ETF purchasing

slowed and physical demand softened in response to the higher prices. However, uncertainty over both the South African electricity situation and the US economy generated very high volatility.

Funds started to liquidate some of their long positions, driven by Eskom's premature claim that it could provide 95 per cent of the mining companies' power needs. The price lurched \$300 lower in just two days to \$1,947 on the 10th of March. However, a weaker dollar and a strong investor appetite for gold pushed that metal over \$1,000, helping platinum back over



\$2,000 the next day.

This pattern continued with investor sales repeatedly driving platinum below \$2,000 and strong physical buying sending it back higher. Platinum did fall as far as \$1,823 – its monthly low – on the 20th of March before finding good support from industrial purchasing.

Platinum fell \$102 between the final fix of March and the first fix of **April** to \$1,938 as funds sold-off gold, platinum and palladium to cover losses in the equity markets. Slowly, though, the volatility decreased and the price settled to \$1,855 on the 2nd of **May**.

6 Excitement quickly returned to the platinum market in early May. Concerns remained over the ability of the South African platinum producers to maintain their output with a reduced electricity supply, prompting good physical purchasing and driving the price higher. On the 7th, the launch of an Exchange Traded Note (ETN) encouraged heavy fund buying, with platinum shooting up to \$2,082 on the 9th. The price paused here but a range of stimuli – including a rising gold price and the spectre of further power cuts in South Africa – reinvigorated the market. Platinum peaked at \$2,192 on the 22nd of May before buying interest diminished.

7 In **June**, attention turned to the worsening global economic situation and investors started to worry about demand for commodities including the platinum group metals. Fund sales of long positions forced the price lower but whenever the price dipped below

While platinum traded at roughly twice the price of gold for more than 5 years, the prices of these two metals converged in late 2008.

Platinum Prices in 2008 London am and pm fixings, \$ per oz			
	High	Low	Average
January	1,731.00	1,522.00	1,583.95
February	2,180.00	1,741.00	1,997.40
March	2,276.00	1,823.00	2,052.40
April	2,065.00	1,918.00	1,989.10
May	2,192.00	1,855.00	2,054.60
June	2,103.00	1,974.00	2,039.45
July	2,075.00	1,726.00	1,910.20
August	1,717.00	1,313.00	1,490.20
September	1,451.00	1,004.00	1,224.20
October	1,040.00	756.00	913.40
November	880.00	797.00	841.30
December	920.00	788.00	840.10
Annual	2,276.00	756.00	1,576.20

\$2,000, technical traders and “bargain-hunters” drove it higher. Although news of the worsening slowdown in the North American automotive market and in some European markets began to emerge, nothing seemed able to move the price far in either direction.

8 This stability was, though, purely an illusion: the platinum price weakened at the start of **July** as the scale of the problems in the global financial sector started to become apparent. Lonmin announced the temporary closure of its No.1 smelter at Marikana but any impact this might have had on the price was outweighed by weak North American vehicle production. Platinum fell to \$1,986 on the 7th of July.

A falling dollar helped the platinum price to bounce back to \$2,040 on the 11th but sales of 25,000 oz of metal by ETF investors reversed the tide. Both selling on TOCOM and the announcement by General Motors of hefty cuts in its planned vehicle production hit platinum, which dropped to \$1,956 on the 16th.

With the technical support at the \$2,000 level removed, the platinum price crashed lower. There was turmoil in the financial markets with investors liquidating many long positions in favour of cash, helping the dollar – in its role as a safe haven investment – to strengthen. Net long positions on the futures exchanges dropped by half during July, sending the price spiralling down to end the month at \$1,758.

The dollar continued to strengthen and the selling from funds and other investors persisted. TOCOM opened limit down on a number of successive days early in **August**, keeping the pressure on the price which slipped below \$1,600 on the 4th despite strong physical purchasing in Tokyo and Shanghai.

A one-day strike in the South African mining industry on the 6th pushed platinum back over \$1,600 but negative investor sentiment was now dominant. Other commodity prices crumpled and platinum followed: ETF redemptions and sales of futures positions and physical metal applied further pressure, and the price collapsed to a monthly low of \$1,313 on the 19th.

9 The release of poor US economic data on the 20th of August halted the dollar’s rise briefly and allowed the price to recover some ground. Short covering in oil on the 21st drove many commodities higher with platinum peaking at \$1,494 on the 28th.

Once again the automotive market intervened: Toyota cut its sales forecasts and the price slipped lower again as the investment community continued its selling. Simultaneously, physical purchasing decreased sharply as production cuts from the auto makers led to lower requirements for platinum from this sector.

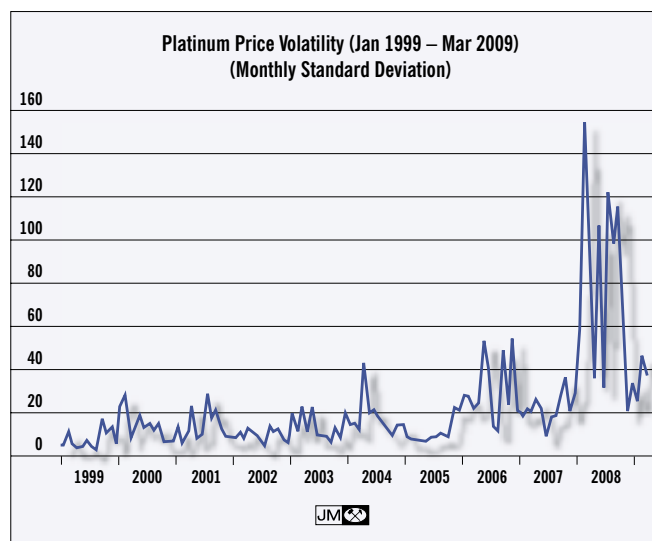
On the 3rd of **September**, US hedge fund Ospraie announced that the losses suffered at its flagship commodities fund meant that this would close. Platinum dropped to \$1,330 on TOCOM early the following day before strong purchasing on SGE drove the price back as high as \$1,423 later that day.

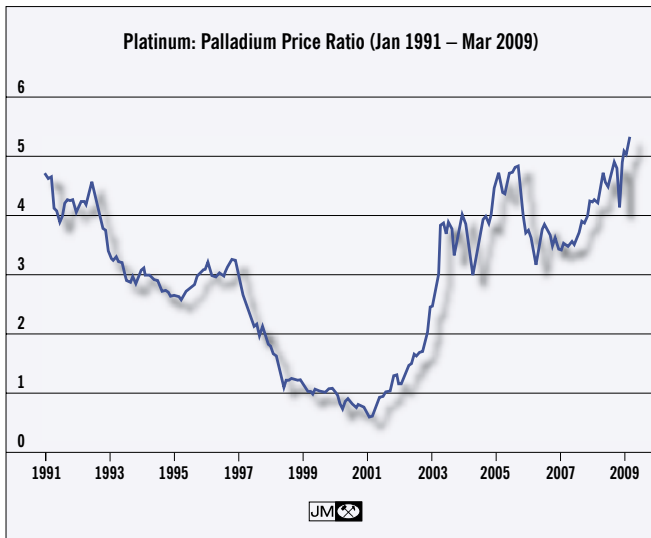
Further investor sales drove the price lower before Lehman Brothers filed for bankruptcy protection on the 11th. This sent shockwaves through the market. Almost every asset was driven sharply downwards and platinum collapsed to \$1,073 on the 17th before the pressure relented.

US Treasury proposals on dealing with so-called toxic debts then provoked wild outbreaks of optimism. The resignation of South African President Thabo Mbeki also boosted the platinum price which reached momentary stability at \$1,225 on the 23rd.

10 Concern over the US Treasury’s rescue plan developed as it was initially rejected by US legislators. The financial markets reacted negatively and the platinum price simply crumbled to \$985 on the 2nd of **October**, the first time it had been under \$1,000 since late 2005. With Chinese buyers absent due to a national holiday, platinum hit a low of \$959 on the 3rd. When they returned on the

The volatility of the platinum price has risen in the last decade and, despite decreasing recently, remains at historically high levels.





The ratio of the platinum and palladium prices continued to grow steadily in 2008.

6th, an astounding 431 kg of metal changed hands on SGE and the price bounced back over \$1,000, reaching a high of \$1,032 on the 14th before running into resistance. However, European vehicle sales softened, eroding investors' confidence in platinum. The price slipped below \$1,000 on the 15th: it did not return above this level again in 2008.

Strong Asian physical buying could not prevent the price retreating further in the face of substantial sales of metal by funds and sharply decreased physical purchases of platinum, especially by the automotive industry. Expectation of a rate cut by the European Central Bank firmed the dollar and more cuts in car production were accompanied by the sale of 45,000 oz of metal from the London ETF. Platinum crashed to its low for the year of \$756 on the 27th of October.

11 On the 28th of October, Aquarius signalled the first response of the South African producers to the low metal price when it shut a shaft at its Marikana operations. The dollar weakened and platinum rebounded over \$800. NYMEX net long speculative positions started to grow again on a possible resumption of electricity cuts in South Africa. The platinum price finally recovered a degree of stability and established itself in a range between \$800 and \$900, amidst very healthy buying of platinum by investors in Japan and industrial and jewellery users in China.

However, fundamentals still played little part: when Anglo Platinum announced the temporary closure of its Polokwane smelter for the second time in a year,

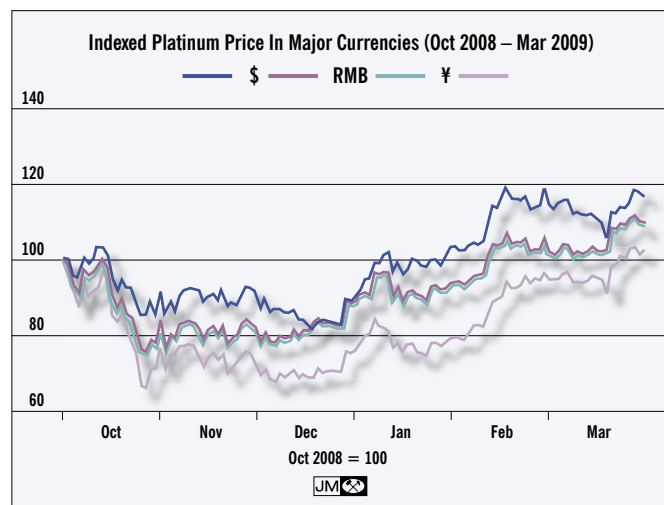
this could only drive the price to \$870 at the second fix on the 5th of **November**. Likewise, a warning from General Motors that it could run out of cash in the first half of 2009 could only push platinum down to \$849 on the 7th. As asset prices everywhere fluctuated, platinum remained volatile but largely range-bound until terrible US unemployment data was released on the 5th of **December**. Almost every commodity fell and platinum plummeted to \$788 that day.

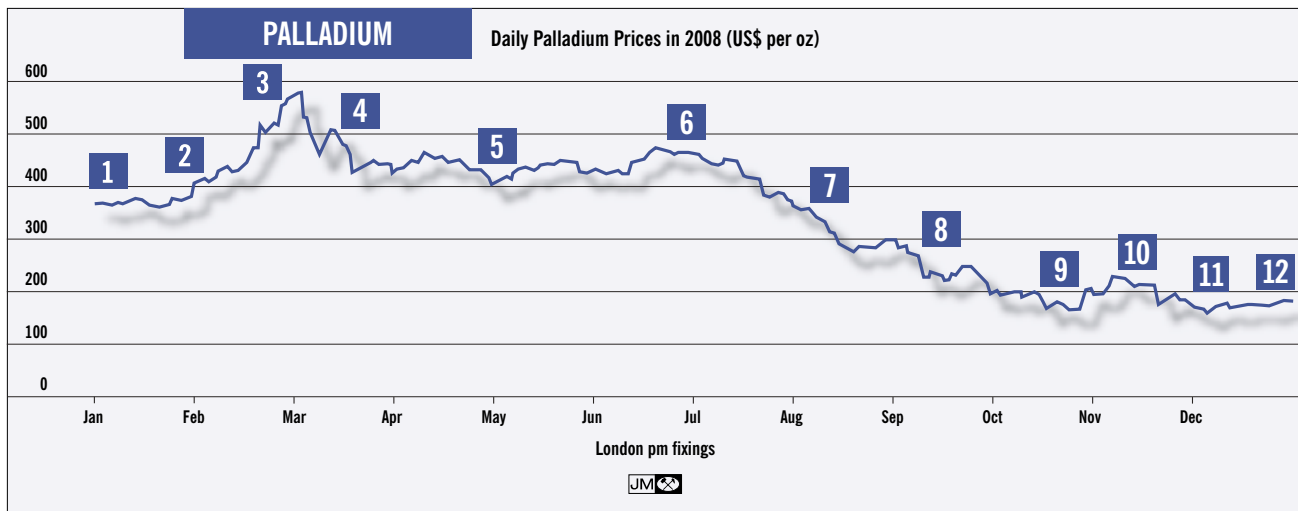
12 The remainder of 2008 was positive for platinum. The US Government announced an enormous public works programme and commodity prices soared, with platinum reaching \$842 on the 8th of December, supported by Aquarius Platinum's temporary closure of its Everest mine.

Now the focus shifted to the health of the automotive industry. Slowing car sales depressed the platinum price even as gold inched higher. Progress on discussions about a bail-out for the "Big Three" provided some support but platinum fell back to \$801 on the 12th when the US Senate rejected the proposal. This was the first time that the platinum price had fallen below that of gold for over ten years.

Currency movements came to the rescue: the dollar plunged on speculation that US interest rates might be cut to zero and platinum climbed to \$874 on the 18th of December. A strong gold price then kept platinum close to this level, with a final fix before Christmas of \$856. Amidst thin conditions, a rising oil price dragged platinum to a year-end \$899, a long way below its highs earlier in the year.

The fall in the platinum price in Yen and Chinese Renminbi in late 2008 encouraged very strong physical purchasing and supported the metal price.





The palladium price rose strongly in the first half of 2008 but collapsed in the second half of the year as investors sold large amounts of metal.

2008 saw remarkable volatility in the palladium market: the price began the year at \$370 and climbed to \$588 in March, its highest point since 2001. Strong gold and platinum prices in the first half of 2008 supported palladium as did robust physical demand. However, investor sales hit the price later in the year. With vehicle sales slow in many regions, physical demand diminished too and the price ended the year at \$183.50.

1 Palladium started 2008 at \$370, just below its 2007 high, but with little momentum. Although the palladium price crept higher, pulled along by a buoyant platinum price and a rising dollar, it remained in a range of \$360-\$380 for the first two weeks of **January**. Good volumes of metal changed hands on the fixes on the 14th, propelling palladium to a mid-month peak of \$382 before profit-taking appeared. Falls in a number of stock markets around the world drove commodity sales by funds to cover their losses and palladium softened to a monthly low of \$363 on the 22nd.

2 A large cut in US interest rates depressed the dollar on the 22nd and 23rd of January, boosting precious metal prices. Palladium drove through the \$380 mark on the 25th on news of the suspension of mining and mineral processing in South Africa in response to the uncertain supply of electricity.

As the platinum price hit a succession of records, palladium kept rising. Investor buying pulled palladium to \$402 on the 1st of **February** – the first time it had been at this level since May 2006. However, the price

kept following platinum's lead and moving inexorably higher. It reached the \$420 mark on the 4th and established a new six-year high as it climbed to \$443 on the 11th before meeting significant resistance.

3 Palladium drifted sideways for several days before rising above \$450 in the spot market in New York on the 15th of February. ETF buying interest, which was already significant, suddenly accelerated. Investors purchased over 130,000 oz of metal through these funds in the last two weeks of February alone. The price leapt in response, reaching \$484 and briefly cresting \$500 on NYMEX before heavy fund profit-taking reappeared. The price dipped to \$469 but, with the dollar weak and gold and platinum prices buoyant, investor money flooded into palladium too. The price rushed to \$568 on the 29th of February – a monthly rise of over 40 per cent – and \$588, its high for the year, on the 4th of **March** as platinum peaked too. Palladium crawled to \$595 on the spot market later that day but was finally driven lower by profit-taking.

4 Palladium now fell rapidly, as the selling pressure intensified, shedding ten per cent of its value in one day when it dropped to \$532 at the afternoon fix in London on the 5th of March. It continued to fall even as gold rose towards the psychologically-important \$1,000 level. It crashed downwards through the \$500 mark on the 7th as investors sold-off some positions and briefly came to rest at \$463 on the 10th, more than twenty per cent below where it had been one week previously.

The dollar then weakened and gold reached \$1,000 an ounce for the first time ever on the 13th of March.

This provided considerable strength to the palladium price which rebounded to \$514 the same day before more fund sales forced it back down to a monthly low of \$425 on the 20th of March.

5 Net long speculative positions on NYMEX fell below a million ounces for the first time in 2008 and ETF purchasing slowed. While the price was still highly volatile by ordinary standards, the level of volatility decreased steadily and palladium traded only between \$415 and \$470 for the whole of **April** without exhibiting any clear direction.

However, the release of poor US automotive sales figures at the start of **May** hit palladium and the price slumped to a monthly low of \$406 on the 1st. However, consumer purchasing remained strong and the price climbed once more, following platinum and gold. On the 8th, Lonmin and Stillwater both released production data showing decreased palladium output, adding further strength to the price. Palladium finally peaked at \$455 on the 22nd. However, gold fell back below \$900 and dragged other precious metals lower. Fears over a slowing global economy intensified and palladium slipped to \$421 on the 5th of **June**.

6 The palladium price initially followed platinum higher in June but the key moment came on the 12th when comments that Russian state palladium stocks could effectively be depleted within the next five years were reported. Investors reacted immediately

and the price hit \$450 on the 13th. Technical buying helped palladium outpace platinum and it forced its way to a peak of \$475 on the 20th of June, before dropping into a range of \$460-\$470 by the end of the month.

7 Now, though, the price weakened dramatically. Slowing automotive production in North America was confirmed in early **July** and palladium tested the support at \$450, slipping below that level on the 7th. Investor sales of metal accelerated and net long speculative positions on NYMEX halved during the

month even as ETF positions grew. On the 15th, a wide range of commodities was sold to cover margin calls elsewhere. Palladium was hit again by very substantial long liquidation on the 23rd and 24th. This outweighed healthy physical purchasing and drove palladium to \$376 on the 30th of July before the selling slowed.

Physical buying decreased in intensity as the car makers entered their traditional holiday season. Short positions on NYMEX increased and continued fund sales of metal were not matched by end user purchasing. Gold hit an eight-month low on the 12th of **August** and palladium fell to a low of \$310 that day.

Further dollar strength, sales of metal in Asia and stop-loss selling in Europe all came on the 15th, forcing palladium nine per cent lower between two fixings. Investment bank selling added the final touch and palladium hit a new low of \$274 on the 19th.

8 Palladium finally found some respite at this level and with many of the “weak longs” having left the market, low levels of physical purchasing were just enough to push the price to \$304 on the 1st of **September**.

However, investors were now focusing on the emerging chaos in the world’s financial markets and on slowing global automotive production. With funds looking to release cash – particularly US Dollars – and move their investments into safer areas, palladium was hit hard. The dollar reached a one-year high against the Euro on the 9th of September and a wave of fund sales followed, with palladium being flung to a paltry \$218 on the 11th before it could find good buying interest and begin to grind its way higher. Encouraged by the optimism that accompanied the US Government’s proposed bail-out plan for the banking system, it finally re-emerged above \$250, fixing at \$253 on the 23rd.

9 The price settled close to \$250 as the American bail-out plan was discussed in late September. However, when US legislators finally rejected the plan on the 29th, palladium collapsed to end the month at only \$199.

The new lower palladium price encouraged buying from investors and end users in early **October**. Palladium quickly bounced back over \$200 but worries over the global economy and weakening industrial demand restrained the price. The dollar gradually strengthened and increased the pressure on commodities. The release of poor European automotive

Palladium Prices in 2008 London am and pm fixings, \$ per oz			
	High	Low	Average
January	388.00	363.00	374.30
February	568.00	402.00	467.65
March	588.00	425.00	490.25
April	469.00	417.00	446.60
May	455.00	406.00	435.90
June	475.00	421.00	449.30
July	468.00	376.00	427.25
August	375.00	274.00	316.00
September	304.00	199.00	248.85
October	207.00	168.00	190.85
November	233.00	179.00	207.10
December	184.00	164.00	176.15
Annual	588.00	164.00	351.90

production data finally overcame the inertia in the price and palladium fell to \$168 on the 24th of October, despite the closure of North American Palladium's Lac des Iles mine in response to the low prices.

10 Again, the low palladium price encouraged strong buying. The price shot back over \$200 on the 29th of October. Purchasing of metal through the ETFs provided further vigour to the price ahead of the US Presidential election, giving palladium just enough impetus to send it to a monthly high of \$233 on the 6th of **November**.

However, reality intervened again: Toyota cut its production forecasts and the announcement of enormous losses at the major US vehicle manufacturers drew all the energy from the palladium market. The price inched lower to \$227 on the 10th of November, and then started to slide faster as the US Dollar firmed. ETF investors turned sellers on the 11th and 12th and drove palladium down to \$211 on the 13th. Negative sentiment regarding the automotive sector prompted investor sales on the 19th and palladium plunged to a monthly low of \$179 on the following day.

11 There was almost no support for palladium until gold came to the rescue on the 21st of November when a \$50 rise in its price finally provided some stability to the palladium price. The US financial authorities intervened in the bank markets by helping to rescue the ailing Citigroup. This lessened the sense of panic in the market and weakened the dollar, sending palladium briefly over \$200 on the 25th before investors took what profits they could find. However, a constant flow of negative news on the US economy fractured the little confidence remaining and palladium retreated again to its annual low of \$164 on the 5th of **December**.

12 In early December, a US Government proposal to stimulate its economy by investing very large amounts of capital in infrastructure projects soothed the markets and drove the dollar downwards. Gold rose as a result and palladium followed gingerly, moving to \$178 on the 8th and into a range of \$175-\$180. It briefly fell through the bottom of this range on the 12th following the US Senate's rejection of the rescue plan for the Detroit car makers. However, the dollar softened on speculation of interest rate cuts in the USA and palladium recovered somewhat, rising to end the year at \$183.50.

OTHER PGM

The rhodium price was buffeted by interruptions to South African metal supply in the first half of 2008 and by worsening economic sentiment and weak automotive sales in the second half. This drove a dizzying price rise from \$6,850 at the start of 2008 to a record high Johnson Matthey Base Price of \$10,100 in June. However, the price turned sharply lower and plummeted to end December at \$1,250.

Rhodium started 2008 at \$6,850, a little below its 1990 record high of \$7,000. Constant end user buying applied upward pressure on the price, which hit a record \$7,025 on the 9th of **January**.

On the 25th of January, the disruption caused by the South African electricity crisis hit rhodium. With consumer buying strong, rhodium rose over \$2,000 in less than a month to \$9,080 on the 20th of **February**. Lingered worries over South African supplies drove the price to a high of \$9,425 on the 7th of **March** before buying dissipated. The price fell to \$8,925 on the 2nd of **April** but purchasing returned – seemingly from industrial users buying metal instead of borrowing it – and easily outweighed the small numbers of offers of metal, pushing the price to \$9,900 on the 28th of **May**.

The price fell back to \$9,525 in early **June**, driven by forward rhodium sales from the new Blue Ridge mine in South Africa. However, investors were now targeting new highs and rhodium finally broke the \$10,000 barrier on the 17th and peaked at \$10,100 on the 19th of June.

Now, though, the price turned around quickly: a slowdown in North American vehicle production and rumours of speculator and auto company sales of rhodium drove the price down to \$8,000 on the 4th of **August**. With South African rhodium supplies stronger than in early 2008, there was little support: dealers were unwilling to hold long positions and buyers vanished. Rhodium plummeted, passing \$7,000 on the 13th and finally stopping at \$3,850 on the 21st of August, less than half of its value at the start of the month.

Some end user buying reappeared and drove the price sharply back to \$6,200 on the 27th of August before stability returned to the market. However, slowing global vehicle production affected rhodium again in early **September** with the price falling by \$1,000 in a single day to \$4,900 on the 3rd of the month. Rumours of further selling by hedge funds or by car

companies dogged the market and rhodium ended the third quarter weakly at \$4,350.

The rhodium price plunged again in **October**. Low levels of buying from end users could not match sustained selling and the price slipped to \$3,300 on the 6th. Buyers remained scarce and the price fell further to a sickly \$1,450 on the 6th of **November** before the temporary closure of Anglo Platinum's Polokwane smelter injected some life into the market. Rhodium bounced to \$1,600 the next day but selling resurfaced and it hit a yearly low of \$1,000 on the 25th of November, over ninety per cent below its mid-2008 peak.

Rhodium finally changed direction in **December** when gentle purchasing and a spell of market exuberance dragged the price to a year-end \$1,250.

The ruthenium price slipped lower throughout almost all of 2008, trading at an average price of \$322.55, 44.3 per cent lower than a year before.

Ruthenium started 2008 positively at \$415 and, although the first movement was downwards to \$405 in early **January**, a small amount of speculator investment and end user purchasing drove the price to a high of \$425 in **February**. Ruthenium remained at this level until early **April**. Large amounts of recycled metal were now returning from the hard disk industry, outweighing slow physical demand and the price was consequently driven lower to \$300 by the end of **June**.

Some buying returned and the ruthenium price stabilised close to this level. However, as the global economic outlook worsened, demand from the hard disk sector slowed and the price fell once more. Ruthenium took regular steps lower and fell to \$230 at the end of **October** and \$200 at the end of **November**. The continued mismatch between demand and combined primary and secondary supply drove the price lower still and ruthenium ended the year at \$100, where it had last been in February 2006.

Iridium was the quietest of the platinum group metals, trading at an average price of \$450.05 during 2008, marginally higher than one year previously.

Iridium remained stationary at \$450 for the first half of the year before climbing marginally higher on steady industrial buying. It reached a high of \$460 in mid-**August** but the economic malaise that was affecting other commodities began to affect iridium too. With industrial demand weakening, the price softened in the final quarter to end 2008 at \$435.

