

Platinum and Palladium
Russian Bullion Seminar
Moscow
David Jollie
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David Jollie
David.jollie@mitprecious.com
Tel: +44 20 7489 6762

New York:
200 Park Avenue,
New York,
NY 10166 0130
Tel: +1 212 878 4122

London:
4th Floor,
St Martins Court,
10 Paternoster Row,
London EC4M 7BB
Tel: +44 20 7489 6767

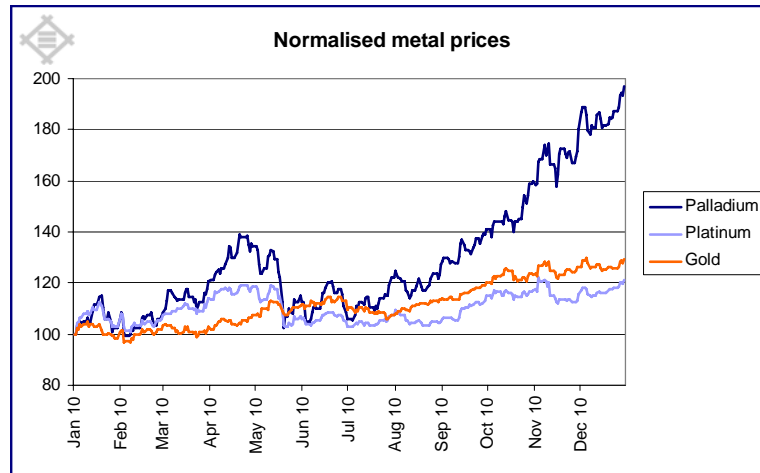
Hong Kong:
Suite 1306,
Two Exchange Square,
8 Connaught Place,
Central, Hong Kong
Tel: +852 2899 2026

Tokyo:
2-1 Ohtemachi 1-Chome,
Chiyoda-Ku,
Tokyo 100
Tel: +81 33 285 3407

Singapore:
80 Robinson Road,
#15-02,
Singapore 068898
Tel: +65 6372 8050

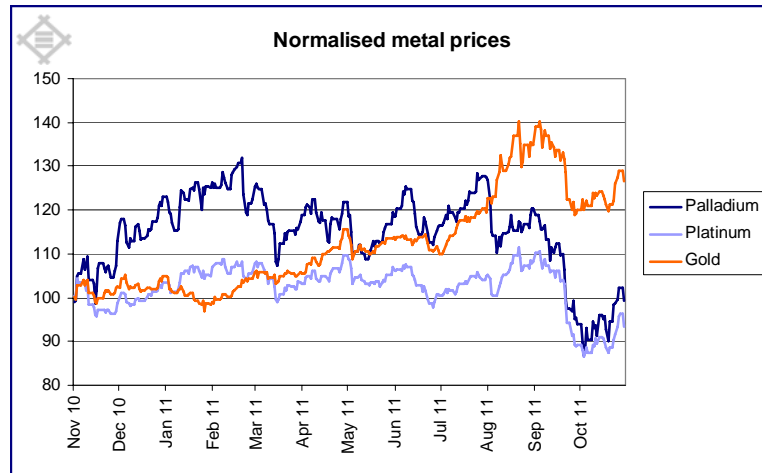
For those who don't read Persian, the comment is one made by a wise man in Persia some centuries ago when asked to make a statement that was always true. It means "this too shall pass" or all things come to an end.

What is driving the price?



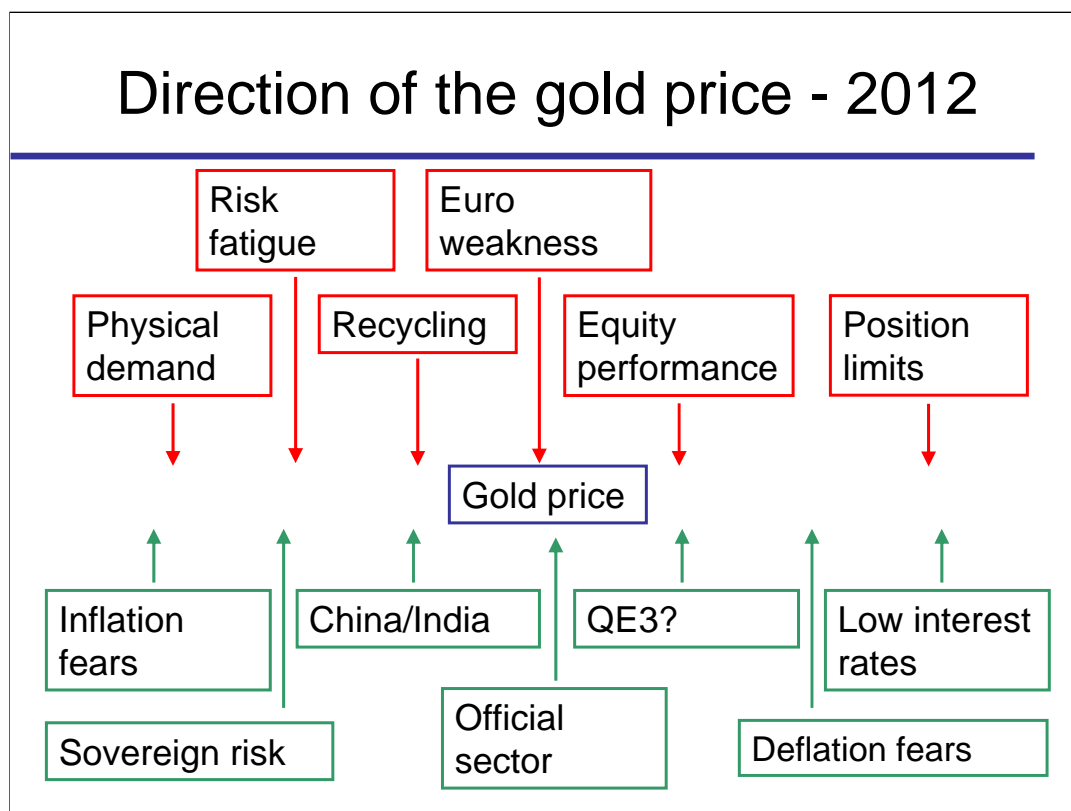
From last year... Recovery from the lows has been strong with platinum and palladium initially outperforming gold. Recently, however, gold has taken a lead on “risk aversion” or worries over inflation. This has clearly helped drive the other metal prices higher but we have seen divergent performance between gold and the pgms in the last few months and we have also seen palladium outperforming platinum for much of this period. So, there must be something else in the price? Is it fundamentals?

What is driving the price?



But this year, we have seen gold outperform both of the platinum group metals in price terms, suggesting that the world has changed in some way. Either risk has increased or the world economy has worsened.

Direction of the gold price - 2012

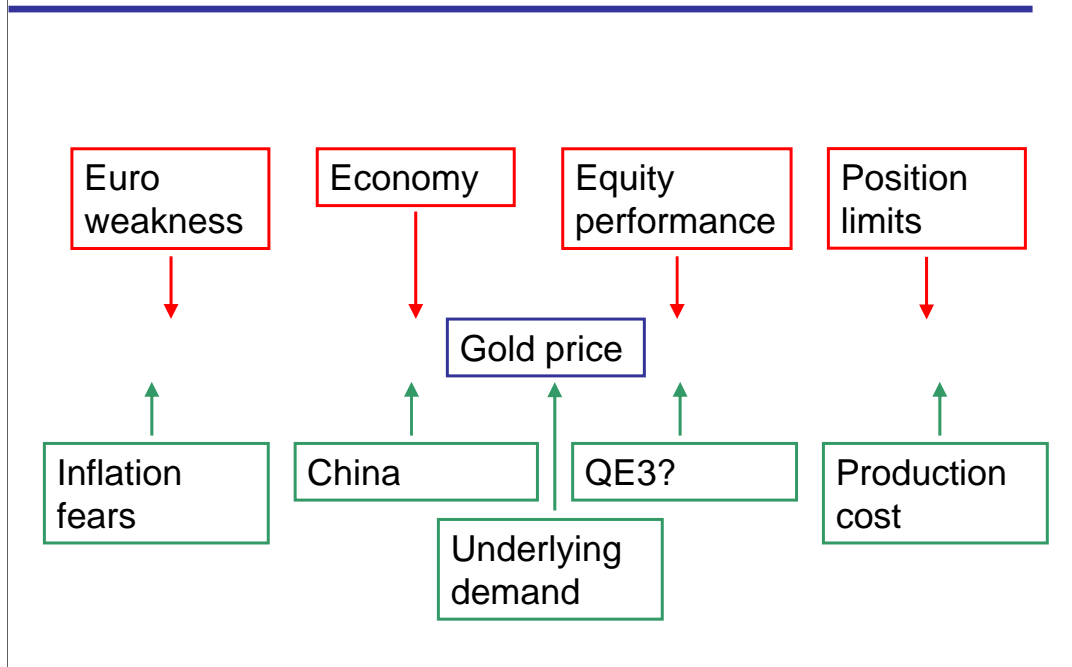


For this graph, the red boxes are negatives which could depress the gold price while the green boxes are positives which could increase it.

Looking forward for gold, the drivers look very similar from this year to next year. The fear of inflation seems to be decreasing and there is more fear of deflation but both of these are positive for gold demand and gold prices (inflation should be good for pgm prices but deflation would be bad). Low interest rates will persist through next year at least in Western countries and there will be few signs of tightening before the US presidential elections at the earliest. Global economies continue to be weak and more quantitative easing is required. Sovereign risk in Europe looks set to continue and there is still not a convincing case that politicians have this under control. Monetary tensions are growing as well with more countries looking to intervene in currency markets to prevent appreciation (in most cases) or depreciation. This may lead to more gold buying as a form of currency in countries where the government might intervene. We can also see many central banks getting more interested in gold as a way to diversify away from the Dollar and the Euro in their reserves.

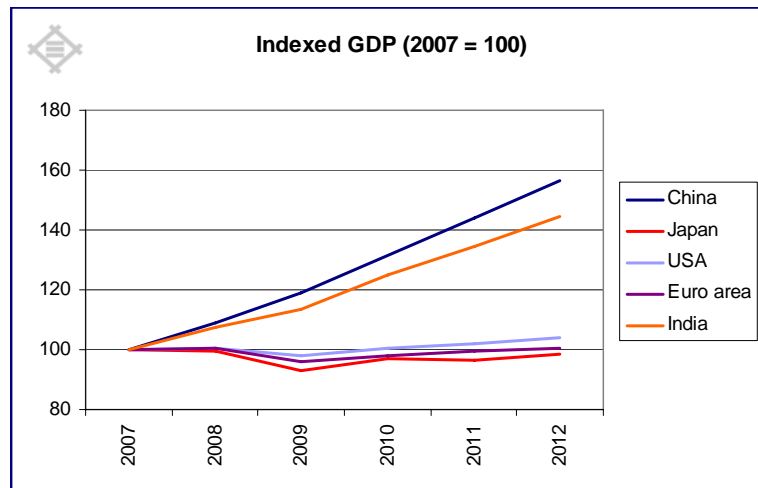
There are reasons to think that the gold price could weaken or could appreciate less strongly. If the physical market is the key driver for higher prices, then these higher prices will reduce the amount of gold bought eventually (although perhaps not in the shorter term) so gold may appreciate less quickly in price terms. Risk fatigue is also a factor. If gold is bought as a form of insurance, then will people keep on wanting more insurance as more risks are revealed. Looking at ETF buying, this does suggest some risk fatigue is setting in. So, even while investors may choose not to sell gold, they may buy less and gold may rise less quickly in price terms. The most obvious other issue is that even in an environment with slow growth and low interest rates, we could gain some clarity about the future

Direction of pgm prices - 2012



For the pgs, there are fewer positives factors for higher prices but probably fewer negative factors. This slide, though is a few weeks old. Now I would probably include worsening liquidity in the financial markets as an additional negative both for gold and for the platinum group metals.

The world's economy

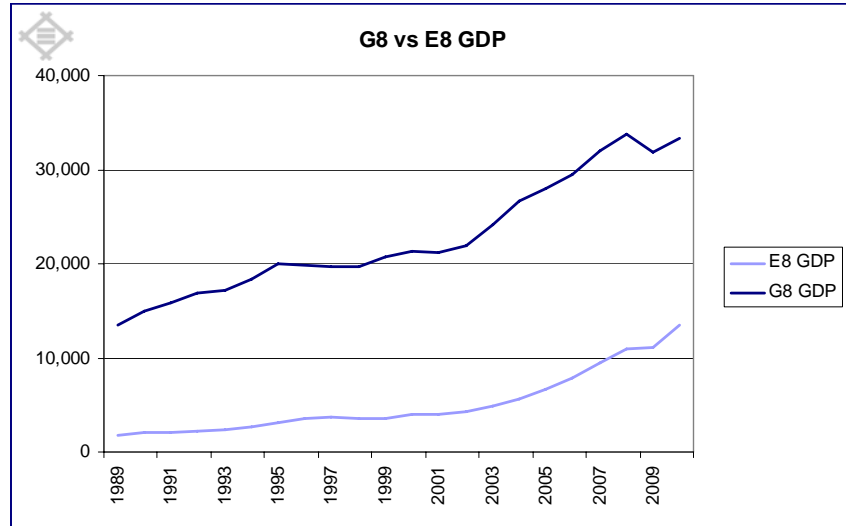


Source: IMF, World Bank

The most obvious risk to the gold price, both on the upside and the downside is a change in the global economy. Rather like Goldilocks' porridge, it has to be not too hot, not too cold, but just about right. For the world as a whole that roughly works but you can see that the porridge is essentially too hot or too cold and not just about right anywhere. A recovery in Europe seems likely to be very slow with a recession expected in 2012 and Japan seems set to also have a very prolonged recovery from the slowdown and the huge earthquake that took place last month. However, China and India seem set to continue to grow at a rapid rate.

Simply put, slower growth in the developed world probably equals recession and possible debt problems in North America, Japan and Europe, something that would be positive for gold as countries may be forced to inflate their debts away. Growth that is too fast is set to lead to inflationary pressures, again a positive for gold and other commodities in nominal terms at least. In fact, what you can see is the current "consensus" forecast which is almost the worst case scenario for gold, of global growth of about 3 per cent, as in the great moderation. The silver lining, though, is that the fastest growth is in Asia in countries like China and India (shown here) but also in Thailand and Vietnam. These are all amongst the largest consumers or purchasers of gold, so there is some potential for gold to benefit. However, at the moment, the state of the world's economy does not seem to be the likely driver for turning the price around and sending it lower.

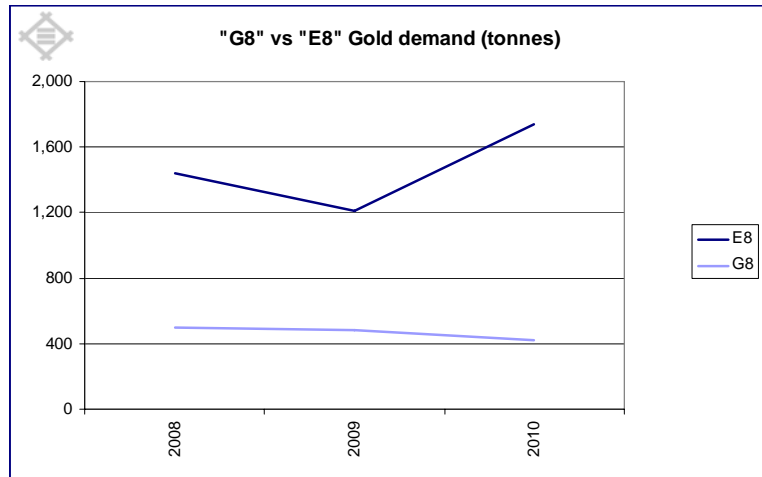
Global GDP



Source: ETF Securities

Looking at gold in the context of today's economy is interesting. The world economy is still dominated by the G8 group of countries but the E8 is becoming slowly more important. The E8 is the eight large emerging economies which includes: Brazil, China, India, Indonesia, Mexico, South Africa, South Korea and Turkey. In terms of global growth, the G8 and the G20 are the important economies. Given the slow growth expected there, the global economy is likely to struggle.

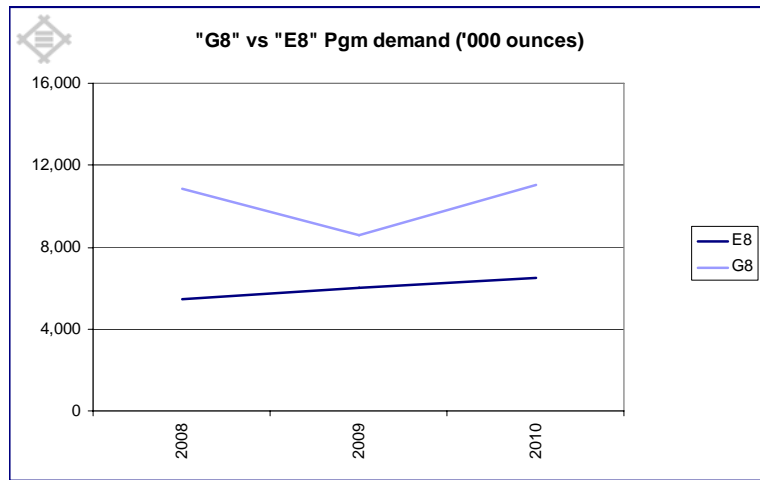
Global gold demand



Source: Bloomberg

However, when you look at the gold market you can see that the E8 are far more important. Their economies may be smaller but the growth rates are much higher. They are also, coincidentally or not many of the gold buying countries. This can only be positive for gold demand.

Global pgm demand



Source: Johnson Matthey, Platinum 2011, Mitsui

For the pgms, though, the G8 markets are the most important. Palladium sees most of the growth in its demand in E8 countries but both metals depend more heavily than gold on E8 demand. So, given we know that growth will be focused towards the E8 in the next few years, not the G8, we can expect the pgms to struggle to keep up with gold.

Why should the pgms follow gold?

- Negative real interest rates
- Long only commodity investment
 - Effects of USD/EUR
 - Inflation expectations?
 - Historical correlations

So, why should the pgms follow the gold price? We have negative real interest rates in many countries which make investing in zero yield assets like commodities attractive across the board. We have a lot of long only and commodity index investment so there is perhaps less discrimination between these assets than might previously have been the case. And, whichever direction the Dollar heads in, Dollar weakness ought to lead to strong commodity prices in general. Dollar strength should mean underlying weakness for all of these metals.

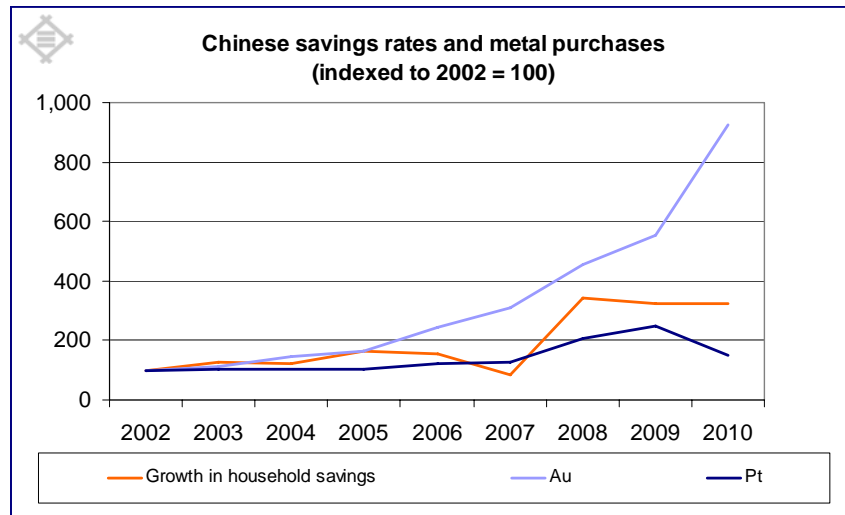
Additionally, we have increasing expectations of inflation and the fact that gold and pgm prices are typically linked in a normal year anyway. So, it seems reasonable to use our views of the future of the gold price as a base case scenario for the pgms.

Why should gold outperform the pgms?

- Perceived safe haven role of gold
- Reserve status of gold/official sector buying
 - New use of gold as collateral
 - Gold's role as a currency
 - Risk
- Higher exposure to India and East Asian growth
 - Chinese slowdown?
- Weak economic recovery in Europe (Pt) and USA (Pd) and China (Pt and Pd?)

But we can then look at deviations from that base case scenario. Why should gold outperform the pgms? You can look at the first four items on this list as part of the “fundamentals” of the gold market in that although they are essentially economic, they are reasons unique to the gold market as to why its price might move in specific directions. Risk and risk perception also fit in with this view. The final three reasons are reasons why the pgms might underperform and they relate to potential fundamental weaknesses in various demand sectors for platinum and palladium.

Metals as money

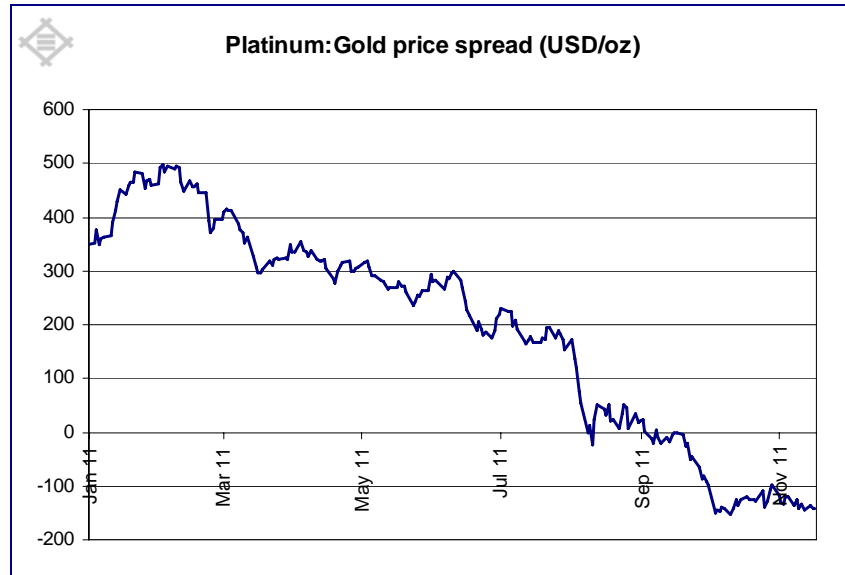


Source: Bank of China, WGC, Johnson Matthey, Mitsui

This graph shows Chinese household savings compared to jewellery and investment purchasing of gold and platinum (indexed but originally in RMB terms rather than ounce terms). As you can see, both metals gain from rising wealth in China but gold seems to perform more of a role as a form of savings. With China still growing rapidly, negative interest rates persisting and the gold price rising, gold is likely to benefit more from purchasing as an investment than will platinum.

Interestingly, this does, however, show the role rising wealth has had in driving platinum purchasing with higher incomes and disposable income competing well with rising metal prices. Palladium does not appear on this graph because it is normally not seen as an investment metal. So, from a physical investment point of view, platinum should outperform palladium.

Pt/Au: a risk trade

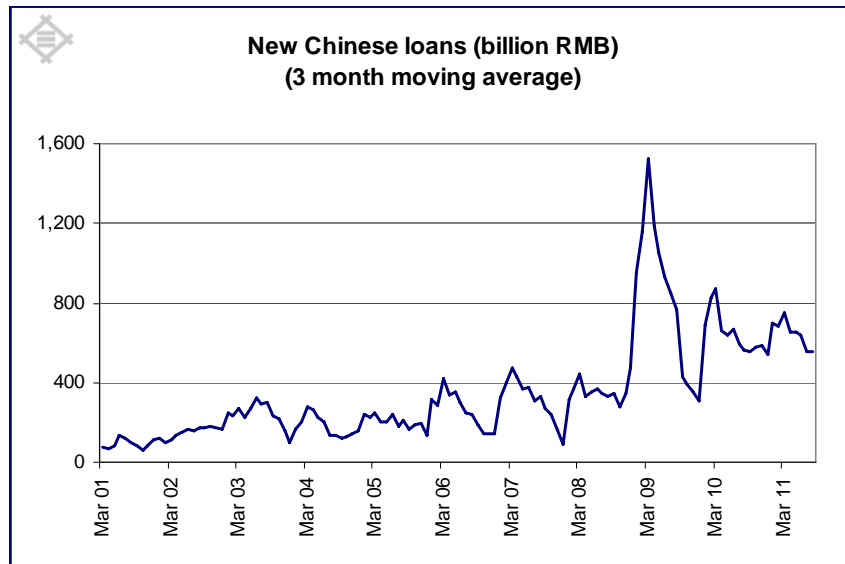


Source: Bloomberg

Gold also plays a role as a “safe haven” in many people’s mind. This graph shows the VIX volatility index (“fear gauge”). When the index falls, markets are calmer and investors are willing to take more risk typically. In this situation, you tend to see platinum outperforming gold. So, residual risks within the world’s economic system would tend to support gold outperforming the pgms.

The two ovals are of interest: the first shows the platinum supply challenges of early 2008 which was an event specific to the pgm market. Recently, platinum has underperformed relative to what might have been expected. There are a variety of possible reasons for this: one is simply the increased media and investor interest in gold in recent months. Others include the worsening economic environment. With platinum in a surplus, it is hard to see an immediate improvement in this spread in platinum’s favour.

Chinese growth “slowing”?

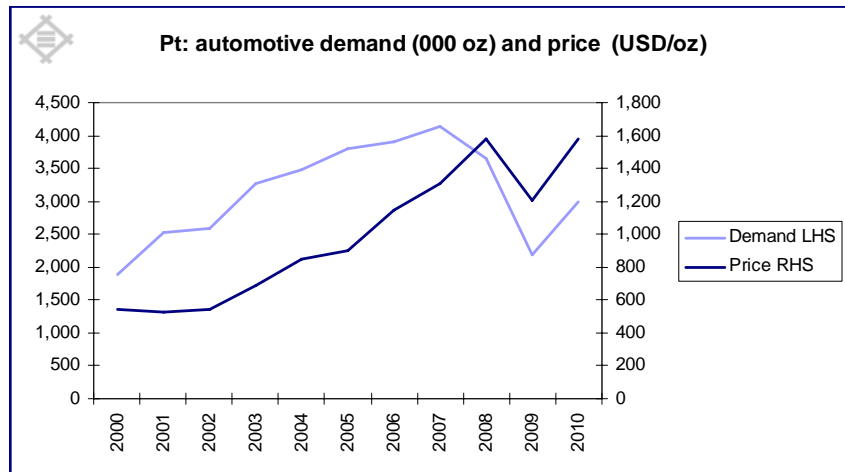


Source: PBoC

The pgms are exposed very heavily to the Chinese market and palladium in particular is seen as a play on Chinese growth so a slowdown in the Chinese economy would be bad for the pgms compared to gold. High inflation is driving the introduction of tighter limits on lending in an effort to cool the economy. A lot of pgm demand is from cash buying rather than from the spending of loans so the effect could be limited but any loss of a Chinese feel-good factor would weigh on the pgm prices.

If we are seeing buying for speculation within China, the downside could be worse. However, last month's inflation figures were lower than they have been so that could hit gold if inflation really is being reined in. Would this hit the pgms as well through the connection to gold? Hard to say...

European growth anaemic



Source: LPPM, Johnson Matthey

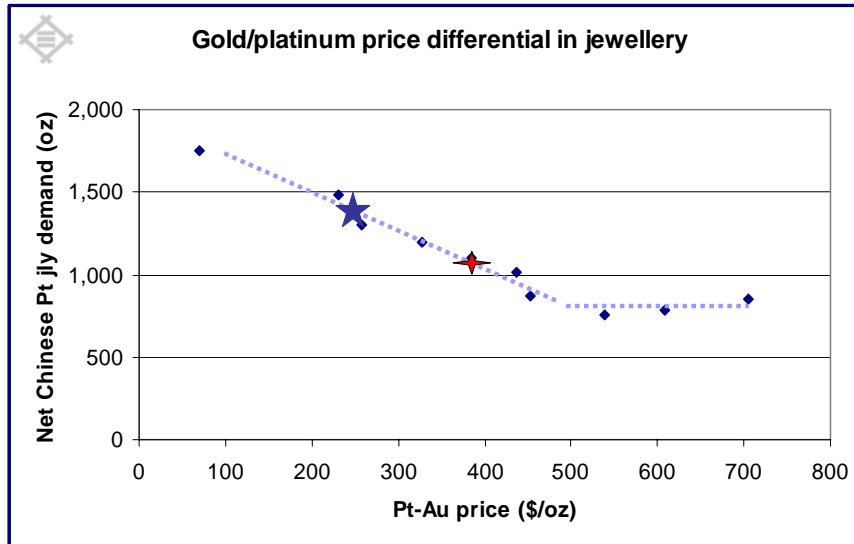
European growth is anaemic at present and will continue to be anaemic. This is particularly the case for platinum with its exposure to the European diesel market. It should be okay this year with improving diesel market share and Euro 5 but will not gain much next year. In the longer term, we can look at off-road and non-road and other areas of automotive-like catalysis as driving forces for further demand and possibly a stronger price. Palladium is more exposed to the US market: although growth remains shaky in the wider economy, automotive sales have looked pretty healthy compared to recent years. Weak Japanese automotive output remains a concern.

Why should the pgms outperform gold?

- Higher intrinsic value?/Greater utility
- Pt: expectations of premium to gold
 - Lower price elasticity of demand
 - High gold price
- Greater exposure to economic recovery
- Limited scope for supply side expansion
- Geographical concentration of supply
 - Support from production cost

But on the other side of the equation, there are a good number of reasons why platinum and palladium should outperform gold. Both the main pgms have huge utility in some of their applications and this does lead to relatively low price elasticity in many applications. A high gold price also softens the effect of high pgm prices in some applications. The flipside of worries about economic weakness impacting on the pgms is that economic growth should support or firm their prices. And, there are a good number of supply side issues which aid platinum more than palladium but should provide an opportunity for the pgms to outperform gold.

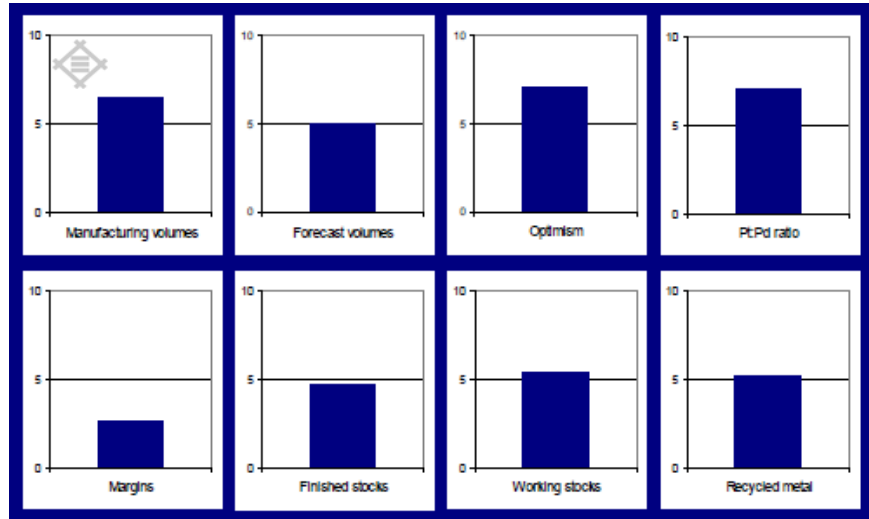
High gold price supports pgm prices



Source: LBMA, LPPM, Johnson Matthey, Mitsui

You can see that a high gold price supports platinum demand in jewellery in China. The red star is where overall demand for platinum will be this year if the platinum-gold price differential remains unchanged and the relationship holds. Palladium demand will also be supported in the electronics sector by a high gold price. It sometimes competes with base metals but sometimes with gold so a simple high palladium price is not enough to forecast demand trends, one need to understand the relationship between the metals and the prices.

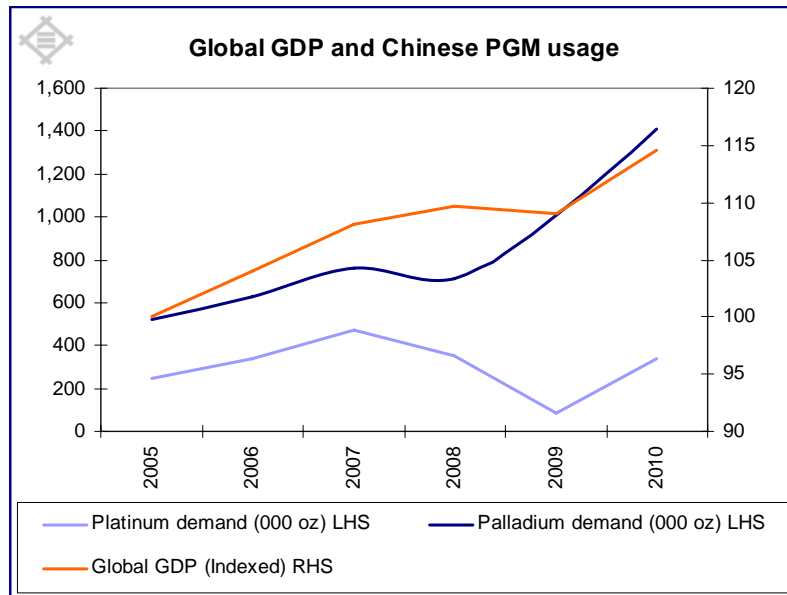
Jewellery: real measurements



Source: Mitsui

Of course, as an example of advertising and self-aggrandisement, the best way to understand the market is still to go there and ask questions and observe and that is what we do. Data from this survey in June and our most recent survey suggests that the platinum market is growing but that the palladium jewellery market in China is shrinking.

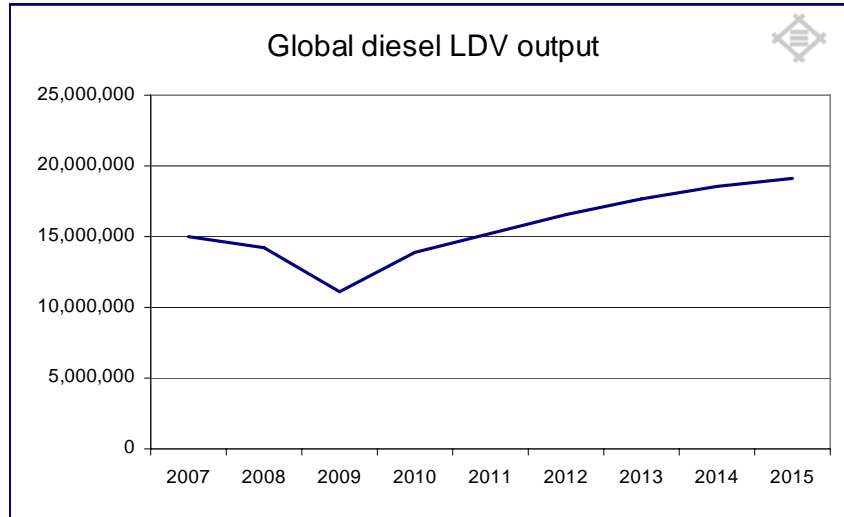
GDP growth supports pgm demand



Source: World Bank, Johnson Matthey

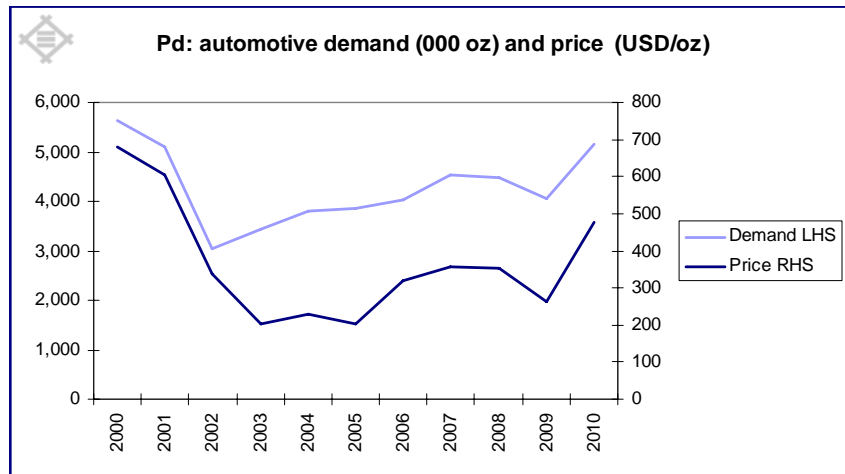
Looking at economic growth, you can see that (excluding jewellery) there is some relationship at least between economic growth and pgm demand and presumably pgm prices at some level. This is not the case for gold, so if we see the global economy still growing, which we expect, you should see strengthening platinum group metals prices.

Automotive sector still growing



This graph shows diesel output which you can translate roughly into platinum demand from the automotive sector (growth is coming from Europe, India and the heavy duty market in particular). Even with an economic slowdown, we expect the automotive market to grow and take more platinum. You would see the same trend for the gasoline car market which uses palladium and rhodium in its catalytic converters and we expect additional palladium use in this sector as well.

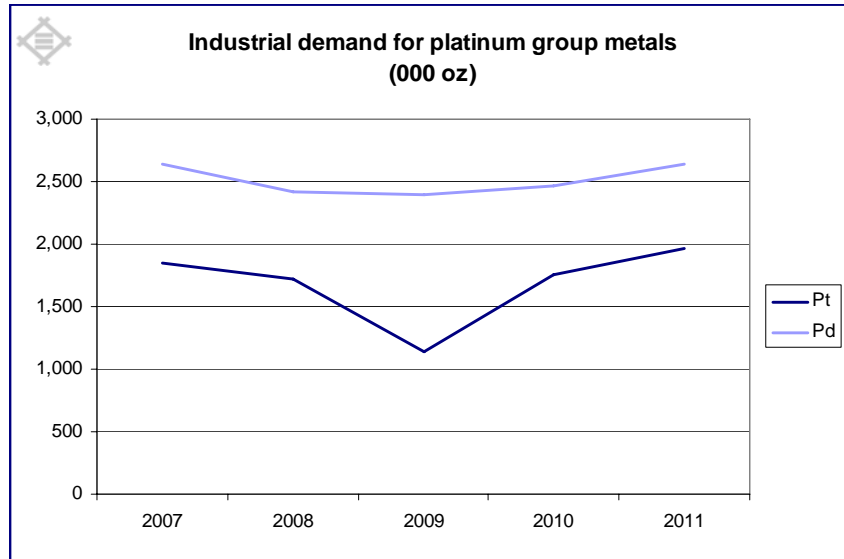
Automotive demand vital for palladium



Source: LPPM, Johnson Matthey

And the link between demand and price is made explicit here: Where automotive demand has been weak, prices have been weak, where it has been strong, prices have been strong in general. So, although we may have some weakness in Japan and China, we are seeing global growth in the automotive market and this should feed into higher prices in the absence of other stimuli.

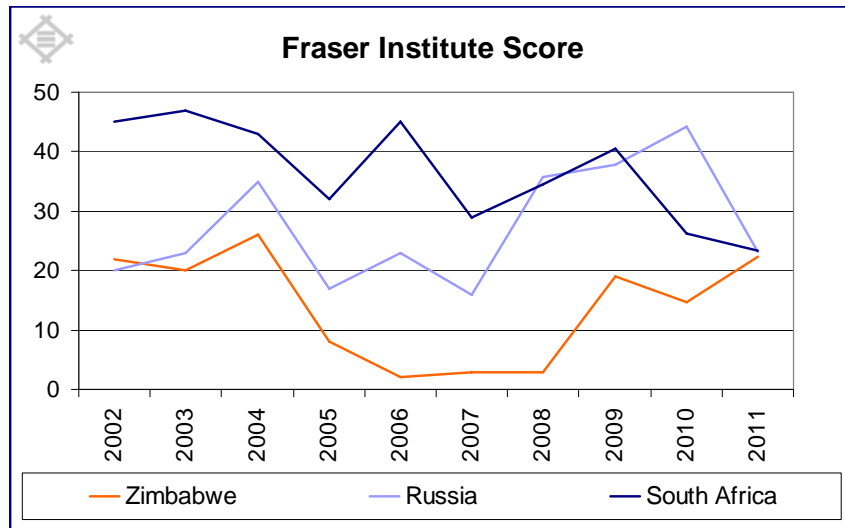
Industrial demand healthy



Source: Johnson Matthey, Mitsui

Industrial demand for both metals is healthy and we expect this to grow as well. Palladium should be in a deficit in 2012 as a result while platinum may take a little longer to move into deficit again.

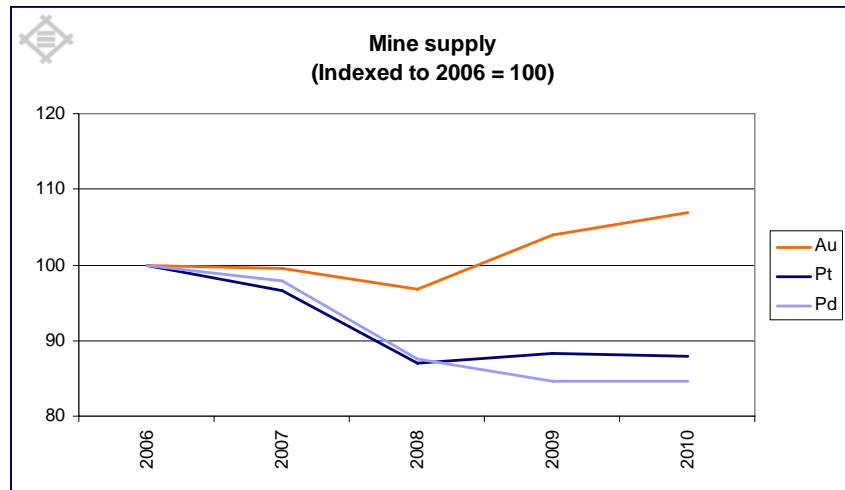
Geographical concentration of supply problematic



Source: Fraser Institute

So, the demand side looks fairly positive for both metals. What about the supply side? The supply side is particularly relevant for upwards risk in the price of the pgms. We feel that mine output is fairly constrained. There is significantly greater geographical concentration of mine production for the pgms than there is for gold and as the Fraser Institute's scores (essentially how easy and attractive it is to mine in a country) suggest, policies in the major producing countries are by no means all positive for pgm production. Worries over indigenisation, nationalisation and royalties all contribute more towards upside risk in platinum than in gold. South African inflation, ESKOM power supply issues and wage demands are particular issues for platinum. Zimbabwe is becoming a more difficult place to do business in and expansion may be slower than people think.

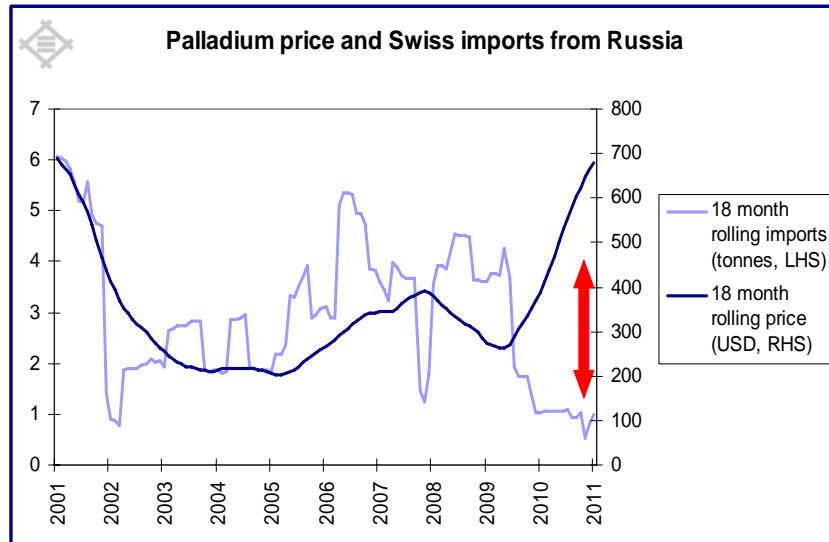
Pgm mine supply less responsive



Source: Johnson Matthey, WGC

And, you can see that gold supply has finally started to respond to the high prices over a period of time. Platinum and palladium output should increase this year and potentially next but with capital investment having been limited until recently, the scope for major expansion on a three to five year period is somewhat limited. So, the supply side is not likely (despite some growth in recycling) is unlikely to be able to respond quickly enough to offset upwards pressure in the price.

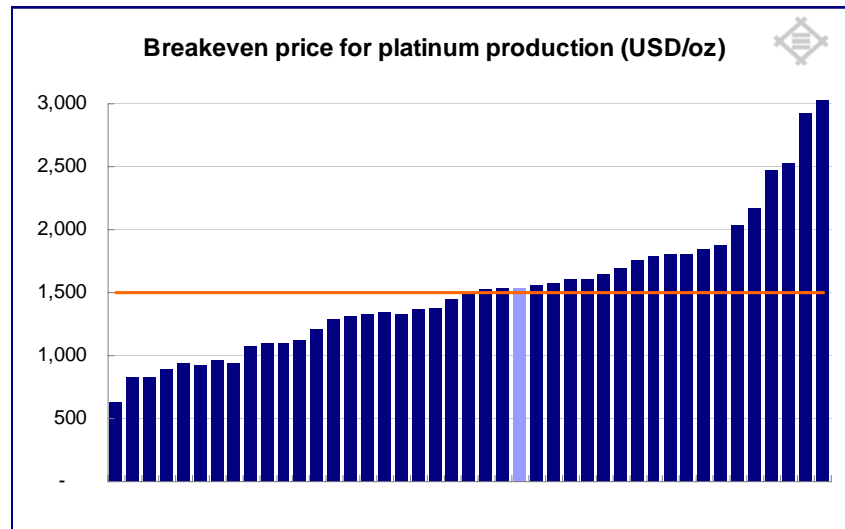
Pgm mine supply less responsive



Source: Johnson Matthey, WGC

Although we have seen some additional shipments of palladium from Russian stocks this year, they are lower than in recent years, suggesting that stocks are running out or that the Russian state simply does not want to sell metal,

Cost of production



Cost of production data by its nature is somewhat confusing and contentious. However, given today's by-product prices and exchange rate, we are essentially at the breakeven price for Southern African platinum production. The bottom of the cost curve is dominated by tailings retreatment (limited in scope for expansion) and Zimbabwe (limited scope for medium term expansion given the political climate). At current prices, there is NO economic incentive for expansion of output at almost any site in South Africa and we can probably expect some production to be cut instead if we stay at these prices.

There is no cost curve for palladium or for rhodium. The only primary producers for palladium are Stillwater and North American Palladium. At North American Palladium, the incentive cost is probably roughly \$420 an ounce. At Stillwater, it is likely to be similar. The more interesting question might be the outlook for nickel production. At current prices, there could be some closures of nickel mines. However, Russian output is likely to remain flat, so palladium output should stay the same there. Rhodium is a pure by-product, mainly of South African mining.

Market prospects: 2012

- Bullish for Au over 18 month period
- Bullish for Pt and Pd over the same period
 - Downsides possible from recession and European debt crisis
- Limited downside for Pt due to production cost - in the longer term
 - Country risk remains for Pt
- Upside potential for Pd from automotive growth but with risks

And, hopefully the summary speaks for itself.

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