GFMS

Edition Five, February 2004

GLOBAL GOLD HEDGE BOOK ANALYSIS

Q4 2003

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Key Points

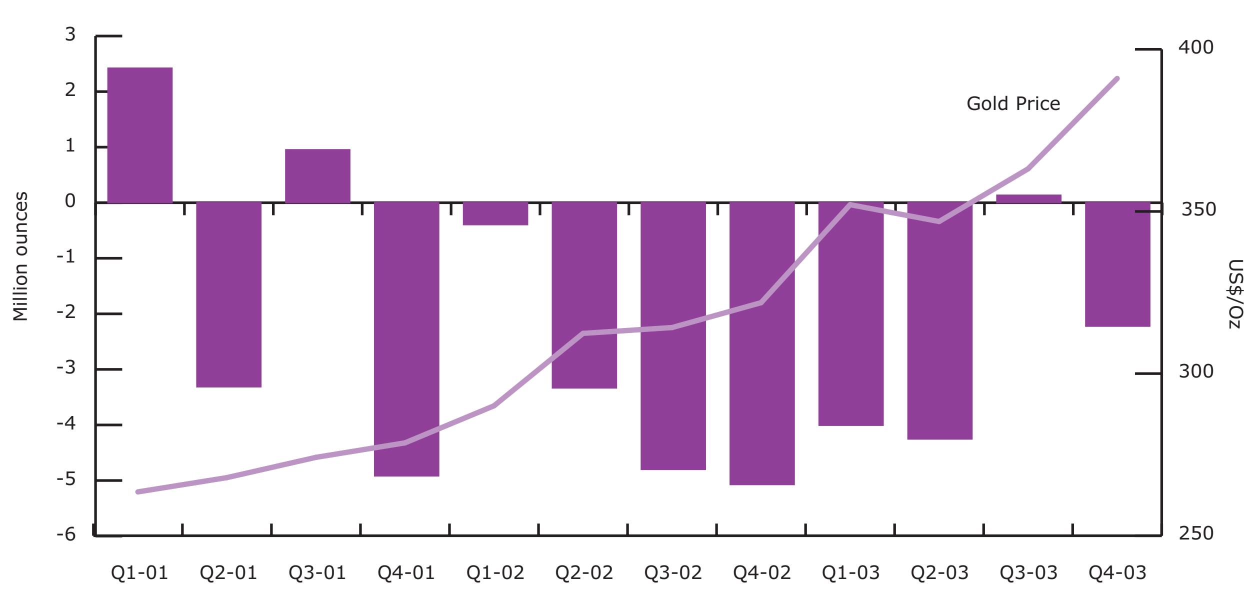
- *The GFMS delta-adjusted hedge book at the end-Q4 amounted to 69.3 Moz, levels last recorded in the second quarter of 1997.*
- *In nominal terms the global gold hedge book declined by an estimated 3.8 Moz (or 4% quarter-on-quarter). The outstanding delta-adjusted position, meanwhile, was cut by 2.2 Moz (3% quarter-on-quarter).*
- *90% of the fall was accounted for by a reduction in forward sales as producers delivered into positions and, in couple of instances, bought back contracts. Some new hedging was reported, but this was not sufficient to offset the ongoing decline.*
- *The decline in the delta-adjusted options position was partially offset by a rise in the adjusted volume of non-vanilla products - the result of a sharp increase in the delta against the sold barrier call options.*

Composition of the Delta-Adjusted Global Hedge Book

	Q303	Q403	qoq
Forwards	52.8	50.8	-4%
Options	15.2	14.8	-3%
Non-Vanilla Products	3.5	3.7	6%
Total	71.5	69.3	-3%

Note: Totals may not add due to independent rounding.

Net Impact of Producer Hedging



Source: GFMS

Summary and Overview

The global delta-adjusted gold hedge book contracted by 2.2 Moz in the December quarter. The fall left the adjusted book at 69.3 Moz, levels last recorded in Q2 1997.

In nominal terms, the fourth quarter reduction was in line with the fall recorded in the third quarter. In contrast to Q3, however, when the decline was dominated by a cut in the options contracts (explaining why the rising delta in that period had such a dramatic impact on the delta-adjusted position), the bulk of the decrease in Q4 was made up of a decline in forward sales.

Indeed, the reduction in forward positions accounted for 2 Moz of the total estimated 2.2 Moz fall. This was achieved by a combination of producers delivering into contracts and, in a couple of instances, buying back forward contracts. A part of the decline, however, was offset by fresh hedging put in place against financing requirements for new mines.

The balance of the Q4 decrease in the hedge book was the result of a reduction, in nominal terms, of the vanilla options position. In terms of instruments, the decline in purchased puts contracts was of particular importance. In the case of these options, the increase in the end-of-quarter valuation price further reduced the position through a decline in the delta. Concerning non-vanilla contracts, the adjusted position increased by almost 200,000 oz offsetting a portion of the decline in the afore mentioned position.

The gold price averaged $391/oz in the fourth quarter, an 8% improvement from the prior three month period. It posted a high for the quarter (on the 31st December) of $416/oz, a figure not bettered since February 1990. Investor demand was identified as the main driver behind the strong rally and, whilst dominated by speculators with a short-term outlook, there was also evidence of a widening interest from more fundamentally driven, longer-term players.

The cumulative marked-to-market (MTM) valuation for the comparable set of producer hedge books showed a marked deterioration from the September quarter. The groups MTM valuation sunk from a negative $2.9 billion to $3.9 billion at the end of the three months to December. It is worth mentioning however, that producer currency hedge books tended to move in the opposite direction providing some offset to the (unrealised) losses associated with the gold hedges.

Producers signalled that they remained strongly committed to further reductions in their hedge cover. Barrick, for instance, recently announced that it was dropping its 15-year-old hedging strategy, would not be entering into additional hedging commitments and was adopting a no-hedge policy. Meanwhile, in January, Harmony announced the first significant buy back of the new year, having closed out 365,000 (nominal) oz of forwards and call contracts. Harmony inherited the books with the acquisition of Australian based miners New Hampton (March 2001) and Hill 50 (June 2002).

Mining companies' received prices equalled the average spot for the period at $391/oz. As regards hedged versus unhedged output, weighted average prices achieved between the two camps were less than a dollar apart. Within the hedged group however, the gap between the lowest and the highest price received was considerably wider at over a $100/oz.

Market Commentary

The gold price continued its ascent in the fourth quarter posting a high of $416, a figure not surpassed since February 1990. Higher prices left the average for the quarter at $391, or some $28/oz higher than the average measured in the previous quarter. This bullish move in the price was largely just in US dollar terms. On the producer side the rand price fell 2% quarter-on-quarter whilst the Australian and Canadian dollar prices moved by -1% and +2% respectively.

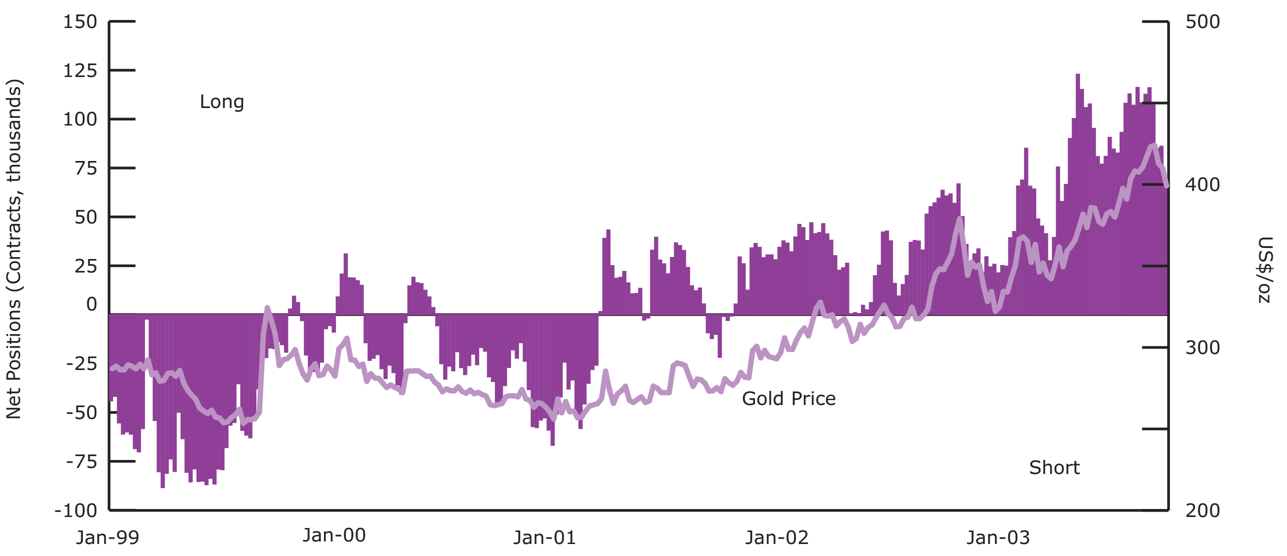
With sluggish fabrication demand, the primary factor behind the 8% quarter-on-quarter rise in the US dollar gold price was the increase in investor activity. The growth of this, in part, was explained by dollar weakness (mainly versus the euro) although ongoing political insecurities coupled with the perceived threat of higher inflation coinciding with a period of low short term interest rates also provided a powerful stimulant.

Whilst speculators with a short-term outlook (in both the Comex and in the Over-The-Counter markets) generated the bulk of new demand, there were several indications of growing interest from more fundamentally driven players, including high net worth individuals and funds. Concerning short-term investors, their involvement can be illustrated by the marked rise in the net 'fund' long (using the non-commercial figures as a proxy), particularly from mid-November onwards. By-end-2003, the combined futures and options non-commercial net long had grown to a record 134,855 contracts.

Longer term interest, on the other hand, can be part shown by the positive response to the launch of Gold Bullion Securities in London in December. The combined GBS holdings (in the London and Australian funds) almost touched 1 Moz by the year end.

Producer de-hedging was also supportive of higher prices in the fourth quarter having

Comex / Nymex Non-commercial Net Positions



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generated an estimated 2.2 Moz of physical gold demand in the period (in Q3 the net change in the delta-adjusted hedge book actually added 135,000 oz to supply).

As alluded to above, fabrication disappointed, acting as a drag to the Q4 rally. Lower jewellery offtake (which is estimated to have contracted by around 2.9 Moz year-on-year) was noteworthy in certain price sensitive markets. Substantial declines were estimated for almost all of the East Asian countries whilst Italian demand also fell sharply.

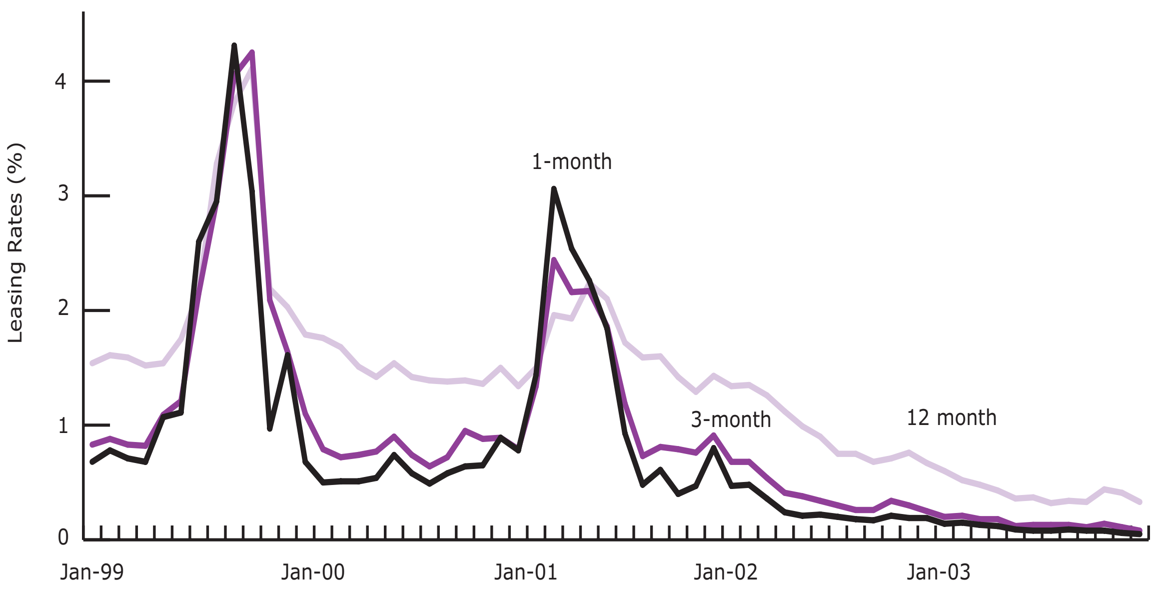
On the supply side mine production in Q4 is estimated to have declined by just less than 1 Moz compared to the corresponding period in 2002 (a quarterly comparison is less relevant due to the seasonality of mine output, chiefly in Russia, China and Mongolia). A part of the explanation behind the drop was a sharp fall in output at Grasberg, the result of two rock falls in October and December, which restricted access to high grade ore sections.

Scrap levels, meanwhile, are thought to have increased 9% quarter-on-quarter with higher volumes measured from East Asia and to a lesser extent, North America and Europe.

Provisional estimates for Q4 official sector sales suggests a moderately higher number than the prior three month period. Banks within the Central Bank Gold Agreement (CBGA) accounted for close to 90% of total Q4 sales. Outside of the CBGA, Canada sold 60,000 oz during the period, bringing their stated reserves down to roughly 110,000 oz.

Lease rates tended to ease further in the three months to December. Any strength that might have resulted from the further withdrawal of central bank lending was offset by ongoing producer de-hedging. Interestingly, the 12-month lease rate enjoyed early strength in the period but, by mid-November, these gains had been retraced.

Lease Rates, Monthly Averages



Sensitivity of the Global Hedge Book

Following the modest rise of the delta-adjusted hedge book in the third quarter (a revised 135,000 oz increase quarter-on-quarter) - a result of a sharp rise in the delta against vanilla options, coupled with new project specific hedging and contract deferral - the fourth quarter registered a 2.2 Moz decline in the delta-adjusted book.

At the end of the three months to December, the outstanding adjusted hedge book was estimated at 69.3 Moz, representing a 3% reduction from the previous quarter and a significant 13% fall from the corresponding period in 2002. As measured on 31st December 2003, the book consisted of 73% forward sales, 21% vanilla options and 5% non-vanilla products.

The 3% quarter-on-quarter decline in the vanilla options position was largely the result of a decline in the nominal volume of bought put options combined with a reduction in the delta against these positions. GFMS calculate each quarter's option position using current market data as at the quarter end. The $28/oz increase quarter-on-quarter in the valuation price resulted in an actual decline in the delta against bought put options (20% lower compared to the prior three month period). Whilst the nominal volume of bought puts declined by 6%, the delta adjusted bought put position fell by a significant 26%.

Partially offsetting the effects described above, there was an increase in the delta against the sold call options (the deltas against sold calls and purchased puts move in a diverging manner with the gold price).

Sensitivity of Q4 Global Hedge Book to the Spot Gold Price and Volatility

	move in gold price ($/oz)				
move in volatility					
	-40	-20	0	+20	+40
+10%	69.2	69.1	69.1	69.2	69.3
+5%	69.3	69.2	69.2	69.2	69.3
0%	69.5	69.3	69.3	69.3	69.3
-5%	69.9	69.5	69.5	69.5	69.4
-10%	71.1	70.0	70.1	69.8	69.5

Source: GFMS

As a result, and despite an 8% drop in nominal terms, the higher delta left the adjusted volume of sold calls 5% higher on a quarter-on-quarter basis.

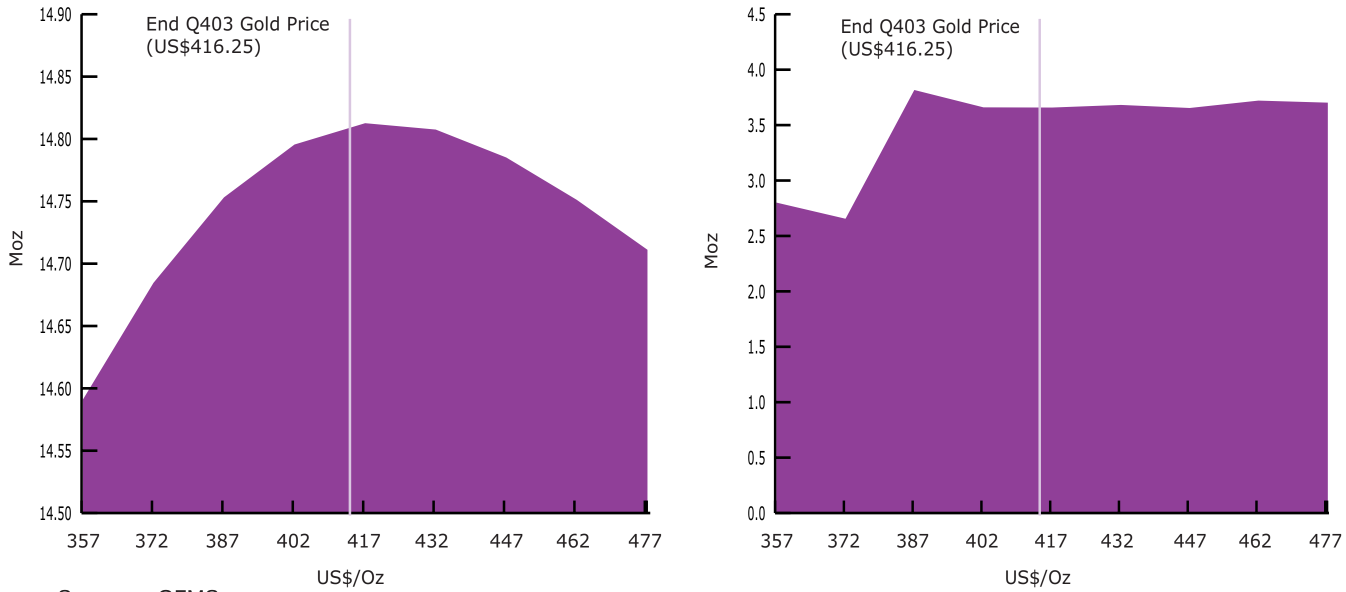
In nominal terms, the non-vanilla products (which essentially consist of barrier options), were little changed from the prior quarter. In sharp contrast however, and again chiefly a result of the higher valuation price, the adjusted position quarter-on-quarter was some 6% higher. In this instance, a sharp 13% rise in the delta against the sold barrier call options (the largest constituent of the category) was the key driver behind the measured increase.

With the bulk of the hedge book made up of forward sales (which have a fixed delta of 1), the producer book is relatively insensitive to changes in the gold price. A $15 increase from the end-year gold price, for example, results in an insignificant 18,000 oz increase in the delta adjusted position. The figures below graphs the profile of the Q4 delta-adjusted options and the non-vanilla products position at different spot gold prices.

The decline shown in the vanilla options delta-adjusted position as the price strengthens from $417/oz to $477 (the position is cut back from 14.8 Moz to 14.7 Moz) can be largely explained by the declining delta against the purchased puts. The fact that the rising delta against the sold calls does not offset this reduction (as mentioned earlier the deltas against these instruments tend to move in a diverging manner) illustrates that the delta against the sold calls at these price levels (above $416/oz) has approached a maximum.

Q4 Options Delta Adjusted Position and the Spot Gold Price

Vanilla Options | **Non-Vanilla Products**



Source: GFMS

Company Activity

In nominal terms, producers have reduced their hedge positions for the last nine consecutive quarters (as documented in last quarter's *hedge analysis report*, it was the delta-adjusted position that increased in Q3 quarter-on-quarter not the nominal volume). In other words, producers have broadly maintained a policy of hedge reduction in response to higher prices and expectations of higher prices in the future.

Delivery into forward contracts, buy backs and the expiry of option contracts all contributed to the 4% drop in nominal terms and the 3% cut in the delta-adjusted hedge book. Forward sales were reduced by close to 2 Moz, while the drop was almost matched by the fall in nominal vanilla options contracts, which declined by 1.8 Moz. Concerning the decrease in forward contracts, Barrick and Anglogold alone reduced their commitments by almost 1 Moz in the three months to December. Meanwhile, forward positions were bought back by diversified miner WMC and Gympie Gold, further contributing to the fall.

WMC reduced its forward sales in the fourth quarter by roughly 140,000 oz as production was delivered into its 2003 delivery commitments and longer dated contracts were bought back. WMC has been actively decreasing its hedge book since selling its gold assets (but retaining the book) to Gold Fields in November 2001. A fire at Gympie's Southland Colliery in December, on the other hand, and the associated loss of earning, forced the miner into receivership. Consequently, all gold (117,000 oz) and currency hedging contracts were closed out.

Project specific hedging offset a part of the decrease in forward sales outlined above. Randgold Resources put in place a 300,000 oz position as part of its financing strategy

Total Nominal Positions, Percentage Change qoq (Moz)

Region	Forwards	Calls Sold	Puts Bought	Vanilla Options (net)
North America	-4%	-5%	-9%	-6%
Austraila	-2%	-13%	-4%	-6%
South Africa	-6%	-8%	-2%	-4%
Other	-3%	-8%	-25%	-9%
Total	**-4%**	**-8%**	**-6%**	**-6%**

Note: These transactions are from the producers' perspective. Forward sales includes gold loans.
Source: GFMS

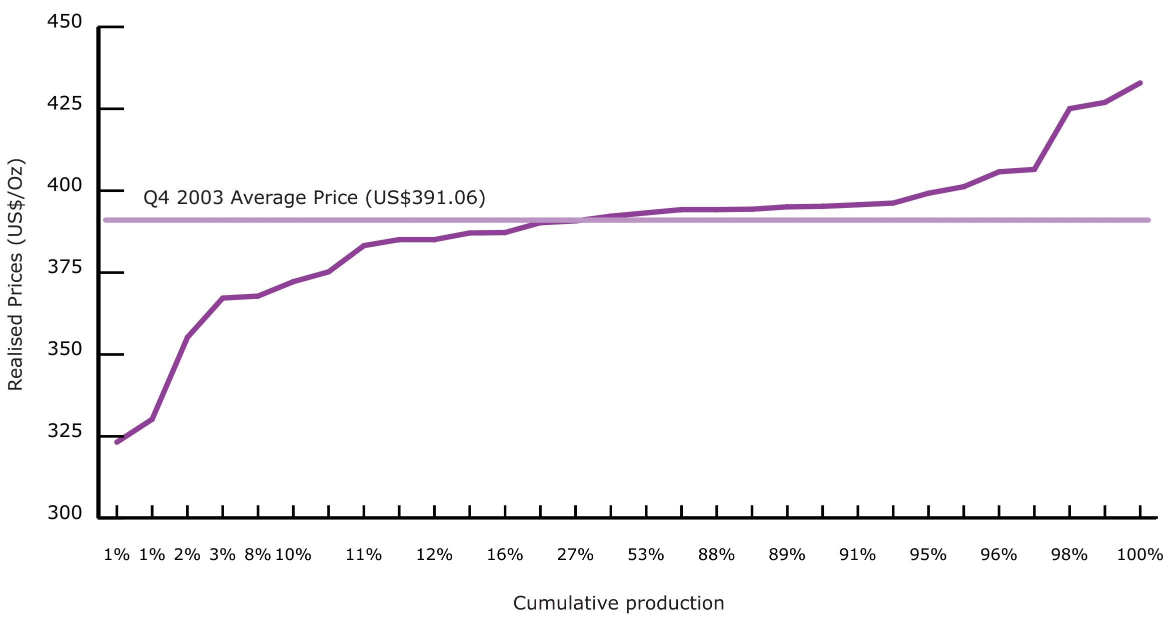
for its new Loulo open-pit operation in Mali. The go ahead for the development was announced in the December quarterly report and the 200,000 oz/year mine is scheduled to go into production in July 2005.

Turning to the vanilla options position, both sold calls and bought puts were scaled back as options expired or were exercised. In nominal terms, sold calls fell 8% quarter-on-quarter whilst purchased puts declined by 6%. In terms of new hedging during the period, there was little to report. Resolute, Inmet and Kingsgate all added vanilla option contracts to their books (in the form of sold calls and protective bought puts) although the combined volume at roughly 75,000 oz and 45,000 oz respectively had little impact against the larger decline in positions across the board.

Volumes of non-vanilla products were unchanged in nominal terms quarter-on-quarter (see page 7 for a description of the change in delta-adjusted terms). The decay of producer barrier positions at the end of the quarter was, in part, offset by a 40,000 oz convertible forward put in place by Sons of Gwalia (convertible forward contracts are modelled as a barrier option combined with a vanilla put option).

The average price received (for all of the companies that report this data), increased from the prior quarter to $391/oz. Prices ranged from a low of $323/oz to a high of $433/oz with just over 43% of mine production delivered at prices lower than spot (a deterioration from the last quarter when the share was measured at 30%). Producers with hedge books matched their unhedged counterparts - the weighted average received price for both groups was calculated within a few cents of each other.

Received Prices in Q4



Source: GFMS

Technical Annex

GFMS has carried out a rigorous analysis of 93 mining companies' hedge positions. These companies incorporate the vast majority of those enterprises that carry out some type of hedging activity.

The GFMS analysis utilises the Brady Trinity™ Risk Management and Trading system. Each mining company's individual trades have been input into the Brady Trinity system.

The use of the Brady Trinity system is particularly relevant for the analysis of mining companies' options positions. We have entered each option trade by mid-year of expiry. Moreover, non-vanilla products such as convertible forwards have been broken down into their constituent options. This analysis enables us to accurately obtain key parameters and valuations for each instrument used by each company and subsequently for the global hedge book as a whole. This methodology also allows us to model the delivery profile of the hedge book.

All forward contracts, including spot deferred, floating rate forwards and fixed rate forwards, are input as forward sales. Options contracts, including cap and floor agreements, are entered as their constituent vanilla put and call contracts. Convertible and contingent options are unbundled into their constituent barrier options contracts. Trigger levels for barrier options are taken as the mid-point of published ranges, where available. Convertible forward contracts are modelled as a barrier call option combined with a vanilla put option. In terms of the GFMS analysis, the key parameter of interest is the **delta-**adjusted position. As explained in the glossary, the delta of an option (or indeed of a forward) is the rate of change in the value of the derivative for a change in the price of the underlying. In the case of a gold forward sale (or purchase), the forward delta is 1, whilst in the case of an option, this delta is derived from the Black-Scholes option pricing formula.

The counterparties to mining companies' hedging activity (typically banks) will dynamically hedge their exposure through delta hedging. For example, suppose a mining company purchases a put option. The writer of the option (a bank) will be long the delta volume. In other words, if the delta of the option is +0.5 and the nominal volume of the trade is 100,000 ounces, the delta volume will be 50,000 ounces (of which the bank will be long). To hedge this exposure, the bank must therefore undertake a transaction that yields an equal and opposite position (i.e. short). This will typically be achieved by the bank borrowing gold (normally from a central bank) and selling this into the spot market. Through this mechanism, mining companies' hedging activities impact directly on the spot gold market.

It should be borne in mind that the value of an option, as well as the delta, will change in response to movements in key parameters, particularly the spot gold price, but also market volatility, interest rates and time to expiry. In response to this, banks will continuously or dynamically adjust their delta hedge position.

Glossary

Option - An option contract gives the holder the right, but not the obligation, to buy or sell gold at a predetermined price on or by an agreed date.
European Option - An option that can only be exercised at the expiry date.
American Option - An option that can be exercised at any time prior to the expiry date.
Put Option - An option contract which gives the buyer the right, but not the obligation, to sell a specified amount of gold (or other asset) at a predetermined price (the strike price) on or before a specified date (expiry date).
Call Option - An option contract which gives the buyer the right but not the obligation to buy a specified amount of gold (or other asset) at a predetermined price on or before the expiry date.
Barrier Option - An option whose outcome depends on the performance of the price of the underlying during the life of the option and whether that price breeches a predetermined barrier.
Forward - A transaction in which two parties agree to the purchase and sale of gold at a future date.
Gold Lease Rate - The cost of borrowing or return form lending gold, the daily level of which reflects the supply and demand for metal in the lending market.
Writer - The writer or grantor is the party who sells the option and receives that premium income.
Long - A position in an asset (e.g. gold) for which the value will rise should the price of that asset rise.
Short - A position in an asset (e.g. gold) for which the value will fall should the price of that asset rise.
Delta - The rate of change of the price of a derivative with the price of the underlying asset.
Gamma - The rate of change of delta with respect to the asset price.
Theta - The rate of change of the price of a derivative with the passage of time.
Vega - The rate of change of the price of a derivative with volatility.
Rho - The rate of change of the price of a derivative with the interest rate.
Greeks - The basket term for the above hedge parameters (delta, theta, vega, gamma, rho).
Underlying - Shortened term for the underlying commodity on which forwards and options are traded (i.e. in this case gold).
Delta Hedging - A hedging scheme that is designed to make the value of a derivatives portfolio insensitive to small changes in the price of the underlying.
Black-Scholes Model - A model for pricing European options. Developed by Fischer Black, Myron Scholes and Robert Merton. See F. Black and M. Scholes "The Pricing of Options and Corporate Liabilities" *Journal of Political Economy* 81, 1973 and R.C. Merton "Theory of Rational Pricing" *Bell Journal of Economics and Management Science* 4, 1973.
Vanilla / Non-Vanilla - Vanilla options are simple put and call options, whilst non-vanilla options are more complex, with pay-offs dependant on a variety of market factors, such as price paths or the price of alternative assets.
Volatility - A measure of the uncertainty or rate of change of an asset price.

About Investec

Investec is an international, specialist banking group that provides a diverse range of financial products and services to a niche client base, primarily in the United Kingdom and South Africa, as well as other countries including Australia, the United States and Israel. Investec has four principal business divisions, namely Treasury and Specialised Finance, Investment Banking, Private Client Activities and Asset Management.

Investec Commodities trades in precious and base metals and provides hedging and structured trades for clients in both the physical and derivatives markets. Based in both the UK and South Africa, they are members of the London Metals Exchange, the London Bullion Market Association and the London Platinum and Palladium Market. They also operate an energy business focussing on structured transactions.

About GFMS

GFMS Ltd the world's foremost precious metals consultancy, specialising in research into the global gold, silver, platinum and palladium markets. GFMS is based in London, UK, but has representation in Australia, India and Russia, and a vast range of contacts and associates across the world.

GFMS is credited with producing the most authoritative surveys of the gold and silver markets, the annual Gold Survey and World Silver Survey, and produces a range of other publications dealing with all aspects of the precious metals markets. GFMS also provides consultancy services in the form of tailor-made research into selected areas of the precious metals markets. GFMS' research team of eight full-time analysts comprise qualified and experienced economists and a geologist. On the 27th April, the group will release its first Platinum and Palladium Survey.

About Brady Trinity™

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