GFMS

Edition Nine, February 2005

GLOBAL GOLD HEDGE BOOK ANALYSIS
Q4 2004

Investec

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Key Points

- *The delta-adjusted hedge book declined by a sizable 3.64 Moz in the three months to December. The cut took outstanding positions at end-December to levels last reported in 1996, a provisional 57.1 Moz, equivalent to 72% of annual mine production.*
- *Forward sales bore the brunt of the decline having dropped by an estimated 3.1 Moz. Of particular importance was a major book restructure completed by AngloGold Ashanti which slashed 2.2 delta-adjusted Moz from their hedge cover.*
- *Contribution to de-hedging from the industry's other substantial hedge books was less than had been recorded in the previous quarter. To some extent this reflected the fact that de-hedging targets had been largely met in the nine months to September, whilst the higher gold price reduced the scope for opportunistic buy-backs.*

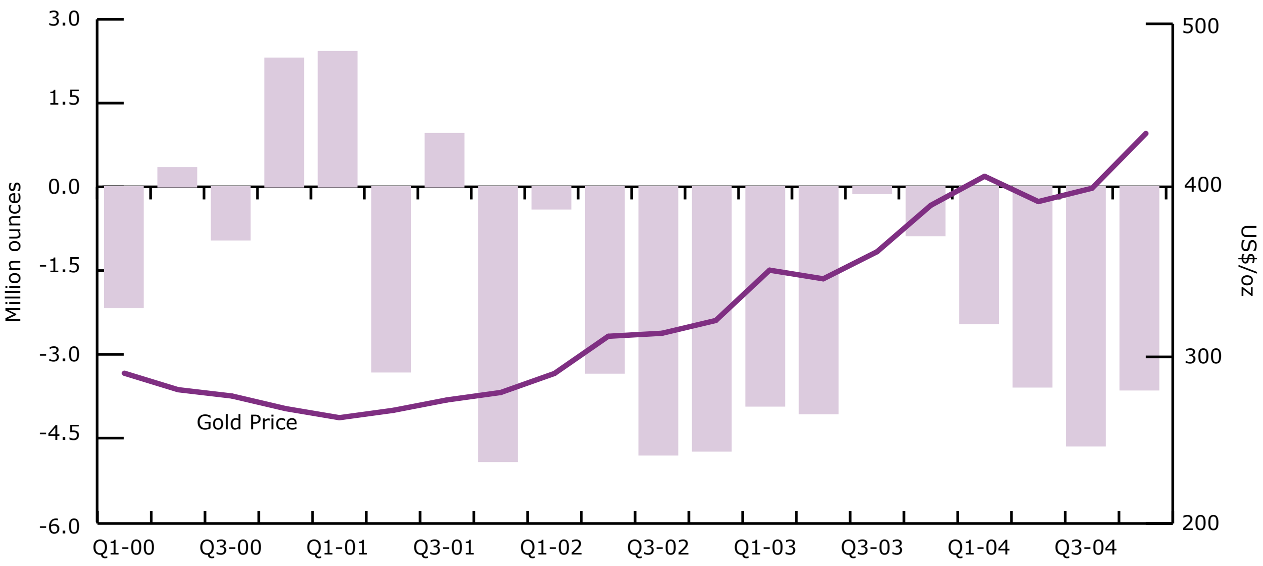
Composition of the Delta-Adjusted Global Hedge Book

(Moz)	**Q304**	**Q404**	**qoq**
Forwards	48.77	45.62	-6%
Options	10.95	10.77	-2%
Non-Vanilla Products	1.04	0.74	-29%
Total	**60.76**	**57.13**	**-6%**

Note: Totals may not add due to independent rounding. Numbers are provisional and may be revised. At the time of going to press some companies had not reported their hedge positions whilst in some cases data is only available on a six monthly or annual basis. In these cases GFMS have made estimates.

Source: GFMS

Net Impact of Producer Hedging



Source: GFMS

Summary and Overview

De-hedging in Q4 maintained its elevated levels, touching 3.64 Moz, although it fell short of the totals recorded in the previous two quarters. The 6% quarter-on-quarter cut in the global position left the delta-adjusted book at end-December at 57.13 Moz. The 14.30 Moz year-on-year decline representing the biggest annual reduction in outstanding producer positions since the de-hedging cycle began in 2000.

A substantial 2.20 Moz cut from AngloGold Ashanti's delta-adjusted book made up a large part of the Q4 decline. The move marked the company's second restructure in 2004 and took their full year reduction to just over 4.0 Moz, a significant 28% of (net) global de-hedging in 2004.

Elsewhere, Q4 was a relatively quite period with many producers having achieved (or almost achieved) stated de-hedging targets by the end of September. A further factor was the strong price rally, which reduced the window for opportunistic buy backs or accelerated deliveries, with gold having posted a 16-year high of $454.20/oz in early December.

The rally, and its abrupt retreat, was chiefly a result of swings in investor interest which intensified during the run up to the much anticipated listing of the New York Stock Exchange traded fund (ETF) streetTRACKS. Net official sector sales increased sharply due to the start of the new Central Bank Gold Agreement and the commencement of sales from France.

Higher prices hurt jewellery offtake in Q4, but perhaps a little less than expected with Turkey and India both performing well. Mine production was moderately higher benefiting from, amongst other factors, increased output at Grasberg.

The average received price reported by producers was $421.21/oz, with a range starting from a low of $379/oz to a high of $512/oz. The price received fell short of the average spot price by roughly $13/oz, a marked deterioration from the previous quarter when received prices were just over $5/oz lower than the period average of $401.30/oz.

The mark-to-market of the global hedge book (for the subset of companies that report this data) stood at a negative $4.41 billion, a 4% increase from its position at the end of the September quarter. The increase was due to the higher end valuation price, which rose from $415.65/oz to $435.60/oz.

Looking forward, the forecast base level of de-hedging in the current year is estimated at just under 10.0 Moz. This is based on the delivery profile of the delta-adjusted book at end December 2004, although the actual figures will depend on the intensity of buy backs and the level of new hedging. The former will largely hinge on the performance of the gold price, with higher prices leading to less opportunistic buy backs.

Concerning project hedging, GFMS has identified 27 projects at the construction and commissioning stage in 2005/2006. Importantly, a number of these projects will be required to hedge a portion of future output and this could add anything up to 3.2 Moz to the global hedge book in the coming 18 months.

Market Commentary

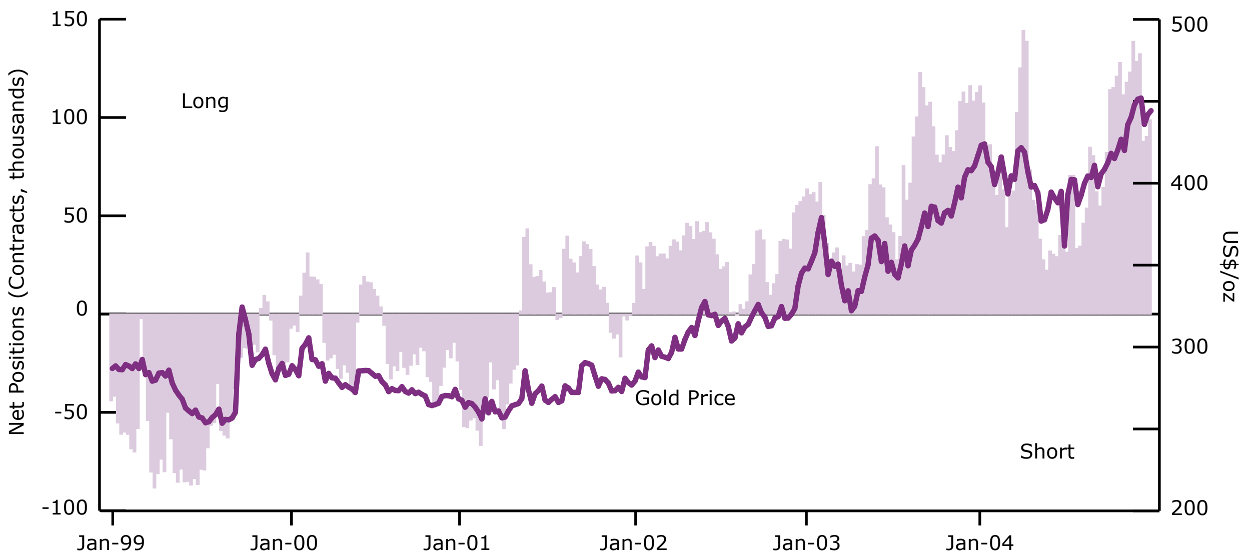
Gold rallied strongly from its end September price of $415.65 to post a 16-year high of $454.20 in early December. The correction that followed left the metal at the end the quarter at $435.60/oz. The average price for the three month period, $433.80, was up a substantial 8% versus Q3 and a yet greater 11% higher year-on-year.

The sustained rally and the abrupt retreat (four days after its peak gold lost $15/oz in a single trading day) were largely the product of swings in investor interest. Much of this was the result of changes in the dollar (the correlation between gold and the dollar:euro was higher in Q4 than it had been in the rest of 2004). The growth in investor activity during October and November arguably intensified during the run up to the launch of the New York Stock Exchange traded (ETF), streetTRACKS gold. The ETF gathered in excess of 3.2 Moz in the first two weeks of trading before a partial liquidation which left its holdings at end-Q4 at 3.0 Moz. This was more than half of the total gold held in trust for all ETFs and similar products worldwide, (a grand total of 5.7 Moz).

Net official sector sales in Q4 increased sharply to a provisional 7.5 Moz, a more than three-fold rise from the revised 2.1 Moz reported in Q3. The quarter-on-quarter increase was largely the product of the start of the new Central Bank Gold Agreement (CBGA), which marked the commencement of sales from France. Earlier France announced plans to sell between 16.1 and 19.3 Moz over the five year duration of the second CBGA. (The overall limit set under the new CBGA was lifted by 16.1 Moz to 80.4 Moz over a five year period.) The signatories are the same as before, with the addition of Greece and the exclusion of the UK.

Gold lent out by the central banks experienced a further decline in the quarter. Ongoing

Comex/Nymex Non-commercial Net Positions



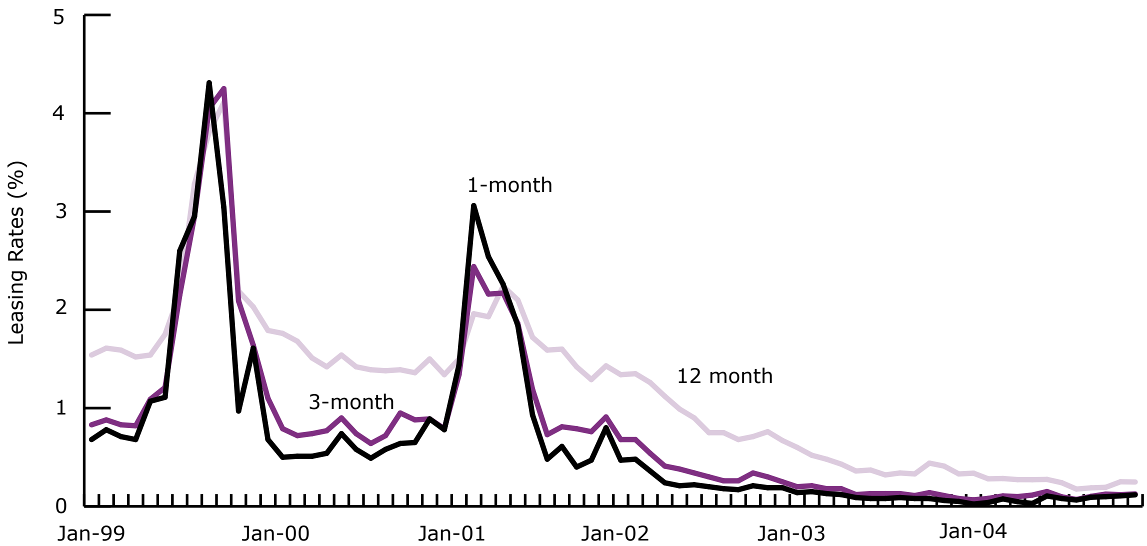
de-hedging as well as excess liquidity in the market due to the growth in long positions kept leasing rates to low levels. The 1-month rates averaged 0.11%, while the 6 and 12 month rates averaged 0.16% and 0.23% respectively.

Higher prices appear to have hurt offtake but perhaps a little less than expected as expectations adjusted upwards. East Asian bullion imports, for instance, do not appear to have been undermined by markedly higher prices and scrap. Prices' negative effect was also felt in the Middle East though overall figures are distorted by the strength of Turkish fabrication and the collapse of L/C imports (letter of credit facilitated imports) into Dubai from India. Auspicious buying opportunities meant demand in India saw pockets of early buoyancy but by December the market was distinctly quiet. In Europe and North America, fabrication's performance in Q4 looks to have weakened compared to earlier in the year, largely as a result of generally poor local sales over the holiday period and rising competition in Italy's exports markets.

Producer de-hedging generated a provisional 3.6 Moz of demand in Q4. The higher than anticipated figure was largely due to the 2.2 Moz (delta-adjusted) reduction in AngloGold Ashanti's gold hedge book.

Mine production stood at a provisional 20.9 Moz in Q4, up by a modest 1% year-on-year. New mines and higher grades at Grasberg (output was up 86% year-on-year) contributed to the growth. On the development front, Newcrest announced at the end of the November that commissioning at their 100% owned Telfer project and 70% owned Cracow project had progressed with both now processing ore and production underway. Earlier, commissioning at Gallery Gold's three tonne per annum Mupane mine situated in Botswana started in August with first pour reported on 12th

Lease Rates, Monthly Averages



Sensitivity of the Global Hedge Book

The fourth quarter 3.64 Moz decline in the delta-adjusted hedge book left total outstanding producer positions (end-December) at 57.13 Moz, levels last recorded in 1996. As discussed in more detail elsewhere in the report, a significant 86% of the reduction was the result of a decline in forward sales, with a large part of that due, in turn, to AngloGold Ashanti's book restructure.

Although in volume terms the drop in forwards eclipsed the decrease in the options portion of the global hedge book, in percentage terms the fall was comparable with the former down by 6% qoq against a 4% decline in the options book. Year-on-year, however, there was greater divergence with forwards 14% lower whilst options registered a 38% decline. Major book restructures in the first half of the year, which in some cases saw producers switch from options strategies to simple forwards, partly explained the marked difference.

Concerning the make up of the book, there was little change, although the small movement that did occur went against the trend of the previous five quarters. Forward sales share of the total nominal hedge book has increased from 59% in 2003 Q2 to 70% in 2004 Q3.

At end-December, vanilla products accounted for over 90% of the options portion of the hedge book, with the volume of nominal net calls outweighing net puts by roughly two to one. The net call delta-adjusted position increased modestly qoq (+5%), the result of a higher delta against the sold call contracts, which in turn was driven by the higher end valuation gold price ($415.65/oz in Q3 versus $435.60 Q4).

The net put position, in contrast, declined by a significant 47%. The sharp fall was due to a combination of factors. Firstly, nominal

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

move in Volatility (%)	move in gold price				
	-200	-100	0	+100	+200
4	7.59	9.30	11.33	12.23	12.55
2	7.40	9.19	11.41	12.35	12.61
1	7.29	9.13	11.46	12.41	12.65
0	7.18	9.07	**11.51**	12.48	12.68
-1	7.08	9.00	11.57	12.55	12.70
-2	6.96	8.93	11.64	12.62	12.73
-4	6.75	8.77	11.78	12.75	12.78

Source: GFMS

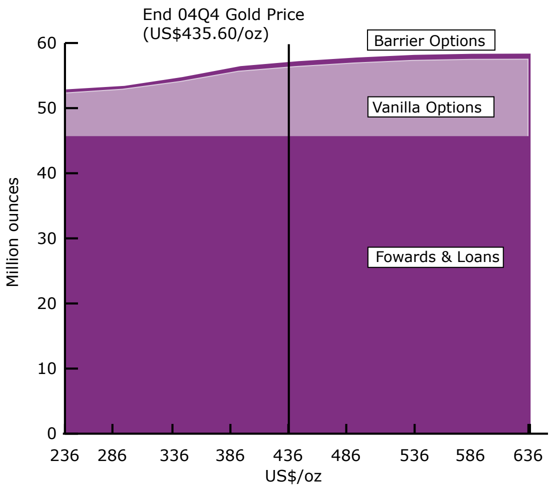
Note: the delta-adjusted options book at end-Q4 was calculated at 11.51 Moz. The matrix above shows changes in the delta-adjusted volume under different gold prices and volatilities.

bought put options were reduced by 13% qoq (25% in delta-adjusted terms). Secondly, producers added just less than 300,000 (nominal) ounces of sold puts to the global hedge book, reducing the net position still further. The hefty decline in the net put position offset the modest increase in net calls leaving the vanilla options book some 6% lower in nominal terms and reduced by 2% in delta-adjusted terms.

As evident from the statistics above the non-vanilla products share of the options book is not substantial. As at end-December it accounted for less than 10% of the total in nominal terms and only 6% of the options book in delta-adjusted terms. It is chiefly composed of bought barrier puts and sold barrier calls, the later out numbering the barrier puts by just less than two to one.

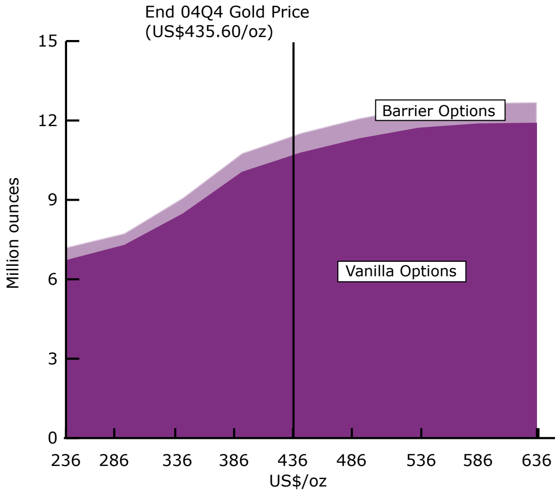
The pair of graphs below serves to illustrate the sensitivity of the producer book to changes in the spot gold price as at the end of Q4. Forward sales are insensitive to price changes as the full volume of metal has already been sold onto the market. This is shown by its 'straight line' response in the chart below. As forward contracts make up 70% of the global book, it is hardly surprising that the global position shows a fairly muted response to price movements. The response of the options portion can be more clearly observed by stripping out the forwards. As can be seen (on the right hand side graph) a $200/oz increase in the price from $336/oz, results in the options profile growing from 9.07 Moz to 12.48 Moz.

Q4 Delta Adjusted Hedge Book



Source: GFMS

Q4 Options Delta Adjusted Position



Source: GFMS

Company Activity

Considering the strong price rally that gold experienced in the fourth quarter, it was perhaps surprising that de-hedging remained at such elevated levels. Combined with the 10.67 Moz cut measured in the first nine months of the year, the 3.64 Moz delta-adjusted reduction in Q4 took full year de-hedging to a record 14.30 Moz – the highest level since the cycle begun in 2000.

In nominal terms, the book decreased in Q4 by 4.41 Moz. The drop exceeded the reduction measured in the first quarter but fell significantly short of the decline seen in both Q2 and Q3, which together accounted for 59% of 2004's decrease. The modest slow down in the pace of de-hedging in Q4 was, in part, due to the fact that many of the biggest books had already been substantially reduced in earlier restructures/buy backs. Importantly, in some instances, stated company targets for full year cuts in hedge cover had been either exceeded or were very close to being met by the end of September. Higher gold prices in Q4 also played a role having reduced the window for opportunistic buy backs or accelerated deliveries.

AngloGold Ashanti made the single biggest contribution to de-hedging in Q4, reporting a massive 2.20 Moz reduction in their delta-adjusted position (the decrease exceeded the 1.54 Moz cut from the book in the second quarter which marked the first period of consolidated reporting following the successful merger of AngloGold and Ashanti; for further details see feature article on page 11). Had they simply delivered into its Q4 positions, as reported at end-September, the decline would have been in the order of 1.0 Moz.

With AngloGold Ashanti accounting for close to two-thirds of total de-hedging for the period, it was not surprising that elsewhere there was little to report. Newcrest delivered 100% of their Q4 mine production into their Australian denominated forward contracts with a reported 285,000 ounce drop in their hedge book (taking the outstanding book to 7.15 Moz). Similarly, it seems probable that Placer Dome fully delivered into its Q4 positions as reported end-September (at the time of writing the company's quarterly report had not been released). Based on this assumption the Q4 cut in Placer's delta-adjusted book totalled just over 0.5 Moz.

Total Nominal Positions, Percentage Change qoq

Region	Forwards	Calls Sold	Puts Bought	Vanilla Options (net)
North America	-3%	-7%	-15%	-11%
Australia	-2%	-2%	7%	2%
South Africa	-23%	1%	-6%	-3%
Other	-5%	-7%	-11%	-8%
Total	-6%	-2%	-9%	-6%

Note: Forward sales includes gold loans.

Source: GFMS

Peru's Buenaventura reported outstanding commitments as at end-December of 2.69 Moz, a modest gross 103,000 ounce (79,000 delta-adjusted ounces) reduction from Q3. The company announced in February last year that it had stopped hedging and a book restructure followed. According to a company announcement annual commitments now match annual production from direct operations (this excludes equity production from the giant Yanacocha mine). The producer also stated that profits obtained from the hedge book between 1998 and 2002 totalled $52.7 million, whilst between 2003 and 2004 the book incurred a loss of $26.8 million.

Concerning new hedging, the biggest project related hedge was a 200,000 ounce position taken by Perseverance, owners of the Fosterville gold project in Australia. Construction of the plant is 85% complete with target for the first gold pour in March 2005. Randgold Resources,

Top De-hedgers 2004 Q4

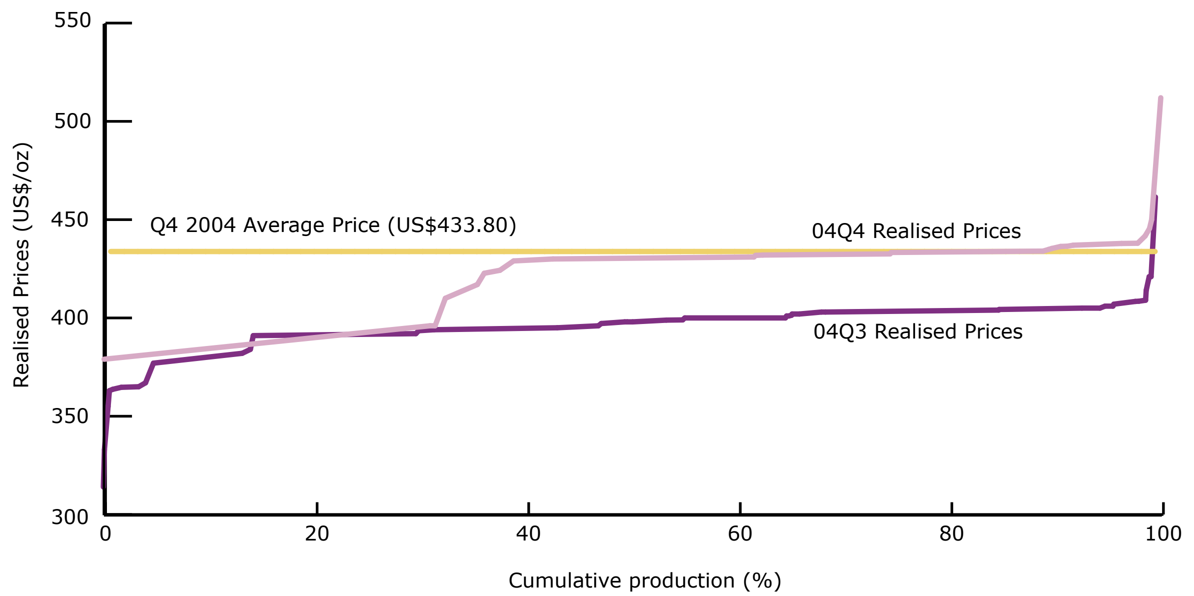
(delta-adjusted, spot basis)

Company	% of decline	decline in Moz
AngloGold	57%	2.20
Placer Dome*	13%	0.51
Newcrest	7%	0.29
Barrick Gold*	6%	0.25
Buenaventura	2%	0.08
Xstrata*	2%	0.07
Cambior*	1%	0.05
Teck Cominco	1%	0.03
Lihir Gold	1%	0.02

*estimate

Note: Delta-adjusted volumes are calculated on the basis of published company data. As such disclosures are not exhaustive, the GFMS calculated position may not exactly correspond to the delta position reported by the company. In addition, GFMS values the contracts on a spot delta basis, whereas some companies report positions on a forward delta basis. This can lead to minor discrepancies between the calculated and reported delta-adjusted volumes.

Received Prices in Q4

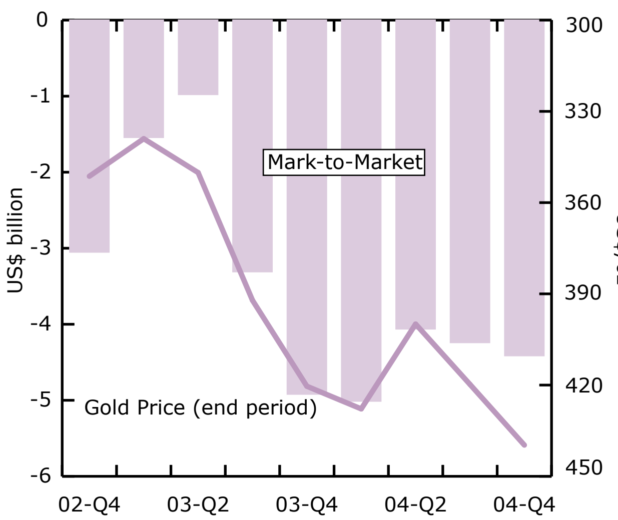


Source: GFMS

meanwhile, added a further 15,000 ounces to their hedge against the future output from the Loulo mine in Mali, which is aiming to pour its first gold in July 2005. The total position now amounts to 365,000 ounces, some 35,000 ounces short of the limits set by the board of 40% of planned output over a four-year period. OceanaGold, based in New Zealand, hedged 100,000 ounces on a spot deferred basis. The new hedge followed a buy back in Q3 when the company repurchased the majority of its (in-the-money) hedge position of around 0.9 Moz.

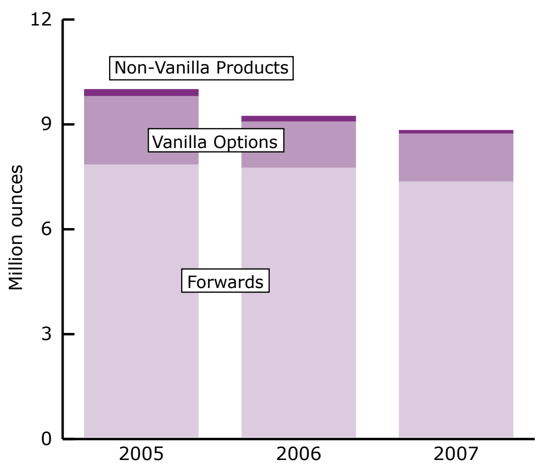
Against trend, Resolute, which has operations in Tanzania and Australia, reported a shift in its 'price protection' hedging from forward sales to put options. Bought put options increased by 15,000 ounces during the quarter, whilst forwards were reduced by 22,235 ounces. Indonesian based nickel and gold producer Antam forward hedged a total of 24,000 ounces of its production in 2005 and 12,000 ounces in 2006. The groups stated policy to hedge a minimum of 30% and maximum 50% of annual forecast gold production suggests that further additions to its forward programme are likely in the coming months (last year its Pongkor mine produced roughly 120,000 ounces).

Marked-to-Market Gold Hedge Books



Source: GFMS

Delivery Profile End Q4 (base case)



Source: GFMS

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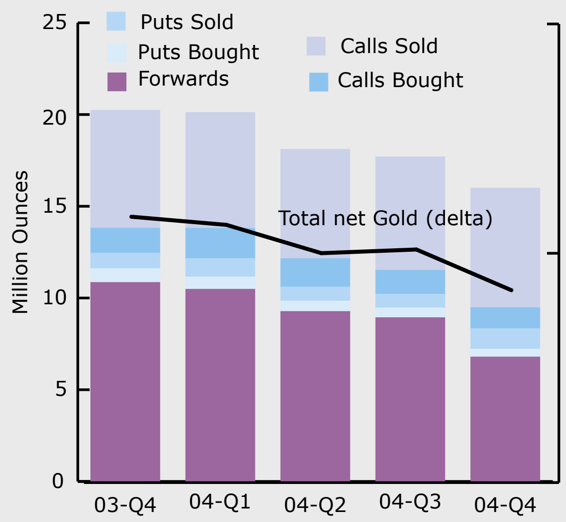
AngloGold Ashanti Makes Further Reductions in its Hedge Book

On 26th April 2004 the merger of AngloGold and Ashanti Goldfields became effective. The successful conclusion of the deal resulted in the addition of around 1.5 Moz to AngloGold's annual gold production and a further 20.7 Moz to its reserve base, representing a respective increase of approximately 20% and 30% against pre-merger levels.

At end-December 2003, AngloGold's and Ashanti's delta-adjusted positions respectively stood at a reported 8.6 Moz and an estimated 5.9 Moz. Based on the formers guidelines of hedging 30% of five years of mine production, the integration of the two producers (as at end-December) would have resulted in the new company being over hedged by roughly 3.8 Moz (41% of five years output, see also table below).

Since completion the merged company has made two major reductions in its outstanding positions. In the second quarter a cut of 1.5 Moz was announced. This was mostly achieved at the expense of forward contracts which were scaled back by 1.2 Moz. Secondly, in Q4, a hefty 2.2 Moz was removed from the book. The restructure included the buy-back of poorly priced forward and call option contracts for 2005, 2006 and 2007 and the sale of new forward and call options contracts beyond 2007 at higher gold prices. This restructure, coupled with the action in Q2, left hedge cover at end-December at 31% of five years' production, effectively eliminating the entire 'excess' position.

Nominal Hedge Book by Contract Type



AngloGold Ashanti Hedge Book

(Moz)

	end-2003			end-2004	change
Contract type	**Anglogold**	**Ashanti**	**Combined**	**AngloGold Ashanti**	**y-o-y**
Forwards	5.8	5.0	10.8	7.3	-32%
Restructure longs*				0.6	-
Puts bought	0.7	0.1	0.8	0.4	-43%
Puts sold	0.8	-	0.8	1.1	32%
Calls bought	1.0	0.3	1.4	1.1	-16%
Calls sold	4.8	1.7	6.4	6.5	1%
Net Position	9.4	6.4	15.8	11.5	-28%
% cover 5 years output	31%	77%	41%	31%	-23%
MTM (USD million)	-578	-610	-1,187	-1,161	-2%
Gold Price (end-year)	417.25			438.00	5%

*long spot position in gold acquired as apart of restructure which was completed in January

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, Russia and China, 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 2004, the group released its first Platinum and Palladium Survey.

About Brady plc

Brady is a Software Solution provider whose main product, Trinity, is targeted towards Corporate Treasury in the Metals and Mining Industry. Trinity specialises in Physical Material Management, Financial Transaction Management, Treasury, Risk & Contract Management. Brady is acknowledged as the leading provider of Trading and Risk Management Software for the global metals marketplace, installed with producers, fabricators, merchants, banks and brokers around the globe. Headquarters are based on Cambridge Science Park in the UK. Brady floated on AIM in 2004.