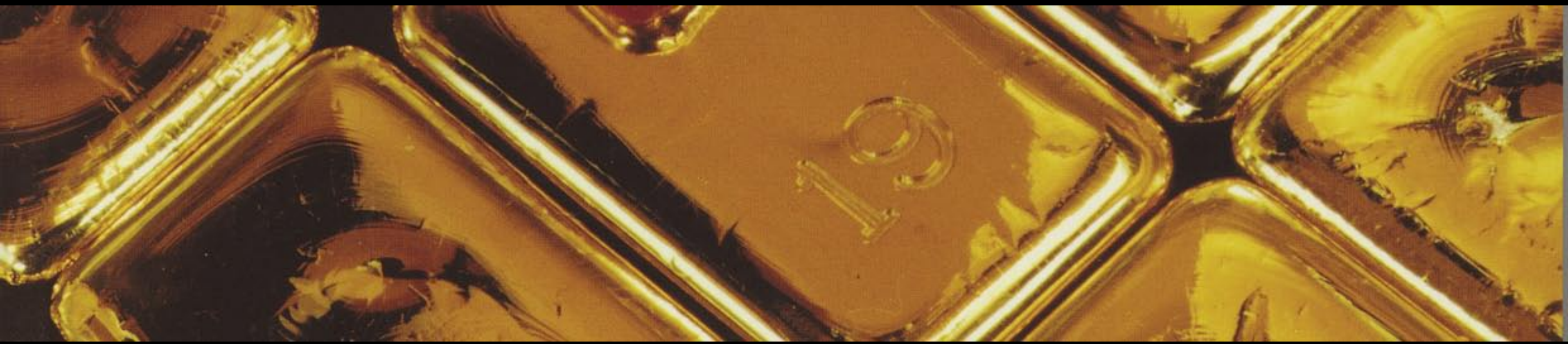


GLOBAL HEDGE BOOK ANALYSIS
Q3-2006

GFMS

BRADY

EDITION Sixteen, NOVEMBER 2006

Contents

Key Points

- ***De-hedging slowed in Q3 with a provisional decline of 2.0 Moz (62 tonnes).***

- ***Forwards accounted for 87% of the total measured decline, with a 12% cut in the net delta vanilla options book and a modest 1% reduction in the non-vanilla position making up the balance.***

- ***Total outstanding producer positions amounted to a provisional 43.4 Moz (1,350 tonnes) at end-September on a delta-adjusted basis.***

- ***Quarter-on-quarter, the global position marked-to-market improved by 10% to a negative $10.2 billion at end-Q3.***

Composition of the Delta-Adjusted Global Hedge Book

(Moz)	**06.Q2**	**06.Q3**	**qoq**
Forwards & Loans	33.21	31.49	-5%
Vanilla	12.05	11.81	-2%
Non-vanilla	0.14	0.12	-15%
Total	**45.40**	**43.41**	**-4%**

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. In these cases GFMS have made estimates.

Source: GFMS

Summary and Overview

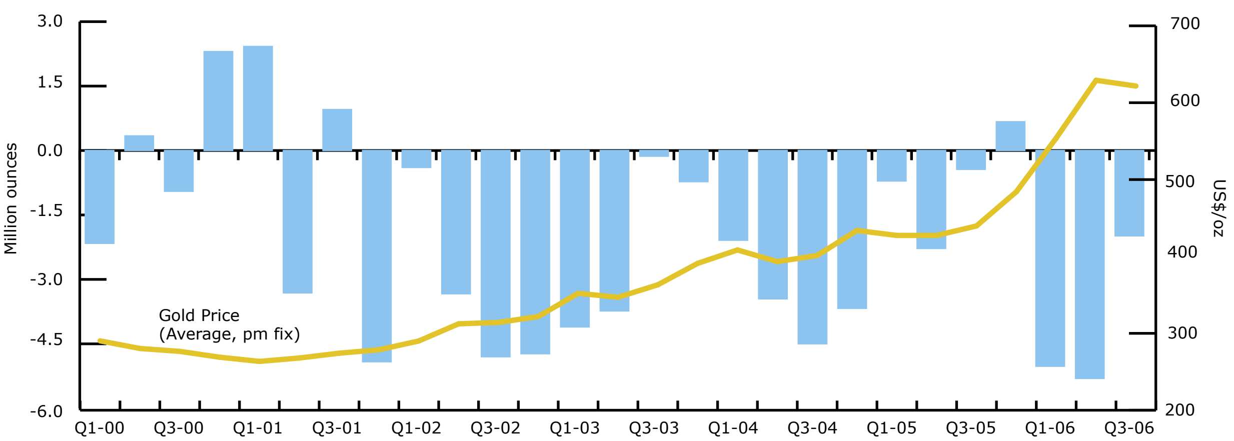
De-hedging slowed in the three months to September with a provisional 2.0 Moz (62 tonne) cut from the delta-adjusted hedge book. Given that the elevated volumes of de-hedging in Q1 and Q2 were largely driven by Barrick's buy back of the Placer Dome legacy hedge book, a return to more "sustainable" levels of de-hedging had been widely anticipated.

Forward sales, as ever, bore the brunt of the decline with contracts scaled back by a hefty 1.7 Moz (53 tonnes). Scheduled deliveries explained the bulk of the decrease, although AngloGold Ashanti made an additional contribution to the decline with a reduction in its longer dated forward contracts. Concerning the options portion of the global hedge book, the non-vanilla contracts fell in both nominal and delta-adjusted terms. The net vanilla options book, meanwhile, was left essentially unchanged in nominal terms from the position reported at end-Q2. In delta-adjusted terms the picture was somewhat different with the net delta vanilla options book registering a modest 240,000 oz (7 tonne) decline. The discrepancy, explained at greater depth elsewhere in this report, was partly due to the increase in the nominal volume of sold put contracts.

The gold price at the end of the quarter (used to value the options contracts) stood at $599.25, representing a modest decline of $14.25 against the price at end-Q2. This fall was reflected in the implied delta against the sold call contracts, which declined by 3% quarter-on-quarter. (This figure should be regarded as an indication only; a direct comparison between the two quarters is not possible due to fresh option hedging completed in Q3.)

Average prices realised by producers (see chart on page 7) was $590/oz. The decline of just $3/oz against Q2, compares marginally favourably to the $6/oz dip in the quarterly average spot price, which was

Net Impact of Producer Hedging



$622/oz in the third quarter. The marked-to-market value of the hedge book at end-Q3, charted on page 8, contracted by a moderate 10% quarter-on-quarter but nevertheless, at negative $10.2 billion remained at levels that were unsurpassed prior to the 2006 price rally. Two key factors were in play to diminish the deficit of the hedge book marked-to-market. Firstly, the end-period gold price was $14.25/oz lower than in the second quarter. Secondly, the absolute book volume was 2.0 Moz (62 tonnes) lower than the prevous quarter in delta-adjusted terms.

Prices

	06.Q2	06.Q3	% Change qoq
US$/oz spot	627.71	621.67	-1%
US$ 12-mth	661.06	655.40	-1%
Euro/kg	16,028	15,685	-2%
Yen/g	2,304	2,322	1%
TL/g	29.37	29.99	2%
Rps/10g	9,294	9,361	1%
Rph/g	183,698	182,353	-1%
Rand/kg	130,680	142,849	9%
A$/oz	839.34	821.03	-2%
Rouble/g	514.46	535.80	4%

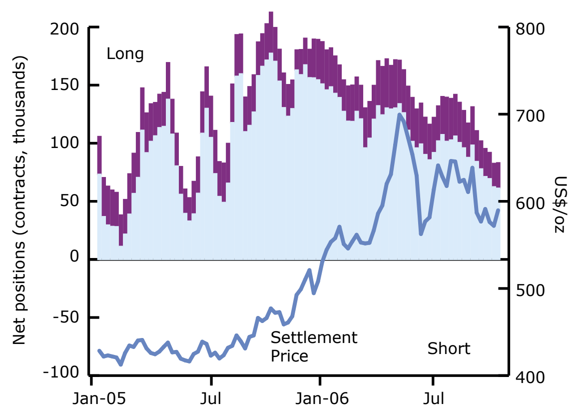
Market Commentary

The third quarter started well, with gold picking up from $613.50 at the end of June to reach $663.25 on 14th July. The rally was short lived however, and the early high proved to be the period's peak with gold slipping in an erratic fashion to a low in mid-September of $573.60. Thereafter the price recovered somewhat and the period closed with gold at $599.25. The Q3 average of $621.67, represented a 1% quarter-on-quarter fall in the price, though this still represented a gain of over 40% in comparison to the same period a year earlier. At $599.25, the price used to value the options book was some $14.25 or 2% lower than the figure used in Q2.

Much of the slide during the third quarter was driven by investor long liquidation, a fair portion of which came from the fall in the fund long on Comex. This was partly due to the seasonal lull that usually occurs over the summer months and partly due to genuine uncertainty on the outlook for the metal. The sell off, which accelerated in the second week of September, was triggered by news of the discovery of a new major oilfield in the Gulf of Mexico and the oil-price slide this caused. This marked the start of a major investor bailout over the whole commodities complex, mainly led by expectations on energy prices, that had a marked impact on gold investment. And on 15th September, driven by this move, gold reached its low for the quarter, of $573.60.

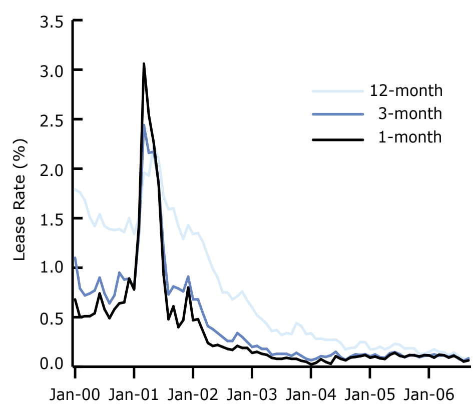
A further factor behind the mid-September sell off was talk of heavy central bank sales that further undermined investor confidence. However, information available to date suggests the opposite actually transpired - at just 63 tonnes, net official sector sales in 06.Q3 were down 4% on the previous quarter (or 28% down in comparison to 05.Q3). This left total sales, as generally expected, by the Central Bank Gold Agreement (CBGA) countries around 100 tonnes under quota. It is possible that some yet to be reported forward sales occurred but their volume is not thought likely to have been great. The largest seller from within the CBGA was Spain, which released 27 tonnes into the market. On 15th September, Portugal announced they had sold a further 20 tonnes of their gold reserves.

Comex/Nymex: Net Positions*



*Non-commercial and non-reportable net positions

Leasing Rates (monthly average)



Over the period, France sold 18 tonnes of gold, Austria four, Sweden three tonnes and Germany one tonne.

Outside the CBGA there were no sales of significant volume. Gross purchases included small additions to reserves in Mongolia and Belarus and an undeclared transaction, the details of which cannot be disclosed in respect of confidentiality.

The continued decline in central bank lending failed to provide leasing rates with sufficient support, resulting in further declines taking place. The three-month rate averaged at seven basis points, down from 11 basis points in 06Q2, while the six and 12-month rates both averaged at nine basis points, down from 12 and 14 basis points in the previous quarter. The weaker rates were explained by continued de-hedging, excess liquidity due to the substantial stocks held by investors, as well as limited demand for gold loans.

With the retreat in prices below the $600 mark, September saw a marked increase in physical activity. Destocking across the jewellery distribution chain had been a significant feature of the second quarter and, whilst some replacement of sold inventory was seen in July and August, it appears that the true bounce back only got underway in September. As a result, jewellery demand in the third quarter improved notably on the depressed second quarter, but this re-stocking effect looks to have arrived in force too late to generate a year-on-year increase for this sector. This lateness, nonetheless, does offer some promise for fourth quarter demand.

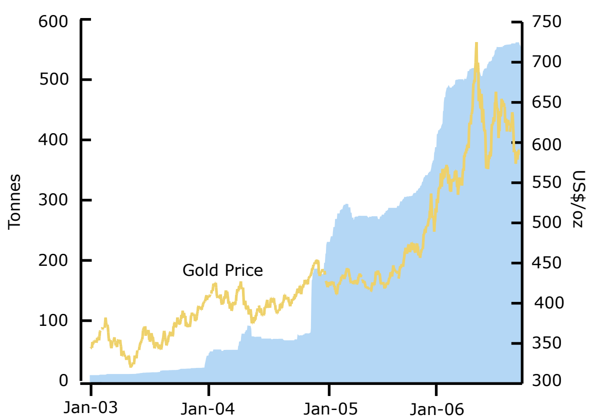
Mine production saw a moderate decline in Q3 estimated at around 3%, as a number of the largest mines and companies reported lower output. This deficit contrasted expectations at the beginning of 2006, as a number of mines at the stages of advanced construction and commissioning have made delayed debuts, while some in early-stage production have, to date, failed to achieve design capacity. At an operational level, the two largest gold producing mines, Grasberg and Yanacocha, both reported scheduled reductions associated with declines in grade, which amounted to four tonnes and five tonnes year-on-year respectively, while a shaft accident in May at South Deep was responsible for a 50% reduction to output.

Composition and Sensitivity of the Global Hedge Book

On a nominal basis in the third quarter the book contracted by 3% compared to the position at end-Q2, with the majority of this reduction originating from a cut to the forwards and loans position, which saw a decline of 1.7 Moz (53 tonnes). Interestingly, and against the general trend of recent years, the global vanilla options position actually increased, albeit by a marginal 5,000 oz (0.1 tonnes). Non-vanilla options were seen to have diminished further in Q3, by a comparatively insignificant 21,000 oz (0.6 tonnes). These changes left the net nominal options book some 16,000 oz (0.5 tonnes) lower quarter-on-quarter. And coupled with the drop in forwards the Q3 net decline to the global hedge book in nominal terms amounted to 1.7 Moz (54 tonnes).

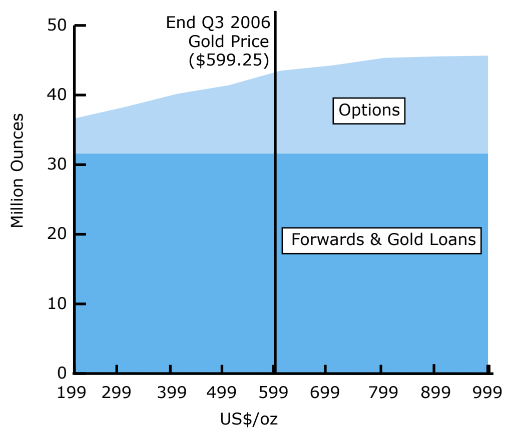
The decline in delta-adjusted terms, in contrast, exceeded the fall reported in nominal terms with a calculated decrease of 2.0 Moz (62 tonnes). With the bulk of the fall accounted for by the decline in forwards and gold loans positions reported above, the greater

Gold ETFs & Other Similar Products



Source: GBS; CFC; CGT; Absa; State Street; BGI

Q3 Options Delta Adjusted Position



Source: GFMS

decline in delta-adjusted terms was solely explained by a 0.2 Moz (7 tonne) fall in the net vanilla options book (as explained above in nominal terms the position actually registered a modest increase).

In nominal terms the composition of the global hedge book was little changed quarter-on-quarter with 64% of the global book accounted for by forwards and gold loans, 36% by vanilla options and less than 1% by non-vanilla products. On a year-on-year basis the changes are more striking with non-vanilla products close to extinction, having reported a drop in its share by over 90%. And forwards and gold loans' stake in the global hedge book reduced by 9%. Vanilla options, in contrast, have seen their share of the nominal book increase by over 30% year-on-year. The figures, which indicate a more aggressive decline in forward sales compared to the options book, are reflected by the fact that forwards fell back to less than 1,000 tonnes in Q3, a level not seen since the early 1990s.

Looking at the drivers behind the modest expansion to the nominal vanilla options book, the increase was due to a rise in the net call position, which was largely offset by an increase in the net put position. The impact of the fresh options hedging in Q3, in nominal terms, was therefore, essentially neutral. However, in delta-adjusted terms the picture was somewhat different. Consider, for example, that while the net nominal call position increased by 9%, the net delta call position only rose by 5% (partly due to the influence of the lower implied delta against the sold call contracts, itself a result of the lower gold price used to value the options). The net nominal put position, on the other hand, registered a 20% drop quarter-on-quarter, (largely thanks to the increase reported in sold put contracts) while the net delta put position declined by 277%.

Sensitivity of Q3 Options Book

Move in Volatility (%)	Move in Gold Price ($/oz) -200	-100	0	+100	+200
4	-8.7	-9.8	-11.8	-12.5	-13.6
2	-8.6	-9.8	-11.9	-12.6	-13.7
1	-8.6	-9.8	-11.9	-12.6	-13.7
0	-8.6	-9.8	**-11.9**	-12.7	-13.8
-1	-8.6	-9.9	-11.9	-12.7	-13.8
-2	-8.6	-9.9	-12.0	-12.7	-13.8
-4	-8.5	-9.9	-12.0	-12.8	-13.9

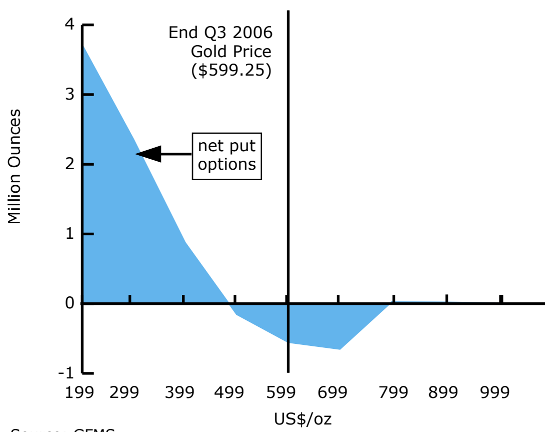
Source: GFMS

Note: the delta-adjusted total options book at end-Q3 was calculated at 11.9 Moz. The matrix above shows changes in the delta-adjusted volume under different gold prices and volatilities.

The charts on pages 5 and 6 represent profiles of the hedge book as at end-Q3, modelled under changes in the gold price using the Brady Trinity™ integrated trading and risk management software. The page 5 chart (encompassing all contract types) highlights the fact that, as the bulk of the book made up of forwards and gold loans, the adjusted profile is relatively insensitive to changes in the gold price. To allow a more detailed analysis of the options book the option contracts have been modelled independently.

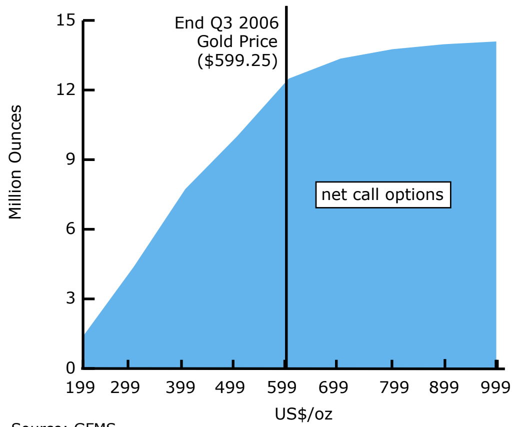
Stripping out the forwards and assessing the sensitivity of the global net call and net put positions (see charts below), the most interesting detail is that within an approximate price range of $500-$800, the net put position was modelled to be in negative territory. As discussed above this is largely due to the presence of

Q3 Net Put Options (Delta-Adjusted)



Source: GFMS

Q3 Net Call Options (Delta-Adjusted)



Source: GFMS

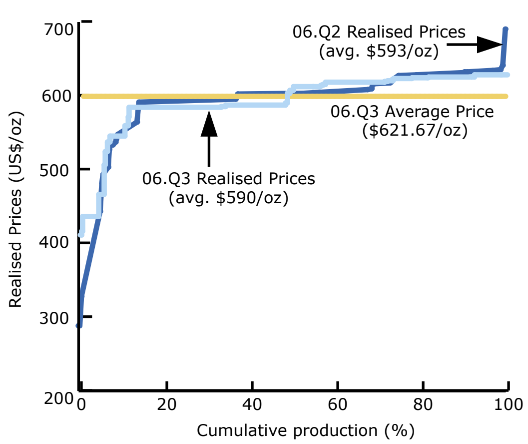
sold put contracts, which in nominal terms increased by 85% quarter-on-quarter. Prior to the volume of contracts added to the book in Q3, the impact of the sold put contracts on the delta net put profile was minimal. However, with the nominal increase in contracts and the accompanying quarter-on-quarter increase in the delta sold put volume, the weighting between the sold put and bought put shifted. To illustrate, in Q2 the ratio between the delta sold put volume and the delta bought put volume stood at 0.3:1 while at end-Q3 it was 2.3:1. The chart of net calls is more typical. It shows that at the end-Q3 price of $599 the hedge exposure is close to the maximum, because the majority of contracts are in-the-money sold calls. Under lower price conditions the delta net call position is more responsive, as the sold call contracts move out-of-the-money.

Company Activity

AngloGold Ashanti led the pack of de-hedgers, topping the table with a reported 0.6 Moz (20 tonne) cut to its delta-adjusted position. The decline was concentrated in the group's forward sales, which were reduced from 4.5 Moz (138 tonnes) to 3.9 Moz (120 tonnes). The company's options book, in contrast, measured a modest increase in nominal terms, with a quarter-on-quarter rise of 0.5 Moz (14 tonnes). The chief factor behind the noted rise was an increase in the nominal volume of sold call contracts. On a delta-adjusted basis the lower gold price used to value the options at end-Q3 explained the overall 1% quarter-on-quarter reported decline in the net delta options book.

Following two quarters of significant book reductions, Barrick's activity took a back seat. The world's leading producer reported a 0.3 Moz (9 tonne) cut to its corporate gold sales contracts, and also recorded a rise of similar magnitude to the floating forwards position, the combined effect of which was a zero net change to the book volume. This left the end-Q3 position at 13.0 Moz (404 tonnes), with a large part of the total commitment allocated to long-dated project gold sales with expected delivery dates between 2010 and 2019.

Received Prices in Q3



Source: GFMS

Top De-hedgers in Q3

(delta-adjusted, spot basis)

Company	% of gross decline	decline (Moz)
AngloGold Ashanti	31%	0.64
Newcrest	19%	0.39
Buenaventura	5%	0.10
Xstrata*	4%	0.08
Western Areas	3%	0.07
Lihir	3%	0.07
Harmony	3%	0.07
Avocet*	3%	0.06
Bema*	3%	0.06
Aurizon	2%	0.05

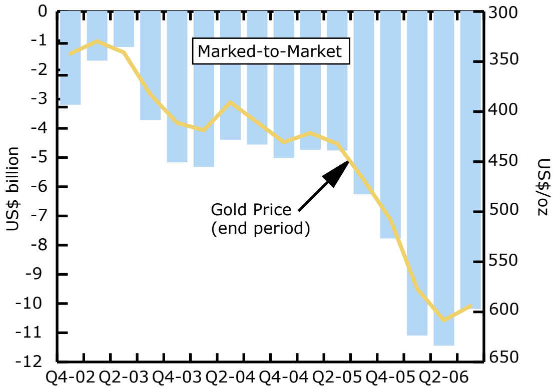
* Estimate

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 value 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. Where published data was unavailable, an estimate based on the expiry of contracts has been made.

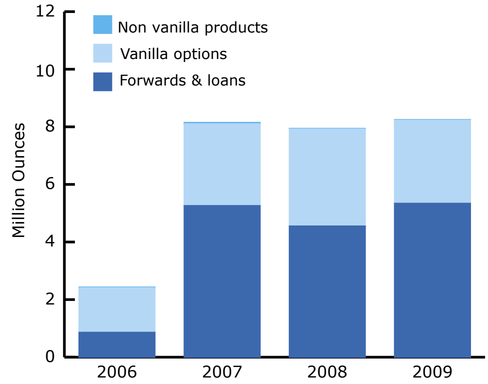
Several of the greatest book reductions were through the scheduled delivery of companies' positions. Newcrest, the holders of the third largest producer hedge book, continued to deliver into their commitments as scheduled, reducing their forward sales by 352,000 ounces (11 tonnes), and their gold loans by 35,000 ounces (1 tonne). This left their outstanding gold book at 4.7 Moz (147 tonnes). Buenaventura similarly ran down their simplified book (having converted contracts from derivatives to forward sales earlier in the year), with the elimination of 97,000 committed ounces (3 tonnes) in the third quarter.

Fresh hedging was limited in Q3 with only a handful of producers reporting an increase in their hedge books. Additional cover was put in place by PT Antam and Boliden, both diversified producers that also hedge their other products. Having reduced their outstanding gold hedge to zero in Q2, Antam sought to "protect revenues and budget," by locking in price protection via the forward sale of a modest 3,000 ounces during the third

Marked-to-Market Hedge Book



Delivery Profile End Q3* (base case)



*potential de-hedging based on contract year of delivery/expiry

quarter. Boliden, meanwhile, added a reserved volume of cover to their 2008 production, amounting to 20% of anticipated gold production, which contrasts with their shorter-dated hedges of roughly 70% of output.

In light of the high gold price of recent months, a number of producers elected to defer deliveries and sell gold into the market at spot prices. Dragon Mining continued the restructure that was initiated earlier in the year and rolled out their forwards (priced at an average of $403/oz) in order to allow sales for the quarter at $619/oz. The company has since recommenced delivery into the committed position at a rate of 60% of production. Lafayette Mining, on the other hand, were obliged to defer deliveries for reasons outside management's control; authorities required the shutdown of the polymetallic Rapu Rapu plant for eight months following two process water spills. More recently, the restart of the operations (and hence production) have been blighted by alleged environmental sabotage and a number of typhoons.

Outlook

As in previous editions of Global Hedge Book Analysis the delivery profile of the delta-adjusted global hedge book, based on reported contract maturity dates, is illustrated in the chart (above right). This profile does not take into account the impact of buy backs, book restructures, new hedging or the effect of changes in the gold price used to value the option book, and as such can only offer a guide to expected levels of de-hedging. Furthermore, in some instances, producers report hedge contracts as a consolidated position and do not, therefore, provide an annual delivery schedule.

Notwithstanding the above caveats, the delivery profile as at end-Q3 suggests a further 2.4 Moz (76 tonnes) of de-hedging in the fourth quarter which, combined with the reduction achieved in the first nine months of 2006 would provide full year de-hedging approaching 15 Moz (460 tonnes), representing the largest annual figure of de-hedging since the cycle began in 2000. As alluded to above, however, and against a backdrop of a rallying gold price in Q4, de-hedging in the three months to December could be tempered by additional project hedging and contract deferrals.

Technical Annex

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 GFMS

www.gfms.co.uk

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, Germany, Spain 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 fifteen full-time analysts comprise experienced economists and three geologists.

About Brady plc

www.bradytrinity.com

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.

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