LBMA

Alchemist

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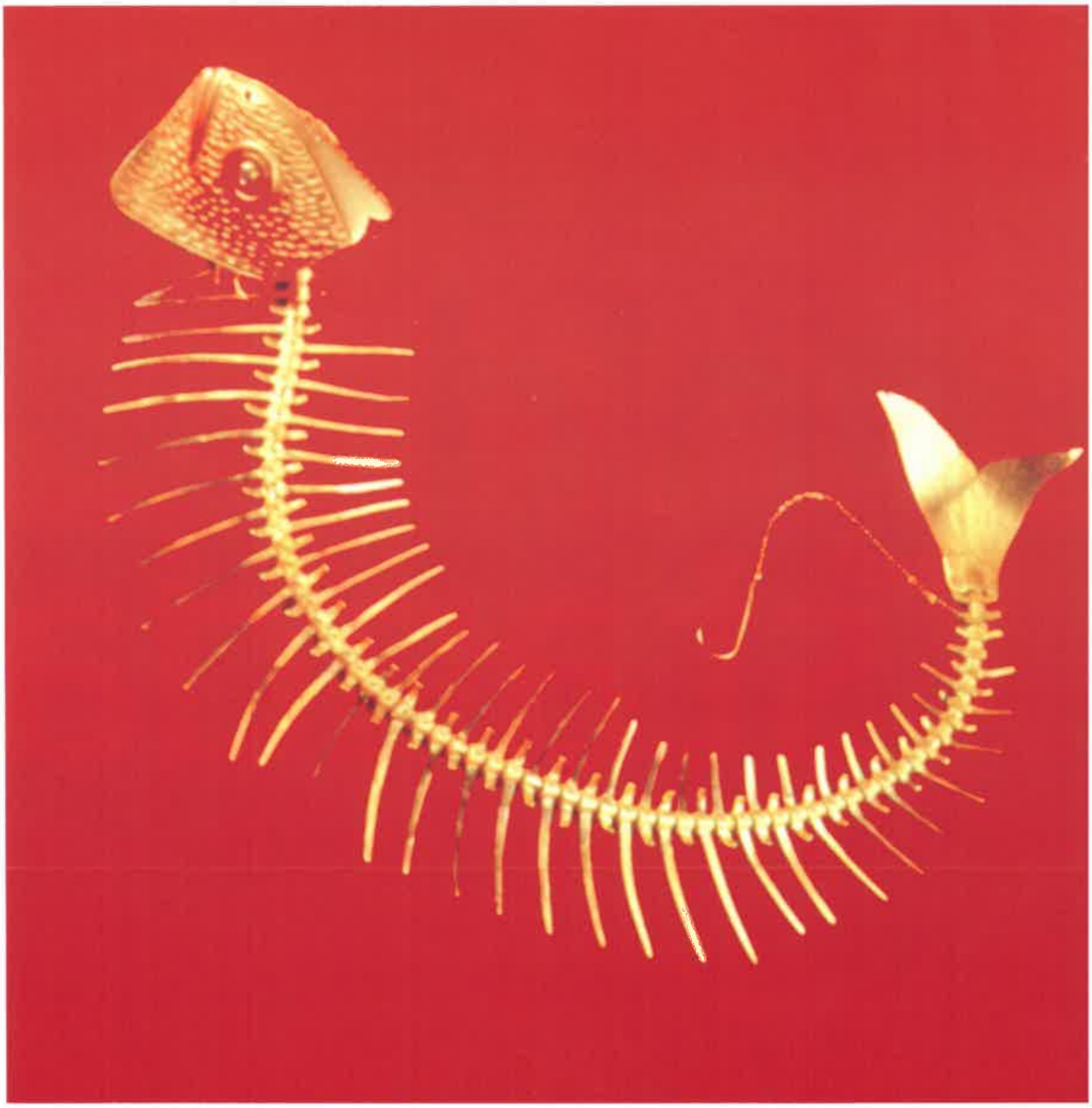
In this issue



An innovative Turkish necklace made of 18K gold – a finalist in the Gold Virtuosi Design Contest 2000

The LBMA Conference 2001 will be held on 21 & 22 May in Istanbul.
See article beginning on page 3

Turkey's Gold Market

Modernising the Midas Touch

By Susanne M Capano, Editor

For longer than there has been history, for as long as there has been myth, there has been gold in Turkey.

Jason and the Golden Fleece, Midas and his golden touch, Croesus and the wealth of legend – the earliest references to gold in the region date back thousands of years, shrouded in a blend of myth and reality.

And history. Assyrians, Hittites, Ionians, Lycians and Lydians worked the gold that flowed in the rivers of Anatolia, the western peninsula that now forms the greater part of Turkey. They left behind jewellery and coins filling today's museums and legends as teasingly fantastic as they are partially true. Some fleeces were truly golden in ancient times – the wool proved an excellent method of trapping bits of gold in streams. The Pactolus River, where King Midas was supposed to have washed his hands in an attempt to rid himself of his golden touch, was indeed a rich source of gold during his time. Recent excavations have turned up the ruins of an ancient gold refinery. No one knows just how rich Croesus was, but we do know that he formulated the first monetary system using gold.

Today's gold market in Turkey has something in common with its ancient past – coins and jewellery are still important features. But far from being antique, Turkey's gold market is a modern, thriving industry that has transformed itself over the past two decades.

An End to Smuggling . . . the Beginning of Liberalisation

In 1960 the government began to focus its attention on controlling gold smuggling. At that time, gold acted as a medium of exchange – foreign exchange rates were fixed, but gold provided a flexible instrument for foreign trade. Unfortunately there weren't any legal means of importing gold. A parallel market for gold and foreign exchange developed in Istanbul in the heart of the gold manufacturing district, Tahtakale, located at the edge of the Covered Bazaar.

The era ended in 1979 with economic chaos and a military coup – many Turkish industries had developed for years behind walls of protection and they lacked competitive power in both domestic and foreign markets. Inflation reached three-digit levels, growth rates turned negative and Turkey was unable to fulfil its foreign obligations.

In January 1980, the government announced a restructuring program, the cornerstone of which was the institution of free market rules in all commodity, foreign exchange and capital markets.

The first step was the liberalisation of exchange rates. In order to establish equilibrium in foreign exchange rates, the government had to take into consideration the foreign currency gold price. The necessity of importing gold through illegal channels raised the cost of gold in Turkish markets and pushed up foreign exchange rates in parallel markets, thereby increasing the spread between official and parallel rates.

The gold trade began to be liberalised in 1983 and 1984. Subject to permits, gold exportation became legal. The Central Bank of Turkey (CBRT) became the sole importer and supplier of gold and created the first official market – gold against Turkish lira. However, having a sole importer and supplier led to international price differentials and exchange risks.

In July 1988, new rules were established for gold trading. The CBRT remained the sole importer, but recognising the need for a two-way wholesale market in order to eliminate smuggling and other illegal practises, it created a "Gold Against Foreign Exchange Market", in which banks, financial institutions and authorised gold dealers could participate. The CBRT acted as a broker, allowing the market to be connected to world gold markets. Only physical delivery consignment contracts were permitted and there was a free retail market for the public to buy and sell gold against lira.

The market was well received and grew steadily. Annual gold consumption, estimated at about 80-100 tonnes before 1989, reached 150 tonnes. Parallel markets began to shut down – they were no longer needed.

Another step forward came in 1992 with legislative changes that recognised the importance of gold as a savings product and gold derivative products as price hedging instruments. Investment companies and funds authorised under the new law were allowed to hold their assets in gold. Deposit accounts in gold, lira deposits indexed to gold and gold accumulation plans all became permitted. A bank's gold liabilities could be balanced by financing the jewellery sector with gold-based assets.

In 1993, the CBRT's gold monopoly was ended and authorised market participants were allowed to import and export gold bullion on a declaration basis. Proceeds of exports no longer had to be remitted in Turkish Lira. These measures led to the opening of the Istanbul Gold Exchange (IGE) (see feature on page 6).

The Exchange was designed to attract banks into the gold sector to support the industry. They could import gold, offer deposit accounts for gold denominated in grammes, and give credits to the jewellery industry. Imports of gold were privatised in 1995 and began to be carried out by the members of the Exchange.

The Turkish Jewellery Sector

The World Gold Council estimates that Turkish gold consumption in 2000 amounted to 110 tonnes – of which jewellery accounted for 85 tonnes, measured purely by gold content.

Twenty years ago the jewellery sector was very different. Since all gold had to be imported – and there was no legal method of doing so – the business was of necessity highly secretive, with little co-operation among its members. There was minimal investment in technology, quality left much to be desired, and marketing was almost unknown.

But once the market was liberalised and imports became legal, it became possible for manufacturers to build a firm base for conducting business. Their traditional customer base – the local market – viewed jewellery as an investment and therefore preferred high-carat low mark-up pieces with simple designs.

Following the economic liberalisation of the 1980s, other sources of investment became available to the Turkish public and jewellery began to be viewed more as adornment. Design and quality therefore became more important, and there was growing interest in low-carat, more reasonably priced pieces.

Fabricators also found another customer base for adornment jewellery in the increasing numbers of tourists visiting Turkey. Yet another new source of customers was the 'suitcase trade' – tourists, mostly from Eastern Europe and the former Soviet Union, newly armed with passports and dollars, who bought jewellery in Turkey and carried it back with them to sell at home.

The industry adapted to its new audience. While making simple bangles did not call for a variety of skilled workers, making modern

adornment jewellery for differing, often sophisticated tastes required skilled craftsmen – including engineers and metallurgists to ensure the quality of the workmanship and designers to supply new designs. In addition, there had to be investment in modern machinery and equipment and operators to run them.

Over the past decade, the average number of workers per shop rose from four to ten. And although there was a decline in the overall number of workshops – some of the smaller operations did not survive – the total number of workers in the sector mushroomed from 70,000 to over 200,000. The number of large fabricators (those with a minimum of 100 workers) has increased from 5 to 100. And there are now some very large manufacturers with over 1,000 workers, a good size for a manufacturer in any part of the world. Where in Italy a very large fabricator might have several hundred workers and rely on a lot of machinery, Turkish jewellery manufacture is a hybrid, falling in between the machine-made products of Italy and the hand-worked products of the East.

As total employment in the industry rose, so did the number of designers – from several to several hundred. To encourage the design side of the business, the World Gold Council introduced an annual contest in 1994, for which a catalogue was printed. Unfortunately there weren't enough designers at the time in Turkey to fill the book, and it became necessary to use some Italian designs. But by the time a catalogue was produced in 1997, there were 300 applicants – including students, freelancers and professional designers. At first, Europe was the source for inspiration, and local manufacturers adapted what they found. But over time, designs came to be made locally, reflecting local tastes and culture.

Direct exports

The next step for Turkish jewellers after supplying the tourist and luggage trade was to begin exporting directly. The exportation of jewellery had actually been allowed since 1982 – before that of gold bullion – but at first not many took advantage of it. WGC statistics show that there was only one tonne of jewellery exports in 1991.

Arpas was the first company to concentrate on exports, commissioning others in the Bazaar to work to their specifications. The first export locations targeted were in the Middle East – Dubai and Saudi Arabia. By the early 1990s, they began to look farther afield, to the United States. Initial efforts did not meet with unqualified success, but they made investments – including building their own factory – persevered and eventually their efforts were rewarded.

Today there are roughly 50 manufacturers that are serious exporters of jewellery. Last year, jewellery exports as measured by gold content amounted to 58 tonnes, the highest level to date.

At the beginning of last year, many of the exporters banded together to form a trade association called Anagold. The members feel that there are advantages in working as a group – they can use their joint power to cut costs and streamline the export process, and they are supported in their efforts by some government incentives. Anagold plans to open their first overseas stores over the course of the year.

What else can the industry do to remain competitive, to keep growing? Hasan Yalinkaya, head of Goldas, one of the larger exporters, emphasizes the need to control inventory. Product lines must continuously be re-evaluated and revamped based on changing consumer tastes and preferences and designs that don't prove successful must be quickly discontinued to avoid costly inventory accumulation.

Continuing investment in technology is vital, from computer aided design and manufacturing to the establishment of an electronic commerce platform for both wholesale and retail sales and distribution

Yalinkaya sees world-wide opportunities for growth both in- and outside Turkey – potentially including new manufacturing facilities in locations such as Israel or retail outlets elsewhere in Europe or in the US. And within Turkey, Yalinkaya sees potential to increase demand by promoting an alternate reason for purchasing jewellery – not as the traditional investment, but as a gift. In that arena, jewellery must compete with a multitude of other products, but Yalinkaya is confident, saying: "We believe our efforts will soon pay off." ■

Finalists in the WGC Turkey's jewellery design and manufacture competitions last year.

At left A marble bust of the Macedonian Emperor Alexander the Great, located in the Istanbul Museum of Archaeology.
Below A market within a market, the Bedesten was the core of the Grand Bazaar when it was originally constructed 500 years ago. Today it forms the Copper and Silversmith's market inside the Bazaar.
Photos courtesy Goldas

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The Istanbul Gold Exchange

By Susanne M Capano, Editor

For the gold market in Turkey to thrive, it needed a reliable open market. When the Istanbul Gold Exchange opened for business on 26 July 1995, it had multifold objectives: to help integrate Turkey with world gold markets, rationalise gold imports and introduce gold-based financial instruments.

The Exchange took over responsibility for imports of gold into Turkey, helping to ensure that gold bars entering the country met worldwide standards. Local prices grew closer to those in the rest of the world.

The first product on offer was spot gold, but over the next few years, the Exchange continued to add new products. In August 1997, the Exchange's Gold Futures and Options Market was launched with 27 members – Turkey's first derivatives market. In 1999, new legislative amendments were passed concerning silver and platinum, which made it possible to add them to the Exchange's offerings.

On 1 October 1999, another important step was taken with the addition of non-standard gold transactions to the Precious Metals Market. With this move, the IGE sought to provide a secure environment for scrap gold trading by eliminating counterparty risk and concerns about assaying of non-standard gold bullion.

The importance of providing affordable long-term financing for the jewellery industry has led to the most recent development on the Exchange – the launch of a precious metals lending market covering gold, silver and platinum.

A certificate is issued with each transaction, which can be traded within the market.

The Exchange has potential customers on both the supply side (domestic banks and foreign bullion banks) and the demand side (jewellery sector institutions and precious metal companies). Members have felt that more could be done to market the Exchange, especially to the jewellery sector, so the Exchange plans to hold seminars and produce printed information. ■

Impressive

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Diggers & Scrapers

The Outlook for Mine Production

By Hester le Roux, Director, Gold Fields Mineral Services

Global gold mine production increased steadily for many years following the surge in gold prices in the late 1970s and early 1980s. The expansion in world output was particularly strong in the 1980s: in the period 1981 to 1990, GFMS estimates that gold production increased by an average of 6% per year, exceeding 2,000 tonnes for the first time in 1989 (see Figure 1).

During the following decade, growth slowed markedly. 1996 and 1997 were the only years in the 1990s which saw gold output increase significantly year-on-year (by 91 tonnes and 119 tonnes, respectively), with an average annual growth rate during this period of less than 2%. By the end of the decade, growth had all but disappeared from the gold mining industry; and last year, production actually declined, albeit only marginally (global output was down 2 tonnes on 1999's levels).

Does last year's small drop indicate a new declining trend in global gold production, with obvious implications for the supply-demand fundamentals of a market under pressure? In order to establish this, the reasons for the decline need to be considered closely, before assessing their likely impact on future output.

Mine production in 2000

As was mentioned above, the decline in mine production during 2000 was barely noticeable, but it did represent the first time since 1995 that mine production did not grow. Figure 2 illustrates how production fell in most of the gold-producing regions of the world, with the noticeable and strong exceptions of China and the countries constituting the CIS.

Factors impacting on mine production last year can be broadly divided into problems of a temporary or short-term nature, which would not necessarily continue to affect production much in future, and longer term trends which may have a real influence on global output going forward. Chief among these long-term factors is the low gold price. Narrowing margins have resulted a large number of closures of higher-cost mines, while several smaller producers have been forced into liquidation, often resulting in further closures. The need to conserve cash has also seen exploration expenditure levels plummet, which, combined with revaluation of reserves based on lower longer-term price projections, have led to a significant decline in undeveloped reserves.

Mine-specific operational problems of various kinds had a significant impact on production last year. South African output was particularly affected, falling for the sixth year in succession, by just over 20 tonnes. To name but a few examples of mines that experienced operational difficulties, seismic events affected output at the Vaal River and West Wits operations, and the ageing infrastructure at Kopanang caused an increase in breakdowns. Elsewhere in Africa, Ghana reported a drop of just under 3% in full-year production, partly due to a pit wall failure at the Obuasi mine, with the result that surface operations there came to an end. Though overall production in Mali increased last year by more than 10%, the Syama mine delivered disappointing results due to power problems and a collapsed side wall; owners Randgold Resources have subsequently announced the suspension of operations at the mine. A rock burst at the Campbell mine in Canada and backfill flooding at the Bronzewing mine in Australia were among the many other cases of mines that experienced operational problems last year.

Though usually short-term in nature, operational obstacles often arise from more long-lasting problems, the most obvious being a lack of sufficient capital investment in maintaining and upgrading infrastructure, equipment and facilities due to the constraints imposed by sustained low prices. A weak gold price environment could therefore

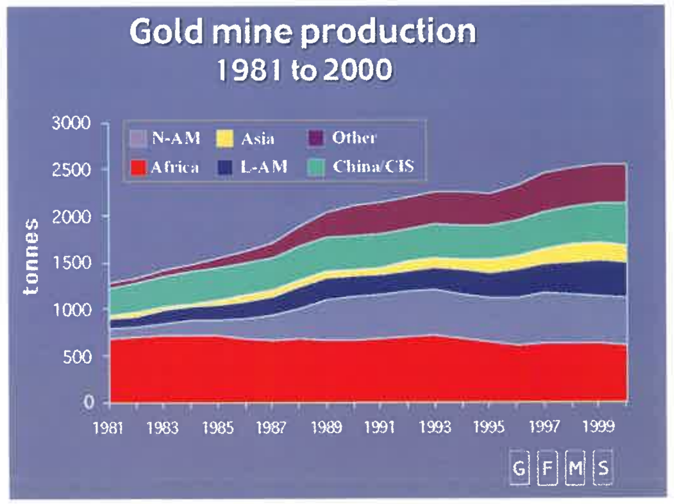


figure 1

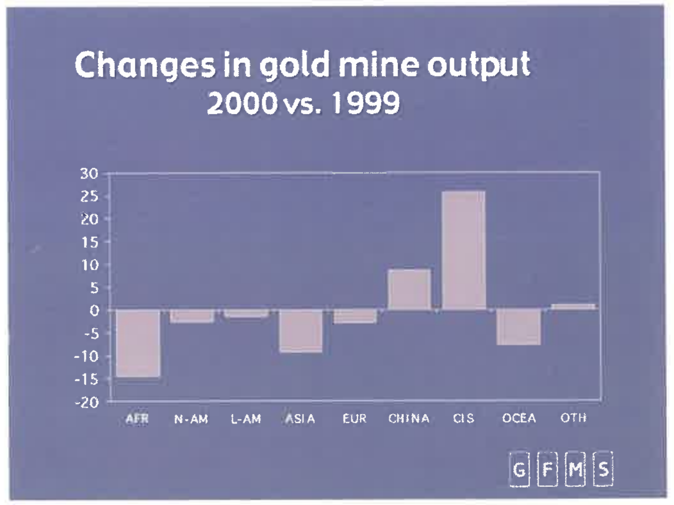


figure 2

see more mines experiencing operational difficulties which could impact on future production.

Several mines also reported lower grades last year. Among the hardest-hit was Grasberg in Indonesia, the largest single gold-producing mine in the world. Lower gold grades at Grasberg resulted in significant reductions in output for the first half of the year, and while grades recovered markedly in the last quarter, the full-year output was still down close to 20 tonnes. Partly as a result of this, Indonesia's gold output in 2000 dropped 14% year-on-year, following on a number of years of continuous growth. Lower grades also plagued Argentina's biggest gold producer, Bajo de la Alumbrera; the second largest mine in Australia, Granny Smith; the Lihir mine in PNG; US operations Cortez and Meikle and several others.

For many mines, lower grades are purely a function of the characteristics of an orebody, incorporated into the mine plan from the start and temporary in nature. But lower grades could also be the result of forced high-grading or inadequate development work, which eventually may make it difficult to access the higher-grade ore. These are problems that could affect output in the longer term as well.

Other temporary circumstances which impacted on output in 2000 identified by GFMS include political instability, which affected mines in Zimbabwe, Indonesia, Fiji and the Solomon Islands, and extreme weather conditions, particularly in the first half. Heavy rain and flooding during the summer months in the southern hemisphere affected mines in Australia, South Africa and Zimbabwe, while harsh winter weather in Central Asia and China reduced operating flexibility and resulted in lower output in several gold mining regions.

In the face of all these problems, it is actually somewhat surprising that production did not decline more. GFMS suggests that the reasons for this include the strong performance in Russia and China. Reports imply that Russian gold production surged ahead in 2000, with an estimated 16% increase taking the country's output to 160 tonnes for the year. If the past two years' momentum is maintained, Russia is poised to overtake both China and Canada to become the fourth-largest gold producer in the world. The healthy performance of the local industry owes much to the fast and seemingly efficient development of the mining finance infrastructure in the country, particularly after the economic crisis of 1998. In China, GFMS estimates that output increased by almost nine tonnes or 6%, due in part to the attractive premium over international prices that could be obtained through most of the year by selling mine output to the People's Bank at the official purchasing price.

A further contributor to virtually unchanged production levels was the fact that, on average, miners managed to contain their production costs, at least during the first nine months (average full-year production figures have not yet been published). Total cash costs of production averaged less than \$190/oz in both the second and the third quarters (see Figure 3). This was achieved despite the fact that lower grades and reduced output at many operations put pressure on operation costs. Much of the cost containment was made possible by significant currency weakness in South Africa and Australia last year. Both countries saw their currencies plummet to record lows against the US dollar, resulting in US-dollar-denominated costs remaining low even though local costs may have increased. Local prices, too, increased: Figure 4 illustrates how the production-weighted price calculated by GFMS has been outperforming the actual gold price.

Outlook for 2001

As is clear from the above, many of the factors contributing to marginally lower output in 2000 could be regarded as temporary. At the same time, whilst a large number of mines are in the process of winding down mining operations, processing the remaining stockpiled ore or leaching the last gold following earlier suspension of mining, several other mines are expanding and increasing output. And even in today's enormously challenging operating environment, there are still new mines starting up. Last year's crop of new mines, listed in the table below, could add as much as 55 tonnes to world output once they reach full capacity. Weighted average cash costs for these new mines will be around \$126/oz.

A further 54 tonnes of potential new capacity is expected to be brought on stream during the course of 2001. On the other hand, operations ceased or were suspended at no less than 16 mines last year (representing around 48 tonnes of production capacity, phased out over a number of years), and a further six mines are currently slated for closure during 2001, affecting another 27 tonnes of capacity.

In the short term, GFMS anticipates that production will continue to perform strongly, with an estimated 22-tonne increase year-on-year in the first half of 2001. This forecast is based on an expectation of recovery at many mines that experienced operational difficulties last year; continued cost containment, partly assisted by currency weakness; further strong performances in Russia and China; and successful commissioning of the substantial volume of new mine capacity being brought onstream this year.

However, there can be no doubt that the longer-term factors discussed throughout this article will continue to put enormous pressure on existing gold mines. Combined with the almost complete absence of new projects which look feasible at today's gold prices, it would seem increasingly unlikely that global mine production levels could be maintained in the longer term. ■

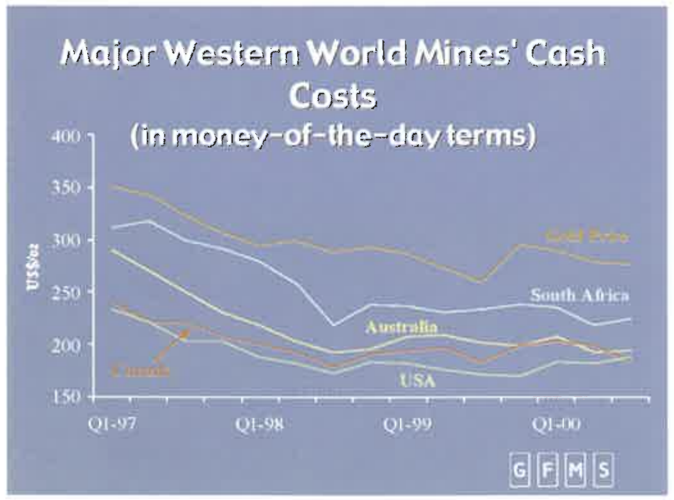


figure 3

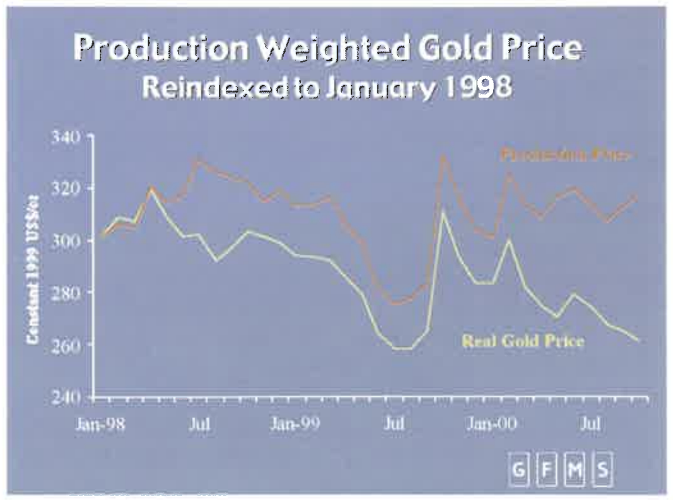


figure 4

Mine	Owner(s)	Country	Start-up	Capacity (tonnes)	Avg. cash costs (US\$/oz)
El Penon	Meridian Gold	Chile	Sept 99	7.8	\$100
Batu Hijau	Newmont / Sumitomo	Indonesia	Dec 99	13.2	N/a
Ken Snyder	Franco Nevada	United States	Dec 99	7.8	\$100
Geita	Ashanti / AngloGold	Tanzania	June 2000	15.6	\$180
Red Lake	Gold Corp	Canada	Aug 2000	9.3	\$88
Morila	AngloGold / Randgold	Mali	Oct 2000	21.8	\$88
Carosue Dam	Pacmin Mining	Australia	Dec 2000	4.4	\$190
San Martin	Glamis Gold	Honduras	Dec 2000	3.7	\$150
TOTAL				**83.5**	

Note: The above article was adapted from Gold Fields Mineral Services' Gold Survey 2000 – Update 2, *published on 10 January 2001. Copies can be ordered from GFMS at +44-(0)20-7539 7820, or www.gfms.co.uk. GFMS' next analysis of the gold market,* Gold Survey 2001, *will be published on 19 April 2001.*

Hester le Roux

Hester le Roux is a Director of Gold Fields Mineral Services Limited, the London-based commodities research company which focuses on the precious metals markets and is best known for its flagship publication, the annual GFMS Gold Survey. *Ms le Roux formed part of the team which successfully completed a management buy-out of GFMS in August 1998. She is currently responsible for analysis of global gold, silver and pgm mine production and producer hedging.*

Getting Good Weight

Electronic Balance Care and Maintenance

By Susanne M Capano, Editor

Since 1999, the LBMA has recommended the weighing of silver on electronic scales in addition to more traditional beam balances. Like beam balances, electronic scales need to be maintained in the proper conditions and receive regular service in order to maintain their accuracy.

Precisa Balances Limited, whose Model 4000 G SCS meets LBMA recommendations, has prepared a short manual of recommended procedures for checking and monitoring their balances. Copies are available from the Association. ■

White Mischief

An Evaluation of PGM Markets

By Andy Smith, Commodities Analyst, Mitsui and Co. Precious Metals Inc, London Branch

"It's always best on these occasions to do what the mob do."

"But suppose there are two mobs?" suggested Mr Snodgrass.

"Shout with the largest", replied Mr Pickwick

–Charles Dickens, The Pickwick Papers

Brigadier 'Mad Mike' Calvert was said to have "sought nothing more than hand-to-hand combat and personal danger." He would have been at home in today's pgm markets. If a little lonely.

Liquidity

Welcome to the State of Anorexia

A $40 move on one 8000 oz bid during a palladium London Fix last summer stretched the concept of 'market slippage' to breaking point. Whipsaws of $10 roughly every 1000 oz traded in December questioned the very concept of a 'market'. One day in mid December palladium pendulummed in a range almost as big as its 1996 price level ($120). Anyone for spot trading? Quoting pgm forwards? Brigadier Calvert, perhaps? In Q4 2000 palladium's rise ($225) was the equivalent of 85% of the gold price. Strange but true, however pgm lease rates and daily volatility (excluding intra-day white-knuckle rides) are currently as low as they have been in 4–5 years – perhaps the low volatility is an indication of a tendency to 'buy' rather than 'borrow' on dips.

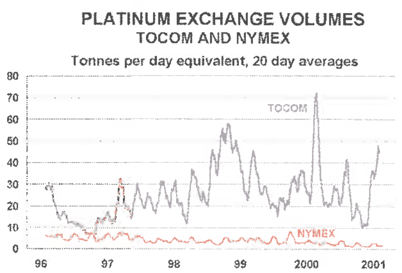
A change in one oil company's platinum leasing policy here, a quote of the day from Russia there – less than butterfly wings were needed to wreak havoc in pgm during 2000. Unsurprisingly, spreads – especially in palladium – have blown out. They are now redolent of a cardiograph charting the impact of 5000 volts applied to one of a patient's more delicate parts. In more ways than one, exchanges have become 'terminal' markets.

Speculators

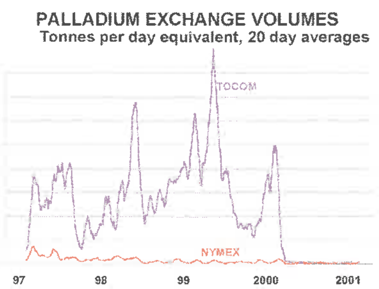
Platinum Ripe for a Squeeze, But Also Forbidden Fruit

Judging by the disappearance of volume on futures exchanges, not much of recent price gymnastics can be pinned on speculators. (OTC markets barely exist in pgm. The InterContinental Exchange has hopes, but has set no date to take pgm business).

True, speculators with sufficient protective clothing – remember, 'pgm options' is almost a contradiction in terms – have consistently leaned to the long side of platinum. But positions are much lower than they were at the start of the 15-month long upward trend. Profits rather than new positions have been taken.



In palladium, the TOCOM general public were forcibly ejected from their three-year losing net short positions in February 2000, when the exchange froze contracts for the year. In August, NYMEX raised palladium margins to over $160,000 per contract. Volumes on both exchanges have challenged measurement since.



There is irony as well as sadness in this epitaph of exchange activity. For Tiger Management's meticulously crafted long position in palladium from 1996 was partly inspired by the expectation that Russian stockpiles would be exhausted. This does not appear imminent, but it is a less distant prospect now than it was 1996. Yet few funds would touch the hot potato palladium has become.

In platinum, a consensus is emerging that Russian inventory is now near depletion, and there are many other demand-supply considerations flagging a market ripe for a speculative squeeze. Yet through the barbed wire of desolate spot, forward and options, a platinum position of meaningful size looks like forbidden fruit.

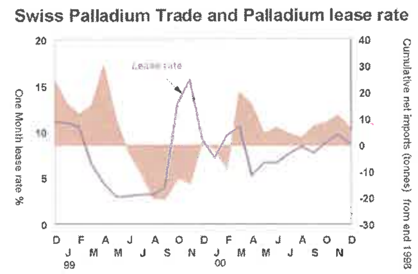
Photos courtesy of Johnson Matthey

Official Longs

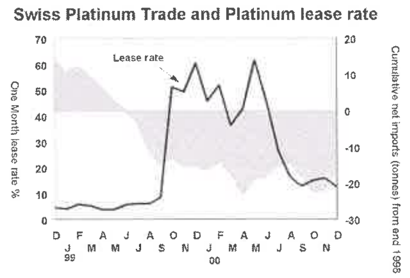
The Russians Are Coming, Are Not Coming, Are Coming…

Dorothy De Rothschild believed that "the really decent individual only appeared in the newspapers on two occasions – birth and death." Her credo does not yet appear to have been widely disseminated in Russia, single source of official inventory and the ultimate keeper of the keys to pgm liquidity. So frequent and/or contradictory are Russian 'appearances' that a cynicism has grown among newswire watchers. (In November the head of the state reserve, Valery Rudakov, insisted that Gokhran would not export pgmin 2001 because the budget was in fine shape. Expect a qualification if oil prices and tax revenues tumble?)

The vacuum created by this state secret has been filled to overflowing by western guesses of Russia's reserves. (And Russian alluvial prospectors blaming their stockbuilding on the 25% haircut taken by Gokhran on their metal sales). Johnson Matthey estimate that 30% and 60% of Russian platinum and palladium sales in the last five years were from stocks. The mean of a very small distribution of opinion at the World Platinum Congress in Johannesburg last November was that some three to five years' worth of palladium remained, but that the platinum cupboard was almost bare. Even this informed confusion begs the question of where most of those stocks (300, 500 tonnes?) might be. One implication of an accumulation of net trade inflows into Switzerland is that, for palladium at least, the metal is not loco Moscow, but is rather entangled in some collateralised arrangement with western counterparts. (The chart assumes first releases of Swiss customs data are accurate).



Movements in Swiss net trade in platinum corroborate the 'bottom of the barrel' thesis, and help explain why lease rates have been higher than those in palladium.



Buffer stock managers – be they in diamonds, gold, rubber, coffee – have responsibility for orderly markets thrust upon them. Before the next good delivery bar of criticism is hurled Russia-wards for abrogating this 'responsibility', the fact – according to Johnson Matthey – that Russian platinum sales movements have offset those of South Africa in 15 of the last 25 years should at least be counted in their favour. But not too publicly, please. Asked at the World Platinum Congress whether there should be 'strategic discussions at government level on pgm supply accommodation' with Russia, the South African mines minister replied: "It will be put on the agenda". Almost nothing would reverse more quickly the support of governments for pgm (via emissions legislation) than the aroma of a cartel.

Private Longs I – PGM Miners

Digging Deeper, But Probably Not Fast Enough

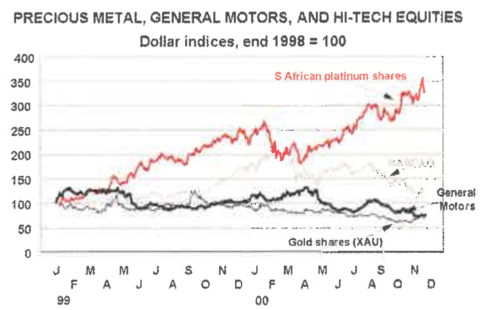
To paraphrase George Bush senior: 'read my contracts'. Stillwater Mining's recently announced revision and extension of the 'caps and collars' on part of its PGM output reveals that end users are ready to pay very dearly for future assurances of supply – well above what notional (backwardated) forward curves might imply.

This is partly because Russia may not have a monopoly on supply-side risk. South Africa's dominant platinum producers, Angloplats and Implats, have expansive hopes, targeting output increases of 50% (1.8 million oz) and 33% (0.4 million oz) respectively by the mid-2000s. But this is from a cold start – many years focused on reducing the costs of producing more or less the same amount of metal. It may be geologically-challenged – most expansions are in the egregiously unfriendly UG2 (rather than the more accommodating Merensky) reef. And it could be politically-corrected – between them 'black economic empowerment' and the legal minefield of a new mineral law may distract management from the knitting, or digging. All against a background where what international speculative interest remains might not know its Angloplats from its Zimbabwe.

Private Longs II – Physical Buyers

Cyclically-Challenged, But Legally-Bound, or Upwardly-Mobile?

What is wrong with this picture?

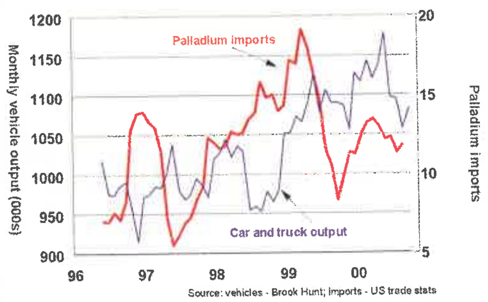


From the point of view of General Motors, almost everything. Over the last couple of years their stock price has performed like gold equity (i.e. not). Meanwhile the Jo'burg platinum stock index (converted to dollars) has tripled. For some time there has been only one form of credit cheaper than gold – multi-year, zero-cost incentive

schemes by GM and other car companies which have helped extend the US car boom precariously, into an area with which only Warner Brothers' Wily Coyote is familiar – beyond the edge of a canyon. Beep, beep.

US PALLADIUM IMPORTS AND VEHICLE OUTPUT

6 month moving averages

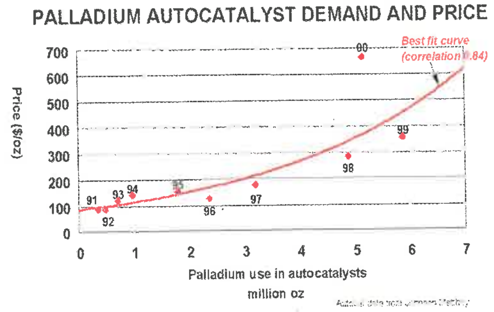


GM is not waiting for cyclical gravity to lower its palladium demand. In mid-December it put flesh on bones rattled repeatedly earlier in the year by announcing it would use a new palladium-lite catalyst developed by Degussa from 2002. To what extent might palladium demand be impacted? GM accounts for 17% of global car use of palladium. About 65% of its usage is in North America, and the new gizmo will save around 50% palladium on one third of that demand – so this retooling would thrift less than 100,000 oz from world car demand, about 2%. But this will not be GM's final word. And other car companies – including Nissan – are joining the convoy economising palladium use. A U-bend in the apparent upward-sloping demand curve for car company palladium demand does not seem to be just around the corner, however.

In the short term, Ford's wrestling with a tyre and SUV recall controversy may cause all metal loadings in all parts of the car to err towards the generous. In the longer term, even as sales explore the cyclical canyon, it is clear that car companies have bought a one-way ticket on the pgm-fired environmental bandwagon. The philosophy of William Clay Ford Jr, for example, more or less updates that of his grandfather: 'any colour you like, so long as it's green.' Mr Ford Jr sees fuel cells (two platinum electrodes in a bucket, converting fossil fuel hydrogen and oxygen into energy plus innocuous steam) replacing the internal combustion engine. Out of the palladium frying pan, into the platinum fire? And a (cycle-proof?) turn from 'just-in-time' to 'just-in-case' platinum inventory planning?

Consequently, the main cyclical hope for cooling palladium demand may be the chip hitting the fan: a sharp fall in electronic use foreshadowed by weekly downgrades of technology company earnings expectations. In platinum, two demand risks might allow

PALLADIUM AUTOCATALYST DEMAND AND PRICE



miners to play catch up a while: Japan – where western economists perennially predict a catastrophic end game to unsustainable public debt dynamics; and China – where the platinum jewellery chain has been reminded that taxes are indeed one of the only two certain things in life. China's spectacular growth in platinum demand from a zero base in 1992 is widely understood. Less well known is that, since 1996, Chinese growth has more than accounted for the entire increase in platinum demand (offsetting in particular increased autocatalyst recycling and generally poor investment, according to Johnson Matthey data). When/if China sneezes, platinum demand now catches a cold.

The Chinese authorities' Q4 crack down on platinum imports evading VAT (17%) and sales tax (5% in practice) – partly induced by a sticky official retail selling price squeezing margins – has put local manufacturer demand on hold. Some local jewellers are switching to white gold to fulfil customers' fashionable craze for white metal. Pipeline stocks were thin, however, so the risk of panic disposal to avoid tax detection is small. At a platinum market price of $650, if all VAT and sales tax were paid, jewellery margins would disappear – unless the retail price were increased. Coincidentally (?) platinum prices in January peaked just below $650.

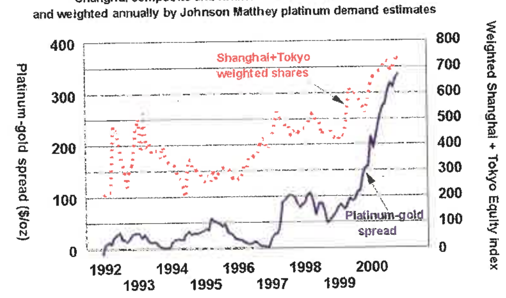
Then the shape of the Chinese platinum demand curve might be clearer – would it too be as stubbornly perverse and upward-sloping as that of car companies for palladium?

Platinum's premium status may be riding on it. The notion of an explicable spread between platinum and gold seems quaint now. But by putting together a proxy for Chinese wealth (the local stock market) with a proxy for spending in platinum's other major market – Japan – the spread may be rejuvenated.

Not that the marketers of platinum will easily 'lose China', nor pause in opening new demand fronts in platinum – eg. India. Their efforts are not meeting with unalloyed pleasure. One car company representative, listening to a Platinum Guild member in New York Platinum Week in September wax lyrical about opening up India, responded, only half-jokingly: "May I wish you no luck at all in your efforts?" ■

PLATINUM-GOLD SPREAD RISES IN THE EAST

Shanghai composite and Nikkei indexed to Jan 1992 = 100 and weighted annually by Johnson Matthey platinum demand estimates



Andy Smith lives with his dog, Spot deferred, in a tree house off the A12. He collects old spreadsheets and even older quotes, sadly. When he does get out he wears coordinated crash helmet and full metal jacket, fully lined, and fully hedged.

Another chap by the same name claims the following dubious credentials: born 1954, BA Economics, MSc Economics, 6 years at Her Majesty's pleasure in the Dept of Environment and Treasury, 1 year in oils at BP, 11 years behind gold bars as precious metals analyst with UBS, and, since 1998, commodities analyst at Mitsui Global Precious Metals. Allegedly.

Virtual Metals Research & Consulting

Virtual

Expansion of Research Capabilities

Virtual Metals Research & Consulting, established in 1997 is implementing a three-year, underwritten expansion programme that will result in a major increase in its research capabilities. Based largely but not exclusively in London, the company is looking for highly motivated and experienced commodity analysts to join a dynamic and forward looking team which will complete research into various areas of all the precious metals markets. The company is looking to fill the following positions and in doing so, will offer excellent and flexible packages for the right applicants:

1. **Senior Researcher (Ref sr1):** with experience in the analysis of the gold market a prerequisite, additional experience in silver and the pgms will be an advantage. Ideally this candidate should excel in taking the initiative and must be prepared to break new ground with respect to grass roots research directives. The applicant must demonstrate the ability to communicate with market participants at the highest levels plus the ability to produce written reports for submission to the Board. Must be willing to undertaken extensive overseas travel.

2. **Senior Researcher/Data Base Manager (Ref sr2):** with experience in the analysis of the gold market a prerequisite, experience in silver and the pgms will be an advantage. This candidate should also have a sound background in statistics and demonstrate the ability to co-ordinate all data base initiatives and the production of commercial research products. Preparation of full reports plus the ability to communicate with market participants at the highest levels will apart of on-going responsibilities. In co-ordinating much of the company's output, this candidate must demonstrate the ability to organise the production process and must be able to engender among other staff a team spirit and co-operation at all levels. Limited travel would be required.

3. **Part time Consultant or Full Time Staff Member (Ref: pt1):** A background in precious metals will be an advantage but not necessary since the ideal candidate will have a proven and highly respected track record in dealing with political and public policy issues, the Official Sector and governments at all levels. The job will require the ability to travel and need not be London-based.

4. **Commodity Analyst (Ref ca1):** In filling a largely desk-based position (with some travel needed), the ideal candidate should have experience in gold and other precious metals commentary and demonstrate the ability to produce daily, weekly and monthly reports for hard copy and electronic dissemination. Close co-operation with all market participants will be required plus an ability to analyse data to derive the maximum value added.

5. **Data Base Manager and IT specialist (Ref dbm1):** This position will ideally be filled by a young, highly numerate graduate who can demonstrate the ability to manage data swiftly and accurately. A flare for Internet-related issues with the ability to design websites would be a distinct advantage. The flexibility to travel would be needed and the position will offer promotional opportunities for the right candidate.

Please email CVs to **Jessica Cross at jessicacross@compuserve.com** or fax in Johannesburg 27 11 880-3139 quoting the appropriate referen

The Elasticity of Jewellery Demand

By Martin Murenbeeld, Murenbeeld & Associates Inc.

The single largest component of gold demand is jewellery. In recent years jewellery demand has risen to 86% of total demand for gold in all forms, according to data published by Gold Fields Mineral Services (GFMS). It behooves us therefore to understand how some of the basic factors of demand drive gold jewellery markets in different regions of the world.

This article reports on the two basic determinants of gold jewellery demand: the price of gold and the income or wealth of the country/region consuming the gold jewellery. There are other factors that can affect gold demand, of course, including social, religious, fashion and promotional factors. Some of these factors would have to be considered separately in a complete model of gold demand for a specific region. For example, when there is a special religious occasion, gold demand might change from its "normal" pattern. (This is particularly so with respect to promotional factors, which can change significantly from year to year, and thereby cause changes in the pattern of demand that price and income changes would not be able to explain.)

Estimates of price and income elasticity of gold jewellery demand for different regions of the world are included. These estimates are based on work that was supported by the World Gold Council (WGC). All errors and omissions in the analysis are mine however, and cannot be attributed to the WGC.

Determining Price and Income Elasticity

For the purposes of this article, the term "elasticity" refers to the sensitivity of gold jewellery demand to changes in the price of gold and/or to changes in the buyers' income/wealth. The question of how much the demand for gold jewellery in the US would rise in response to a 10% decline in the gold price can be answered readily once the price elasticity of US gold jewellery demand is known. Similarly a change in the US Gross Domestic Product (GDP) – a convenient proxy for US consumers' income – will have an impact on total US gold jewellery demand, which can also be easily estimated once the income elasticity of US demand is known.

The Data

To construct estimates of the price and income elasticity of gold jewellery demand we need jewellery demand data, price data and income/wealth data. The exact statistical methodology, including the general model's construction, is described in the box herewith.

The demand data used in this analysis were provided by the WGC, and are a subset of the data presented in *Demand Trends*, which is published quarterly by the WGC. These data might best be described as retail gold jewellery consumption, because the WGC captures gold jewellery demand at the retail level. Demand data for the whole world, however, are taken from the annual reports produced by GFMS. Specifically, "gold fabrication in carat jewellery" data (including scrap) are used in the world model. (Country fabrication data and country jewellery demand data differ because of imports and exports, which are irrelevant for world total data.)

We also need price and income data. The gold price is either in US dollars per ounce or in local currency units per ounce (IMF exchange rates are used to convert from US dollars to local currency). Theory also requires that the price of substitute goods be included in the analysis (because when the price of gold jewellery rises relative to the price of these goods, there is an incentive to buy these "substitute" goods). However, we generally do this by deflating the gold price with a local inflation index (i.e., by constructing a "real" gold price), so that only when the price of gold rises/falls after accounting for local inflation will there be an impact on the local demand for gold jewellery. There are a number of choices for the local inflation index, but we have limited ourselves to either the consumer or producer price index.

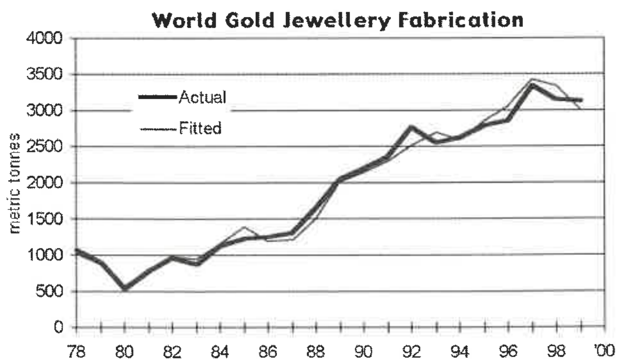
Income/wealth data are plentiful. Our bias is to use GDP data for the country/region (inflation-adjusted) as the income proxy. In most cases this worked well. However, in the case of Japan, the Nikkei Index (adjusted for local inflation) served as a better income/wealth proxy (see table). All income/wealth data came from *International Financial Statistics* published by the IMF.

The Results

Results are summarised in the table on page 16.

In all cases the price elasticity of gold jewellery consumption is negative, meaning that a rise in the real price of gold will lower consumption. This is as it should be. The income elasticity of gold jewellery consumption is positive, which is also as theory dictates. (The higher one's income/wealth, the more likely one is to purchase gold jewellery.)

Note that the price elasticity of gold jewellery consumption in the developed countries does not appear, on average, to be quite as high as the price elasticity of gold jewellery consumption in the developing countries. Indian gold jewellery consumption, specifically, appears to be very price-elastic. A possible explanation is that gold jewellery in the developing world has, on average, a lower manufacturing value-added percentage, which makes such gold jewellery more sensitive to the gold price.



With respect to income elasticity, the developed world appears to exhibit a higher level than the developing world. This could be explained by the fact that gold jewellery is a luxury good (luxury goods are generally quite income-elastic) whereas gold is more of a cultural/social/financial necessity in the developing world. To be sure, the Indian model suggests that the country exhibits a very high income elasticity of gold jewellery consumption.

The best model of Japanese gold jewellery consumption includes the Yen price of gold (inflation-adjusted) and an index of the Nikkei Dow (also inflation-adjusted). The stock market proved to be a superior wealth variable in Japan, although this was not the case in other countries. (We are inclined to think that Japanese GDP data understates the economic hardship Japanese consumers are experiencing. The Nikkei Index, as a proxy for consumer wealth, may be a more accurate indicator of local hardship.) Japanese GDP data were not statistically significant.

The data for Greater China were the most difficult to work with. The reader knows that the Chinese market is heavily regulated (hopefully about to become deregulated!) which renders the price data used for the region – namely, the real US$ price of gold – less than an accurate proxy for the local gold price. It is therefore not surprising that the statistical results are the least robust for this region.

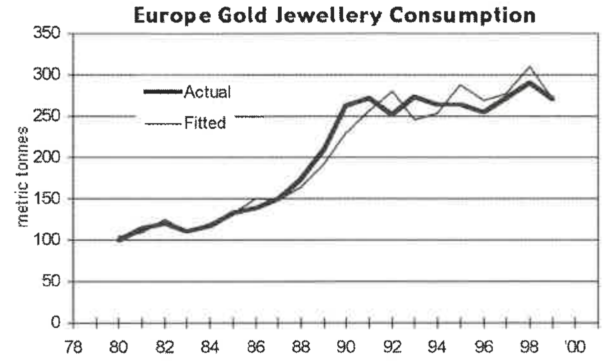
Other Gold Jewellery Demand Factors

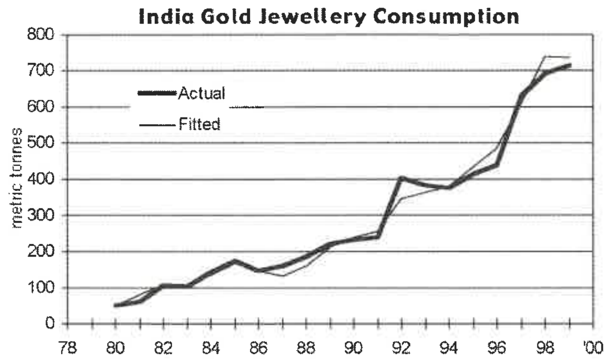
We found significant deviations from a simple price and income explanation of gold jewellery consumption in a number of regions, which necessitated adding variables to the models to "explain" these deviations (or the estimates of price and income elasticity would be inaccurate).

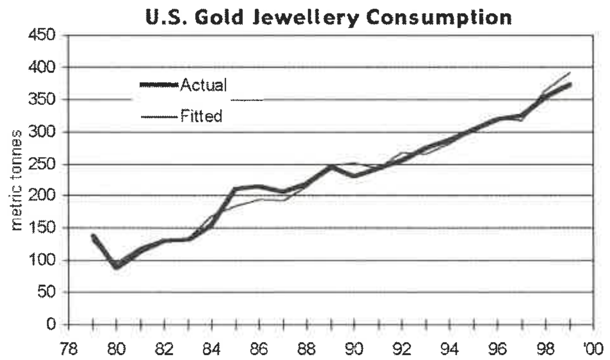
One obvious recent factor, not mentioned at the outset, is the Asian Crisis that commenced in 1997 and led to government gold collection programs to help with the financial fallout of the crisis. Gold jewellery consumption collapsed in the region by much more than either the rise in the local price of gold or the fall in domestic income would suggest.

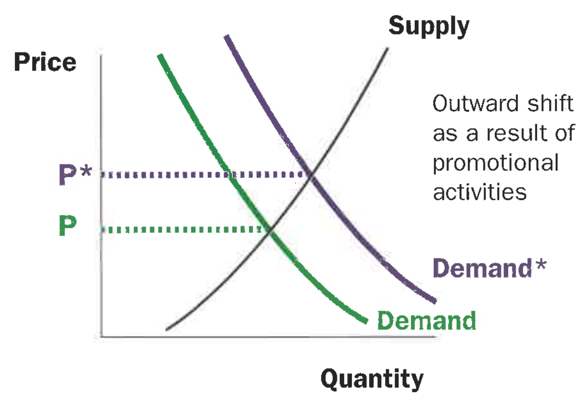
Interestingly, a slowdown in gold jewellery consumption as of 1997, over and above what can be explained by price and income effects, was also noted for the developed countries. At first we interpreted this to be indirectly related to the Asian Crisis – there were serious stock market setbacks in 1998 for example, which were indirectly related to the Asian Crisis. However, it may be the result of other factors as yet unidentified.

We are inclined to think that one of those "other" factors might relate to the efforts of the WGC to promote gold jewellery consumption. Promotional activities have the effect of shifting the gold demand curve outward – the price of gold rises as a result of the outward shift in the demand curve, but the price elasticity of the demand schedule remains largely constant (see diagram). Using similar analysis to that presented here, we have estimated that WGC activities might have added as much as 400-500 tonnes to annual gold jewellery consumption in the mid 1990s. (Such was also noted in a presentation by Bryan Parker of the WGC to the Financial









Times Gold Conference in Paris last June.) It is possible that the negative bias in gold jewellery consumption in most countries since 1997 is partly the result of less gold jewellery promotion by the industry.

Whatever the cause, at this point we can only conclude that there appears to be a negative trend running through all the demand data starting in about 1997. A forecast of demand would have to take this trend into consideration.

Applying the Results

We can conclude from the world model that a 10% rise/fall in the real price of gold, all else constant, would lower/raise jewellery fabrication by 8.7%, given that the price elasticity is –.87. On the other hand, a 4% annual growth rate in the world, all else constant, would add about 8% to gold jewellery fabrication each year. In a similar vein we can conclude that it would take a world growth rate of about 4.4% to offset the negative impact of a 10% rise in the real price of gold on gold jewellery fabrication.

With respect to jewellery demand in 2001, the average projection for the gold price in 2001 was $275.91 in the LBMA's recent survey. Allowing that the average price in 2000 was $279.11, and that inflation in 2001 may be in the order of 2.5%, this represents a 3.5% decline in the real price of gold this year. Also, last October the IMF forecast world growth to be about 4.2% in 2001. That forecast has come down considerably since then. We'll assume it is 2.0% currently.

Together these price and income effects suggest that world jewellery demand should rise by about 7% in 2001 from last year's 3191 tonnes, as was recently estimated by GFMS. It probably won't however because of the aforementioned negative trend, which may take as much as 7%-8% out of yearly growth, as it has in previous years. Accordingly, it is likely that world jewellery fabrication demand this year will remain fairly close to last year's level. ■

Summary

DEMAND – Region	Notes	Price Elasticity	Income Elasticity	Annual Data	Model's R-squared
WORLD	(1,3,10)	-0.87	1.99	1977–99	0.988
DEVELOPED COUNTRIES	(1,4)	-0.52	2.02	1978–99	0.971
United States	(1,5)	-0.62	1.46	1978–99	0.978
Japan	(2,5)	-0.69	1.18*	1978–99	0.929
Japan	(2,6)	-0.68	0.45	1978–99	0.975
Europe	(2,7)	-0.64	1.42	1978–99	0.972
DEVELOPING COUNTRIES	(1,8)	-0.80	1.51	1980–99	0.978
India	(2,5)	-1.14	1.94	1980–99	0.975
Greater China	(1,9)	-0.32*	0.87*	1980–99	0.971
South-East Asia	(1,9)	-0.50	1.30	1980–99	0.983

*Not significant at the .10 level

(1) – The gold price is in US$, deflated by the U.S. producer price index
(2) – The gold price is the local gold price deflated by the local producer price index (DM in the case of Europe
(3) – The income variable is the IMF's inflation-adjusted GDP index for the world
(4) – The income variable is the IMF's inflation-adjusted GDP index for major industrial countries
(5) – The income variable is the domestic, inflation-adjusted GDP index
(6) – The income variable is an index of the Nikkei Dow, deflated by the local producer price index
(7) – The income variable is the IMF's inflation-adjusted GDP index for the European Union (lagged one year)
(8) – The income variable is the IMF's inflation-adjusted GDP index for developing countries
(9) – The income variable is an inflation-adjusted GDP index constructed from the countries in this group
(10) – The demand data, fabrication jewelry, includes scrap

Europe includes France, Germany, Italy and the United Kingdom
Greater China includes China, Taiwan and Hong Kong
South-East Asia includes Indonesia, Thailand, Malaysia, Singapore, Vietnam, and South Korea

Price Elasticity is the amount in percent demand will change for each 1% rise in the real price of gold

Income Elasticity is the amount in percent demand will change for each 1% rise in real income/wealth

Statistical Methodology

Linear least-squares regression analysis is a standard method for estimating elasticity, and such has been employed here. The model specification we use is the following:

$$\text{Log (Demand)} = \text{Co} + \text{C1}*\text{Log (Price)} + \text{C2}*\text{Log (Income)} + \text{å}$$

where

Demand = gold jewellery consumption in the country/region
Price = the price of gold in US Dollars or local currency, deflated by a price index, either consumer or producer
Income = an income or wealth variable, such as GDP or the local stock market index
å = an error term, randomly distributed with mean zero
C0 = the intercept of the model (meaningless)
C1 = the coefficient of the price variable - the price elasticity of demand
C2 = the coefficient of the income variable - the income elasticity of demand
Log (X) = the natural log of variable X; specifying the linear model in log form automatically turns the coefficients C1 and C2 into "elasticity".

The constants C0, C1, and C2 were estimated with the micro-program "Eviews3" (published by Quantitative Micro Software). Data for Demand, Price, and Income are annual.

The model's R-squared, reported in the table at left, is an indication of how well the model fits the data. An R-squared of 1.00 is a "perfect" fit, while an R-squared of .95 is a very good fit.

Dr Martin Murenbeeld

Dr Murenbeeld graduated from the University of California, Berkeley in 1972 with a PhD in international finance. He then joined the Faculty of Management Studies at the University of Toronto to develop the international business curriculum in the MBA program. He left the Faculty in 1978 to start M. Murenbeeld & Associates Inc. (www.murenbeeld.com). The company moved from Toronto to Victoria in 1989. The principals of M. Murenbeeld & Associates Inc. consult on gold markets, foreign exchange markets and international financial and economic trends generally. The firm's clients include gold miners, investment counselors, corporate treasurers, financial institutions, government treasuries, and international gold organisations. The company's reports include the Gold Monitor, *which forecasts gold market trends and the* Financial Monitor, *which forecasts economic, interest rate and foreign-exchange market trends.*
Dr. Murenbeeld can be contacted at martin@murenbeeld.com

Gold Reserve Sales

Under the Joint Accord

By Susanne M Capano, Editor

Four of the participants of the Joint Central Bank Accord, which came into force on 26 September 1999, have announced sales programmes: the Netherlands Bank, the Swiss National Bank, the Austrian National Bank and the Bank of England. The participants agreed to sell a maximum of 2,000 tonnes over a five-year period, with no more than 400 tonnes falling in any given year.

Following is an overview of the sales to date along with a brief summary of each bank's programme.

Year-by-Year

Year 1 (Sept 1999 – Sept 2000)
The UK sold 150 tonnes, the Austrians 30, the Dutch 100 and the Swiss 120 – for a total of 400.

Year 2 (Sept 2000 – Sept 2001)
To date the UK has sold 75 tonnes and the Swiss 100 (220 sold since the programme began – 120 sold last year) for a total of 175 tonnes. The UK plans a further 60 tonnes during this time period and the Swiss have announced plans to sell 100 tonnes between March and September 2001, which will account for 335 tonnes of the 400 tonnes.

Bank-by-Bank

Austrian National Bank
How much do they want to sell? 90 tonnes.
When was their announcement made?
April 2000.
How is the gold sold? Some sales have been made to the Austrian Mint for coins and bars – part of an ongoing programme. More recently, some sales were made via the BIS.
Where do things stand to date? When the bank made the announcement, it said it had already sold the first year's allotment of 30 tonnes and that the remaining 60 tonnes would be sold over the next five years – thus extending past the deadline of the joint agreement.

The Netherlands Bank
How much do they want to sell? 300 tonnes.
When was their announcement made?
December 1999.
How is the gold sold? Via a number of official and private counterparts, including the Bank for International Settlements (BIS).
Where do things stand to date? By mid-March 2000, 100 tonnes had been sold, which the bank stated was their limit for the period. There have been no announcements about the remainder since – but the bank tends to announce its sales only after the fact.

Swiss National Bank
How much do they want to sell?
Up to 1,300 tonnes.
When was their announcement made? In March 1997, although the amount involved was not initially mentioned.
How is the gold sold? Initially via the BIS. The SNB recently announced that it will become directly involved in future sales.
Where do things stand to date? Sales began on 1 May 2000. Recently the SNB announced the completed sale of of 100 tonnes for the period September 2000 to March 2001, bringing total sales to 200 tonnes. The Swiss have said that they plan to sell another 100 tonnes by the end of September 2001.

Bank of England
(on behalf of HM Treasury)
How much do they want to sell? Initially announced they would reduce holdings from 715 tonnes to "around 300 tonnes". Based on their recent announcement of the final series of six auctions covering 20 tonnes each, the total will come to roughly 395 tonnes.
When was their announcement made?
May 1999.
How is the gold sold? Via an auction process. Eligible bidders include LBMA members, central banks and other monetary institutions.

Where do things stand to date? The UK had already sold 50 tonnes prior to the announcement of the joint agreement. Since the agreement went into effect, another 225 tonnes have been sold – most recently, the last of a series of six 25-tonne auctions was held on 14 March. The final series of six 20-tonne auctions will begin in May 2001; subsequent auctions are planned for July, September and November 2001 and January and March 2002.

The National Audit Office (NAO), an independent body that reviews public spending on behalf of Parliament, undertook a review of the auction process and published its results in January 2001. To carry out its research, the NAO commissioned an analysis by Gold Fields Mineral Services on central bank sales, as well as a paper on auction theory. They undertook a survey of LBMA members concerning the running of the auctions, the level of market consultation undertaken and the lessons that might be learned from the future.

The study addressed the questions of whether the sales had achieved good prices and whether the Government's sale objectives had been met. Prices received via the auctions were compared with a series of London Gold Fixing averages over the period as well as prices received by other central banks selling gold reserves over a recent time frame. The report concluded that the prices received by the UK were competitive and well in line with both of measures.

The study found that the stated objectives for the Treasury – to sell transparently, fairly and to obtain value for money – had been met.

Since the publication of the NAO report, the auctions were the subject of a parliamentary Public Accounts Committee meeting in February, the results of which will be published later in the year. ■

Market Moves

Jack Allen has joined Investec Bank (UK) Limited, where he is responsible for Precious Metals Trading.

Jack began his career in 1977 at Samuel Montagu and Co, dealing in South African gold mining shares, before trading on the floors of the London Gold Futures Market and LIFFE. He subsequently worked in interbank trading and sales for Shearson Lehman Bros, Sharps Pixley, Bank of Boston, Deutsche Bank and, most recently, for AIG International Ltd

Barry Canham has recently joined Standard Bank London and is currently helping their efforts in Dubai where the bank's focus is on developing their resource banking, trade finance and private banking activities in the Middle East region.

Barry was formerly a Director at CSFB and is a well-known and respected character in the international bullion market, which he first joined back in 1988.

Graham Leighton will be joining Westdeutsche Landesbank's New York office on 1 May.

Prior to joining West LB, he worked for Standard Bank in Johannesburg and London, then for NM Rothschild & Sons in London and subsequently in Australia. His career has covered a variety of responsibilities in trading forwards, options, derivatives and sales. At West LB he will focus on providing trading services.

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LBMA News

By Stewart Murray, Chief Executive, LBMA

Membership Changes

Ordinary Members

Investec Bank (UK) Limited was accepted as an Ordinary Member on 1 April 2001.

The contact details for Citibank have changed to:
33 Canada Square
Canary Wharf
London E14 5LB
Telephone (0)20 7986 3866

Mitsui Bussan Commodities Ltd London has changed its name to: Mitsui and Co Precious Metals Inc, London Branch

Rabobank has changed its telephone number to (0)20 7664 9650

International Associates

Gerald Metals Inc became an International Associate on 2 January 2001.

Good Delivery List

Addition – Silver Republic of Korea

Korea Zinc's refinery at Onsan from 30 January 2001.

Committees

Management Committee

The Committee has been heavily involved in the planning of the forthcoming Conference in Istanbul, as well as making preliminary plans for the Conference to be held in 2002.

In reviewing the work of the Physical Committee, the Management Committee has stressed the importance of expanding the number of independent referees currently used for assessing applicants for Good Delivery status, in order to ensure that applications can be processed efficiently and speedily.

Members of the Committee have continued to work on the drafting of a new guide to the London market, which should be available at the forthcoming conference in Istanbul.

Public Affairs Committee

Following his departure from Johnson Matthey, John Fairley resigned as Chairman of the Committee in early March. Martin Stokes, the LBMA Chairman, paid tribute to John's many years of service to the LBMA and for his constant support and encouragement of the Association's work. Ms Emma Jenkins of CSFB has agreed to take on the chairmanship of the Committee.

Discussion in recent months has centred on the elaboration of the programme of speakers and other events taking place at the Istanbul Conference on 21-22 May. Other events on the agenda have been the very successful Burns Night, held in January, and the forthcoming seminar on 5 April.

Physical Committee

In addition to monitoring the applications for Good Delivery Listing (of which five are currently under investigation), the Committee has also made some significant changes to the Good Delivery rules, which will be published via the website on 4 April. The purpose of the changes is to clarify some aspects of the testing procedure and also to facilitate the Committee's assessment of applications, while ensuring at the same time a strengthening of the rigorous standards developed in the past.

In conjunction with Precisa, which manufactures weighing apparatus, the Committee has worked on a new operating manual for electronic silver balances, which has been circulated to all the LBMA's approved weighers. (See article on page 9.) ■

Burns Night

by Mark Pickthall, IonRiver Design

With something akin to National Pride and a wee dram flowing in his veins, Stewart Murray inspired a really different Christmas Party for the LBMA. A Burns Night celebration was held in The Brewery, Chiswell Street, on 24 January. The market was clearly inspired as some 240 members and guests participated in an evening of Scottish culture, ceilidh dancing and culinary art. Oh – and drinking.

Entertainment highlights included Martin Stokes' address to the haggis, which was piped in by Colin Deuchars of Brink's but sadly not tasted by everyone; the Immortal Memory proposed by Donald Douglas of NMR; the complementary toasts proposed by Jeff Gratton-Brunt of Soc Gen (to the lasses – a traditional part of Burns Night) and Emma Jenkins of CSFB (to the lads – an LBMA innovation); a selection of the Scottish ballads sung by the LBMA's designer; and finally, Stewart's memorable illustrated recital of Burns' famous poem, Tam O'Shanter.

To those who were inspecting the bottom of their glasses at this point, they missed a rare treat. A big thank you to Stewart for an excellent evening.

Plans are already being laid to organise next year's Christmas party to coincide with Chinese New Year and with a distinctly Oriental theme. ■

Golf

The LBMA Golf Day 2001 will take place at Brickendon Grange Golf Club, Hertfordshire, on Tuesday 1 May 2001. Notices have been sent to all members – please make sure these are circulated to all potential golfers. The cost of the day is £30 a head and has been heavily subsidised thanks to Viamat International, Securicor International Valuables Transport (formerly Brambles) and UBS Warburg. Full catering is provided and there will be two separate competitions over 36 holes, with two trophies awarded – in the morning, the Jack Spall Trophy for the individual competition and in the afternoon, the TFS Trophy for the group competition.

This is an excellent opportunity for members to meet in a convivial atmosphere and we urge you to get your applications in to the LBMA as quickly as possible.

Any queries, please ring John Coley at Brink's on (0)20 7417 3038. ■

Books for Keech Cottage Children's Hospice

The following note of thanks was received for a donation made by the Association to the Harpenden Children's Book Group on behalf of Keech Cottage Children's Hospice

Your money has enabled us to buy a wide selection of books, which we chose with the aim of giving the children access to good children's literature whilst meeting their needs as much as possible. Thus, we gave them books published by a specialist publisher called Barrington Stoke, who commission good and well-known authors to write books for children with reading difficulties who can comment on the books before publication. The books don't look 'different' and can be enjoyed by anyone. We also gave factual books and, at the request of the Hospice staff, some teenage books and Walker Big Books for use in groups.

This will make a real difference as the Hospice had very few books before. It will benefit not only the children using the Hospice now but also their siblings and future users.

So, thank you very much for enabling us to give so generously and to make such a difference ■.

The LBMA Spring Seminar

Thursday 5 April

Skinner's Hall
Dowgate Hill, London
EC4R 2SP

6:00pm **Registration**

6:30 – 7:15pm **Seminar**

Chairman: Stewart Murray, Chief Executive, LBMA

"Silver's Market Outlook: An Image Problem?"

Giles Lloyd, Consultant, CRU International

"The Perils of Palladium [for Gold]"

Andy Smith, Commodities Analyst, Mitsui and Co. Precious Metals Inc, London Branch

7:20 pm Drinks and Canapes

DIARY OF EVENTS

March

27-28
The Ferrous and Non-Ferrous Metal Sectors of the CIS
Millennium London Hotel, Mayfair, UK
The Adam Smith Institute
Tel: +44 (0)20 7490 3774
Fax: +44 (0)20 7505 0079
metals@asi-conferences.com

27-29
MinTek-2001, - 5th Moscow International Mining, Exploration and Mining
Equipment Exhibition
Moscow, Russia.
ITE Group Plc.
Tel: +44(0)20 7596 5213
Fax:+44(0)20 7596 5128
oleg.netchaev@ite-exhibitions.com

April

2-5
Catalytic Gold Conference 2001
Capetown, South Africa
African Conferences and Incentives
Tel: +27 11 792 9667
Fax: +27 11 791 3496
pamo@acitravel.com

5
The LBMA Spring Seminar (see box above)

9-10
Australian Gold Conference
Perth, Western Australia
Tel: (+618) 226 3280
Fax: (+618) 226 1544
enquiry@conference.
australiangold.org.au

19
Gold Survey 2001 Launch
Gold Fields Mineral Services
London and New York
Tel: +44 (0)20 7539 7820
Fax: +44(0)20 7818
Email: gold@gfms.co.uk

22-23
Gold and Silver Institute 2001 Annual Conference and Meeting
Scottsdale, AZ, USA
Gold & Silver Institutes
Tel: (+1 202) 835 0185
Fax: (+1 202) 835 0155
pbateman@goldinstitute.org

23-24
Investing in the Americas
Miami, FL, USA
International Investment Conferences, Inc.
Tel: (+1 305) 669 1963, ext. 212
Fax: (+1 305) 669 7350
johnpanaro@iiconf.com

24-27
Exposibram - 9th Brazilian Mining
25-27 ProEXPLO 2001, Second International Congress of Prospectors and Developers
Lima, Peru
IIMP
Fax: (+51 1) 349 0449.
proexplo@iimp.org.pe

29
Minespace 2001
CIM 103rd Annual Meeting
Quebec City, Canada
CIM
Tel: +1 (514) 939 2710
Fax: +1 (514) 939 2714
E-mail: smajor@cim.org

May

8 – 9
3rd Annual Tasmanian Minerals Briefing
Hobart, Tasmania
AJM Conferences
Tel: +61 2 8235 5300
Fax: +61 2 9290 2577
Email: anja.lineen@informa.com.au

17
World Silver Survey 2001
Gold Fields Mineral Services
Contact as above

17-18
NSW Mineral Exploration and Investment 2001
Sydney, Australia
Department of Mineral Resources
Fax: +61 (0)2 9901 8493
E-mail: hutchins@minerals.nsw.gov.au

21-22
LBMA Precious Metals Conference 2001
Istanbul, Turkey
The London Bullion Market Assoc.
Tel: +44 (0)20 7796 3067
Fax: +44 (0)20 7796 4345
E-mail: conference@lbma.org.uk

Lessons in Liquidity

Editorial Comment by Kevin Crisp Director, Precious Metals Research, Credit Suisse First Boston

Hindsight is a wonderful thing. It helps explain that which was at the time unexplainable and is particularly useful when it comes to trying to understand the gold lending market. The cost of gold borrowing – or conversely the interest rate paid to willing lenders of metal – rose sharply in late February and early March, exhibiting high volatility over a period of several weeks. The tightening in market liquidity that this increase in lease rates reflected, especially at the short end of the market, translated into a rally in the spot price of gold. As a consequence, gold found itself back in the headlines, with theories abounding as to what was behind the move in lease rates. Explanations ranged widely in their credibility, but in hindsight it seems entirely likely that a combination of factors contributed to the escalation in rates.

Since July 1989, when the London Bullion Market created a benchmark for gold lending rates through the publication of the daily GOFO means, there have been a series of 'episodes' in which gold lease rates have spiked up and displayed a high degree of volatility. These events can generally be linked with specific transactions, such as central bank sales or producer hedging activity, and in many instances a combination of the two. These incidents have often also come at the end of periods of relatively low price volatility and low absolute price levels – conditions that are very positive for physical demand and which have been met, in part, through a draining of market liquidity.

Whatever the reasons behind these events, their frequency has increased since the mid-1990s. The gold lending market has clearly taken on a growing importance in the day-to-day functioning of the global gold market. The study undertaken by Dr. Jessica Cross for the World Gold Council on gold market liquidity *Gold Derivatives: The Market View* provides a valuable insight into the structure of the gold lending market and the critical role that it plays in the bullion market of the 21st Century.

Yet, despite this and other research on the subject, the mechanisms and dynamics of the gold lending market are often poorly understood. In particular, the 'beneficiaries' of this liquidity are often perceived as the short-sellers and gold producers. While that is true to an extent, the gold lending market is critical in the day-to-day functioning of the physical market place. The low cost of gold borrowing enables the placing of consignments of gold in centres of demand for instant delivery. The jewellery trade also benefits from the lower cost of maintaining work in progress and inventory. The same is of course true for the world's gold refineries.

Hence, when gold lease rates spike up and the gold price follows, the dynamics of the market change. Increased funding costs lead dealers to repatriate consignment stocks and, in extremis, jewellers liquidate inventory. As we have seen again in March, the whole market can shift quickly into reverse.

Can we expect periods of high and volatile lease rates to continue as a feature of the market? The answer is yes. For various reasons, the average term for gold lending is increasing, which leaves a rather smaller pool of short-dated liquidity than was the case in the past. There are also some constraints on gold lending, such as those imposed in Europe by the September 1999 "Central Bank Gold Agreement". That said, there are still a large number of other gold-holding institutions outside the Agreement that have scope to lend more gold. It should also be remembered that central banks are not the only potential lenders of gold. Other lenders, from the private sector, could well emerge if yields become attractive enough. ■

facing facts

By Paul Burton
Editor, World Gold

When final figures for 2000 are available they are expected to show that aggregate gold mining production has levelled off over the past year.

Despite this a number of the bigger producers managed to record good production gains, with Newmont Mining, Harmony and Normandy Mining particularly noteworthy in this regard. In contrast Rio Tinto and Freeport both reported reduced output as the giant Grasberg mine, in Indonesia, works lower grade ore.

The table shows production from the ten largest gold miners, and the percentage change in each case from 1999.

1	AngloGold	225t (+5%)
2	Newmont Mining	152t (+17%)
3	Gold Fields	120t (+1%)
4	Barrick Gold	116t (+2%)
5	Placer Dome	93t (-3%)
6	Rio Tinto	85t (-9%)
7	Homestake Mining	73t (-1%)
8	Harmony	67t (+63%)
9	Normandy Mining	64t (+10%)
10	Freeport-McMoRan Copper & Gold	59t (-20%)

Although many producers were able to grow production, the continuing flat US dollar gold price took its toll, leading to a number of mine closures in 2000. Production lost was not that consequential, however. In Chile, the Andacollo mine closed and, after interruptions in production, the Refugio mine will close in 2001. Other mine closures announced or affected around the world were Mineral Ridge, El Tambo, Minahasa (temporary), Homestake, Dee, San Gertrudis and Joe Mann.

The low gold price, in dollar terms, also caused a number of gold companies to revise downward the value of their reserves at the end of the year, a process that entailed substantial non-cash writedowns against profits for the year. Some of the larger amounts of value lost include US$1,100 million for Barrick Gold, US$377 million for Placer Dome, US$93 million for AngloGold, US$74 million for Homestake Mining and US$72 million for Kinross Gold.

The bulk of Barrick's writedown arose from its decision to defer construction of its Pascua-Lama mine, which straddles the Chile/Argentina border. The mine was planned to produce 800,000 oz/y of gold and 20Moz/y of silver from 2002, but first production is now not likely before 2003. Another Canadian major to receive similar setbacks was Placer Dome, which suspended construction of the Las Cristinas mine in Venezuela mid-year and earlier in the year decided not to proceed with development of the 23Moz Cerro Casale project, in Chile.

The predicted levelling off in production is almost certainly a symptom of a fall-off in global exploration spending over the past few years. The 7% decrease in 2000, the third consecutive annual fall, was more modest than the previous year's 29%.

Although 2000 was a tough year for producers generally, there were a number of positive developments. Despite the poor economic environment that many gold producers faced, a number of mine projects came to fruition or reached an advanced stage during the year.

The biggest of the new mines was Newmont Mining's 45%-owned Batu Hijau copper/gold mine, in Indonesia, which reached full production and contributed to earnings for the first time in the September 2000 quarter.

One new mine that epitomises the trend to low-cost operations, was Meridian Gold's El Penon mine, in Chile, which opened at the beginning of 2000. This high grade mine had average total cash costs for the year of just US$48/oz in producing almost 290,000 oz of gold.

The advent of full production at another very high-grade mine, Red Lake, in Canada, in November 2000, is already proving to be similarly beneficial to its owner, Goldcorp.

But it was East Africa, a relatively new gold province, where developments aroused most interest in 2000. Geita, a new mine in the highly prospective Lake Victoria goldfields, opened during the year. This is the first of what could be a stream of mines that will establish Tanzania firmly on the gold production map. Originally wholly owned by Ashanti Goldfields, Geita now has AngloGold as a 50% owner after Ashanti sold half its interest to shore up its balance sheet after the its much publicised financial liquidity problems towards the end of 1999.

Barrick Gold is constructing a major mine in close proximity to Geita at Bulyanhulu. Barrick had such success in finding additional reserves in 2000 that it now intends to increase the planned output by 25%, to 500,000 oz/y.

Remaining in Africa, the continuing success story at Sadiola, in Mali, one of the world's poorest nations, led joint venture partners AngloGold and Canada's IAMGOLD to give the go ahead for the construction of a mine at Yatela.

AngloGold later established a further presence in the country by acquiring half of Randgold Resources' 80% interest in the Morila mine, which reported production of 142,500 oz at a total cash cost of US$88/oz after coming into production in October 2000.

In Australia, where local prices were high and many producers are well hedged, a number of new projects received the green light. PacMin commenced construction of the 140,000 oz/y Carosue Dam mine and the Granny Smith joint venture (Placer Dome 60%, Delta Gold 40%) approved the development of a A$150 million, 320,000 oz/y new mine at Wallaby, where resources increased 40% to over 7Moz by the end of 2000.

Nearby in the Laverton region AngloGold, owner of the Sunrise Dam open pit since its acquisition of Acacia Resources at the end of 1999, announced the expansion of operations to form a Mega Pit, producing up to 350,000 oz/y.

Meanwhile, consolidation of the industry continued during the year, although not at the pace of the previous year. Merger and acquisition activity was worth US$1.89 billion in 2000 compared with US$2.71 billion the year before.

Nevertheless the topic remained one of central importance for the industry. One of the most aggressive predators, Harmony, completed deals to acquire producing assets in South Africa (Randfontein, Elandsrand and Deelkraal), and made a bid for Australia's New Hampton Goldfields, but it was another South African major, Gold Fields, that drew most headlines with its proposed merger with Franco-Nevada. The South African government ultimately denied approval for what would have been the biggest corporate deal of the year. In the event the largest transaction was the US$557 million merger of Newmont and Battle Mountain Gold that was completed early in 2001.

Consolidation inevitably has its victims and many in the industry will note the imminent winding up of Gold Fields of South Africa – formed in 1887 by Cecil Rhodes – with some sadness. ■

The *Alchemist* is published quarterly by the LBMA. For further information please call Susanne M. Capano, Editor, or Stewart Murray, Chief Executive
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