SILVER

By Gold Fields Mineral Services

Silver remained under pressure for most of 2000, with the average price for the year of US$4.95/oz being 5% lower than the 1999 average. After February 2000s price spike, when a high of US$5.45 was posted, silver fell persistently, scarcely ever seeing any upside, to end the year at US$4.58/oz. Leasing rates also fell steadily, reflecting both ample liquidity being made available from increased lending as well as lower demand from producer hedging.

The February price spike was the only real event of any statistical interest during the year,and the fact that this was triggered by developments in the gold market only served to highlight the dull nature of silver and notable lack of investor interest in 2000. Although early February had seen substantial borrowing in the forward market, this appears to have been mainly attributable to the sharp run up in gold leasing rates and prices which were precipitated by comments from a number of large hedgers (including Placer Dome and Normandy). It was surely no coincidence that the silver price peaked on the same day as gold.

Although the fundamentals were not responsible for sparking silver's rally, higher prices did invoke an elastic response in the demand and supply variables which ultimately held back its progress. One of the key constraining factors at that time was the surge in silver flowing out of China into the global market, especially at over US$5 and even more so above US$5.25/oz.

From that time on, silver was under sustained pressure, more from the indifference shown by the investor community than from harshly negative fundamentals. Certainly, sentiment was not assisted by unconfirmed rumours at the end of the first quarter that Warren Buffett had started to sell a portion of his large silver position. At this time, investors were seen to be liquidating long positions and building up some short ones, no doubt motivated in part by these rumours.

But it was not only news from the investment world that contributed to the less optimistic view of silver's short-term price prospects. In late February, Mexico's Peñoles announced that authorisation had been granted for refining at its Torreón facility to be brought back up to full capacity. It is perhaps testament to the strength of physical demand for silver at the time that prices did not weaken further in this period.

Top 20 Producing Countries				
Ranking			**Output (t)**	
2000	**1999**		**1999**	**2000**
1	1	Mexico	2,338	2,744
2	2	Peru	2,231	2,438
3	4	Australia	1,720	2,060
4	3	US	1,950	1,970
5	5	CIS	1,437	1,596
6	7	China	1,375	1,500
7	8	Canada	1,166	1,174
8	6	Chile	1,392	1,170
9	9	Poland	1,115	1,140
10	10	Bolivia	424	437
11	11	Indonesia	305	308
12	12	Sweden	275	294
13	13	Morocco	278	289
14	14	SouthAfrica	152	142
15	17	Spain	95	117
16	15	Turkey	108	109
17	18	Japan	94	104
18	16	Argentina	103	99
19	19	PapuaNewGuinea	59	73
20	20	India	60	56
Total Top 20			16,677	17,820
Rest of World			511	514
Total			**17,188**	**18,334**

Prices softened throughout the second and third quarters, largely because of continued Chinese selling and ongoing disinvestment. Although the actual volume of silver coming out of China at this time was constrained by low prices, the potential supply of metal from this source at higher prices continued to cap the market, in large part because of its impact on sentiment and investor behaviour. Fund selling during this period was significant but scarcely overwhelming and there was renewed speculation that further sales might have taken place out of physical stocks held by Warren Buffett. Although this cannot be ruled out, it is perhaps more likely that other longs were liquidating physical holdings.

There is little doubt that the price would have been pushed substantially lower if it had not been for the continued strength of industrial demand. In fact, into the fourth quarter there were even examples of 'accelerated demand' as large users covered all or some of their 2001 requirements (Kodak being the most prominent example). However, although this assisted the price, it was not enough to sustain it at higher levels, and silver posted its low for the year, of US$4.57, on December 19.

Supply

The substantial increase in global silver supply to a new record level was the result of strong growth in the mining sector and an increase in disinvestment. Despite the rise in mine production, its share of total silver supply fell to just over 62% in 2000, compared with 72% a decade earlier.

World silver mine production leapt almost 7% last year to a record 18,334 t, bringing total growth since the beginning of the 1990s to 15%. The rapid growth in 2000 owed much to special factors which should not be repeated this year The contribution to the 2000 total from primary silver mines slipped a little to 25% whilst that from gold mines rose to 15%. A number of silver mines are nearing the end

World Silver Mine Production by Source Metal (t)		
	1999	2000
Primary	4,609	4,539
Lead/Zinc	6,012	6,399
Copper	4,071	4,361
Gold	2,277	2,830
Other	218	205
Total	***17,188***	***18,334***

of their reserves and, with the deferral of some projects due to poor prices, no large increase in production is expected in 2001. There was little comfort in today's weak price environment from costs as these are not thought to have improved - the weighted average production costs of reporting mines rose US$0.01 year-on-year to US$3.19/oz.

The biggest absolute rise in production was seen in Mexico, the world's largest silver producing country, where output surged by 17% to 2,744 t. The scale of the rise, however, must be seen against the background of an unusual year in 1999 when output was restricted at the country's major refinery and smelter, Torreón, due to emission concerns. Last year's total output, however, was still lower than 1998 levels, in part because it took at least two months from the lifting of restrictions in February for Torreón to ramp up to full capacity. Other output increases included those recorded at the Tizapa and Proaño mines.

In the US, losses at primary, copper and lead-zinc operations were cancelled out by increases at gold mines to leave last year's silver output up 1% at 1,970 t. Primary mines generate half of the country's silver but, last year, production from that source declined 6% due to losses at such mines as Greens Creek and Sunshine. Continuing losses at the latter resulted in these operations being placed on care and maintenance in February.

Canadian silver production also rose around 1% to a reported 1,174 t. All silver is generated as a by-product from gold, copper, lead-zinc and smaller amounts from nickel operations. Silver produced at gold mines increased its share of the country total from 40% in 1999 to 46%, largely due to gains in output from Homestake's Eskay Creek mine and, to a lesser extent, through a major expansion at Agnico-Eagle's LaRonde mine.

Last year, Central and South American output fell a fraction to 4,215 t, a decline which led to a 2% cut in the region's share of global production to 23%. There were proportionately larger changes in the source of silver supply last year. A 42% decline in output was reported from primary mines, while silver as a by-product from both gold and lead-zinc operations increased significantly. The change was, in part, the result of the closure of the Chimberos silver mine in Chile. Despite gains at other mines such as La Coipa gold mine, overall silver output in Chile declined 16% to 1,170 t.

Peru experienced a 9% increase in silver production to 2,438 t, supported by growth in primary, gold, copper and lead-zinc operations. Lead-zinc mines remained the most important source, generating 55% of

World Silver Supply and Demand (t)		
Supply	**1999**	**2000**
Mine Production	17,188	18,334
Net Official Sector Sales	2,889	2,323
Old Silver Scrap	5,440	5,609
Producer Hedging	-	-
Implied Net Disinvestment	2,078	3,167
Total Supply	***27,595***	***29,433***
	-	-
Demand	-	-
Fabrication	-	-
Industrial Applications	10,594	11,757
Photography	7,259	7,173
Jewellery & Silverware	8,507	8,762
Coins & Medals	834	950
Total Fabrication	27,193	28,642
Net Official Sector Purchases	-	-
Producer Hedging	401	791
Total Demand	***27,595***	***29,433***

output, but the strongest growth was from copper mines such as Grupo Mexico's Toquepala and Cuajone. The Yanacocha operation of Newmont and Buenaventura accounted for much of the increase from gold operations whilst gains at primary mines were recorded at Pan American Silver's Quiruvilca and at the country's biggest silver mine, Uchucchacua.

Bolivian silver production increased 3% to 437 t thanks to gains from the country's largest producer, Comsur, but output fell last year in Argentina, down 3% to 99 t.

Europe's production in 2000 of 1,732 t accounted for 9% of global output. Poland, by far the continent's largest silver producer, saw output rise 2% to 1,140 t due mainly to the implementation of new technology in its copper mining industry. Sweden recorded a somewhat stronger gain, with a 7% rise in silver output to 294 t, whilst Europe's third largest producer, Spain, saw an even greater year-on-year increase of 23% to 117 t.

In the countries constituting the Commonwealth of Independent States (CIS), silver mine production expanded by an impressive 11% last year to 1,596 t. This was the second consecutive annual increase in the region's output, having persistently declined for the rest of the decade.

Much of this recovery is believed to have been generated in Kazakhstan where four consecutive annual increases left output in 2000 up 75% on its 1996 low, restoring the country as the region's largest producer. Production has benefited in recent years from substantial foreign investment in the country's base metal producers, chiefly investment by South Korea's Samsung in Kazakhmys Corp., and by the Swiss trading house Glencore into Kaztsink. (All of Kazakhstan's silver is generated at base metals operations.)

Silver production in Russia continued to languish whilst the large primary deposit, Dukat, lay dormant. Following a protracted legal battle, it is expected to recommence mining in 2002 according to the Russian Ministry of Natural Resources. In the meantime, 65% of Russia's silver continues to be generated at lead-zinc operations, with smaller contributions from copper and gold mining. Output was estimated to have increased by a modest 2% last year on the back of higher base metals and gold production.

In Uzbekistan, silver output was estimated to have grown modestly to around 54 t though this number cannot be verified conclusively as actual production figures are never published.

Chinese silver production was up significantly in 2000 reaching 1,500 t, almost half of which was derived from lead-zinc mining. It is unclear what the main reasons have been for such tremendous growth and it is possible that the rise is in part statistical distortion.

Australia's output increased 20% year-on-year to 2,060 t, the rise almost entirely due to gains at Cannington and fresh output from Pasminco's new Century zinc mine which became operational in March 2000. Cannington's re-classification as a silver mine helps explain the rise in the primary mine share to 49% of total output.

Asia, which produces 4% of the world's silver, saw output increase 4% to 778 t last year. In Indonesia, the biggest producer in the region, output was more or less flat at 308 t. Production was flat at the large copper-gold Grasberg mine but losses were seen elsewhere through the closure of Rawas and through industrial and community action at Kelian and Minahasa. This cancelled out gains from the new Batu Hijau mine and those from the first full year of operations at Gosowong. Neighbouring Papua New Guinea enjoyed a surge in production largely due to a record year at the OK Tedi mine. Elsewhere in Asia, India saw a 7% decline, Japan recorded 10% year-on-year growth due to higher by-product output from a number of lead-zinc mines and Turkey's silver output was steady at 109 t.

Just under two-thirds of Africa's silver in 2000 came from Morocco where output increased 4% to 289 t. Much of the increase was generated at the Imiter primary silver mine, making it the world's fifth largest primary mine. South Africa, the second most important silver producer in Africa, saw production decline 7% last year to 142 t.

Above-Ground Stocks

Supply from above-ground stocks increased by 3% in 2000 to just over 10,300 t. This total comprised scrap at 5,609 t, official sector sales of 2,323 t and implied net disinvestment of 3,167 t less 791 t of demand from hedging. The relatively modest increase in supply from this source in 2000 probably helps to explain why the average silver price fell by only 5%. The amount of metal which entered the market from above-ground stocks represented some 35% of total silver supply in 2000, a figure that was marginally lower year-on-year.

Total **scrap** volumes rose modestly in 2000, up by 3.1% to 5,609 t. The largest gain was recorded in the US (up 156 t at 1,941 t) due to more recycling of photographic waste, an increase in the volume of recycled catalysts and a possible rise for electronics scrap. Increases were also seen in the other two prime scrap centres, Europe and Japan, where supply from this source rose by 3% to 1,426 t and by 1% to 927 t, respectively. The dominance of the industrialised world for silver scrap stands in stark contrast to the situation for gold where recycled supplies, mainly from jewellery, in developing countries comprises around 80% of total world scrap.

Producers were largely absent from the forward market last year, allowing their **hedge** books to run down or closing out positions prematurely. As a result, total outstanding hedge positions declined, for a second consecutive year, by a significant 23% in 2000. This created an estimated 791 t of demand in the physical market. This decline was reflected in the dramatic fall in leasing rates, particularly the longer tenures. The fall in hedging went against earlier expectations as, at the beginning of 2000, it was thought that the financing of a handful of new mining projects might bring about an increase in hedging but several of these projects were subsequently postponed.

The **official sector** supplied 2,323 t of silver last year, down markedly from the previous year but still well above the average level of net disposals over the past 10 years of 724 t. As in 1999, most of last year's sales came from China though net disposals from this country were substantially lower than the previous year at 1,800 t versus 2,100 t in 1999. A further quantity of stocks was exported but not sold outright, probably as a result of low silver prices. In addition, there was evidence that some official stocks were being lent into the market, something that probably would have played a part in the reduction in leasing rates during the course of 2000.

The US was the only other significant seller of silver last year. Most, if not all, of this silver came out of the stockpile maintained by the Defense Logistics Agency which has now been reduced to minimal levels. We have not taken at face value news from India that government stocks could be far greater than previously estimated. Unconfirmed reports from here claim that official holdings amount to no less than 5,000 t and that the authorities are looking to sell around half of this silver. At this stage, there is no evidence to substantiate either of these claims.

Given the performance of the silver price last year and the generally negative short term outlook, the very large increase in **implied net disinvestment** to 3,167 t was hardly surprising. The majority of last year's sales would seem to have come from positions established in late 1997 and early 1998. This supply pressure was exacerbated by funds on Comex building up short positions, partly as a hedge against existing long positions and, to a lesser extent, to take advantage of an expected price decline.

Demand

The growth in fabrication demand for silver accelerated in 2000 to over 5%. This lifted the total to a record 28,642 t. Underlying this sterling performance was world GDP growth being at its highest level for over a decade.

The use of silver in industrial applications is the largest component of demand and this remained the prime driver of last year's rise in offtake, with this sector growing 11% to 11,757 t. Much of the rise was within the most important part of industrial demand, the electrical and electronics sector which increased to 5,182 t. Geographically, this sector's growth was most pronounced in East Asia where silver offtake in such countries as Japan or Taiwan boomed in computer industry products such as CD-Rs or semiconductors and in cell phones.

As regards total silver demand, cell phones can be a double-edged sword - they may boost industrial demand but they can also provide competition to jewellery for disposable income. Fortunately, silver has benefited from the continued popularity within the overall jewellery market of the 'white look'. It was this that helped the jewellery and silverware category, the second most important component of silver demand, register respectable growth of 3% to 8,762 t. A good proportion of the increase in production was recorded in countries such as Italy and Thailand which saw strong demand for exports, particularly to the US.

Demand within the silverware sub-category, however, is estimated to have fallen. The decline was greatest for traditional items such as cutlery whereas there may have been some growth in what might be more accurately termed giftware.

The last major category of fabrication demand, the photographic sector, was the sole area to register a fall, slipping a modest 1% to 7,173 t. The chief cause of this is arguably the rise of digital photography. Other factors include a lower silver loading per film. Declines were, however, not universal - Japan registered a 7% rise in photographic demand for silver to 1,995 t.

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