The Silver Institute

World Silver Survey 2012

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World Silver Survey 2012

Produced for The Silver Institute
by Thomson Reuters GFMS

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About the Major Sponsors of World Silver Survey 2012

A-Mark Precious Metals, Inc.

Established in 1965, A-Mark Precious Metals, Inc. is a full service precious metals trading company with customers on six continents and revenues in excess of US$7,000,000,000 yearly. Our counterparts and clientele include mines, refiners, mints, central banks, coin dealers, investment advisors and commodity brokerage houses. We are an authorized purchaser for the US Mint, the Royal Canadian Mint, Rand Refinery, the British Royal Mint, the Perth Mint and China Great Wall. Some of our services include financing, leasing, as well as hedging and risk management of metal positions.

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Coeur d'Alene Mines Corporation is the largest U.S.-based primary silver producer and a growing gold producer. The Company built and commenced production from three wholly-owned, long-lived mines between 2008 and 2010: the San Bartolomé silver mine in Bolivia, the Palmarejo silver-gold mine in Mexico and the Kensington gold mine in Alaska. Further production has commenced from a new heap leach pad at Coeur's long-time Rochester silver-gold mine in Nevada. The Company also owns and operates the Martha silver-gold mine in Argentina and owns a non-operating interest in a silver-base metal mine in Australia. Coeur conducts ongoing exploration activities near and within its operating properties in Argentina, Mexico, Alaska, Nevada and Bolivia. In addition, Coeur owns strategic minority shareholdings in five silver development companies in North and South America.

Fresnillo Plc

Fresnillo Plc is the world's largest primary silver producer and Mexico's second largest gold producer, listed on the London Stock Exchange under the symbol FRES. Fresnillo has seven operating mines: Fresnillo, Saucito, Cienega, San Ramon, Herradura, Soledad-Dipolos and Noche Buena and four advance exploration projects: San Julian, San Juan, Orysivo and Juanicipio, as well as a number of other long-term exploration prospects and, in total, has mining concessions covering approximately 1.91 million hectares in Mexico. Fresnillo has a strong and long tradition of mining, a proven track record of mining development and reserves replacement, and production costs in the lowest quartile of the cost curve for both silver and gold. Fresnillo's goal is to maintain the Group's position as the world's largest primary silver company, producing 65 million ounces of silver and over 400,000 ounces of gold by 2018.

Industrias Peñoles, S.A.B. de C.V.

Peñoles is a mining group with integrated operations in smelting and refining non-ferrous metals, and producing chemicals. Peñoles is the world's top producer of refined silver, metallic bismuth and sodium sulfate, and the leading Latin American producer of refined gold and lead. The Company was founded in 1887 and it is part of "Grupo BAL", a privately held diversified group of independent Mexican companies. Peñoles' shares have traded on the Mexican Stock Exchange since 1968 under the ticker PE&OLES. Peñoles highlights:

- Began operations in 1887 as a mining company.
- Has integrated operations in the areas of exploration, mining, metallurgy and chemicals.
- Listed on the Mexican Stock Exchange since 1968; the stock is included in the IPC index.
- One of the largest net exporters in Mexico's private sector.

Pan American Silver Corp.

Pan American Silver Corp. was founded in 1994 with the mission to be the world's largest low-cost primary silver mining company and to achieve this by constantly increasing its low-cost silver production and silver reserves. Pan American now owns and operates eight silver mines in Mexico, Peru, Argentina and Bolivia. In 2011, the Company produced 21.9 million ounces of silver and nearly 78,500 ounces of gold. Pan American has just completed the acquisition of Minefinders Ltd. with its long-life Dolores mine. With the addition of Dolores, the Company expects to produce 24.1 to 25.1 million ounces of silver and approximately 131,000 to 136,000 ounces of gold in 2012. Pan American has one of the most exciting growth profiles in its segment. The Company owns the Navidad silver project, one of the largest undeveloped silver deposits in the world, located in Chubut, Argentina. In addition, Pan American is the operator of the La Preciosa silver project, located in Durango, Mexico.

Republic Metals Corporation

Republic Metals Corporation is one of the largest, full services, primary precious metals refineries in the Western Hemisphere. Republic Metals has been successfully providing the highest quality refining services, and gold & silver products for more than 30 years. Using its own exclusive state-of-the-art "Green Refining Technology", RMC has rapidly grown to become one of the world's largest and most innovative and environmentally sound refineries. Republic's silver refining circuit is not energy dependent, thus allowing for unprecedented efficiencies, saving our clients time and expense. As Republic Metals has expanded its product lines, array of services, and global client base, it has never compromised its founding principles: excellent customer service, ethical business practices, and an unyielding commitment to environmental protection and safety of its workforce and clientele. RMC is pleased to announce the opening of its state-of-the-art 75,000 square foot refinery addition located directly adjacent to its existing refinery. Republic Metals now boasts an estimated refining capacity for silver scrap/dore of 8-10 tonnes daily. RMC is offering the most competitive refining schedules in the industry to complement its newly augmented foundry and refining circuits. Located at the first point of entry to the US from the majority of South American and Central American countries, RMC proves to be a perfect fit for fast, easy, and cost effective shipping of mining material.

Silvercorp Metals Inc.

Silvercorp Metals Inc. (NYSE/TSX: SVM) is China's largest primary silver producer and a leading low cost producer among its global peers. Canadian-based, Silvercorp has 5 operating mines in China, and development and exploration projects located in China and Canada. It is highly profitable, pays a dividend and has a successful track record of growing both resources and production since first commencing production in 2006. In the quarter ended December 31, 2011, Silvercorp produced 1.55 million ounces of silver at a cash cost of *negative $4.55* per ounce – upholding the company's low cost producer status. With US$168 million in cash and short-term investments, no long-term debt and strong operations, Silvercorp is growing its resources and production base through continuous exploration and mine development at existing projects, and is seeking to acquire new projects primarily focused in China.

Silver Wheaton Corp.

Established in 2004, Silver Wheaton has quickly positioned itself as the largest silver streaming company in the world. The company has entered into a number of agreements where, in exchange for an upfront payment, it has the right to purchase, at a low fixed cost, all or a portion of the silver production from several high-quality mines located in politically stable regions around the globe. Silver Wheaton currently has agreements to purchase silver from 16 operating mines and three development stage projects. Silver Wheaton's exceptional growth profile is driven by a portfolio of world-class assets, including silver streams on Goldcorp's Peñasquito mine in Mexico and Barrick's Pascua-Lama project straddling the border of Chile and Argentina. The company's unique business model creates significant shareholder value by providing leverage to increases in the silver price while reducing many of the risks faced by traditional mining companies. Silver Wheaton's shares are traded under the symbol SLW on the Toronto Stock Exchange and New York Stock Exchange.

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The ***World Silver Survey*** has been published annually by The Silver Institute since 1990. Copies of previous editions can be obtained by contacting The Silver Institute at the address and telephone number on the opening page. For copies outside of North America, contact Thomson Reuters GFMS at the address on the page overleaf.

ISSN: 1059-6992

ISBN: 978-1-880936-20-7

This is the eighteenth annual survey of the world silver market to be produced for The Silver Institute by Thomson Reuters GFMS, the London-based analysts of global precious metals markets. The information contained here is based in part on the analysis of the Thomson Reuters GFMS database of international trade statistics, company report data and other public-domain information. But more importantly, it is also based on a series of interviews with the industry's main players, carried out every year by our team of analysts and consultants, which provide the essential data to allow the compilation of reliable estimates for world supply and demand.

Thomson Reuters GFMS is grateful to the many miners, refiners, bullion dealers, bankers and fabricators throughout the world who have contributed their time and information to ensuring that the picture of the industry described in the *World Silver Survey* is as complete and accurate as possible.

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April, 2012

Units used:

supply and demand data are given in units of million troy ounces (Moz) rounded to one decimal place.
1 Moz = 31.103 t (metric tons)
1 ton = 32,151 troy ounces
1 ton = 1,000,000 grams (g)

Terminology:

"-" = not available or not applicable
0.0 = zero or less than 0.05
"dollar" refers to the US dollar unless otherwise stated.
Implied Net Investment = the residual from combining all other GFMS data on silver supply/demand as shown in Table 1. As such, it captures the net physical impact of all transactions not covered by the other supply/demand variables.

Prices:

Unless otherwise stated, US dollar prices are for the London Silver Market fixing.

Table Rounding:

Throughout the tables and charts, totals may not add due to independent rounding.

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1. Summary and Outlook

For silver, 2011 may best be remembered for its price rallying to within inches of the all time nominal high, in doing so generating a record annual average of $35.12 or more than double where we were two years ago. This is testament to investors' ongoing enthusiasm for the metal as World Investment leapt by over 70% in approximate value terms to almost $10 billion. The market did have to contend with heavy profit taking, most obviously in early May and again in late September, from its more speculative elements, in particular on Comex. However, bargain hunting (for example by those seeking physical bars, whose net purchases rose by around 38 Moz or 1,200 t) could usually be relied upon to put a floor under prices. There was also decent support from those with a longer term focus as the very forces that often drove last year's investment, such as the Eurozone debt crisis and inflation concerns, are far from dissipated.

Many of the above cues were taken from the gold market but silver also lived up to its hybrid status as weakness in base metal prices during the second quarter, linked directly to potential Eurozone damage to metal demand, also hit silver prices. That in itself was a forward looking reaction as silver's industrial offtake at the time was running at record levels; it was not until the fourth quarter when end-users became nervous about placing orders that any real weakness ensued and it was only this, together with an element of substitution, that gave us the slight dip in full year industrial demand. It was also of note that other areas of fabrication were fairly resilient given silver's strength and that government sales collapsed despite higher prices.

Looking ahead, it seems likely the market will see another sizable fundamental surplus, as mine output and scrap show further gains at a time when a less than promising economic outlook takes the shine off fabrication. Given that the market will therefore be reliant on investors to absorb the vast bulk of this surplus, 2012 is likely to see another year of wide trading ranges.

Table 1 - World Silver Supply and Demand (million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Supply										
Mine Production	594.5	597.2	613.6	636.6	641.1	665.9	683.6	716.1	751.4	761.6
Net Government Sales	59.2	88.7	61.9	65.9	78.5	42.5	30.5	15.6	44.2	11.5
Old Silver Scrap	197.3	196.0	197.4	201.6	206.0	203.0	200.9	200.0	228.7	256.7
Producer Hedging	-	-	9.6	27.6	-	-	-	-	50.4	10.7
Implied Net Disinvestment	17.4	-	-	-	-	-	-	-	-	-
Total Supply	**868.3**	**881.9**	**882.4**	**931.7**	**925.6**	**911.4**	**915.0**	**931.7**	**1,074.7**	**1,040.6**
Demand										
Fabrication										
Industrial Applications	355.3	368.4	387.4	431.8	454.2	491.1	492.7	405.1	500.0	486.5
Photography	204.3	192.9	178.8	160.3	142.2	117.6	101.3	79.3	72.1	66.1
Jewelry	168.9	179.2	174.8	173.8	166.3	163.5	158.7	159.8	167.4	159.8
Silverware	83.5	83.9	67.2	67.6	61.2	58.6	57.4	59.1	51.2	46.0
Coins & Medals	31.6	35.7	42.4	40.0	39.8	39.7	65.3	78.8	99.4	118.2
Total Fabrication	843.5	860.1	850.6	873.6	863.7	870.5	875.3	782.0	890.1	876.6
Producer De-Hedging	24.8	20.9	-	-	6.8	24.2	8.5	17.4	-	-
Implied Net Investment	-	0.9	31.8	58.1	55.1	16.6	31.2	132.2	184.6	164.0
Total Demand	**868.3**	**881.9**	**882.4**	**931.7**	**925.6**	**911.4**	**915.0**	**931.7**	**1,074.7**	**1,040.6**
Silver Price										
(Average London US$/oz)	4.599	4.879	6.658	7.312	11.549	13.384	14.989	14.674	20.193	35.119

Table 1a - Supply & Demand with Bar Investment

(million ounces)	2009	2010	2011
Supply			
Mine Production	716.1	751.4	761.6
Net Government Sales	15.6	44.2	11.5
Old Silver Scrap	200.0	228.7	256.7
Producer Hedging	-	50.4	10.7
Physical Bar Disinvestment	15.4	-	-
Implied Net Disinvestment	-	-	-
Total Supply	**947.1**	**1,074.7**	**1,040.6**
Demand			
Total Fabrication	782.0	890.1	876.6
Producer De-Hedging	17.4	-	-
Physical Bar Investment	-	57.4	95.7
Implied Net Investment	147.6	127.2	68.3
Total Demand	**947.1**	**1,074.7**	**1,040.6**

The difference between Table 1 and Table 1a above is that investment in bar form is extracted from our implied investment series. This was initially done after the explosion in Indian bar investment in 2008 as this distorted the message conveyed by the implied investment residual. Having originally just shown a figure for India, we have expanded this to include all bar investment as this has grown materially elsewhere, chiefly in China, the United States and Germany (indeed, those three plus India represent 93% of the global total). This growth was in response to the general factors driving investment and specifically to counterparty risk, which boosts the tangible appeal of physical investment. Table 1a brings out the rise last year to a level greater than the redefined implied number, although bar investment's importance is perhaps underplayed as the table does not show its key support through bargain hunting on price dips.

Supply in 2011

• World silver mine supply increased by 1.4% to a new record level of 761.6 Moz (23,689 t) last year.

• A second year of producer hedging saw a 10.7 Moz (334 t) addition to the global hedge book.

• Scrap supply rose for the second successive year, reaching a new record high of 256.7 Moz (7,985 t).

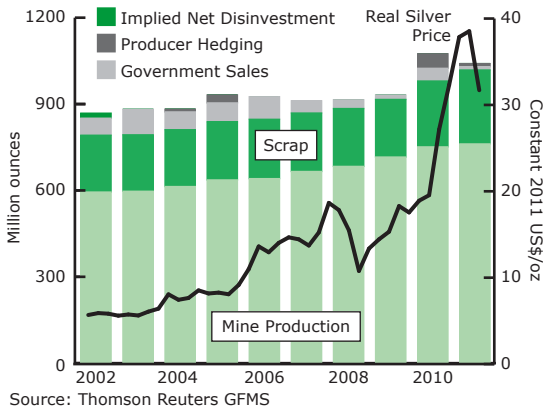
• Net government sales fell by 74% to 11.5 Moz (357 t) in 2011.

Silver **mine production** rose for the ninth successive year in 2011, to a fresh record of 761.6 Moz (23,689 t). Production from primary silver mines fell modestly due to lower processed grades and one-off disruptions at several large operations, including the world's two largest primary mines, Cannington and Fresnillo. These losses prevailed over production gains originating from a handful of new mines ramping up. However, growth was seen for silver produced as a by-product of gold and lead/zinc mining.

At the country level, most significant was an 8%, or 11 Moz (342 t) rise for the world's largest silver producer, Mexico, where output reached 152.8 Moz (4,753 t), as well as gains from China's base metals sector and increases in Russia, Poland and Guatemala. Offsetting a large part of these rises, production losses were noted in Peru, Australia, the United States, Morocco and Turkey, that together accounted for a decline of 22.9 Moz (711 t).

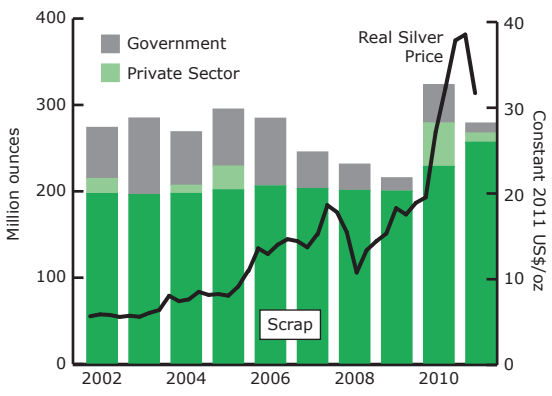
Producers added to the global **hedge** book last year, with the delta-adjusted position rising by 10.7 Moz (334 t). This occurred as several producers added to their existing options positions, although in many cases extreme call option strike prices meant that the delta against these

World Silver Supply



Source: Thomson Reuters GFMS

Mobilization of Above-Ground Stocks



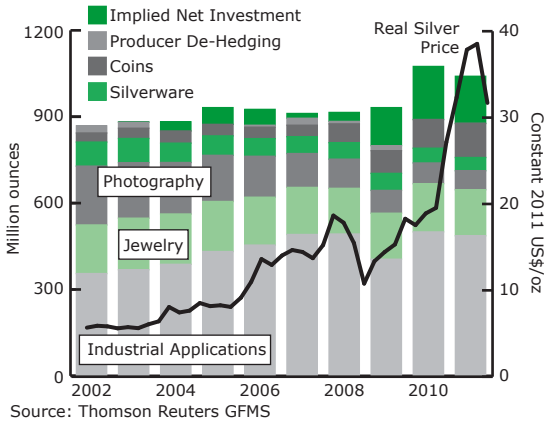
Source: Thomson Reuters GFMS

contracts at end-2011 was minimal. On the other hand, silver forwards exposure in fact fell, primarily as Minera Frisco and Minera Volcan scaled back their forward sales positions. In the main, it was again by-product silver producers that hedged silver output. New silver option positions were established by Minera Frisco, KGHM Polska Miedź and Barrick Gold, among others.

Global **scrap** supply rose for the second successive year, jumping 12% to a new all time high of 256.7 Moz (7,985 t). The structural decline in the supply of photographic scrap, which, up until the late 2000s, had accounted for a dominant share of total scrap, was offset by a material rise in industrial recycling and price related scrapping of jewelry and silverware. Electronic scrap flows benefited from not only tighter environment legislation, but also because of the acute rise in silver prices, with growth in this segment intimating a stronger price elasticity than previously anticipated. However, it was the recovery of silver from old silverware and jewelry that accounted for the bulk of the 12% rise in world scrap supply. There was also a rise in coin scrap. Fundamental to the overall total was a jump in industrialized market collection (principally from the United States and Europe), which comfortably exceeded the growth in recycling from the traditionally price sensitive developing world markets (such as India).

Net government sales dropped by a considerable 74% year-on-year, falling to a 14-year low of 11.5 Moz (357 t) in 2011. The hefty decline was entirely due to a collapse in sales from Russia, the dominant seller from 2007 to 2010, as disposals from the country dropped by nearly 90% last year. Excluding Russia, sales once again therefore remained subdued.

World Silver Demand



Source: Thomson Reuters GFMS

Demand in 2011

• Total fabrication in 2011 slipped by 1.5% to 876.6 Moz (27,265 t) with the rise for coins outweighed by losses in all other categories.

• Industrial offtake fell by 2.7% to 486.5 Moz (15,132 t) as fourth quarter losses, due mainly to Eurozone troubles, countered earlier gains.

• Silver use in photography extended its trend of decline, falling to the lowest level in our records.

• High prices and economic weakness cut jewelry demand by 4.5% to 159.8 Moz (4,971 t).

• Silverware demand fell by 10.2% to 46.0 Moz (1,430 t), due to structural trends and high prices.

• Implied net investment dropped by 11.2%, but remained elevated at 164.0 Moz (5,099 t).

• Demand for coins & medals posted a fresh all time high, rising 18.9% to 118.2 Moz (3,677 t).

Total fabrication in 2011 fell but only by a slight 1.5% to 876.6 Moz (27,265 t) and this was its second highest level since 2000. However, all categories save coins saw losses and, if we remove that investment-driven segment, the rest of fabrication fell by a steeper 4.1%. Some of this was down to the structural factors hitting photography and silverware, but more important was damage from high silver prices and industrial demand's fourth quarter decline as Eurozone concerns erupted.

Perhaps the key story as regards **industrial** demand was its largely unexpected slump in the fourth quarter. This outweighed the year-on-year rise recorded in the other three quarters combined (with the second quarter even hitting an all time high), generating a full year loss of 2.7% to 486.5 Moz (15,132 t). Weakness late in 2011 was chiefly the result of industrial end-users slashing orders due to fears over the fallout from the Eurozone's sovereign debt crisis, although some were also said to have begun the fourth quarter with excessive inventory levels. These concerns, however, do seem to have been somewhat exaggerated, as evidenced by the rebound for most in end-user purchases so far this year.

There was also clear pressure on offtake from price-led thrifting and substitution in all sectors of industrial use and, although silver remains irreplaceable in many areas, it is of note that (outside of the 2009 dip) industrial demand has broadly flatlined since 2007. On a sectoral basis, the main feature last year was a fall in photovoltaic demand, which resulted from inventory mismatches,

rather than a drop in underlying demand. That also explains much of US losses last year, although its absolute fall was just eclipsed by Japan, which suffered more from the fourth quarter drop in end-user orders. The third largest absolute change related to China but in this instance it was a rise of nearly 5% to a new record.

Silver use in **photographic** applications slipped by 8.3% last year to 66.1 Moz (2,056 t). This was the smallest absolute loss seen since 2001, thanks largely to a sluggish rate of conversion into digital systems by both medical centers and movie theaters, due to the weak macroeconomic backdrop. That said, photography's share of total fabrication continued to slide, falling to just 8% compared to the 24% it commanded ten years ago.

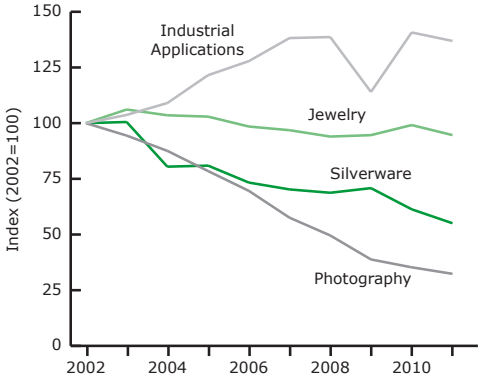
Jewelry fabrication fell by 4.5% to 159.8 Moz (4,971 t), chiefly through a drop in consumption and trade destocking in most western markets. Some of this was due to a poor economic backdrop, although silver's higher absolute price and elevated volatility arguably inflicted more damage. This is suggested by losses being heaviest for the mass market, with substitution to non-precious metal pieces a common theme. In contrast, the top end, especially if branded, fared better, in part as a result of gains at the expense of ever more unaffordable gold. The bulk of the overall losses were borne by export-focused producers, such as Thailand and Italy, and, in fact if we remove those two, offtake rose by over 2%. Much of that increase was due to substitution-led gains in East Asia, in particular China. In contrast, India saw a slight dip, although volumes were very volatile during the year.

Last year, **silverware** suffered another heavy fall as it dropped by 10.2% to 46.0 Moz (1,430 t), its lowest level in our series stretching back to 1990. Some of this decline was down to ongoing structural factors but these were greatly exacerbated by high and volatile prices. Weighty falls were the norm, with absolute losses greatest in countries as diverse as Italy, Thailand, India and Russia. China again defied the global trend as gifting demand led to a 10% rise in its fabrication.

It should be stressed that, in spite of an 11% fall to 164.0 Moz (5,099 t), **implied net investment** remained close to historical highs in 2011. Investment was concentrated in the first four months of the year. Key to this was dollar weakness, growing long-term inflation fears and a still positive economic outlook. Investor sentiment was also boosted by silver's wide trading range in a far smaller and less liquid market, particularly compared with gold, which resulted in a dramatic contraction in the gold:silver ratio in early 2011. However, as the price peaked and the rally faltered in late April, hefty profit taking led to a major correction. Thereafter, while buy-side interest recovered somewhat, volumes remained subdued, as investors were further deterred by another sharp, albeit brief, price fall in late September, itself a result of growing concerns about a double-dip recession in industrialized countries and an escalating sovereign debt crisis.

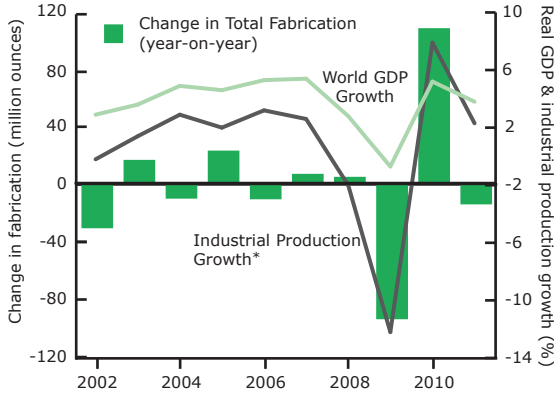
Apart from robust investment from institutional players, retail demand also performed impressively last year, as **coins & medals** hit a fresh record of 118.2 Moz (3,677 t) last year, while **physical bar investment** (see Table 1a) grew by 67%. In aggregate, **World Investment** (including implied net investment, bars, plus coins & medals) totaled 282.2 Moz (8,776 t) in 2011, which was equivalent to a new all time high of nearly $10 billion in value terms.

World Silver Fabrication Indices



Source: Thomson Reuters GFMS; *Excluding coins & medals

Fabrication Demand & World Economic Indicators



*Advanced economies only; Source: IMF, Thomson Reuters GFMS

2. Silver Prices

- ***Silver's annual average price in 2011 rose an impressive 74% to a record $35.12 and in doing so nearly breached the $50 mark. However, two steep falls (in late April/early May and in late September) left the intra-year change at an 8% drop.***

- ***Physical investment remained strong despite the sharp price fall in the second quarter leaving participants nervous of volatility.***

Silver's annual average leapt again in 2011, to $35.12, easily exceeding the previous record of $20.98 in 1980 and representing a year-on-year gain of 74%. This rise was therefore far stronger than gold's 28% increase. The bull run to late April saw the fix post a high of $48.70 on April 28th, a level only just beaten by the $49.45 seen in January 1980. Intra-day prices briefly exceeded $49 in April and so only just failed to pierce the psychologically important $50 mark. In real terms, silver's 2011 average was the second highest ever, although it was still some way short of 1980's $57.29, while the daily peak in 1980 was equal to just over $135 in 2011 dollars.

After the heavy fall in late April and early May to below $35, silver clawed its way higher over the middle of the year, before it saw another tumble in late September. With economic confidence ebbing, the rest of the year was spent under pressure and the final fix of $28.18 left an intra-year fall of 8%. It was of note that gold, with minimal industrial linkage, managed to hang on to a 10% intra-year gain. Silver's tendency to more dramatic moves was also illustrated in the January to April average being 29% higher than the fourth quarter 2010's average, while gold gained just 3%. Similarly, when the April/May fall came, gold only shed 8% against silver's 30%.

Much of the above was investor driven, although the contribution from each sector varied. Over-the-counter buying, for example, looks to have dominated the initial bull run, whilst selling on Comex was integral to the two main price corrections. ETF holdings, in contrast, were perhaps most notable for their stability during the volatile final months. This provided critical underpinning in that period, as did bargain hunting from other investors, a fair slice of which was physical investment in bars and coins.

US$ Silver Price

	1981	1991	2001	2011
Annual Average	10.487	4.057	4.370	35.119
Maximum	16.303	4.571	4.820	48.700
Minimum	8.030	3.548	4.065	26.160
Range:Average	78.9%	25.2%	17.3%	64.2%

Source: Thomson Reuters GFMS

The Silver Price in Other Currencies in 2011

	Euro/kg	Rupee/kg	Yen/10g	Yuan/kg
Annual Average	810.9	55,638	899.8	7,292
Maximum	1,056.2	75,020	1,275.1	10,180
Minimum	627.8	42,170	653.7	5,315
Range:Average	52.8%	59.0%	69.1%	66.7%

Source: Thomson Reuters GFMS

London Silver Market: Spot Price

US$/oz; other currencies reindexed to January 4th 2011

Source: Thomson Reuters GFMS

Silver prices can lead gold when a trend changes, or a move accelerates, as silver's higher volatility encourages some investors to use silver as a geared gold play. The vicious nature of the second quarter fall, however, meant that part of silver's investing constituency became extremely nervous, only stepping back gingerly into the market on occasion, and taking quick profits rather than holding onto positions. As this element of "risk" became increasingly significant, silver suffered accordingly; having narrowed markedly to below 32 in late April, the gold:silver ratio progressively widened and by the end of 2011 it had reached 56. Silver's recovery in January and February of 2012 saw the ratio narrow to under 48 but it has since begun to surrender these gains.

The loss of nerve by some and the associated reduction of speculative froth during the year was partly offset by firm industrial demand through until September, as fourth quarter industrial demand was distinctly weak. The market also had to contend with price-led losses for jewelry and silverware and similarly driven gains for scrap, plus ongoing mine production growth. Fortunately, lower producer hedging and government sales helped prevent prices from ending the year yet weaker.

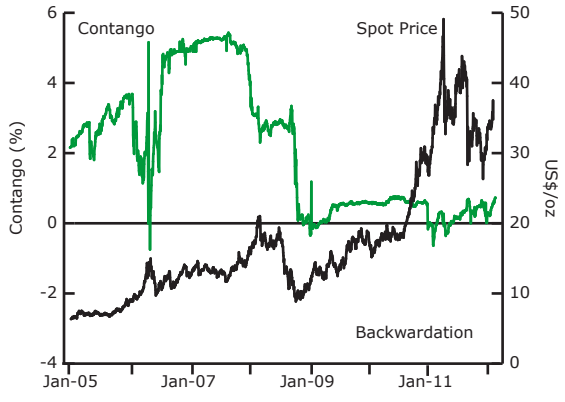
Lease rates essentially followed a downward path in 2011, often dipping below zero. Rates did spike several times during the year when silver rallied, suggesting some forward selling into strength. A further spike in early January 2012, however, is believed to reflect borrowing in order to reverse lending activity in December as some banks and institutions had wanted to bolster their balance sheets' dollar holdings before year-end.

Market Analysis

To say that silver was on a roller-coaster ride during 2011 would be something of an understatement. With a trading range of 64% and with volatility at 61%, the silver market place was not one for the faint-hearted. The year started with silver fixing at $30.67, but falling to $26.68 on January 28th. Part of this move was in sympathy with a retreat in gold, but there was also some profit taking following silver's strong performance in the fourth quarter of 2010. Furthermore, its intra-year gain of 78% in 2010 meant that some commodity investors would have reduced silver holdings when rebalancing their portfolios at the start of 2011. Towards the end of January, silver (and gold) came under further pressure in response to the announcement that Chinese growth in the fourth quarter of 2010 had just surpassed expectations of 9.6% and the government signaled that it would be shifting its emphasis from stimulating growth to the containment of inflation.

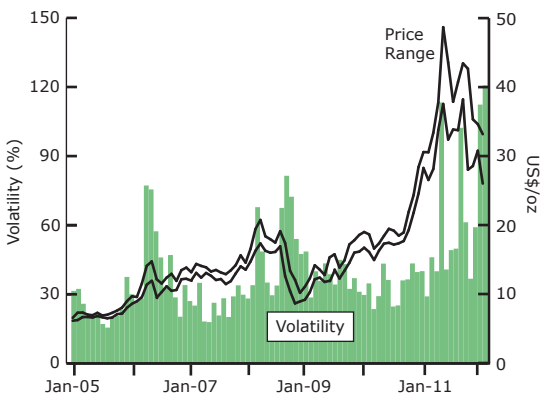
From this low, investment began to return and the ensuing bull run, lasting from late January to late April, posted spectacular gains. The majority of metals turned upwards during February, with rises aided by improved consumer confidence in the United States, while gold and silver also took support from apparent disagreement among members of the FOMC about the best course of action to take after the conclusion of QE2. While base metals prices moved higher in February, their performance became more varied as economic concerns came once more to the fore. Silver, however, rose ever higher and, by the end of April, it had staged a massive 59% gain since the start of the year to approach $50.

London Spot Price and 3-month Contango



Source: Thomson Reuters GFMS

Daily Silver Price Volatility



Source: Thomson Reuters GFMS

Drivers of this bull run were similar to those driving gold (although silver heavily outpaced the yellow metal, partly as investors played on its higher volatility), and worth singling out are the metals' sensitivity to US monetary policy. One such example was Fed Chairman Bernanke's comments in February, which, while suggesting that inflationary pressures in the United States were relatively low, did at one point include a reference to the "Long-term fiscal discipline of the US government". This was taken by some as him implying that he was concerned about longer-term inflationary forces. The Eurozone sovereign debt crisis and the maintenance of low interest rates were other key forces behind this upward move. Not all causal factors were purely economic as increasing tension in the Middle East also played a role, although this also boosted oil prices and inflationary tensions.

Much of the buying behind this move is thought to have occurred in the OTC market, some of it stemming from a growing amount of gold:silver ratio trading in silver's favor as some talked of silver being likely to hit radically higher levels. This fed through to an almost feverish phase, with many hedge funds buying forwards and out-of-the-money calls. In contrast, the net 'investor' long on Comex showed little overall direction during February-April, perhaps as a result of its players knowing how vicious silver can be (especially when trading on margin). Physical demand in the West was however soaring, with the Royal Canadian Mint reporting increasing tightness in supply, while US Eagle sales remained very strong.

Even if inflation were just a potential threat in the West, it was already uncomfortably high in countries such as India, China and other parts of the Far East and this

Volatility (US$ Price)

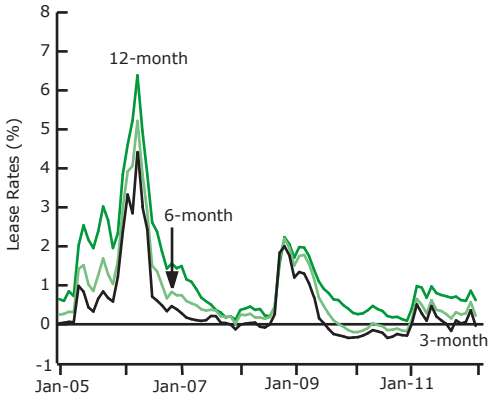
	2008	2009	2010	2011
Annual	52%	38%	33%	61%
	11.Q1	**11.Q2**	**11.Q3**	**11.Q4**
Quarterly	40%	74%	72%	53%

Source: Thomson Reuters GFMS

helped to fuel strong physical silver demand. Another factor was some physical purchasers turning to silver from gold as a result of its lower unit price. Metal became difficult to source and the market went into backwardation during February, suggesting that the only major constraint on demand at the time was refinery capacity. By the time silver was nearing $40 towards the end of March, there were signs of some physical selling (notably in India, where prices were testing Rs. 57,000/kg, a gain of around 30% in just over eight weeks). In China, however, demand remained strong, for industrial and jewelry use, as well as investment.

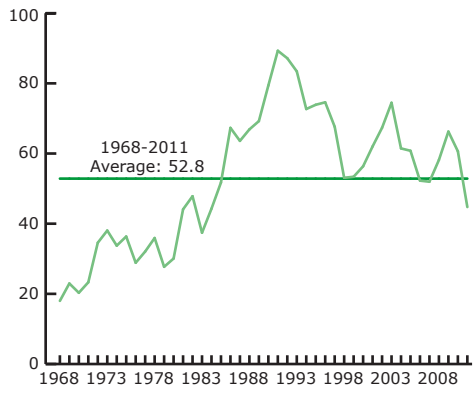
During this surge, some bearish news emerged, such as the FOMC mid-March statement implying that there would be no further easing after QE2 had finished, and this perhaps contributed to cracks starting to appear. The rate of uptake in the ETFs, for example, started to slow in mid-March and, although there was fresh net buying activity towards the end of the month, profit taking was starting to appear and there were several days of high-volume net sales in April. The net Comex 'investor' long had already fallen from its peak at the end of February, although it was not until the end of April that the gross short-side position was increased to any degree, just ahead of the massive drop in price.

Silver Leasing Rates



Source: Thomson Reuters GFMS

The Gold / Silver Price Ratio



Source: Thomson Reuters GFMS

Silver peaked on April 28th and then dropped sharply, falling to $34.20 on May 6th, a drop of 30% in just six trading days. Trading volumes were extremely heavy as sell-stops were triggered; from April 29th to May 6th, the daily average Comex turnover was approximately 80% higher than in the period from late January to April 28th, when silver had been roaring higher. ETF disinvestment accelerated, with nearly 60 Moz (1,900 t) offloaded in just less than five weeks in April and May.

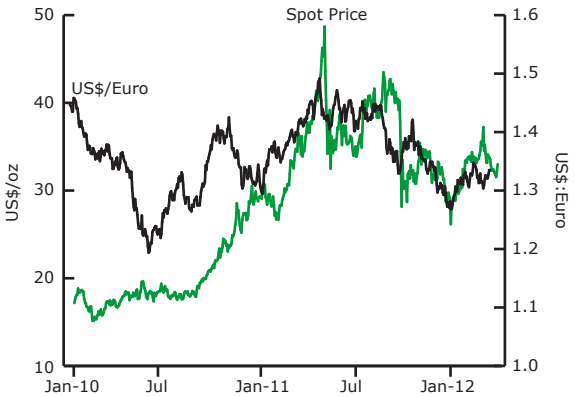
Conditions were quieter overall mid-year, although this perhaps more reflected nervousness than an air of calm. This period began with silver prices consolidating in May and June. This occurred as the ongoing contraction in the Comex net long, through to late June, together with further ETF selling, was countered by physical market interest, and by the strength in industrial demand at this time (possibly reaching a record quarterly high). Nonetheless, refiners were very busy refining secondary supply. Prices then crept higher to test $44 in late-August. As prices rallied, physical market interest dwindled but gains for the ETFs and growth in the net Comex 'investor' long showed that broader interest was again on the rise. Much of this stemmed from gold market strength, the US downgrade, the release of a relatively high US PPI figure and Eurozone troubles.

However, the market was also still fearful of Eurozone contagion causing a double-dip US recession and Chinese GDP growth was starting to show signs of slowing. Fears also began to intensify about a possible credit crunch as financial markets grew increasingly exasperated with the lack of progress in resolving the Eurozone problems. Ultimately, the broader commodities sector buckled under these pressures, with silver slumping by 35% to test $26 on an intra-day basis by September 26th. Much of this was fueled by a massive wash-out on Comex, although there was little ETF selling, suggesting that its more speculative participants had been flushed out earlier.

Prices, however, managed to stage a decent recovery into the mid-$30s by mid-November. Although the markets were beset by persistent concerns over the state of the Eurozone and the Chinese economy and there was real weakness in industrial fabrication, silver found good bargain hunting support below $30. This was the level at which physical demand had been robust at the start of 2011 and so it was again towards year-end. By this stage the Rs. 50,000/kg mark, so important as a resistance level earlier in 2011, was now providing support in the Indian market and rupee prices moved to a notable premium to loco-London, driven also in part by Festival buying. Also of significance was cooperation between a host of central banks, which acted to reduce the cost of dollar swaps, improved risk appetite, weakened the dollar, and aided sentiment in the commodities sector overall. Further support came from signs that the Chinese government was to move towards monetary easing.

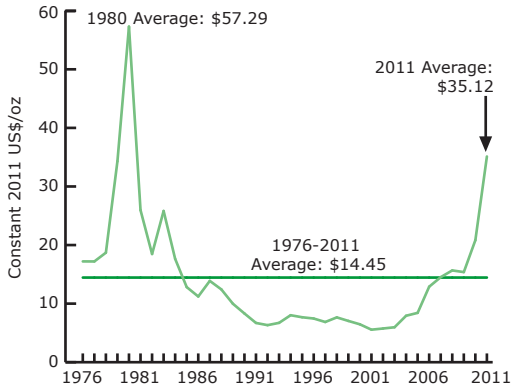
The last few weeks of 2011 saw further losses, despite news on December 21st of the ECB's €489 billion LTRO, which should have improved liquidity. The penultimate fix ($26.16) was the year's low, although 2011 closed a little higher at $28.18. Industrial fabrication remained poor but the fall was perhaps more driven by year-end profit taking, technical selling, gold market weakness and lively silver lending as institutions chased dollars in order to bolster their balance sheets by year-end.

The Silver Price and the US Dollar



Source: Thomson Reuters

Real Silver Prices



Source: Thomson Reuters GFMS

Silver and Other Commodity Prices

Thomson Reuters GFMS believe that the examination of correlation coefficients is highly useful, not only as an indication of underlying themes that may influence the market, but also to confirm economic theory with empirical evidence. It must be noted, however, that the existence of either a positive or inverse correlation between two assets is not sufficient in itself to establish direct causality.

Silver's "hybrid" precious and industrial nature leads to links with gold, copper and the CRB Index that appear powerful, but which can vary greatly. With regards to last year, gold and silver enjoyed their closest relationship in the first quarter in the face of fears of medium-term inflationary pressures and rising geopolitical tensions, including the supportive development of a Libyan-related oil price hike in early March. That, however, led to the copper price suffering a setback but, even so, silver's industrial characteristics meant that its correlation with copper was still a notable 0.44 in the first three months.

The second quarter, however, saw a switch from gold to copper, as regards which had the strongest correlation with silver. This occurred largely as many investors took a growing heed of underlying industrial demand fundamentals. The pendulum then swung back to gold in the third quarter as the yellow metal's price spiked and this relatively stronger relationship was sustained into the fourth quarter, partly because silver's late December fall was not mirrored in copper or other base metals. However, the gap between silver's correlations with gold and copper was comparatively narrow.

Correlations of Changes in Daily Prices

(using log-returns in spot prices)

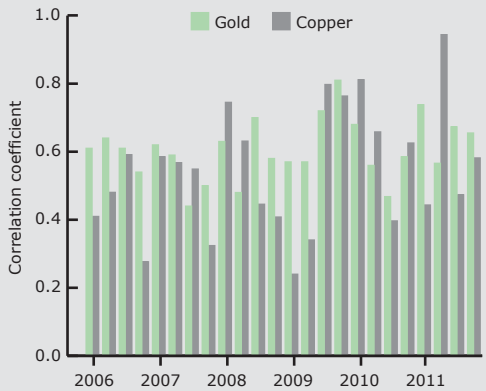
	10.Q4	11.Q1	11.Q2	11.Q3	11.Q4
Gold	0.58	0.74	0.57	0.67	0.65
US$/Euro	0.25	0.29	0.14	0.16	0.31
Oil (WTI)	0.06	0.31	0.28	0.13	0.11
CRB	0.28	0.22	0.27	0.24	0.24
GSCI	0.14	0.30	0.30	0.19	0.19
Copper	0.63	0.44	0.94	0.47	0.58
S&P 500	0.10	0.06	0.08	-0.08	0.10

Source: Thomson Reuters GFMS

Silver's relationship with oil can prove notable, reflecting silver's partial role as an inflation hedge and the perception that oil drives inflation, and this proved to be the case in the first quarter but the correlation sank to low levels by year-end. Silver's linkage with the CRB remained stable and relatively low, while that with the GSCI was more variable; the CRB has a wide range of elements, but no primary metals or energy, while the GSCI is 70% energy. Furthermore, gold and silver react to inflationary expectations as well as inflation itself and a mismatch in the spot indices is not unusual.

Silver's correlation with the $:€ rate was at its highest in the final quarter as the markets focused on Eurozone tensions and silver responded to associated changes in risk appetite. The white metal's relationship with the equity markets became tenuous during 2011 due to silver's price volatility, changing perceptions of risk and growing expectations of medium term inflationary pressures that kept silver more closely attuned to gold.

Quarterly Correlation of the Silver Price



Source: Thomson Reuters GFMS

Gold, Silver and Copper Prices

Source: Thomson Reuters

3. Investment

- ***Investment activity was the principal driver of fluctuations in the silver price in 2011.***

- ***World Investment remained elevated at 282.2 Moz (8,776 t) last year and the approximate value of this demand represented a fresh all-time high of almost $10 billion.***

- ***2011 saw a further increase in investor interest in physical bullion products, with combined demand for bars and coins accounting for more than three-quarters of World Investment.***

Overview

2011 was a year marked by both spectacular price gains as well as two dramatic corrections for the silver market, and investment demand was invariably the primary influence over these trends. Although down marginally year-on-year, at 282.2 Moz (8,776 t), World Investment (the sum of implied net investment and coins & medals) remained elevated in 2011. In addition, one should remember that the majority of these investment inflows occurred at considerably higher prices. As such, if measured in value terms, World Investment still posted a fresh record of nearly $10 billion on a net basis in 2011, up by a considerable 73% year-on-year.

It is important to note that this robust investment demand was heavily skewed to the period from February to April. This undoubtedly was the key driver behind the marked silver rally in which the metal soared 60% and rose to within touching distance of the all-time nominal high of $50/oz by late-April.

A combination of factors was critical to these substantial investment inflows, although arguably the most important was investment in commodities in general, benefiting from a sustained weakness of the US dollar in early 2011. This was in turn a result of the continued ultra-loose monetary policy in the United States, which culminated in a carry trade developing in the currency. In addition, early 2011 saw long-term inflation expectations surge, driven by the Fed's ongoing QE2 program that started in late 2010 coupled with surging oil prices amid increasing geopolitical tension in the Middle East and North Africa. As such, investors were seen actively hedging against dollar and other fiat currency devaluation by investing in what were perceived to be 'hard' assets, particularly gold, with silver also being a major beneficiary.

Silver Price and Investment Indicators

	2010 Average	2011 Average	Change y-o-y
Silver Price $/oz	20.19	35.12	74%
Contango (3-mth annualized)	0.61%	0.20%	n/a
US$ Libor (3-mth annualized)	0.34%	0.34%	n/a
S&P 500 Index	1,140	1,267	11%
CRB Index	449	539	20%
XAU Index	183	205	12%
World GDP Growth*	5.1%	3.8%	n/a
Advanced Countries CPI*	1.6%	2.6%	n/a

*Annual rates; Source: IMF World Economic Outlook; GFMS

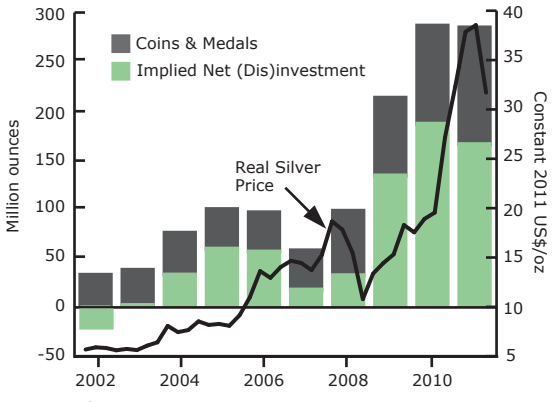
World Investment (Moz)

	2009	2010	2011
Implied Net Investment*	132.2	184.6	164.0
of which, Physical Bar Investment	-15.4	57.4	95.7
Coins & Medals	78.8	99.4	118.2
World Investment	**211.0**	**284.0**	**282.2**
Indicative Value US$(bn)**	**3.1**	**5.7**	**9.9**

* Implied Net Investment is the residual from combining all the other Thomson Reuters GFMS data on supply/demand as shown in Table 1. By definition, it therefore captures the net physical market impact of all transactions not covered by the other supply/demand variables.

**Indicative Value calculated on an annual basis using annual average silver prices.

World Investment



Source: Thomson Reuters GFMS

London Bullion Market (LBM) and Comex Turnover

(daily averages)	LBM No. of Transfers	Turnover Moz	Comex Turnover Moz	LBM / Comex Ratio
2005	331	110	110	1.0:1
2006	447	147	109	1.3:1
2007	462	114	135	0.8:1
2008	519	126	176	0.7:1
2009	340	97	159	0.6:1
2010	381	87	254	0.3:1
2011	798	174	389	0.4:1

Source: LBMA, Comex

Given that the silver market is far smaller and less liquid than the gold market, it is not surprising that silver normally tends to outperform its yellow cousin in major market rallies. However, this alone was not sufficient to explain a massive fall in the gold:silver ratio, which contracted sharply in early 2011 and by late April had fallen towards 30:1, a level last seen in 1980.

A key element to this narrowing in the ratio was the fact that growing numbers of investors bought silver on the belief that it would play 'catch up', as the metal seemed to be significantly undervalued relative to gold. For example, while gold recorded successive all-time highs from 2008 onwards, silver remained well below its nominal peak of $50/oz in 1980. Furthermore, silver did not have to cope with an acceleration in scrap supply anything like as marked as that seen in the gold market. Finally, with ample liquidity in the global financial system and very low interest rates, appetite for high yields saw certain investors keen to move aggressively into silver as it seemed able to provide high returns during the prevailing climate of commodity strength. Indeed, as its rally gathered momentum, silver enjoyed a sharp jump in interest from more technically driven funds, which tended to speculate on short term price movements and tactically used leverage to gain exposure to rising silver prices.

Nevertheless, the substantial rise in speculative interest also meant that silver was prone to a hefty investor sell-off after the rally ran out of steam. Indeed, as the white metal eventually approached its historical peak of $50/oz in late April, the market saw very aggressive profit taking by speculators, particularly in the futures market. The situation was exacerbated by the five margin hikes made within nine days by the CME group, which not only forced leveraged traders to make a move towards the exit,

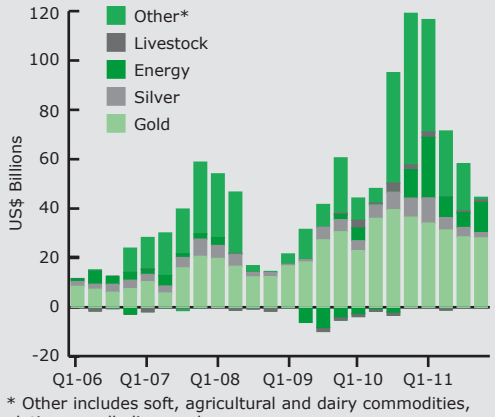
Investment in Commodities

Investment in commodities opened strongly in 2011, with the value of net long positions exceeding $115 billion at the end of the first quarter, only slightly lower than the record high seen at the end of 2010 (as shown in the chart below). This performance was driven primarily by increasing geopolitical tensions in the Middle East and North Africa (MENA), which heightened the threat of oil supply disruptions and saw the value of oil's net long almost double quarter-on-quarter. Silver also performed particularly well, springing to 31-year highs (basis the London fix), thanks in large part to gold's influence.

Thereafter, however, the aggregate value of net long futures positions slid lower over the remainder of the year. It closed 2011 at around $45 billion, almost two-thirds down on the peak seen at the end of 2010. The second quarter saw the sharpest contraction since the Lehman-induced slump in 2008, with declines in almost all of the commodities tracked here. Oil's appeal was dampened by the easing MENA crisis, as well as the looming threat of a double dip recession, while further downward pressure came from news that the International Energy Agency (IEA) would release 60 million barrels of stockpiled oil. Livestock futures fell into negative territory, driven by losses in cattle, affected by fears that consumers would switch to less expensive meats. Silver, meanwhile, saw heavy profit taking.

The second half of the year saw further losses in commodities, as the churning Eurozone debt crisis continued to sour the outlook for demand. The energy sector (notably oil) continued to weaken, while cocoa and sugar futures suffered as increased production failed to find demand. Many industrial metals (copper, platinum, palladium and silver) also suffered. Gold, in contrast, remained relatively stable; despite a heavy bout of profit taking following its surge to a record nominal high in September, it accounted for almost two-thirds of the value of the aggregate net long position at the end of the year.

Value of Speculative Positions in 22 Commodity Futures



* Other includes soft, agricultural and dairy commodities, platinum, palladium and copper
Source: Various

but also triggered heavy stop-loss selling as the price plunged. Meanwhile, selling also took place in the OTC market and in ETFs, partly due to profit taking as well as the need to meet margin calls on traditional investments, although volumes were relatively light.

Thereafter, although investor activity recovered somewhat, the scale of net investment inflows remained relatively subdued in the summer before the market suffered another massive sell-off in late September. Unlike late April and early May when the steep price correction was driven by technical selling and profit taking by those who had put on long positions at much lower price levels, the renewed weakness was largely due to increasing bearish sentiment towards the global economy coupled with escalating fears over the European sovereign debt issue. Related to this was the elevated market uncertainty and increasing difficulty for those acquiring US dollar funding, which saw investors cut exposure to risky assets and move back to US Treasuries. This mirrored conditions during the second half of 2008. Over that period, a massive bail out of commodities, initially triggered by the collapse of Lehman Brothers and then the meltdown of the global financial system, saw a sharp correction in the silver price along with other risky assets.

It is of note that the bulk of this selling once again came from the more speculative investors (especially in the futures markets), with underlying demand for physical bullion products including bars, coins and silver ETFs remaining largely intact. Moreover, silver's sharp price decline was believed to lead to some decent buying from those eager to "buy the dips", which helped to keep the silver price floor at historically high levels in late 2011.

Net "Investor" Positions on Comex

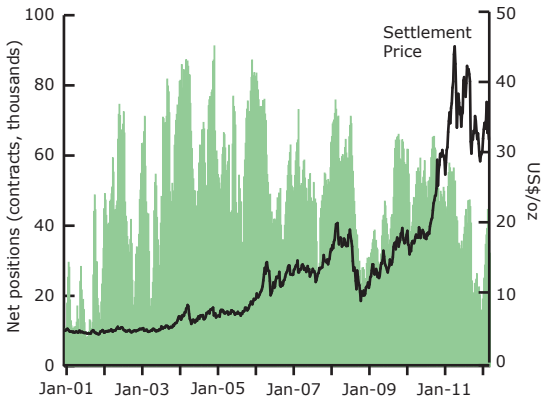
		Contracts	Moz	Price
2007		49,755	249	13.39
2008		51,193	256	14.91
2009		44,699	223	14.67
2010		52,720	264	19.93
2011	**Q1**	51,499	257	31.88
	Q2	40,100	200	38.43
	Q3	40,288	201	39.07
	Q4	20,776	104	31.98

(average non-commercial and non-reportable net futures positions, Moz equivalent and average Comex settlement price in $/oz; Source: CFTC)

Early 2012 saw a sharp rebound in buy-side interest in silver, chiefly in response to the announcement of additional monetary stimulus policies by authorities in the major economies. Meanwhile, better than expected economic data, principally in the United States and an easing of the European sovereign debt crisis also boosted confidence in industrial metals, although a reduced scope for QE3 in the short term has since weighed heavily on sentiment towards the precious metals complex. Turning to the prospects for investment, we expect the economic backdrop to remain broadly positive for silver investment over the rest of 2012, mainly due to the persistence of extremely low, or negative, real interest rates across major economies and the likelihood of a resurgence in the sovereign debt crisis. However, given silver's dual role as a store of value and industrial metal, we would caution that it will remain vulnerable to a change in investor sentiment regarding the global economy which is likely to remain sluggish this year. Overall, investment therefore is forecast to remain little changed but near record highs.

Comex: Net "Investor" Positions

Non-Commercial & Non-Reportable Net Futures Positions & Price



Source: CFTC

Silver Price & Greek Credit Default Swap Price

Source: Thomson Reuters

OTC Market

Due to the lack of meaningful publicly available data on activity in over-the-counter (OTC) products in silver stemming from the absence of actual statistics on volumes and open interest, we cannot give a precise estimate of the impact of OTC activity on the underlying physical market. Although the clearing statistics from the London Bullion Market (LBM) can provide a gauge, this data is an imperfect reflection of investor activity. First, it does not capture the trends in other OTC markets and secondly, it fails to differentiate between pure investment flows and other forms of activity. Therefore, we rely on information collected through field research, which, in 2011, suggested the OTC market experienced a substantial rise in net investor buying.

The bulk of these investment inflows into the OTC market occurred in the first four months of the year. As net long positions on the Comex were broadly flat in early 2011, aggressive investor purchases in the OTC market are therefore believed to have driven much of silver's spectacular rise over the same period. This conclusion is also supported by the LBM clearing turnover, which hit successive record highs in April and May. Similar to late 2010, investors' confidence in silver at the start of 2011 was underpinned by the metal's bright outlook for industrial offtake. Meanwhile, silver's greater volatility than gold, but its still close correlation, recommended it to those who regarded silver as a more leveraged alternative to gold, particularly given that silver was perceived by many to be undervalued versus the yellow metal on a historical basis. Indeed, with silver posting a remarkable rally, the market also enjoyed a sharp rise in short-term speculative inflows, with growing interest in putting on short gold-long silver trades. Finally, there was a major increase in purchases of out-of-money call options by hedge funds. As prices rose, these positions needed to be delta hedged, which pushed prices higher.

However, as the rally lost momentum in late April, a good portion of these long positions were quickly closed out. Moreover, despite some fresh buy-side interest (mainly from bargain hunters), investor activities were relatively quiet in the rest of the year, particularly following the rapid worsening in the sovereign debt crisis in Europe and a marked squeeze in liquidity in late 2011, which saw institutional investors shy away from risky assets, especially commodities.

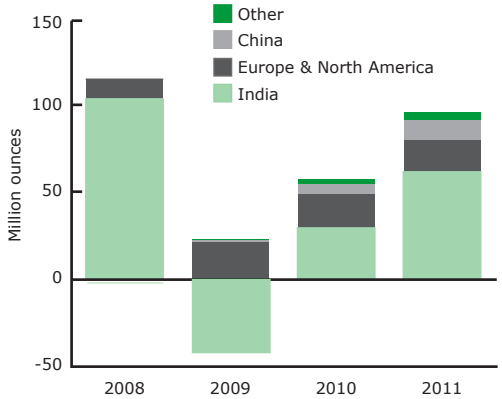
Physical Bar Investment

Physical bar investment surged by two-thirds last year to 95.7 Moz (2,975 t), accounting for 34% of World Investment. The massive increase was driven by India and, to a lesser extent, China, while demand in western markets remained broadly flat in 2011.

We estimate that **Indian** bar investment more than doubled, pushing over 61 Moz (1,900 t) last year. As in 2010, the main driver of this rise was the bullish sentiment that prevailed, in particular during the run up to prices above Rs.70,000/kg in April. Our information suggests that a substantial proportion of this investment was actually trade stocking, and some traders found themselves in substantial difficulties when prices collapsed in May. Ironically, the collapse in prices actually saw a surge in buying from other traders, reflected in a jump in imports that month. After a brief hiatus mid-year, investment rose strongly in the final quarter as expectations of rising prices took firm hold.

European demand for silver bars in 2011 was flat year-on-year as the Eurozone crisis sustained volumes at a historically high level. However, we need to explain why silver did not replicate last year's notable rise for gold bars. A key background reason is silver bars attracting VAT, although this was partly avoided last year by growth for coin-bars (such as those issued by Andorra and the Cook Islands), which attract a lower tax rate. (While these are legally classified as coins, we count them as bars due to their form and typical buyer being more similar.) Silver's appeal specifically last year was also hit by the April/early May price fall and it missed out on the geographical spreading that gold saw to countries

Physical Bar Investment



Source: Thomson Reuters GFMS

Exchange Traded Funds

By end-2011, combined holdings of the silver exchange traded funds (ETFs) and physically backed Canadian funds fell to 576.1 Moz (17,919 t), 4% or 24.2 Moz (751 t) below the end-year figure in 2010. Despite a modest year-on-year decline, ETF holdings remained at elevated levels, particularly in the first half of the year, when total volumes reached a fresh high of 621.3 Moz (19,324 t) by late April.

Looking at the intra-year development, early 2011 saw a declining trend in silver ETF holdings, from January through to early February. This was triggered by investor profit-taking after the price rally seen in the final quarter of 2010 ran out of steam early last year and generally on the back of better economic conditions, which reduced demand for safe haven assets. From mid-February, however, as prices started to recover, demand for physically backed silver began to increase, picking up to a new record level in late April.

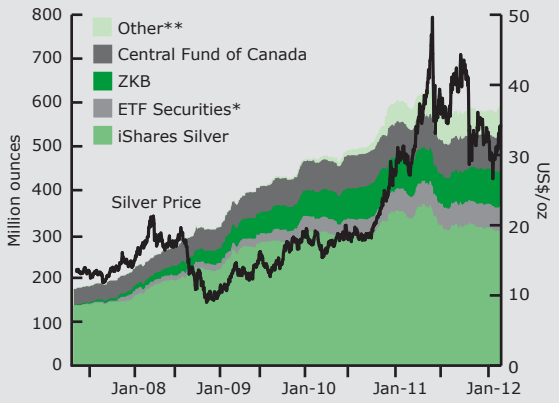
Thereafter, ETF holdings entered a downward trend that broadly continued until end-June, when combined volumes fell to 553.0 Moz (17,201 t), down by some 11% or 68.3 Moz (2,123 t) from the peak level seen in late April. The fall was mainly driven by profit taking from institutional players, after silver registered a 31-year high of $48.70/oz on April 28th (basis the London fix), although the need to meet margin calls amid a massive sell-off, across the precious metals, was also important to the outcome. Nevertheless, it is worth stressing that, despite a double-digit decline, silver ETF holdings, in general, proved to be more resilient in comparison to investment activity on the futures markets where net 'investor' long positions on Comex dropped by over 30% between late April and end-June.

In September last year, ETFs and Comex investors again took different paths and so was another example of silver ETFs' relative outperformance. This occurred as the price rally faltered in early September triggered aggressive selling on the futures markets, but lower prices attracted some fresh investor interest in silver ETFs. By end-September, combined holdings stood at 577.9 Moz (17,975 t), up by nearly 8 Moz (250 t) over the month.

The rest of the year saw a declining trend in net holdings on the back of an increasingly gloomy sentiment towards the world economy and growing risk aversion, which resulted in a major sell-off across commodities and other markets. Nonetheless, it is of note that combined ETF volumes at 576.1 Moz (17,919 t) by end-December were only marginally lower compared to the previous month and just 4% below the level seen at the beginning of the year. In contrast, at year-end, net long positions on Comex dropped by 32% over the month and were considerably lower than the level seen in early 2011.

Looking at individual products' performance, although the iShares Silver Trust, the largest silver ETF, saw a reasonable year-on-year decline of 12%, a number of other major funds, in fact, registered fair growth in 2011. The biggest increase was recorded by Julius Bär, with total holdings rising by 6.3 Moz (196 t), while Zürcher Kantonalbank (ZKB) registered growth of 4.5 Moz (140 t) in 2011.

Silver ETF Holdings



*ETF Securities: includes LSE, Australia, NYSE, GLTR and WITE
**Other: includes Sprott Physical Silver Trust, Julius Bär, DB Physical Silver, Claymore, Silver Bullion Trust, Mitsubishi UFJ Tokyo, iShares Physical Silver ETC; Source: Respective issuers

Silver ETFs Holdings

(Moz)	end-2010	end-2011
iShares Silver Trust	351.1	308.8
ZKB Silver ETF	76.5	81.0
Central Fund of Canada	75.2	77.0
ETF Securities*	51.4	53.3
Others**	46.0	55.9
Total	**600.3**	**576.1**

* includes LSE, Australia, NYSE, GLTR and WITE

** includes Sprott Physical Silver Trust, Julius Bär, DB Physical Silver, Claymore, Silver Bullion Trust, Mitsubishi UFJ Tokyo, iShares Physical Silver ETC

Source: Respective issuers

newer to bar investment, such as Slovenia and the United Kingdom. This left silver still dominated by just Germany, although a fair portion of its silver is vaulted in Switzerland. Lastly, silver bars enjoyed little of the rise in retail level interest in gold last summer as the Eurozone crisis intensified, due mainly again to tax issues.

In the **United States**, small bar demand (100-ounce and below) is estimated to have fallen last year, albeit modestly. This may surprise, given the strength of US retail coin demand in 2011. However, it appears as though high silver prices led to a degree of substitution in favor of bullion coins, although this trend was far from uniform, with some substitution also occurring between the bar sizes. Further complicating the analysis has been the production of one-ounce silver rounds, which appears to have grown noticeably in recent years. Whereas the success, or otherwise, of a 100-ounce bar has been partly contingent on there being LBMA or Comex accreditation, this has not influenced retail demand for one-ounce rounds. This has therefore attracted a small number of private mints, often with the capability of producing relatively large quantities of silver rounds.

Bar investment posted another strong performance in **China**, as volumes almost doubled to 11.3 Moz (350 t) in 2011. Rising inflation and persistent negative real interest rates were the main drivers of this robust demand, with consumers looking to precious metals as a means of protection. Meanwhile, silver's impressive price gains and its cheap unit price compared with gold provided a further boost to investor confidence. It is of note that our estimate only includes silver bars sold to the general public via retail outlets and commercial banks in China. Our information suggests that there was a considerable increase in privately held silver stocks in recent years (including metal held by refiners, working stock for fabricators, local trade and high-net-worth investors), which could have reached as much as 96.4 Moz (3,000 t) by end-2011.

Commodity Exchanges Activity

2011 saw a remarkable growth of 53% in **Comex** silver futures turnover, with total volumes rising to a fresh high of 19.6 million contracts. This was equivalent to an average daily figure of 389.1 Moz (12,101 t). End-year open interest, however, fell to 105,669 contracts, down by 22% on the end-year figure in 2010.

Silver Turnover on Major Commodity Exchanges

(total volume in nominal million ounce equivalents)

	2009	2010	2011	Change y-o-y
Comex	40,001	64,117	98,042	53%
MCX	13,871	19,260	32,598	69%
SGE (T+D)	521	2,365	7,942	236%
NYSE LIFFE*	1,187	1,651	1,767	7%
Tocom	106	78	120	53%

*N.B.: Includes the 5,000-ounce and 1,000-ounce contracts

Source: Thomson Reuters, Tocom, MCX and SGE

Analysis of the data on non-commercial and non-reportable net positions in Comex futures and options provides a proxy for 'investor' activity on the exchange.

While net 'investor' long positions maintained a general upward trajectory in early 2011, the limited scale of the increase indicated that the strength of the silver price over the same period was mainly due to strong OTC buying. In addition, even though prices continued to power higher, some investors began to take early profits in mid-April. This was fairly benign initially, before a series of margin hikes by the CME Group from April 24th onwards triggered a massive wave of long liquidation and stop loss selling. By mid-May, net long positions on Comex were already some 40% below the high seen in early April, which unsurprisingly was the primary driver behind the sharp price correction in late April/early May.

After that, following a period of consolidation, the market suffered another bout of aggressive selling in late September when net positions more than halved within two weeks. This was because a return to greater risk aversion led to a massive sell-off across the board, amid a bleaker economic outlook and intensifying fears regarding the European sovereign debt crisis. The rest of the year saw investor interest remain subdued before year-end profit taking coupled with technical factors sent net positions to a 10-year low of 14,132 contracts by end-2011, down by more than 70% year-on-year.

Largely driven by the strong price, the last few years saw growing investor interest in silver on other exchanges, particularly the **Shanghai Gold Exchange** and Indian **Multi Commodity Exchange** where total volumes for silver contracts soared by 236% and 69% respectively to fresh all-time-highs in 2011.

Table 2 - Silver Fabrication: Coins and Medals (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	15.3	14.5	15.5	16.6	17.6	16.0	25.4	34.3	41.7	47.8
Canada	1.0	0.3	1.3	1.6	2.9	4.3	9.0	10.8	18.6	23.5
Austria	0.4	0.4	0.5	0.6	0.5	0.5	8.3	9.5	11.6	18.4
Australia	0.6	1.3	1.3	1.0	1.4	3.5	5.9	6.5	8.8	11.3
China	2.1	2.3	2.3	1.8	1.6	2.6	2.8	3.0	3.7	5.8
Germany	6.0	9.7	9.7	9.7	8.7	6.3	7.2	7.4	6.4	3.3
Mexico	1.1	1.5	2.7	2.6	1.9	1.6	1.4	1.7	2.1	1.7
Spain	1.5	1.1	2.2	1.7	1.5	1.2	1.1	1.0	1.3	0.7
Other Countries	3.5	4.5	6.8	4.3	3.7	3.7	4.2	4.5	5.3	5.9
World Total	**31.6**	**35.7**	**42.4**	**40.0**	**39.8**	**39.7**	**65.3**	**78.8**	**99.4**	**118.2**

Coins and Medals

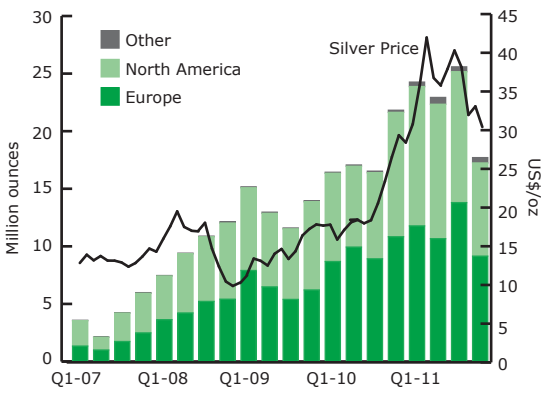
Global silver coins & medals fabrication recorded another strong performance in 2011, with the world total rising by almost 19% to a new record high (with respect to the modern coinage era). As in recent years, the growth was almost entirely due to firmer bullion coin sales in western Europe and the United States. Three main factors accounted for last year's outcome. First, the Eurozone crisis drove coin sales higher, with German speaking markets accounting for the bulk of the increase (in spite of value-added tax being levied on silver coins, albeit at an often far lower rate compared with silver bars). Second, the poor state of the US economy last year, together with concerns over the potential for further quantitative easing, drove US retail investors to buy silver as an inflation hedge. Finally, high gold prices encouraged smaller investors to switch in favor of its less expensive sister metal, but still benefit from leveraged access to gold, given positive price expectations towards the yellow metal.

Each of the principal bullion coin producers therefore benefited from notably stronger demand last year, encompassing the **US** Eagle, **Canadian** Maple Leaf, **Austrian** Philharmoniker and **Australian** Kookaburra (together with their Koala and Lunar) coins. However, the pattern of retail investor demand also reflected wider investor sentiment towards precious metals and, as the chart opposite highlights, it was therefore of little surprise to see an extremely robust January to September performance for western coin demand give way to a sharp drop during the fourth quarter. Even so, the total for the final three months of 2011 still exceeded average quarterly bullion coin demand for the January to September 2010 period.

Strong physical investment demand in **China** accounted for the near 60% rise in the country's bullion coin outturn (bar sales also jumped last year). Historically, mintage limits have been restricted to 600,000 pieces but 2011 saw three million one-ounce coins minted, as local bullish price expectations, together with fears about rising inflation in China, drove demand to record levels (in terms of modern coinage issues).

Partially offsetting these gains was a sharp fall in **German** minting to its lowest point since the mid-1990s, even though the number of coin issues (and issue limits) were little changed on 2010. In an effort to prevent the contained metal value exceeding the coin's face value (as a result of higher silver prices), the purity of the silver used was lowered from 925 to 600 (in 1998 the purity had been raised from 625 to 925), before silver was replaced entirely with a copper:nickel alloy. Finally, following a brief interruption in 2010, **Spanish** minting resumed its long-term downward trend last year, with the 2011 total the lowest since the early 1990s.

Silver Bullion Coin Sales



Source: Thomson Reuters GFMS Quarterly Bullion Coin Survey

4. Mine Supply

- ***Global silver mine production grew modestly in 2011, to a new record high of 761.6 Moz (23,689 t).***

- ***Primary silver mine supply fell in 2011, due mainly to a fall in processed grades. The top two global primary silver mines saw output decline by a combined 12.0 Moz (374 t).***

- ***By-product output from both the gold and lead/zinc sectors increased in 2011.***

- ***Primary silver total cash costs rose by 33%, to $7.25/oz, driven by higher labor costs and lower grades, despite an increase in by-product credits.***

- ***For the second successive year, producers were net hedgers of silver, accounting for an additional 10.7 Moz (334 t) of supply in 2011.***

Mine Production

- ***For the ninth consecutive year silver mine production increased, growing by 1.4% in 2011, to reach a new record high of 761.6 Moz (23,689 t).***

Global silver mine supply has been on an upward trend since the mid-1990s, and last year this continued, increasing by 10.2 Moz (319 t) to reach a ninth consecutive all-time high of 761.6 Moz (23,689 t). Over this period, the key drivers of growth have been the by-product lead/zinc and primary silver sectors. A near decade-long uptrend in the silver price has stimulated the development of several primary silver operations, particularly in Mexico and Latin America. The same effect has been seen in the gold sector, where high gold prices have promoted the development of a number of silver rich gold projects, again in Mexico and Latin America. Associated silver represents a valuable by-product, and

Top 20 Silver Producing Countries

Ranking 2010	Ranking 2011	Country	Output (Moz) 2010	Output (Moz) 2011
1	1	Mexico	141.8	152.8
2	2	Peru	117.0	109.8
3	3	China	94.0	103.9
4	4	Australia	60.4	55.2
5	5	Chile	41.0	42.1
8	6	Poland	37.7	40.8
9	7	Russia	36.8	40.0
6	8	Bolivia	41.0	39.0
7	9	United States	40.8	36.0
10	10	Argentina	23.2	22.6
11	11	Canada	18.1	19.1
12	12	Kazakhstan	17.6	17.6
15	13	India	9.7	11.0
13	14	Turkey	12.3	9.4
16	15	Sweden	9.2	9.1
18	16	Guatemala	6.3	8.8
14	17	Morocco	9.9	7.3
17	18	Indonesia	6.7	6.0
19	19	Iran	3.4	3.5
21	20	Papua New Guinea	2.1	3.0
		Rest of World	**22.3**	**24.6**
		World Total	**751.4**	**761.6**

Source: Thomson Reuters GFMS

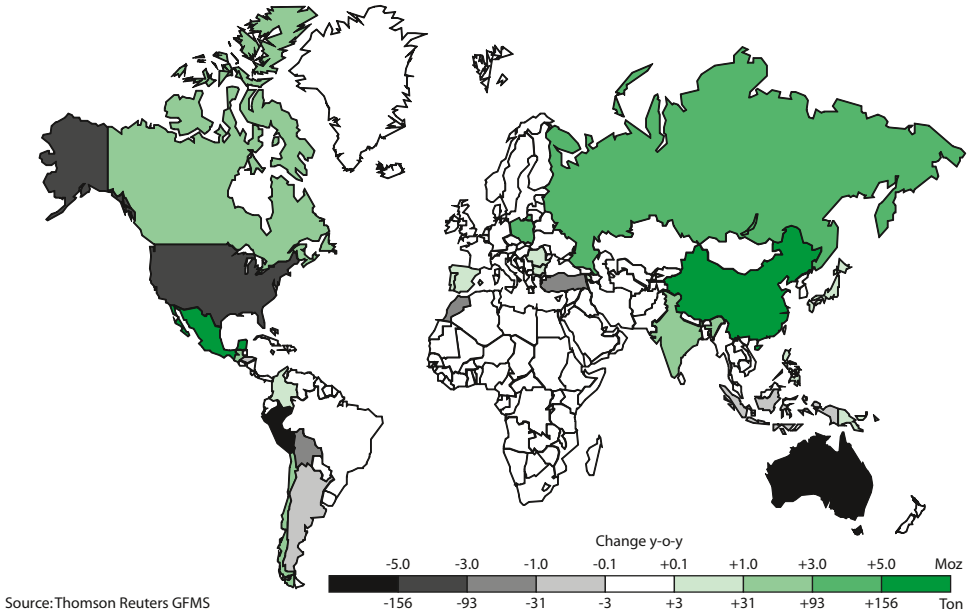
Top 20 Silver Producing Companies

Ranking 2010	Ranking 2011		Output (Moz) 2010	Output (Moz) 2011
3	1	KGHM Polska Miedź S.A. [1]	37.3	40.5
1	2	BHP Billiton plc.	46.6	39.0
2	3	Fresnillo plc. [2]	38.6	38.0
5	4	Goldcorp Inc. [3]	23.8	28.8
4	5	Pan American Silver Corp. [2]	24.3	21.9
6	6	Volcan Cia. Minera S.A.A. [3,4]	20.1	21.1
8	7	Polymetal International plc.	17.3	19.9
9	8	Coeur d'Alene Mines Corp. [2]	16.8	19.1
12	9	Cia. De Minas Buenaventura S.A.A [4]	13.5	15.3
7	10	Hochschild Mining plc.	17.8	15.0
11	11	Kazakhmys plc.	14.1	13.1
13	12	Southern Copper Corp.	12.6	12.7
10	13	Sumitomo Corp. [3]	15.7	12.4
18	14	Kinross Gold Corp. [5]	11.3	12.1
17	15	Industrias Peñoles S.A.B de C.V.	11.4	11.4
14	16	Xstrata Zinc [6]	11.6	11.1
15	17	Teck Resources Ltd. [3]	11.5	10.1
19	18	Hecla Mining Company [2]	10.6	9.5
20	19	Yamana Gold Inc.	10.0	9.3
16	20	Eti Gűműş A.Ş.	11.5	8.4

1 Reported metallic silver production 2 Primary producer
3 Estimate 4 Includes production from minority subsidiaries
5 Reported silver sales 6 Reported silver in concentrate and lead bullion

Source: Company Reports; Thomson Reuters GFMS

Silver Mine Production Winners and Losers, 2011 versus 2010

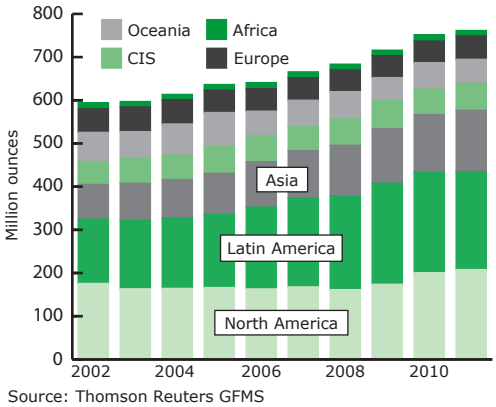


Source: Thomson Reuters GFMS

this can make for compelling development prospects, some of which rank among the lowest cost gold mines in the industry. Silver also provides an attractive by-product credit for many polymetallic mines, improving the economics of many lead/zinc projects.

Two of last year's largest increases came from Goldcorp's Peñasquito (lead/zinc) and Fresnillo's Saucito (primary silver) mines, both located in Mexico. Their combined output of silver rose by 9.8 Moz (304 t), and was behind much of Mexico's gain of 11.0 Moz (342 t). This represented the largest annual rise of any country and cemented Mexico's position as the top global producer, with output of 152.8 Moz (4,753 t) last year. Elsewhere, production in China rose by 11% year-on-year, boosted by higher by-product silver output from the country's base metals sector. Similarly in Poland, silver production rose by 3.2 Moz (98 t) as output from KGHM Polska Miedź increased. In Russia, a 9% increase in silver mine supply was largely driven by higher output at Polymetal's expanded Dukat complex, a primary silver mine.

World Silver Mine Production



Source: Thomson Reuters GFMS

North America

North American production rose by 4% in 2011, to 208.0 Moz (6,469 t). In Mexico, production grew for a ninth successive year which, along with gains in Canada, more than offset lower output from the United States. **Mexican** silver mine production continued to grow strongly last year, rising by 8%, to a new all-time high of 152.8 Moz (4,753 t), reinforcing the country's position as the world's largest silver producer. Additions came from primary silver, by-product gold and lead/zinc mines. Silver output at Goldcorp's Peñasquito sulfide plant (primary zinc) reached 17.2 Moz (533 t), an increase of 57% year-on-year as operations ramped up. At the mill, throughput rates increased by 50% and metallurgical recoveries reached 74%, up from 58% in 2010.

A full year from Gold Resource Corporation's El Aguila and Fresnillo's Saucito added 2.1 Moz (64 t) and 4.7 Moz (146 t) respectively, while Coeur d'Alene's Palmarejo completed its second full year of production during 2011, increasing silver output by 54% to 9.0 Moz (281 t).

Table 3 - World Silver Mine Production (million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Poland	38.9	44.2	43.8	40.5	40.5	39.6	39.0	39.2	37.7	40.8
Sweden	9.4	9.9	9.4	9.1	8.6	9.4	8.4	8.7	9.2	9.1
Spain	0.4	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.7	1.1
Portugal	0.6	0.7	0.8	0.0	0.3	0.9	1.3	0.7	0.7	1.0
Greece	2.4	0.1	0.0	0.0	0.8	1.1	1.1	0.9	0.9	0.8
Bulgaria	0.8	0.7	0.6	0.7	0.6	0.4	0.4	0.5	0.4	0.5
Romania	1.0	0.9	0.9	0.9	0.5	0.1	0.0	0.1	0.2	0.5
Macedonia	0.4	0.2	0.1	0.2	0.4	0.4	0.4	0.5	0.5	0.5
Serbia and Montenegro	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0
Italy	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Other Countries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Europe	**54.5**	**57.2**	**55.8**	**51.9**	**52.0**	**52.3**	**50.9**	**50.8**	**50.3**	**54.4**
North America										
Mexico	88.3	82.6	82.6	93.1	95.5	100.8	104.1	114.3	141.8	152.8
United States	43.4	39.9	40.2	39.2	36.7	40.5	36.0	40.2	40.8	36.0
Canada	44.1	41.0	41.6	34.2	31.2	26.7	21.5	19.5	18.1	19.1
Total North America	**175.9**	**163.5**	**164.4**	**166.5**	**163.3**	**168.0**	**161.6**	**174.0**	**200.7**	**208.0**
Latin America										
Peru	88.8	93.9	98.4	102.6	111.1	112.6	118.3	123.6	117.0	109.8
Chile	38.9	42.2	43.7	44.3	51.5	62.3	45.1	41.8	41.0	42.1
Bolivia	14.9	15.8	14.0	12.8	15.2	16.9	35.8	42.6	41.0	39.0
Argentina	4.1	4.4	4.6	6.0	6.8	8.1	10.7	17.9	23.2	22.6
Guatemala	0.0	0.0	0.0	0.3	1.6	2.8	3.2	4.2	6.3	8.8
Honduras	1.8	1.7	1.6	1.7	1.8	1.7	1.9	1.9	1.9	1.4
Colombia	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.5	0.8
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6
Ecuador	0.0	0.0	0.0	0.3	0.4	0.4	0.4	0.4	0.5	0.5
Brazil	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Nicaragua	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
Other Countries	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Total Latin America	**149.1**	**158.8**	**163.1**	**169.0**	**189.3**	**205.8**	**216.5**	**233.9**	**232.7**	**226.3**
Asia										
China	52.9	58.8	63.2	67.0	75.3	78.6	84.2	86.1	94.0	103.9
India	2.2	2.9	3.4	3.3	5.9	5.7	6.8	9.4	9.7	11.0
Turkey	3.7	3.6	4.0	5.2	6.0	7.5	10.1	12.5	12.3	9.4
Indonesia	10.7	9.6	8.6	9.9	7.9	8.6	8.0	7.7	6.7	6.0
Iran	2.6	2.6	2.7	2.9	3.2	2.9	3.2	3.4	3.4	3.5
Papua New Guinea	2.1	2.0	1.7	2.2	1.6	1.4	1.6	2.2	2.1	3.0
Philippines	0.3	0.3	0.3	0.6	0.8	0.9	0.5	1.1	1.3	1.5
Mongolia	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.1
North Korea	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.9
Thailand	0.7	0.6	0.5	0.6	0.5	0.4	0.4	0.7	0.7	0.8
Japan	2.7	2.7	1.7	1.0	1.1	0.4	0.4	0.4	0.3	0.8
Laos	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.5	0.6	0.6
Other Countries	0.5	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3
Total Asia	**80.2**	**85.7**	**88.8**	**95.4**	**105.0**	**109.3**	**117.7**	**126.2**	**133.5**	**142.5**

Table 3 - World Silver Mine Production (million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa										
Morocco	9.0	6.7	7.2	7.9	7.9	7.1	8.0	8.5	9.9	7.3
South Africa	3.6	2.8	2.3	2.8	3.0	2.8	2.7	2.9	3.0	2.9
Eritrea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Zambia	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.5
Tanzania	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4
Botswana	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ethiopia	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Zimbabwe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mali	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	0.9	2.3	2.1	1.1	2.3	2.6	1.4	0.1	0.1	0.2
Total Africa	**14.3**	**12.7**	**12.6**	**12.9**	**14.3**	**13.5**	**13.2**	**12.6**	**14.2**	**12.3**
Oceania										
Australia	66.8	59.9	71.5	77.4	55.6	60.4	61.9	52.4	60.4	55.2
New Zealand	0.9	1.0	1.0	1.5	1.1	0.6	1.0	0.5	0.5	0.5
Fiji	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Oceania	**67.8**	**60.9**	**72.5**	**78.9**	**56.7**	**61.0**	**63.0**	**52.9**	**60.9**	**55.7**
CIS										
Russia	22.5	29.5	30.3	32.5	31.3	29.3	36.4	42.2	36.8	40.0
Kazakhstan	27.3	25.8	22.6	26.1	25.6	22.8	20.2	19.7	17.6	17.6
Armenia	1.3	1.3	1.3	1.2	1.3	1.2	1.3	1.6	2.1	2.3
Uzbekistan	1.6	1.7	1.9	2.0	2.0	2.5	2.4	1.7	1.9	1.9
Kyrgyzstan	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.3
Azerbaijan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Other Countries	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Total CIS	**52.8**	**58.5**	**56.3**	**62.0**	**60.5**	**56.1**	**60.8**	**65.6**	**59.0**	**62.4**
World Total	**594.5**	**597.2**	**613.6**	**636.6**	**641.1**	**665.9**	**683.6**	**716.1**	**751.4**	**761.6**

Turning to the losses, silver output at the Fresnillo mine fell by 5.6 Moz (175 t), due to the processing of lower grade ore. The average silver grade declined by 16%, with production from high grade stopes limited due to increased backfilling of long hole stopes. The only other decline of any note was from Pan American Silver's Alamo Dorado, where output fell by 1.4 Moz (44 t), on the back of a 29% drop in silver grade. The volume of silver produced as a by-product from Peñoles' base metal operations was broadly unchanged year-on-year.

Supply from the **United States** fell by 12%, to 36.0 Moz (1,120 t), as several operations recorded lower production. Hecla's Greens Creek and Lucky Friday operations accounted for a consolidated decline of 1.1 Moz (34 t), with lower plant throughput, down 4% and 15% respectively, the principal culprit. Lucky Friday was placed on temporary care and maintenance in November in order to remove built-up material in the shaft. At the country's second largest producer, Teck's Red Dog, output fell by 13%. This was due to the continued processing of weathered ore from the Aqqaluk deposit, which has higher zinc and lower silver grades. In addition, silver output from Rio Tinto's Bingham Canyon operation decreased by 21%, to 3.0 Moz (93 t).

Canadian production grew to 19.1 Moz (596 t), up 6% year-on-year, following six years of consecutive declines. Lower output at some of the more established mines was outweighed by growth at Alexco Resource's newly commissioned Bellekeno and at Vale Inco's Sudbury complex. Bellekeno produced 2.0 Moz (63 t) after declaring commercial production in January 2011, while a full year of production at the Sudbury complex, where a protracted strike was ended in July 2010, added 1.0 Moz (32 t). These gains were partially offset by declines

at a number of the country's more established mines. At Canada's leading silver producing mine, Xstrata Zinc's Brunswick, silver in concentrate production fell by 10% due to lower head grades. Silver output from Agnico-Eagle's LaRonde dropped by 0.4 Moz (13 t), owing to issues with mine sequencing and ore dilution.

Latin America

Latin American production fell for the second successive year, by 6.4 Moz (199 t). The loss was split between the primary silver and copper sectors, with silver from lead/zinc broadly flat year-on-year. The largest drop globally was recorded in **Peru**, where silver production fell by 7.3 Moz (226 t), or 6%. Primary silver production in the country contracted by 11%, driven by a combined 3.4 Moz (105 t) reduction at Hochschild's Arcata and the Pallancata joint venture with International Minerals. Due to the increase in silver prices over 2011, the company took the opportunity to mine low grade, non-resource narrow vein material, and to reprocess tailings. Offsetting a part of these losses, Buenaventura's Uchucchacua grew silver output by 0.82 Moz (25 t), thanks to a 7% increase in mill throughput. By-product silver from copper mining also fell, by 22%, with a strong reduction at Antamina of 2.0 Moz (63 t). Despite an expansion of the mining fleet, silver grades fell as mining progressed to areas of higher copper grades of the pit.

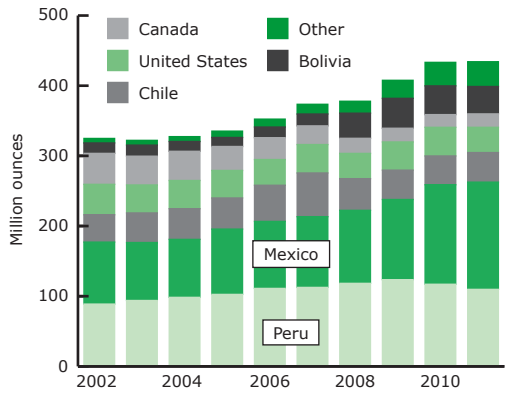
In contrast, the lead/zinc sector saw production slightly higher, with Volcan's Chungar and Cerro de Pasco operations reporting a combined increase of 0.6 Moz (20 t) due primarily to the contribution from a silver-pyrite treatment plant. In addition, production from Minera El Brocal's operations grew by 0.4 Moz (13 t), and output at Coricancha rose by 0.2 Moz (7 t). These were largely balanced by a 1.0 Moz (31 t) decline at Pan American Silver's Morococha, where grades and throughput fell, as the company placed added focus on additional in-fill drilling, infrastructure improvements, labor training and mine development.

Silver output also fell in **Bolivia**, by 2.0 Moz (61 t), explained by an estimated 20% reduction in silver output at the San Cristóbal lead/zinc mine, amounting to approximately 3.0 Moz (93 t). This fall came despite an increase in base metal output in 2011. Production was also hampered by a 12 day strike early in the year. Offsetting part of this loss, output rose at Coeur d'Alene's San Bartolomé, by 0.8 Moz (25 t), due to an increase in both ore grades and throughput. Of note during early 2011 were calls from state miners to nationalize the country's mining industry, with suggestions from government officials that they intended to increase state involvement in the country's mines through nationalization. However, the move did not reportedly gain the backing of some of the country's private sector mineworkers' unions, which threatened strikes action, and consequently such a move failed to materialize. The government stated at the time, however, that it would seek to renegotiate mining contracts with operators in the future, a process which is still underway.

Production in **Argentina** declined marginally, by 0.6 Moz (18 t). The main loss was seen at Coeur d'Alene's Martha, where output fell by 1.0 Moz (33 t) due to an 80% reduction in grade as the mine moved from processing remnant ore and tailings to treating development ore. Combined output from the Cerro Vanguardia and Veladero mines fell by an estimated 1.0 Moz (31 t), with declining ore grades also responsible at both operations. These losses were balanced by a gain of 0.8 Moz (23 t) at Silver Standard's Pirquitas, where improved recoveries, due to improvements to the crushing and flotation circuits, were responsible. This gain came despite two months of production downtime to refurbish and expand the processing circuits. Also of note was a full year's output from Troy Resources' Casposo, which added 0.6 Moz (20 t), having commenced production late in 2010.

Against these declines, **Guatemala** saw a healthy increase in silver output, rising by 2.5 Moz (78 t), attributable to Goldcorp's Marlin. Throughput was increased to optimize production for the commissioning

Mine Production in the Americas



Source: Thomson Reuters GFMS

of a filter plant to the process circuit. In conjunction with 27% higher processed grades, recovery rates rose by 4%. **Chile** also saw an increase in output, by 1.1 Moz (35 t), driven by two new project starts. First, Mandalay Resources restarted operations at Cerro Bayo, which accounted for 1.3 Moz (41 t) of growth and, second, from the start of Antofagasta's Esperanza, at an estimated 0.56 Moz (17 t). Kinross' La Coipa also saw a 0.4 Moz (11 t) rise in silver production, milling higher silver grades at the expense of gold due to a higher proportion of stockpiled ore feed. The standout decline in Chile was a 1.6 Moz (51 t) fall in copper by-product silver at BHP Billiton's Escondida, due to a combination of lower silver grades in 2011, and a two week strike in the third quarter, which led to a significant fall in throughput.

Asia

Chinese silver mine production is estimated to have increased for a ninth consecutive year in 2011, by 11%, to 103.9 Moz (3,233 t). Approximately 90% of China's domestic silver mine supply comes as a by-product of the country's base metal mining sector, and we estimate that on a consolidated basis silver output from these sectors rose by 12% year-on-year. Last year, China's domestic production of lead and zinc rose by 25% and 16% respectively, driven by a marked increase in output at a number of the country's top producing provinces, while copper production increased by 10%, on the back of expansion at some major operations and an increase in the number of smaller, provincial mines.

Chinese lead production was boosted as the country's smelters strived to utilize recently expanded capacity, meaning that demand for domestically sourced concentrate remained strong. It should be noted that Chinese lead concentrates tend to contain less silver than the average global product, and as a result of a transition by smelters to process more domestic concentrate, last year the increase in China's total refined silver production was far more muted than the increase we ascribe to China's silver mine production.

Elsewhere in Asia, production in **India** rose by 14%, to 11.0 Moz (342 t), as output was boosted by the start of production at Hindustan Zinc's silver-rich Sindesar Khurd mine. In **Papua New Guinea**, a rise of 0.8 Moz (26 t) was largely attributable to the continued ramp up of Hidden Valley. Elsewhere, production in **Indonesia** declined on the back of lower output at Batu Hijau and Grasberg, while in **Turkey**, silver mine supply fell by 24%, to 9.4 Moz (291 t), largely owing to a 40 day production stoppage at the country's largest silver producing mine, Gümüsköy, owned by Eti Gümüş.

Oceania

After a strong performance in 2010, **Australian** production fell markedly in 2011, by 9%, or 5.2 Moz (163 t). Declining ore grades were behind much of this, although akin to 2009, weather also played a role, causing operational difficulties at two of the country's largest silver producers, in Queensland. The most significant change was in the primary silver sector, as production from BHP Billiton's Cannington fell by 6.4 Moz (200 t) due to a 21% decline in silver grade, plus the impact of heavy rainfall which led to flooding in the first quarter of 2011. The lead/zinc sector was also affected, and fell by an estimated 0.3 Moz (9 t). Output declined at Xstrata Zinc's Mount Isa, where silver in crude lead fell by 0.2 Moz (7 t) due to first quarter flooding, plus lower grades and electricity outages in the second half of the year, although this was partially countered by an increase of 0.1 Moz (4 t) at McArthur River.

Adding to the losses, Minmetals Resources saw a 44% reduction in silver grade at Century, approximately halving silver output, while lower grades at Golden Grove and Rosebery are also estimated to have impacted production. Mitigating some of these, a slight increase came from the copper and gold sectors, of a combined 1.2 Moz (36 t), helped by higher output from Newcrest's Cadia Valley operations, and small contributions of silver by-product from new gold mines.

Commonwealth of Independent States (CIS)

Silver output in the CIS grew by 3.4 Moz (105 t) in 2011, or 6%. This gain was driven by higher output in **Russia**, the region's largest producer, which rose by 3.2 Moz (98 t) thanks to a 24% increase from the primary silver sector. The main driver was Dukat, the country's largest silver producing operation, which saw output rise by 2.5 Moz (78 t). First due to the inclusion of higher grade ores from Goltsovoye and, second, due to throughput and recovery improvements at the mill complex, following the installation of a gravity circuit during the first quarter of 2011, and modernization of the flotation cells.

Production from the gold sector also rose slightly, driven by a marginal increase in output at Novoshirokinskoye.

An Overview of Corporate Transactions in 2011

Many of the transactions within the silver space in 2011 involved existing producers consolidating ownership of strategic assets and divesting non-core properties.

In April, Kinross Gold Corp. consolidated its interest in the Kupol mine and the Kupol East-West exploration licences, in the Chukotka region of Russia, to 100% by acquiring the outstanding 25% held by a state agency in a cash deal worth US$335 million. In 2011, the mine produced 6.6 Moz (205 t) of silver as well as significant amounts of gold. At end-2011, Kupol had reserves containing 37.1 Moz (1,155 t) of silver.

Silver Standard Resources, meanwhile, embarked on a partial restructure of its asset portfolio by consolidating its majority interest in the San Luis project, in Peru, and disposing of the Bowdens silver project, in New South Wales. At San Luis, Silver Standard acquired the 45% interest held by Esperanza Resources in a cash and shares deal worth C$27 million, plus a 1% net smelter royalty. The project has a silver reserve of 7.2 Moz (224 t). The company hopes to receive environmental approval in 2012, contingent upon which the mine could come into production in 2014.

The largest acquisition involving silver was initiated in 2011, announced to the market early in 2012 and completed at the end of March. Pan American Silver Corp. acquired Minefinders Corp. in a cash and share deal which valued the Mexican gold/silver producer at approximately US$1.5 billion. Minefinders' principal asset was the Dolores gold/silver mine, in Mexico, which produced 74 koz (2 t) of gold and 3.6 Moz (111 t) of silver in 2011. At end-2010, the Dolores property had a reserve containing 2.0 Moz (63 t) of gold and 114.5 Moz (3,562 t) of silver. In addition, Minefinders had 6.2 Moz (193 t) of silver in Measured & Indicated resources at its La Bolsa project, also in Mexico.

Hecla Mining Company consolidated ownership of the San Juan Silver project in Colorado, by acquiring the remaining 30% interest from a consortium of local owners. The transaction, valued at US$34 million at the time, fully consolidated ownership of a 37.1 Moz (1,153 t) total silver resource. Finally, Polymetal International, the world's seventh largest producer of silver in 2011, completed a restructuring of the group in March 2012, acquiring all shares in JSC Polymetal, and delisted the latter on the London and Russian stock exchanges.

This came despite a fall at the country's second largest silver producing operation, Kupol, where output fell by 0.1 Moz (3 t) because of a 10% fall in processed silver grades. In contrast, silver output from Russia's base metal mining industry is thought to have contracted slightly last year, to 10.4 Moz (323 t), despite production of these metals increasing year-on-year.

Although official statistics show a rise in refined production in **Kazakhstan**, the country's largest producer, Kazakhmys, in fact saw output fall by 7% in 2011, to 13.1 Moz (409 t). Production was driven lower by declining grades at the maturing Zhezkazgan mines, despite a 2% increase in the volume of silver bearing ores extracted. An 11% fall in ore production was mitigated slightly by the release of silver inventory from the smelters and refineries carried over from 2010. The country's other integrated producer, Kazzinc, saw output from its own mines drop by 0.9 Moz (27 t). Although the country's total refined production rose by a substantial 4.0 Moz (125 t), we estimate that around 3.0 Moz (93 t) of this was sourced from concentrates originating in Russia. As such, we believe Kazakh output was effectively unchanged year-on-year.

Europe

European silver output rose strongly in 2011, by 8% or 4.1 Moz (128 t). The driving force for much of the gain was seen in **Poland**, the region's largest producer, where silver production from KGHM Polska Miedź climbed to 40.5 Moz (1,260 t), a gain of 9%, due to higher plant throughput of KGHM's mined copper concentrates. **Spain** saw a rise of 0.4 Moz (12 t), due to a 71% increase in the throughput rate of silver-bearing lead/zinc ores at Aguas Tenidas. We also estimate that copper by-product silver from **Romania** rose slightly last year, in contrast to a modest fall in silver output for **Greece** and **Sweden**.

Africa

Silver production in Africa fell by 13% as the region's principal producer, **Morocco**, recorded a sharp decline. Output was adversely affected by civil unrest near the country's main silver producing mine, Imiter, where output is estimated to have contracted by 30% year-on-year. Offsetting part of the decline, silver output from **Eritrea** rose from trivial volumes historically to total 0.6 Moz (17 t) in 2011, lifted by the onset of production from the oxide portion of the Bisha mine in late 2010.

Average Prices of Source Metals

($/ton)						Change
	2007	2008	2009	2010	2011	y-o-y
Lead	2,595	2,085	1,726	2,148	2,398	12%
Zinc	3,250	1,870	1,659	2,159	2,191	1%
Copper	7,126	6,952	5,164	7,539	8,811	17%
Gold ($/oz)	695	872	972	1,225	1,572	28%

World Mine Production of Source Metals

(Thousand tons)						Change
	2007	2008	2009	2010	2011	y-o-y
Lead	3,650	3,793	3,830	4,205	4,615	10%
Zinc	11,133	11,831	11,560	12,275	13,024	6%
Copper	15,407	15,460	15,831	15,929	15,953	0%
Gold (tons)	2,497	2,429	2,611	2,740	2,818	3%

Source: LME, Thomson Reuters, ILZSG, GFMS Gold Survey 2012, GFMS Copper Survey 2012

Outlook

• Silver mine production is expected to record a tenth consecutive annual increase in 2012, on the back of higher production from the primary silver, gold and lead/zinc sectors.

We expect silver production to again grow in 2012, boosted by additional supply from all sectors except copper. Strong silver and gold prices, and an improving outlook for base metals, will continue to support the project pipeline. In addition, record high silver prices have boosted many producers' profit margins, and as such, a number of companies reported record earnings in 2011. This additional cash flow is either being used to fund future development and exploration work (sometimes at projects where production has not already begun), fund M&A activity to grow production, as well as the return of cash to shareholders through dividend payments.

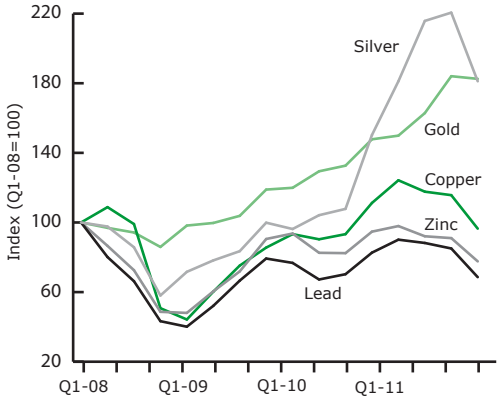
Looking at the specific sources which will drive production growth higher in 2012, much of the increase will come from the Americas, especially from Mexico and Canada, while higher production at a number of key producers in Australia and Turkey are also anticipated to lift production in those countries. Key drivers in Mexico will be a full year of capacity production at Goldcorp's Peñasquito and the continued ramp-up of Fresnillo's new underground Saucito mine, while the start of production at Minera Frisco's San Francisco del Oro open pit operation and Concheño development are also expected to added strongly to the country total. Meanwhile in Canada, production is expected to benefit from a full year of steady state production at Alexco Resources' Bellekeno, higher output at Agnico-Eagle's LaRonde and the continued ramp-up of Yukon Zinc's Wolverine mine.

By-Product Analysis

• Production from the primary silver mining sector eased by 2% to total 219.7 Moz (6,833 t) as the two leading primary mines reduced output.
• Silver produced as a by-product of other metal mining was robust, with higher silver production coming from the gold and lead/zinc sectors.

Global production of silver from primary silver mines decreased by 2% in 2011. Losses at several of the largest primary mines contributed to the lower overall trend, with double digit percentage falls at Cannington, Fresnillo, Gümüsköy, Arcata and Imiter, which occurred due to lower processed grades and one-off production difficulties. Some offset came from the ramp-up of new mines including growth at Palmarejo, plant optimization at Pirquitas, along with strong output from Saucito, which commenced commercial production in April. Production of silver from the gold sector rose strongly to 100.6 Moz (3,129 t) last year. There were several silver-rich gold mines that recorded large increases, such as Marlin (Guatemala), Hidden Valley (Papua New Guinea), Dolores and El Aguila (both in Mexico), which collectively raised production by nearly 7.6 Moz (236 t). However, the gain

Indexed Silver & By-product Metal Prices



Source: Thomson Reuters

Silver Output by Source Metal

(million ounces)

	2010 Output	% of Total	2011 Output	% of Total	Change y-o-y
Primary	224.9	30%	219.7	29%	-2%
Gold	92.7	12%	100.6	13%	9%
Lead/Zinc	270.1	36%	279.0	37%	3%
Copper	160.9	21%	158.7	21%	-1%
Other	2.9	0%	3.7	0%	27%

Source: Thomson Reuters GFMS

from the gold sector was broad-based and several mines recorded small increases.

Base metal prices built on the advances recorded in 2010. Average annual copper prices in 2011 posted a gain of 17%, with lead and zinc increasing by 12% and 1% respectively. The copper cash quote set an all-time high of $10,148/t on February 14th, which helped the average annual price to a record of $8,811/t. Lead and zinc prices did, however, remain well below the highs seen in 2007 ($2,595/t) and 2006 ($3,273/t) respectively at $2,398/t and $2,191/t.

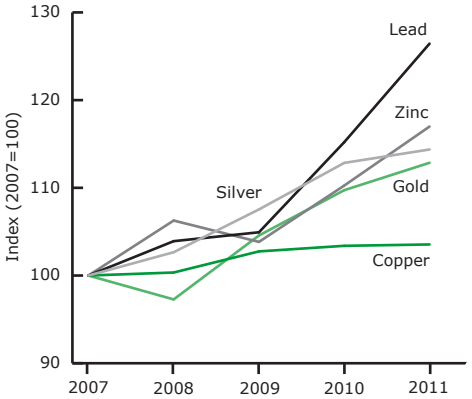
Demand growth within the base metal sector started 2011 on a firm note, carrying over the momentum seen in 2010. Steel mills and non-ferrous semi-fabricators enjoyed buoyant conditions in the first quarter. China remained the key driver; however, the mature economies also made a positive contribution in this period. As the year progressed, base metal demand weakened, which largely reflected a broadening and a deepening of the Eurozone debt crisis, which had knock-on effects in a number of key consuming regions. There were periodic concerns about the sustainability of strong growth within China, which proved not to be realized; however these resurfaced in early 2012, prompting some weakness in base metal prices towards the end of the first quarter.

Higher prices encouraged concentrate output to increase, particularly for lead and zinc, while structural shortages of mine capacity have held back copper concentrate output. According to the International Lead Zinc Study Group (ILZSG), lead mine production in 2011 rose by close to 10% for the second year running. In both years, China dominated supply developments, growing by 15% in 2010 and 27% in 2011. Last year, Chinese production rose by 507,000 t to 2.36 Mt, while output outside China fell by close to 100,000 t. Supply in Australia, the second largest producer, saw its output contract by 20% to 531,000 t, driven by lower output from Cannington. Production was also lower in the next two largest producers, Peru and the United States, with declines of 12% and 10% respectively, which continues a downtrend that has been in place in both countries since 2008.

The pattern of zinc supply has been similar to that of lead, with China underpinning the strong gains in total output, which last year rose by 6% to 13.0 Mt. Production in China rose by 608,000 t (16%) to 4.31 Mt, and accounted for 81% of the total increase to global zinc concentrate last year. Production was broadly unchanged in Australia at 1.47 Mt. A third successive decline was recorded in Peru, with a 15% fall to 1.26 Mt, partly the result of mining a copper-rich (and low-zinc) section of the orebody at the Antamina mine.

In contrast, global copper mine supply increased by just 0.1% last year to 15.95 Mt, representing a second year of limited expansion. Chilean output fell by 3% in 2011 to 5.24 Mt, the lowest level since 2003, due in part to a 273,000 t reduction at Escondida. Production in Peru was flat year-on-year. Although three of the top four producing mines, Toquepala, Cuajone and Cerro Verde, recorded lower output, largely due to lower grades, this was offset by growth in copper output at Antamina. Elsewhere, Mexican output rose by close to 70%, to 414,000 t; this was mainly due to higher output at the Cananea mine (now called Buenavista), which reopened in 2010. But the main source of extra supply was China, where production rose by 10% to 1.27 Mt; now the second largest producer of copper concentrate. Although the African Copperbelt also saw good growth, this region yields only modest volumes of silver.

Indexed Global Metal Mine Production



Source: ILZSG, Thomson Reuters GFMS

Production Costs

• ***Silver mine cash costs rose for the second successive year in 2011, by one-third.***

Silver cash costs in 2011 averaged $7.25/oz, a 33% rise from a revised figure of $5.47/oz for the prior year. Nevertheless, with a significantly higher average annual silver price, simple cash margins grew by an impressive 89%, to $27.87/oz. It should be noted that our cost analysis is focused on primary silver mines, where data is available, which accounted for 29% of global silver mine supply last year. Accordingly, the costed data capture of 128.5 Moz (3,996 t) of output represents 58% of global primary silver supply. Even those mines considered 'primary' benefit from associated by-product metals, most commonly gold, lead and zinc. Silver cash costs would have been noticeably higher were it not for the increase in by-product credits, which were once again given a boost by higher prices. The price of gold, copper, lead and zinc all rose, by 28%, 17%, 12% and 1% respectively. However these increases alone were not sufficiently large to outweigh cost inflation.

A key driver of cost inflation in recent years has been the labor market (frequently the largest single component of a mine's operating cost). Labor costs have been rising at rates above inflation, partly due to a shortage of skilled workers in the industry; this looks set to remain one of the key drivers going forward. For example, the Minerals Council of Australia has estimated that an additional 86,000 workers will be needed in Australia by 2020.

Another significant factor pushing costs upward in 2011 was the lower grade of ore processed. Among the larger mines, grades fell significantly at Arcata (-29%), Alamo Dorado (-29%), Fresnillo (-16%) and Pallancata (-13%).

Silver Mine Production Costs

(US$/oz unless stated)	2009	2010	2011
Total Cash Costs	5.02	5.47	7.25
Average Spot Price	14.67	20.19	35.12
Sample Size (Moz)	130.7	138.9	128.5
Global Primary Production (Moz)	212.5	224.9	219.7

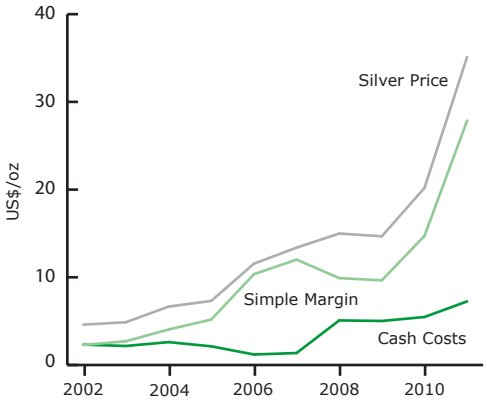
Source: Thomson Reuters GFMS

Of the key producing countries, exchange rates were not a decisive driver of costs in 2011. In Mexico, the peso rose by 1% against the dollar, while the Peruvian sol and the Russian rouble both gained 3%. Australia experienced the greatest currency appreciation among the group, with the Australian dollar 11% stronger.

With regard to energy inputs, the average WTI oil price increased by 19% during 2011, to $95/bbl, which continued to drive costs higher, particularly affecting open pit operations and mines that have a reliance on on-site power generation. In Mexico, the average cost of diesel expressed in US dollars increased by 15%, partly reflecting the Mexican government's decision to align fuel prices with those of the United States.

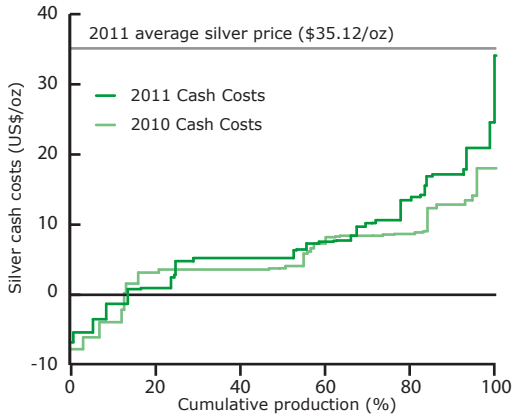
Other factors contributing to mining cost inflation included higher prices for electricity and mining consumables. Moreover, general increases in commodity prices have been accompanied by rising royalty rates and production taxes (which are often linked to metal prices), and in some instances measures to re-structure royalty regimes.

Historical Silver Cash Costs



Source: Thomson Reuters GFMS

Silver Mine Cash Costs



Source: Thomson Reuters GFMS

Producer Hedging

• ***Producers were net hedgers of silver in 2011, adding 10.7 Moz (334 t) of supply.***

Following a return to net producer hedging in 2010, miners once again added to their positions in 2011. At end-year, the delta adjusted global hedge book stood at 94.7 Moz (2,945 t), an addition of 10.7 Moz (334 t). Hedging activity was concentrated in the first half of 2011, as a number of companies took advantage of strong prices in the first four months. By end-year, the options portion of the global book had increased, on a nominal (volume of contracts) basis, by a net 108.1 Moz (3,364 t), or by 32.5 Moz (1,012 t) when adjusted for option delta. The adjusted figure represents the true draw on the silver market from these positions, through the risk hedging actions of counterparty banks. Among options hedgers, Barrick Gold entered into a costless collar option structure covering an additional 30.0 Moz (933 t) of silver output. At end-2011, Barrick's position covered 45.0 Moz (1,400 t), primarily designated to safeguard the project economics of Pascua-Lama.

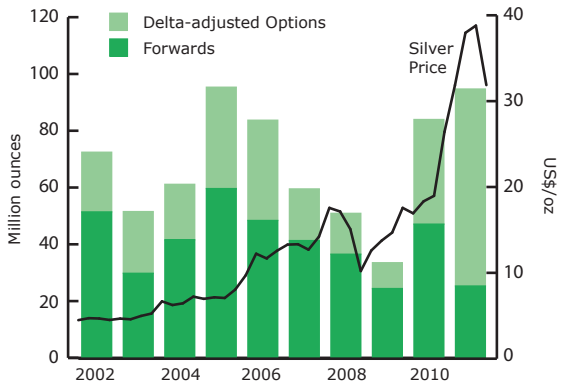
In addition, Industrias Peñoles, KGHM Polska Miedź and Minera Frisco expanded their options cover, while Minera Volcan and Mandalay Resources established new option positions. Peñoles entered into a zero cost collar structure in the first quarter, covering 13.4 Moz (417 t) of refined silver output out to early 2013, while KGHM added a combination of option structures, covering 14.4 Moz (448 t) of silver production in 2012-2013. Frisco, which held a large portion of the option book at end-2010, also added puts and calls in the first half. At year-end these options covered 56.1 Moz (1,744 t) of future production.

In contrast, the forward sales portion of the global hedge book contracted year-on-year, falling from 47.1 Moz (1,465 t) to 25.3 Moz (787 t) at end-2011, after these fixed structures impacted a number of producers' cash flow during the year. Notably, after expanding its forward position by 9.6 Moz (300 t) in the first four months of 2011, Frisco bought back 16.7 Moz (519 t) of forwards in the third quarter, leaving its forward position at year-end totaling 10.8 Moz (337 t). Elsewhere, a number of producers elected not to replace, or did so at a lower volumes, positions they held at end-2010. For example, Minera Volcan replaced only 60% of its end-2010 position, amounting to 6.1 Moz (188 t) of de-hedging.

There was some project related hedging during 2011. Boliden hedged 6.8 Moz (211 t) of silver in February against its investment in the Garpenberg mine expansion, although including deliveries this amounted to a net 4.5 Moz (139 t) addition year-on-year. Elsewhere, Cobar Consolidated Resources, Alcyone Resources and Discovery Metals hedged a combined 4.4 Moz (135 t) of silver.

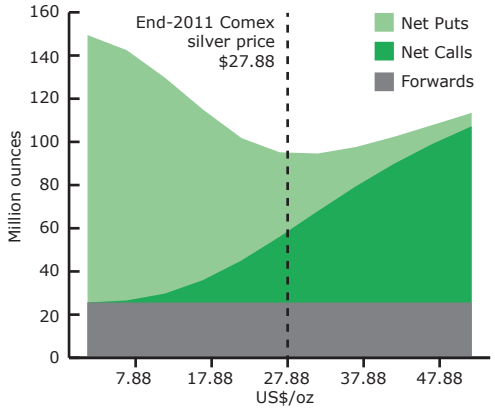
Brady's *Trinity*™ trading and risk management software is used for the calculation of delta against producers' option contracts. From the chart below, and assuming all other factors remain equal, the hedge book at end-2011 appears relatively insensitive to small changes in price, due to the fact that a large portion of the option book comprises collar option structures, of which the put and call options typically have a wide strike spread. With three quarters of the put options moving into the money at prices around $20-$25/oz, and with the strike prices of sold calls on average very much higher than the end-year price, the option book is functioning more as effective downside price protection than a cap on the upside.

Producer Hedging: Outstanding Positions



Source: Thomson Reuters GFMS

Sensitivity of the Global Hedge Book



Source: Thomson Reuters GFMS

5. Supply from Above-Ground Stocks

- ***Supply from above-ground stocks fell by 14% to 278.9 Moz (8,676 t) in 2011.***

- ***The decline was a result of considerably lower net producer hedging and a major decline in net government sales, which were partly offset by further growth in silver scrap supply.***

- ***Net government sales dropped by a hefty 74% to a 14-year low of 11.5 Moz (357 t) in 2011, primarily driven by a sharp fall in disposals from Russia.***

- ***Scrap in 2011 rose for the second successive year, with volumes hitting a new record of 256.7 Moz (7,985 t), thanks to robust gains in jewelry and silverware recycling on higher prices.***

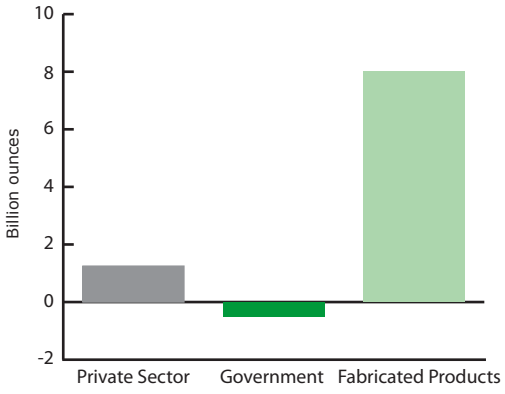
Total Silver Supply © Thomson Reuters / The Silver Institute

(Moz)	2009	2010	2011
Implied Net Disinvestment	-	-	-
Net Producer Hedging	-	50.4	10.7
Net Government Sales	15.6	44.2	11.5
Sub-total Bullion	**15.6**	**94.6**	**22.2**
Old Silver Scrap	200.0	228.7	256.7
Total from Above-Ground Stocks	**215.6**	**323.3**	**278.9**
Mine Production	716.1	751.4	761.6
Total Supply	**931.7**	**1,074.7**	**1,040.6**

Overview

The supply of silver to the market can be divided into two categories, namely flows from new mine production and flows from above-ground stocks. The latter can either be sourced from the recycling of fabricated products or from the mobilization of bullion stocks owned by private individuals or by governments. As illustrated in the accompanying table, in 2011, overall supply from above-ground stocks fell by 44.4 Moz (1,380 t), compared with a small increase of 10.2 Moz (319 t) in mine production. Above-ground stocks' contribution to total silver supply therefore dropped to 27% in 2011 from 30% in 2010.

Changes in Above-ground Stocks (2002-2011)



Source: Thomson Reuters GFMS

The decline in supply from above-ground stocks was primarily driven by a hefty fall in net producer hedging and much weaker government sales, which were partly offset by healthy gains in scrap supply. Meanwhile, consistent with the trend seen in previous years, investors remained a major source of demand last year.

Looking at each component, the largest contribution to supply from above-ground stocks has been from the recycling of fabricated products. At a new all-time high of 256.7 Moz (7,985 t), scrap supply accounted for a quarter of total supply in 2011. This increase was largely attributed to the boom in receipts from jewelry, silverware and coins. While industrial scrap continued to grow, the year-on-year increase was fairly limited due to the one-off surge in recovery from ethylene oxide (EO) plants that occurred in 2010. In contrast, photographic scrap remained on a declining trend, as a result of the ongoing weakness in photographic fabrication demand.

As is discussed in detail on page 39, it is of note that despite a remarkable price rally in the last decade, silver scrap supply trended broadly sideways over much of the 2000s. Behind this apparent conundrum is the fact that most sources of recycled silver are a good deal less price sensitive than those, for example, for gold.

In gold's case, the bulk of fabricated products are in the form of jewelry, scrap from which is highly price sensitive due to the metal content accounting for a very high portion of the finished product's value. The same is true for silver jewelry, silverware and coins but, in this instance, the absolute value of contained metal is usually far lower. On the other hand, silver-bearing finished

products in the industrial and photographic sphere (with a few exceptions) tend to have a low contained metal content and value. As such, silver scrap tends to be relatively inelastic to price levels and volatility, and is mostly driven by the performance of the relevant sector as well as environmental legislation. Having said that, as the silver price breached the $20/oz mark in late 2010, scrap supply eventually posted some price elastic response over the last two years, particularly from the jewelry and silverware sectors, although the scale of the increase for the total has been relatively limited.

As for net government sales, its total is estimated to have fallen by a considerable 74% to a 14-year low of 11.5 Moz (357 t) in 2011, almost exclusively driven by a substantial decline in disposals from Russia. Elsewhere, sales once again remained subdued, with the majority of these related to releases of old coins stocks by a number of countries. As such, net government sales' contribution to total silver supply last year fell to just above 1%.

Unlike gold, where the bulk of liquidity for the lending market is provided by central banks, the metal used to fund producers' activities in the silver forward and derivatives market is largely sourced from privately held stocks of bullion. The 10.7 Moz (334 t) net increase in the producers' hedgebook last year is understood to be comfortably offset by the 118.2 Moz (3,677 t) coins & medals and the 164.0 Moz (5,099 t) implied net investment figure derived for the year. This suggested that privately held stocks of silver bullion rose by a total of 271.4 Moz (8,443 t) last year. In other words, the private sector demanded rather than supplied silver bullion on a net basis in 2011.

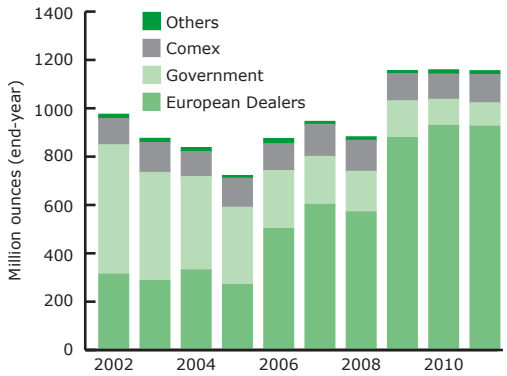
Identifiable Bullion Stocks

Thomson Reuters GFMS' analysis of identifiable bullion stocks includes inventories for which sufficient evidence is available to form a statistical picture. In contrast, silver bullion held in depositories on which information is not available, as well as in private investors' vaults, is excluded from our figures. Besides suggesting the existence of additional stocks of silver, this caveat has implications for the interpretation of changes in our estimates of identifiable bullion stocks. Specifically, in addition to such changes being driven by the absorption of surpluses or the filling of deficits, they could in theory be explained by metal flowing out of unidentifiable stocks and into identifiable ones or vice versa.

As illustrated in the table on the next page, in total, identifiable bullion stocks dropped marginally in 2011, ending the year at 1,155.0 Moz (35,924 t). At first sight, the fall may seem counterintuitive, given the 141.8 Moz (4,409 t) net inflow derived by the difference between implied net investment and the sum of net producer hedging and net government sales over the year.

Central to this is implied net investment data which aggregates investor activity in all areas. As such, the divergent trend between the two was partly due to robust physical investment, with demand for bullion bars for example surging to 95.7 Moz (2,975 t) in 2011. In addition, the difference could have been related to the fact that some of the bullion was moved from identifiable sources to non-identifiable stocks held by private investors and non-reporting institutions. Supporting this view is that a growing number of banks and logistics

Identifiable Bullion Stocks



Source: Thomson Reuters GFMS

Bullion Stocks in Dealers' Vaults in Europe

Source: Thomson Reuters GFMS

Identifiable Bullion Stocks

(Million ounces)

	end-2010	end-2011
European Dealers	928.3	925.3
Comex	104.5	117.3
Government	108.5	97.0
Other Stocks	17.3	15.4
Total	**1,158.6**	**1,155.0**

Source: Thomson Reuters GFMS

Comex Silver Stocks

(Million ounces; end period)

	Q1	Q2	Q3	Q4
2008	135.9	136.0	135.5	127.7
2009	125.4	117.6	115.4	112.4
2010	116.6	114.0	111.1	104.5
2011	105.4	98.7	108.0	117.3

Source: Comex

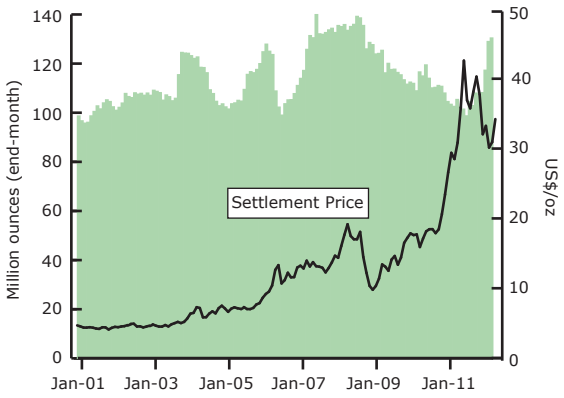
companies have opened (or planned to open) new precious metals vaults in the last couple of years, due to booming investor demand for physical gold and silver (these stocks are unlikely to be included in our figures).

Moving to the breakdown of identifiable bullion stocks at year-end, last year's fall was led by the 11.5 Moz (357 t) decline in government owned silver, while both European dealers' inventories and other stocks (predominantly held by the Japanese trade) posted very small drops. These losses were largely offset by the 12.8 Moz (397 t) rise in Comex stocks.

European Dealers' Stocks

Since 1996, we have conducted a confidential survey of bullion stocks held in European dealers' vaults and have reported an aggregate end-year total for these in the *World Silver Survey*. At the end of 2011, European dealers' silver stocks amounted to 925.3 Moz (28,779 t), marginally lower from the peak of 928.3 Moz (28,873 t) seen at end-2010.

Comex Warehouse Stocks



Source: Comex

It is important to note this flat line hides some important intra-year developments in 2011. Last year began with a rapid expansion of bullion stocks held at European dealers' vaults, driven by heightened investor interest in the white metal, as our information suggests that total volumes could have hit an all time high of over 960 Moz (29,850 t) by early April. Nevertheless, all these gains were soon wiped out during the investor sell-off in late April and early May, dominated by major redemptions in silver ETFs (discussed in the relevant focus box in Chapter 3). Thereafter, European dealers' stocks resumed positive growth, albeit at a much slower rate, helped by renewed interest in silver ETFs and a small rise in allocated accounts managed by banks. Finally, the slowdown in industrial fabrication demand in the final quarter of the year would also have contributed to the recovery in stocks.

Comex Stocks

Consistent with the trend seen in 2010, stocks held at Comex depositories continued to decline in the first half of 2011, falling to 98.7 Moz (3,070 t) by end-June which was their lowest level since mid-2001. Central to this was buoyant demand for physical silver bullion products, the ongoing strength of industrial demand and a temporary shortage of silver supply in the US market.

Since then, however, with investor interest softening and industrial demand weakening, Comex stocks began to rise again. Compounding this was an apparently excess supply in the market, which eventually led to a rapid build-up in Comex stocks at end-2011. This tendency has continued to strengthen in early 2012: as of end-February, a further 13.1 Moz (408 t) of silver had been shipped to the exchange's vaults, leaving inventories at 130.4 Moz (4,056 t), a level last seen in late 2008.

Deficits and Surpluses in the Silver Market

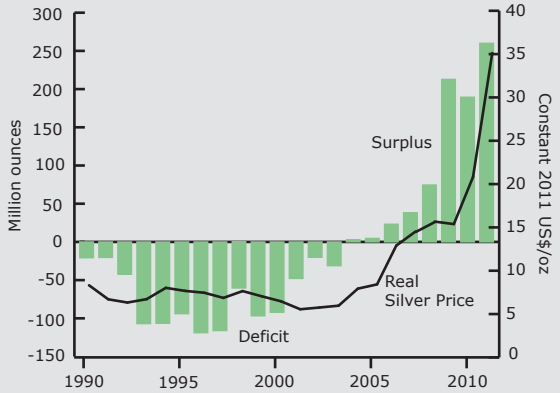
From 1990 to 2003, the silver market saw a series of massive market deficits - defined as the difference between supply from mine production plus scrap and demand from fabrication (note that for this analysis, fabrication excludes coin minting, which instead is treated as new bullion demand). Over the period, the gap was primarily filled by the mobilization of above-ground bullion stocks held by private investors and governments.

Since 2004, however, the picture changed dramatically, with a market surplus first appearing that year and then rising to 260.0 Moz (8,086 t) in 2011. Given the ongoing government sales over the last few years, almost all these market surpluses have been comfortably purchased by investors, with stocks held by private and institutional investors estimated to have risen by nearly 1,200 Moz (37,300 t) from 2004 to 2011.

There were several reasons behind this massive increase in investor interest in silver. First and foremost is surging safe haven purchases, following the credit crunch in late 2008 and then a rapidly worsening sovereign debt crisis in major developed countries since 2010. Related to this has been the persistence of extremely low or negative real interest rates and massive injections of liquidity by monetary authorities in recent years, which have not only raised concerns over fiat currencies but also fueled long-term inflation fears.

Meanwhile, silver has also benefited from a commodity boom (notwithstanding the massive sell-off in late 2008) over the last decade driven by the strong growth performance of emerging market economies. In addition, its wide trading range in a far smaller and less liquid market, particularly compared with gold, has also recommended the white metal to those more speculative investors. This helps to explain a spectacular rise in buy-side interest in silver from late 2010 through to April 2011. Despite two bouts of heavy long liquidation thereafter, the silver market saw investors, on balance, remain net buyers, which kept the price floor elevated by historical standards.

Silver Deficits and Surpluses



Source: Thomson Reuters GFMS

Government Stocks

Thomson Reuters GFMS estimate that net government sales stood at 11.5 Moz (357 t) in 2011, down by 74% year-on-year to the lowest level in more than a decade. By the end of 2011, total government silver stocks were estimated to have fallen to 97.0 Moz (3,017 t).

It should be noted that these estimates are largely based on private information we have received in the course of our field research, as there is very little publicly available data on levels of and changes in government silver stocks. This is a particularly important caveat when it comes to the outstanding level of government stocks where our numbers are somewhat at the conservative end of the spectrum. Nevertheless, we are far more confident when it comes to measuring the annual changes in stocks, as shown in our government sales data.

Last year's massive decline was overwhelmingly driven by Russia, the source of most government sales from 2007 to 2010, as disposals from the country plunged by nearly 90% year-on-year to below 5.0 Moz (160 t). However, it is important to stress here that the fall came from an exceptionally high base in 2010 and that, if anything, this merely represents a return to normality. Indeed, one should remember in this regard that in 2010 government stocks sold by Russia almost tripled, most likely driven by the attractive silver prices on offer.

Interestingly, even though the silver price powered higher in early 2011, it failed to stimulate another wave of hefty

sales from Russia, which may indicate a much reduced level of government owned stocks by end-2010 after the country released more than 200 Moz (6,220 t) of silver into the market from 2004 to 2010. Nevertheless, given the high degree of uncertainty over the size of remaining state stocks, it is probably unwise to rule out completely the return to a higher level of Russian sales in the future.

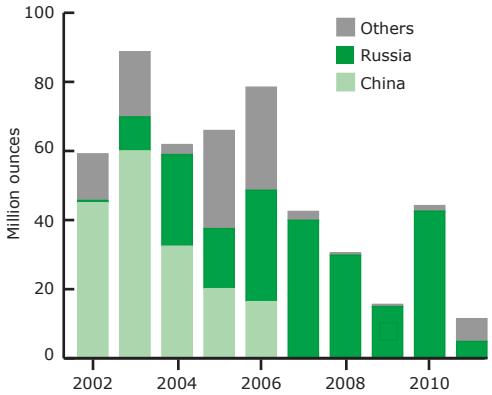
Excluding Russia, total sales were in fact up by a small amount last year, albeit from an extremely low base. The majority of these sales were believed to have related to disposals of old coin stocks by a handful of countries.

Finally, looking at China and India, once again, both countries were absent from the market last year. As far as China is concerned, it is our understanding that, following several years of heavy sales, its silver stocks have already been reduced significantly from "excessive" levels, and remaining stocks will play some small part in diversifying its reserves portfolio away from US dollars.

Other Stocks

In addition to the above-mentioned stocks, we also track those registered on the Tokyo Commodities Exchange, the CME Group (previously the Chicago Board of Trade) and Japanese trade stocks, as reported by the country's Ministry of Trade and Industry. Due to their only accounting for a small fraction of the overall figure, we have aggregated these under the "Other Stocks" category in the chart on page 36 and the table on page 37. At end-2011, these stocks had fallen by 1.9 Moz (60 t) year-on-year to 15.4 Moz (479 t).

Net Government Stocks Sales



Source: Thomson Reuters GFMS

Scrap

• ***The 12% rise for global scrap supply, to a new record total, was largely due to growth in US recycling along with broad-based gains in Europe.***

The last two years have witnessed a material lift in global silver scrap supply. For much of the 2000s, recycling was little changed, with a variance of only 5% from the 200.3 Moz (6,230 t) annual average achieved during the 2002-08 timeframe. In broad measure, this saw structural losses continue for photographic scrap which, up until the late 2000s, had accounted for the largest share of global silver recycling. However, the decline in photo-related scrap was not as steep as the fall seen in photographic offtake. The less pronounced decline for photo recycling was due to both the large volume of X-ray material that was scrapped (accounting for comfortably the largest share of photographic scrap), but also the relative price insensitivity of this segment. Here, health legislation has often dictated the tenure of archive X-rays and therefore the point at which they can be released into the market. However, given the extended period of losses in photographic demand (which date back to 2000), it was not entirely unexpected that photo scrap eventually entered a period of more sustained losses, which broadly characterized 2010-11.

In contrast, the recovery of silver from scrapped industrial products has enjoyed a period of near uninterrupted growth during the mid to late 2000s. There were, however, at times contrasting trends within the sub-categories. First, electronic scrap (E-scrap) has grown noticeably, a function not only of tighter environmental legislation (principally in western markets), but also because of the rise in silver prices. In this regard, field research has indicated that price developments may have a greater bearing on E-scrap, a segment which was previously thought to be largely price inelastic, with prevailing prices having transformed the economics of recovering silver from industrial products.

The recycling of spent ethylene oxide (EO) catalysts also accounts for a large slice of industrial silver scrap. However, this sector has enjoyed a varied performance in recent years, with a post-recession surge in 2010 (which benefited from changeouts postponed from the previous year) giving way to a smaller volume of recycling in 2011. In contrast to E-scrap, the recovery of silver

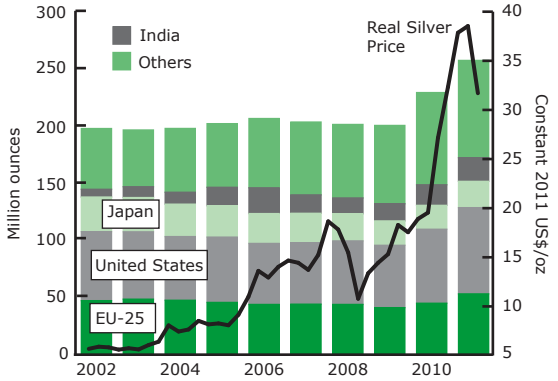
from EO catalysts is more closely aligned with economic growth and how this feeds through to demand for glycol products, such as plastics. Silver prices are therefore unlikely to affect the timing of changeouts, but high prices are likely to require a more rapid recovery of the contained silver, given its impact on cash flow. In spite of the decline in EO recycling it does appear as though global industrial silver scrap grew last year.

There was a far stronger response for the recovery of silver from old silverware and jewelry and it is these sectors that we believe to have accounted for the bulk of the 12% rise in world scrap supply in 2011 (following a 14% lift in 2010) to a new peak of 256.7 Moz (7,985 t). Central to this outcome was a surge in western market supplies (principally from the United States), which comfortably exceeded the growth in recycling from the traditionally price sensitive markets (such as India). Although above-ground western jewelry stocks far exceed those in the developing world, little of this material would in the past have been considered near market, given the elevated level of retail markups. Even so, there was a clear price linked response from consumers but of similar importance was the boost to distress selling from a dispiriting economic backdrop and the fact that the development of an organized and high profile gold jewelry scrap collection industry transformed the ease with which consumers these days have been able to recycle unwanted silverware and jewelry. There was also a notable surge in western coin scrap last year.

European silver scrap grew by 18% last year to a record 53.0 Moz (1,650 t). A fair portion of the gain was due to industrial contributions, which have benefited from higher silver prices, as this can make recovery economic from various low grade sources. There was also a boost from an increase to the refining capacities for those taking in E-scrap, at a time when yields are holding more stable as their historical slide looks to be bottoming. The industrial segment remains a gray area, however, as it is very difficult to separate out what is truly old scrap from process scrap, particularly if cross-border movements in this material occur. That said, we feel this sector is likely to remain the largest supplier of old scrap.

The fastest growth, however, appears to have been recorded at the high grade end of the spectrum. Some of this is attributable to old jewelry coming from individuals and being melted down but much emphasis, especially in

World Scrap Supply



Source: Thomson Reuters GFMS

Italy, was placed on the boom in receipts from silverware. Given that the pool of silverware in that country could easily exceed 200 Moz (6,000 t), it is not surprising that high prices and a gloomy economic backdrop trigger weighty selling of now dated pieces. This can also be done easily as a collection network based on gold jewelry has already been established. A significant, if perhaps fairly temporary, contribution last year was also made from old coins. Some came from profit taking collectors and some were commemorative coins being melted down as their fine silver value exceeded the face value.

The rise for total scrap would have been larger but for the ongoing slide in photographic scrap. Some segments within this, such as receipts from the motion picture industry, were broadly steady but there was a marked drop in the recovery from processing liquids due to the ongoing shift to digital in both consumer film and X-rays. There was also a slump in recovery from the far larger category of film, much of which is old X-rays. This was mainly due to both the ongoing slide in yields, which itself stemmed in part from hospitals' shift to dry view X-ray technologies, and to a drop in gross receipts. The latter is thought largely due to collectors having already sought out the bulk of old X-rays that can now be destroyed.

Last year, **US** silver scrap supply posted the largest increase in volume terms, with the country total rising by 17% to a record high. This performance was entirely due to the jump in the recycling of old jewelry and silverware, whose combined volume is likely to have exceeded the contribution from industrial scrap. As touched on in the introduction, the success of the US gold scrap collection industry (itself motivated by high metal prices), against a backdrop of a struggling economy, contributed to this

Table 4 - Supply of Silver from the Recycling of Old Scrap (million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Germany	16.7	19.0	19.2	17.6	15.1	15.1	14.6	12.6	14.9	16.7
UK & Ireland	13.6	13.0	12.4	11.6	10.9	11.2	10.9	10.2	9.6	10.9
Italy	3.6	3.6	3.3	4.3	5.5	5.6	5.9	5.8	6.5	9.7
France	3.9	4.1	3.8	4.1	4.5	4.6	5.1	5.5	6.2	7.0
Spain	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.7	1.3
Netherlands	1.4	1.4	1.4	1.4	1.3	1.1	1.1	1.0	1.1	1.2
Austria	1.9	1.5	1.6	1.3	1.3	1.2	1.2	1.1	1.1	1.2
Sweden	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.9
Belgium	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.7
Denmark	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Portugal	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Czech & Slovak Republics	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Finland	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4
Norway	0.7	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Switzerland	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Other Countries	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total Europe	**47.1**	**48.4**	**47.5**	**45.6**	**43.8**	**44.0**	**43.8**	**41.0**	**44.9**	**53.0**
North America										
United States	60.2	58.8	55.6	57.0	53.2	53.6	55.4	54.4	64.6	75.2
Mexico	1.5	1.8	1.9	2.1	2.3	2.7	3.1	3.2	4.0	4.5
Canada	1.4	1.5	1.4	1.5	1.4	1.6	1.7	1.5	1.6	1.8
Total North America	**63.1**	**62.1**	**58.9**	**60.5**	**57.0**	**57.9**	**60.2**	**59.1**	**70.2**	**81.5**
Latin America										
Brazil	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.1	1.4	1.6
Argentina	0.6	0.6	0.6	0.6	0.8	0.6	0.5	0.4	0.6	0.7
Chile	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7
Other Countries	0.8	0.8	0.8	0.9	1.1	1.0	1.0	1.0	1.3	1.6
Total Latin America	**2.8**	**3.0**	**2.8**	**3.1**	**3.4**	**3.2**	**3.0**	**2.9**	**3.8**	**4.6**
Middle East										
Saudi Arabia & Yemen	7.2	0.7	1.3	1.6	1.8	1.9	1.9	1.9	2.2	2.3
Turkey	1.4	1.7	1.5	1.3	1.1	1.0	1.1	1.2	1.1	1.3
Egypt	1.3	1.1	1.4	1.4	1.5	1.5	1.7	1.8	2.0	0.9
Oman	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Countries	0.3	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.6	0.7
Total Middle East	**10.4**	**4.1**	**4.8**	**4.9**	**5.1**	**5.0**	**5.4**	**5.7**	**6.1**	**5.4**
Indian Sub-Continent										
India	6.8	9.5	10.4	16.1	22.5	16.1	13.8	15.0	17.9	20.6
Other Countries	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.8	1.0
Total Indian Sub-Cont.	**7.2**	**9.9**	**10.9**	**16.6**	**23.1**	**16.6**	**14.4**	**15.6**	**18.8**	**21.6**
East Asia										
China	11.8	13.1	15.2	17.5	20.4	22.5	22.7	25.3	29.2	31.9
Japan	30.2	29.9	28.3	27.4	26.0	25.7	23.7	21.3	20.9	23.0
South Korea	6.7	7.1	7.2	7.3	7.7	7.8	7.7	8.4	9.4	10.0
Taiwan	2.3	2.5	2.7	2.7	2.8	2.9	3.1	3.6	4.1	4.5
Thailand	1.9	2.1	2.4	2.2	2.6	2.7	2.9	3.1	3.7	3.7
Singapore	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6
Hong Kong	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Indonesia	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5

Table 4 - Supply of Silver from the Recycling of Old Scrap (million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Vietnam	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Philippines	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Countries	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Total East Asia	**54.7**	**56.4**	**57.7**	**59.0**	**61.7**	**63.8**	**62.2**	**63.7**	**69.6**	**75.4**
Africa										
Morocco	0.5	0.5	1.3	0.6	0.9	0.9	0.9	1.0	1.0	1.1
Other Countries	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
Total Africa	**1.0**	**1.1**	**1.8**	**1.2**	**1.5**	**1.5**	**1.5**	**1.6**	**1.7**	**1.8**
Oceania										
Australia	2.3	2.1	2.0	1.8	1.7	1.7	1.6	1.6	1.6	1.6
Total Oceania	**2.3**	**2.1**	**2.0**	**1.8**	**1.7**	**1.7**	**1.6**	**1.6**	**1.6**	**1.6**
CIS										
CIS	8.5	9.0	10.9	9.0	8.9	9.3	8.7	8.8	12.1	11.7
Total CIS	**8.5**	**9.0**	**10.9**	**9.0**	**8.9**	**9.3**	**8.7**	**8.8**	**12.1**	**11.7**
World Total	**197.3**	**196.0**	**197.4**	**201.6**	**206.0**	**203.0**	**200.9**	**200.0**	**228.7**	**256.7**

outcome, which was all the more impressive, given the lack of advertising (of silver buybacks). However, as discussed in *Gold Survey 2012*, high levels of unemployment, together with a lack of readily available consumer credit, encouraged the public to sell back what were typically high margin products.

In contrast, the recovery of silver from spent photographic products fell last year, while industrial scrap also edged lower. The latter occurred in spite of a further lift in E-scrap and in this regard it is worth noting the growth in US capacity, against an expected rise in US E-scrap supplies. In spite of this, an important offset was the drop in the recovery of silver from spent EO catalysts. However, this must be viewed against what was an elevated total in 2010, during which changeouts, postponed (where feasible) from late 2008 and 2009, were carried out. However, with no repeat of this last year it was of little surprise that EO scrap fell.

The third largest rise in silverware and jewelry recycling emerged in **India**, where total scrap supply in 2011 jumped by 15% although, at 20.6 Moz (642 t), this still fell short of 2006's record high. In fact, last year's performance would have been far weaker were it not for a surge in third quarter supplies, as local prices rose to a peak of just over Rs. 65,000/kg. This may appear surprising as this peak fell short of the April record of Rs. 75,000/kg. However, bullish price expectations during the first quarter had discouraged recycling, but the end-April price retreat instead motivated consumers to take advantage of subsequent price strength.

Silver scrap in East Asia grew by 8% last year to a new record level of 75.4 Moz (2,346 t). The stronger price environment, coupled with industrial fabrication gains in several markets, generated the marked rise in recycling.

Scrap receipts in **China** rose by 9% last year to 31.9 Moz (992 t), assisted partly by increased X-ray and consumer film processing (from a low base), and a rise in recovery from EO catalysts. In addition, greater monitoring from environmental groups on electronic scrap collection has seen advancements in this area, with the higher silver prices adding incentive for the industry to follow stricter guidelines. Elsewhere, **Indonesia** saw gains over 12% last year, principally from the remelt of jewelry and silverware (both from consumers and across the supply chain), while industrial recycling accounted from much of the growth in recycling in **Taiwan** and **South Korea**.

Last year, **Japanese** scrap supply rose by 10%. This was driven by a lift in volumes from old X-rays, elicited from hospitals by the strong silver price. It is worth noting, however, that major fluctuations do not occur from this source, because the medical sector is legislated to hold stock for a given length of time which means that supplies cannot be drawn out early. Electronics scrap, meanwhile, remained largely unchanged, despite higher silver prices. This was due to the lackluster economic backdrop as consumers refrained from scrapping old items, thus limiting the supply of electronics products entering the recycling supply chain.

6. Silver Bullion Trade

- ***Net UK bullion imports slumped by almost 80%, mainly through lower inflows from Russia and a surge in shipments to India, while Switzerland too looks to have seen higher outflows to that country.***

- ***Net Italian bullion imports fell by over 90% due mainly to a drop in fabrication and a surge in local and imported scrap, while Switzerland is thought to have seen higher scrap derived bullion imports.***

- ***Indian silver bullion imports rose by over a third in 2011, demonstrating a highly volatile pattern over the year that was heavily dictated by investor price expectations.***

- ***Weak industrial demand led to a drop in bullion imports across much of East Asia, while Thai inflows fell due to soft jewelry offtake; Singapore was the only country to see its receipts grow.***

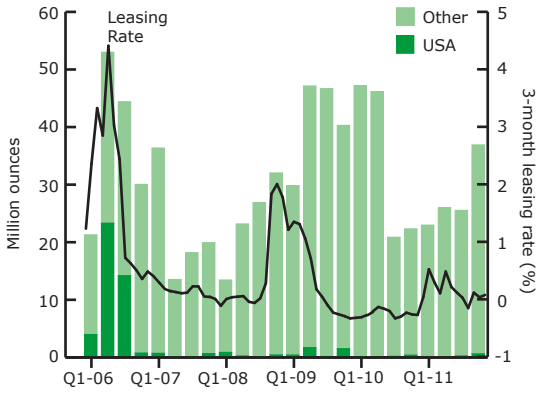
Europe

Europe is one of the world's main structural deficit regions as regards silver as its fabrication greatly exceeds the supply derived from mine production and locally generated scrap; last year, supply from those two amounted to 54.4 Moz (1,693 t) and 53.0 Moz (1,650 t) respectively, while fabrication stood at 147.3 Moz (4,582 t). Part of that resultant deficit of almost 40 Moz (1,250 t) is covered by imported scrap. However, that still leaves a clear need for imports of refined bullion (much of which goes to the United Kingdom, as home to the London terminal market), and also doré and concentrates (a great deal of which goes to Switzerland, with some of the world's largest refineries). These inflows can often exceed the apparent deficit, which, in conjunction with sizable loco-London and loco-Zurich stocks, means bullion exports from Europe can also prove substantial. Bullion movements for Italy and Germany are also significant but these flows tend to be overwhelmingly intra-European.

UK bullion export data for 2011 shows a rise of a marked 19% to 92.2 Moz (2,867 t), chiefly through shipments to India more than doubling to 57.6 Moz (1,791 t). After a quiet first quarter when 3.7 Moz (114 t) was exported to that destination, these grew dramatically to an early peak in May and, after a quiet summer, to a yet higher peak in October of 17.7 Moz (550 t). This illustrates the extent to which demand in India can be influenced by price movements. In contrast, there were marked declines in shipments to Germany and Canada and a fair sized drop for outflows to Switzerland and the United States.

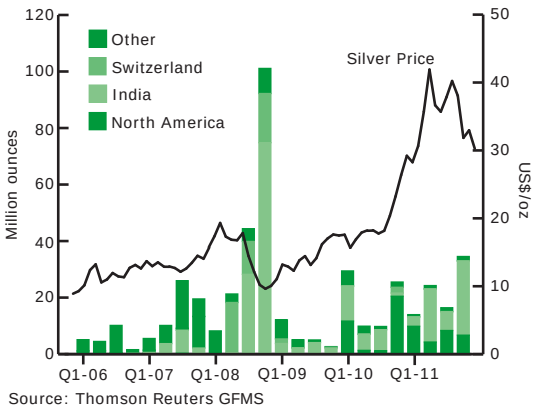
UK bullion imports fell a notable 25% to 106.5 Moz (3,312 t). This was largely due to the 38.2 Moz (1,188 t) slump in receipts from Russia, which would certainly tie in with the story of lower government sales from that country. There was also a notable drop for inflows from Hong Kong, despite a surge in volumes in May last year. In contrast, there were fair sized gains for imports from Germany and Switzerland. This meant a collapse in net UK imports from 64.8 Moz (2,014 t) in 2010 to just 14.3 Moz (444 t) last year.

UK Bullion Imports



Source: Thomson Reuters GFMS

UK Bullion Exports



Source: Thomson Reuters GFMS

As reported by country of origin, **Swiss** bullion imports grew by around 20% to almost 54 Moz (1,680 t). Greater receipts from Hong Kong, Belgium and Italy explain much of the rise, suggesting higher volumes of scrap derived supply. There was an increase for inflows from origins whose metal is likely to primarily be mine output, such as Chile, Kazakhstan and Mexico, but, on a fine weight basis, their combined increase was outweighed individually by each of the above more scrap focused origins. Not all origins fully disclose data and we are led to believe that there was a notable drop for these countries. As such, it is possible that true Swiss imports did not grow at all.

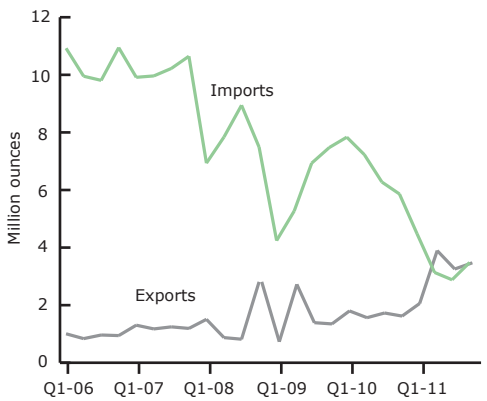
Swiss exports as reported by destination stand at some 39 Moz (1,200 t, up 3% year-on-year) but this figure lacks real meaning as the largest home, India, has only released numbers to end-July. As a result, we need to make an allowance for that and, since demand in India was reported strong beyond July (especially in October), total Swiss exports should have been higher, perhaps close to 46 Moz (1,440 t) and therefore up around 20% on 2010. However, industry comment suggests lower outflows to homes that fail to fully disclose data and, as a result, actual Swiss exports last year could have dropped slightly. Nonetheless, this would still leave the country with fair sized net imports in 2011.

Official **German** figures show bullion imports falling in 2011 by 10% to 26.1 Moz (813 t) in gross weight terms. However, that number is understated due to data suppression for certain countries and, if data as supplied by the latter on exports to Germany were included, true German imports would be roughly double the above number. If that tonnage is then converted to a fine weight, we are left with bullion imports falling by just over 10% to around 46 Moz (1,435 t), which no doubts reflects the country's 12% drop in total fabrication and its 12% rise in scrap. As for exports, these fell by 29% to 56.9 Moz (1,771 t), basis official German gross figures. If we then add in data from the missing countries and convert this to a fine weight, we derive a drop of 25% to a level only slightly higher of almost 61 Moz (1,900 t). This analysis therefore suggests a swing from net imports in 2010 of around 3.5 Moz (100 t) to net exports of just over 14.5 Moz (450 t), much of which was shipped to the United Kingdom, Austria and the United States.

Italian trade data shows a drop in 2011 of 48% in its silver bullion imports to 14.2 Moz (441 t), largely as a result of lower receipts from Germany. At the same time, exports rose by 92% to 12.6 Moz (393 t), with outflows to the United States and Switzerland explaining much of the rise. This left net imports falling by 93% to just 1.5 Moz (48 t). There are no obvious distorting factors to these figures and so the reality they portray instead is a notable drop in bullion requirements as fabrication fell by 20%, at the same time as both domestic and imported scrap grew more strongly.

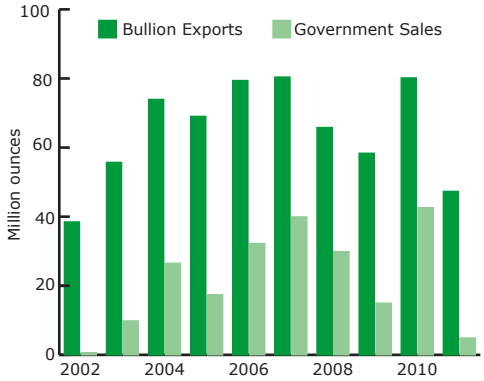
Silver bullion exports from the **Commonwealth of Independent States** fell in 2011, largely due to a drop in Russian deliveries. This in itself was chiefly because of lower Russian government sales, in spite of last year seeing a rise in the underlying supply/demand surplus (a 9% lift for mine supply, along with a 16% drop in fabrication). Elsewhere, bullion exports from Kazakhstan fell last year even though mine supply was unchanged, while in fact refined silver output grew. However, a change in government legislation disrupted exports, although "normal" levels had resumed by year-end.

Official Italian Bullion Imports & Exports



Source: Thomson Reuters GFMS

CIS Bullion Exports & Russian Government Sales



Source: Thomson Reuters GFMS

The Americas

Last year, **US** silver bullion imports rose by 12% to an estimated 207.8 Moz (6,464 t), comfortably the highest total in our 22-year data series; this followed on from a (then) record high the previous year. On both occasions, this occurred in spite of the near absence of deliveries from **Peru** which, in 2008, had shipped around 39 Moz (1,200 t) to the United States. In sharp contrast, last year Peruvian shipments totaled a paltry 3.8 Moz (118 t).

The rise in inbound trade reflected improved US industrial offtake, prior to the fourth quarter and higher investment demand, both of which often demanded four 9s purity material (on occasion backed up with LBMA and/or Comex accreditation). With the Peruvian Doe Run La Oroya lead/zinc smelter facility also off-line, premiums on high purity silver surged from a typical 1-2 cents/ounce (over Comex silver) to a high of 20 cents. In broad measure, this phase lasted from late 2010 through to early 2011, a period sufficiently long to draw in material from a variety of locations. These included Poland, Germany, South Korea and Italy which, together, delivered 40.0 Moz (1,244) of silver bullion to the United States last year, compared with just 9.6 Moz (297 t) the year before.

The rapid growth in the number of countries supplying bullion to the United States provides an indication of the scramble for metal which characterized late 2010/early 2011. The strength of first quarter silver demand in the United States was reflected in the level of bullion imports at this time, which jumped to 60.1 Moz (1,869 t), against a (still elevated) quarterly average of 46.8 Moz (1,454 t) for 2010. As the year progressed, US bullion imports remained at a high level (albeit lower than the opening three months), but by the second quarter it was clear that the pace of fabrication demand had eased. This was reflected in softer bullion imports over the April to September period, but commitments to deliver metal into the United States resulted in a surge of excess supply towards year-end as imports jumped against a backdrop of far weaker industrial offtake. It was therefore of little surprise to see much of this intake delivered into Comex warehouses, although the growth in silver stocks only materialized between December 2011 and February 2012.

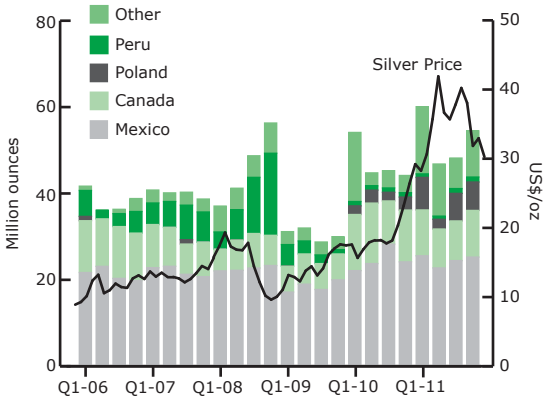
Turning to **Canada**, the rise in bullion imports in part reflected a legacy of the strike-related closure of the Industrias Peñoles Met-Mex facility during early 2010, as well as the country's lower port charges compared with the United States. Canadian bullion imports had therefore first jumped in 2010 (to 45.2 Moz, or 1,407 t, compared with 17.7 Moz, or 550 t, in 2009). Last year, Canada's inbound trade built on these gains, with an 8% rise to a new record high.

Middle East and Indian Sub-Continent

Robust demand in India helps explain the healthy rise in silver bullion imports to the **United Arab Emirates** last year. While banks and traders predominantly shipped silver directly to India from source markets, supply also was regularly vaulted in Dubai during periods of softer demand or when discounted prices (compared with international prices) stimulated stock building. Imports from Switzerland and Hong Kong dominated shipments, both recording significant increases, while deliveries from the United Kingdom dropped by over 1.3 Moz (40 t) from the levels seen in 2010.

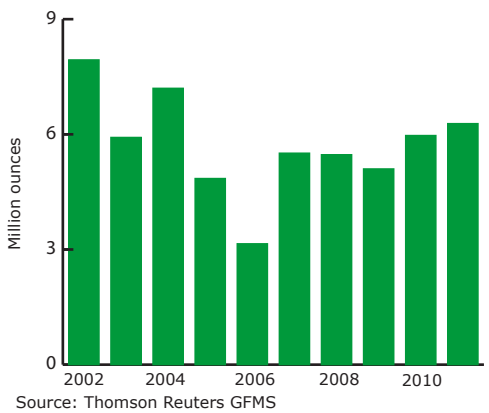
Turkey's bullion imports have long served to satisfy any shortfall in supply which may have emerged either

US Bullion Imports



Source: Thomson Reuters GFMS

Dubai Bullion Imports



Source: Thomson Reuters GFMS

as a result of variations in domestic mine production or through a seasonal pick-up in local demand. Last year, Eti Gümüş, which dominates Turkish silver mine supply, saw its output fall by 27% to 8.4 Moz (260 t). However, reported bullion imports, despite doubling, only reached 1.4 Moz (42 t), although this in itself was surprising, given the decline realized by Turkish jewelry and silverware fabrication last year. However, it emerged that the United Arab Emirates (UAE) had accounted for much of the growth in Turkey's bullion imports, with a similar volume subsequently re-exported. This therefore also boosted Turkey's total silver bullion exports.

Indian Bullion Imports

Moz	2007	2008	2009	2010	2011
OGL^	78.9	160.3	40.1	95.7	130.0
Others**	1.2	2.0	1.2	1.8	1.4
Total Imports	**80.0**	**162.3**	**41.3**	**97.4**	**131.4**
Local Premium*	6%	5%	5%	8%	5%

^Open general licence
* average percentage above London price at the official exchange rate (excluding all local duties and taxes)
** includes Direct Imports, Non-Resident Indians, Special Import Licence, and Replenishment Imports (i.e. imports of silver bullion for manufacture and re-export).
Source: Thomson Reuters GFMS

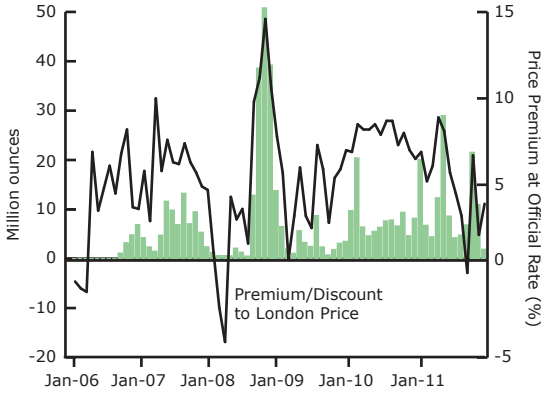
Indian bullion imports staged another strong increase in 2011, rising by 36% to 130.0 Moz (4,045 t). The import trade has always been extremely volatile and in this regard 2011 was no exception. Monthly imports varied and the price-elasticity of demand was amply illustrated by the way in which trade jumped in May and October following silver's two very sharp price declines. Imports were driven by the surge in Indian investment demand, itself partly the result of a shift away from gold because of the latter's high price, while combined demand for industrial, jewelry and silverware uses ran at broadly similar levels to 2010. Imports furnished 85% of total silver demand over the year.

Shipments from all major sources grew in 2011 compared with 2010. Thomson Reuters GFMS estimate that Greater China (China, Hong Kong and Taiwan) was the largest regional supplier, accounting for over 30% of the total, followed by the United Kingdom which approached 20%. Switzerland was again an important supplier, while shipments from Russia are believed to have almost doubled by comparison with 2010. Silver imports in 2011 ran at approximately 40% higher than the average for the 2000s, eclipsed only by 2001 and 2008. In the former year, demand had been very strong in the jewelry and silverware sectors, while 2008 was similar to 2011, with investment driving the market.

The broad trend in imports reflected strong demand in January, when silver prices weakened, and then a sharp decline in February and March as the run up in prices developed, when the local market was nervous of approaches towards Rs. 50,000 per kilogram. Then, as sentiment turned and investors came to believe that the price rise was sustainable, demand rose and imports accelerated in April, just as the price approached its peak, of a little over Rs. 70,000/kg (in late April).

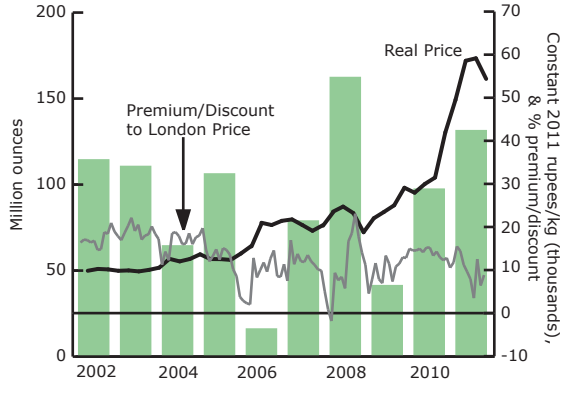
There was a substantial rise in imports during May after the price had corrected, with momentum carrying through into June, when import levels broadly matched those of April. Interest waned in July though to September; during this period Rs. 48,000/kg emerged as a key support level, before the price rose towards Rs. 63,000/

Gross Monthly Indian Bullion Imports



Source: Thomson Reuters GFMS

Indian Bullion Imports



Source: Thomson Reuters GFMS

kg during late September. Part of this rise and fall reflected dealer attitudes; the price slump precipitated heavy stocking, but not all of this material was sold on, and so imports fell away thereafter. The second price-related surge came in October and the pattern was broadly repeated.

These patterns were reflected in exceptionally high shipments from the United Kingdom in both May and October. In June, however, receipts from the United Kingdom declined, while those from Hong Kong surged. When deliveries jumped again in October, the United Kingdom was again the dominant supplier, although Hong Kong remained significant. (It should be noted that these are proprietary Thomson Reuters GFMS estimates of imports into India which in some circumstances differ markedly from official trade data.)

At the start of 2012, the Indian government changed the duty payable on gold and silver from fixed rates to an *ad valorem* tariff. The silver duty had previously been set at Rs. 1,500/kg but this was changed to 6%. With silver prices, at the time of the announcement, at almost Rs. 48,000/kg, this represented a doubling in the duty. The government raised the duty on gold a second time in March, but left silver untouched. By early March the local price had risen to a seven-month high and investment sentiment was again very bullish; these early indications would suggest that imports will again be strong this year.

East Asia

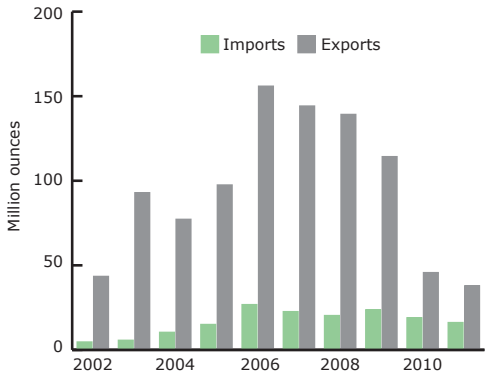
Thomson Reuters GFMS estimate that **Chinese** silver imports (a combination of bullion and base metal concentrates) fell by 8% in 2011 to 143.7 Moz (4,469 t). Reviewing each segment in isolation reveals that the largest contributor (at 88% of net imports) remained imported base metal concentrates, which, following a modest rise in 2010, slipped 6% last year to a calculated net quantity of 138.6 Moz (4,310 t). Elsewhere, bullion imports were also weaker in 2011, falling 40% to just 5.1 Moz (160 t), with deliveries from Hong Kong accounting for over 60% of the total.

Turning to exports, official trade statistics reveals that these continued their recent downwards trend, falling 17% to 37.9 Moz (1,178 t), a level not seen for almost a decade. Indeed, last year's total represented a significant step down from the 2006-2009 average of over 128 Moz (4,000 t), although, importantly, imports during this period were inflated by round tripping flows (to reclaim the VAT), which now appears to have largely abated. Not surprisingly, Hong Kong remained the dominant destination for bullion exports last year (accounting for over 90% of the total), with deliveries to this regional entrepôt slipping just 10% to 35.4 Moz (1,103 t). However, it was other traditional markets that saw more substantive falls, with shipments to Thailand (China's second largest export destination) dropping by more than 60%, while deliveries to the United Kingdom fell by almost half.

There appear to be two main drivers for the recent slide in exports and an apparent building of privately held stocks in China (including metal held by refiners and working stock by fabricators), which we estimate to have exceeded 96 Moz (3,000 t) last year. The chief catalyst for this was a reduction in the premium differential between the Shanghai Gold Exchange (SGE) and international markets, which has deterred exports. Furthermore, a rapidly expanding domestic market (for both jewelry and industrial fabrication), together with the removal of VAT on silver bullion exports, have all combined to inhibit bullion flows out of the country.

Hong Kong's bullion imports fell by almost 25% last year (on a calculated basis) to an 11-year low of just 38.7 Moz (1,243 t) according to official trade statistics. Not surprisingly shipments from China dominated the inbound trade, with receipts from the mainland contributing over 80% of the total. Although these were 15% lower in 2011, a more telling comparison reveals that Hong Kong imports from the mainland in 2011 were almost 45% below the 2006 peak. In terms of last year, higher domestic demand (across all sectors) and the smaller premium (between the SGE and international prices)

Chinese Official Bullion Imports and Exports



Source: Thomson Reuters GFMS

provided little incentive for smelters to export surplus stock, with many content to accumulate stock. The other main contributors to Hong's Kong imports were Taiwan and, to a lesser extent, Switzerland, which both saw material falls, the former by over 55%. Turning to bullion exports, these rose by over 30% last year, with deliveries to Taiwan and India up sharply, the latter by more than 75%, while shipments to the United Kingdom and Thailand declined.

Singapore's bullion imports rose by 62% in 2011 to 4.2 Moz (134 t) on a calculated basis as deliveries from South Korea and Indonesia (the largest contributors) rose sharply, easily offsetting substantive falls in imports from Hong Kong and the Chinese mainland. In addition, growth in photovoltaic fabrication in Singapore boosted demand from both Germany and the United States. Exports also recorded growth, rising by over 10% to 2.0 Moz (63 t), with deliveries to India (accounting for three quarters of total exports) more than doubling to offset a fall of around two-thirds in shipments to Indonesia.

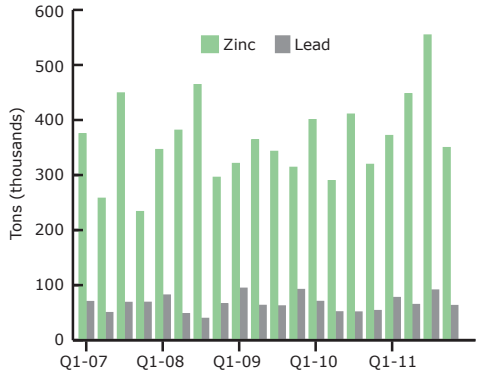
Weaker jewelry fabrication saw **Thai** bullion imports fall by 25% in 2011, to an estimated 24.3 Moz (756 t), the lowest total in our data series (which begins in the early 1990s). This owed much to a sharp drop in jewelry exports as demand from the industrialized world remained sluggish. Combined bullion imports from Hong Kong and the Chinese mainland still dominated imports (at almost 50% of the total), though volumes from here fell by over 40%. Moreover, the other major suppliers to the Thai market, namely Switzerland, Germany and South Korea, each posted lower deliveries, with South Korea (the largest of these three) falling by 7%.

South Korean bullion imports dropped by almost one-third last year to a 13-year low of 1.9 Moz (59 t). Weaker industrial demand accounts for part of the decline though a rise in silver recovered from base metal concentrates (mainly zinc) also limited the need for fresh bullion. Imports from China and Kazakhstan accounted for the bulk of South Korea's imports last year, both recording material gains, while shipments from Australia (the largest supplier in 2010) dropped by more than 90%. Exports, meanwhile, recorded healthy gains, rising 30% to 62.3 Moz (1,937 t). Shipments to Japan, which rose by 18%, dominated these flows (accounting for over 70% of the total), rising 18%. Elsewhere, deliveries to Hong Kong saw a marked increase over the previous year, as did flows to the United Kingdom, Canada and Singapore.

In 2011, bullion imports into **Japan** edged higher by around 2%. The rise was concentrated in the second quarter, as concerns over future supply shortages (as a result of the March earthquake), together with robust demand expectations, encouraged fabricators to build stocks. However, neither of these occurrences materialized, causing inflows to fall sharply over the final three months of last year.

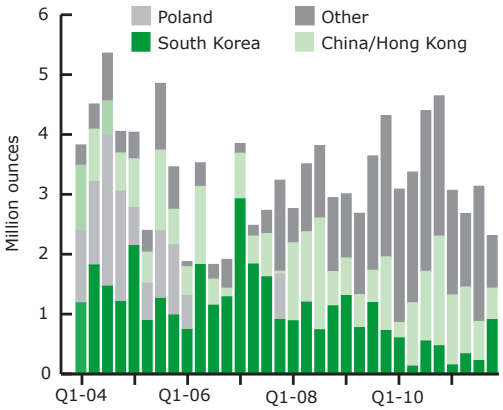
Exports, meanwhile, provided a mirror image to the import trend, with shipments shrinking to near insignificant levels in the second quarter, before surging in the fourth; over half of the year's total shipments left Japan in this period. This reflected the scale of surplus metal that had been accumulated by end-2011, caused by poor demand and over-stocking earlier in the year.

Korean Lead and Zinc Concentrate Imports



Source: WBMS

Thai Bullion Imports



Source: Thomson Reuters GFMS

7. Fabrication Demand

- ***World silver fabrication fell by 1.5% last year, but still posted the third highest total on record.***

- ***Every category of silver offtake declined in 2011, with the exception of coin minting which saw a new record high.***

- ***The 2.7% fall for industrial fabrication was chiefly due to a sharp fall in fourth quarter activity, which offset a strong first half performance.***

- ***A near collapse in fourth quarter photovoltaic demand drove down the global electrical & electronics total while, in contrast, brazing alloys & solders achieved a record high total in 2011.***

- ***High silver prices and weak economic growth contributed to the 4.5% fall in jewelry, in spite of substitution away from gold in many markets.***

- ***Photographic fabrication realized further losses in 2011, although the rate of decline eased to 8%.***

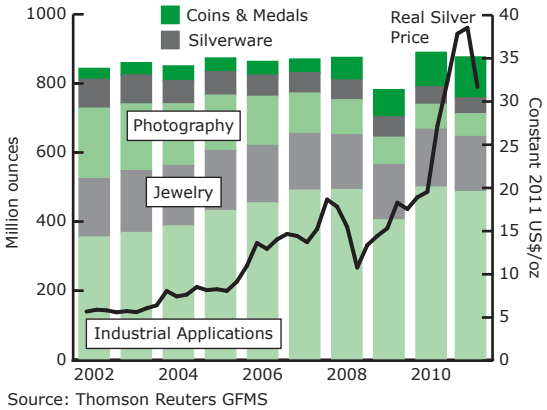
- ***Following its brief uptick in 2009, silverware demand in 2011 repeated the double-digit percentage decline seen during 2010.***

- ***Coin minting jumped by 18.9% last year to its highest total in our 22-year data series, led by strong bullion coin demand in the United States and western Europe.***

In 2011, global silver fabrication fell by 1.5% to 876.6 Moz (27,265 t). Although this may appear disappointing, given world GDP growth of 3.8%, two points are worth noting. First, last year's total still compares favorably with 2010's record level, which in fact has been revised higher since *World Silver Survey 2011* (following a re-assessment of industrial demand). As such, last year achieved the third highest total for global silver fabrication in our 22-year data series (2000 also saw higher offtake, thanks to photographic demand being sizable). Second, the intra-year trend varied considerably, largely because of developments within the industrial segment and, were it not for a material fourth quarter drop, 2011 may have seen a new record level.

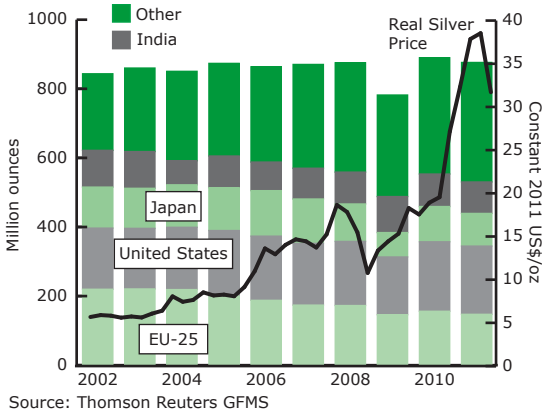
The fall in industrial offtake was largely unexpected and reflected overstocking of the supply chain, which produced a sharp fall in end-year silver demand as anticipated orders failed to materialize. High silver prices also played a role, with thrifting, for example, in photovoltaics gaining some momentum. Elsewhere, robust and volatile prices also impacted jewelry demand in 2011. Also of importance was the depressed nature of most western economies, which offset the benefits of substitution-led gains from gold. Turning to photography, this continued its long-term decline, while structural losses also impacted silverware. High silver prices and weak economic growth also contributed to the weakness in this sector, while this same backdrop, by contrast, drove the impressive performance for coins & medals fabrication in 2011, which was (chiefly) led higher by robust western investment demand for bullion coins.

World Silver Fabrication (by category)



Source: Thomson Reuters GFMS

World Silver Fabrication (by region)



Source: Thomson Reuters GFMS

Industrial Applications

- ***Industrial fabrication fell a modest 3% last year to 486.5 Moz (15,132 t), as a result of a surprise drop in fourth quarter demand.***

- ***Losses were mainly incurred in the United States and Japan, while China saw a modest rise.***

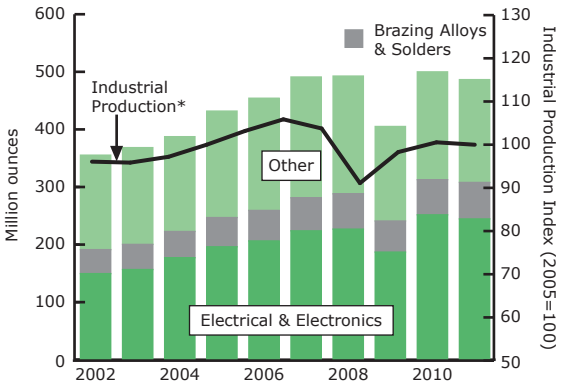
Global industrial offtake fell by a slight 2.7% in 2011 to 486.5 Moz (15,132 t), a level that was also lower than in both 2007 and 2008. All of last year's decline was down to marked and largely unexpected losses in the fourth quarter, since fabrication in the first three quarters combined was higher year-on-year. In fact, offtake in the second quarter looks to have achieved an all time high. That demand was so variable was largely due to the Eurozone crisis as that fed through to a slump in fourth quarter buying from industrial end-users of silver, at a time when some fabricators were carrying overly ambitious inventory levels. The response of end-users has been described by some as an over-reaction to the sovereign debt issue and that view seems vindicated by the marked recovery in end-user buying early this year. Despite the focus of the cause of problems being Europe, it was the United States and Japan that incurred the bulk of these fourth quarter (and full year) losses, although the US figure also hit by setbacks in photo-voltaic (PV) demand. Indeed, if we remove those two countries, demand in the rest of the world rose by 0.1%, thanks in the main to the 5% rise in Chinese demand.

It is worth noting that the above PV losses stemmed mainly from inventory mismatches rather than true end-use losses, although PV's silver consumption is being undermined by growing thrifting and substitution. Nonetheless, we should not underestimate the major contribution from this sector since, if we subtract its silver requirements, industrial demand last year only stood at a level similar to 2005's. That highlights the strategic importance of new end-uses for silver's industrial demand as thrifting and substitution impact use in traditional areas. Furthermore, with delays in testing and implementation for technologies that trim silver use, this process would be likely to continue even with a major price retreat, although silver's irreplaceability in many areas will curtail the extent to which this is possible.

Europe

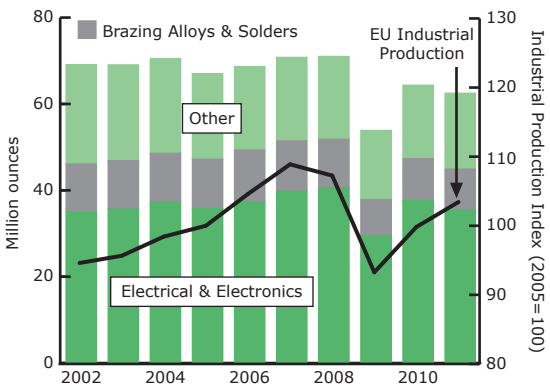
European silver industrial demand dropped by a modest 3% last year to 62.5 Moz (1,943 t). It might surprise that its losses were smaller than those recorded in the United States and Japan, even though much of the cause of global losses was the uncertainty caused by the Eurozone's sovereign debt crisis. This mismatch is largely explained by success for European original-equipment-manufacturers (OEMs) in exporting to emerging markets and also Europe's role in the PV market; the continent may dominate solar cell installation but we record fabrication at the first point of transformation from bullion and, in the context of PV, this is the production of powder which is overwhelmingly conducted elsewhere. As such, our European industrial statistics will not reflect the volume of silver lying in cells in say Germany nor the sector's fourth quarter problems. Furthermore, as European industrial demand therefore missed out on the PV boom, this helps explain the slide in Europe's share of global industrial demand to 13% from around 20% a decade ago, although less dynamic GDP growth and factory relocations to emerging markets also featured.

Components of Industrial Applications



*Advanced economies; Source: Thomson Reuters GFMS, IMF

EU Industrial Fabrication



Source: Thomson Reuters GFMS, OECD

European offtake is dominated by electronic and electrical demand, chiefly in the form of contact materials. It was this that saw modest losses overall in 2011 as initial gains were countered by fourth quarter losses, again as orders from end-users slumped due to the threat of a debt-led recession. The likelihood of poor industrial end-use within Europe this year, especially early on, has led to notable caution over inventory levels and this has been illustrated by a much slower recovery this year from last year's painful fourth quarter than in many other regions.

Another factor behind losses was substitution to other metals and perhaps more so, thrifting on the use of silver within components, such as a move to thinner silver layers on ever smaller contacts. This issue was for instance cited as a factor behind disappointing demand from the automotive industry. Much of this was down to the elevated absolute price of silver, although several industry contacts also reported damage stemming from high price volatility. There was also a negative swing in the cycle of infrastructure-led high voltage end-use.

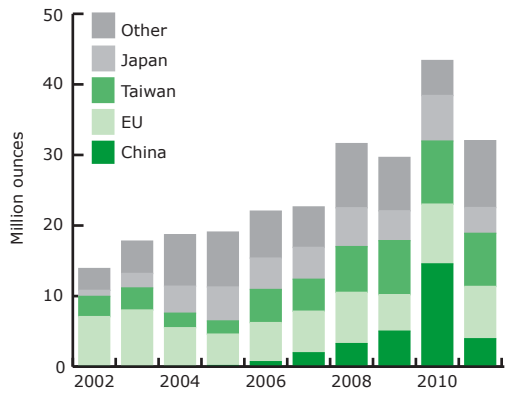
The remaining areas of silver demand had a mixed year. Demand for silver chlorides was reported to have fallen notably, while brazing alloy offtake only dipped slightly. The latter result was again mainly down to typical factors such as substitution and fourth quarter losses but the North African crisis also actually featured as this fed through to poor demand within Europe from the ventilation and air-conditioning sector. Demand from novel technologies was reported to have risen again, but only to still limited levels. By country, total industrial demand fared better in the more robust northern European countries, many of whom are also home to successful OEM exporters.

North America

Last year, **US** silver industrial fabrication fell by 5.1% to 119.8 Moz (3,727 t), although the 2011 total still achieved the second highest level in our 22-year data series. However, this headline does not convey the marked variation between the first half performance and that of the final three months of last year. In essence, the initial six months was characterized by record levels of industrial offtake in the United States, with a quiet third quarter then giving way to a steep decline during the October to December timeframe. Although the first half saw significant levels of multi-ordering the speed with which demand then weakened towards end-2011 was still widely unexpected, but more importantly this explains why the data series has been revised downwards compared with our more upbeat assessment at the time of the (early November) *Silver Interim* report.

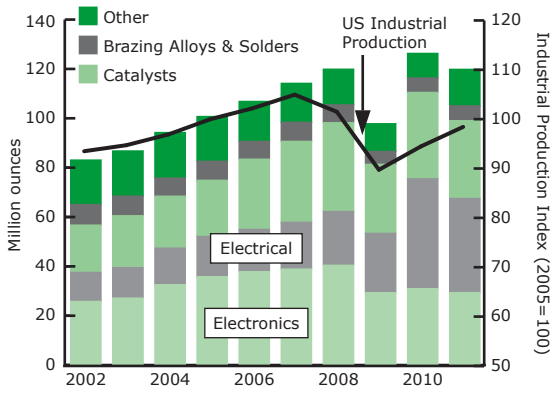
Overall, the United States' performance last year was due to the tremendous market share it has gained in the PV industry, covering both the production of silver powder and pastes. The surge therefore in PV production the year before was reflected in the growth in US silver electrical & electronics offtake (of which PV is a major sub-category), which jumped by 35% in 2010. In particular, the second half of 2010 had seen a ramp-up in PV demand, which had carried over into early 2011. At that time, robust forecasts, concerning the outlook for PV installations, encouraged the supply chain to invest in new capacity, not least in the production of silver powders. For a time, this positive outlook became partly self-fulfilling as companies further down the supply chain started to multi-order silver powder and pastes, as fears grew that PV-related supplies would not match the expected growth in PV installations. To some

US Silver Powder Exports



Source: Thomson Reuters GFMS

US Industrial Fabrication



Source: Thomson Reuters GFMS, OECD

Table 5 - World Silver Fabrication (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Germany	35.4	39.1	40.4	40.5	41.0	40.2	40.9	33.0	38.5	34.0
Italy	57.4	55.8	55.4	50.8	46.7	44.0	39.7	35.3	36.0	28.9
UK & Ireland	42.5	43.4	51.6	42.8	32.6	25.1	23.3	18.9	20.4	22.2
Austria	1.2	1.2	1.3	1.3	1.2	1.2	9.0	10.1	12.2	19.0
Belgium	30.8	29.3	27.6	26.2	28.7	27.3	23.9	19.0	17.1	13.8
France	27.7	26.3	13.0	12.5	12.7	13.2	13.5	10.3	11.8	11.2
Spain	5.2	4.8	6.3	5.6	5.0	4.5	4.3	4.0	4.3	3.3
Poland	3.2	3.8	4.3	4.7	4.8	4.4	4.2	3.5	3.6	3.1
Switzerland	3.4	3.0	3.1	3.3	3.1	3.1	3.1	2.8	3.0	3.0
Netherlands	2.1	1.9	2.5	2.2	2.0	2.0	2.0	1.7	1.9	1.8
Greece	2.8	2.9	2.8	2.6	2.5	2.3	2.2	1.8	1.5	1.3
Portugal	1.7	2.7	4.1	1.7	1.5	1.4	1.4	1.3	1.3	1.3
Norway	1.9	2.0	2.1	1.8	1.7	1.3	1.3	1.0	1.0	1.1
Sweden	1.0	1.2	1.2	1.2	1.2	1.1	1.1	0.9	1.0	0.9
Denmark	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
Czech & Slovak Republics	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.5	0.6	0.5
Yugoslavia (former)	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Hungary	0.4	0.4	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.3
Finland	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2
Cyprus & Malta	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2
Romania	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2
Other Countries	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1
Total Europe	**219.8**	**220.7**	**218.9**	**200.4**	**187.7**	**173.9**	**172.7**	**146.1**	**156.1**	**147.3**
North America										
United States	177.0	175.3	180.3	189.4	185.8	178.7	185.6	167.2	201.1	197.4
Canada	3.1	2.5	3.5	4.0	5.7	8.0	12.4	13.0	21.5	26.2
Mexico	18.1	20.2	21.9	22.3	18.9	18.5	17.5	16.4	17.3	16.0
Total North America	**198.2**	**198.1**	**205.8**	**215.7**	**210.4**	**205.2**	**215.5**	**196.6**	**239.8**	**239.7**
Latin America										
Brazil	6.4	6.6	7.3	7.5	4.7	7.2	6.9	6.4	7.7	7.4
Argentina	1.9	2.4	2.5	2.6	1.9	1.8	1.4	1.1	1.2	1.2
Dominican Republic	0.2	0.4	0.4	0.5	0.6	0.6	0.9	1.5	1.4	0.9
Peru	1.0	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.8	0.7
Colombia	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
Chile	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other Countries	1.0	0.9	1.1	1.0	1.1	1.1	1.4	1.4	1.5	1.3
Total Latin America	**11.6**	**12.1**	**13.1**	**13.3**	**10.2**	**12.5**	**12.4**	**12.2**	**13.7**	**12.4**
Middle East										
Turkey	8.2	9.4	10.3	9.9	8.9	8.0	8.4	7.1	6.5	6.1
Israel	2.7	2.6	2.7	2.8	2.8	2.8	2.6	2.2	2.2	1.8
Iran	1.4	1.5	1.5	1.6	1.6	1.6	1.5	1.4	1.4	1.3
Egypt	1.6	1.8	2.0	1.8	1.7	1.7	1.6	1.4	1.4	0.6
Other Countries	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.1	2.3	2.4
Total Middle East	**15.6**	**17.1**	**18.4**	**18.0**	**16.9**	**16.1**	**16.3**	**14.3**	**13.9**	**12.6**
Indian Sub-Continent										
India	106.4	106.4	69.5	91.6	82.8	89.1	92.2	104.3	94.1	91.1
Bangladesh & Nepal	4.8	4.5	4.2	3.7	3.6	3.6	3.7	3.6	3.5	3.3
Other Countries	2.1	2.1	2.3	2.4	2.4	2.4	2.3	2.2	2.0	1.8
Total Indian Sub-Cont.	**113.3**	**113.0**	**76.1**	**97.7**	**88.8**	**95.1**	**98.2**	**110.1**	**99.6**	**96.1**

Table 5 - World Silver Fabrication (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
East Asia										
China	59.7	67.7	76.1	82.7	91.1	104.2	114.3	110.1	127.2	139.9
Japan	118.7	116.0	123.0	124.1	131.7	128.4	108.4	70.6	102.1	94.6
South Korea	20.7	22.2	23.6	25.5	27.1	29.0	30.7	24.5	29.9	30.3
Thailand	32.6	36.6	37.0	37.0	37.0	36.7	33.6	30.7	30.7	25.1
Taiwan	10.2	11.0	10.6	12.0	13.2	14.7	15.5	12.5	15.3	15.9
Indonesia	4.5	4.7	5.8	5.1	5.7	5.5	5.4	5.4	6.2	6.9
Hong Kong	3.4	3.2	3.4	3.5	3.8	4.0	3.9	3.2	3.7	3.7
Vietnam	0.8	0.9	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.6
Myanmar, Laos & Cambodia	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.9
Malaysia	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.7	0.7
Other Countries	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.8	1.0	1.1
Total East Asia	**252.6**	**264.4**	**282.6**	**292.9**	**312.6**	**325.7**	**315.1**	**260.5**	**319.0**	**320.7**
Africa										
Morocco	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6
Tunisia	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3
South Africa	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Algeria	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Countries	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4
Total Africa	**1.7**	**1.7**	**1.8**	**1.8**	**1.8**	**1.9**	**1.9**	**1.7**	**1.8**	**1.7**
Oceania										
Oceania	5.8	6.3	5.8	3.9	4.3	6.5	8.7	9.1	11.6	14.2
Total Oceania	**5.8**	**6.3**	**5.8**	**3.9**	**4.3**	**6.5**	**8.7**	**9.1**	**11.6**	**14.2**
CIS										
CIS	25.0	26.7	28.2	29.7	31.0	33.6	34.5	31.4	34.6	31.8
Total CIS	**25.0**	**26.7**	**28.2**	**29.7**	**31.0**	**33.6**	**34.5**	**31.4**	**34.6**	**31.8**
World Total	**843.5**	**860.1**	**850.6**	**873.6**	**863.7**	**870.5**	**875.3**	**782.0**	**890.1**	**876.6**

extent, this trend was reminiscent of 2000 when the dotcom technology bubble had created near panic among companies looking to secure electronic supplies, against a backdrop of ever more bullish end-use forecasts. In terms of the PV market, although an increasing number of countries had installed PV infrastructure, Europe not only still dominated the market (in terms of newly installed capacity), but the industry remained heavily reliant on long-term subsidies (known as Feed in Tariffs or FiTs). Downside risks to the PV forecasts began to emerge as the Eurozone crisis intensified and with it a focus on expenditure cuts, which led to some FiTs being renegotiated, while orders for PV cells wee scaled back.

The uncertainty the Eurozone crisis created led to a slowdown in orders across the supply chain, at a time when production of silver powder and pastes in the United States was being ramped up. The build up of stocks at the start of the fourth quarter, which then emerged, against a backdrop of deteriorating new PV cell orders, led to a steep decline in silver powder fabrication towards year-end. Supplies to both domestic and overseas paste houses fell sharply, with the latter reflected in far weaker US silver powder exports. Against average quarterly shipments of 10.2 Moz (318 t) during the first nine months, powder exports dropped to 4.0 Moz (124 t) for the October to December 2011 period. This uncertainty carried through into early 2012 with, for example, overseas deliveries remaining depressed, although orders did gradually recover as excess stocks (of both powder and paste) were depleted.

The PV market last year was also impacted by high silver prices, which encouraged manufacturers to reduce silver contained in the paste (see the Focus Box on page 62). However, outside of the paste industry (taken as a proxy for PV offtake, but also including, for example, the plasma display panel market), there was little obvious sign of

Table 6 - Silver Fabrication: Industrial Applications (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Germany	21.2	21.7	23.5	23.9	25.5	27.4	27.5	20.2	26.6	25.6
UK & Ireland	13.9	14.9	15.5	12.4	12.5	12.0	12.1	9.1	10.2	11.3
Italy	10.4	10.2	11.5	10.9	10.9	11.3	11.2	9.0	9.9	9.3
France	14.6	13.8	10.3	10.2	10.4	10.7	10.8	7.5	8.8	8.0
Switzerland	2.7	2.3	2.4	2.6	2.5	2.5	2.5	2.2	2.4	2.4
Netherlands	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.3	1.5	1.5
Spain	1.3	1.2	2.1	1.9	1.9	1.9	1.9	1.7	1.8	1.4
Poland	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7
Austria	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5
Norway	0.6	0.6	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.4
Sweden	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Czech & Slovak Republics	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3
Belgium	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Other Countries	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.6	0.7	0.7
Total Europe	**69.1**	**69.0**	**70.5**	**67.0**	**68.6**	**70.8**	**71.0**	**53.9**	**64.3**	**62.5**
North America										
United States	83.1	86.8	94.2	100.8	106.8	114.1	119.0	97.8	126.3	119.8
Mexico	3.0	3.1	3.0	3.2	3.1	3.3	3.1	2.7	2.9	2.8
Canada	0.5	0.5	0.6	1.0	1.7	2.7	2.4	1.3	1.9	1.9
Total North America	**86.6**	**90.4**	**97.8**	**105.0**	**111.6**	**120.0**	**124.6**	**101.8**	**131.1**	**124.5**
Latin America										
Brazil	3.2	3.0	3.7	4.5	2.9	4.0	3.9	3.5	4.2	4.2
Argentina	0.6	0.6	0.6	0.9	1.0	1.1	1.0	0.8	0.9	0.9
Colombia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Ecuador	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4
Total Latin America	**4.5**	**4.3**	**5.0**	**6.0**	**4.6**	**5.7**	**5.5**	**4.8**	**5.7**	**5.7**
Middle East										
Turkey	1.2	1.4	1.5	1.5	1.6	1.6	1.6	1.4	1.5	1.6
Israel	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
Oman	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Middle East	**2.3**	**2.4**	**2.5**	**2.5**	**2.6**	**2.7**	**2.7**	**2.3**	**2.5**	**2.5**
Indian Sub-Continent										
India	44.4	44.4	33.9	53.7	54.2	63.9	65.0	64.8	63.6	61.9
Pakistan	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total Indian Sub-Cont.	**44.7**	**44.7**	**34.1**	**54.0**	**54.6**	**64.2**	**65.3**	**65.1**	**63.9**	**62.2**
East Asia										
China	37.7	42.6	47.2	52.9	58.2	67.5	78.0	73.1	84.4	88.5
Japan	59.1	60.4	73.7	84.1	89.5	90.9	73.7	45.6	79.0	71.6
South Korea	16.2	17.5	19.0	20.8	22.3	24.1	25.9	19.7	24.5	24.5
Taiwan	9.9	10.7	10.3	11.6	12.7	14.2	15.0	12.1	14.7	15.4
Hong Kong	3.0	2.9	3.1	3.2	3.4	3.6	3.5	2.8	3.3	3.3
Other Countries	0.5	0.5	0.6	0.6	0.6	0.6	0.8	1.0	1.4	1.6
Total East Asia	**126.3**	**134.6**	**153.8**	**173.1**	**186.6**	**201.0**	**196.9**	**154.3**	**207.3**	**204.8**

Table 6 - Silver Fabrication: Industrial Applications (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa										
Morocco	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3
South Africa	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Africa	**0.5**	**0.5**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
Oceania										
Oceania	2.1	2.2	2.2	2.0	2.1	2.1	2.1	1.9	2.0	2.1
Total Oceania	**2.1**	**2.2**	**2.2**	**2.0**	**2.1**	**2.1**	**2.1**	**1.9**	**2.0**	**2.1**
CIS										
CIS	19.3	20.3	20.9	21.6	22.9	23.9	23.9	20.5	22.5	21.6
Total CIS	**19.3**	**20.3**	**20.9**	**21.6**	**22.9**	**23.9**	**23.9**	**20.5**	**22.5**	**21.6**
World Total	**355.3**	**368.4**	**387.4**	**431.8**	**454.2**	**491.1**	**492.7**	**405.1**	**500.0**	**486.5**

thrifting. In the electrical & electronics sector, although silver coated copper has gained some traction, at the expense of silver wire, its market share gain has been modest and as such the impact on electrical & electronics silver demand has gone almost unnoticed. In contrast, there was little change in the composition of multi-layer ceramic capacitors, with the 70:30 silver:palladium blend similar a year ago, reflecting the relatively low price sensitive, high-end nature of most end-users.

The brazing alloys & solders market is one area which has experienced thrifting, in terms of move to lower silver containing alloys and substitution, such as a shift in favour of plastic tubing. However, US offtake is believed to have risen last year in spite of the weak housing sector, principally it seems because of market share gains at the expense of imported products.

In contrast, the use of silver in the ethylene oxide (EO) industry weakened last year, due to sluggish global GDP growth. Even so, silver offtake has benefited from a trend to larger plants (in terms of the installed poundage of EO catalyst), as well as a lift in the contained silver per plant. As a result, it has become more common for new capacity to contain over 2 Moz (62 t) of silver, compared with less than 1 Moz (31 t) as three to five years ago.

United States Industrial Production

(Index, 2005 = 100)

2007	2008	2009	2010	2011
105.0	101.5	89.7	94.5	98.4

Source: OECD

India

Last year, total silver industrial demand in India fell by 2.7% to 61.9 Moz (1,925 t). Although this marked the second successive year of weaker output, a more accurate assessment would be that industrial fabrication in 2011 was in fact still only down slightly on 2008's record high of 65.0 Moz (2,022 t). In fact, last year's performance was surprisingly robust, given not only the slowdown in Indian GDP growth (to a full year average of 7.1%, compared with 10.1% in 2010), but also in light of far stronger rupee prices (which surged by 74% in 2011, basis the annual average, to a record Rs. 55,638/Kg).

As the above commentary alludes to, a more accurate analysis of Indian industrial demand calls for "authentic" industrial offtake to be treated separately from its price sensitive components. Taking each in turn, what immediately stands out is the record level of fabrication realized last year for the first of these two categories, which encompasses electrical & electronics (which grew by almost 15% to 13.5 Moz or 551 t) and brazing alloys & solders (which saw a 10% improvement to 5.7 Moz or 221 t). As stated above, this occurred against a backdrop of still decent GDP growth. (Here, more so than in most other large industrial fabricators, local market indicators have a far greater bearing on the country's silver industrial output, given the only limited export of silver-bearing components.)

Looking at last year in more detail, it is clear that the gains for the true industrial sector were concentrated in the first half, as growth slowed in the third quarter then fell during the October to December period. Although

Indian Vehicle Production

(units, 000s)

2007	2008	2009	2010	2011
1,985	2,095	2,464	3,247	3,579

Source: Global Insight

growth in Indian manufacturing output slowed in 2011, a select number of sub-categories did performed well. In particular, automotive production enjoyed another strong performance, with a 10% gain to 3.6 million vehicles. To put this into perspective, as recently as 2008 the country total was a little over 2.0 million units. In addition to the rise in Indian car production, the growing in-car functionality offered to consumers boosted the average contained silver per vehicle, although it would be fair to say that this trend was by no means widespread, with far greater visibility at the top end of the market.

Elsewhere, brazing alloys & solders silver demand responded to the lift in infrastructure spending across the country, although a generally healthy performance last year was punctuated by a sharp decline during the late third quarter/early fourth quarter period.

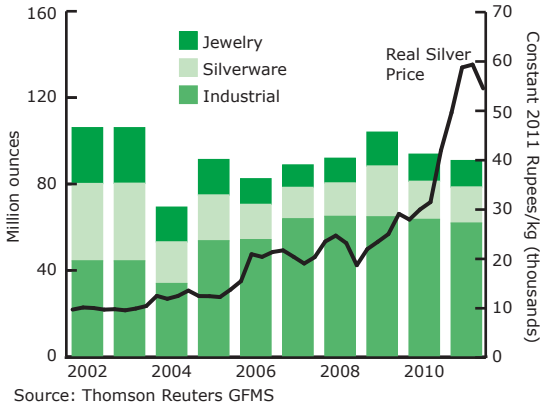
Turning to the price sensitive areas, in 2011 these accounted for 60% of Indian industrial offtake. As significant as this may appear, this compares with a contribution (to the overall total) of around 85% at the turn of the millennium. In essence, the declining market share has been due to the impact of rising rupee silver prices (over an extended period), compared with the development, in particular, of the country's infrastructure. However, the decline has not only been relative to the more "authentic" uses, with total offtake last year (for the traditionally price elastic components) some 6% down in absolute terms on the 2000 total. However, against the 2007 peak, last year's total was around 20% lower. Although this demonstrates the high degree of price elasticity of some demand segments, including jari and foil, of concern has been the substitution away from silver. In other words, looking ahead, should prices weaken materially, Indian demand may only see a limited price elastic response, given the investment that has now been made in qualifying low or silver-free products.

In terms of the sub-categories of price elastic industrial demand, the 10% decline in the use of silver in jari in 2011 (which covers the production of thread for the garment industry) marked the sixth straight year of losses. That said, it was surprising in 2011 not to see a more than 10% reduction, given both the dramatic surge in rupee silver prices and the ongoing substitution in favor of less expensive materials. However, anecdotal evidence suggests that silver offtake in the jari market jumped following the end-April/late-September price action.

East Asia

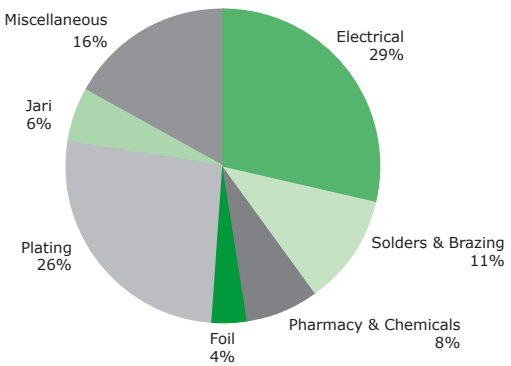
Japanese industrial demand reached 71.6 Moz (2,226 t) last year, some 9% lower than the 2010 level and still over a fifth below the peak seen in 2007. This proved to be a disappointing outcome for a year that started with healthy demand and a sense of optimism that dimmed the memory of the 2009 contraction. The decline began to emerge in the third quarter, before gathering pace in the fourth. Furthermore, persistent yen strength throughout the year did little to help the export-oriented Japanese market.

Indian Fabrication



Source: Thomson Reuters GFMS

Indian Industrial Fabrication, 2011



Source: Thomson Reuters GFMS

Japanese Industrial Production

(Index, 2005 = 100)

2007	2008	2009	2010	2011
107.2	103.8	81.7	94.8	91.4

Source: OECD

Japanese Non-Photographic Nitrate & Contact Production

Million ounces

	2008	2009	2010	2011
non-photo nitrates	20.8	12.9	19.6	17.4
contacts	9.9	4.8	9.0	8.4

Source: Thomson Reuters GFMS

The first two months of the year saw healthy gains from end-2010 levels. However, in early March, an earthquake and tsunami struck the country. Somewhat counter intuitively, however, this did not lead to a contraction in silver demand. In fact, the opposite was true; in the period immediately after the earthquake, silver offtake surged. This was caused by the highly uncertain operating environment, which saw fabricators stockpiling metal while they still could, in fear of future supply issues.

These fears proved largely unfounded, however, with few instances of supply problems in terms of silver users. This was largely thanks to a low concentration of silver-related plants in the north-east region, although there were some disruptions due to the rolling blackouts that ensued as a result of the nuclear crisis.

Following the surge in demand in the second quarter, however, orders began to slow in the third, as it transpired that shortages were now unlikely to occur. Even those fabricators that had been affected recovered more quickly than expected. In addition, end-use demand began to weaken, primarily due to the contraction in the key European market as the effects of the sovereign debt crisis began to make its mark, compounded by a sluggish US market.

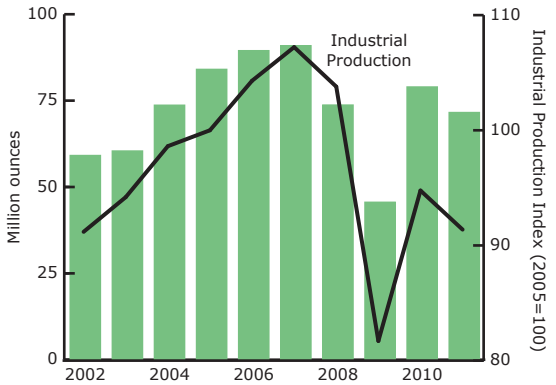
The brunt of the decline came in the fourth quarter, however, when the Eurozone debt crisis was in full swing. The need for fresh metal was severely constrained, as not only did demand fail to materialize as anticipated, but the significant stocking that took place in the second quarter meant that fabricators already had excess inventory. Declines were seen across all major areas of demand.

The use of silver nitrates fell by some 15%, in line with the downturn in demand for electronics and electrical items. Silver nitrate also faced attrition from thrifting. Indeed, the amount used per item (such as cell phones and computers) has been on a sharply declining trend over the last five years; although there has been strong growth in new items requiring silver nitrate (such as tablet computers), the amount used per unit is marginal and has proved insufficient to outweigh losses elsewhere. It would appear, therefore, that demand for silver in silver nitrate in Japan has in fact fallen below that seen five years ago. Demand for contacts also slipped, due to the decline in auto production, which was heavily affected by both the Japanese earthquake and Thai flooding.

In terms of silver used in brazing solders and alloys, this too saw a sharp contraction in the fourth quarter. Sluggish demand from the construction industry, as well as for refrigerators and air conditioning units, were behind the fall. In addition, although silver has benefited from the switch from lead-based solders in many areas, its high price nonetheless means that there is considerable pressure to reduce silver content; some makers are targeting a two-thirds reduction of the white metal from current levels in the mid-term.

Demand for silver powder for use in photovoltaics, meanwhile, posted a year-on-year decline for the first time in Thomson Reuters GFMS' records, with volumes in the final quarter falling to around half of their peak levels. This was due to a combination of factors, including the large surplus of cell production from 2010 and aggressive

Japanese Industrial Fabrication



Source: Thomson Reuters GFMS, IMF, OECD

The Main Uses of Silver

Silver has unique properties which include its strength, malleability and ductility, its electrical and thermal conductivity, its sensitivity to and high reflectance of light and, despite it being classed as a precious metal, its reactivity which is the basis for its use in catalysts and photography. This versatility means that there are few alternative metals in most applications, particularly in high-tech applications in which reliability, precision and safety are fundamental.

Industrial

Silver possesses a number of technological qualities which make it ideal for a range of industrial applications. In particular, silver is the best electrical and thermal conductor of all metals, which makes it indispensable in numerous electrical applications, including conductors, switches, contacts and fuses. This includes the use of silver in electronics in the preparation of thick-film pastes, including silver-palladium for use as silk-screened circuit paths, in multi-layer ceramic capacitors, in the manufacture of membrane switches, silvered film in electrically heated automobile windshields and in conductive adhesives.

Contacts provide junctions between two conductors that can be separated and through which a current can flow, and also accounts for a sizable proportion of electrical demand. Conductive silver inks, made from silver paste (manufactured from silver powder), are printed onto a wide array of devices, including photo voltaic cells, solid state lighting devices, sensors, radio frequency identification tags and plasma display panels. Silver provides both exceptional conductivity and ease of electro-deposition from a double-alkali metal cyanide, such as potassium or silver cyanide, or by using silver anodes, at relatively low cost. Silver is also used as a coating material in optical data storage media, including DVDs.

The unique optical reflectivity of silver, and its property of being virtually 100% reflective after polishing, allows it to be used both in mirrors and glass coatings, cellophane or metals. Batteries, both rechargeable and non-rechargeable, are manufactured with silver alloys (increasingly silver-zinc) as the cathode and are regarded as a rapid growth area. Although expensive, silver cells have superior power-to-weight characteristics than their competitors. The most common of these batteries is the small button shaped silver oxide cell (approximately 35% silver by weight) used in watches, cameras and electrical products though demand from laptop and automotive industries is growing rapidly.

Silver, usually in the form of mesh screens but also as crystals, is also used as a catalyst in numerous chemical reactions. For example, silver is used in formaldehyde catalysts for the manufacture of plastics and, to an even greater extent, in ethylene oxide catalysts for the petrochemical industry. Silver is employed as a bactericide and algicide in an ever increasing number of applications, including water purification systems, surface treatments and disinfectants. The joining of materials (called brazing if done at temperatures above 600º Celsius and soldering when below) is facilitated by silver's fluidity and strength. Silver brazing alloys are used widely in applications ranging from air conditioning and refrigeration equipment to power distribution equipment in the electrical engineering and automobile industries.

Photography

The photographic process is based on the presence of light-sensitive silver halide crystals, prepared by mixing a solution of soluble silver, usually silver nitrate, with a soluble alkali metal halide such as sodium chloride or potassium bromide. These grains are then suspended in the unexposed film. The effect of light on the silver halide disturbs the structure of this compound, rendering it selectively reducible to metallic silver by reducing agents called developers. The resulting negative image is converted to the positive by repeating the process under specific conditions. Photographic film is used in radiography, the graphic arts and in consumer photography.

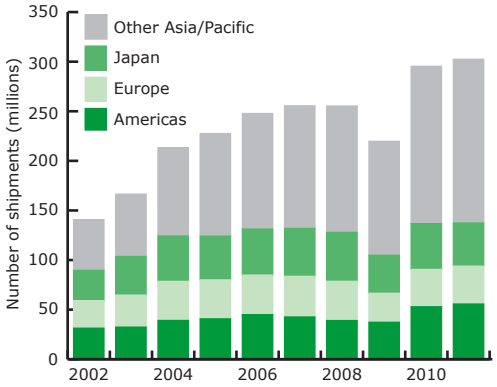
Jewelry and Silverware

Silver possesses working qualities similar to gold, enjoys greater reflectivity and can achieve the most brilliant polish of any metal. Consequently, the silversmith's objective has always been to enhance the play of light on silver's already bright surface. Pure silver (999 fineness) does not tarnish easily but to make it durable for jewelry it is often alloyed with small amounts of copper. It is also widely used with base metals in gold alloys. Sterling silver, at a fineness of 925, has been the standard of silverware since the 14th century, particularly in the manufacture of "hollow-ware" and "flatware". Plated silverware usually has a coating of 20-30 microns, while jewelry plating is only 3-5 microns.

Coins

Historically, silver was more widely used in coinage than gold, being in greater supply and of less value, thus being practical for everyday payments. Most nations were on a silver standard until the late 19th century with silver coin forming the main circulating currency. But after the gold rushes, the silver standard increasingly gave way to gold. Silver was gradually phased out of regular coinage, although it is still used in some circulating coins and especially in American, Australian, Canadian, Austrian and Mexican bullion coins for investors.

Global Semi-conductor Billings



Source: SIA

thrifting (addressed more fully on page 61), as well as the ongoing shift of production to elsewhere in East Asia.

Despite a modest slowdown in economic growth and a sizable drop in exports in the final quarter of 2011, industrial offtake in **China** surpassed the previous year to set a new record high of 88.5 Moz (2,754 t), representing a 5% year-on-year gain.

Last year's growth in household consumption was bolstered by ongoing subsidies and rebates for purchases of white goods which lifted output across several industrial sectors, especially in the period leading up to the expiry of the government's scheme at the end of last year. This three-year policy was designed to boost the proliferation of white goods and consumer electronics, largely in rural areas. It allowed for a tax rebate of up to 13% on purchases of air conditioners, refrigerators, washing machines, LCD TVs and other consumer electronics. The National Bureau of Statistics of China reported that 66.7 million household washing machines, 139.1 million domestic air conditioners, 96.9 million household refrigerators were produced in 2011, each product showing a healthy double digit rise year-on-year.

Looking in more detail, rising brazing alloys & solders demand benefited from China's ongoing surge in infrastructure expenditure rising by 7% to a record high 29.9 Moz (929 t). Similarly, electrical & electronic fabrication grew by 4% to 37.4 Moz (1,243 t), although stronger first half gains were offset by a slowdown towards year-end as export markets softened. China's semi conductor (especially integrated circuits) sector continued on the growth path started in 2000 and rose by 10% year-on-year. Behind this performance was a surge in fabrication of cell phones, electronic personal devices, as well as tablet and net book computers, which registered a 30% year-on-year increase in sales.

In addition, further growth from within the Chinese automotive sector added to demand as production exceeded 18 million units last year. Moreover, demand for silver in this segment has grown in recent years as increasing safety requirements, coupled with higher consumer expectations, continued to augment the usage of electrical (contacts, switches and metallization pastes) and electronic components. Last year's threefold increase in electric vehicle production also added to demand and is an area expected to grow strongly in coming years.

With only marginal growth in new capacity, the use of silver as a catalyst in the production of ethylene oxide (EO), used primarily in the production of mono ethylene glycol, rose by less than 1% year-on-year. However, fabrication of silver metallization paste most commonly used in photovoltaic (PV) cell production, antennae and various circuits rose sharply in the first half before suffering a sharp drop in the last quarter of the year. Moreover, solar cell exports from China were just 3% higher in 2011, a sizable drop on the 260% jump in 2010. Three quarters of Chinese solar cell exports are destined for the EU. Withdrawal of or reduction in subsidies in Feed in Tariffs (FiTs) in many EU member countries, coupled with the dour economic sentiment in the region, were behind the slide in demand for new installations. Interestingly, China's fabrication of silver paste was almost exclusively based on imported silver powder (mainly from the United States and Japan) and therefore credited to these countries of origin using our methodology. Paste producers within China, however, having made significant improvements in technology, can now satisfy over 10% of demand for paste from domestically fabricated powders.

Industrial fabrication in **Hong Kong** is estimated to have remained broadly unchanged in 2011 at 3.3 Moz (103

Global Billings

(semi-conductor shipments per year, millions)

	World	Americas	Europe	Japan	Other Asia
2010	295.3	52.9	37.7	46.1	158.6
2011	302.4	55.6	38.2	43.5	165.1
Change	7.1	2.7	0.5	-2.6	6.4
Change %	2%	5%	1%	-6%	4%

Source: SIA

Table 6a - Silver Fabrication: Electrical and Electronics (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	37.6	39.5	47.4	52.1	55.0	57.7	61.4	53.4	71.9	67.5
Japan	29.4	30.2	38.0	43.7	46.0	46.8	38.7	28.2	51.1	46.2
China	17.1	18.8	21.0	23.5	25.8	31.5	35.5	31.3	38.4	40.0
Germany	15.6	16.2	17.7	18.3	19.7	21.4	21.7	15.7	21.5	20.4
India	4.9	5.1	5.4	9.6	10.0	12.5	13.5	14.2	15.4	17.7
South Korea	9.8	10.7	11.6	12.9	13.8	14.7	15.9	12.5	16.1	16.0
Taiwan	8.4	9.0	8.4	9.4	10.3	11.7	12.3	9.9	12.1	12.7
France	9.9	9.5	8.1	8.0	8.2	8.5	8.6	5.7	6.9	6.1
UK & Ireland	5.5	5.9	6.1	4.5	4.4	4.5	4.7	3.4	3.9	4.0
Italy	2.8	2.9	3.8	3.5	3.6	3.9	4.1	3.4	3.9	3.4
Hong Kong	2.8	2.7	3.0	3.0	3.3	3.5	3.3	2.7	3.1	3.1
Mexico	1.8	1.9	1.8	2.1	2.0	2.1	2.1	1.8	1.9	1.8
Brazil	1.3	1.2	1.7	2.1	0.9	1.5	1.5	1.2	1.6	1.6
Turkey	0.8	1.0	1.0	1.0	1.0	1.1	1.1	0.9	1.0	1.1
Australia	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7
Netherlands	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5
Switzerland	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.5
Spain	0.0	0.0	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3
Austria	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Countries	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.8	0.8
World Total	**149.6**	**156.7**	**177.2**	**196.2**	**206.4**	**223.9**	**226.8**	**187.0**	**251.7**	**244.6**

Table 6b - Silver Fabrication: Brazing Alloys and Solders (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
China	12.2	14.4	15.8	17.8	18.8	20.7	25.4	25.9	28.0	29.9
India	1.9	2.0	2.2	4.2	4.3	5.2	5.7	6.1	6.5	7.1
United States	8.4	7.9	7.3	7.7	7.2	7.7	7.2	5.2	5.9	6.0
Japan	3.3	3.3	3.7	3.8	3.9	4.0	3.7	2.3	3.4	3.0
Germany	3.0	3.1	3.2	3.2	3.4	3.6	3.4	2.3	2.8	2.8
UK & Ireland	2.5	2.8	3.0	2.9	3.1	2.4	2.3	1.8	2.3	2.4
South Korea	1.4	1.4	1.6	1.9	2.0	2.4	2.6	2.1	2.3	2.4
Italy	2.1	2.0	2.0	2.2	2.4	2.5	2.4	1.7	1.8	1.7
Canada	0.3	0.3	0.4	0.8	1.5	2.4	2.2	1.1	1.7	1.7
Switzerland	1.3	1.4	1.4	1.5	1.4	1.4	1.4	1.2	1.3	1.3
Taiwan	1.0	1.1	1.1	1.1	1.2	1.3	1.2	1.0	1.2	1.3
Brazil	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1.0	1.0
France	1.0	0.8	0.7	0.8	0.8	0.9	0.8	0.5	0.6	0.6
Australia	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6
Spain	1.0	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.5
Mexico	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4
Netherlands	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Other Countries	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3
World Total	**41.6**	**43.7**	**45.5**	**50.8**	**52.9**	**57.4**	**61.3**	**54.0**	**61.0**	**63.4**

New Uses of Silver in Industrial Applications

The use of silver is well established in the industrial applications outlined in this chapter. There are, however, a significant number of 'new' uses for silver. While many of these have already achieved commercial success, they have yet to make a significant impact on silver demand, but hold the potential to become significant end-users of the metal. In other words, we appear to be some way from seeing one of these new areas of demand from making a similar impact to photovoltaics which, until just a few years ago, was labeled a new use of silver.

Silver's main uses, both new and established, are often centered on harnessing its biocidal or conductive properties. Many of these applications can use 'nanosilver' which, although not a new substance in the strict sense of the word, has only recently gained commercial recognition, appearing in a wide range of products including textiles, food packaging and medical uses. The main difference with 'ordinary' silver is particle size: nanosilver typically measures between 1-100 nanometers. Nanosilver essentially replicates silver's established properties, but often performs them using a far smaller volume of metal, owing to the greater surface area of each silver particle which enhances its potency. In most of the uses addressed below, it is possible to use nanosilver in place of ordinary silver.

With regard to the former, silver can be used in a diverse range of products, including textiles (towels, bedding), food packaging, medical products (such as bandages, creams and catheters), toiletries, cooking utensils, white goods (washing machines, refrigerators) and water purification devices. Wood preservatives are another growth area.

In terms of products that make novel use of silver's conductive properties, these include articles such as solid state lighting (SSL), radio frequency identification tags (RFID) and printed inks in a wide range of electronics products. Another use may be in batteries; although silver oxide button batteries are, of course a well established product, demand for silver-zinc batteries may grow strongly, given their use in products including smart phones, laptops, and tablets. In such items, performance is paramount, and silver's high performance offsets its higher cost. Silver-zinc batteries may also have a future in electric vehicles, although it would be some time before these would become significant end-users. Another potential large user of silver may be superconductors, where silver can be used as a carrier of the conductive material, for its anti-heating properties.

With regard to these uses, it is important to note that while the silver consumption per unit may be small, their collective use may amount to substantial volumes in future. Given that the number of possible applications is likely to proliferate, their total silver use holds strong scope for future growth.

in the second half offsetting first half gains. Expansion of Chinese mainland production augmented fabrication demand in Hong Kong for electrical parts and components such as resistors, capacitors, inductors and printed circuit boards (PCBs), with trade to the mainland accounting for over 75% of total fabrication in this sector. To that end, Hong Kong's electronics exports rose 9% in 2011 after surging by 28% in 2010, with China, not surprisingly, the chief catalyst for the rise. Moreover, exports to western markets weakened, with the Eurozone debt crisis and sluggish US economic growth impacting demand in the second half of 2011.

South Korean industrial demand remained broadly unchanged in 2011 after a second half slowdown negated robust gains earlier in the year. Thomson Reuters GFMS estimate silver used in industrial applications reached 24.5 Moz (762 t), still 1.4 Moz (44 t) below the 2008 peak. Domestic demand for electrical & electronics was subdued as the South Korean economy grew at its slowest pace in two years and rising inflation also cast a shadow on consumer sentiment, curtailing domestic spending for household and personal appliances. Exports, meanwhile, benefited from a weaker won which enhanced local firms' price competitiveness in the global market, with exports in the first half of the year improving on 2010 levels. However, the developing Eurozone debt crisis, coupled with a lackluster US economy, saw demand from these key markets slide in the final quarter of 2011, dragging down annual totals.

Looking at individual sectors in detail reveals a similar pattern across a myriad of applications, with expansion in the first half giving way to a decline in the latter stages of the year. Indeed, it is estimated that silver fabrication in the key electronics industry fell at the margin to 16.0 Moz (499 t), while solder & brazing alloys demand saw a 17% first half gain all but wiped out by a sharp drop in the final quarter, with the annual total increasing just 2% to 2.4 Moz (73 t). Silver fabrication was further supported by 7% growth in the automotive sector, given its increasing reliance on sensors, contacts and micro

Global Photovoltaic Market

Over the past five years, silver demand in photovoltaics has seen tremendous growth. The main driver has been Feed-in-Tariffs (FiTs), which incentivize investment in solar by offering renewable energy providers a preferential rate (to fossil fuel) for their energy over a fixed period, typically 15 to 25 years. This covers the cost of the initial investment and gives investors a return over the contract life. They face periodic downwards revisions to reflect reduced costs in implementing the technology and can, therefore, cause large swings in demand, depending on changes to the terms of tariffs. The point at which subsidies should no longer be necessary to drive solar investment is when grid parity is achieved; grid parity is the point at which the cost of generating solar power equals that of producing fossil fuel power.

There are two main types of solar cell: thick film and thin film. Thick film is based on mono or polycrystalline silicon and needs an estimated average of 90 kgs silver to generate one MW. Silver is used on both the front and rear side of each cell. As for thin films, these include Copper Indium Gallium Selenide (CIGS), Cadmium Telluride (CdTe) and amorphous silicon (a-Si). Of these, we understand that only a-Si uses silver, albeit in marginal volumes (less than 1% of that used in thick film). Historically, thick film has dominated the market, due to its roots in the established semi conductor industry. It also boasts higher efficiency than thin film, which has outweighed its higher cost.

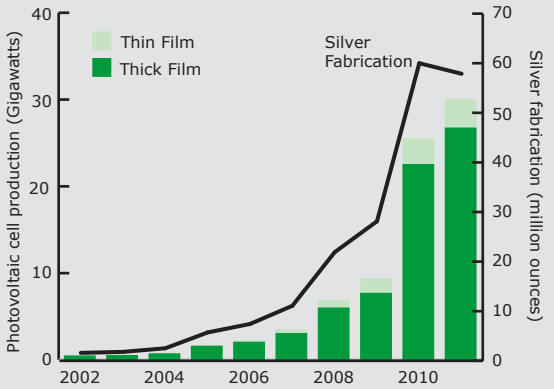
Last year, solar cell installations posted growth of around 40%. The increase was concentrated in the final quarter, springing a surprise ending to a year that had seemed destined to post a far more muted gain, given weak demand in the face of the Eurozone's economic difficulties. The boom at end-2011 was due to a rush in orders from markets which were due to substantially reduce FiTs from 2012 (notably Germany, other European countries and China). This represented demand that was pulled forward, therefore, rather than reflecting a jump in new demand. Europe maintained its position as the world's leading solar market, accounting for almost 70% of total new installations.

Thick film solar cell production, meanwhile, posted a gain of around 30% year-on-year. Whilst this may sound robust, this was in fact the slowest rate of increase seen since 2003 and many moons away from the surge in 2010, when demand more than doubled over 2009. This was the legacy of ballooning output in 2010, when fabricators ramped up production aggressively in anticipation of strong demand in 2011. The oversupply in the market caused a sharp drop in module prices, which led to several high profile casualties, primarily Western companies that proved unable to compete on costs with their Chinese counterparts (who accounted for almost 60% of total cell production last year).

In terms of demand for silver paste, we estimate that a decline was seen last year, marking the first fall in our records. Although the drop was slight at not more than 5%, this nonetheless emerged against a backdrop of increased solar cell production. There were two main factors behind the fall. First, the slowdown in demand for solar cells over most of the year (bar the latter part of the fourth quarter), compounded by the significant oversupply of cells from 2010, led to reduced need for fresh pastes. Second, the slower rate of growth in cell production revealed the extent to which thrifting and substitution have made inroads on silver volumes. Silver loadings per 156x156mm^2 cell, for example, are believed to have fallen to around half of their 2008 levels, with considerable advances made in replacing silver with aluminum, notably on the rear-side of cells.

Looking ahead, there remains considerable pressure on silver in photovoltaics. It comprises the second-highest cost component of the solar cell, so is a major target for thrifting and substitution by the industry. At present, the most likely alternative to silver is copper, although nickel's potential is also being explored. That said, there are other cost areas arguably in need of attention apart from silver, namely balance-of-system costs (including inverters, mounting, frames, glass, batteries and labor). Given silver's technical aptitude in solar applications, therefore, we are of the opinion that the white metal is unlikely to be completely eliminated, particularly in the context of lower silver prices and as grid parity becomes a wider reality.

Photovoltaic Production



Source: Solarbuzz, Photon International, Thomson Reuters GFMS

electro-mechanical components. Furthermore, despite a fourth quarter drop in orders for solar power installations in Europe and the United States, demand for silver paste for the photovoltaic sector was solid on the strength of growing proliferation of solar installations in Asia, most notably China.

Last year, **Taiwan's** silver industrial fabrication rose 4% to 15.4 Moz (479 t). As a result, it exceeded the record high set in 2008. The fact that it took three years to regain this threshold is chiefly down to Taiwan's reliance on exports (these accounted for 73% of GDP last year and the electronics industry in turn shipped 28% of all exports). This meant that sluggish shipments to the industrialized world fed through to lower Taiwanese silver fabrication and it was not until this could be made good by the expansion in exports to China (Taiwan's largest single export destination) that silver fabrication could surpass the earlier high. Fabrication growth specifically in the electrical & electronics sub-category therefore played a key role in lifting overall industrial fabrication, with much of the gains here stemming from strong sales of electronic consumer items.

Taiwan remains the world's number one producer of notebook computers, while its share of global cell phone production remains at almost two-thirds, according to the Ministry of Economic Affairs. Furthermore, Taiwan is also dominating tablet and e-reader product lines, with over 60 million tablets shipped in 2011, giving Taiwanese fabricators more than 85% share of the market. Silver used within the photovoltaic industry (mainly conductive silver pastes) also saw gains last year in crystalline silicon wafers, and module fabrication, with Taiwan only second to China in this field.

Photography

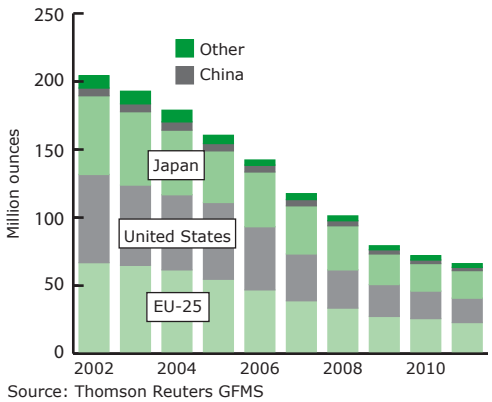
- ***Demand for silver in photographic applications fell by 8% last year, posting the slowest percentage decline seen in six years.***

Last year, photographic demand for silver fell by 8% to 66.1 Moz (2,056 t), the lowest recorded level in our data series. This saw photographic offtake account for just 8% of total fabrication demand, compared with almost 25% ten years ago. That said, it is worth noting that 2011 posted the lowest year-on-year percentage fall in six years. Even so, early 2012 saw the iconic Eastman Kodak file for Chapter 11 bankruptcy protection in the United States, a reminder of the still challenging nature of the photographic market (in terms of its silver consumption).

Unsurprisingly, the move into digital has been the chief architect of photography's declining trend over the past 12 years (with regards to the consumption of silver). In terms of the principal end-use segments, demand for film last year fell by around 25%, although color negative paper dropped by a comparatively modest 10% (both according to Photofinishing News). The decline in film offtake was largely due to the established dominance of digital cameras (rather than a shift into them, as the market is now arguably approaching saturation), which has eroded the need for traditional film. Color negative paper's resilience, however, reflects the growth in photo books, an increasing number of which use photo paper, as well as the growing popularity of online printing studios.

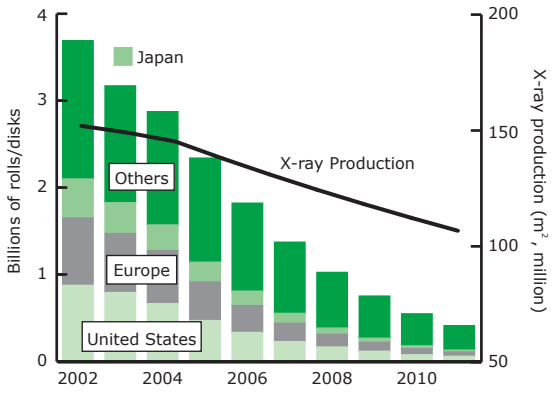
In addition, the relatively modest drop seen in 2011 was due to the only slight fall in the medical sector (as shown in the chart below), which accounts for comfortably the

World Photographic Fabrication



Source: Thomson Reuters GFMS

Consumer Film Sales & X-ray Production



Source: Photofinishing News Inc.

Table 7 - Silver Fabrication: Photographic Use (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
EU-25	66.9	65.0	61.6	54.7	46.9	38.9	33.5	27.4	25.8	22.9
Romania	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0
Total Europe	**67.1**	**65.2**	**61.8**	**54.8**	**47.0**	**38.9**	**33.5**	**27.4**	**25.8**	**22.9**
North America										
United States	64.8	58.9	55.2	56.4	46.4	34.4	28.1	23.4	20.2	17.9
Total North America	**64.8**	**58.9**	**55.2**	**56.4**	**46.4**	**34.4**	**28.1**	**23.4**	**20.2**	**17.9**
Latin America										
Brazil	2.1	2.2	2.2	1.4	0.0	1.4	1.3	1.0	1.4	1.2
Argentina	1.1	1.5	1.5	1.3	0.5	0.3	0.0	0.0	0.0	0.0
Total Latin *America*	**3.2**	**3.7**	**3.7**	**2.7**	**0.5**	**1.7**	**1.3**	**1.0**	**1.4**	**1.2**
Indian Sub-Continent										
India	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
Sri Lanka	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Total Indian Sub-Cont.	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.3**	**0.3**	**0.3**	**0.2**
East Asia										
Japan	57.8	53.9	47.4	38.0	40.2	35.4	32.4	22.5	20.3	20.3
China	5.7	5.8	6.1	5.4	5.0	4.6	3.7	3.1	2.6	2.4
Total East Asia	**63.5**	**59.7**	**53.6**	**43.3**	**45.3**	**40.0**	**36.1**	**25.6**	**22.9**	**22.6**
Oceania										
Australia	2.3	2.1	1.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Oceania	**2.3**	**2.1**	**1.5**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
CIS										
CIS	3.0	2.8	2.7	2.6	2.4	2.1	1.8	1.5	1.4	1.2
Total CIS	**3.0**	**2.8**	**2.7**	**2.6**	**2.4**	**2.1**	**1.8**	**1.5**	**1.4**	**1.2**
World Total	**204.3**	**192.9**	**178.8**	**160.3**	**142.2**	**117.6**	**101.3**	**79.3**	**72.1**	**66.1**

largest portion of silver-related photo demand. Due to continued economic weakness last year, many hospitals deferred their migration to digital systems because of a lack of funding (although Europe proved an exception). Furthermore, growing X-ray demand from developing countries helped to mitigate the decline. In these markets, digital technologies still tend to be prohibitively expensive, but economic growth here helped to generate demand for conventional X-rays.

A lack of funding also limited the pace of losses in motion pictures last year. There is still, therefore, considerable scope for future losses in both the medical and the motion picture sectors, although silver demand is likely to remain in niche applications such as artistic or graphic-art based photography.

European demand fell by 11% last year, extending the long-term declining trend. Demand for 24 exposure rolls (for professional and consumer use) fell by 30% year-on-year, which translates into a fall in excess of 90% from ten years ago (according to Photofinishing News). There were also some instances of hospitals switching into digital due to the high silver price, which had a notable impact on the market, given that radiography remains the largest end-user of silver in photographic applications.

Photographic offtake in the **United States** declined by 12% in 2011 to 17.9 Moz (556 t). The rate of decline proved relatively restrained, however, compared with the average 18% fall seen over the five preceding years.

Film & Paper Consumption & Photographic Fabrication

	2008	2009	2010	2011	yoy %
Film**	1,021	751	557	427	-23.2%
Paper^	1,085	958	850	773	-9.0%
Fabrication*	101	79	72	66	-8.3%

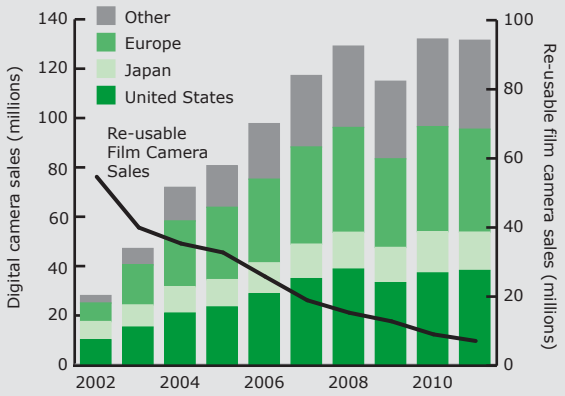
**Million of rolls, ^millions square meters, *Moz

Source: Photofinishing News Inc., Thomson Reuters GFMS

Digital Technology and the Photographic Market

The main driver of silver's declining use in photographic applications has, of course, been the massive and rapid switch into digital technology. As the chart opposite shows, sales of re-usable film cameras have plummeted by some 90% since 2002, while sales of digital still cameras (DSC) have almost trebled over the same period. DSCs have, however, faced some pressure in recent years. Indeed, as indicated in this chart, offtake has posted relatively subdued gains since 2010. In part, this was due to the challenging macroeconomic environment, which saw sales of DSCs come under pressure as they are not a consumer necessity. In addition, competition from other consumer goods, such as tablet computers and MP3 players, has also impacted DSC sales. Perhaps the largest issue for DSCs, however, has been the rapid rise of smartphones with cameras. In China last year, for example, there was a notable fall in DSC sales, which has been attributed to the rapid uptake of smartphones with camera resolutions of over eight mega pixels.

Digital and Film Camera Sales



Digital camera sales include toy & entry level cameras
Source: Lyra Research Inc., Photofinishing News Inc., Thomson Reuters GFMS

This outcome in part reflected the comparatively slow switch by motion picture theatres into digital formats, due to financial constraints. However, a raft of funding has recently been secured in the United States, which should lead to steeper falls in motion picture (silver) demand in the future. That said, it is unlikely that multiplexes will instigate a wholesale switch of their screens, which should mitigate the rate of decline going forward. In contrast, the use of silver in both 24 exposure film and color paper posted far more rapid declines, of 23% and 15% respectively (according to Photofinishing News).

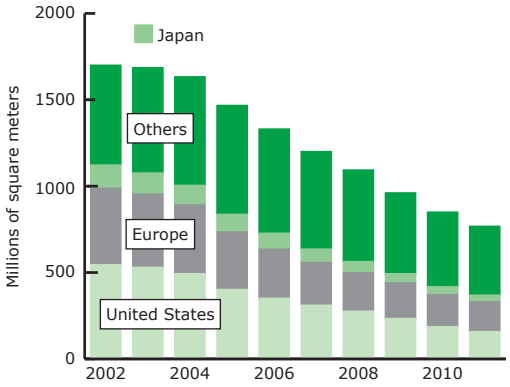
In contrast, demand for silver in photographic applications remained broadly unchanged in **Japan** last year, marking the first year since 2006 that the industry has avoided a double-digit percentage decline. This was, however, largely due to a gain in market share, rather than a sign of recovery. As was the case in other markets, Japanese photographic film production faced severe downward pressure, falling by 33% last year (according to Photofinishing News). In contrast, photo paper posted a far slower decline, thanks in large part to the popularity of photo books as well as online photo studios.

Finally, silver use in X-rays in the domestic Japanese market also came under pressure last year as hospitals continued to switch into digital. Export demand, however, posted an increase, with developing markets unable to leapfrog halide technology into digital, due to high costs. Elsewhere, exports of instant films (polaroids) saw demand increase; polaroids have also gained some popularity as an artistic medium, albeit niche.

In **China**, photographic demand dropped by 9% last year to 2.4 Moz (75 t). This was symptomatic of the long term secular trend of substitution into digital technology. At the consumer level, a significant drop off in the use of analog film as low cost digital camera's continued to penetrate into China's interior was chiefly responsible for the decline. According to Photofinishing news, sales of analog film in China slumped by over a third in 2011.

In contrast, one area that has limited the slide in photographic demand has been the area of health care. China's ambitious health care reform program began in 2009 in an effort to improve health care coverage of the country's poorer, rural communities. Part of the reforms involved helping providers in the countryside buy new equipment, with analog X-ray facilities one area that has witnessed substantive growth. While China's larger cities are rapidly migrating to digital machines it is rapid growth in these smaller facilities that have augmented silver halide demand.

World Color Photographic Paper Consumption



Source: Photofinishing News Inc.

Jewelry

• The 4.5% fall in global jewelry offtake was due to weaker output in every major fabricating country, with the exception of a record high total in China.

Last year, silver jewelry fabrication fell back below the 2010 level, with the 4.5% decline leaving the global total at 159.8 Moz (4,971 t). Of the top five jewelry producers, only China achieved growth, of 20%, which not only cemented its position as the largest jewelry fabricator, but achieved a record high. Excluding China, the global total would have realized a 10% decline, the product of high and volatile prices and a weak economic backdrop, which together offset the benefits of western-led substitution gains at the expense of karat gold.

Europe

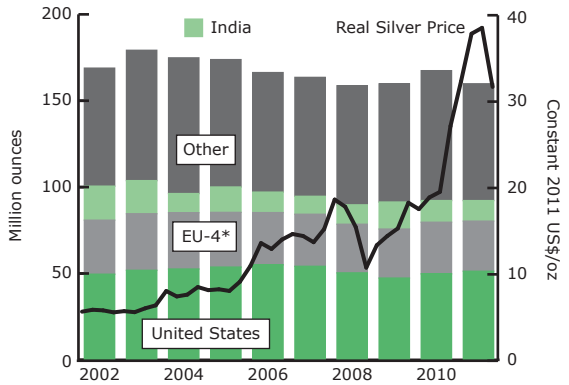
After 2010's modest uptick, jewelry fabrication in Europe last year fell by a steep 17% to 29.3 Moz (911 t) as the downward path that had been in place since 2001 resumed. While a few countries such as France enjoyed gains, most countries suffered losses, of which almost 90% was attributable to Italy.

Italian silver jewelry offtake in 2011 fell a hefty 25% to 16.5 Moz (512 t), in doing so cutting demand to less than half the figure recorded a decade earlier. The blame for this lies mainly in exports, with customs figures showing their gross weight fell by 25% in 2011. Our analysis of their fine weight, however, suggests that, once the distortions of the intra-EU export/re-import trade are removed, the true fine weight in exports fell around 30%.

The graph opposite shows EU flows including this intra-EU business but, if we exclude that, the drop in shipments to the EU rockets up to just over 30%, placing it on a similar scale as the drop for North America. In fact, exports to essentially all western countries suffered heavy losses, regardless of whether they were at the economically robust end of the spectrum (such as Germany) or at the more troubled end (such as Spain). That is not to say the macro economic backdrop played no part, as shipments to Canada did not fare as badly as those to the United States and the drop in flows to Portugal and Greece exceeded 40%. This relative lack of differentiation is suggestive of other factors being at work and here we have to cite the price, in particular the April/May spike. This greatly unsettled the trade as it made planning all but impossible for several weeks but, even if the price had been more stable, notable losses would still have occurred because of the high absolute price. Average weights, for example, continued to fall because of this, with some contacts noting more interest in hollow chain.

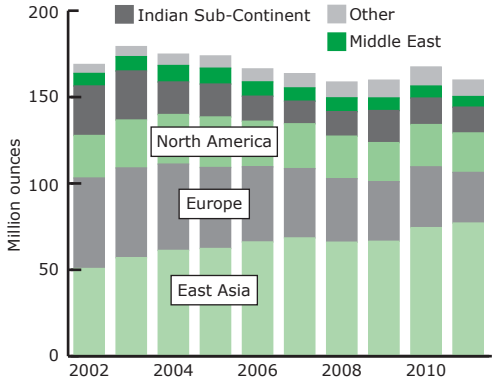
People might have expected silver to benefit more overtly from price-led substitution from gold and indeed this

World Jewelry Consumption



*Germany, Italy, UK, France;
Source: Thomson Reuters GFMS

World Jewelry Fabrication



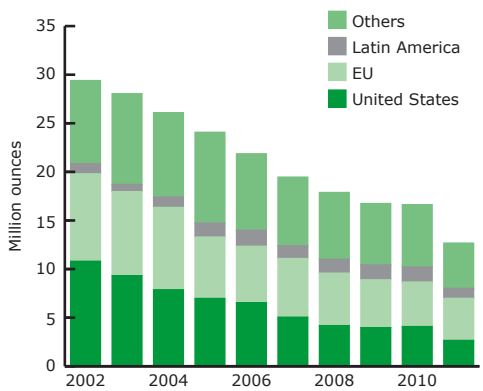
Source: Thomson Reuters GFMS

was widespread but only at the top end of the silver market. This niche also benefited from many brands' greater interest in silver as price points could still be met that generated the margins their promotional campaigns require. However, while this was good for the value of sales, it did little to boost weight and here silver lost out through substitution to non-precious jewelry, with brass and bronze getting much attention last year. Key to this is that silver prices today mean many pieces have been pushed towards the €100 mark at a retail level.

The above forces meant that consumption within Italy similarly suffered, if not as badly. It would also be wrong to assume that all seemingly Italian pieces on sale within the country are locally made as many, even those from some upscale brands, are imported. Competition from rivals was of course not just restricted to the home market as this was singled out as a reason behind losses in many export markets, the United States being perhaps the most obvious example, especially at a generic level.

Previous years' modest losses in **German** silver jewelry consumption accelerated sharply last year and, although questionable trade data makes the picture complex, it does appear that imports bore the brunt of this drop. This occurred as imported pieces chiefly serve the mass market and this sector looks to have suffered at the hands of a switch to non-precious metal jewelry and through overt destocking, both triggered by high silver prices. The top end, in which German producers tend to specialize, performed better, partly through downshifting from gold, and it is mainly for this reason that the drop in German fabrication was restricted to 3%.

Official Italian Jewelry Exports*



Source: Thomson Reuters GFMS;* finished pieces only

France defied the regional trend as its fabrication grew by 15%. Much of this was due to a rise in domestic sales of 10% (in value terms at the retail level, source: Société 5). However, there also looks to have been support from a stock build at the trade level and some market share gain from imports. It was of note that this growth was possible despite a short-term reaction to the April/May price spike and the jump in sales of 9-karat gold.

Given the trivial level of **UK** jewelry offtake, a review of local consumption is more relevant. This weakened in 2011, although not to the extent of the 30% drop in hallmarking, which itself reflected a shift to lighter pieces.

In 2011, **Russian** silver jewelry fabrication saw a 19% decline, to 2.7 Moz (84 t), although this must be seen in the context of what was a record total in 2010. Last year's decline was largely due to greater import competition as last year saw a rapid growth in the number of jewelry shops selling imported items.

North America

In the **United States**, one of the key drivers affecting the silver jewelry market in 2011 was the continued rise in gold and silver prices, although the impact of each was quite different. It is initially worth pointing out that an analysis of the US market concentrates on silver jewelry consumption, rather than fabrication, not only because the latter accounts for a relatively modest 25% of retail demand, but as the United States is, by some distance, the largest consumer of silver jewelry on a global basis.

With regards to the rise in precious metal prices, US silver jewelry consumption has only benefited from the surge in gold prices over the past two to three years. Instead, gold's initial run up saw the retail trade first adopt several strategies before turning to silver, including a move to lighter weight pieces and a greater use of gem stones, both of which also impacted the silver market last year.

In terms of the initial forays into silver, this had initially focussed on using the metal to create a gold product, most commonly in terms of gold plated silver. However, it soon became evident that there was little opportunity to develop this product beyond the mass market retailers. As gold prices continued to rise major retailers therefore expanded into sterling silver, both at the expense of karat gold and gold plated silver lines. However, with the United States focused on the perceived value of a given

Table 8a - Silver Fabrication: Jewelry and Silverware (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Italy	46.9	45.3	43.4	39.5	35.4	32.3	28.1	25.9	25.8	19.3
Germany	7.9	7.7	7.3	6.8	6.8	6.5	6.2	5.3	5.4	5.2
Poland	2.3	2.9	3.1	3.4	3.6	3.2	3.1	2.4	2.5	1.9
Other Countries	16.3	15.9	14.6	13.4	12.8	11.4	11.2	10.1	9.9	9.8
Total Europe	**73.3**	**71.8**	**68.3**	**63.1**	**58.5**	**53.5**	**48.5**	**43.8**	**43.6**	**36.2**
North America										
United States	13.7	15.1	15.4	15.7	15.0	14.2	13.0	11.6	12.9	11.9
Mexico	14.0	15.6	16.2	16.4	14.0	13.6	13.0	12.0	12.3	11.5
Canada	1.5	1.7	1.6	1.4	1.2	1.1	1.0	0.9	0.9	0.9
Total North America	**29.3**	**32.4**	**33.2**	**33.5**	**30.1**	**28.9**	**26.9**	**24.6**	**26.1**	**24.3**
Latin America										
Total Latin America	**3.9**	**4.0**	**4.4**	**4.6**	**5.0**	**5.1**	**5.6**	**6.3**	**6.5**	**5.5**
Middle East										
Turkey	6.8	7.9	8.7	8.3	7.2	6.2	6.7	5.6	4.9	4.3
Other Countries	6.4	6.6	7.0	7.0	6.9	7.0	6.7	6.2	6.1	5.2
Total Middle East	**13.2**	**14.5**	**15.7**	**15.3**	**14.1**	**13.2**	**13.4**	**11.8**	**11.1**	**9.5**
Indian Sub-Continent										
India	61.7	61.7	35.4	37.6	28.2	24.9	26.9	39.2	30.2	28.9
Bangladesh & Nepal	4.8	4.5	4.2	3.7	3.6	3.6	3.7	3.6	3.5	3.3
Other Countries	1.7	1.7	1.9	1.9	1.9	1.9	1.9	1.9	1.7	1.5
Total Indian Sub-Cont.	**68.2**	**67.9**	**41.5**	**43.3**	**33.8**	**30.5**	**32.5**	**44.7**	**35.4**	**33.7**
East Asia										
China	14.3	17.1	20.5	22.6	26.2	29.5	29.8	30.9	36.5	43.1
Thailand	32.3	36.2	36.9	36.8	36.8	36.5	33.3	30.4	30.5	24.8
Indonesia	4.0	4.1	5.2	4.5	5.1	4.8	4.8	4.8	5.4	6.1
South Korea	4.5	4.6	4.7	4.7	4.8	4.9	4.8	4.8	5.4	5.8
Other Countries	5.1	5.1	5.4	5.8	5.7	5.9	5.8	5.9	6.4	6.6
Total East Asia	**60.1**	**67.2**	**72.7**	**74.4**	**78.6**	**81.6**	**78.6**	**76.8**	**84.1**	**86.4**
Africa										
Total Africa	**1.1**	**1.2**	**1.2**	**1.2**	**1.2**	**1.3**	**1.3**	**1.2**	**1.2**	**1.1**
Oceania										
Total Oceania	**0.8**	**0.7**	**0.8**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.8**
CIS										
Russia	1.8	2.6	3.6	4.4	4.6	6.6	7.8	8.5	9.3	7.7
Other Countries	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.6	0.6
Total CIS	**2.4**	**3.3**	**4.3**	**5.2**	**5.4**	**7.4**	**8.6**	**9.1**	**10.0**	**8.3**
World Total	**252.3**	**263.1**	**242.0**	**241.4**	**227.5**	**222.2**	**216.1**	**218.9**	**218.6**	**205.8**

Jewelry & Silverware

Although the *World Silver Survey* has featured separate jewelry and silverware series for the past six years we continue to show the two together in Table 8a above for comparative purposes. As the data shows, combined jewelry and silverware offtake in 2011 fell by 5.9% to 205.8 Moz (6,401 t). Both categories posted lower totals last year, although the decline, in volume terms, was much greater for jewelry, given the dominance of western markets, many of which faced economic malaise in 2011. Even so, the world total would have suffered a sharper fall last year had it not been for further growth in the Chinese market, which set a new record high.

In terms of silverware, ongoing structural losses, principally in western markets, combined with silver's price action to push the global total below 50 Moz (1,500 t) for the first time in our data series.

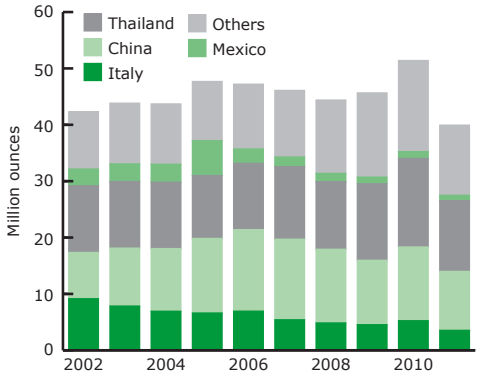
product, combined with the trade's wariness of being seen to downgrade assortments, the supply chain focused on private label and branded, rather than generic, pieces. This strategy was important for two reasons. First, design oriented pieces tend to be noticeably lighter than generic products, with far less of the retail price accounted for by the raw material. Second, the growing popularity of private label pieces enabled sterling silver to quickly gain acceptance at the retail level and therefore to make rapid inroads at the expense of karat gold.

While the growth in sterling silver had first emerged among the major retailers, the past 18 months have seen independent retailers play a far greater role in this area. Also symptomatic of the rise in private and branded label prices has been the growth in high end, small scale US manufacturing, which has helped to raise the profile and perceived value of silver jewelry in the domestic market. As well as gold prices impacting silver jewelry demand last year, the dramatic surge in silver prices also played a role. In essence, this encouraged the trade to adopt lighter weight pieces. In addition, major retailers were forced to reduce their silver jewelry inventories, in a manner which has afflicted the US gold retail trade for several years.

Silver jewelry additionally suffered from the growth in alternative metals (which have also taken market share from karat gold), with relatively new introductions, such as cobalt, gaining some traction. These developments, together with the move away from generic pieces, resulted in the volume of US silver jewelry consumption falling last year. However, the strength of the design segment meant that the indicative value of silver consumption fared much better. Even so, this could not prevent the volume of jewelry imports from declining sharply during 2011, although this must be seen in the context of what was a record high import total in 2010.

Mexican jewelry fabrication declined last year as both domestic sales and exports to the dominant US market suffered important losses. In the local market, substitution gains from gold have largely already taken place and, more importantly, the jump in peso silver prices to record levels has hit consumption and created financial difficulties for manufacturers and retailers, affecting their ability to process and hold jewelry stocks. As intimated above, exports also fell, with total official shipments in 2011 down by 28% in volume terms.

US Official Silver Jewelry Imports



Source: Thomson Reuters GFMS

Middle East

Last year, **Turkish** jewelry fabrication is believed to have declined by almost 10%, marking the third straight year of weaker output. With the lira falling against the dollar, local silver prices more than doubled (basis annual averages) in 2011. This contributed to softer jewelry fabrication for the local market, due not only to lower unit sales, but also because of a move towards lighter and more design oriented pieces. In addition, silver jewelry exports fell in 2011, even though the export industry continued to shift away from karat gold in favor of silver pieces, principally for the US market. However, recent years have seen exporters concentrate more on gold plated silver, rather than sterling silver jewelry, but with the US market shifting away from plated items, the Turkish trade appeared to lose market share there to suppliers of sterling silver pieces.

The political upheaval in **Egypt** accounted for the slump in jewelry fabrication last year to comfortably its lowest level in our 22-year data series. The near collapse during the first half was compounded by the sharp rise in local silver prices at this time. However, towards end-2011, there were signs of a modest upturn in manufacturing, in part as softer Egyptian prices encouraged a degree of trade restocking.

Indian Sub-Continent

Indian jewelry fabrication in 2011 fell for the second consecutive year, slipping to 12.2 Moz (380 t). Although the decline was modest at 3%, offtake last year stood at just 35% of the 1993 peak. Much of that historic decline was rooted in a structural shift away from silver jewelry as a form of investment in favor of bar and coin due

Consumer Trends and Jewelry Consumption

The consumption of silver jewelry last year in its core markets of the western world weakened modestly last year, a still remarkable result given the jump of 74% in annual average prices. However, we could interpret the issue of fine metal prices almost as a cause of near stability in that the hike in the absolute level of the gold price to a yet more unaffordable level led to its consumption in these same markets falling by over 10% as consumers shifted to less expensive silver. Such a shift during economically uncertain times should come as little surprise, although a review of trade data suggests relatively little differentiation between western markets, despite their varying economic backdrop.

Far more than the price and economics were, of course, at work. Many markets continue to report that silver remains typically a more fashionable choice than gold, especially among younger consumers, and this no doubt assisted the substitution process. Industry contacts even inform us that silver's image improved in some markets, most obviously southern Europe, where previously silver had little by way of precious connotations.

The substitution process, however, was not entirely to silver's benefit as its own higher price led to a shift to non-precious metals. Arguably, this too had a link to image since, for example, the use of bronze or brass in Italy became seen as more acceptable in accessory level jewelry, while in the US market, the likes of titanium made inroads into segments such as men's wedding bands as the 'performance' quality of these metals was pushed and overcame their base connotations. In weight terms, silver appears to have been something of a net loser through substitution overall, although in value terms that would be less the case (and the inverse was in fact true in some markets) as those shifting from gold opted for high design, branded silver, often with stones.

Even with no substitution, it is likely that we would have seen greater use of stones, a shift from unbranded to branded and so forth as these are some of the structural factors that have been affecting the whole jewelry market for many years. This process is also far from finished, with, for example, stone-set silver sales in France rising by 9% last year, whereas plain silver was flat (in pieces terms, source: Société 5). This matters as it diverts expenditure away from metal to other materials or intangible costs such as promotional campaigns. On the subject of brands, some of the more high profile players have recently reported poor financial figures but commentators have often said that relates more to company specific developments or to the more volatile nature of a fashion-led business and as such these results should not be readily taken as sign that the mass market branded arena is in decline. Another feature of these structural trends is a slide in average weights, and the higher price of silver continued to encourage this change, explaining, for example, the ongoing popularity of 'open-work', which gives a large piece with minimal metal use.

On a specifically fashion front, last year saw the ongoing popularity of vintage styles, a trend in part ascribed to consumers wishing to appear more discrete in troubled times, and this fed through to strength for artificially aged designs, such as a hammered finish. This is arguably easier to achieve with a yellow metal and there was something of shift in favor of the 'yellow look' in some markets, such as Japan, as consumers were also said to be seeking warmth. This was not all bad for silver, however, as many contacts talked of good sales for fully gold-plated silver or for silver pieces with gold accents.

Illustrations of Recent Trends

Clockwise from top left: Alcozer & J charm bracelet in bronze (photo courtesy of l'Orafo Italiano); Gurhan oxidized silver with gold accent earrings (photo courtesy of Savor Silver); cobalt grooved band, and accented pendant by Stuller; Fiorelli silver earrings with Swarovski crystals by Gecko.

to the latter two enjoying lower margins and being far less prone to under-karating, and this no doubt made a contribution to last year's dip.

A second structural change is a relative shift from traditional heavy jewelry to more modern designs with a much lower average weight. Losses for the former are very much bound up with the above investment story, while gains for the latter are due to the rise of India's middle class, with the disposable income and inclination to buy pieces that are far more adornment-oriented. Many of these modern designs will carry stones (sometimes even diamonds) and may well be rhodium or gold plated. This shift has therefore been very supportive of the value of jewelry sales but has done less for the fine weight of silver consumed.

The analysis of the battle between these two forces, however, was complicated by the impact of silver's price last year as the rise in the annual average had clear budgetary implications. However, in part as a result of substitution from gold and due to the interplay of quasi-investment buying and the price, it does appear that the second quarter as a whole was comparatively strong, even if high volatility did unsettle the trade and therefore negatively affect the more fashion-oriented segment. It is also important to look at prices in rupee terms as second half currency weakness meant that the local price actually rose 8% intra-year, rather than falling by that amount in dollar terms, and this contributed to demand actually proving quite weak in the fourth quarter.

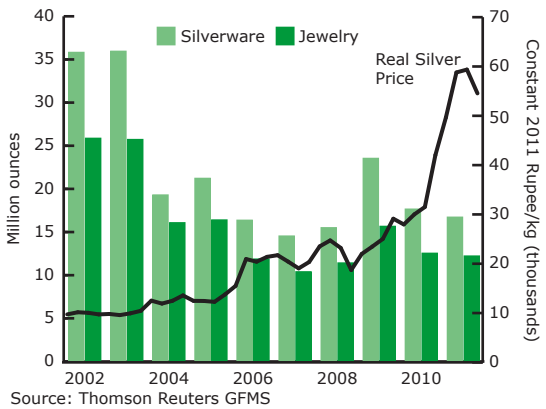
Another significant negative was the slump in exports to western countries as the mass market segment of their jewelry consumption was hit by silver's high and volatile price. US imports from India, for example, fell by 18% last year. In fact, if we allow for this drop in exports, it becomes possible that the consumption of silver jewelry within India actually rose last year. However, we should caution that tracking the route taken by the key guide to fabrication of bullion imports is complex and it may be that some of this supply went merely to the building of stocks, either in bullion form or, more likely, as finished goods by the trade. As such, the outcome for retail level consumption is far from clear.

East Asia

Silver jewelry fabrication in **Thailand** dropped by 18% last year to 22.9 Moz (712 t). The acute fall drove Thai fabrication to its lowest level in our data series (since 1990), with offtake last year tumbling 30% below the 2006 high. Despite the substantive fall, Thailand remained the second largest fabricator globally (behind only China), as similar sizable declines also emerged in other key fabricating countries.

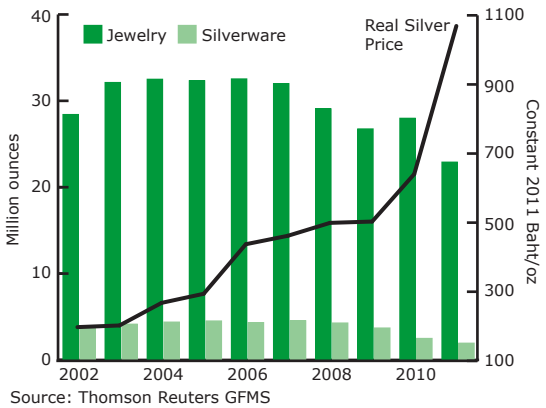
Much of the weakness was driven by a sharp drop in exports which, for much of the past two decades, has been the mainstay of local offtake. The substantial 74% jump in dollar silver prices, coupled with the 38% rise in 2010, undoubtedly contributed to this. In addition to elevated prices, high price volatility adversely affected the order book for most large fabricators as export clients were reluctant to place orders in an uncertain market, while those that did reduced orders as a means of protection against sharp movements in price. According to the trade data, gross jewelry exports dropped by 20% in 2011, driven lower by a fall in deliveries to the

Indian Jewelry and Silverware Fabrication



Source: Thomson Reuters GFMS

Thai Jewelry and Silverware Fabrication



Source: Thomson Reuters GFMS

Table 8 - Silver Fabrication: Jewelry (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Italy	36.7	35.7	34.2	31.5	28.2	25.8	22.6	21.3	21.8	16.5
Germany	3.3	3.6	3.7	3.8	3.8	3.9	3.9	3.7	3.8	3.7
France	2.4	2.4	2.0	1.5	1.6	1.7	1.6	1.7	1.9	2.2
Poland	2.2	2.8	3.0	3.3	3.5	3.2	3.0	2.4	2.4	1.9
Spain	1.5	1.7	1.4	1.4	1.3	1.1	1.1	1.2	1.1	1.1
Portugal	1.4	1.5	1.4	1.2	1.1	1.0	1.1	1.0	1.0	1.0
Greece	0.9	1.0	1.0	1.1	1.1	1.0	1.2	1.0	0.9	0.8
UK & Ireland	1.8	1.2	1.2	1.0	1.0	0.5	0.4	0.4	0.4	0.4
Sweden	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Switzerland	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Denmark	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Cyprus & Malta	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Norway	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Finland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Austria	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Countries	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.6
Total Europe	**52.4**	**52.0**	**50.0**	**46.9**	**43.4**	**40.1**	**36.7**	**34.5**	**35.2**	**29.3**
North America										
United States	11.8	13.4	13.8	14.1	13.5	12.9	12.0	10.7	12.0	11.1
Mexico	11.5	13.0	13.6	14.0	12.0	12.2	11.8	11.1	11.6	11.0
Canada	1.3	1.4	1.4	1.2	1.0	0.9	0.8	0.8	0.8	0.8
Total North America	**24.6**	**27.7**	**28.7**	**29.3**	**26.4**	**26.0**	**24.6**	**22.6**	**24.5**	**22.9**
Latin America										
Brazil	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.7	1.9	1.8
Peru	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.5	0.5
Argentina	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3
Colombia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ecuador	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Other Countries	0.6	0.8	1.0	1.1	1.2	1.2	1.8	2.5	2.5	1.8
Total Latin America	**2.5**	**2.8**	**3.1**	**3.4**	**3.8**	**3.8**	**4.4**	**5.3**	**5.6**	**4.7**
Middle East										
Turkey	4.1	5.0	6.0	5.7	4.8	4.1	4.5	3.9	3.4	3.1
Saudi Arabia	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.8
Egypt	1.2	1.4	1.5	1.4	1.3	1.4	1.3	1.2	1.1	0.5
Israel	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.3
Other Countries	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.4	1.5
Total Middle East	**7.3**	**8.3**	**9.5**	**9.2**	**8.3**	**7.7**	**8.0**	**7.3**	**7.0**	**6.1**
Indian Sub-Continent										
India	25.9	25.7	16.1	16.4	11.9	10.4	11.4	15.7	12.5	12.2
Bangladesh & Nepal	2.0	1.9	1.9	1.8	1.7	1.8	1.9	1.9	1.9	1.9
Other Countries	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	0.9	0.8
Total Indian Sub-Cont.	**28.7**	**28.4**	**18.8**	**19.0**	**14.5**	**13.1**	**14.2**	**18.6**	**15.3**	**14.9**
East Asia										
China	11.0	13.1	15.6	17.4	20.2	22.9	23.6	26.2	31.2	37.4
Thailand	28.4	32.1	32.5	32.3	32.5	32.0	29.1	26.7	28.0	22.9
Indonesia	3.3	3.5	4.5	3.7	4.4	4.2	4.2	4.2	4.7	5.5
South Korea	3.8	3.9	4.0	3.9	4.0	4.2	4.1	4.2	4.7	5.2

Table 8 - Silver Fabrication: Jewelry (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Japan	1.6	1.5	1.8	2.0	1.9	2.1	2.0	2.1	2.2	2.2
Vietnam	0.8	0.8	0.9	0.9	1.0	1.1	1.2	1.2	1.4	1.5
Myanmar, Laos & Cambodia	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7
Malaysia	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Hong Kong	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Taiwan	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Countries	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total East Asia	**50.8**	**57.0**	**61.2**	**62.3**	**66.1**	**68.5**	**66.0**	**66.5**	**74.4**	**77.1**
Africa										
Morocco	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Tunisia	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Algeria	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3
Total Africa	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**1.0**	**1.0**	**0.9**	**0.9**	**0.9**
Oceania										
Australia	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7
Total Oceania	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.8**
CIS										
Russia	0.6	0.9	1.2	1.5	1.6	2.3	2.5	3.0	3.3	2.7
Other Countries	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.4
Total CIS	**1.1**	**1.4**	**1.8**	**2.1**	**2.2**	**2.9**	**3.1**	**3.5**	**3.8**	**3.1**
World Total	**168.9**	**179.2**	**174.8**	**173.8**	**166.3**	**163.5**	**158.7**	**159.8**	**167.4**	**159.8**

United States (Thailand's largest export market), despite Thailand regaining its preferential tariff treatment via the Generalized System of Preferences in 2011. Shipments to Denmark and the United Kingdom also fell markedly.

A key finding from field research visits last year was the work being done on building new export regions to compensate for losses in traditional markets. To this end, trade with eastern Europe (most notably Poland) picked up as did shipments to India. Similarly, deliveries to China recorded growth in 2011, though at this stage, at least, expansion in these new markets failed to offset declines elsewhere.

On a recent research visit to Thailand, it was apparent that many small silversmiths have left the industry, as the price strain coupled with pressure to reduce margins from the contracting client, and rising production costs, have seen profits eroded. In addition, these small family run operations normally carry out sub-contracted work from the major fabricators, so when orders slow the first contraction is normally from this source.

Plain sterling silver jewelry was the chief casualty of the weaker export sector last year as items were reduced in size (dropping to as low as three grams) to meet retail price points. At the low-end of the market (which dominates in terms of absolute volumes), an increased use of stones in the design to limit precious metal requirements and to offer higher margins was an obvious reaction to price pressures. Last year, the "diamond look" or cubic zirconia gemset jewelry was popular, as were large single colored stones (mainly non-precious in this segment). One area that did not suffer the same degree in 2011 was the fabrication of branded jewelry. Moreover, fabricators producing branded jewelry under contract for well known US and European fashion labels reported that sales held up well last year and increased in some markets. Jewelry in this segment is often large and chunky (wrist cuffs, for example), with one piece accounting for a significant volume of fine silver.

On the domestic front, sales of silver jewelry are principally aimed to the tourist and back packer export trade (predominantly to Australia and neighboring South

East Asian markets). This trade was hit heavily by the severe flooding across Thailand in the final quarter of the year. Indeed, sales during this period saw hefty falls as buyers and tourists alike cancelled travel due to the natural disaster.

Jewelry fabrication in **South Korea** rose for the third consecutive year to a new record level of 5.2 Moz (162 t). This healthy 10% gain was largely a function of stronger domestic consumption, with silver benefiting from price-led substitution from gold. Indeed, popular white gold designs were reproduced in rhodium plated sterling silver as fabricators who previously relied on gold shifted at least part of their output (and retail space) to silver in a bid to capture the growing demand. This interest in the "other" white metal was firstly supported by the youth demographic, but now, increasingly, by the broader urban community. In contrast, jewelry exports were again weaker last year, falling almost 30% on a gross basis, in part as South Korea's high fabrication costs limited competitiveness.

Jewelry fabrication demand in **Indonesia** saw solid gains for the second year running, increasing by 18% last year to 5.5 Moz (172 t). Most of the growth last year was attributable to a rise in domestic consumption, with the 24% year-on-year rise in the rupiah gold price resulting in significant substitution gains for the less expensive metal. Growth in this segment has been dominated by a younger demographic who are looking to silver for its lower entry point status and array of fashionable designs.

Dedicated silver retail outlets have been expanding in shopping malls as demand has increased, with several gold fabricators converting at least part of their operations to silver to meet this demand, although much of this is still largely serviced by imports from China. Jewelry exports were weaker last year as demand declined in traditional western markets. However, part of these losses were offset by gains closer to home (particularly in Australia), as robust hand carry trade limited the damage.

Substantive growth in silver jewelry fabrication last year extended the gap between **China** (as the largest fabricating market) and its main competitors, with both Thailand and Italy losing ground. Thomson Reuters GFMS estimate that Chinese jewelry fabrication jumped by almost 20% in 2011 to a new record high of 37.4 Moz (1,163 t).

Looking back, expansion in 2011, and indeed across much of the last decade, has principally been a function of China's strong economic performance, which again exceeded expectations in achieving GDP growth of 9.2% last year. This rapid economic development led to disposable incomes rising sharply, boosting consumption across all segments (including jewelry). Added to this has been the success in building a substantial export trade for silver jewelry, with low labor costs providing a competitive advantage over rivals. Indeed it has been this advantage that has seen China win market share at the expense of traditional markets (like Italy) whose production costs in most segments are far greater.

Last year's fabrication growth of almost a fifth is even more noteworthy when considering that silver jewelry exports actually retreated last year. According to official trade statistics, gross exports dropped almost 20% to the lowest level in eight years as western orders slumped due to the sluggish economic environment and destocking. Exports to the United States, the largest destination, dropped by an estimated 19%, while flows to Hong Kong (a redistribution point for exports globally) declined by more than a quarter.

As a result, it was growth in domestic consumption that bolstered fabrication, with several important contributing factors at play last year that reinforced the robust domestic performance. Firstly, significantly higher price levels for other rival white metals, namely platinum and white 18-karat jewelry also contributed to the rise in domestic consumption. Fabrication growth was largely at the lower end of the market as consumers (predominantly the youth demographic) were eager to adopt the lower priced metal as an alternative low cost fashion accessory. The second factor has been the rapid urbanization witnessed across rural China, with this economically driven improvement generating expansion of new shopping precincts and retail outlets at unprecedented levels. The comparatively low cost of establishing a new silver retail outlet (in comparison to gold) has seen a proliferation of stand alone fashion jewelry outlets across China's interior, boosting fabrication volumes as new outlets build inventory levels.

Table 9 - Silver Fabrication: Silverware (including the use of scrap - million ounces)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Italy	10.1	9.6	9.1	8.0	7.2	6.6	5.5	4.6	4.0	2.8
Germany	4.5	4.1	3.5	3.0	2.9	2.7	2.3	1.6	1.6	1.5
Greece	1.9	1.9	1.7	1.5	1.4	1.2	1.0	0.8	0.6	0.5
Norway	1.1	1.1	1.0	0.9	0.9	0.6	0.7	0.5	0.5	0.4
Sweden	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3
Denmark	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Countries	2.5	2.3	2.1	2.0	1.8	1.6	1.6	1.2	1.2	1.1
Total Europe	**20.9**	**19.8**	**18.3**	**16.2**	**15.1**	**13.4**	**11.8**	**9.3**	**8.4**	**6.9**
North America										
United States	1.9	1.8	1.6	1.5	1.4	1.4	1.0	0.9	0.8	0.8
Mexico	2.5	2.7	2.6	2.5	2.0	1.4	1.2	0.9	0.7	0.5
Canada	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
Total North America	**4.7**	**4.7**	**4.5**	**4.3**	**3.6**	**2.9**	**2.3**	**1.9**	**1.6**	**1.4**
Latin America										
Colombia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Peru	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1
Other Countries	0.6	0.5	0.6	0.7	0.7	0.7	0.7	0.6	0.5	0.4
Total Latin America	**1.4**	**1.2**	**1.2**	**1.2**	**1.3**	**1.3**	**1.2**	**1.0**	**0.9**	**0.8**
Middle East										
Turkey	2.7	2.9	2.8	2.6	2.4	2.1	2.2	1.8	1.5	1.3
Israel	1.4	1.4	1.4	1.5	1.5	1.4	1.3	1.1	1.0	0.7
Egypt	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1
Other Countries	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.5	1.4	1.3
Total Middle East	**5.9**	**6.2**	**6.2**	**6.1**	**5.8**	**5.5**	**5.4**	**4.5**	**4.1**	**3.3**
Indian Sub-Continent										
India	35.8	35.9	19.3	21.2	16.4	14.5	15.5	23.5	17.7	16.7
Bangladesh & Nepal	2.8	2.6	2.3	1.9	1.9	1.9	1.8	1.7	1.6	1.4
Other Countries	1.0	1.0	1.0	1.1	1.1	1.0	1.0	0.9	0.8	0.7
Total Indian Sub-Cont.	**39.6**	**39.5**	**22.6**	**24.2**	**19.3**	**17.4**	**18.4**	**26.1**	**20.0**	**18.8**
East Asia										
China	3.3	3.9	4.8	5.2	6.1	6.5	6.3	4.7	5.3	5.8
Thailand	3.9	4.1	4.4	4.5	4.3	4.5	4.3	3.7	2.5	1.9
Indonesia	0.7	0.7	0.8	0.8	0.7	0.6	0.6	0.7	0.7	0.6
South Korea	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.6
Other Countries	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.5
Total East Asia	**9.3**	**10.2**	**11.4**	**12.0**	**12.5**	**13.2**	**12.6**	**10.3**	**9.6**	**9.3**
Africa										
Africa	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
Total Africa	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.2**
Oceania										
Oceania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Oceania	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CIS										
CIS	1.3	1.9	2.5	3.1	3.2	4.5	5.4	5.7	6.2	5.2
Total CIS	**1.3**	**1.9**	**2.5**	**3.1**	**3.2**	**4.5**	**5.4**	**5.7**	**6.2**	**5.2**
World Total	**83.5**	**83.9**	**67.2**	**67.6**	**61.2**	**58.6**	**57.4**	**59.1**	**51.2**	**46.0**

Silverware

• ***Structural factors, an acute jump in average silver prices and a sluggish global economy all contributed to the 10% drop in silverware fabrication to 46.0 Moz (1,430 t).***

Last year global silverware fabrication slipped a further 10% to a new low (in our series which covers 1990-2011) of 46.0 Moz (1,431 t). Of the large producers, only China saw its output rise in 2011. Elsewhere, higher silver prices, coupled with ongoing secular changes and economic weakness, affected silverware fabrication.

Europe

Silverware fabrication fell by a steep 18% in 2011 to 6.9 Moz (214 t), or less than a tenth of volumes seen in the early 1990s. This long run decline was chiefly due to the collapse in sales of traditional pieces, often as gifts at weddings. Even though the bulk of that change is behind us, heavy items continued to perform the worst as high prices made them yet more unaffordable. Lighter, more modern items (for example, laminated photoframes) fared better, as did the very top end. Evidence for the latter comes from the trade data for **France**, a country that specializes in high value output, which shows a rise in exports. For this same reason, fabrication in **Germany** performed better than many, although its trade data is misleading as exports' steep rise is thought mainly driven by old silverware being shipped out for refining.

The largest absolute decline not just in Europe but also globally was in **Italy**, as its offtake fell by 29% last year, leading to several producers going bankrupt. Most output is sold domestically and it is not difficult to see how high prices and a stuttering economy should trigger heavy losses, often by way of a shift to silver-plated items and many retailers failing to replace sterling items once sold. Exports were also weaker than the customs figure gross weight drop of 2%, despite success in some emerging markets. The domestic market, however, was not flooded by imports, as the official data also implies.

Russian silverware fabrication fell by nearly 17% last year to 5.2 Moz (156 t) for two main reasons. First and most importantly, the elevated level of production seen in 2010 resulted in overstocking of the supply chain, with the drawdown of these inventories in 2011 accounting for much of the drop in fabrication last year. Second, robust growth in silverware imports eroded the market share held by domestic manufacturers.

North America

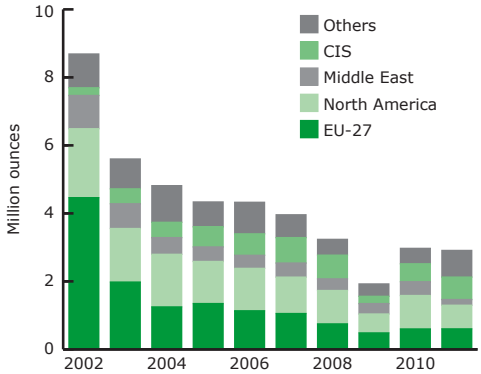
In 2011, the 7% fall for **US** silverware fabrication, to 0.8 Moz (24 t), marked the sixteenth straight year of losses; in just seven years US silverware output has halved. Last year's downturn, the product of the struggling US economy and high prices, was concentrated in the mass market. In contrast, production destined for the high-end market, which is characteristically far less price sensitive (and therefore rarely sees a shift in favor of lighter weight pieces), was a little higher compared with 2010.

Middle East

Turkish silverware offtake weakened by close to 19% in 2011, to just 1.3 Moz (39 t); two factors accounted for much of the decline. First, a near doubling of local silver prices saw domestic consumption (chiefly of locally made pieces) shift in favor of either lighter weight, smaller items, or towards the plated sector. Second, shipments of finished products to Turkey's two largest export markets, namely Israel and the United States, fell sharply in 2011.

Silverware fabrication in **Israel** also fell heavily, by 26% in 2011, declining for the fifth year in succession to 0.7 Moz (22 t). In large part, elevated silver prices helped accelerate the substitution to both plating and the use of laminates at the expense of sterling silver pieces. In the local market, demand for Judaic items was weaker (a function of higher prices), while exports fell, principally because of far lower deliveries to Israel's key US market.

Italian Silverware Exports



Source: Istat

Indian Sub-Continent

In 2011, **Indian** silverware fabrication fell by a relatively modest 5%, to 16.7 Moz (520 t), in spite of local (annual average) silver prices rising by 74%. However, this volume represented less than half the total achieved during the early 2000s. Taking a longer term view of silverware fabrication in India is important as this goes some way to explaining why last year posted such a modest fall. In other words, the apparent lack of price sensitivity reflects our understanding that the market may have reached a baseload of core fabrication demand, which has therefore limited the potential for further, heavy losses in silverware demand to be sustained going forward.

Leaving aside issues of price sensitivity, last year witnessed further market share losses at the expense of bar and coin products. Although by no means unique to 2011 (in fact previous years have seen far more sustained losses), this reflected investors' desire not only for lower margin products, but also their concerns over inherent under-karating across much of the silverware industry.

In addition to weaker local consumption, Indian silverware exports, albeit accounting for a small share of Indian offtake, also seem to have fallen last year. Available trade data for 2011 points to a sharp drop in deliveries to the key US and European markets, although it does appear as though there was some offset in terms of firmer shipments to East Asia.

East Asia

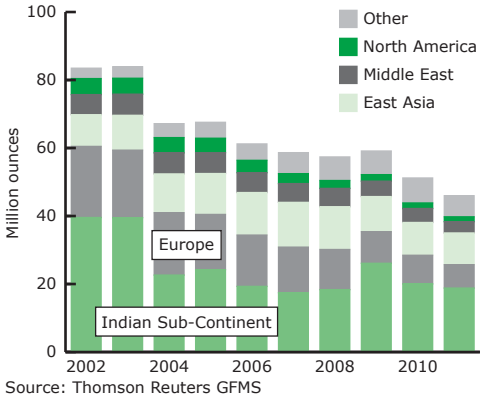
The 22% fall in **Thai** silverware fabrication last year, to 1.9 Moz (60 t), followed on from a sharp drop of almost one-third in 2010, driving offtake to its lowest level in our 22-year data series. While structural changes have impacted end-user demand for some time, last year's 74% jump in (average annual) silver prices, coupled with most industrialized economies being fragile, saw demand in many key export markets weaken. As a result, according to available trade statistics, Thai silverware exports dropped by 47%, led lower by an acute fall in shipments to the United Kingdom. Sales into the local market also fell heavily, with price once again the chief culprit, though severe flooding across Thailand (including greater Bangkok), during a period of peak tourism, also hit retail sales.

A robust rise in domestic sales, combined with stable export markets, saw **Chinese** silverware fabrication run counter to the global trend, with a 10% increase last year to 5.8 Moz (179 t). The rise, while remaining 0.8 Moz (25 t) below the peak in 2007, cemented China as the second largest global market behind India, which posted lower offtake last year. To put China's performance into context, over the last ten years offtake has risen by 75%, while global silverware fabrication has retreated by 45%.

The solid growth in domestic consumption last year, in an environment of acutely higher silver prices, was chiefly driven by two supporting factors. First, China's strong economic growth (GDP rose by 9.2% last year) has delivered wealth, with the growth in disposable incomes boosting consumption across a range of sectors. Specifically, the country's economic progress has seen the creation of a huge middle class across China that is now spending more money on household items and its more wealthy members have often made silverware a beneficiary of this. That said, it is important to note there has been a notable trend away from heavy items for the home, though Chinese consumers have continued to purchase small items that enhance a table setting or are used during more formal occasions.

The second contributing factor was the elevated gold price level. Indeed, with the RMB gold price surging 23% last year those offering gifts or incentives to assist in business transactions looked to silver as a more affordable alternative. Moreover, for the same cost of a diminutive gold ornament, a large silverware item (for example, a table or desk display of a traditional design) was often chosen, with silver therefore increasingly gaining favor as an acceptable gift.

World Silverware Fabrication



Source: Thomson Reuters GFMS

8. Appendices

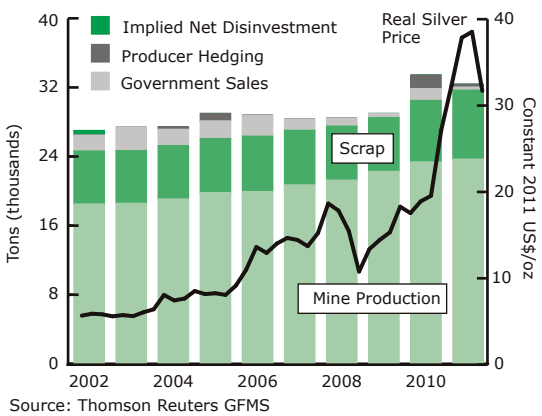
Contents

Appendix 1

Table 1 - World Silver Supply and Demand (tons)

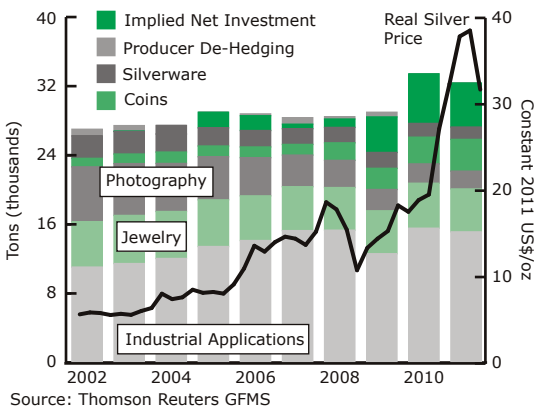
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Supply										
Mine Production	18,490	18,575	19,085	19,800	19,939	20,711	21,263	22,272	23,370	23,689
Net Government Sales	1,841	2,759	1,924	2,051	2,441	1,322	949	485	1,375	357
Old Silver Scrap	6,137	6,097	6,139	6,269	6,408	6,313	6,248	6,221	7,113	7,985
Producer Hedging	-	-	299	859	-	-	-	-	1,568	334
Implied Net Disinvestment	541	-	-	-	-	-	-	-	-	-
Total Supply	**27,009**	**27,432**	**27,447**	**28,979**	**28,788**	**28,346**	**28,459**	**28,978**	**33,426**	**32,365**
Demand										
Fabrication										
Industrial Applications	11,052	11,459	12,050	13,432	14,127	15,274	15,323	12,601	15,552	15,132
Photography	6,353	5,999	5,562	4,987	4,423	3,657	3,150	2,465	2,241	2,056
Jewelry	5,252	5,574	5,438	5,406	5,173	5,086	4,936	4,970	5,207	4,971
Silverware	2,596	2,610	2,089	2,101	1,904	1,824	1,785	1,839	1,592	1,430
Coins & Medals	983	1,110	1,318	1,246	1,237	1,235	2,031	2,450	3,092	3,677
Total Fabrication	26,237	26,751	26,457	27,172	26,863	27,076	27,224	24,324	27,684	27,265
Producer De-Hedging	772	651	-	-	211	753	266	541	-	-
Implied Net Investment	-	29	990	1,807	1,714	517	969	4,113	5,742	5,099
Total Demand	**27,009**	**27,432**	**27,447**	**28,979**	**28,788**	**28,346**	**28,459**	**28,978**	**33,426**	**32,365**
Silver Price (London US$/oz)	4.599	4.879	6.658	7.312	11.549	13.384	14.989	14.674	20.193	35.119

World Silver Supply



Source: Thomson Reuters GFMS

World Silver Demand



Source: Thomson Reuters GFMS

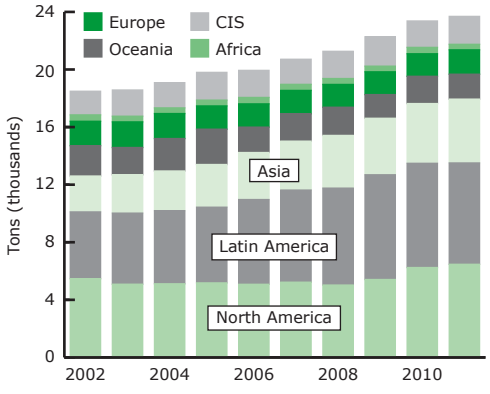
Table 2 - World Silver Mine Production (tons) © Thomson Reuters / The Silver Institute

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Poland	1,211	1,376	1,362	1,261	1,260	1,233	1,212	1,220	1,171	1,270
Sweden	293	307	291	284	266	294	263	270	285	283
Spain	13	2	0	5	2	2	2	5	23	35
Portugal	19	22	25	0	10	28	41	22	23	31
Greece	75	4	0	0	25	35	35	29	27	25
Bulgaria	25	22	19	21	18	14	11	15	13	17
Romania	32	29	28	27	15	3	0	3	7	16
Macedonia	14	5	3	7	11	11	13	14	15	14
Serbia and Montenegro	4	1	1	1	1	1	1	1	1	1
Ireland	8	9	7	6	4	4	5	2	1	1
Italy	2	2	0	3	3	1	0	0	0	0
Other Countries	0	0	0	0	0	0	0	0	0	0
Total Europe	**1,695**	**1,779**	**1,736**	**1,616**	**1,616**	**1,626**	**1,584**	**1,581**	**1,565**	**1,693**
North America										
Mexico	2,747	2,569	2,569	2,894	2,970	3,135	3,236	3,554	4,411	4,753
United States	1,350	1,240	1,250	1,220	1,140	1,260	1,120	1,250	1,270	1,120
Canada	1,373	1,276	1,295	1,063	969	829	669	608	563	596
Total North America	**5,470**	**5,085**	**5,114**	**5,177**	**5,079**	**5,225**	**5,026**	**5,412**	**6,244**	**6,469**
Latin America										
Peru	2,762	2,921	3,060	3,191	3,456	3,501	3,681	3,844	3,640	3,414
Chile	1,210	1,312	1,360	1,379	1,602	1,936	1,404	1,301	1,276	1,311
Bolivia	462	491	434	399	472	525	1,114	1,326	1,274	1,214
Argentina	126	138	145	187	211	252	333	555	721	703
Guatemala	0	0	0	10	50	88	100	129	195	273
Honduras	56	54	50	54	56	54	59	58	58	44
Colombia	7	10	9	7	8	10	9	11	15	24
Dominican Republic	0	0	0	0	0	0	0	18	19	19
Ecuador	1	1	1	11	13	13	13	13	15	16
Brazil	7	7	8	9	10	11	11	11	12	12
Nicaragua	2	2	3	2	3	3	3	5	7	8
Other Countries	2	3	3	6	6	6	5	6	6	3
Total Latin America	**4,636**	**4,938**	**5,073**	**5,256**	**5,887**	**6,400**	**6,733**	**7,275**	**7,239**	**7,040**
Asia										
China	1,646	1,828	1,967	2,082	2,341	2,446	2,618	2,679	2,923	3,233
India	67	91	105	102	183	178	212	292	300	342
Turkey	114	113	126	162	187	235	314	389	384	291
Indonesia	332	297	266	308	246	268	248	240	209	186
Iran	82	82	84	90	100	90	98	106	106	108
Papua New Guinea	64	63	54	68	51	44	50	67	67	92
Philippines	9	10	9	19	24	28	14	34	41	46
Mongolia	35	34	36	36	37	37	36	36	35	33
North Korea	20	25	25	25	29	29	29	25	26	27
Thailand	22	18	16	20	17	13	13	21	23	25
Japan	85	83	54	32	34	14	12	12	11	24
Laos	0	1	3	6	6	4	7	15	17	18
Other Countries	16	19	18	17	13	12	11	10	11	8
Total Asia	**2,494**	**2,665**	**2,763**	**2,967**	**3,266**	**3,399**	**3,662**	**3,925**	**4,151**	**4,433**

Table 2 - World Silver Mine Production (tons)

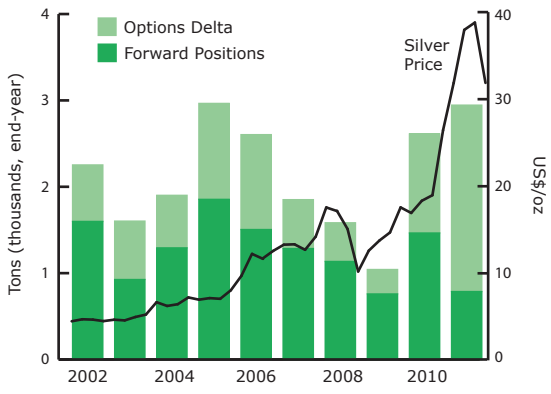
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa										
Morocco	279	209	225	247	247	222	250	264	307	228
South Africa	113	87	71	88	93	86	84	92	93	92
Eritrea	0	0	0	0	0	0	0	0	0	17
Zambia	6	6	8	10	12	12	13	14	15	16
Tanzania	7	8	13	13	12	11	9	11	12	13
Botswana	4	4	4	4	4	3	3	4	4	4
Ethiopia	1	1	2	1	1	1	1	2	2	3
Zimbabwe	4	4	4	4	3	2	2	2	3	3
Mali	3	2	2	2	3	3	2	3	2	2
Other Countries	29	71	65	33	71	81	44	3	4	6
Total Africa	**445**	**394**	**393**	**402**	**446**	**421**	**410**	**393**	**442**	**383**
Oceania										
Australia	2,077	1,864	2,222	2,407	1,728	1,879	1,926	1,631	1,880	1,717
New Zealand	29	30	30	46	35	19	32	14	14	14
Fiji	2	1	2	1	1	0	0	0	0	0
Total Oceania	**2,108**	**1,895**	**2,254**	**2,454**	**1,764**	**1,898**	**1,959**	**1,645**	**1,894**	**1,731**
CIS										
Russia	699	918	941	1,010	972	910	1,132	1,312	1,145	1,243
Kazakhstan	849	802	703	812	796	708	629	614	548	547
Armenia	39	41	40	37	39	37	41	49	65	72
Uzbekistan	49	53	60	64	63	78	73	52	58	58
Kyrgyzstan	1	1	1	1	6	6	10	9	10	10
Azerbaijan	0	0	0	0	0	0	0	0	1	4
Other Countries	5	5	5	5	5	5	5	5	8	5
Total CIS	**1,643**	**1,820**	**1,751**	**1,929**	**1,881**	**1,744**	**1,890**	**2,040**	**1,835**	**1,940**
World Total	**18,490**	**18,575**	**19,085**	**19,800**	**19,939**	**20,711**	**21,263**	**22,272**	**23,370**	**23,689**

World Silver Mine Production



Source: Thomson Reuters GFMS

Silver Producer Hedging: Outstanding Positions



Source: Thomson Reuters GFMS

Table 3 - Silver Fabrication: Coins and Medals Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	476	452	483	517	548	497	790	1,067	1,296	1,487
Canada	32	10	40	51	89	133	281	336	580	729
Austria	13	13	15	18	17	17	259	296	360	571
Australia	20	40	40	32	43	109	182	201	272	350
China	65	72	72	57	50	81	88	94	116	180
Germany	187	301	301	303	272	195	223	232	200	102
Mexico	34	47	85	81	58	51	43	52	64	52
Spain	47	34	70	54	46	38	34	32	41	21
Other Countries	109	141	212	134	115	115	132	139	163	184
World Total	**983**	**1,110**	**1,318**	**1,246**	**1,237**	**1,235**	**2,031**	**2,450**	**3,092**	**3,677**

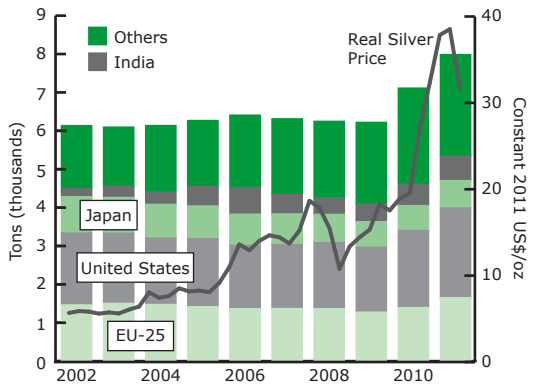
Table 4 - Supply of Silver from the Recycling of Old Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Germany	520	592	598	546	470	471	455	391	465	519
UK & Ireland	423	404	386	360	340	348	340	316	298	340
Italy	113	112	104	133	170	175	183	181	203	303
France	120	126	118	127	139	142	158	170	193	217
Spain	13	14	14	13	13	12	14	16	23	40
Netherlands	44	44	45	42	40	35	34	32	35	38
Austria	58	48	50	40	40	38	36	33	35	38
Sweden	32	32	32	31	29	28	27	26	26	28
Belgium	20	20	20	20	20	20	19	18	20	21
Denmark	17	17	17	16	16	16	15	14	16	17
Portugal	14	14	14	13	13	13	12	12	12	14
Czech & Slovak Republics	13	13	14	14	14	14	13	12	13	14
Finland	12	13	12	12	11	11	10	10	10	11
Norway	21	14	10	9	9	8	9	9	10	10
Switzerland	10	10	10	10	8	8	8	7	7	7
Other Countries	36	34	34	32	31	32	31	30	30	32
Total Europe	**1,466**	**1,506**	**1,476**	**1,418**	**1,363**	**1,370**	**1,363**	**1,276**	**1,395**	**1,650**
North America										
United States	1,872	1,828	1,728	1,772	1,656	1,667	1,724	1,692	2,008	2,340
Mexico	48	55	60	64	72	84	95	98	123	140
Canada	44	47	44	46	44	50	52	48	51	55
Total North America	**1,964**	**1,930**	**1,832**	**1,882**	**1,772**	**1,801**	**1,871**	**1,838**	**2,182**	**2,535**
Latin America										
Brazil	32	36	32	32	32	32	32	34	42	51
Argentina	20	20	20	20	24	20	16	14	19	23
Chile	12	12	12	14	16	16	16	14	18	21
Other Countries	24	25	24	29	33	30	30	30	39	49
Total Latin America	**88**	**93**	**88**	**95**	**105**	**98**	**94**	**91**	**118**	**143**
Middle East										
Saudi Arabia & Yemen	224	23	40	50	56	58	59	60	69	73

Table 4 - Supply of Silver from the Recycling of Old Scrap (tons)

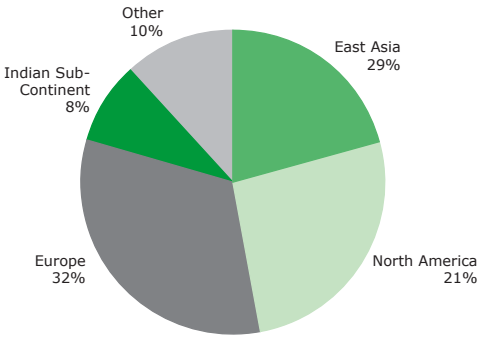
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Turkey	44	52	47	41	35	30	36	38	34	40
Egypt	40	35	42	43	46	48	52	55	62	27
Oman	5	5	5	5	6	6	6	6	7	7
Other Countries	11	11	15	13	15	16	16	16	19	21
Total Middle East	**324**	**126**	**149**	**152**	**158**	**157**	**168**	**176**	**191**	**168**
Indian Sub-Continent										
India	210	294	323	500	700	500	430	465	558	642
Other Countries	15	15	15	16	17	17	17	20	26	31
Total Indian Sub-Cont.	**225**	**309**	**338**	**516**	**717**	**517**	**447**	**485**	**584**	**673**
East Asia										
China	368	407	473	544	636	700	705	787	909	992
Japan	940	930	880	852	810	800	736	662	649	714
South Korea	208	220	225	226	240	242	240	262	294	310
Taiwan	72	77	85	84	88	91	97	111	129	141
Thailand	60	66	74	69	80	85	91	96	115	116
Singapore	13	13	14	14	16	16	15	15	17	18
Hong Kong	12	12	13	13	14	14	14	14	15	16
Indonesia	10	10	11	11	12	12	12	12	13	15
Vietnam	9	10	10	11	11	12	12	11	12	13
Philippines	6	6	6	6	6	6	6	6	7	7
Other Countries	4	4	4	4	5	5	5	5	6	6
Total East Asia	**1,701**	**1,755**	**1,794**	**1,834**	**1,919**	**1,983**	**1,934**	**1,982**	**2,165**	**2,346**
Africa										
Morocco	16	16	40	19	29	28	29	31	32	35
Other Countries	17	17	17	17	18	18	18	18	20	22
Total Africa	**33**	**33**	**57**	**36**	**47**	**46**	**47**	**50**	**52**	**57**
Oceania										
Australia	73	65	64	55	53	52	51	49	49	49
Total Oceania	**73**	**65**	**64**	**55**	**53**	**52**	**51**	**49**	**49**	**49**
CIS										
CIS	263	280	340	280	276	288	272	275	375	364
Total CIS	**263**	**280**	**340**	**280**	**276**	**288**	**272**	**275**	**375**	**364**
World Total	**6,137**	**6,097**	**6,139**	**6,269**	**6,408**	**6,313**	**6,248**	**6,221**	**7,113**	**7,985**

World Silver Scrap Supply



Source: Thomson Reuters GFMS

World Scrap Supply, 2011



Source: Thomson Reuters GFMS

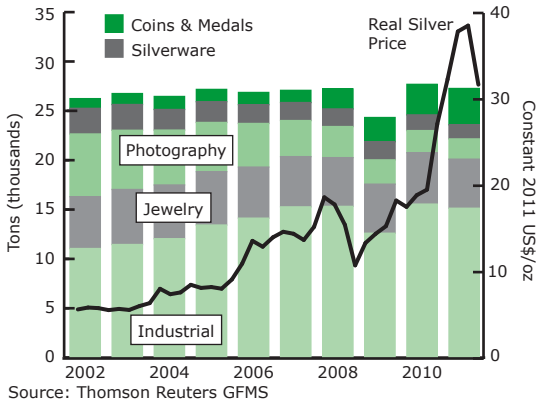
Table 5 - World Silver Fabrication Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Germany	1,102	1,216	1,257	1,260	1,275	1,249	1,271	1,028	1,197	1,058
Italy	1,786	1,736	1,722	1,579	1,451	1,368	1,235	1,097	1,119	898
UK & Ireland	1,323	1,350	1,604	1,330	1,013	780	725	588	634	690
Austria	37	37	40	40	38	38	279	315	380	591
Belgium	958	910	858	814	894	850	743	591	532	428
France	862	819	404	389	396	410	421	319	366	350
Spain	161	148	198	175	156	141	132	125	132	103
Poland	100	120	134	145	149	135	132	109	112	95
Switzerland	106	94	96	101	97	97	97	88	94	94
Netherlands	64	60	79	69	63	63	61	53	58	57
Greece	87	90	86	82	77	70	68	56	46	40
Portugal	53	82	127	54	45	43	42	40	41	40
Norway	60	62	65	56	52	40	40	30	33	34
Sweden	33	37	38	38	37	35	34	29	30	29
Denmark	24	22	21	21	21	21	20	18	19	18
Czech & Slovak Republics	21	22	21	20	20	20	19	17	18	16
Yugoslavia (former)	7	7	8	8	9	9	10	8	9	8
Hungary	13	13	13	12	7	7	9	8	8	8
Finland	14	13	12	12	13	10	10	8	8	8
Cyprus & Malta	10	9	9	9	9	9	9	8	8	7
Romania	12	12	12	12	12	8	8	6	7	7
Other Countries	4	4	5	5	5	5	5	5	5	5
Total Europe	**6,837**	**6,865**	**6,807**	**6,232**	**5,839**	**5,410**	**5,372**	**4,544**	**4,856**	**4,582**
North America										
United States	5,505	5,454	5,608	5,891	5,778	5,558	5,771	5,199	6,255	6,140
Canada	96	78	109	126	178	250	386	404	667	816
Mexico	564	629	682	693	587	576	545	510	537	498
Total North America	**6,164**	**6,160**	**6,400**	**6,710**	**6,543**	**6,384**	**6,702**	**6,114**	**7,459**	**7,454**
Latin America										
Brazil	198	204	227	232	145	223	215	199	241	229
Argentina	58	74	78	80	60	56	44	34	39	39
Dominican Republic	7	11	13	17	19	20	28	46	42	29
Peru	32	23	21	19	22	21	23	25	26	22
Colombia	22	22	22	21	21	21	19	17	18	17
Chile	13	13	13	13	13	13	13	12	13	12
Other Countries	30	29	34	32	35	35	44	45	48	39
Total Latin America	**360**	**376**	**408**	**414**	**316**	**389**	**385**	**379**	**426**	**386**
Middle East										
Turkey	254	294	321	309	276	247	262	222	203	189
Israel	83	81	83	86	88	87	82	69	67	56
Iran	43	45	47	50	49	49	48	44	43	40
Egypt	49	57	62	55	52	53	50	45	43	20
Other Countries	56	56	59	61	62	63	64	67	76	86
Total Middle East	**486**	**532**	**572**	**561**	**526**	**500**	**506**	**446**	**432**	**391**
Indian Sub-Continent										
India	3,309	3,309	2,163	2,850	2,575	2,770	2,868	3,244	2,926	2,833
Bangladesh & Nepal	150	140	132	116	113	113	114	112	108	102
Other Countries	66	66	71	73	74	75	71	67	63	56
Total Indian Sub-Cont.	**3,525**	**3,515**	**2,366**	**3,039**	**2,762**	**2,958**	**3,054**	**3,423**	**3,097**	**2,990**

Table 5 - World Silver Fabrication Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
East Asia										
China	1,856	2,106	2,367	2,571	2,832	3,242	3,556	3,424	3,957	4,350
Japan	3,693	3,607	3,826	3,860	4,097	3,995	3,372	2,195	3,175	2,942
South Korea	643	689	735	795	842	903	955	763	929	941
Thailand	1,014	1,138	1,151	1,150	1,150	1,140	1,046	954	956	781
Taiwan	316	343	331	372	409	458	483	390	474	496
Indonesia	139	146	181	159	178	170	168	167	193	216
Hong Kong	105	99	107	110	118	125	120	99	114	114
Vietnam	26	28	30	32	35	37	39	40	45	49
Myanmar, Laos & Cambodia	30	32	28	28	26	26	26	26	28	28
Malaysia	20	21	22	21	20	20	20	20	21	23
Other Countries	14	15	14	15	14	14	14	26	31	35
Total East Asia	**7,855**	**8,223**	**8,791**	**9,112**	**9,722**	**10,130**	**9,800**	**8,104**	**9,921**	**9,974**
Africa										
Morocco	18	18	19	19	19	20	19	17	18	18
Tunisia	10	11	11	11	10	11	11	10	11	10
South Africa	7	8	8	8	8	8	8	8	8	8
Algeria	5	6	6	6	6	6	6	6	6	5
Other Countries	12	12	13	13	13	14	15	13	13	13
Total Africa	**52**	**54**	**57**	**58**	**57**	**59**	**60**	**54**	**56**	**54**
Oceania										
Australia	180	193	178	121	133	200	271	283	360	441
New Zealand	1	1	1	1	1	1	1	1	1	1
Total Oceania	**181**	**195**	**179**	**122**	**134**	**201**	**272**	**284**	**361**	**443**
CIS										
CIS	776	831	878	925	963	1,046	1,074	977	1,076	990
Total CIS	**776**	**831**	**878**	**925**	**963**	**1,046**	**1,074**	**977**	**1,076**	**990**
World Total	**26,237**	**26,751**	**26,457**	**27,172**	**26,863**	**27,076**	**27,224**	**24,324**	**27,684**	**27,265**

World Silver Fabrication



Source: Thomson Reuters GFMS

World Silver Fabrication, 2011

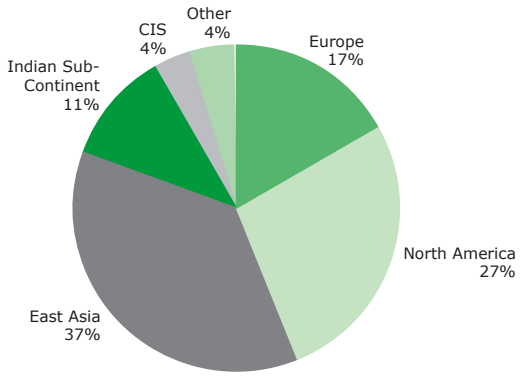


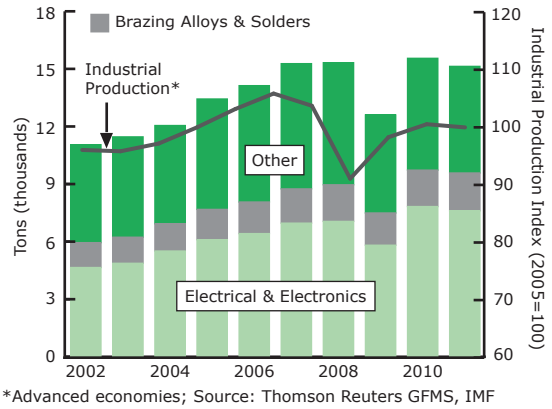
Table 6 - Silver Fabrication: Industrial Applications Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Germany	659	675	730	744	794	851	856	630	828	795
UK & Ireland	433	464	483	385	388	372	378	282	316	351
Italy	324	318	357	338	340	352	350	281	307	289
France	455	430	320	317	322	334	336	232	274	249
Switzerland	84	72	76	81	77	77	76	69	75	74
Netherlands	48	47	48	49	49	49	49	40	47	46
Spain	40	38	65	60	58	59	58	53	55	45
Poland	21	21	22	22	23	24	25	21	23	22
Austria	17	17	17	17	17	17	17	15	16	16
Norway	20	19	26	22	17	16	15	11	13	12
Sweden	10	10	10	10	10	11	11	8	10	9
Czech & Slovak Republics	9	9	8	8	9	9	9	7	9	8
Belgium	8	8	8	8	8	8	8	6	7	7
Other Countries	21	22	22	22	23	24	24	20	22	21
Total Europe	**2,148**	**2,148**	**2,193**	**2,085**	**2,135**	**2,202**	**2,208**	**1,675**	**2,001**	**1,943**
North America										
United States	2,584	2,699	2,931	3,134	3,323	3,548	3,703	3,042	3,929	3,727
Mexico	93	96	93	101	95	102	98	84	90	87
Canada	16	16	19	31	53	83	75	40	60	59
Total North America	**2,693**	**2,811**	**3,043**	**3,266**	**3,471**	**3,733**	**3,875**	**3,166**	**4,078**	**3,873**
Latin America										
Brazil	98	94	115	139	91	124	121	110	132	131
Argentina	20	20	20	28	32	34	32	24	28	28
Colombia	6	6	6	5	5	5	5	4	5	4
Ecuador	2	2	2	2	2	2	2	2	2	2
Other Countries	13	12	12	12	12	12	12	11	12	11
Total Latin America	**139**	**134**	**155**	**186**	**142**	**177**	**172**	**151**	**178**	**177**
Middle East										
Turkey	39	44	45	47	48	50	51	43	46	48
Israel	24	24	24	25	26	26	25	21	23	22
Egypt	3	3	3	3	3	3	3	3	4	2
Other Countries	4	4	4	4	4	4	4	4	4	4
Total Middle East	**70**	**74**	**77**	**79**	**81**	**83**	**83**	**70**	**77**	**77**
Indian Sub-Continent										
India	1,381	1,381	1,053	1,670	1,687	1,986	2,022	2,017	1,979	1,925
Pakistan	8	8	9	9	10	10	10	9	9	9
Total Indian Sub-Cont.	**1,389**	**1,389**	**1,062**	**1,679**	**1,697**	**1,996**	**2,032**	**2,026**	**1,988**	**1,934**
East Asia										
China	1,172	1,324	1,468	1,644	1,809	2,101	2,425	2,274	2,626	2,754
Japan	1,839	1,879	2,292	2,614	2,783	2,827	2,293	1,418	2,456	2,226
South Korea	504	545	590	648	694	750	806	612	762	762
Taiwan	307	333	319	359	394	442	467	375	458	478
Hong Kong	93	90	97	99	107	113	109	88	102	102
Other Countries	15	17	19	19	19	20	24	32	45	50
Total East Asia	**3,929**	**4,188**	**4,784**	**5,383**	**5,805**	**6,253**	**6,125**	**4,799**	**6,448**	**6,371**

Table 6 - Silver Fabrication: Industrial Applications Including the Use of Scrap (tons)

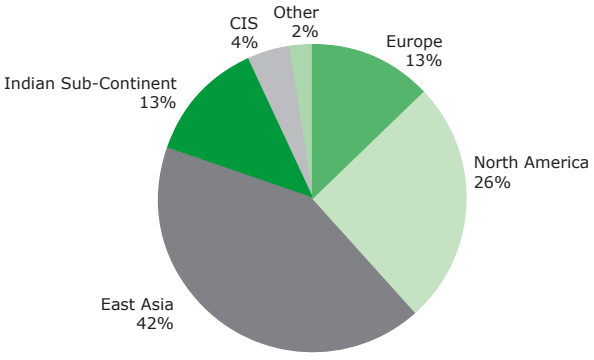
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa										
Morocco	8	8	8	8	9	9	8	7	8	8
South Africa	4	4	4	4	4	4	4	4	4	4
Other Countries	5	5	6	6	6	7	7	6	7	7
Total Africa	**17**	**17**	**18**	**19**	**19**	**20**	**20**	**18**	**20**	**19**
Oceania										
Oceania	66	68	69	63	65	66	65	58	63	66
Total Oceania	**66**	**68**	**69**	**63**	**65**	**66**	**65**	**58**	**63**	**66**
CIS										
CIS	600	630	650	672	712	744	744	637	700	672
Total CIS	**600**	**630**	**650**	**672**	**712**	**744**	**744**	**637**	**700**	**672**
World Total	**11,052**	**11,459**	**12,050**	**13,432**	**14,127**	**15,274**	**15,323**	**12,601**	**15,552**	**15,132**

Components of Industrial Demand



*Advanced economies; Source: Thomson Reuters GFMS, IMF

World Silver Industrial Fabrication, 2011



Source: Thomson Reuters GFMS

Table 6a - Silver Fabrication: Electrical and Electronics Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	1,168	1,228	1,474	1,622	1,710	1,796	1,909	1,660	2,235	2,100
Japan	913	940	1,181	1,360	1,432	1,457	1,204	877	1,588	1,438
China	532	584	652	730	801	981	1,103	975	1,196	1,243
Germany	484	503	551	569	613	665	674	488	668	635
India	151	159	167	300	312	390	420	442	480	551
South Korea	306	333	360	400	430	456	495	390	500	499
Taiwan	260	280	260	293	320	363	384	309	377	395
France	309	297	252	248	254	264	269	178	215	189
UK & Ireland	172	183	190	141	138	139	145	107	120	125
Italy	87	90	118	108	112	121	127	107	121	105
Hong Kong	87	85	92	94	101	108	104	83	97	97
Mexico	56	58	56	64	61	65	64	56	60	57
Brazil	40	38	52	66	27	48	46	37	50	49
Turkey	25	30	31	31	32	33	34	29	31	33
Australia	20	21	21	22	23	23	22	20	22	22
Singapore	-	-	-	-	-	-	-	12	16	20
Netherlands	16	16	16	17	17	17	17	13	16	15
Switzerland	12	14	14	13	13	13	15	13	14	15
Spain	-	-	10	10	10	11	11	8	10	8
Austria	7	7	7	7	7	7	7	6	7	6
Other Countries	7	7	7	7	7	7	7	6	7	6
World Total	**4,653**	**4,873**	**5,511**	**6,102**	**6,419**	**6,964**	**7,055**	**5,815**	**7,829**	**7,607**

Table 6b - Silver Fabrication: Brazing Alloys and Solders Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
China	380	448	492	554	584	644	790	807	870	929
India	60	63	67	130	134	161	177	190	201	221
United States	260	247	228	240	224	240	225	162	183	187
Japan	104	104	116	119	122	123	114	70	105	94
Germany	95	97	100	98	105	112	107	71	87	86
UK & Ireland	79	86	92	90	95	76	72	57	72	76
South Korea	42	44	50	59	64	74	81	64	72	74
Italy	64	63	64	67	74	78	75	52	57	54
Canada	9	9	12	24	46	76	68	34	53	53
Switzerland	40	42	42	48	44	44	42	38	41	41
Taiwan	31	33	35	36	39	40	39	31	38	39
Brazil	23	22	23	25	26	26	25	27	30	31
France	32	25	22	25	26	27	26	17	20	19
Australia	19	20	20	16	17	17	17	15	17	18
Spain	30	28	25	20	20	20	20	18	18	16
Mexico	16	17	16	16	15	16	15	12	13	13
Netherlands	7	7	8	7	7	7	7	6	7	7
Austria	3	3	3	3	3	3	3	3	3	3
Other Countries	2	2	2	2	2	2	7	5	11	12
World Total	**1,295**	**1,359**	**1,416**	**1,579**	**1,646**	**1,784**	**1,907**	**1,680**	**1,897**	**1,971**

Table 7 - Silver Fabrication: Photographic Use Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
EU-25	2,081	2,023	1,916	1,700	1,458	1,209	1,043	852	803	711
Romania	5	5	5	5	5	-	-	-	-	-
Total Europe	**2,086**	**2,028**	**1,921**	**1,705**	**1,463**	**1,209**	**1,043**	**852**	**803**	**711**
North America										
United States	2,017	1,832	1,716	1,753	1,442	1,071	875	728	630	556
Total North America	**2,017**	**1,832**	**1,716**	**1,753**	**1,442**	**1,071**	**875**	**728**	**630**	**556**
Latin America										
Brazil	64	68	68	43	-	45	40	32	45	37
Argentina	34	48	48	40	16	8	-	-	-	-
Total Latin America	**98**	**116**	**116**	**83**	**16**	**53**	**40**	**32**	**45**	**37**
Indian Sub-Continent										
India	10	10	10	10	10	9	9	8	8	8
Sri Lanka	4	4	4	4	4	4	1	-	-	-
Total Indian Sub-Cont.	**14**	**14**	**14**	**14**	**14**	**13**	**10**	**8**	**8**	**8**
East Asia										
Japan	1,799	1,677	1,476	1,180	1,251	1,100	1,008	700	630	630
China	176	180	190	167	157	143	115	95	81	74
Total East Asia	**1,975**	**1,857**	**1,666**	**1,348**	**1,408**	**1,243**	**1,123**	**795**	**711**	**704**
Oceania										
Oceania	71	64	47	4	4	4	3	3	3	2
Total Oceania	**71**	**64**	**47**	**4**	**4**	**4**	**3**	**3**	**3**	**2**
CIS										
CIS	92	88	83	80	76	64	56	47	42	38
Total CIS	**92**	**88**	**83**	**80**	**76**	**64**	**56**	**47**	**42**	**38**
World Total	**6,353**	**5,999**	**5,562**	**4,987**	**4,423**	**3,657**	**3,150**	**2,465**	**2,241**	**2,056**

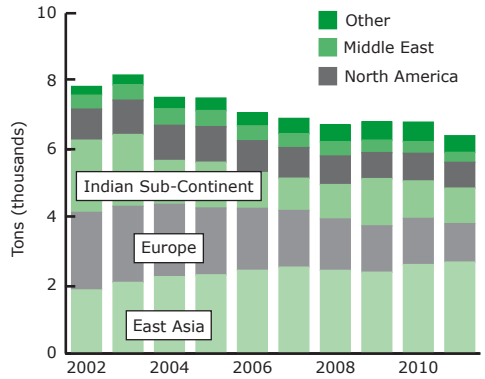
Table 8 - Silver Fabrication: Jewelry and Silverware Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Italy	1,457	1,408	1,348	1,230	1,101	1,006	875	806	802	599
Germany	245	240	226	213	210	203	193	166	169	161
France	84	81	69	55	57	59	57	59	64	73
Poland	71	91	95	105	111	101	95	76	77	61
Greece	87	90	86	82	77	70	68	56	46	40
Spain	74	76	63	61	52	44	41	41	37	37
Portugal	49	52	48	42	38	36	39	36	38	37
UK & Ireland	68	50	48	43	41	26	23	21	21	20
Sweden	22	26	27	27	26	24	22	20	20	19
Norway	40	42	37	32	34	25	26	19	20	18
Denmark	21	19	18	18	18	18	17	16	16	16
Switzerland	10	10	10	10	10	10	10	9	9	9
Cyprus	10	9	9	9	9	9	9	8	8	7
Finland	11	10	9	9	10	7	7	5	5	5
Austria	7	7	7	5	4	4	4	3	3	3
Other Countries	23	22	23	22	23	23	24	21	22	21
Total Europe	**2,279**	**2,235**	**2,124**	**1,963**	**1,821**	**1,665**	**1,510**	**1,361**	**1,357**	**1,125**
North America										
United States	428	471	479	487	465	442	404	362	400	370
Mexico	437	486	504	511	434	423	404	374	383	359
Canada	48	52	50	44	36	34	30	28	28	27
Total North America	**913**	**1,009**	**1,033**	**1,042**	**935**	**899**	**838**	**764**	**811**	**756**
Latin America										
Brazil	36	42	44	50	54	54	54	57	64	60
Peru	29	20	18	16	19	18	20	22	23	19
Colombia	16	16	16	16	16	16	14	13	14	13
Argentina	4	6	10	12	12	14	12	10	11	11
Ecuador	12	10	10	8	10	10	10	7	7	7
Other Countries	25	31	38	42	45	46	63	85	83	61
Total Latin America	**122**	**125**	**136**	**144**	**157**	**157**	**173**	**195**	**202**	**171**
Middle East										
Turkey	211	245	272	258	224	194	207	175	153	134
Israel	57	56	57	59	61	60	56	46	43	32
Saudi Arabia & Yemen	18	18	19	21	21	22	22	23	25	26
Egypt	46	53	58	52	48	50	46	42	39	17
Other Countries	77	79	83	86	86	87	86	82	85	85
Total Middle East	**410**	**452**	**489**	**476**	**440**	**411**	**416**	**367**	**344**	**294**
Indian Sub-Continent										
India	1,918	1,918	1,100	1,170	878	775	837	1,219	939	900
Bangladesh & Nepal	150	140	132	116	113	113	114	112	108	102
Other Countries	54	54	58	60	60	61	61	59	54	47
Total Indian Sub-Cont.	**2,122**	**2,112**	**1,290**	**1,346**	**1,051**	**949**	**1,012**	**1,390**	**1,101**	**1,049**
East Asia										
China	443	530	637	702	816	917	928	961	1,134	1,342
Thailand	1,004	1,127	1,147	1,145	1,146	1,136	1,037	946	947	772
Indonesia	124	129	162	140	159	151	149	150	168	190

Table 8- Silver Fabrication: Jewelry and Silverware Including the Use of Scrap (tons)

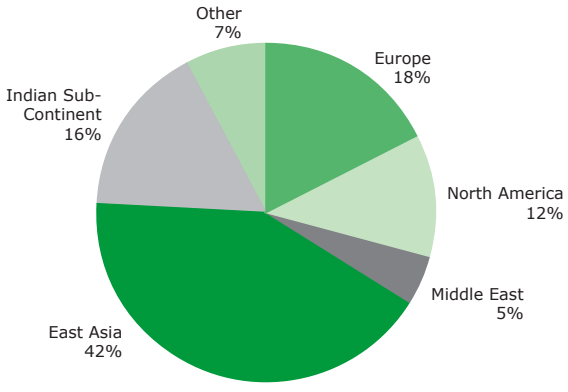
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
South Korea	139	144	145	147	149	153	149	150	167	179
Japan	52	49	56	64	61	65	62	65	70	69
Vietnam	26	28	30	32	35	37	39	40	45	49
Myanmar, Laos & Cambodia	30	32	28	28	26	26	26	26	28	28
Malaysia	20	21	22	21	20	20	20	20	21	23
Taiwan	9	10	12	13	12	12	12	11	12	13
Other Countries	23	21	21	21	22	22	22	21	23	24
Total East Asia	**1,869**	**2,091**	**2,260**	**2,313**	**2,446**	**2,539**	**2,444**	**2,390**	**2,615**	**2,688**
Africa										
Morocco	11	10	11	11	11	11	11	9	10	10
Tunisia	9	10	10	10	9	10	10	10	10	9
Algeria	4	5	5	5	5	5	5	4	4	4
Other Countries	11	12	13	13	13	13	14	13	12	12
Total Africa	**35**	**37**	**39**	**39**	**37**	**39**	**40**	**36**	**36**	**35**
Oceania										
Australia	23	22	23	22	21	21	20	20	22	23
New Zealand	1	1	1	1	1	1	1	1	1	1
Total Oceania	**24**	**23**	**24**	**23**	**22**	**22**	**21**	**22**	**23**	**25**
CIS										
Russia	55	80	112	138	144	205	241	263	291	240
Other Countries	20	21	22	23	23	25	25	21	20	18
Total CIS	**75**	**101**	**134**	**161**	**168**	**229**	**266**	**284**	**311**	**258**
World Total	**7,849**	**8,184**	**7,527**	**7,508**	**7,076**	**6,910**	**6,720**	**6,809**	**6,799**	**6,401**

World Jewelry & Silverware Fabrication



Source: Thomson Reuters GFMS

World Jewelry & Silverware Fabrication, 2011



Source: Thomson Reuters GFMS

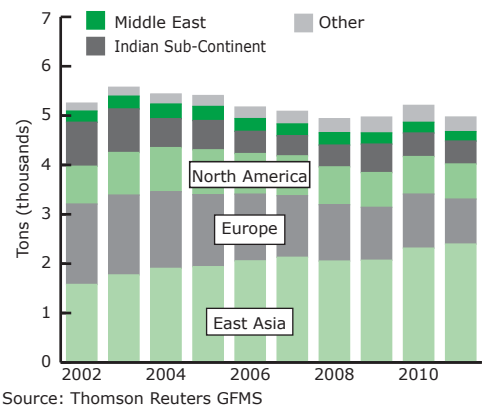
Table 8a - Silver Fabrication: Jewelry Including the Use of Scrap (tons)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Italy	1,142	1,110	1,065	980	876	802	703	663	679	512
Germany	104	113	116	118	119	120	122	115	119	115
France	76	74	62	48	50	52	49	54	59	68
Poland	68	88	92	102	108	98	92	74	75	58
Spain	46	52	42	44	40	35	35	38	34	35
Portugal	44	47	43	37	34	32	33	31	32	32
Greece	28	30	32	34	33	32	36	32	28	25
UK & Ireland	56	38	36	32	30	16	14	12	13	12
Sweden	10	12	12	12	12	11	10	9	10	10
Switzerland	7	7	7	7	7	7	7	7	7	7
Denmark	10	9	8	8	8	8	8	7	7	7
Cyprus & Malta	7	6	7	7	7	6	6	5	5	5
Norway	6	6	6	5	5	5	4	5	5	5
Finland	3	3	3	3	3	2	2	2	2	2
Austria	3	3	3	2	1	1	1	1	1	1
Other Countries	20	19	20	19	20	20	21	19	19	19
Total Europe	**1,629**	**1,617**	**1,554**	**1,458**	**1,351**	**1,248**	**1,143**	**1,072**	**1,095**	**911**
North America										
United States	368	416	428	440	420	400	372	334	374	346
Mexico	358	403	423	434	372	380	368	346	362	342
Canada	40	44	42	36	30	28	26	24	25	24
Total North America	**766**	**863**	**893**	**910**	**822**	**808**	**766**	**704**	**761**	**712**
Latin America										
Brazil	32	38	40	45	48	48	48	52	60	57
Peru	13	10	9	8	11	10	13	16	17	15
Argentina	3	4	7	7	8	9	8	7	8	8
Colombia	6	6	6	6	6	6	6	7	7	7
Ecuador	7	6	6	5	6	6	6	4	5	5
Other Countries	17	24	30	34	38	38	55	78	78	56
Total Latin America	**78**	**88**	**98**	**105**	**117**	**117**	**136**	**165**	**175**	**147**
Middle East										
Turkey	129	154	185	176	150	127	139	120	105	95
Saudi Arabia & Yemen	15	15	16	17	18	18	18	20	21	23
Egypt	36	44	48	43	41	43	40	36	34	16
Israel	13	13	13	14	13	14	14	12	13	10
Other Countries	33	33	34	36	37	37	37	38	43	47
Total Middle East	**226**	**258**	**296**	**286**	**258**	**239**	**249**	**227**	**216**	**191**
Indian Sub-Continent										
India	804	800	500	510	369	323	355	487	390	380
Bangladesh & Nepal	63	58	60	56	54	55	58	60	59	59
Other Countries	24	24	26	27	27	28	29	30	29	26
Total Indian Sub-Cont.	**891**	**883**	**586**	**593**	**451**	**406**	**441**	**578**	**477**	**464**
East Asia										
China	341	408	486	540	627	713	733	814	971	1,163
Thailand	884	999	1,011	1,005	1,012	995	904	832	870	712
Indonesia	103	108	139	117	137	131	129	129	146	172
South Korea	117	121	123	122	126	130	127	131	148	162
Japan	50	48	55	63	60	64	61	64	69	68

Table 8a - Silver Fabrication: Jewelry Including the Use of Scrap (tons)

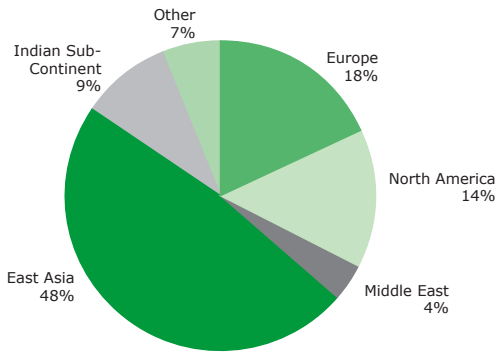
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Vietnam	24	26	27	29	33	34	37	38	42	47
Myanmar, Laos & Cambodia	21	23	20	20	19	19	19	19	22	23
Malaysia	18	19	20	19	19	18	19	19	20	21
Hong Kong	8	7	7	7	8	8	8	8	9	10
Taiwan	6	7	8	9	9	9	8	8	9	10
Other Countries	8	8	8	8	8	8	8	8	8	9
Total East Asia	**1,579**	**1,772**	**1,905**	**1,939**	**2,057**	**2,129**	**2,053**	**2,069**	**2,315**	**2,397**
Africa										
Morocco	8	8	8	8	8	9	8	7	8	8
Tunisia	6	7	7	7	6	7	7	7	7	7
Algeria	3	3	4	4	3	3	3	3	3	3
Other Countries	9	10	10	10	10	10	11	11	10	10
Total Africa	**27**	**28**	**29**	**29**	**28**	**30**	**30**	**28**	**28**	**28**
Oceania										
Australia	22	21	21	21	20	20	19	20	21	22
New Zealand	1	1	1	1	1	1	1	1	1	1
Total Oceania	**23**	**22**	**22**	**22**	**21**	**21**	**20**	**21**	**22**	**24**
CIS										
Russia	19	28	38	48	51	70	79	92	104	84
Other Countries	15	16	16	17	17	18	18	16	15	13
Total CIS	**34**	**43**	**55**	**64**	**68**	**89**	**97**	**108**	**119**	**97**
World Total	**5,252**	**5,574**	**5,438**	**5,406**	**5,173**	**5,086**	**4,936**	**4,970**	**5,207**	**4,971**

World Jewelry Fabrication



Source: Thomson Reuters GFMS

World Jewelry Fabrication, 2011

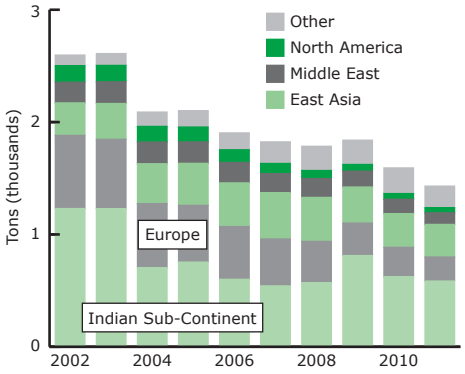


Source: Thomson Reuters GFMS

Table 9 - Silver Fabrication: Silverware Including the Use of Scrap (tons)

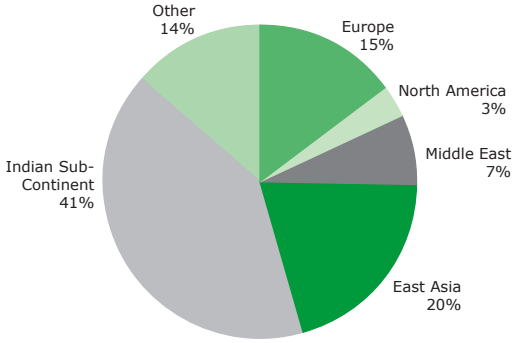
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Europe										
Italy	315	298	283	250	225	204	172	143	123	87
Germany	142	128	110	95	91	83	71	51	51	46
Greece	59	60	54	48	44	38	32	24	18	15
Norway	34	35	31	27	29	20	21	14	15	14
Sweden	12	14	15	15	14	12	12	10	10	9
Denmark	12	11	10	10	10	10	10	9	9	9
Other Countries	77	72	67	61	56	50	49	37	36	34
Total Europe	**650**	**617**	**570**	**505**	**469**	**417**	**367**	**289**	**262**	**214**
North America										
United States	60	55	51	47	45	42	32	28	26	24
Mexico	79	83	81	77	62	43	36	28	21	17
Canada	8	8	8	8	6	6	4	4	3	3
Total North America	**147**	**146**	**140**	**132**	**113**	**91**	**72**	**60**	**51**	**45**
Latin America										
Colombia	10	10	10	10	10	10	8	7	7	6
Peru	16	10	9	8	8	8	7	6	6	5
Other Countries	17	17	19	21	22	23	22	17	15	13
Total Latin America	**43**	**37**	**38**	**39**	**40**	**41**	**36**	**30**	**27**	**24**
Middle East										
Turkey	83	91	87	82	74	67	68	55	48	39
Israel	44	43	44	46	48	45	42	34	30	22
Saudi Arabia & Yemen	3	3	4	4	3	4	4	3	3	3
Egypt	10	10	10	9	8	7	6	6	5	2
Other Countries	44	46	48	50	49	49	48	43	42	37
Total Middle East	**184**	**193**	**193**	**191**	**182**	**172**	**168**	**141**	**128**	**103**
Indian Sub-Continent										
India	1,114	1,118	600	660	509	452	482	732	549	520
Bangladesh & Nepal	87	82	72	60	59	58	57	52	49	44
Other Countries	30	30	32	33	33	33	32	28	25	22
Total Indian Sub-Cont.	**1,231**	**1,229**	**704**	**753**	**601**	**542**	**571**	**812**	**623**	**585**
East Asia										
China	102	122	151	162	189	204	196	147	163	179
Thailand	121	129	136	140	134	141	133	115	77	60
Indonesia	21	21	23	23	21	20	20	21	22	18
South Korea	22	23	22	25	23	23	22	20	19	17
Other Countries	24	24	23	24	22	22	21	19	18	16
Total East Asia	**290**	**319**	**355**	**374**	**389**	**410**	**391**	**321**	**300**	**290**
Africa										
Africa	9	9	9	9	9	10	9	9	8	7
Total Africa	**9**	**9**	**9**	**9**	**9**	**10**	**9**	**9**	**8**	**7**
Oceania										
Oceania	1	1	1	1	1	1	1	1	1	1
Total Oceania	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
CIS										
Russia	36	53	73	91	93	134	162	171	187	156
Other Countries	5	5	6	6	6	6	6	5	5	5
Total CIS	**41**	**58**	**79**	**96**	**99**	**141**	**169**	**176**	**192**	**161**
World Total	**2,596**	**2,610**	**2,089**	**2,101**	**1,904**	**1,824**	**1,785**	**1,839**	**1,592**	**1,430**

World Silverware Fabrication



Source: Thomson Reuters GFMS

World Silverware Fabrication, 2011



Source: Thomson Reuters GFMS

Table 1a - Supply & Demand with Bar Investment

(tons)	2009	2010	2011
Supply			
Mine Production	22,272	23,370	23,689
Net Government Sales	485	1,375	357
Old Silver Scrap	6,221	7,113	7,985
Producer Hedging	-	1,568	334
Physical Bar Disinvestment	480	-	-
Implied Net Disinvestment	-	-	-
Total Supply	**29,458**	**33,426**	**32,365**
Demand			
Total Fabrication	24,324	27,684	27,265
Producer De-Hedging	541	-	-
Physical Bar Investment	-	1,785	2,975
Implied Net Investment	4,592	3,957	2,124
Total Demand	**29,458**	**33,426**	**32,365**

Appendix 2

Nominal Silver Prices in Various Currencies

Prices are calculated from the London price and the average exchange rate for the year.
In the case of India, the price shown is the one actually quoted in the Mumbai market.

	London US$/oz	India Rupee/kg	Thai Baht/oz	Japan Yen/10g	Korea Won/10g	China Yuan/kg	Eurozone* Euro/kg	Mexico Peso/oz
1978	5.422	1,393	110.26	367	844	N/a	179	0.12
1979	11.068	1,896	225.99	780	1,722	N/a	333	0.25
1980	20.984	2,783	429.67	1,530	4,098	1,011	628	0.48
1981	10.487	2,650	228.83	744	2,296	575	390	0.26
1982	7.922	2,675	182.21	634	1,862	482	316	0.45
1983	11.430	3,435	262.89	873	2,851	726	479	1.37
1984	8.145	3,514	192.53	622	2,111	608	382	1.37
1985	6.132	3,880	166.54	470	1,715	579	296	1.58
1986	5.465	4,105	143.71	296	1,549	607	195	3.34
1987	7.016	5,124	180.46	326	1,855	840	208	9.67
1988	6.532	6,231	165.23	269	1,536	782	189	14.85
1989	5.500	6,803	141.36	244	1,187	666	170	13.54
1990	4.832	6,779	123.62	225	1,099	743	129	13.59
1991	4.057	6,993	103.51	176	956	694	111	12.24
1992	3.946	7,580	100.24	161	991	700	101	12.21
1993	4.313	6,163	109.20	154	1,113	799	117	13.44
1994	5.285	6,846	132.92	174	1,365	1,465	141	17.84
1995	5.197	6,864	129.49	157	1,289	1,395	122	33.36
1996	5.199	7,291	131.77	182	1,345	1,390	128	39.51
1997	4.897	7,009	153.60	191	1,498	1,305	139	38.78
1998	5.544	8,016	229.30	233	2,498	1,476	160	50.65
1999	5.218	8,022	197.38	191	1,994	1,389	158	49.90
2000	4.951	8,002	198.61	172	1,800	1,318	172	46.82
2001	4.370	7,420	194.15	171	1,814	1,163	157	40.82
2002	4.599	7,934	197.57	185	1,850	1,224	156	44.41
2003	4.879	8,138	202.39	182	1,869	1,298	139	52.64
2004	6.658	10,606	267.79	232	2,452	1,772	172	75.14
2005	7.312	11,083	294.07	259	2,407	1,926	189	79.68
2006	11.549	17,843	437.51	432	3,545	2,958	296	125.88
2007	13.384	18,794	461.98	507	3,999	3,273	314	146.26
2008	14.989	21,620	499.34	498	5,311	3,349	328	166.82
2009	14.674	23,815	503.12	441	6,024	3,223	339	198.30
2010	20.193	32,007	640.59	570	7,507	4,393	489	255.16
2011	35.119	55,638	1,069.25	900	12,508	7,296	811	436.30

* From 1977-1998, the DM/kg price is expressed in Euro/kg at the official conversion rate of 1.95583

Appendix 3

Real Silver Prices in Various Currencies (CPI deflated - constant 2011 money terms)

Prices are calculated from the London price and the average exchange rate for the year.
In the case of India, the price shown is the one actually quoted in the Mumbai market.

	London US$/oz	India* Rupee/kg	Thai Baht/oz	Japan Yen/10g	Korea Won/10g	China Yuan/kg	Eurozone** Euro/kg	Mexico Peso/oz
1978	18.696	18,417	464.88	530	5,505	N/a	350	264.26
1979	34.301	23,597	867.07	1,086	9,503	N/a	624	405.27
1980	57.291	31,097	1,377.13	1,977	17,570	5,362	1,117	618.61
1981	25.955	26,188	650.98	916	8,114	2,972	652	275.19
1982	18.469	24,496	492.45	761	6,138	2,443	503	286.96
1983	25.818	28,112	684.99	1,027	9,087	3,608	737	440.80
1984	17.636	26,552	497.36	716	6,577	2,938	573	266.03
1985	12.821	27,768	419.99	530	5,216	2,503	436	194.54
1986	11.217	27,027	355.87	332	4,583	2,451	287	222.49
1987	13.882	31,011	435.99	365	5,329	3,164	305	276.60
1988	12.427	34,308	384.56	299	4,118	2,481	274	198.48
1989	9.981	35,284	312.27	265	3,011	1,786	240	150.82
1990	8.319	32,266	257.95	237	2,568	1,934	177	119.56
1991	6.701	29,230	204.33	179	2,044	1,745	161	87.82
1992	6.327	28,346	190.01	161	1,991	1,654	140	75.83
1993	6.717	21,665	200.36	153	2,136	1,648	155	76.00
1994	8.022	21,839	232.16	171	2,466	2,432	182	94.33
1995	7.673	19,865	213.72	155	2,228	1,982	155	130.69
1996	7.458	19,363	205.56	179	2,216	1,822	161	115.19
1997	6.864	17,370	226.85	184	2,363	1,665	171	93.72
1998	7.652	17,542	313.59	224	3,665	1,898	195	105.60
1999	7.047	16,774	269.17	184	2,903	1,812	191	89.24
2000	6.469	16,085	266.59	167	2,562	1,715	206	76.46
2001	5.552	14,387	256.44	167	2,480	1,502	184	62.69
2002	5.752	14,736	259.15	183	2,462	1,593	181	64.92
2003	5.966	14,562	260.77	180	2,403	1,671	158	73.60
2004	7.930	18,287	335.77	229	3,043	2,195	194	100.36
2005	8.423	18,331	352.70	257	2,908	2,344	209	102.35
2006	12.892	27,816	501.48	428	4,190	3,547	322	156.03
2007	14.518	27,533	517.74	502	4,608	3,747	334	174.37
2008	15.669	29,239	530.94	486	5,846	3,621	340	189.20
2009	15.382	29,049	539.58	437	6,451	3,510	351	213.58
2010	20.826	34,851	664.99	568	7,810	4,631	500	263.85
2011	35.119	55,638	1,069.25	900	12,508	7,296	811	436.30

* From 1977-1998, the DM/kg price is expressed in Euro/kg at the official conversion rate of 1.95583

Appendix 4

Silver Prices in US$ per ounce

	London Silver Market - Spot			Comex Spot Settlement		
	High	Low	Average	High	Low	Average
1986	6.3100	4.8530	5.4645	6.2850	4.8540	5.4653
1987	10.9250	5.3600	7.0156	9.6600	5.3790	7.0198
1988	7.8215	6.0500	6.5324	7.8270	5.9980	6.5335
1989	6.2100	5.0450	5.4999	6.1940	5.0300	5.4931
1990	5.3560	3.9500	4.8316	5.3320	3.9370	4.8174
1991	4.5710	3.5475	4.0566	4.5450	3.5080	4.0355
1992	4.3350	3.6475	3.9464	4.3180	3.6400	3.9348
1993	5.4200	3.5600	4.3130	5.4430	3.5230	4.3082
1994	5.7475	4.6400	5.2851	5.7810	4.5730	5.2803
1995	6.0375	4.4160	5.1971	6.1020	4.3750	5.1871
1996	5.8275	4.7100	5.1995	5.8190	4.6760	5.1777
1997	6.2675	4.2235	4.8972	6.3070	4.1550	4.8773
1998	7.8100	4.6900	5.5398	7.2600	4.6180	5.4914
1999	5.7900	4.8800	5.2188	5.7600	4.8720	5.2149
2000	5.4475	4.5700	4.9526	5.5470	4.5630	4.9662
2001	4.8200	4.0500	4.3702	4.8570	4.0280	4.3603
2002	5.0975	4.2350	4.5990	5.1250	4.2230	4.5967
2003	5.9650	4.3700	4.8787	5.9930	4.3460	4.8806
2004	8.2900	5.4950	6.6578	8.2110	5.5140	6.6927
2005	9.2250	6.3900	7.3115	9.0000	6.4270	7.3220
2006	14.9400	8.8300	11.5492	14.8460	8.8090	11.5473
2007	15.8200	11.6700	13.3835	15.4990	11.4650	13.3762
2008	20.9200	8.8800	14.9891	20.6850	8.7900	14.9471
2009	19.1800	10.5100	14.6743	19.2950	10.4200	14.6961
2010	30.7000	15.1400	20.1929	30.9100	14.8230	20.3127
2011	48.7000	26.1600	35.1192	48.5840	26.8110	35.1961

US Prices in 2011

Comex Settlement

US$ per ounce	High	Low	Average
January	31.096	26.811	28.497
February	33.804	28.299	30.861
March	37.872	34.116	35.849
April	48.584	37.737	42.586
May	46.078	33.488	36.920
June	37.689	33.580	35.759
July	40.691	33.694	38.126
August	43.321	37.877	40.300
September	43.020	29.927	37.722
October	35.270	29.795	32.055
November	35.137	31.012	33.245
December	32.695	27.192	30.140

Source: Comex

Leasing Rates in 2011

Monthly Averages

Average	3-month	6-month	12-month
January	0.02%	0.13%	0.41%
February	0.51%	0.65%	0.98%
March	0.28%	0.50%	0.94%
April	0.09%	0.28%	0.68%
May	0.47%	0.62%	0.97%
June	0.20%	0.37%	0.80%
July	0.10%	0.34%	0.75%
August	0.01%	0.26%	0.72%
September	-0.17%	0.15%	0.68%
October	0.10%	0.31%	0.71%
November	0.02%	0.25%	0.62%
December	0.06%	0.28%	0.60%

Source: LBMA

Appendix 5

Leading Primary Silver Mines

Rank	Mine Name	Country	Company	2010 Moz	2011 Moz
1	Cannington[1]	Australia	BHP Billiton plc.	38.60	32.17
2	Fresnillo	Mexico	Fresnillo plc.	35.91	30.30
3	Dukat[2]	Russia	Polymetal International plc.	11.10	13.60
4	Uchucchacua	Peru	Compañia de Minas Buenaventura S.A.A.	9.27	10.09
5	Palmarejo	Mexico	Coeur d'Alene Mines Corp.	5.89	9.04
6	Pallancata	Peru	Hochschild Mining plc. / International Minerals Corp.	10.14	8.77
7	Gümüsköy	Turkey	Eti Gümüş A.Ş.	11.46	8.37
8	San Bartolomé	Bolivia	Coeur d'Alene Mines Corp.	6.71	7.50
9	Pirquitas	Argentina	Silver Standard Resource Inc.	6.30	7.06
10	Greens Creek	United States	Hecla Mining Company	7.21	6.50
11	Arcata	Peru	Hochschild Mining plc.	8.10	6.08
12	Saucito	Mexico	Fresnillo plc.	1.22	5.90
13	San José	Argentina	Hochschild Mining plc. / McEwen Mining Inc.	5.32	5.87
14	Imiter[3]	Morocco	Société Métallurgique d'Imiter	7.81	5.48
15	Alamo Dorado	Mexico	Pan American Silver Corp.	6.72	5.30

1 reported payable metal in concentrate; 2 including Goltsovoye; 3 estimate

Silver Mine Production by Source Metal

(million ounces)

	2008	2009	2010	2011
Primary				
Mexico	53.7	59.8	68.7	73.2
Australia	35.4	33.8	38.6	32.5
Peru	39.5	41.6	36.4	32.4
Other	65.7	77.3	81.2	81.6
Total	**194.3**	**212.5**	**224.9**	**219.7**
Gold				
Mexico	15.4	18.6	21.1	25.3
Chile	12.3	15.8	14.3	13.9
Russia	8.1	11.4	11.5	11.9
Other	38.2	41.0	45.8	49.5
Total	**74.1**	**86.8**	**92.7**	**100.6**
Copper				
Poland	38.4	38.7	37.3	40.5
Chile	27.9	25.8	26.6	26.8
China	16.5	16.2	17.3	18.4
Other	78.6	85.2	79.6	72.9
Total	**161.4**	**165.9**	**160.9**	**158.7**
Lead / Zinc				
China	60.0	61.5	66.7	75.6
Peru	49.1	47.3	48.4	51.8
Mexico	31.3	32.0	48.4	48.7
Other	110.1	107.5	106.6	102.9
Total	**250.4**	**248.3**	**270.1**	**279.0**
Other	**3.4**	**2.5**	**2.9**	**3.7**
World Total	**683.6**	**716.1**	**751.4**	**761.6**

Source: Thomson Reuters GFMS

Silver Mine Production by Main Region and Source Metal

(million ounces)

	2008	2009	2010	2011
North America				
primary	68.7	75.3	83.6	88.6
lead/zinc	47.6	48.5	64.3	61.1
copper	17.4	19.2	18.9	19.2
gold	26.1	30.1	32.6	37.0
other	1.8	0.9	1.3	2.0
Total	**161.6**	**174.0**	**200.7**	**208.0**
Central & South America				
primary	54.9	65.3	63.4	61.6
lead/zinc	82.1	81.0	81.0	81.6
copper	49.0	50.8	50.7	45.8
gold	30.5	36.9	37.5	37.4
other	0.0	0.0	0.0	0.0
Total	**216.5**	**233.9**	**232.7**	**226.3**
Asia & CIS				
primary	29.1	31.5	31.4	31.5
lead/zinc	83.7	89.9	92.4	103.8
copper	49.2	51.0	47.3	45.3
gold	14.9	17.8	19.9	22.7
other	1.6	1.6	1.6	1.6
Total	**178.5**	**191.8**	**192.5**	**204.9**
Rest of the World				
primary	41.7	40.5	46.4	38.0
lead/zinc	37.0	28.9	32.4	32.6
copper	45.8	44.9	44.0	48.3
gold	2.6	2.0	2.6	3.5
other	0.0	0.0	0.0	0.0
Total	**127.1**	**116.4**	**125.4**	**122.4**
World Total	**683.6**	**716.1**	**751.4**	**761.6**

Appendix 6

Comex Futures and Options Turnover and Open Interest, and London Bullion Market (LBM) Turnover

	Comex Number of Contracts				LBM Clearing Turnover[3]		
	Futures		Options				
	Turnover[1]	Open Interest[2]	Turnover[1]	Open Interest[2]	Ounces transferred (millions)	Value (US$bn)	Number of transfers
Jan-10	755,863	123,393	111,272	121,204	70.4	1.2	298
Feb	1,065,168	109,182	112,118	111,805	89.0	1.4	351
Mar	750,170	115,505	83,903	121,188	94.0	1.6	307
Apr	994,814	127,083	78,096	104,351	92.7	1.7	300
May	936,865	120,952	150,964	132,556	104.3	1.9	410
Jun	1,079,348	127,990	96,579	102,174	85.0	1.6	333
Jul	642,826	122,473	73,280	113,410	57.2	1.0	290
Aug	978,609	130,813	99,446	108,960	65.5	1.2	318
Sep	757,106	152,540	135,170	133,290	88.5	1.8	389
Oct	1,314,164	154,866	263,619	174,948	92.2	2.2	441
Nov	2,268,927	133,139	269,993	134,770	108.6	2.9	560
Dec	1,279,578	135,970	154,995	156,502	99.7	2.9	570
Jan-11	1,429,772	123,380	152,350	117,577	119.7	3.4	597
Feb	1,674,711	136,214	147,299	126,487	141.2	4.3	591
Mar	1,685,667	140,109	122,882	134,586	145.7	5.2	685
Apr	3,014,624	132,200	197,267	162,738	179.2	7.5	799
May	2,461,117	120,853	253,353	226,336	259.3	9.5	1,227
Jun	1,768,866	110,978	176,767	181,409	172.9	6.2	708
Jul	1,325,030	119,517	127,518	197,458	160.0	6.1	756
Aug	1,982,811	112,243	162,750	180,510	171.7	6.9	884
Sep	1,220,315	101,170	187,548	211,588	175.6	6.7	919
Oct	952,614	109,017	131,004	218,159	197.4	6.3	879
Nov	1,327,376	98,068	123,326	132,028	164.8	5.5	718
Dec	765,580	105,669	92,461	156,511	197.1	6.0	811

1 Monthly total; 2 Month-end; 3 Daily average; Source: LBMA, Comex

Silver ETF Holdings

(Moz, end-period)	iShares Silver Trust	ETF Securities*	ZKB	Sprott Silver Trust	Other**	Total	Value US$ Bn***
2010 Q1	296.3	34.0	64.9	-	75.5	470.8	8.24
Q2	294.4	36.8	71.0	-	87.0	489.2	9.17
Q3	314.6	41.4	77.4	-	92.9	526.3	11.61
Q4	351.1	51.4	76.5	22.3	98.9	600.3	18.39
2011 Q1	366.8	53.2	76.1	22.3	99.8	618.2	23.41
Q2	306.6	49.6	68.4	22.3	106.1	553.0	19.37
Q3	321.4	52.1	72.7	22.3	109.4	577.9	17.60
Q4	308.8	53.3	81.0	22.3	110.6	576.1	16.23

*Includes ETF Securities LSE, Australia, NYSE, GLTR and WITE **Other: includes Julius Bär, DB Physical Silver, Claymore, Silver Bullion Trust, Mitsubishi UFJ Tokyo, iShares Physical Silver ETC, Central Fund of Canada ***Using the quarter-end London price
Source: Respective issuers, Thomson Reuters GFMS

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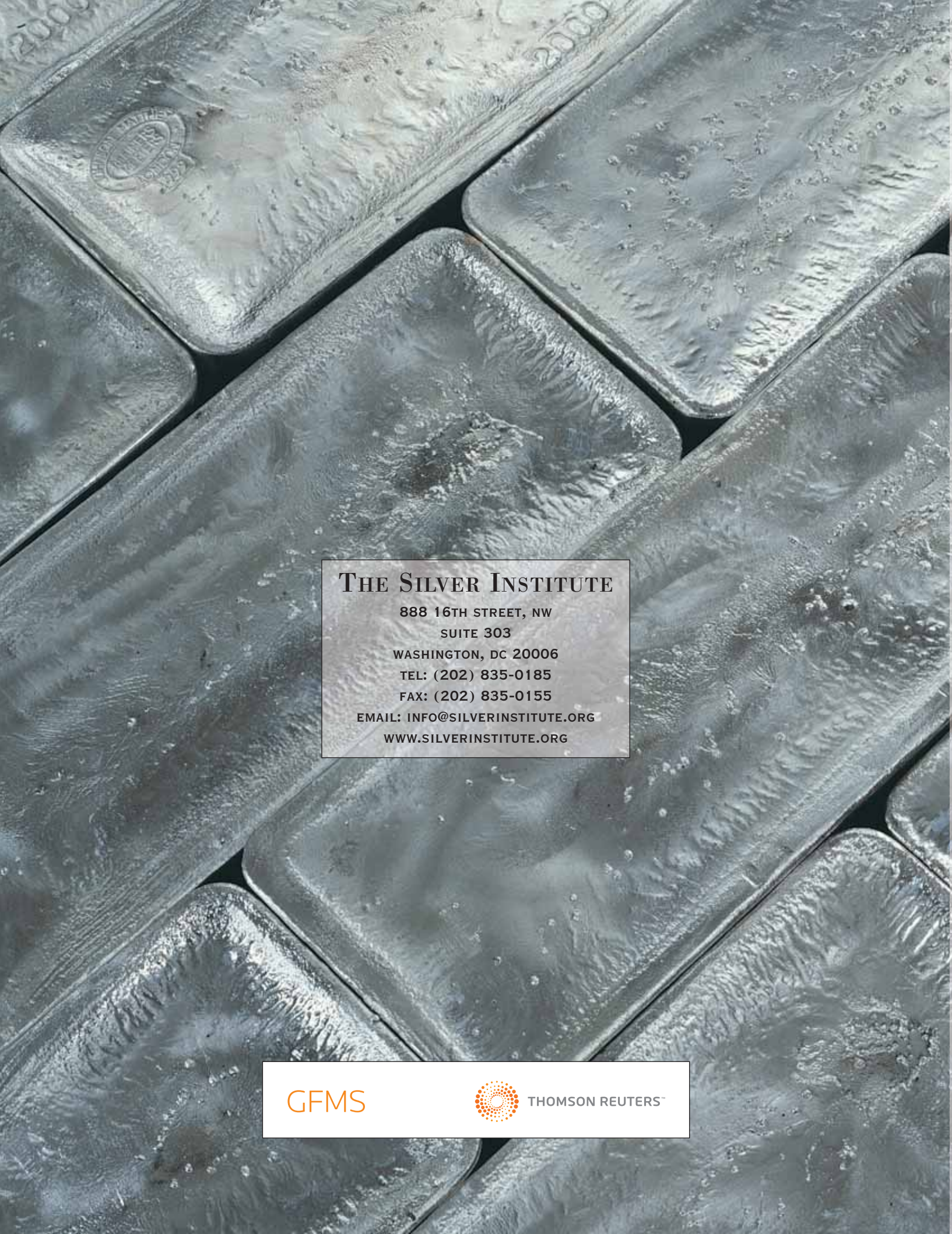

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