THE SILVER INSTITUTE

GFMS

World Silver Survey 2013
A Summary

Produced for The Silver Institute
by Thomson Reuters GFMS

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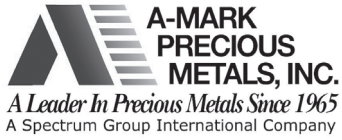

Established in 1965, A-Mark Precious Metals, Inc. is a full service precious metals trading company with customers on six continents and revenues in excess of US$7,000,000,000 yearly. Our counterparts and clientele include mines, refiners, mints, central banks, coin dealers, investment advisors and commodity 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.

Coeur Mining, Inc.

Coeur Mining, Inc. is the largest U.S.-based primary silver producer and a growing gold producer. The Company has four precious metals mines in the Americas generating strong production, sales and cash flow. Coeur produces from its wholly owned operations: the Palmarejo silver-gold mine in Mexico, the San Bartolomé silver mine in Bolivia, the Rochester silver-gold mine in Nevada and the Kensington gold mine in Alaska. Coeur has a non-operating interest in the Endeavor silver-gold mine in Australia. The Company has two feasibility stage projects, the Joaquin silver project in Argentina and the La Preciosa silver-gold project in Mexico. In addition, Coeur conducts ongoing exploration activities in Mexico, Argentina, Nevada, Alaska and Bolivia. The Company owns strategic investment positions in eight silver and gold development companies with projects 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, Ciénega, San Ramón, 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's mission is to be the world's pre-eminent silver producer, with a reputation for excellence in discovery, engineering, innovation and sustainable development. The Company was founded in 1994 with the intention to provide investors with the best vehicle to gain real exposure to silver. Pan American currently owns and operates seven mines in Mexico, Peru, Argentina and Bolivia and has several development-stage silver and gold projects, like the Waterloo silver project in California, USA the Navidad silver deposit, in Chubut, Argentina and the La Virginia gold deposit in Sonora, Mexico. Pan American completed the acquisition of Minefinders Ltd. and its flagship Dolores mine in April, 2012 and went on to produce a Company record of 25.1 million ounces of silver and 112,300 ounces of gold in 2012. In 2013, Pan American expects to again increase annual production to 25.5 to 26 million ounces of silver and 140,000 to 150,000 ounces of gold.

Silver Wheaton Corp.

Established in 2004, Silver Wheaton has quickly positioned itself as the largest precious metal streaming company in the world. The company has a number of agreements where, in exchange for an upfront payment, it has the right to purchase all or a portion of the silver and/or gold production, at a low fixed cost, from high quality mines located in politically stable regions around the globe.
Silver Wheaton's industry-leading growth profile is driven by the company's portfolio of low-cost and long-life assets, including streams on Barrick's Pascua-Lama project, Hudbay's Constancia project, and Vale's Salobo and Sudbury mines. The company's unique business model creates significant shareholder value by providing leverage to increases in the price of silver and gold, while reducing the downside 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 the 2013 edition, as well as previous editions, can be obtained by contacting The Silver Institute at the address and telephone number on the front cover. For copies outside of North America, please contact Thomson Reuters GFMS.

Notes

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 the table on page 6. 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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This report is a summary of *World Silver Survey 2013*. The *World Silver Survey* (WSS) is an annual review of the international silver market. It contains the only truly global analysis of the world's silver markets and has been produced by Thomson Reuters GFMS, the London-based analysts of global precious metals markets, on behalf of the Silver Institute in Washington DC since 1994. The WSS is a unique source of silver supply and demand statistics for more than sixty countries. It contains a comprehensive analysis of investor activity, worldwide silver stocks and bullion flows as well as a lucid and concise account of the financial, economic and social factors underlying market trends. Details on how to order the full 100-page survey can be found on Page 3.

1. Review & Outlook

Last year saw the silver price retreat from the highs reached during 2011, with an annual average of $31.15 in 2012, compared to $35.12 the previous year, when silver came close to its all-time nominal high. Volatility, at 29%, was still relatively high, although considerably lower than the 61% seen in 2011. Investors drove prices higher during the early part of the year, with close attention paid to economic news from the US, particularly the prospect of QE3, which was eventually announced by the Fed in September. The silver price subsequently drifted downwards throughout the remainder of the year, on a combination of market nervousness concerning US 'fiscal cliff' negotiations, and year-end profit taking.

Total silver supply rose by 0.9% to 1,048.3 Moz (32,604 t) in 2012. This was largely attributable to a 4.0% increase in mine production, which was sufficient to counter decreases in other sectors. Net government sales continued a multi-year downward trend, reaching a 15-year low of 7.4 Moz (230 t). Old silver scrap saw a 4.2 Moz (131 t) decrease, while net producer hedging activity switched back to the demand side (de-hedging) in 2012.

World Silver Supply and Demand (Moz)

	2011	2012
Supply		
Mine Production	757.0	787.0
Net Government Sales	12.0	7.4
Old Silver Scrap	258.1	253.9
Producer Hedging	12.2	-
Implied Net Disinvestment	-	-
Total Supply	**1,039.4**	**1,048.3**
Demand		
Fabrication		
Industrial Applications	487.8	465.9
Photography	66.1	57.8
Jewelry	186.5	185.6
Silverware	48.3	44.9
Coins & Medals	118.3	92.7
Total Fabrication	907.1	846.8
Producer De-Hedging	-	41.5
Implied Net Investment	132.3	160.0
Total Demand	**1,039.4**	**1,048.3**
Silver Price (London US$/oz)	35.119	31.150

Mine supply rose for the tenth consecutive year, to a new record high of 787.0 Moz (24,478 t). The primary silver mining sector increased output by only 0.8% in 2012, with most growth coming from the by-product sector, particularly the lead/zinc mining industry. Meanwhile, scrap fell by 1.6% to 253.9 Moz (7,897 t), which is still the second highest level on record.

Total fabrication fell by 6.6% last year, to 846.8 Moz (26,338 t). Losses occurred in all categories, with coins & medals and photography seeing particularly marked decreases, of 21.6% and 12.6% respectively. Jewelry demand alone held up relatively well during 2012, with a slight overall decrease from 186.5 Moz (5,801 t) to 185.6 Moz (5,773 t). This was largely on the strength of demand from India and China offsetting decreases elsewhere. In contrast to the net hedging activity seen during 2010 and 2011, producer de-hedging contributed 41.5 Moz (1,291 t) to demand in 2012.

World Investment rose by 0.8% in 2012, to 252.7 Moz (7,860 t), as implied net investment increased, compensating for falls in physical bar investment and coins and medals.

2. Silver Price - Developments in 2012

The annual average silver price decreased by 11% in 2012, to $31.15, the first retracement since 2009. This is in contrast to the trend in the gold price, which increased by 6% to reach a fresh (nominal) high. Silver's daily high for the year of $37.23, due to a price spike in late February, is substantially lower than the 2011 high of $48.70. The price subsequently trended downwards, with the low for the year, of $26.67, reached in mid-July. In real terms, the 2012 average was well below that of 1980, when the average was equivalent to $56.87 in 2012 dollars, while the 1980 daily peak equated to $139.

Silver traded in a narrower range in 2012 than in 2011, with a range:average ratio of 34% versus 64%, while silver's volatility in 2012 was 29%, compared to 61% in 2011. Meanwhile, the annual average gold:silver ratio increased from 45 in 2011 to 54 in 2012, indicating a degree of underperformance from silver.

Silver opened 2012 with a fix of $28.78 and rallied smartly, wiping out December losses before the end of January and moving on rapidly to post what proved to be the year's high on February 29th at $37.23, a level previously seen in September 2011 when silver was falling. The bull run of January and February was stimulated predominantly by investor activity as the markets focused on the global economic outlook and the prognosis for the US in particular. Over the first two months of 2012 silver prices gained 30%, compared with gold's 11% and a 13% average among the major base and precious metals plus oil.

The reversal at the start of March was triggered by the reaction to Federal Reserve Chairman Bernanke's testimony to Congress, where his lack of reference to QE3 was taken by some to mean that the likelihood of more easing was receding. Silver thus shed 27% from end-February to May 16th, falling to $27.25 before starting to stabilize and entering a period of range-trading that lasted just over three months to mid August. From May to August, silver traded in a narrow range between $29.36 and $26.72. The price's broad stability in this period also saw a gradual improvement in physical demand in India, and evidence of an improving physical market helped in turn to stimulate OTC investment interest during July.

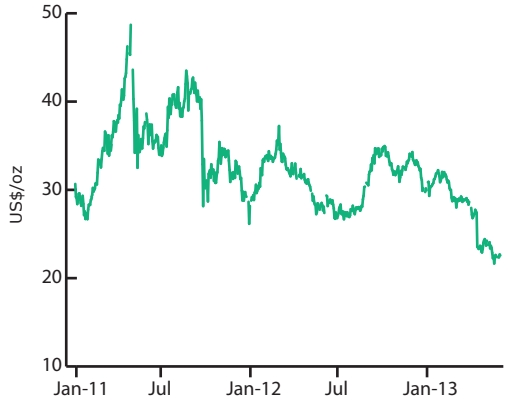
Silver - Trading Details

Silver is predominantly traded on the London Bullion Market and Comex in New York. The former, as the global hub of OTC (Over-The-Counter) trading in silver, is the metal's main physical market. Here, a bidding process generates a daily reference price known as the fix. Comex, in contrast, is a futures and options exchange. It is here that most fund activity is focused. Silver is invariably quoted in US dollars per troy ounce.

Silver bounded higher in mid-August to early-October, running up from $27.64 on August 15th to $34.96 on October 4th, a gain of 26%, unwinding 76% of the overall fall from end-February to mid-August. The rally had been triggered as gold and silver anticipated further ECB intervention, and QE3, which was announced in a Fed statement on September 13th.

The silver price rally came to an end in October, and the rest of the year saw a rolling downward trend which persisted into the first months of 2013. Although the US presidential election removed some uncertainty and contributed to a rally in November, the markets again became risk-averse in December, partly due to nervousness over the polarization in Washington over fiscal cliff negotiations, but also in part as market participants began to speculate over potential changes to the asset purchase program by the Fed. Silver consequently encountered heavy liquidation on Comex (partly end-year selling) and despite some investor purchases into the price weakness, silver dropped to a 2012 close of $29.95, a fall of 14% from the top of the August-October rally and a gain of 4% intra-year.

The Silver Price since January 2011



Source: Thomson Reuters

3. Supply

- ***Global silver mine production grew last year, by 4%, rising to a new record of 787.0 Moz (24,478 t).***
- ***By-product output from the lead/zinc sector provided much of the growth, up by 9%, with strong growth in China, Mexico and India.***
- ***Primary silver mine supply grew only slightly in 2012, by 1%.***
- ***Primary silver total cash costs rose by 9%, to $8.88/oz, as credits from base metal by-product revenues fell, coupled with lower grades and higher input cost inflation.***
- ***Producer de-hedging of silver contracts amounted to 41.5 Moz (1,289 t) representing a 43% cut to the silver producer hedge book.***

Global silver mine production increased again last year, as it rose by 4.0% to 787.0 Moz (24,478 t). Nevertheless, this growth actually fell short of our expectation that mine output would touch 800 Moz. The primary silver mining sector grew only modestly, up 1% to 221.6 Moz (6,892 t) to account for 28% of global silver mine output. The reason for this comparatively balanced outcome from the primary sector related to two decreases at major primary silver mines; Fresnillo in Mexico saw lower processed grades, while Lucky Friday in the United States suffered from mining operations being suspended for much of 2012 to allow for upgrades to the main shaft. These two outcomes largely countered a broad base of production gains across the primary sector. The principal driver of global growth in fact originated from the lead/zinc sector, with robust increases in China, India and Mexico. Primary silver producers' Total Cash Costs increased by 9% last year to $8.88/oz, owing to input cost inflation and an easing of credits associated with lower base metal prices.

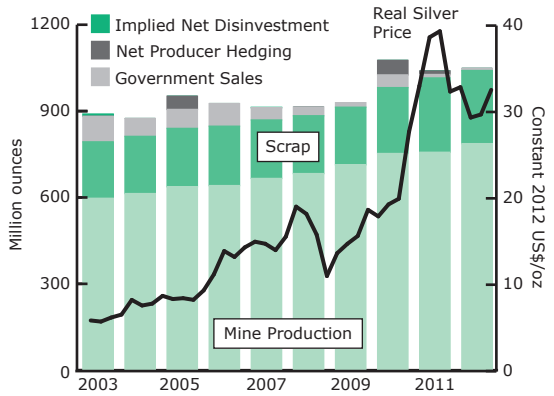
Global scrap supply retreated 1.6% from its record high in 2011 to reach an estimated 253.9 Moz (7,897 t) last year. Supply from industrial sources saw further gains in 2012 as elevated metal prices and tighter environmental legislation lifted recycling volumes, with these gains offset by a decline in supply from the recovery of silver from

Silver Supply - Its Components

Mine production remains by far the largest component of silver supply, normally accounting for around two-thirds of the total (last year was higher at 75%). However, mine production is not the sole source; the others being scrap, disinvestment, government sales and producer hedging. Scrap, or more properly "old scrap," is the silver that returns to the market when recovered from manufactured goods. This could include old jewelry, photographic chemicals, even discarded computers. However, it excludes silver that is returned untransformed by the manufacturing process or that never becomes an end product - so called "process scrap". Old scrap normally makes up around a fifth of total supply.

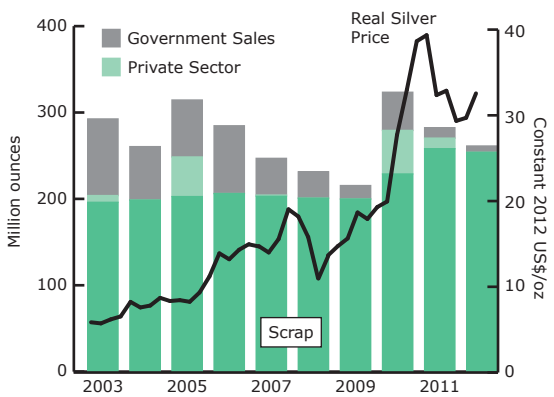
Disinvestment and government sales are similar in that both comprise the return to the market of old bars and coins by the private sector and governments. It is worth bearing in mind that these sources may not add to supply every year on a net basis. In some years, individuals have been net investors (as was the case in 2008) and governments net buyers. The final, though normally minor, component of supply is producer hedging or the early sale by mining companies of future production. Hedging may also not appear every year on the supply side on a net basis as it can form part of demand as de-hedging (as occurred in 2012).

World Silver Supply



Source: Thomson Reuters GFMS

Mobilization of Above-Ground Stocks



Source: Thomson Reuters GFMS

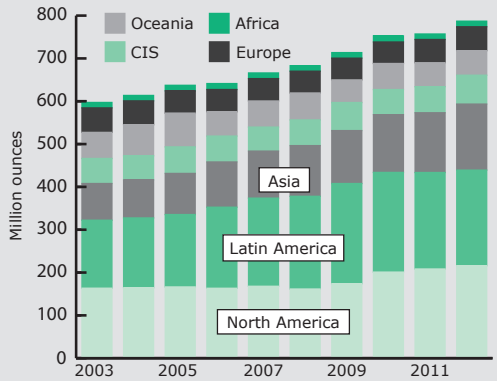
Silver Output by Source Metal

(million ounces)

	2011 Output	% of Total	2012 Output	% of Total	Change y-o-y
Primary	219.8	29%	221.6	28%	1%
Gold	98.2	13%	101.8	13%	4%
Lead/Zinc	278.2	37%	303.7	39%	9%
Copper	157.5	21%	156.2	20%	-1%
Other	3.5	0%	3.8	0%	8%
Total	**757.0**		**787.0**		**4%**

Source: Thomson Reuters GFMS

World Silver Mine Production



Source: Thomson Reuters GFMS

Silver Mine Production - Where It Comes From

Geographically, nearly half of mined silver comes from the Americas. Indeed six of the ten largest producing countries are in this region, including the two of the three biggest, Mexico and Peru. Of greater market relevance is the type of mine that silver comes from – most silver emerges as a by-product of the mining of other metals. Most substantially, silver production comes from lead/zinc operations.

Only around 30% of output comes from so-called primary silver mines, where silver is the main source of revenue. This is noteworthy given that the impact of the price of silver is most acute on primary silver production, whereas by-product silver production is in large part a function of the price of the other metals, with which silver is mined.

old silverware and jewelry, coins, and further attrition in the contribution from photographic sources. The picture across world markets was far from uniform, even within the industrialized world. Scrap supply from Europe for instance recorded a 5% rise due in part to increased refining capacity to handle growing industrial scrap, while the depletion of near-market stocks of jewelry and silverware accounted for much of the 10% fall in US recycling. Elsewhere, India registered its fourth consecutive increase in scrap supply, recording a near 30% jump, thanks mainly to a weaker currency that lifted silver in rupee terms to near record levels.

Net government stock sales in 2012 dropped for the second year, falling a notable 39% to a 15-year low of 7.4 Moz (229 t). This was largely driven by the continued decline in disposals from Russia. If we exclude that country, interest in reducing silver bullion holdings remained subdued, as the bulk of sales were believed to have been related to the release of old coin stocks.

4. Demand

- ***Total fabrication in 2012 dropped by 6.6% to 846.8 Moz (26,339 t), reflecting losses in all areas.***
- ***Industrial fabrication fell the second year in a row, easing by 4.5% to 465.9 Moz (14,490 t), due mainly to patchy GDP growth and thrifting.***
- ***Jewelry fabrication remained broadly flat as robust demand in India and China offset losses in the developed world.***
- ***Implied net investment surged by 21% to a fresh all-time high of 160.0 Moz (4,976 t).***
- ***Coins & medals fabrication eased but remained elevated by historical standards.***
- ***Producers' hedging activities switched to the demand side with a 41.5 Moz (1,289 t) reduction to the global hedge book.***

In 2012, total fabrication declined for the second consecutive year, falling by 6.6% to 846.8 Moz (26,339 t), in the process accounting for 81% of total demand. Every category of silver offtake declined last year, with losses particularly heavy in photographic and silverware fabrication, largely due to ongoing structural factors, and in coins & medals demand, although the latter must be seen in the context of what was a record total in 2011.

Global industrial offtake fell by 4.5% last year to 465.9 Moz (14,490 t), a drop of 34.9 Moz (1,085 t) from the record level in 2010. Much of the decline was driven by the challenging economic environment in many industrialized countries, which impacted negatively on consumer sentiment and demand for finished goods. All of the major regions recorded lower demand last year. Heavy losses for instance were registered in Japan,

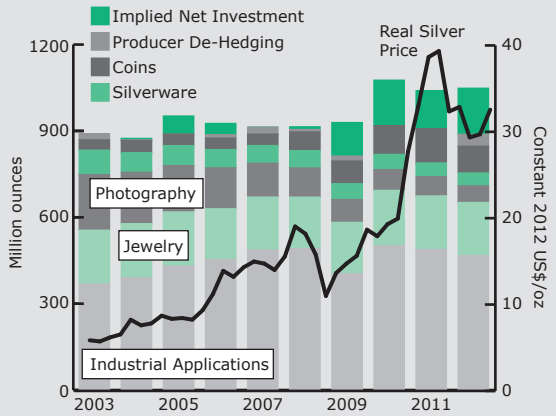
where a weak economic backdrop resulted in a 16% fall last year, while European industrial offtake also posted a double-digit percentage decline. Industrial silver fabrication in the United States fell, chiefly due to losses in the photovoltaic sector, but a strong year for ethylene oxide catalysts helped trim the overall drop to just 4%. In contrast, Chinese industrial demand rose, if only by 1%, to a fresh high. The main exception was India, where industrial offtake posted 4% growth, partly as a result of lower exposure to troubled western economies.

Silver use in photographic applications last year continued its secular decline, dropping 12.6% to 57.8 Moz (1,797 t), its lowest level in our data series. The dominant reason behind this remains the rapid penetration of digital technology in all photo-related areas. This saw photography's share of total fabrication fall to just 7% last year, compared to 24% a decade ago.

Silver Demand - Its Components

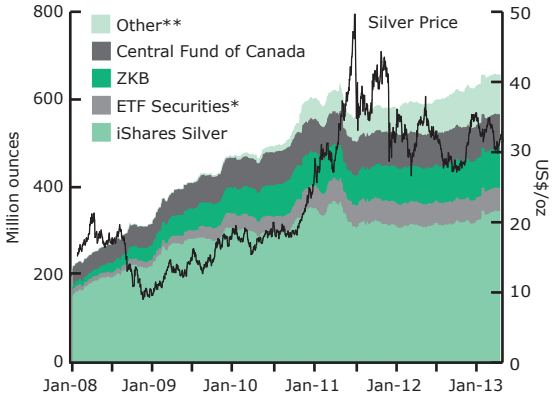
The largest component of total demand is the industrial offtake category, which for the last two years has accounted for around 45% of the total. The second most important areas in 2012 were the relatively price sensitive segment of jewelry (18% of total demand) and coins (9%). The rest of fabrication is made up of photography (6%), whose share has been falling greatly due to digital technology, and silverware (4%). The other elements of demand (government purchases, producer de-hedging and investment) are alike in that, on a net basis, they may not feature every year on the demand side. The official sector, for example, has not generated net purchases since 1997. Investment was the main driver of last year's rally and this stands in contrast to the sustained net disinvestment seen in the 1990s.

World Silver Demand



Source: Thomson Reuters GFMS

Silver ETF Holdings



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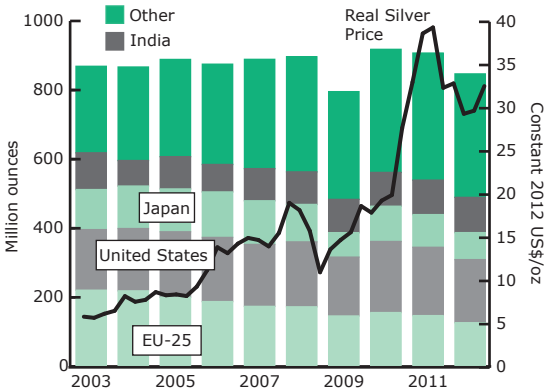
Source: Respective issuers

In 2012, silver jewelry fabrication remained broadly unchanged, dropping by less than 1% to 185.6 Moz (5,771 t). This occurred despite losses in the industrialized world thanks to healthy gains in India and China. Indian jewelry fabrication returned to growth last year, rising by 6.6% to its highest level since 2004, while jewelry demand in China continued to expand last year, rising by 4.1% to a record high of 56.6 Moz (1,762 t). Last year, silverware fabrication suffered another fall, dropping by 7.1% to 44.9 Moz (1,396 t). Much of this decline was down to heavy losses in the developed world, due to ongoing structural factors and economic weakness. Elevated local silver prices also led to lower demand in the price sensitive markets, especially India. The notable exception, however, was China, where a robust domestic market saw silverware offtake post a 3% rise.

Investors remained significant net buyers of silver in 2012, as evidenced by a 21% increase in implied net investment (including physical bar investment). Furthermore, the level it attained of 160.0 Moz (4,976 t) was an all time high basis our records. Buoyant investor interest was also apparent in demand for coins & medals; despite a 22% fall, at 92.7 Moz (2,884 t) in 2012, global coin minting remained elevated by historical standards. In aggregate, World Investment, the sum of implied net investment and coins & medals rose marginally to 252.7 Moz (7,860 t) last year, with its share of total silver demand remaining steady at 24%. In approximate value terms, the figure dropped by over 10% to below $8 billion, although this was against an exceptionally high level in 2011. This figure also remained comfortably

World Silver Fabrication (by region)



Source: Thomson Reuters GFMS

above the annual average of $1.2 billion over the 2001-10 period.

The two previous years of producer hedging were reversed with a decisive 41.5 Moz (1,289 t) of net de-hedging recorded in 2012. This came about as few producers put large new hedges in place last year, while several companies allowed contracts to mature or actively bought hedges back. The reduction to the hedge book, which in delta-adjusted terms had fallen to a total of 54.8 Moz (1,704 t) at end-2012, was due to cuts made to the options book, as the volume of forward sales contracts actually increased marginally year-on-year.

Silver's Fabrication Uses

Industry: Silver is the best electrical and thermal conductor of all metals and so is used in many electrical applications, particularly in conductors, switches, contacts and fuses. Contacts provide junctions between two conductors that can be separated and through which current can flow, and account for the largest proportion of electrical demand. The most significant uses of silver in electronics are in the preparation of thick-film pastes, in multi-layer ceramic capacitors, in the manufacture of membrane switches, silvered film in electrically heated automobile windshields and in conductive adhesives. Silver used in the fabrication of photovoltaic cells is seen as an area of rapid growth in the short to medium term. Other industrial uses for silver include as a coating material for compact disks and digital video disks, mirrors, glass coatings and cellophane and batteries.

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 quantities 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 3-5 microns.

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. Photographic film manufacturers demand very high purity silver.

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, Mexican and Austrian bullion coins for investors.