Silver Jewelry Report

Prepared by GFMS Ltd

for

The Silver Institute

March 2007

GFMS

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.

Definitions:

Jewelry fabrication = metal used solely for the manufacture of silver jewelry. As such, it *excludes* silver used in alloys for the production of other jewelry, for example, as may be used in white gold jewelry, as well as in costume and plated jewelry products.

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.

Table of Contents

1.0 Introduction

This report has been prepared by GFMS Limited on behalf of the Silver Institute, in order to provide a detailed analysis of trends in the global silver jewelry market.

Since 1994 GFMS have been responsible for preparing the Silver Institute's annual World Silver Survey, which includes a detailed breakdown of the global supply/ demand balance.

One of the key areas of fabrication demand is jewelry and silverware, which has increased in importance with the recent decline in silver use by the photographic industry. Since its inception, the *World Silver Survey* has featured jewelry and silverware as a combined total in the main country-by-country tables (with each Survey showing data for the past decade), although, where appropriate, the analysis has always focused on the distinct trends within each sub-sector.

In this report, global statistical series have been produced that separate jewelry and silverware. In preparing this report, GFMS has also carried out a detailed review of the country-by-country data, which, in some cases, has resulted in refinements to individual series.

As well as including a 10-year global series for both jewelry and silverware, the report includes a detailed qualitative analysis of the silver jewelry market. This opens in Chapter 3 with a review of trends in silver jewelry fabrication, both at the regional level as well as focusing on countries with manufacturing volumes exceeding one million ounces, including China, India, Italy and the United States. The analysis brings out the main trends, specific to each market, which have impacted on silver fabrication over the past decade. The prime focus of the report is silver jewelry but, in the light of the continued importance of silverware to global silver demand, a review of developments in this industry is also included in Chapter 4.

Trends in jewelry fabrication do not of course occur in isolation and Chapter 5 focuses on jewelry consumption. Once again, this is the first time that disaggregated data on the leading silver jewelry consuming nations has been published, the report including country-by-country data for the 10 largest consuming countries for the 2000 to 2005 period. Consumption is in fact highly concentrated among a small number of countries and this report provides a detailed review of demand trends within this group, including expectations for the future. The chapter finishes with a review of global trade in silver jewelry, focusing on the top five importing and exporting nations.

A review of the outlook for jewelry consumption, in the previous section, is developed in Chapter 6. In particular, this focuses on the competition for silver jewelry. GFMS have already developed expertise in the analysis of global gold jewelry consumption and these two, apparently disparate, markets are brought together in this commentary. However, the review is not limited to competition from white or yellow gold but extends to other materials, both precious and non-precious. Furthermore, this chapter reviews the impact of trends in the silver price, economic developments and the impact of changing fashion on consumption.

The research for the above-mentioned chapters has drawn on GFMS' extensive know-how and considerable contact network, which has been developed in over fifty countries. Our experience and data has also been an indispensable asset when it comes to modeling the price sensitivity of jewelry consumption (see Chapter 7) in four countries, namely: India, Italy, the United States and China; utilizing, for example, previously unseen sixteen-year statistical series.

In summary, we believe that this Silver Jewelry Report makes an important contribution to the transparency and understanding of this fascinating area of the silver market.

Philip Klapwijk
Executive Chairman

Paul Walker
Chief Executive Officer

2.0 Executive Summary

One of the prime objectives of this Report has been to produce for the first time separate detailed statistics for silver jewelry and silverware fabrication. The data we have produced show that global silver jewelry output stood at 146.4 Moz (4,554 t) in 1996. Production then increased, albeit somewhat erratically, to reach a record level of 176.7 Moz (5,495 t) in 2003. In the next two years, demand fell back a little, reaching 171.8 Moz (5,345 t) in 2005. This decline largely centered on the price-sensitive Indian market, with double digit prices having had only a marginally negative impact on demand in most other countries.

The importance of India to the global picture is evident from the fact that since 2001 its production of silver jewelry has nearly halved. In 2005, India accounted for just over 10% of global fabrication demand compared to no less than 23% in 1996. (As we explain elsewhere in this Report, price factors alone do not explain the secular decline in Indian demand in recent years.) Indeed, looking at global jewelry output *excluding* India the growth picture is a far stronger one: output in the rest of the world surged from 112.6 Moz (3,504 t) in 1996 to a peak of 155.6 Moz (4,842 t) in 2004 before dropping back to 153.8 Moz (4,785 t) in 2005.

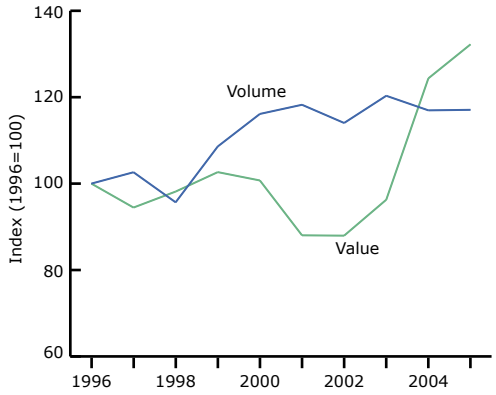
India was the third largest fabricator of silver jewelry in 2005. Its output of 18.0 Moz (560 t) was eclipsed by Thailand with 32.3 Moz (1,005 t) and Italy with 31.5 Moz (980 t). Silver jewelry fabrication is highly concentrated: together the top-5 countries (the other two being China and Mexico) account for two-thirds of global production. This compares to a figure of 56% achieved by gold jewelry's top-5 in 2005.

Within this top-5 group, growth in output in the last ten years has been spectacular in Italy, Thailand and China. In all three cases exports have been the driving force behind the expansion. However, it is significant that Italian production peaked in 2000, since when it has declined and that Thai output has apparently reached something of a plateau in recent years. The explanation for these developments is largely the ramping up of low-cost exports from China. China has played a key part in the over 90% increase in the value of global silver jewelry trade between 2000 and 2005.

On a consumption basis, the global rankings are rather different. The United States with 53.7 Moz (1,670 t) was by far the largest silver jewelry market in 2005, accounting in fact for no less than 31% of global consumption. A distant second with 14.7 Moz (457 t) that year was India, with Germany taking the bronze medal on 12.0 Moz (375 t). Global silver jewelry consumption is less concentrated than fabrication, in the case of the former, the top-5 consuming countries together accounting for 58% of the global total in 2005.

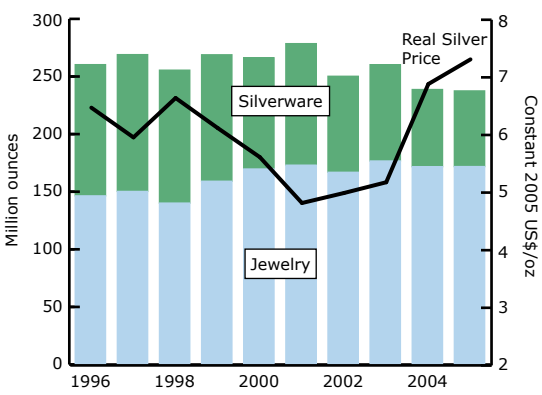
It is interesting to note that silver jewelry's share of global silver demand rose slightly from 18.0% to 18.8% in the 1996-2005 period. This increase was limited due to the more rapid growth in industrial fabrication over

Silver Jewelry Fabrication: Volume and Value



Source: GFMS

Global Jewelry & Silverware Fabrication



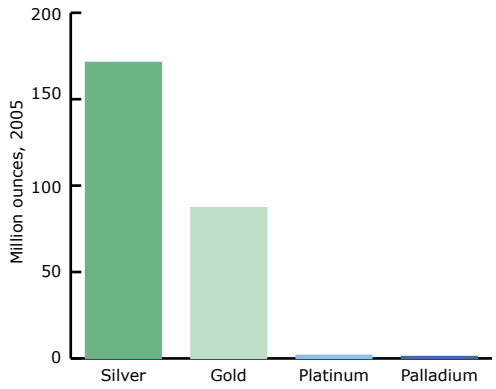
Source: GFMS

the same period (in spite of the decline in photography) plus, more recently, the appearance of investment on the demand side of the equation. (Note: Narrowing the analysis just to fabrication demand, silver jewelry's share rose from 18.4% in 1996 to 19.9% in 2005.)

Globally, twice as much silver as gold ends up in jewelry and demand for these two metals also dwarfs that for platinum and palladium. Taking all four precious metals together, silver's share of total precious metals jewelry volume increased from 60.5% in 1999 to 65.6% in 2005. On an individual country basis, however, there are large differences in the ratio of silver:gold jewelry consumption. At one extreme is Germany with a ratio of 15.3:1 in 2005, while at the other we find India at 0.8:1. Consumption in the United States is skewed towards silver, with a ratio in 2005 of 4.8:1, while in China its ratio of 0.3:1 indicates a very clear preference for gold over silver. These differences highlight an important point borne out in our research and discussed in Chapter 5: the enormous variation in the cultural acceptance of silver as a precious metal and, importantly, its status versus gold.

On a value basis, of course, the tables are turned and gold is by far the dominant precious metal. Indeed, basis a simple calculation of the precious metals value of jewelry (using annual average prices), in 2005 silver was relegated into third place behind platinum. However, in reality, and particularly at the retail level, silver holds its own rather better in the value stakes due to the much higher markups on silver than on gold, platinum or palladium jewelry. For example, whereas much plain gold jewelry sells in western markets at retail for roughly three times the intrinsic metal value, in the case of silver the multiple will be at least 10 times. On a global basis this difference is likely to be wider still as mark-ups are very low on the large volume of high karat gold jewelry sold in many of its key Asian markets. (It is worth noting that, unlike gold, silver jewelry consumption is still heavily skewed towards western markets.)

Volume of Precious Metals Jewelry Fabrication



Source: GFMS

One result of the very much higher markups on silver jewelry is that the increase in the metal's price has been absorbed more easily than in the case of gold or platinum where retail prices have had to be significantly increased or products lightened to preserve margins. The increase in platinum and gold prices has though not been entirely to silver's benefit as it has also generated more interest in non-precious metal and mixed material jewelry, in the former case a major beneficiary being heavily promoted steel jewelry.

Price is of course only one factor at work in terms of the level of silver jewelry demand. Indeed, given the relatively low price sensitivity of silver jewelry demand to price, with the exception of India (see Chapter 7), other factors are especially important in determining demand for silver jewelry. We have already mentioned the importance of non-price factors in driving down Indian consumption over recent years. In other countries too, as we explain in detail in Chapter 6, competition for silver jewelry comes not only from other metals but also alternative avenues for consumer expenditure such as branded luxury or technology goods. In addition, there is the important role played by fashion and taste, which may change over time in terms of e.g. preference for jewelry color.

In the light of the above, what is the outlook for silver jewelry demand? On the assumption that there is no further large rise in silver prices, our view is that there is scope for moderate growth in global offtake over the next few years. We do not expect much of an advance in Europe or North America but neither do we believe that there will be a major reversal in consumption in these regions. Meanwhile, after suffering massive setbacks in recent years, consumption in India should stabilize and even recover somewhat. Furthermore, if silver prices were to fall back then demand in India would be expected to respond positively. Elsewhere, and particularly in China, demand should grow from its currently low level. Increased consumption is most likely to be seen in the youth and young adult market and this would be aided by the promotion of branded silver jewelry.

3.0 Silver Jewelry Fabrication

Introduction & Summary

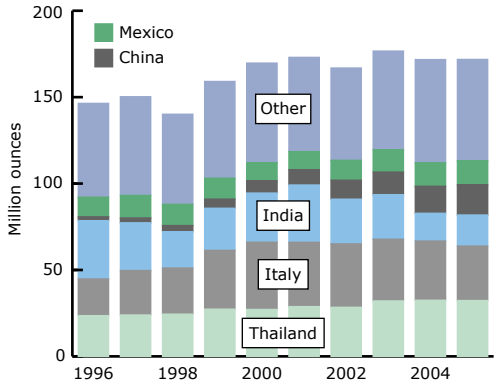
World silver jewelry fabrication rose from 146.4 Moz (4,554 t) in 1996 to 171.8 Moz (5,345 t) ten years later. In terms of the global supply/demand picture, in 2005 silver jewelry accounted for one-fifth of total fabrication and 19% of global silver demand.

Over the past decade, as well as adding 25.4 Moz (791 t) to the total, jewelry increased its share of the combined jewelry and silverware category from 62% in 1996 to 72% in 2005. However, as this and the following chapter highlight, the changing shares owed more to a substantial decline in the global silverware industry, than the more modest increase in jewelry output noted above.

Jewelry fabrication is fairly concentrated, with the top five producing countries together in 2005 accounting for in excess of 70% of the global market. Furthermore, their share of the total has grown significantly in the past decade, rising by roughly ten percentage points during this period.

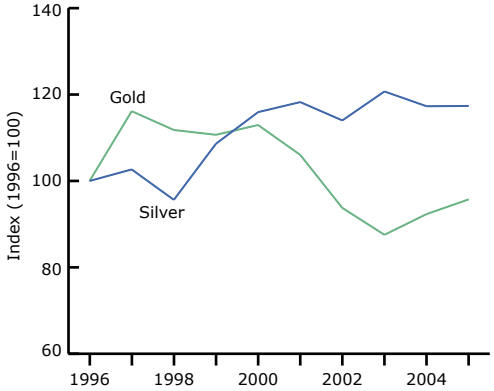
A cursory glance at the top five countries reveals that rising export demand, especially to high markup, western-style markets, has been the key driver in pushing fabrication higher in three of the top five, namely Thailand, Italy, and China. In Mexico, local demand and firmer exports together drove up the total. It is worth noting that, while Thailand, China and Mexico have posted record highs in either 2004

Global Jewelry Fabrication



Source: GFMS

Global Gold & Silver Jewelry Fabrication



Source: GFMS

or 2005, Italy in fact peaked in 2000. The contrast between these countries is no coincidence and reflects market share gains, for example, in the United States retail sector, achieved by these lower cost producing countries, at the expense of Italy.

The notable absentee from the above list is India whose fabrication in 2005 was 15.8 Moz (490 t) lower than ten years prior. Unlike the other key fabricating countries that have large export sectors, Indian output is overwhelmingly destined for the local market, which, as explained in Chapter 5, has been hit hard by a combination of higher local prices and other important secular changes in silver demand.

3.1 Europe

Europe is the leading region for the mechanized production of mass market silver chains, a crucial area in weight terms. The continent is also home to many of the top end / high fashion producers such as Denmark's Georg Jensen or Italy's Pianegonda.

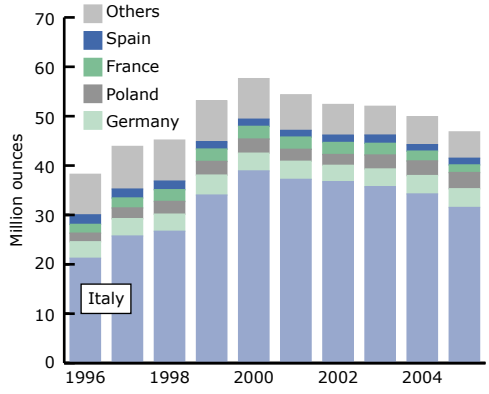
During the period under review, Europe's fabrication rose strongly to a peak of 57.6 Moz (1,791 t) in 2000 (when it accounted for nearly 34% of global output), before declining steadily to 46.8 Moz (1,456 t) in 2005, chiefly as a result of competition from East Asia (leaving Europe with around 27% of the world total). Despite this, Europe still managed to retain its number two global ranking as silver's price rise has had a far more dramatic impact on fabrication in the Indian Sub-continent, knocking it from gold to bronze medal position.

Within Europe, jewelry fabrication is dominated by **Italy**, accounting for a little over 67% of the region's total. Its output grew very strongly throughout the 1990s and was not far off doubling, from 21.2 Moz (660 t) in 1996 to 38.9 Moz (1,210 t) in 2000. This was overwhelmingly the result of booming exports, which roughly doubled from 1996 to 2000.

Much of this boom was driven by the expansion in shipments to the United States (Italy's largest single market), which grew by over 60% between 1996 and 2000. There was also sizeable growth in shipments to its then second most important market, the EU, which, basis membership of 24 other countries, rose by a little over 3 Moz (100 t). Reflecting silver's greater focus on western markets, the share going to these two markets plus the significant entrepôt, Switzerland, was around ten percentage points higher than for gold jewelry at slightly over 70% of total silver jewelry exports. There was also substantial support for fabrication from the domestic market, whose consumption rose by over four Moz (130 t) between 1996 and 2000.

From this peak, Italian fabrication has declined by a hefty 19% to 31.5 Moz (980 t) in 2005. The domestic market was partly to blame as, between 2000 and 2005, consumption fell by 1.0 Moz (30 t) and imports' market share grew. However, more of the decline was attributable to the marked drop in exports. This fall was dominated by the slump in exports to the United States, chiefly as a result of market share loss to China. Shipments to the EU were steadier, thus making this Italy's most important market for the last two years. There was also some compensating growth in exports to East Asia, a development which contributed to the US/EU/Swiss share of the total dropping to around 60%.

European Jewelry Fabrication



Source: GFMS

Labor costs were not the sole driver of Italy's loss of market share in many areas; another important factor was the shift in consumption in many countries away from plain to gemset pieces, an area in which Italy does not specialize, in sharp contrast to East Asia. Fabrication was, however, not materially affected by the relocation of Italian companies as, in contrast to gold, few have established overseas operations.

Europe's (distant) number two silver jewelry fabricator is **Germany**, whose output in 2005 stood at 3.8 Moz (118 t). Largely as a result of imports taking a greater share of the domestic market, its fabrication is down on its peak in 1999 of 4.1 Moz (126 t) but the scale of the decline is far smaller than that which Italy has suffered. This was due to two main factors; consumption continued to grow since 1999 and exports also rose (reflecting success in the high quality niche the country has established). Fabrication by German companies would be yet more steady as there has been a fair degree of capacity relocation to East Asia, in particular Thailand, and especially by those wishing to capitalize on the gemset market.

The next largest, **Poland**, saw its output nearly double between 1996 and 2005, with production totaling 3.3 Moz (104 t) in the latter year. Much of this growth has been driven by higher sales in the home market, with the domestic economy (and hence incomes) benefiting from Poland's accession to the EU.

The trend towards relocation of capacity, especially for mass market products, explains much of the decline in jewelry manufacturing in the **United Kingdom** over the past decade. Although modest in size, in 1996 the United Kingdom ranked third in Europe in terms of its jewelry fabrication. Ten years later and, with the loss of 1.8 Moz (56 t), the country's jewelry output had fallen to just 1.0 Moz (32 t). As alluded to above, the offshore relocation of manufacturing, together with the retail trade increasingly sourcing product from overseas suppliers, have been the chief causes of the slide in domestic manufacturing.

Having suffered five years of consecutive declines during the mid to late 1990s, annual jewelry fabrication in **Russia** has experienced a period of strong growth with levels rising from its low of barely 0.2 Moz (7 t) in 1998 to a peak of 1.5 Moz (47 t) in 2005. One of the key drivers behind the measured increase has been rising levels of domestic demand, itself a reflection of increasing levels of disposable income. Local

consumption during this period was also aided by a series of tax cuts implemented over the last five years. A more recent factor, in October 2005, saw the assay office afford the right to a number of the large domestic manufactures to stamp their own articles, the resulting boost to capacity leading to increased production levels.

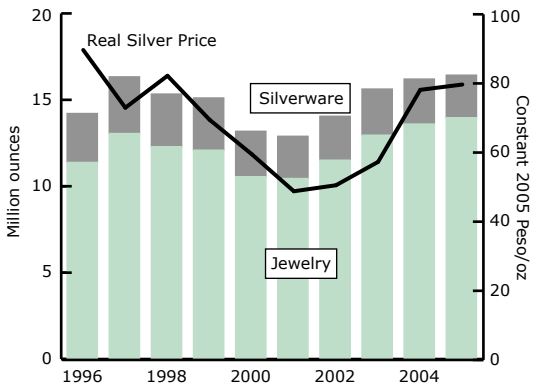
Breaking down the figure in 2005 the bulk of local jewelry demand consists of two groups. Higher cost lightweight chains and bracelets set with precious and semi-precious stones, and at the other end of the cost spectrum, chains, pendants, rings and bracelets, set with artificial gems. The average weight of an item of jewelry currently falls between 5 to 6 grams, with a trend over the last decade that has seen pieces become lighter as fashion has shifted towards more stone set items. At the higher end of the market, diamond-set silver has been an area of good growth during the last couple of years.

3.2 North America

The bulk of North America's silver jewelry fabrication is dominated by manufacturing in Mexico and the United States, with only a limited volume of output originating from Canada.

Mexico's historic importance as a source of mined silver is also reflected in the scale of jewelry and silverware fabrication in the country. Although most of Mexico's mine production has always been exported, a sizeable quantity is used locally, mainly for jewelry and silverware, with a smaller amount required for industrial products. In 2005, for example, at 16.4 Moz (510 t) combined jewelry and silverware demand was equivalent to 18% of local mine production. The figure also put Mexico in fifth place globally for this area of fabrication demand.

Mexican Jewelry & Silverware Fabrication



Source: GFMS

Disaggregating the jewelry and silverware category into its two component parts is not easy. In large measure this is because manufacturing is carried out by many small companies and workshops (particularly in the city of Taxco) most of which largely operate unofficially. In addition, at the bulk or wholesale level nearly all the silver is supplied to manufacturers in bullion or near bullion (e.g. grain) form, which makes it difficult to be precise about the end-use. Nevertheless, our information is that jewelry is much the larger part and that its size relative to silverware has grown over the past decade. In 2005, for instance, we estimate that jewelry fabrication amounted to 14.0 Moz (434 t) versus 2.4 Moz (76 t) for silverware. We believe that this is a fair split, although recognizing that at 85% of the combined category we may be being fairly generous to jewelry at the expense of silverware. Indeed, given the measurement issues mentioned above, it is possible that the split could be more like 80:20 or even, at a pinch, 75:25. However, we are sure that in both relative and absolute terms silverware has lost ground, particularly due to waning local demand for traditional, heavy solid articles.

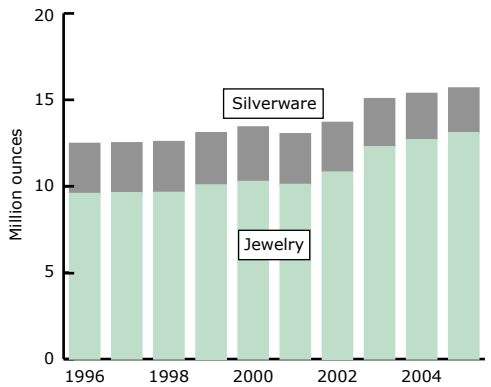
Our series for jewelry fabrication shows a fair degree of volatility between 1996 and 2001. This variability reflects both the ups and downs of the Mexican economy and local demand plus changes in export volumes over the period. Since the low point of 10.4 Moz (325 t) registered in 2001 jewelry fabrication has grown strongly to reach 14.0 Moz (434 t) in 2005. Growth has been driven by both an increase in local consumption and, especially, a strong rise in exports to the key US market. (The US market accounted for nearly 84% of the dollar value of official Mexican exports between 2000 and 2005.) In the last three years the high gold price has at the margin encouraged Mexican manufacturers and consumers to shift from the yellow metal to silver. Silver jewelry has also been in fashion and benefited from new and more modern designs. When it comes to exports, Mexico has gained from the rise in US jewelry consumption since 2001, in recent years also reversing some of the loss in market share it had previously suffered at the hands of Asian competitors. We estimate, that in 2005, total jewelry exports from Mexico (including unofficial shipments and re-exports) topped 8.7 Moz (271 t). It should be noted, however, that the official trade data showing a more than tripling of the dollar value of Mexican jewelry

exports from 2001-2005 massively overstates the gains that have taken place, the numbers being inflated by phantom exports that were part of a substantial value added tax fraud.

In the **United States**, the bulk of the local fabrication is consumed domestically, partly reflecting the white metal's popularity at home, although exports have also achieved notable success. Over the past decade, US manufacturing has achieved a healthy growth rate, with the 2005 total some 3.1 Moz (98 t), or roughly one-third, above the total of a decade ago. In spite of this apparent success and although the trend has been towards higher output over much of the period, the real growth spurt has only occurred this millennium. For example, between 1996 and 2000, jewelry fabrication expanded by just 0.8 Moz (25 t), with an average annual growth rate over this period of barely 2%. This weakness owed much to the significant inroads made by importers into the US retail market, especially with regards to product imported from Thailand and China (Italy, as the second most import source of jewelry during the 1990s, now ranked third, also lost market share to these two countries).

Following a decline in 2001 (reflecting both "9-11" and the softness in retail consumption that year), manufacturing then picked up strongly with annual growth averaging 6% over the next four years (through to 2005 inclusive). The strong performance at this time mirrored the popularity, in the United States, of white look jewelry (also encompassing white gold and platinum - see the analysis on jewelry consumption for more on this). However, in sharp contrast to the domestic gold industry, there appears to have been little offshore relocation of US-based manufacturers. (In gold, over the past 5-10 years, large tranches of the industry have moved to Central and South America or to East Asia.) The slowdown in import volumes in recent years also partly confirms the relative success of US-based operations. However, this may be about to change with the increasing popularity of gemset silver jewelry, much of which is increasingly being sourced from East Asia.

United States Jewelry & Silverware Fabrication



Source: GFMS

Perhaps surprisingly, jewelry exports do account for a considerable slice of US fabrication. A cursory glance at the export data reveals Canada to be a key export destination, although export volumes have typically remained below 1 Moz per annum (on a fine silver basis). East Asian markets have also grown in importance for US fabricators and, in fact, the value of exports to Japan and Hong Kong, in particular, have often exceeded the value of shipments to Canada. However, the product exported across the Pacific has generally been delivered to high-end retailers (and would therefore be characterized by significantly higher value added articles).

Over the past decade, total US jewelry exports have grown significantly, with the countries noted above driving much of this growth. With regards to Japan, this has generally reflected rising demand for high-end silver jewelry (as well as silverware), both imported and locally made, a trend which has benefited up-market US suppliers. However, as noted above, much of the product delivered into Japan would feature an extremely high markup, which is in marked contrast to much of the product delivered, for example, into Canada. As a result, although the value of exports north of the border in 2005 amounted to some two-thirds of the total sent to Japan, the contained silver in exports to Canada was notably higher.

3.3 Latin America

Jewelry fabrication in Latin America declined sharply in the late 1990s through to the early part of this decade. The fall in fabrication was due to reduced production for both export and local markets. In the case of the former, the losses were particularly evident in the Dominican Republic whose silver jewelry exports to the United States plunged from a high point of $21m in 1999 to merely $2m in 2002. Meanwhile, production for local markets in the region was particularly hard hit by the economic crises in Argentina and Brazil. Since reaching a low in 2002 output has recovered on the back of a pick up in exports to the United States

(chiefly from the Dominican Republic) and, especially, a recovery in local consumption, most notably in Brazil.

3.4 Indian Sub-Continent

Regular readers of the *World Silver Survey* will notice that some significant adjustments have been made to the Indian series for this report. It is worth pointing out how the data for India was derived in the past and why these changes have been introduced. The historical series that GFMS have generated previously separated Indian demand into two main categories, industrial fabrication and the combined set of jewelry and silverware.

The latter group of demand covers a wide variety of products, and for some time we felt that it was not possible to separate out silverware from jewelry with a high degree of accuracy. An additional difficulty has emerged more recently in that the Indian market has seen important secular shifts in demand, in particular away from jewelry and silverware towards bar and coin. In fact, GFMS have implicitly included bar and coin in this category from the start of our series, but in recent years it has become evident that it had reached such a magnitude that it needed to be treated as a category in its own right. After considerable market research, we have divided what previously was one category, jewelry and silverware, into three distinct groups, namely, silverware, jewelry, coin and bar.

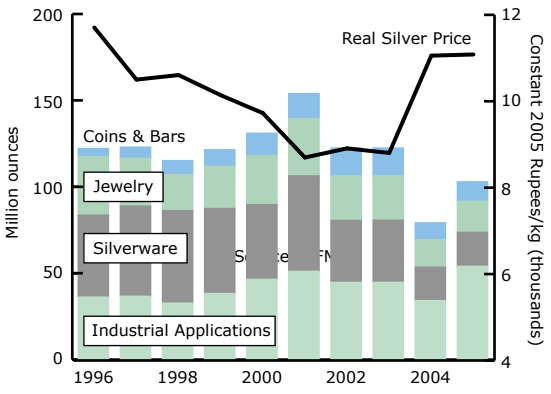
At first sight this appears to have propelled India down the silver fabrication league table. This is, of course, not true, and total fabrication demand in these three sectors combined equals what was previously reported simply as jewelry and silverware. Having said this, the reworked series does affect both the relative ranking of India in the global league tables as well as altering the analysis of the market going forward. For instance, basis these numbers, India was last the largest fabricator of jewelry as far back as 1997 (at 27.7 Moz or 860 t). Since then either Thailand and/or Italy have fabricated more jewelry than India.

India's global ranking is all very well in the context of these reworked series, but of greater importance to the global silver market is the absolute level of jewelry fabrication and jewelry's relative domestic market share. Herein lie some very interesting trends. Firstly, the absolute level of offtake has declined sharply and secondly, jewelry's share of total Indian demand in the non-industrial category has been in secular decline too. In the case of the former, offtake has fallen from a high of 33.8 Moz (1,050 t) in 1996 to a recent low of just 16.1 Moz (500 t) in 2004. Perhaps of greater relevance, however, is jewelry's share of combined silverware, jewelry, coin and bar fabrication. Basis GFMS' latest estimates, jewelry's share has fallen from around 50% in the early 1990s to an average of just 34% this decade.

The reasons for the decline in silver jewelry fabrication (effectively consumption in the context of the Indian market) both in absolute and relative terms are discussed in greater detail in Chapter 5. However, a few of the salient features underpinning these trends include the high price of silver and its volatility (silver jewelry is the most price-sensitive component of demand), the poor quality of the metal used in India and the freedom to invest in bars and coins since 1990. Furthermore, silver jewelry has been facing competition from gold (as incomes level rise consumer shift away from silver jewelry to gold) as well as fashion jewelry (at the lower end of the market).

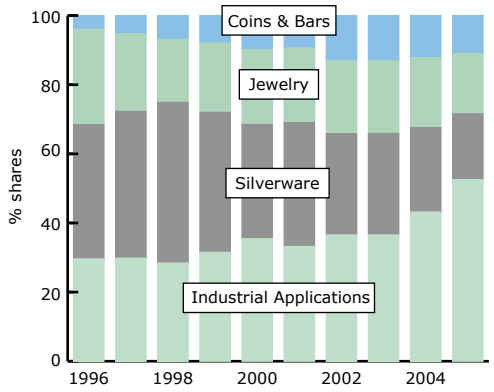
Our view is, however, that the primary driver of these trends has been investment related, which has always underpinned jewelry offtake. A key issue for consumers in the past 10 years has been the purity of the metal used. It has not been uncommon for consumers to be charged for '999' silver but to end up receiving items of around 40% purity. They have become increasingly aware of this fact in recent years and consequently have looked for alternatives (part of the reason for the rise in undertitling of jewelry has been the collapse in the premium on silver imports into India, which was at one time around 60%; as this has fallen so jewelry fabricators and retailers compromised on the purity of the metal used).

Indian Silver Fabrication



Source: GFMS

Shares of Indian Silver Fabrication



Source: GFMS

Turning to the types of items fabricated, payals (leg-chains), kadas (arm bands), heavy necklaces, nose rings, earring and kanddora (worn around the waist) are the most commonly found items. However, in pure tonnage terms, payals are by far and away the most popular. The main centers for manufacture of silver jewelry are Salem, Agra, Mathura, Kolhapur and Rajkot.

3.5 Middle East

The region's overriding preference for gold has effectively left silver with only a minor role to play in the Middle East's jewelry sector. The only two producers of note are Turkey and Egypt and although their combined output in 2005 was just 4.7 Moz (147 t), this accounted for 70% of the region's total.

Over the last decade **Turkish** jewelry manufacturing has experienced marked fluctuations on a year-by-year basis. An initial period of growth was brought to a halt by the 1999 earthquake and then more recently the banking and financial crisis in late 2000/2001. While both these events signal the importance of domestic consumption to Turkish manufacturers more recently the picture has become less clear-cut. This stems from the improved competitive position of overseas products, particularly in terms of labor rate differentials, which has seen exporters make significant inroads into the Turkish market. In addition, a number of local companies have either moved production offshore or simply closed manufacturing sites only to re-emerge as wholesalers. A further consequence has seen Turkish fabricators shift their focus to export markets and particularly eastern Europe.

A brief look at **Egypt** reveals a far more stable environment. Although fabrication in 2005 was below the level of a decade ago, in recent years the sector has enjoyed modest growth, much of which has stemmed from higher sales to the tourist sector. At the same time, the significant difficulties faced by the gold sector has seen both large gold factories introduce silver lines as well as a considerable swathe of small workshops switch entirely to the white metal (attracted by higher margins). That said, the high and volatile silver price has adversely impacted retail sales (in volume terms; some estimates suggest that sales values have been far less affected), resulting in 2005 fabrication slipping back year-on-year.

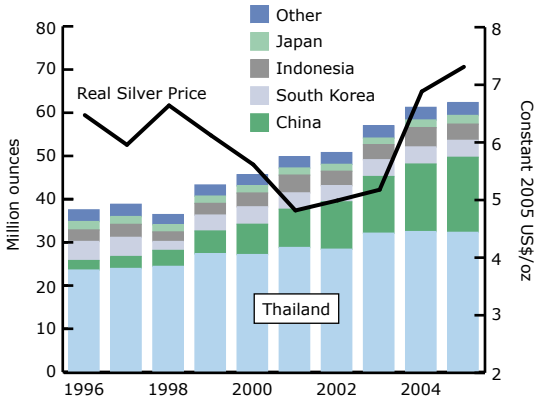
3.6 East Asia

The East Asian region has continued to take market share from European manufacturers over the period under review.

Most countries across the region have the commercial advantage of very low labor rates, which has had a dual impact on the market structure. Firstly, regional fabricators have been able to compete more successfully on price and consequently have seen their market share rise, and secondly, several leading European fabricators have relocated either a part or their entire operation to the region to capitalize on the lower production costs. However, labor costs have not been the only contributing factor behind the increase in east Asian fabrication. Global fashion trends have also contributed to their rising market share, as demand for gemset jewelry, for which a number of east Asian nations have become renowned, has increased significantly over recent years. European based manufactures have found it difficult to compete on this labor-intensive jewelry and, as a result, have tended to specialize in plain style jewelry and therefore have lost market share.

Over the last decade or so, East Asian jewelry fabrication has risen strongly, from 37.5 Moz (1,167 t) in 1996, when the region accounted for only 26% of global production, to reach 62.3 Moz (1,939 t) in 2005, all of 36% of the world's offtake. Consequently, East Asia has taken the mantle from Europe and India as the largest producing region, with growth in China and Thailand the major contributors to this development. However, it has been the rapid rise in exports to markets normally catered for by the Europeans, rather then any substantial rise in local consumption in these and other East Asian countries that has fueled the increase in the region's output.

East Asian Jewelry Fabrication



Source: GFMS

These trends are reflected in the fact that in 2005 **Thailand's** silver fabrication moved ahead of Italy, with it thereby becoming the world's largest silver fabricating nation, jewelry output reaching all of 32.3 Moz (1,005 t). (Italian manufacturers have not only faced rising competitive pressures from Thailand, however, but also from across the entire East Asian region.) The Thai silver jewelry fabrication industry is now well entrenched as the dominant regional (and arguably global) force, with most manufacturing occurring in Bangkok and the country's northern Chiang Mai region.

The Thai industry is an interesting combination of large scale production facilities that operate modern European machine technology working alongside a robust cottage industry of contractors who operate from small family run businesses and produce predominately hand made items (with the work often farmed out by the larger organizations). Thai jewelry manufacturing has risen over 35% during the review period, largely due to rising consumption in some key terminal markets. The growth in the early nineties was relatively moderate before a sharp increase towards the end of the millennium saw local fabrication hit 27.2 Moz (845 t) in 2000, primarily due to a surge in exports to the United States. Following this, growth tapered off until 2003 when another sharp rise in export demand saw fabrication increase by 13% that year.

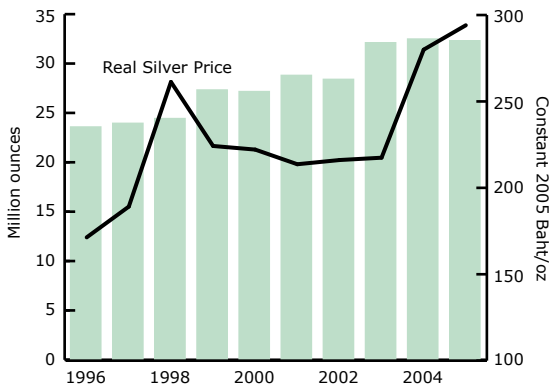
In several East Asian nations, and Thailand in particular, consumption of silver jewelry domestically is very low (around 10% of total production). The bottom line is that silver is not held in the same high regard as the yellow metal in terms of its investment potential and adornment qualities. The vast majority of fabricated jewelry is therefore destined for export markets, such as the United States and the EU. Competition between manufacturers based in East Asia and exporters in other countries, such as Mexico and India, as well as domestic suppliers in Europe and the United States has only grown more intense in recent years.

For some time now the trend has been for jewelry pieces to shift away from heavier plain items like chains to lighter, higher value pieces. Furthermore, plain jewelry designs have given ground to more elaborate stone-set pieces and designs that attract far greater markups. Having said this, the market for bulk plain silver jewelry still has a firm base, especially in the youth demographic, where cost remains an important consideration.

Several smaller manufacturing facilities that specialize in high fashion silver jewelry have emerged in recent years as demand for more elaborate hand crafted pieces has risen. Indeed, precious and non-precious stone-set low volume production is ideal for this type of boutique operation. The loss of revenue from producing lower volumes in these small scale factories is made up for by the greater markups that can be achieved from this jewelry (the stones often allowing for far greater markups than those available on the more transparent value of the fine silver contained in the item).

Many of the larger fabricating operations have begun to market their jewelry range heavily on the internet, taking advantage of fast overnight courier services that can deliver product across the globe within 1-2 days. This marketing tool has been utilized to remove the wholesaler and retailer cost structure, which in

Thai Silver Jewelry Fabrication



Source: GFMS

turn offers the consumer a more competitive price and assists the manufacturer in obtaining higher margins.

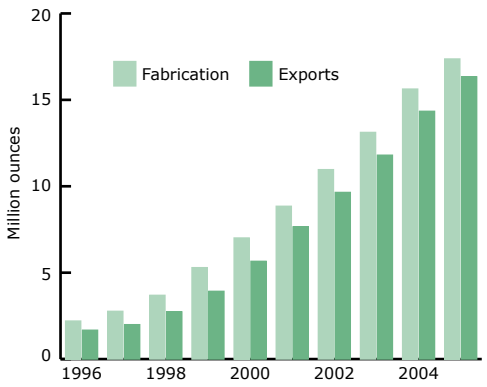
Over the last decade, **Chinese** silver fabrication has seen the greatest increase in percentage terms in the East Asian region. In 1996 jewelry fabrication stood at just 2.2 Moz (69 t), a far cry from the booming industry which churned out 17.4 Moz (540 t) of silver jewelry in 2005.

At the beginning of the review period in 1996, Chinese silver was still tightly controlled by the People's Bank of China (PBOC) and was released mainly for the use of industrial fabrication, which was experiencing the beginnings of today's surging electronics industry. The silver available for jewelry fabrication was released to only a select group of manufacturers who produced large, heavy traditional pieces of jewelry for gift buying occasions such as a births or family weddings. This practice was far more common in the southern rural areas of the Guangxi Autonomous region and Hunan province, than in the larger cities.

In the mid-1990s silver jewelry supply was limited, and what was available in urban areas was competing with platinum and gold jewelry, which had already begun to embrace modern designs. In contrast, silver was generally basic and very traditional in design providing the consumer with little choice of styles. It was certainly seen as a far inferior alternative to the other precious metals.

In 1997 the PBOC relinquished its control of silver, effectively freeing the industry, which instigated a wave of new manufacturers wishing to capitalize on the low cost metal and its associated higher markups (to gold and platinum alternatives). Consequently, the industry doubled is size within two years to reach 5.3 Moz (165 t) by 1999, as local manufacturers embraced modern machinery and techniques to produce a quality range of products, with much of the machine innovation being introduced by the Europeans and the Italians in particular.

Chinese Jewelry Fabrication & Exports



Source: GFMS

Chinese silver manufacturers were also able to capitalize on marketing and brand promotion successfully used in the platinum and gold sectors to build awareness of silver jewelry as a modern alternative for local consumption, and began to establish export markets in the dominant consumer markets of Europe and the United States. In 1998, a year after the local industry was opened, exports of silver jewelry stood at 2.7 Moz (85 t) gross weight. Exports then grew at an average of 30% for the remainder of the decade as Chinese fabricated products began to infiltrate the substantial US and EU markets. Chinese jewelry, with its low cost of manufacture, was immediately highly competitive on price though quality issues still remained. By the end of the millennium gross exports of fabricated product had reached 5.6 Moz (175 t), with the United States the largest importer of finished goods. A shift in US fashion trends to white gold and gemset pieces also assisted China's silver jewelry to make inroads into mainstream markets (many Chinese fabricators started focusing on cubic zirconia jewelry, which was experiencing a surge in demand in the US at the time). More recently Chinese output has continued to grow, driven forward by a further rise in export volumes to the EU, and, especially the United States.

South Korea sits a distant third in the East Asian fabrication league table though, at current volumes, maintains a top ten position in the global rankings. In 1996 South Korea accounted for 12% of total East Asian output with 4.4 Moz (137 t). Through a combination of the rapid rise of the Chinese and Thai industries, as well as an 11% reduction of local production over the period, the South Korean market share of East Asian output has slipped to just 6% in 2005.

Fabrication volumes were at their peak at the start of the review period before being dealt a severe blow during the Asian economic crisis in 1998, when local consumption was decimated and which saw a more than 50% slump in local output to just 2.1 Moz (64 t). Although production then recovered some lost ground

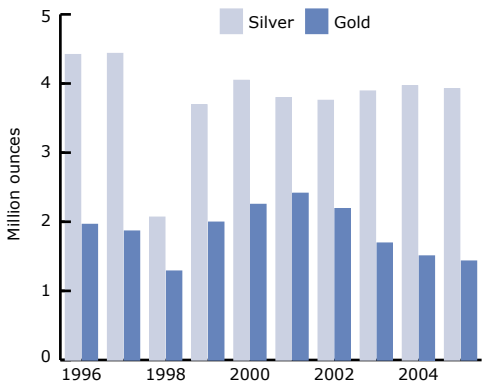
it has failed to regain the levels achieved prior to the downturn. As a result, jewelry fabrication in 2005, of 3.9 Moz (122 t), is still 12% lower than the peak in 1997, with little sign of a significant change on the horizon.

Silver jewelry has for generations been well accepted as an enviable source of adornment in South Korea, with consumers demonstrating a close affinity with the white metal, however, the jewelry market has been hit hard by shifting fashion trends as well as changes in consumer spending habits.

The vast majority of South Korean silver jewelry production is destined for local consumption with export markets taking up only a tenth of total output. Unlike many neighbors, who rely heavily on maintaining their export volumes, the South Koreans have established a broad appeal locally, with the ratio of local consumption to exports remaining static over the review period. Japan and the United States remain the largest export destinations for South Korean jewelry, taking predominantly gemset pieces aimed at the premium end of the market. Indeed, it is the growth of these export markets that will drive any real change to the domestic industry, as local consumption is unlikely to provide the impetus for a substantial rise in fabrication.

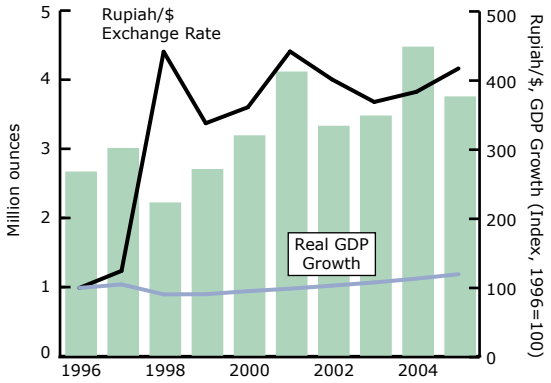
Indonesia has historically been a significant silver fabricating nation, with a substantial increase in output recorded over the review period. Fabrication output was 2.7 Moz (83 t) in 1996 rising to 3.8 Moz (117 t) in 2005, an increase of 40%. Indonesian fabrication volumes were also restricted during the Asian crisis, which precipitated a 26% slump in output in 1998.

South Korean Gold & Silver Jewelry Fabrication



Source: GFMS

Indonesian Jewelry Fabrication



Source: GFMS

However, production volumes rebounded quickly and peaked in 2004 at 4.5 Moz (139 t).

Indonesia is not unlike Thailand in that it enjoys a high level of fabrication output with a low level of local consumption compared to western nations. The majority of production is exported to the United States and Singapore, with Japan, Australia and the EU also notable importers of Indonesian jewelry. A large portion of jewelry departs the country via the tourist or backpacker trade, making it difficult to accurately track exports. The quality of this jewelry is generally at the lower end and often hand made with stone-set pieces now taking the greatest share of Indonesian output.

4.0 Silverware Fabrication

Introduction & Summary

World silverware fabrication went from 113.9 Moz (3,542 t) to 65.7 Moz (2,042 t) between 1996 and 2005. This left this category's share of the combined jewelry and silverware figure at just 28%, compared to 44% back in 1996. The chief drivers of this were the ongoing secular decline in Western consumption and, more recently, the impact of the silver price rise.

The data below shows that the bulk of the decline in European and North American demand had already occurred long before the 2004-05 bull market in silver. Indeed, the partial statistics we have prior to the 1996 starting point for our data series (e.g. for key countries like Italy) show that Western consumption of silverware has been in secular decline for a generation. Although the initial fall in demand in the early 1980s was very much price related, since then changes in consumers' taste and lifestyle have been more important. This has particularly hit demand for silver-heavy cutlery, tableware and large ornaments. In contrast, output of smaller giftware articles has tended to be more stable.

Although not absent, such non-price factors in the developing world have been less significant and also partly offset by rapid income growth, which in principle has expanded the potential market for silverware. Furthermore, the impact of higher prices in recent years has been far more important in determining the level of demand in certain developing countries than it has in the industrialized world, India being perhaps the best example among the former.

Looking to the future, it is probable that global silverware demand will stabilize. Further large declines in Western demand are now thought unlikely and even though fabrication levels could fall further due to relocation of production, consumption should largely hold up. Outside Europe and North America, there is some scope for growth, especially if the silver price were to moderate somewhat. Firstly, Indian demand has already suffered a massive decline, arguably taking this to near bedrock levels. Secondly, rapid economic growth in countries like China is increasing the number of affluent consumers who can afford silverware even if factors such as taste and competition from other goods will moderate the impact of these newly wealthy on global silverware demand.

Italy is Europe's and the industrialized world's largest fabricator and has seen a precipitous slide in offtake. From a peak in 1992, demand had already almost halved to 19.3 Moz (600 t) by 1996 but this had dwindled to just 6.3 Moz (197 t) by 2005. By far the bulk of the drop was due to the collapse in domestic sales, a phenomenon essentially due to the death of the formal bourgeois 'requirement' that, for entertaining, every good family should have a complete silver service. This would include such heavy items as cutlery, trays, coffee pots, sugar bowls or *bombonierre* (elaborate candy boxes) and these were invariably the default choice as wedding gifts. In this sense, Italy has become more like the rest of the West, with both gifting and self-purchase swinging away from silverware to a wider basket of (typically more heavily promoted) products such as technology goods, foreign travel or

Silverware Fabrication - Top 10 Countries

Moz	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
India	47.5	52.2	53.5	49.2	39.5	55.2	35.8	35.9	19.3	19.6
Italy	19.3	19.0	18.6	17.2	15.1	10.8	8.8	8.1	7.5	6.3
China	0.8	0.9	1.1	1.6	2.1	2.7	3.3	3.9	4.8	5.2
Thailand	4.1	4.0	3.5	3.5	3.6	3.9	3.9	4.1	4.4	4.5
Germany	6.7	6.3	6.2	5.7	5.5	5.0	4.5	4.1	3.5	3.0
Russia	0.6	0.5	0.4	0.5	0.6	0.8	1.1	1.6	2.3	2.8
United States	2.9	2.9	2.9	3.0	3.2	2.9	2.9	2.8	2.7	2.6
Mexico	2.8	3.3	3.1	3.0	2.6	2.4	2.5	2.7	2.6	2.5
Israel	2.1	2.4	2.3	2.3	2.1	2.0	2.1	2.1	2.2	2.2
Turkey	3.5	3.2	3.1	2.8	2.7	1.8	2.3	2.4	2.3	2.2
Other Countries	23.7	24.0	20.6	20.9	19.5	17.9	16.1	15.8	15.3	14.7
World Total	**113.9**	**118.7**	**115.4**	**109.8**	**96.5**	**105.5**	**83.3**	**83.6**	**67.0**	**65.7**

luxury accessories. Consumption is showing some signs of bottoming now as the above heavy pieces for domestic use are largely history but their commercial use in hotels, smart clubs and so on remains and rough stability has been achieved in other areas of the domestic arena, such as photoframes or novelty gifts.

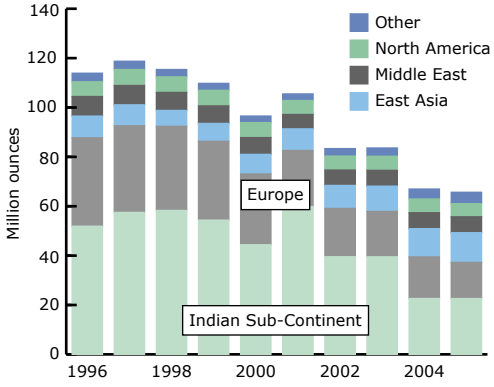
These trends were replicated, if in a less dramatic way, across the region, helping explain why fabrication in Europe's number two, **Germany**, more than halved between 1996 and 2005 to 3.0 Moz (95 t). European producers' exports were obviously hit by this cultural change, which also affected the US market, though more stability and on occasions some growth has been seen in shipments from Western Europe to newly wealthy customers in Eastern Europe, East Asia and the Middle East.

From a regional perspective, North America ranks fifth in terms of global silverware fabrication. In 2005, silverware output stood at 5.3 Moz (166 t), in effect little changed from its position ten years ago of 6.0 Moz (186 t). Manufacturing is dominated by the United States and Mexico, with little to choose between the two countries in terms of output levels. The **United States** has seen contrasting trends over the past decade. During the mid to late 1990s, there was a modest increase in fabrication, in large part reflecting the healthy growth in the US economy seen at this time. However, this could not detract from an underlying structural drift away from both solid and plated flatware pieces and this trend has became more apparent since the turn of the millennium. Dinner sets however remain popular, particularly as a wedding gift, but both solid and plated silver have lost market share to steel products, which has expanded both in the form of low cost and luxury sets. Looking ahead, it is difficult to foresee this trend being reversed with further, albeit modest, declines expected.

As discussed in more detail in the jewelry fabrication chapter, disaggregating the **Mexican** jewelry and silverware series is no easy task. We also recognize that it is possible that the 85:15 split we have posited for 2005 may be a little generous towards jewelry. Nevertheless, looking at our data series for both parts we are sure, firstly, that silverware is by far the smallest element of the combined category and, secondly, that its share has experienced a secular decline over the past decade. The reasons for this decline are all too familiar, stemming from changes in consumer taste and social behavior. This has particularly reduced demand for relatively metal intensive silver cutlery, large ornamental pieces and tableware. In contrast, smaller giftware articles have tended to hold their own or in some cases even achieve some growth in demand. We estimate that in 2005 silverware required some 2.4 Moz (76 t) with the vast majority of this either consumed locally or sold to tourists. Official exports in reality continue to account for only a small share of production, with the apparent massive growth in shipments featured in the trade data for the last two years mainly due to VAT fraud.

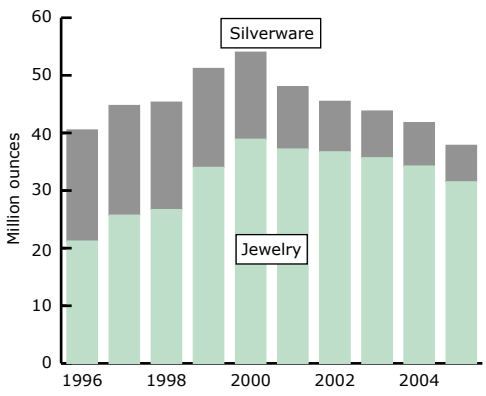
Turning to the developing world, in the Middle East, the use of silver in the jewelry and silverware industries are closely matched, with Israel and Turkey accounting for the bulk of the region's silverware output. In fact nearly 90% of **Israel's** outturn is in silverware, in the form of predominantly religious items, both for the home and all important US export market. In recent years, overseas sales have become increasingly significant, following a decline in the domestic market, largely the product of a reduction in state benefits

Silverware Fabrication by Region



Source: GFMS

Italian Jewelry & Silverware Fabrication



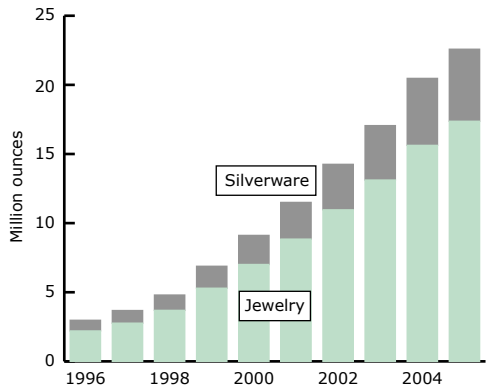
Source: GFMS

for large families. In **Turkey**, the bulk of flatware fabrication is consumed locally, with exports accounting for only a small share of the total. Over the past decade, the fortunes of the industry have therefore closely matched the trends in the economy. It was, therefore, of little surprise to see a sharp fall following the 1999 earthquake and then a more pronounced decline in the wake of the 2000/01 banking and economic crisis.

Silverware as a share of **Russia's** silver fabrication represents a significant 65% of the total. The trend in domestic demand for silverware has mirrored that of jewelry purchases and to a large extent can be explained by the same driving forces, namely, rising levels of disposal income as Russia's economy has strengthened. At the higher end of the market, the rise in the oil price has also been a consideration in increased levels of local demand. Looking at the figures in more detail, estimates show that silverware fabrication has improved from a modest 0.5 Moz (16 t) to an impressive 2.8 Moz (88 t) in 2005. Heavyweight items such as plates and to a lesser extent cutlery sets accounted for more than half of the total in 2005, with the balance composed of gifts, ceremonial pieces (knives and candlesticks) and, lastly, cups.

The East Asian region recorded an increase in the volume of silverware produced over the last decade, beginning in 1996 with fabrication of 8.8 Moz (274 t), then succeeded in providing positive growth in the last seven years of the review period, peaking in 2005 at 12.0 Moz (374 t). The significant increase is almost entirely the result of China's exponential growth in this sector and this outcome in fact hides a decline in output in other parts of the region. Indeed, if the fabrication data is reviewed without the impact of China's contribution, then the region suffered a 15% decline over the ten year period.

Chinese Jewelry & Silverware Fabrication



Source: GFMS

China has recently overtaken Thailand as the world's third largest producer of silverware, when only a few years ago it was considered a minnow of the industry. In 1996, China's output was a modest 0.8 Moz (24 t) with export markets relatively untested, since when output has surged, reaching 5.2 Moz (162 t) in 2005.

China's silver fabrication industry, both jewelry and silverware, was held back by the central government's tight control over the metal which remained until 1997, when it began a process of industry liberalization. Since this time fabricators on the mainland have utilized low cost labor and land to achieve low production costs. As a result, low manufacturing costs, combined with rising product quality, has enabled China to take significant market share, both from other exporting countries as well as from locally made silverware in their target export markets.

Local consumption in China has risen over the review period though it accounts for only a small portion of total output. The ability to own a range of silverware has become more affordable to the average citizen with small items such as photo frames and tableware pieces dominating sales. However, there has also been a trend to move away from heavier, solid pieces, to more affordable silver plated items, a trend which has been particularly noticeable among the younger generation.

Thailand has remained a dominant fabricating nation over the last decade and has shown almost continued expansion over the period. In 1996 silverware production stood at 4.1 Moz (127 t) and, apart from the setback during the Asian economic crisis, when production slipped to 3.5 Moz (108 t), the market has remained resilient to changes in global demand trends, maintaining a positive growth rate over the last six years.

The majority of Thailand's silverware production is now largely based in Bangkok though the silverware industry originated in the northern province of Chiang Mai. The making of silverware, and especially ornaments, is an ancient art in Thailand and traditional manufacturing practices still remain. The most common items produced are ceremonial bowls and boxes of assorted sizes, usually adorned with elaborate decorations, either figures or traditional Thai motifs. However, modern manufacturing methods have also

been introduced to meet rising export demand, with a greater selection of tableware and household items now on offer.

As discussed in Chapter 3, the GFMS data series on **India** now separate out silverware, silver jewelry and coin/bar (in past *World Silver Surveys*, all three of these were counted in one category, namely jewelry and silverware). Importantly, estimates of total offtake have not changed. From the perspective of this report, and more generally, the analysis of the Indian silver market, it is notable that basis our revisions, silverware fabrication is the largest component of the three segments combined (in 2005, standing at 19.6 Moz (610 t), 18.0 Moz (560 t) and 11.3 Moz (350 t) respectively basis the order above). Perhaps of greater note, however, is the fact that the industrial segment is now the largest user of silver in India, particularly when looking to the future potential of this market.

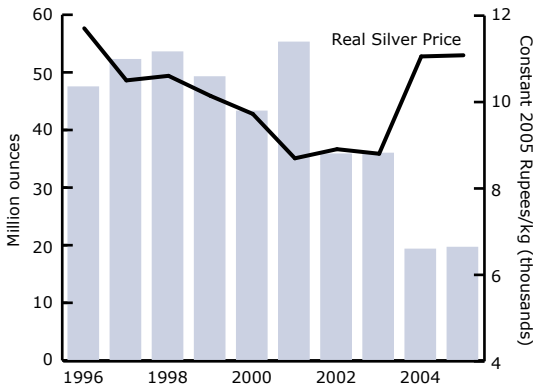
At its peak, silverware constituted 65% of total demand (at 53.5 Moz (1,665 t)) from the three components combined, although this has now fallen to just 40%. Crucially, silver jewelry has been smaller than silverware since the early 1990s, but perhaps more importantly, both jewelry and silverware have been losing relative market share to coin/bar. As discussed in both the fabrication and consumption Chapters, the main reason for this appears to be purity (with both jewelry and silverware suffering from serial underkarating for many years).

What though are the main drivers underpinning silverware demand, and how do these differ from the motivations to buy jewelry and coin/bar? In the case of jewelry and coin/bar, investment has always been a primary driver. By contrast, religious and gifting motivations are equally, if not more, important in the case of silverware.

As with jewelry, the poor quality of the metal is a major cause for concern with silverware, and it is primarily due to this aspect that investors have shifted away from the former to bars and coins in the last few years. One reason silverware has performed relatively better than jewelry is the fact that underkarat silverware for religious and gifting purposes is not seen as a major problem; clearly for those buying for investment purposes it is.

As far as potentially temporary factors are concerned, higher prices and price volatility have collectively had a marked impact on silverware consumption in recent years (arguably the main reason for the sharp falls in demand). In addition to this, erratic monsoon rainfall, manifesting itself in droughts and floods, has adversely impacted rural offtake, the bedrock of silverware demand.

Indian Silverware Fabrication



Source: GFMS

5.0 Silver Jewelry Consumption: Historical and Future Trends

Introduction & Summary

Over the ten years to 2005, the trend in global silver jewelry consumption has been far from uniform. Following a sharp fall in 1998, jewelry consumption then staged an impressive recovery, with respective increases over the following two years of 14% and 7%. During the following five years, although there was no repeat of these such dramatic swings, the market still failed to register two consecutive years of growth. As a result, during 2001-2005, annual growth averaged a paltry 0.2% and in fact the end-2005 total of 171.8 Moz (5,345 t) was little changed from the position four years prior of 173.0 Moz (5,382 t). However, looking at the (crude) value of jewelry consumption (calculated by multiplying the volume by the annual average silver price) reveals a completely different picture. This shows that in just two years, during the previous decade, the value of jewelry demand fell back, and by 2005 the total of $1.3bn was an impressive 65% higher than in 1996 (when implied value of consumption stood at $761m).

One of the conclusions to emerge from Chapter 3 (Jewelry Fabrication) was the extent to which many of the top fabricating countries rely on export markets. In this regard one market stands out, namely the United States whose jewelry consumption is a considerable distance ahead of the other key consuming nations. In fact, the importance of the US market to the global silver jewelry industry goes beyond this. A brief look at

Top Ten Jewelry Consuming Countries

Million ounces

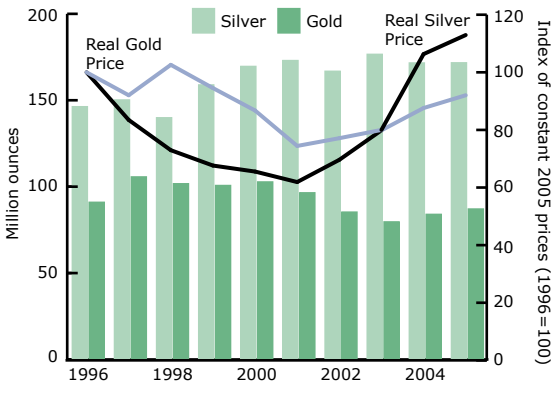
	2000	2005
United States	46.7	53.7
India	24.8	14.7
Germany	10.2	12.0
Italy	10.5	9.5
Mexico	6.8	9.1
Japan	5.2	7.0
United Kingdom	3.7	5.1
France	3.9	5.0
Poland	3.1	3.9
Canada	2.6	3.6

Source: GFMS

the top ten countries shows that their combined silver consumption rose by just 6.1 Moz (189 t) between 2000-2005. Excluding the United States from this calculation reveals that aggregated jewelry demand, in the other nine countries, actually fell during this period (albeit by a paltry 0.9 Moz or 28 t).

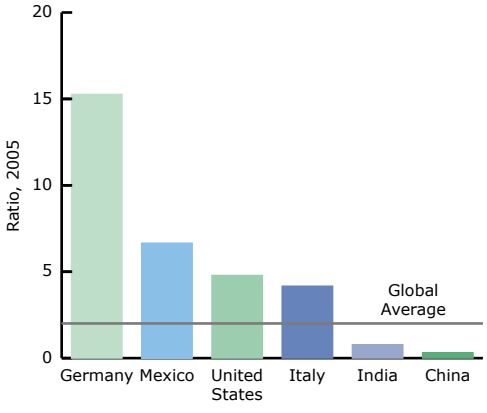
In spite of the United States' dominance of global silver jewelry consumption, the country's silver: gold consumption multiple is similar to that of Italy. Although both finished 2005 higher than at the turn of the millennium, in Italy it was a case of gold consumption falling faster than in silver, in contrast to the absolute growth achieved in US retail sales of silver. Given the growth in the United States it should perhaps be of little surprise that Mexico has also achieved a healthy increase over this period. However,

Global Silver & Gold Jewelry Consumption



Source: GFMS

The Silver:Gold Consumption Ratio by Country



Source: GFMS

Top Five Silver Jewelry Consuming Countries, Ratio of Silver to Gold Demand		
	2000	**2005**
United States	3.8	4.8
India	1.2	0.8
Germany	7.3	15.3
Italy	3.5	4.2
Mexico	3.7	6.7
Global average	**1.7**	**2.0**

what is more striking is the significant rise in the country's silver consumption, relative to that in its gold jewelry sector. This may appear a surprising outcome, given Mexico's preference for gold, but a deteriorating economic backdrop, coupled with rising gold prices, dealt a significant blow to the gold industry, particularly in 2001-02.

While the growth in Mexican silver jewelry consumption relative to gold looks impressive, it is left standing by Germany's performance. Already high in 2000, the significant increase in its silver:gold ratio was a reflection of ongoing increases in silver jewelry demand, together with a persistent drop in gold consumption. As a result, in 2005 Germany's silver demand was more than 15 times higher than its gold purchases.

The only country, out of the top silver consuming nations, to register a silver:gold ratio below the global average (2.0 in 2005), as well as a declining ratio over 2000-05, was India. This reflected not only a price responsive slump in domestic sales, but also, and more importantly, a structural decline as consumers switched to the coin and bar market, discouraged by persistent underkarating in the jewelry industry.

5.1 Europe

Germany is Europe's largest market for silver jewelry, with sales in 2005 reaching 12.0 Moz (375 t), which places it at number three globally. It is also one of the most 'pro-silver' markets, with a tonnage multiple over gold of around 15 (see graph on page 21). Consumption grew very strongly in the 1990s and, while the pace has slowed since, domestic sales between 2000 and 2005 still managed growth of almost a fifth. Such buoyancy might seem a little surprising in the light of the stagnant retail spending and weak consumer confidence that have afflicted the German economy in recent years. The statistics for gold jewelry consumption in contrast, a drop of over 40% between 2000 and 2005, somehow seem more fitting.

One driver of the above changes that should be quickly dismissed is the idea that silver's success was a product of dispirited consumers trading down from gold to silver. It is true that, within gold, the 8-karat segment has been the weakest and that part of this was due to silver taking market share in the yellow metal's lower price points. However, the overwhelming majority of players in the industry ascribe this phenomenon to silver's positive positioning in terms of fashion and its strong appeal to the youth market.

The high fashion/youth oriented sales growth was spearheaded by brands such as Esprit and Fossil, who often started their silver jewelry ranges in Germany with products specifically targeting a teens to mid-20s demographic in a €30-€50 per piece price band. This age bias is readily shown in the limited offering of silver jewelry in comparison to gold by mail order catalogues, whose core demographic is typically over 50. Branding has not been restricted to the bottom end also as several of the fashion houses such as Gucci or Armani are said to have enjoyed at least respectable success in silver jewelry, illustrating that German consumers do attach a 'precious' connotation to silver.

In the face of industry enthusiasm for silver, it is important to remember that growth in value and pieces has far outstripped weight as the German market has seen two profound changes. Firstly, there has been a big shift from heavy items, such as chains, to lighter pieces, in particular earrings and to a lesser degree bracelets. Secondly, there has been a substantial move away from plain to stone-set, especially cubic zirconia (though occasionally diamonds), and to mixed materials (with leather, rubber or other non-traditional components incorporated into the design).

Much of the rise in consumption was supplied by imports, which now comprise the vast bulk of the market. This trend was partly the result of German producers shifting capacity to lower cost countries such as Thailand. The structural market change from chains (often machine-made) to fancier and stone-set items has also favored imports as this is an area in which low labor cost countries are more competitive.

Looking ahead, further consumption gains may be possible though they are more likely to remain far more modest than in the heady 1990s. Growing consumer confidence will assist matters but there is still room for weight loss as the trend to lighter, higher design, stone-set pieces continues. The youth segment could also

see attrition from steel, though at present silver seems to retain its fashion edge. Imports' market share may also be topping out as the bulk tonnages have already shifted overseas, leaving just niche, top end and mechanized chain producers at home.

Consumption in **Italy** grew yet faster in the 1990s such that towards the end of that decade it had become Europe's largest single market for silver jewelry. Further growth to a peak of over 11 Moz (350 t) in 2001 was seen but after that a marked contraction occurred with 2005 sales reaching just 9.5 Moz (296 t). This rise and fall, as in Germany, were very much a fashion driven phenomenon. These swings were a key element of the profound change in the Italian market whereby the boundary between 'bigiotteria' (or costume jewelry) and 'gioielli' (often in Italy described as 'true' or 'proper' jewelry) became increasingly blurred.

Silver was initially a beneficiary of this shift from a heavy focus on unbranded, plain yellow gold bought for quasi-investment motives as taste became more 'modern' or international, with higher levels of fashion driving self-purchases. Several brands were quick to promote silver or jump on the bandwagon and these covered a wide spectrum of jewelry or fashion brands (such as Oimotnaz or Armani) and at a wide range of price points (such as Pianegonda at the top or Benetton towards the bottom). These often innovative youth-oriented offerings captured much consumer attention, enabling silver to take sales from gold up to often surprisingly high price points.

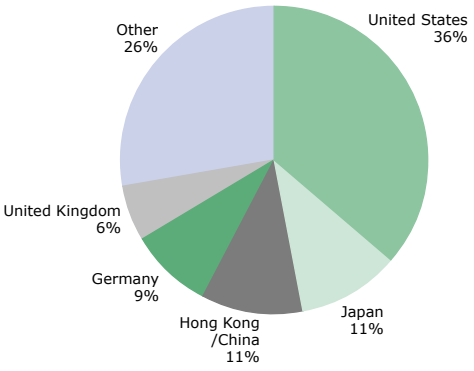
Despite this, silver never quite managed to attain true 'precious' status in consumers' minds. It was also apparent that few were buying silver because it was silver, instead being motivated by brand attraction. The lack of confidence in the metal is perhaps illustrated in the vast bulk of offerings being rhodium plated.

This left silver vulnerable to newcomer steel and this has boomed in recent years, thanks in the main to very assertive promotions by brands such as Breil or Morellato (steel centered brands are now thought to account for almost 40% of jewelry promotion in Italy). The markups available on steel were an obvious attraction here and this became more pronounced over time as the price points the market would accept for steel have moved up to overlap with gold, leaving little 'clear blue water' for silver. At the same time, the upper limits silver could once command slipped back, partly as a result of disappointing service and quality, once again relegating silver to mere accessory status. Another newer segment of the market, men's jewelry, was also quick to succumb to keenly promoted steel, with its intrinsic more masculine associations. Heavily advertized non-jewelry goods, such as cellphones, I-pods or designer purses, have also put the 'greater jewelry' category under strong pressure.

The weight of silver consumed was also hit by the shift to stone-set (typically cubic zirconia or semi-precious), with some now claiming this accounts for well over half the domestic market. Further weight loss resulted from the incorporation of non-traditional materials such as rubber or plastic and a shift from heavier pieces such as chains to lighter items, for example earrings.

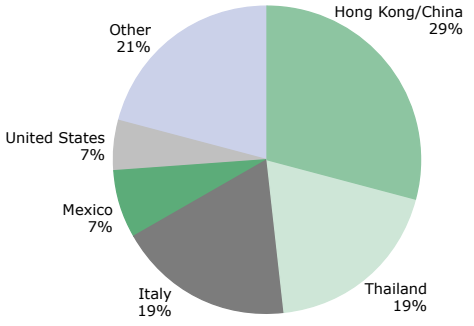
Imports' market share has risen strongly over the years, though the level achieved (some feel imports could now account for up to a third of sales) is far lower than in many other European markets. Once again, this rise was primarily driven by the cost advantages (and rising quality) of overseas producers and the

Value of Global Silver Jewelry Imports, 2005



Source: GFMS

Value of Global Silver Jewelry Exports. 2005



Source: GFMS

swing to stone-set, in which lower labor cost countries such as China and Thailand specialize.

Looking ahead, most are gloomy about prospects for silver (and gold) as the market continues to drift ever more to one season accessories (which favors steel and costume jewelry), with an ever greater non-metal content. Some relief could materialize in the form of a recovery in consumer confidence though this seems further off than elsewhere within the eurozone. Perhaps more hope lies in steel being demoted by its fickle supporter, fashion, particularly should a range of brands decide to more assertively promote silver.

Silver jewelry consumption in the **United Kingdom** achieved robust growth during the 1990s before levelling off over the last few years. At the turn of the millennium, jewelry consumption stood at 3.7 Moz (115 t) but by 2005 it had risen to 5.1 Moz (136 t). As discussed in Chapter 3 (Jewelry Fabrication) the majority of these purchases have been satisfied by rising imports, particularly from Thailand and China/ Hong Kong, with Italy giving back some market share to these countries. As well as the price competitiveness enjoyed by many East Asian manufacturers changing consumer tastes have are played an important role. In particular, gemset silver has grown in popularity and especially so with younger consumers. One product that has captured this trend is the Hot Diamonds brand, which was launched in the UK in 2000. This product encapsulates a low quality diamond set in rhodium plated sterling silver and, since its introduction, has achieved tremendous success.

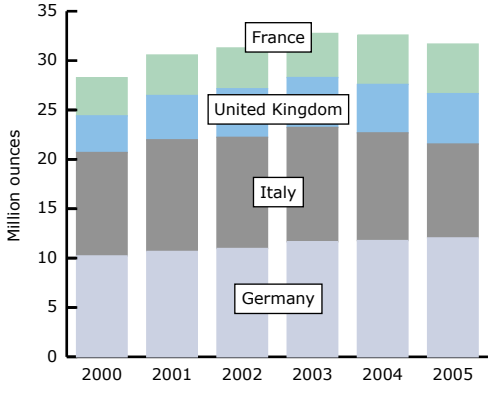
Furthermore, lower end silver jewelry has increasingly become available, again to younger consumers, in a range of non-traditional outlets, including clothing accessory chains. As a result, while gold jewelry consumption has fallen back sharply in recent years, partly in keeping with the slowdown in overall retail sales, consumer demand for silver has generally weathered this slump.

Spanish jewelry consumption has increased strongly in recent years. In 2005, demand reached 3.1 Moz (97 t) and indications are that there was a further rise in 2006. Growth in consumption has accompanied a more general shift in the jewelry market away from traditional yellow gold styles towards a more fashion-oriented product. An important part of this move has been a growing market share for white as opposed to yellow colored jewelry, with this trend also naturally favoring silver. The white look has been especially popular with youth and younger adults and it is with this group of consumers that silver's advance has occurred. Older buyers still tend to purchase gold jewelry, although here the above-mentioned shifts in taste have also been noticeable, benefiting for instance both diamond-set and mixed materials jewelry. Returning to silver jewelry consumption, an important trend in recent years has been the growth in imports, particularly from China and Thailand. Shipments from Italy, Spain's traditional supplier, also rose strongly in the 1900s but have stagnated somewhat more recently. Imports now account for nearly three-quarters of Spanish consumption and have provided for all the growth in local consumption over the last few years.

France mirrored Germany as regards silver jewelry consumption in that sales rose strongly in the 1990s but, while levelling off this decade, growth continued right through to 2005. The volume involved, however, was far smaller at 5.0 Moz (156 t) for 2005, giving a middling tonnage multiple over gold of just above four. Much of the reason for the rise was once more a favorable swing in fashion and the higher margins available, which encouraged retailers across the spectrum from hypermarkets to town center independents to promote silver. Attractive markups also led to some fashion houses, such as Kenzo or Gucci, introducing silver jewelry.

A swing from gold to silver may have featured but its importance should not be overstated as there remains a clear gulf between the two markets; the average retail price per piece for gold jewelry in 2005 was almost six times that for silver. There was, however, a notable shift within silver from plain to gemset, with the latter's

Top European Jewelry Consuming Countries



Source: GFMS

share by value of all silver jewelry rising by around ten percentage points in the last five years. Cubic zirconia, colored glass and other inexpensive parts dominate this sector, as suggested by the gemset:plain price multiple for silver pieces being far lower than for items of gold jewelry (all figures in this paragraph with kind thanks to Société 5).

2006 may be the first year (for our indicated series back to 1996) in which consumption by weight fell, and this trend could continue in 2007. Of late, silver has been losing some market share to steel, while a further shift to gemset and silver's price rise are also negative. Local fabricators face the additional pressure of imports' market share being likely to continue rising from today's level of just under 60%.

Turning to **Russia**, official hallmarking statistics (corroborated via independently derived implied import data) show strong growth in jewelry imports, with figures more than doubling from 2003 to 2005. Imported Italian jewelry dominates the Russian market with lesser amounts originating from Thailand, Turkey, Poland and Hong Kong. In 2005, imported silver jewelry totaled close to 30% of the figure for local fabrication. Strong local demand over the last seven years has been the key motivating factor behind the rise in imports, which have increasingly been shifting from more informal to official channels. With exports at less than 1% of local fabrication, consumption in Russia in 2005 is estimated at 2.2 Moz (68 t), a five-fold increase from the figure in 2000.

5.2 North America

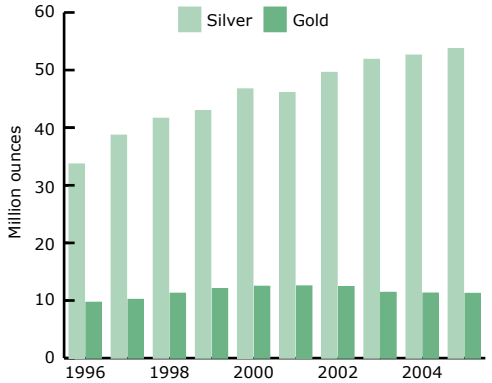
Over the past decade silver jewelry consumption in the **United States** has grown markedly. Much of this growth has come about through higher import volumes, although domestic manufacturers' market share of US retail sales has fallen only moderately during this time.

A closer look at the source of jewelry imports hints at the changing pattern of retail sales. Ten years ago, Thailand and Italy, in equal measure, dominated the sector. Over the following years, while imports from Thailand continued to grow those from Italy edged lower. This has reflected two broad trends (both of which are discussed in more detail below). Firstly, the increasing focus on lower cost sources and its adverse impact on Italy, which has lost out both because of its high labor costs and because of the impact of the medium-term trend in the dollar/euro exchange rate on export prices. Secondly, the shift away from plain to gemset jewelry has not only favored Thailand but also other countries; notably China and, to a lesser extent, India have enjoyed rapid growth in recent years.

Returning to the retail market, in general, the rise in consumer demand has largely been a function of the growing popularity, especially since the mid to late 1990s, of white look jewelry in the United States. This has not been limited to silver and in fact the Platinum Guild International's (PGI) concerted advertizing drive during the last decade, as well as the Diamond Trading Company's (DTC) promotion of diamond jewelry, have both played a key role in widening the demand for white metal. With respect to the DTC's activities, while the growth in diamond sales has been concentrated in platinum and gold, silver has indirectly benefited, primarily from the increasing popularity of semi-precious (including turquoise and cubic zirconia) and exotic stones (featuring, for example, aphanite and apatite), although diamond-set silver has also achieved some success. In each instance, the chief beneficiaries, in terms of product origin, have been overseas suppliers.

The growth in gemset pieces has also been accompanied by a relative decline in consumer demand for basic products, a shift which has also been reflected in the import numbers, with Italy in particular suffering as a result of this change. However, this development is by no means limited to silver and reflects a trend across much of the US jewelry retail sector. In particular, this has involved a move to more designer and fashion orientated pieces, with an increasing number of product lines attempting to portray a higher perceived value to the consumer.

US Gold & Silver Jewelry Consumption



Source: GFMS

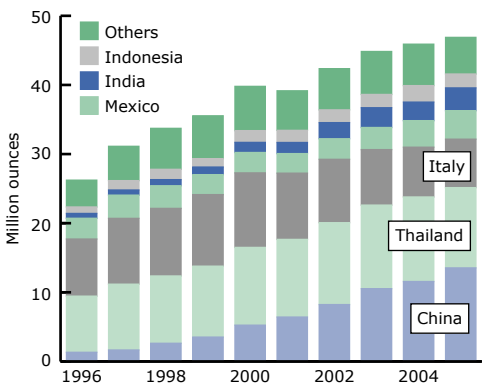
While the styles on offer have largely been consumer driven (with regards to higher demand for fashion jewelry), retailer strategies have also played a role. This is partly due to events in the platinum and gold markets, both of which have seen dramatic increases in raw material prices. Although significantly higher platinum prices have been a feature of the market for a number of years, for gold the sharp price rise has only impacted on retail jewelry since early 2005 but already the impact is being felt throughout the retail network.

One consequence has been the increasing pressure this has created for retail margins on a range of gold jewelry lines. This has led a number of retailers to reduce their dependency on gold (in order to boost margins), while attempting to maintain a link with their core customer base by continuing to offer gold-related jewelry.

For some companies the push towards higher margin articles has involved introducing gold/silver combinations or introducing or increasing the share of silver in their jewelry mix. However, it is worth stressing that, as a share of total sales receipts, silver's contribution remains modest but, importantly, the associated growth in volume has been more pronounced.

The obvious attraction of silver is the extent to which these products attract a significantly higher margin than can be achieved on most gold jewelry styles, a characteristic which also extends, albeit to a more limited extent, to commoditized silver products. This pricing structure therefore affords the retailer a greater degree of protection from volatile and rising raw material costs.

US Silver Jewelry Imports



Source: GFMS

Looking ahead, given that GFMS expect gold prices to continue rising, silver jewelry consumption may continue to derive some benefit in the United States. However, this presupposes the impact that a retailer-led strategy can have on consumer sales and, in reality, this is unlikely to occur in isolation. Perhaps more important will be the impact of rising consumer preference for higher perceived value products. While this trend will be felt across a range of jewelry products, there are anticipated benefits for the silver market and gemset pieces in particular. In contrast, a separate development, also driven by changing fashion tastes, has seen yellow look jewelry starting to make inroads. This trend, should it take hold, would largely be at the expense of white gold jewelry, although silver sales may also suffer as a result.

Finally, the outlook for consumer demand is perhaps becoming a little more uncertain. In broad measure, this reflects the impact of high oil prices, which have already contributed to rising gasoline and heating (including air conditioning) costs. In addition, the outlook for the oil market is of continued tightness and arguably heightened uncertainty. The lower-end and youth markets are likely to be most affected and, given the importance of this sector to silver demand, this is also likely to dampen sales to this segment.

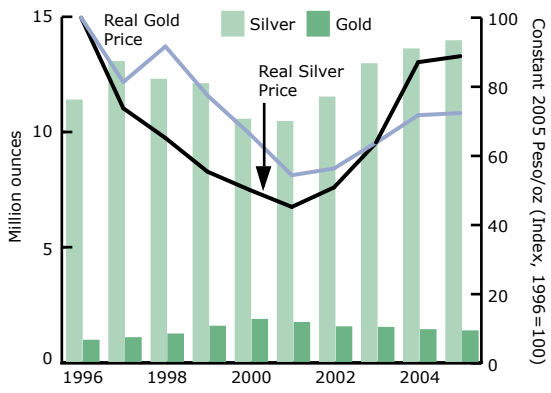
Mexico ranks fifth in the global league table of silver jewelry consumption, demand estimated at 9.1 Moz (282 t) in 2005. A glance at the data series for the 2000-05 period shows that there was steady and substantial growth in demand between 2000 and 2003, with consumption tending to ease slightly since then. However, the aforementioned increase between 2000 and 2003 is somewhat misleading as it to a large extent simply represented a recovery in demand from the slide in offtake that took place from the previous peak in 1997 through to a low point in 2000. Our information is that much of the explanation for these changes in consumption is competition between gold and silver jewelry, with this in turn linked to the respective prices of the two precious metals and to the state of the Mexican economy.

Competition between gold and silver jewelry in Mexico is greater than in typical developed country markets where jewelry product segmentation is far more pronounced. In Mexico, consumers tend to prefer gold to silver jewelry if they have the resources to purchase the former. This is partly because both markets are "traditional" with a strong savings motive

behind purchases even if articles are ostensibly bought purely for adornment. An illustration of this is the fact that there is still relatively little white gold jewelry sold in Mexico. And, differences in color do not appear to prevent some degree of migration between the two metals. From 1997 to 2000 gold was in the ascendancy. Over this period GFMS' data show Mexican gold jewelry consumption rising from 1.1 Moz (33 t) to the record level of 1.9 Moz (58 t). Meanwhile silver demand slumped by over 20%. The first blow to silver consumption came from the Buffett-related price rise in 1997-98. At this time and, in fact, right through to 2001, the peso gold price was little changed in nominal terms, although falling in real terms. This, combined with an improvement in the Mexican economy, largely explains the divergent trends in silver and gold jewelry consumption between 1997 and 2000. Conversely, first the economic slowdown in 2001 and then, second, the rise in the gold price since 2002 dealt severe blows to gold jewelry consumption and favored substitution by silver. From 2000 to 2003 the trends in demand for the two metals were quite different: gold volume falling by nearly 19% while silver gained 36%.

In the next two years, silver consumption held up better than gold although it also suffered from higher raw material prices. Indeed, given the advance in the average peso silver price from 1.69/gram in 2003 to 2.56/gram in 2005, it is at first sight surprising that demand held up as well as it has. There would appear to be a number of explanations for this phenomenon. First, although in relative terms silver has become more expensive compared to gold, in absolute terms the yellow metal has reached levels that for many consumers put it out of reach. Their alternative has been silver. Second, the high absolute price of gold combined with rising insecurity has led to more street crime involving assaults on those wearing gold jewelry. This has moderated gold demand and, at the margin, favored substitution by silver. Third, silver jewelry consumption has benefited from the introduction of new, modern but affordable designs that appeal particularly to younger consumers. This is partly reflected in the strong growth in imports (from a low level) from countries such as Thailand and China. Fourth, consumption has been bolstered by growth in demand from tourists, which is included in our local consumption data for Mexico. Tourist arrivals rose from 18.7m in 2003 to 21.9m in 2005.

Mexican Gold & Silver Jewelry Consumption



Source: GFMS

Looking ahead, two major issues for Mexican jewelry consumption over the next couple of years are likely to be the impact on the local economy and the exchange rate from a probable slowdown in US economic growth and the effect of continued high precious metals prices. Although on both counts silver would seem to be better placed than gold, we would not be surprised to see some softness also in Mexican silver jewelry consumption, particularly as demand was at a historically high level in 2005.

Silver jewelry consumption in **Canada** has risen in recent years to reach a peak of 3.6 Moz (112 t) in 2005. As in the United States, until very recently white look jewelry has been growing in fashion and suppliers of silver jewelry have responded with new designs, often stone-set, to take advantage of this trend. Growth in consumption has been fed by higher imports, whose volume is estimated to have risen by nearly 50% between 2000 and 2005. Most of the increase in imports has come from Thailand, the United States and China.

5.3 Latin America

Jewelry consumption in Latin America is dominated by **Brazil**. The data shows that demand in the country has recovered from the negative effects of the economic crisis and currency devaluation in the early part of this decade. At that time silver jewelry's fall was cushioned by some shift in consumption from gold to more affordable silver. Similarly, since then higher gold prices have at the margin resulted in some degree of substitution in favor of the white metal. A little over half of Brazil's 2.5 Moz (77 t) of consumption in 2005 was supplied by local fabricators with the balance imported, much of it unofficially from Panama.

5.4 Indian Sub-Continent

Silver occupies a somewhat ambivalent position in the **Indian** precious metals market. At first sight, the fact that it is the largest non-industrial and non-photographic user of the metal in the world would appear to suggest that silver is richly entwined in Indian's culture and buying patterns. And indeed, throughout the 1990s and the process of the liberalization of the market, silver appeared to have a secure position in jewelry (and silverware and bars/coins), with close to 29 Moz (around 900 t) of offtake in 2001 (for all intents and purposes an all time high).

However, this position has grown increasingly tenuous in recent years due to a combination of factors including the silver price (and price volatility), institutional changes (most notably the abolition of the Gold Control Act but also the growth of the banking system) and changing consumption patterns and consumer preferences (a result of rising incomes and competition from a number of sources, not all of which are jewelry). Curiously, the threats to silver jewelry that have emerged are not all external (for example gold jewelry). Indeed, as we argue below and in Chapter 4, silverware and silver coins/bar have both taken market share from jewelry.

GFMS' consumption data clearly illustrates these trends. For example, between 2001 and 2005, we estimate that Indian jewelry consumption fell by close to 50%, or 14.3 Moz (around 450 t). Admittedly this was from a close to record level of consumption, but still the fall has been marked. Furthermore, taking fabrication as a proxy for consumption (our consumption series does not extend back far enough), 2005's level was effectively the same as that last seen in 1992.

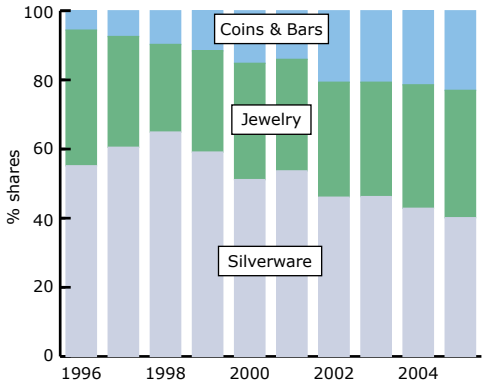
Furthermore, an examination of the relative market shares of jewelry, silverware and coin/bar, as a percent of total offtake in all three of these categories, reveals just how marked jewelry's declining position is. Using fabrication as a proxy (again, because our consumption data series does not extend back that far), jewelry's share has dropped from 50% in 1990 to only 37% in 2005. By contrast, silverware has seen its share fall from 48% to "only" 40% while coin/bar has grown from just 2% in 1990 to 23% in 2005.

The price has clearly had an influence on jewelry offtake over the past few years, and will continue to be a factor, albeit a declining one, in the future (as the market shifts, inevitably in our view, to more adornment jewelry). However, this is to some extent an exogenous influence on demand and is not a key focus of this section.

A key issue to understanding what is happening to silver is the recognition that silver (and gold) has been used as a savings mechanism in the rural areas in the past due to poor penetration by the official banking system (interestingly, in the very distant past, silver was the preferred metal, although over time this has changed). Put somewhat differently, the primary driver behind demand for silver in the past was investment out of the rural areas. A corollary of this observation is that silver demand has been integrally tied into the performance of the agricultural sector.

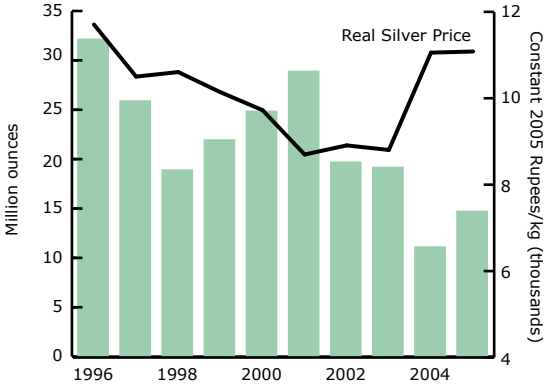
In the early 1990s, agriculture accounted for over 50% of India's GDP, with a significant portion of incomes from the land being converted into silver as a store of value (silver was also widely used as a means of exchange). However, in the new millennium,

Shares of Indian Silver Fabrication



Source: GFMS

Indian Jewelry Consumption



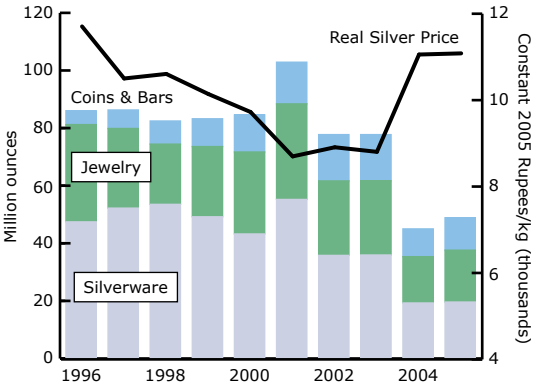
Source: GFMS

circumstances have changed quite rapidly, with agriculture's contribution to GDP falling, better banking facilities and alternative investments all working against saving in the form of silver jewelry. Indeed, GFMS research has shown a sharp drop off in silver jewelry demand in the rural areas over the past few years for these very reasons (it should be noted that as farmers become wealthier, gold has also substituted for silver jewelry).

On the institutional front, the repeal of the Gold Control Act (in place from 1962 to 1990) has also impacted on jewelry offtake. It is worth remembering that under the Act, the holding of silver (and gold) in bar form was prohibited, resulting in investment taking place in jewelry form. The repeal of the Act has seen a steady migration by those wishing to invest from jewelry to coin and bar.

Turning to the future, silver jewelry faces a number of challenges. Primary in this regard is the fact that it no longer serves as a first choice for many as an investment vehicle. In addition to this, there is the challenge arising from growing affluence, that of substituting away from silver to gold as the budget constraint allows. On the positive side, there have been some recent attempts to properly brand silver jewelry, a much-needed step in the transition from investment to adornment as the motive to buy. Furthermore, nearly 65% of the Indian population is below the age of 35, and although currently it appears as if the younger generation generally has little affinity for silver jewelry, they do see it primarily as an item of adornment, in particular within the urban population. If this can be built on silver jewelry consumption could eventually become established in these areas. Add to this the fact that the Indian government has decided to make hallmarking mandatory from 2008 and many of the negative connotations associated with underkarat jewelry will be mitigated.

Indian Silver Fabrication



Source: GFMS

5.5 China

The Chinese economy has continued to surge ahead in recent years, experiencing double digit GDP growth, bringing with it higher disposable incomes for a large portion of the population. The increase in individual wealth has contributed to the rise of the jewelry sector, which has experienced rapid growth over the past ten years. However, much of this growth occurred during the 1990s and in fact the rise in jewelry consumption has been only modest in recent years, for reasons explained below. For instance, GFMS estimate that in 2005 (notably the highest level of consumption we have recorded) silver jewelry consumption was still very modest, at only 2.4 Moz (75 t). This equated to local demand absorbing only 14% of total fabrication, with the remainder destined for major export markets. However, the chief exception to the sluggishness in growth in recent years was in fact seen in 2005 when silver jewelry consumption recorded a 10% increase year-on-year. The increase was assisted by the sharp rise in gold and platinum prices, which encouraged retailers, selling predominately gold and platinum jewelry, to add silver (and palladium) jewelry items to their showcases in an effort to provide alternatives to consumers who were finding the other two precious metals unaffordable.

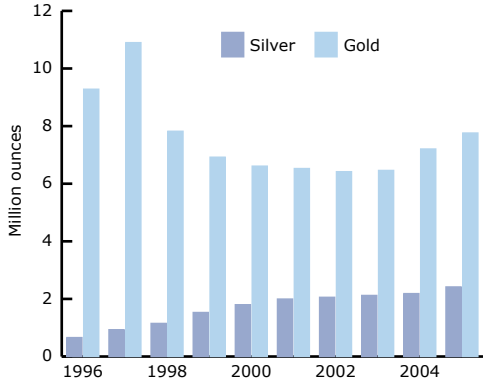
In spite of this recent development, silver jewelry in China has struggled to compete against other forms of jewelry and establish itself as a category in its own right. This was especially true during much of the 1990s, with demand for platinum and gold jewelry providing stiff competition to silver in the retail sector. Prior to gaining mainstream acceptance, silver jewelry often played at role in traditional celebrations for certain minority groups within the regions. The jewelry, mainly large and heavy in design, was often worn or given as a gift at ceremonial occasions, such as weddings and the birth of a child within the family, however, volumes were modest, and the demand isolated to certain Chinese provinces.

Chinese consumers have typically perceived silver to be a "last resort" option and do not rate the white metal highly due to its low value. Having said this, it is this low value that in recent years has started to attract consumers looking for an affordable alternative to other

precious metals. At the beginning of the review period silver jewelry in China was typically plain and based on traditional styles, which did not appeal to the youth market. The introduction of more modern machinery and expertise, the majority introduced from Italy, has assisted in introducing a range of jewelry that now has broader appeal. The majority of silver jewelry in China is purchased for females. Until quite recently it was unusual to see a Chinese male choosing to wear silver. However, a specific advertizing campaign aimed at this market has proved particularly successful, with a significant increase in a male range of jewelry styles, which are typically heavier set chains and bracelets often seen in western markets.

Looking ahead, the youth market is believed to have the greatest potential for expansion and retailers have been targeting their advertizing and marketing campaigns at this sector. The lower priced range of jewelry offers this younger generation, who like their counterparts across the globe are heavily focused on global trends and what is being worn in the west, an outlet to experiment with fashion. This has encouraged fabricators to be innovative and produce a steady stream of modern designs. In order to meet the demand from this group of consumers several Chinese manufactures have looked to establish joint ventures with foreign companies or in some instances have employed leading European designers to provide originality to their work and to ensure local designs can mirror and compete with global trends.

Chinese Gold & Silver Jewelry Consumption



Source: GFMS

Jewelry Trade

Global silver jewelry trade has expanded massively in recent years. In 2000 the value of global silver jewelry exports was just under $1.4 billion. In 2005, following five years of solid growth that figure had reached no less than $2.6 billion. There are several explanations for the near doubling of the value of silver jewelry exports during 2000-05.

Top Five Trading Countries, Moz

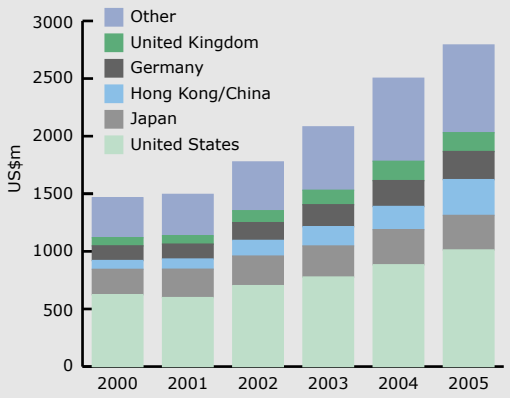
Imports	2000	2005	Exports	2000	2005
United States	624	1,012	Hong Kong	1,620	523
Japan	220	300	Thailand	248	502
Hong Kong	74	298	Italy	401	486
Germany	127	244	China	65	242
UK	71	163	Mexico	63	188

First and foremost is the impact of price competition in concentrating fabrication among lower cost suppliers. Directly linked to this is the growth in production and exports from countries such as Thailand and China. The value of Thai exports doubled between 2000 and 2005, while those from China/Hong Kong more than tripled over the same period. Another measure of this phenomenon is the increasing share of global jewelry fabrication that is traded. Basis our estimates for the volume of world trade, total global exports were equivalent to around 75% of 2005's jewelry fabrication, compared to a figure of just over 50% in 2000. Second, the average price of silver jewelry has increased, boosting the value of trade. This price increase is the product of two phenomena: the higher silver price and an increase in average mark-ups. The latter, in turn, stems from a rising share of fancy and gem-set articles in the product mix. A good way of illustrating this higher unit price impact is to compare the growth in the volume of exports from 2000 to 2005 with the increase in value of the same. We estimate the former to have been in the order of 49% compared to 90% for the latter.

Third, trade patterns have become more complex, with for example a growing role for entrepots such as Hong Kong. This tends to exaggerate somewhat the true scale of exports/imports. Also inflating the numbers, at the margin, is increasing international specialization of production. This may lead to, for example, goods being partly fabricated in one country and then being shipped to another country for finishing before being re-imported or exported to a third country destination.

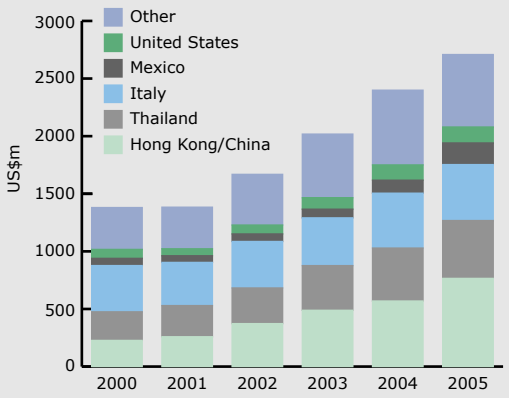
In terms of exports' share, the value data shows that China and Hong Kong jointly exported $766m in 2005. Discounting trade between Hong Kong and the Mainland, their combined total drops to $558m. This still leaves China/Hong Kong in first place globally (and for the first time) ahead of Thailand's $502m and Italy's $486m. Italy relinquished its crown as the world's largest exporter to Thailand in 2004 and in fact has seen steady erosion in its global market share in recent years. Back in 2000 Italy accounted for around 29% of global export value. In 2005, that figure had dropped to a little over 18%. When it comes to the dominant silver jewelry importer, the picture is a good deal clearer. The United States stands head and shoulders above all others. US imports in 2005 came to just over $1 billion, giving it a 36% share of global imports. Although stable over 2004-05, this figure has tended to decline, having been as high as 42% in 2000. The main reason for this is the growth in European imports (mainly from East Asia) over recent years. For example, Germany's imports surged by nearly $115m between 2001 and 2005, most of the growth coming from jewelry imported from Thailand and China.

Global Jewelry Imports



Source: GFMS

Global Jewelry Exports



Source: GFMS

6.0 Competition for Silver Jewelry

Introduction

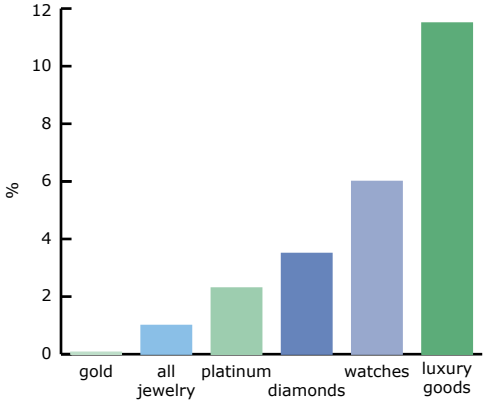
The allocation by a consumer of discretionary expenditure to silver jewelry faces four key issues:
a) whether to buy jewelry or another consumer good,
b) if jewelry is to be bought, which metal is preferred,
c) if a silver based piece is chosen, is the piece to be a plain, gemset or even a mixed-material item?
d) to what extent is silver the primary proposition? (A piece may be bought because of the stone it carries or the brand it sports. In neither case might the item be bought because it is *silver*.)

Each of the above points can influence the consumption in fine weight terms of silver in jewelry form and their impact is reviewed below.

6.1 Competition from other Expenditure Categories

As a discretionary good, there is no 'requirement' to buy jewelry and, as a result, it faces strong competition from other categories of discretionary, consumer goods. Some of the most important of these rivals in recent years have been technology goods (such as cellphones), leisure activities (for example overseas travel) or luxury accessories (the latest Prada purse for instance).

Promotional Expenditure by Sector



Source: WGC, DTC, PGI, Richemont Italia, GFMS

There has been a general trend in most countries of a swing away from jewelry towards other rival categories. Reliable and comprehensive statistics on this matter are hard to come by but examples do exist. For instance, when German consumers were asked to rank categories of goods on which they would wish to spend income, jewelry for a long while was hovering around 10th but, by the early 2000s, it had slumped to 26th. Changes can obviously also happen on a year to year basis; for example, in France in 2005, total retail sales rose by 1% yet the greater jewelry category (which includes watches) fell by 1%*.

One important determinant of this swing away from jewelry is the growing accessibility and availability of rival goods. Many, in particular certain technology goods (domestic air-conditioning units, flat screen televisions and so on), simply did not exist before. Others have become realistically accessible; in the west, foreign travel with the launch of low cost air carriers has boomed, while in the east, the casting off or loosening of communism has made travel a genuine possibility and more immediately, given millions of people access to consumer goods for the first time.

The other key determinant is promotion. As shown in the graph below, the expenditure on jewelry advertising (especially of the metal constituents) lags far behind most rivals and this has grown ever more important as consumers become increasingly brand-obsessed.

The strength of social conventions is another factor to consider. In the west, the exchange of rings at weddings is still the norm and this largely explains why the bridal sector of jewelry has performed far better than the mere accessory component in the industrialised countries.

6.2 Competition between the Metals

In this section, we review the share of expenditure allocated to each metal once the consumer has decided to allocate income to jewelry. Being mid-priced, silver faces competition from above, mainly gold, and from base metals below, typically steel but at times others such as titanium. The platinum group metals are less

of an issue - due to its yet higher price, platinum is rarely if ever silver's competitor. However, palladium, sitting between gold and silver price points, could become more so should carat jewelry in this metal start properly to develop beyond its current China niche.

Silver jewelry consumption by weight tends to be a little under twice the size of gold. This ratio, however, is far from constant and its pronounced upward trend from the late 1990s to 2003 highlights the degree to which silver performed better than gold. Looking at the figures on a country basis, wide variations exist in the propensity to consume gold versus silver jewelry. The industrialised west (in particular northern Europe) is generally far more pro-silver while East Asia and the Middle East are far more pro-gold (see graph below).

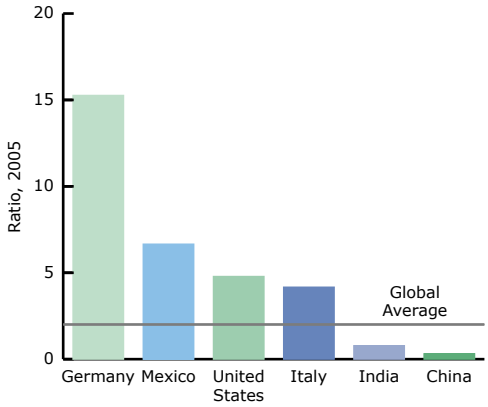
On a crude value basis (fine weight times metal price), gold overwhelms silver, at around 35 times the size, though this has tended to narrow in recent years. At a retail value level, the difference is less due to far higher markups on silver. In the west, gold typically retails at around 300% over fine (with plain lower and branded and gemset far higher). In silver, however, plain would usually be around 1,000% but branded and gemset would have no trouble being many multiples of this. By way of illustration, the crude value of French gold jewelry consumption is 14 times its silver but, with the higher markups on the latter taken into account, this ratio more than halves at the retail level.

In the developing world, India is the only significant consumer of silver jewelry, and here the competition is primarily from gold (although as discussed in some detail in Chapters 3 and 4, silver jewelry is also facing 'internal' competitive pressures in the form of silverware and bar and coin). Price and budget constraints keep consumers in silver, but as soon as critical price points and income levels are reached, they typically switch to gold. A key issue for purchasers of silver in the past decade has been the purity of the metal used. So although headline markups are typically in the range of only 25-40%, the real markups can be as much as double this if allowance is made for undertitle metal, a reality that has driven consumers away from silver jewelry (again, see Chapters 3 and 4 for more on these issues).

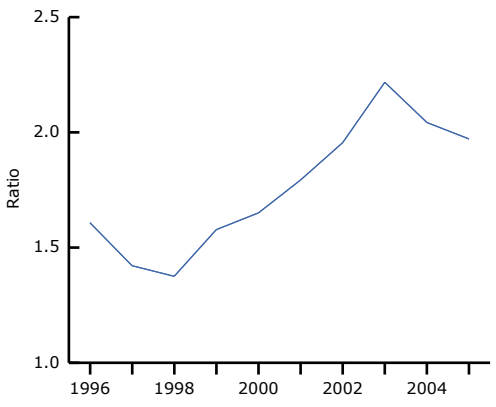
A curious contrast between the developed and developing world markets is that in countries like India and China the challenge is to get consumers to migrate from gold to silver jewelry (by contrast with the European markets where gold has been perceived as somewhat dated and consumers have shifted to silver along with other materials). As already mentioned, in India consumers shift to gold when the budget allows, while in markets like China, silver has yet to establish itself as a 'brand' suitable for adornment purposes. In neither of these countries (and this holds true elsewhere in the developing world) is silver yet established as a desirable adornment jewelry metal, but our view is the most likely trend will be towards the development of youth brands, as in Europe and the United States.

Substitution from one metal to the other was an important factor behind the above relative shift to silver, as gold lost out at less expensive price points in both low karat markets such as Germany and in higher karat markets such as Italy. Few in the industry feel price differentials between the two metals were significant. Instead, fashion was cited as the main

The Silver:Gold Ratio by Country



The Silver:Gold Ratio Over Time



The ratio represents silver jewelry consumption divided by gold jewelry consumption in weight terms.

cause, as yellow gold came to be seen as flashy and dated, while white metals were dominated by youth brands, actively choosing silver to maintain margins and exploit the general swing in jewelry from treasured piece to one season accessory (see pages 32-33).

Silver was not the sole beneficiary of some of the above trends as non-precious metals, in particular steel, became popular. In fact in some countries such as Italy, the rise of steel has reversed previous years' growth in silver jewelry consumption. The reasons for this are yet higher and less transparent margins on steel, very heavy promotion and a strong appeal in youth and fashion terms. The small but fast growing segment of men's jewelry has also tended to be base metal oriented. Looking ahead, it would not be surprising if silver continued to take some market share from gold but the real risk to both is the shift away from fine to non-precious and non-metal (see below).

6.3 Competition with the Non-Metal Elements of Jewelry

One of the most important trends in recent years has been the pronounced shift from plain metal pieces to gemset or to styles incorporating materials of no intrinsic value such as rubber, leather or coloured glass. This has affected all the precious metals to varying degrees. For example, plain's share by piece of French silver jewelry consumption fell around 10 percentage points to just over 60% from 2002 to 2005 while, for gold, the drop was roughly half the size to 54%*.

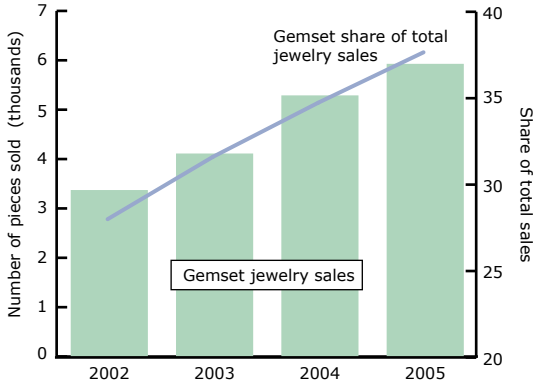
As with the shift to non-precious metals, one of the prime drivers of this shift is the ability for distributors to earn larger, more opaque margins. High profile advertizing of diamonds has been another important factor; some markets, for example Italy may perceive silver as unworthy of this stone but others, such as the United Kingdom, see no problem mixing the two (though the quality of diamonds in silver pieces is often poor). Fashion and the need for novelty have also been important (see fashion box on pages 32-33 for more detail). With all these factors likely to remain in force for the foreseeable future, it is expected that the drift to a higher non-metal content will continue.

6.4 Silver as a Primary Proposition

When a consumer seeks an item of jewelry, attitudes to the metal in the piece will either be negative, neutral, favorable or the primary driver. If attitudes were neutral (or even more towards negative), consumption could prove volatile as consumers adopted or shunned silver depending on whether criteria more important to them such as branding or design were better met by a rival piece in a different metal. This could prove important in a high silver price environment as brands might readily switch from silver to steel for a similar piece to maintain margins, knowing that consumers were more interested in their brand and/or the design.

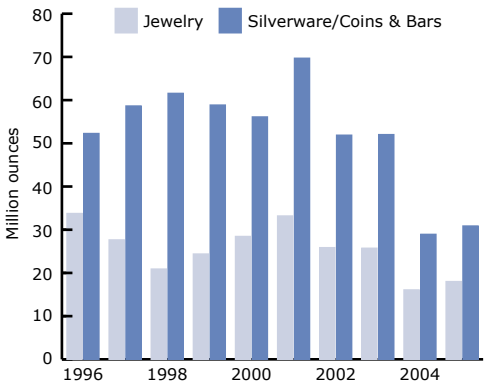
In the converse situation where a typical consumer would prefer silver or actively sought the metal above other considerations (primary proposition), consumption should be more stable as they would be prepared to continue buying despite a growing price gulf versus costume or a narrowing gap versus gold.

Gemset's Share of the French Market



Source: Société 5 (above graph & all figures marked * in this chapter)

Jewelry versus Silverware & Coins in India



Source: GFMS

Changes in Consumer Taste & Their Impact on the Jewelry Market

Introduction

As a discretionary good, non-economic drivers can have a marked impact on jewelry sales. These cover the broad area of consumer behavior shifts and the narrower issue of fashion. Within jewelry, non-price matters are perhaps more important for silver as most consumption occurs in largely price insensitive countries and the metal content's value is a comparatively small part of the total price. These intangibles will also become more important over time should the jewelry markets of rapidly industrializing countries such as India adopt a more western model.

Jewelry vs Other Expenditure Categories

An important (negative) influence on jewelry's share of consumer expenditure has been the great expansion in the range of available rival goods. Technology goods make an excellent example. Many items simply did not exist before (for instance cellphones) and others are continuously being upgraded (such as the progression from cassette to CD Walkman and onto I-Pod). These new items are also some of the most heavily promoted of all consumer goods and it is these two factors, rather than fashion, that have driven more of the division of expenditure between categories. Reliable statistics on jewelry's share are hard to come by but most information available points to a marked fall. For example, when German consumers were asked to rank categories of goods on which they would wish to spend income, jewelry for a long while was hovering around 10th but, by the early 2000s, it had slumped to 26th. Such trends are also ongoing; for example, in France in 2005, total retail sales rose by 1% yet the greater jewelry category (which includes watches) fell by 1%*.

Silver vs The Other Metals

Within jewelry, performance by segment can vary notably. In France for example, sales by value in 2005 for silver were up 5%, watches were up 2% and yet gold was down 3%*, while in the United States (at a distributor level), gold consumption fell by 2% as silver grew by 2%.

Before analyzing what might drive annual changes, it is worth reviewing the more cultural rather than fashion issue of the degree to which a society attaches precious connotations to silver. There seems to be a general tendency that those with a strong gold tradition, say India or southern Europe, perceive there to be a larger gulf in status between gold and silver than in northern Europe or for Americans of northern European heritage. It is little surprize, therefore, those higher end jewelry brands using silver significantly typically come from the latter areas (for example, Georg Jensen in Denmark or Tiffany in the United States). Such traditions can alter, however. In Italy, for example, silver's image upgraded, at least briefly, as designers such as Pianegonda appeared on the scene and this was a clear factor behind the lift in consumption either side of the millennium.

The above ties in with a market's preference for metal color, a factor which can have more impact on year-on-year consumption swings. Many countries, for example, saw a notable move to white over the last decade or so. In Germany for example, silver jewelry has in recent years been taking share from its price point rival, 8-karat yellow gold. White's hold, however, is never guaranteed; over the least season or two, there has been much talk in the glossy magazines of a renaissance for the 'yellow' look. However to date, there is little to suggest this is really affecting the mass market such as mainstream US malls.

Yellow or white for a charm bracelet? Left, Chanel in 18-karat gold & diamonds (photo courtesy of VogueGioiello.net); right, Gecko Trading piece in silver & enamel.

That white has been able to maintain an elevated share is partly due its hold on the youth sector, which actively views yellow as fit only for the over-60s. This disdain, in turn, looks to have affected the older demographics such that the age at which people move from costume/white pieces to serious/yellow items is moving ever higher.

This overall color preference, however, only gives silver the room to perform and it has not been the sole beneficiary; steel jewelry has grown strongly of late. This at present looks strongest in Italy where its growth is eroding silver jewelry sales. Further expansion elsewhere, for example in the United States and even as far afield as Taiwan, is also reported as now underway.

Steel or silver? Left, men's bracelet in steel by Palm Beach Jewelry; right, unisex silver and rubber bracelet, photo courtesy of Gecko Trading Ltd.

Steel's success in Italy is in the main due to another shorter term factor yet more closely tied into fashion, heavy promotion and successful branding; it is estimated that steel-focused brands now account for around 40% of all jewelry promotion in Italy. We can neither ignore the issue of markups on the metal; those for silver are higher and less transparent than for gold yet these advantages for steel are of a different order.

Silver vs Other Materials

The weight of silver (and indeed all metals) consumed in jewelry is under pressure from a long term trend of a swing from plain to gemset. In France, for example, sales (by piece) of plain silver from 2002 to 2005 rose by 13% yet gemset soared by 76%*. Margins are again important here as being gemset takes a piece off weighing scales and into a realm of higher, opaque markups. Fashion is also important as consumers today are becoming more focused within jewelry on bang up to date and possibly only one or two season accessories, rather than treasures to bequeath, and the incorporation of stones gives the designer a far easier route to novelty. Stones, especially diamonds, have also often been the beneficiary of heavy promotion.

Precious dilution: left, Miluna's enamel & diamond silver pendant on silk cord (photo courtesy of VogueGioiello.net); right, Gecko Trading piece in silver & enamel on organza ribbon.

Fine weight can also be cut by the use of materials of trivial value, such as rubber or leather. This has been a significant factor for gold but silver has not been hit quite as hard (nor is it expected to be so) as the cost advantage of, for example, replacing a pendant's metal chain with say a silk cord is far less for silver than gold.

Structural Market Changes

The jewelry market has seen a handful of structural changes in recent years that have typically benefited silver. Perhaps the most general of these is market polarization - consumers focusing on expensive, heavily branded items (such as a Prada purse) or bargain-priced goods (WalMart clothing for example), leaving the mid-market (JC Penney for instance) under pressure. In jewelry terms, this has lifted diamonds, hurt gold and boosted silver and steel.

The figurative & market polarisation: left, Tiffany plain silver ring; right, Cartier "Caresse d'orchidées" brooch in yellow gold, white & yellow diamonds and rubies, photo courtesy of VogueGioiello.net.

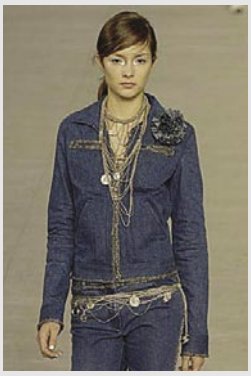
Overlapping this is the above noted swing in the jewelry market from semi-investment to semi-discardable accessories. A key factor here is the swing from gifting (typically by men) to self-purchase (mainly by women), a change largely a function of the rise in the number of and pay for women working. This has not been uniformly beneficial for the offtake of silver (and other metals) however; it has contributed to the shift to more color, novelty and highly figurative designs such as flowers (with a higher labor content) over plainer, geometric styles.

This relaxation of gender lines has also fed through to the rise of the 'metrosexual', a cultural change which encompasses the increasing acceptability for men to wear jewelry. This has a non-precious bias, using such materials as steel, titanium or leather, but there have been some benefits for silver, certainly more so than for gold.

Jewelry Styles

In terms of styles, one interesting change in the last year or so (not specific to silver) was the rehabilitation of the chain. This strode back onto the runway worn in a multi-sized layered manner to uniquely accessorize outfits. Given chains' high average weight, this has good potential for offtake in comparison to light items such as earrings but this trend to avenues for individual accessorization has led to a boom in charms - items that sell well in gold and can carry a high non-metal content, such as stones or enamel.

** figures courtesy of Société 5*



The random-wrap chain: left, Chanel Spring/ Summer 2006, photo courtesy of Christopher Moore Ltd; right, Staurino Fratelli "Callas" chain in white gold and diamonds.

7.0 Price Sensitivity of Silver Jewelry Demand

Overview

In the fifth chapter of this report, a detailed qualitative analysis of the drivers of silver jewelry consumption, and how these differ between the major consuming countries, was provided. Within this realm, the way in which jewelry consumption responds to changes in the price of silver in different countries is of particular interest.

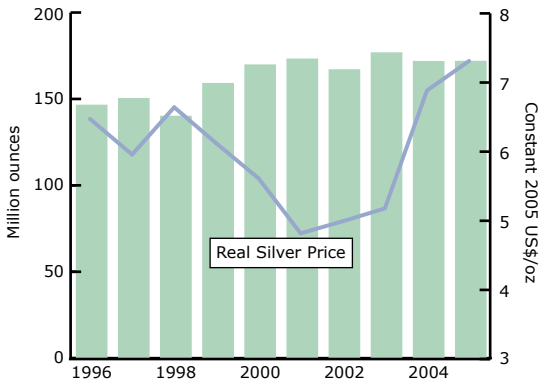
More specifically, as was discussed in Chapter 5, the silver jewelry market is largely characterized by substantial markups over the silver price, making the portion of retail prices that reflect the cost of the raw material used very low. As a result, in most countries consumption tends to be fairly inelastic to changes in the silver price and is instead primarily driven by exogenous factors, such as income, population demographics and fashion. Notwithstanding this, dramatic price changes in the price of the white metal, as experienced recently, can impact consumption for silver jewelry. Elsewhere, there remain countries such as India, where silver jewelry is sold at a relatively low markup and can serve quasi-investment purposes. In such countries, changes in the price of the metal do indeed impact jewelry consumption.

In addition to the qualitative analysis of these issues, it is interesting to examine how our intuition and knowledge of the market is backed by empirical evidence, through the use of statistical inference. Furthermore, in addition to confirming or refuting our contentions, successful estimation of the relationships that may govern the market should provide us with a numerical estimate, albeit a rough one, of any elasticities that might exist.

For the sake of simplicity, GFMS decided to limit the quantitative work that follows in this chapter to four countries that we believe are representative of the silver jewelry market. These are Italy, the United States, India and China. For each of these countries, GFMS constructed jewelry consumption series going back to 1990 and, using firstly correlation analysis and subsequently linear regression, examined whether changes in consumption could arguably be explained by variations in the silver price.

It should be noted here that GFMS are well aware of the limitations inherent in attempting statistical inference based on a sample as small as the one used, which severely reduces the significance of the results generated. Nevertheless, the difficulty of constructing reliable consumption series going further back, coupled with our understanding that the market would have undergone major structural changes since the 1980s would outweigh the drawbacks of using a limited sample. Furthermore, the primary purpose of this effort is to gain a general understanding of how responsive jewelry consumption is to changes in the silver price, rather than to obtain a precise model of the relationship.

Jewelry Demand and the Silver Price



Source: GFMS

Correlation Analysis

As a first step, we decided to look at simple correlation coefficients between log-returns in jewelry consumption figures and changes in the price of silver in each of the countries in question. The correlation coefficients are featured in the table below. The picture illustrated by the figures in the table seem consistent with GFMS'

Jewelry Demand and Silver Price Correlations

(correlation coefficient of log-returns in annual consumption and annual average silver price over the 1991 to 2005 period)

Italy	China	India	USA
-0.25	-0.03	-0.69	-0.10

Source: GFMS

expectations, namely that the correlation between the two will be very low in most of the countries examined.

In fact, the only country of the four examined, in which annual jewelry consumption at first sight seems to demonstrate a noteworthy link to the silver price over the period, is India, while for the remaining countries the apparent relationship appears very weak.

Regression Analysis

Although interesting as a preliminary check, the use of correlation coefficients does not in itself satisfy the purpose of our work, as it fails to provide a numerical measure, however rough any such measure would be, of the elasticity of jewelry consumption to the silver price.

GFMS therefore decided to estimate equations for jewelry consumption demand against the silver price. In order to put the relationship into perspective, as well as avoid major statistical issues related to missing variables, we decided to include some of the basic determinants that we understand impact jewelry demand in each of the countries in question. In order to keep the models simple, we decided to restrict these to income, proxied by GDP and/or household spending, where this was available, as well as core demographic statistics.

As a method of estimation, Ordinary Least Squares (OLS) regression was used and, where this was necessary, Generalized Least Squares (GLS) allowing for error-autocorrelation. With regards to the latter, error-autocorrelation was detected in the majority of the models GFMS constructed, most likely due to the specifications missing significant variables. These, we believe, are largely related to fashion trends, which could not realistically be modeled. GFMS are aware of the statistical issues inherent in using models with missing variables. Nevertheless, as we believe it is not possible to efficiently model changes in fashion, and our efforts were primarily focused on establishing an approximate view of how responsive jewelry consumption is to price, rather than an exact measure of elasticity, we decided not to take into account these issues for the purposes of this exercise.

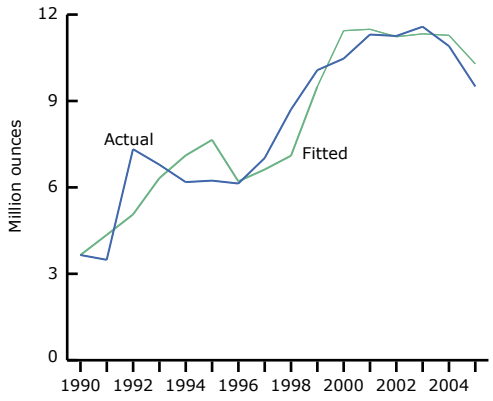
It should finally be noted that due to the series in our analysis being non-stationary, in other words that they did not move around a constant mean, and the lack of cointegration between the variables in the models, we decided to look at relationships in first differences rather than absolute levels.

Regression Results

The final models GFMS derived, after a series of estimations and tests, are presented in the table on page 40, together with R2 statistics for each equation, where this was available (when using GLS, a precise counterpart to the R2 statistic cannot be constructed). This figure is an indication of how well the estimated models can explain variations in the actual data on jewelry consumption, in each of the respective countries. Specifically, the R2 statistic can take values from 0 to 1 and, generally (although this is not always the case, as regression results can sometimes prove spurious), the higher it is, the better the model describes the real world.

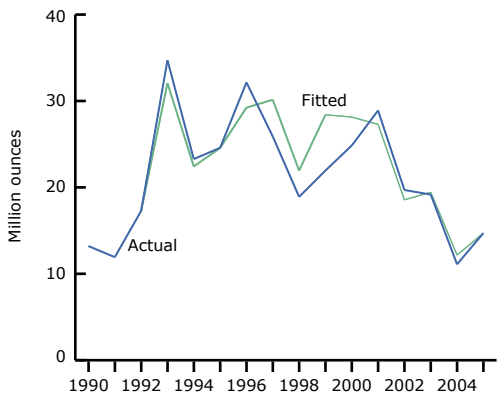
Immediately, one can see that for the Italian, the United States and, particularly, Chinese models, the R2 we calculated was very low. Indian consumption was

Italian Fitted & Actual Jewelry Consumption



Source: GFMS

Indian Fitted & Actual Jewelry Consumption



Source: GFMS

estimated using GLS, to allow for error-autocorrelation, and we therefore have no comparable R2 figure for the relevant model. Nevertheless, preliminary work indicated that the country showed the best fit of the four, a result that was generally in line with GFMS' expectations. For instance, estimating the same model using OLS gives an R2 of 0.57. Unfortunately, as is discussed later in this chapter, despite its good fit, the Indian model proved to be highly problematic in other regards.

In addition to the R2 statistics, the accompanying graphs show the values of jewelry consumption, which are estimated using the four models, plotted against the actual consumption figures for each country. Careful examination of the four charts provides additional confirmation that the Indian model had the best fit of the four.

The poor R2 calculated for the majority of the models aside, the models presented other important problems, related to the coefficients estimated in the respective equations. More specifically, in a number of cases, the empirical results clashed with our intuitive understanding of the markets.

For instance, the model for Chinese jewelry consumption seems to suggest that demand for jewelry is inversely related to income growth, proxied by the country's GDP. This conclusion is in stark contrast to our understanding of the market, in other words that Chinese demand would, if anything, react positively to rising income levels. Moreover, the model also suggests that consumption in the country reacts positively to the silver price. These issues, coupled with the almost zero R2 and a number of statistical tests performed on the Chinese model, suggested that the overall specification was flawed and failed to provide any meaningful insight on the Chinese market for silver jewelry.

Partial R^2 of Changes in Silver Price

Partial R^2 of annual change in the average silver price when using OLS

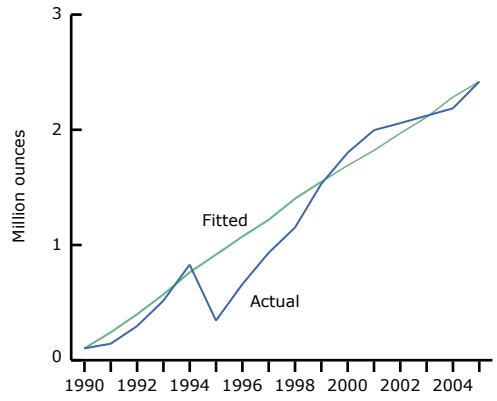
India	USA	Italy	China
0.56	0.11	0.09	0.01

Source: GFMS

The Indian model suggests that rising incomes in the country (again using GDP as a proxy) have a positive impact on silver jewelry consumption. This outcome is also in contrast to GFMS' intuition. It is our understanding that as incomes have risen in India in recent years, many people have switched from purchasing silver jewelry, as a quasi-investment, to gold, as they became capable of affording the generally favored yellow metal. One would therefore expect that any link that existed between silver jewelry consumption and incomes in India would be negative.

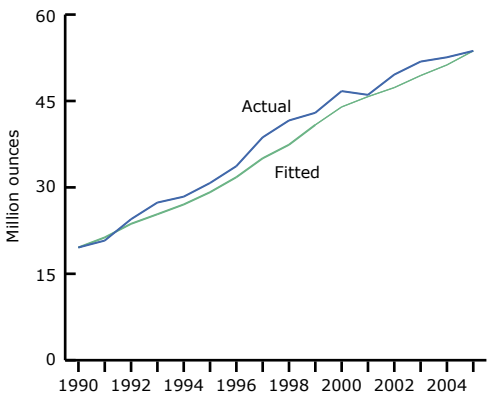
It is finally worth a mention that preliminary work on the US model had indicated that jewelry demand was inversely related to US population between the ages of 16 and 25 years old. People of this age group in fact represent a considerable portion of silver jewelry purchasers. The impact of changes in the group's size, other things remaining equal, is therefore expected to be positively related to silver jewelry consumption. This issue, coupled with the relevant tests showing the variable was highly insignificant, led us to remove it from the final specification.

Chinese Fitted & Actual Jewelry Consumption



Source: GFMS

US Fitted & Actual Jewelry Consumption



Source: GFMS

The table on page 39 features the "partial R2" statistics for the coefficient of the change in the silver price in each of the equations featured in the table below. The statistic is essentially equivalent to how much the overall R2 would change if the variable in question - in this case the change in the silver price - were removed from the specification. It is essentially an indication of what portion of the variation in jewelry consumption in each of the models can be explained by changes in the silver price. It is important to note that for the purposes of this table we re-estimated Indian consumption using OLS, so that a meaningful comparison can be made (GLS regression cannot generate a directly comparable statistic). As one can see from the figures, India is the country for which the partial R2 of the change in the silver price is highest, while for the other three countries the figures are very low to negligible.

To conclude, one should note, that despite the empirical analysis featured in this chapter being in many ways inconclusive and problematic, it nevertheless provides a number of interesting results. First of all, our contention that in most countries jewelry demand is relatively inelastic to changes in the silver price is confirmed by the low R2 and partial R2 statistics seen in the Chinese, US and Italian models. Secondly, the fact that India provides the exception to this rule is illustrated by the fact that output from the latter country's model was much closer to the actual data. Finally, the unintuitive results seen in some of the models, coupled with the poor fit mentioned above allude to jewelry consumption in most of the countries in question being primarily driven by drivers that have eluded our analysis. As was mentioned previously in this chapter, we believe these are mainly related to fashion and other exogenous trends (such as changes in market structure) and are very difficult to quantify and therefore include in our models.

Jewelry Demand Equations Estimated

Change in Indian Jewelry Consumption	=	-240.3	+	28.9	x	Change in Indian GDP	-	0.1	x	Change in Rupee /Kg Silver Price
R^2 is not available										
Change in US Jewelry Consumption	=	25.0	+	17.2	x	Change in US GDP	-	22.3	x	Change in US$ /oz Silver Price
R^2 = 0.17										
Change in Italian Jewelry Consumption	=	-8.7	+	17.4	x	Change in Italian GDP	-	0.6	x	Change in Euro /Kg Silver Price
R^2 = 0.37										
Change in Chinese Jewelry Consumption	=	6.1	-	0.2	x	Change in Chinese GDP	+	0.9	x	Change in US$ /oz Silver Price
R^2 = 0.01										

8.0 Appendices

Contents

Appendix 1

Table 1 - Silver Fabrication: Jewelry and Silverware Including the Use of Scrap (Million ounces)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe										
Italy	40.5	44.8	45.3	51.2	54.0	48.0	45.5	43.8	41.8	37.8
Germany	10.0	9.8	9.6	9.8	9.1	8.7	7.9	7.7	7.3	6.8
Poland	1.8	2.3	2.7	2.9	3.0	2.5	2.3	2.9	3.1	3.4
Greece	4.2	4.5	4.1	4.1	3.3	3.0	2.8	2.9	2.9	2.9
France	2.0	2.2	2.6	2.7	2.8	2.7	2.7	2.6	2.2	1.8
Spain	4.5	4.0	4.1	3.4	3.0	2.4	2.4	2.4	1.9	1.7
UK & Ireland	3.3	3.4	3.3	3.1	3.2	2.9	2.2	1.6	1.5	1.4
Portugal	1.9	1.9	1.9	2.1	2.1	1.8	1.6	1.7	1.5	1.3
Norway	1.1	1.1	1.1	1.5	1.6	1.5	1.3	1.3	1.2	1.0
Sweden	1.1	1.3	1.0	1.0	0.9	0.6	0.7	0.8	0.9	0.9
Denmark	0.9	1.0	0.9	0.9	0.9	0.8	0.7	0.6	0.6	0.6
Switzerland	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Cyprus & Malta	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Finland	0.8	0.8	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3
Austria	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2
Other Countries	0.7	0.8	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.7
Total Europe	**74.0**	**79.0**	**79.2**	**85.0**	**86.2**	**77.0**	**71.9**	**70.4**	**66.7**	**61.5**
North America										
Mexico	14.2	16.3	15.3	15.1	13.2	12.9	14.0	15.6	16.2	16.4
United States	12.4	12.5	12.6	13.1	13.4	13.0	13.7	15.1	15.4	15.7
Canada	1.7	1.9	2.2	1.9	1.8	1.5	1.5	1.7	1.6	1.4
Total North America	**28.4**	**30.7**	**30.1**	**30.1**	**28.4**	**27.4**	**29.3**	**32.4**	**33.2**	**33.5**
Latin America										
Brazil	1.8	1.6	1.4	1.3	1.2	1.2	1.2	1.4	1.4	1.6
Peru	1.0	1.1	1.0	1.0	0.9	0.9	0.9	0.6	0.6	0.5
Colombia	0.8	0.8	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Argentina	0.8	0.8	0.5	0.5	0.3	0.1	0.1	0.2	0.3	0.4
Ecuador	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3
Other Countries	1.0	1.4	1.7	1.9	1.2	0.9	0.8	1.0	1.2	1.3
Total Latin America	**6.0**	**6.3**	**6.1**	**5.7**	**4.5**	**4.1**	**3.9**	**4.0**	**4.3**	**4.6**
Middle East										
Turkey	5.5	5.5	5.2	4.7	5.9	4.3	5.5	6.0	6.5	5.5
Israel	2.6	3.0	2.8	2.9	2.6	2.4	2.5	2.4	2.5	2.5
Egypt	2.1	2.0	1.7	1.9	1.9	1.6	1.5	1.7	1.9	1.7
Saudi Arabia	0.4	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Other Countries	2.6	2.6	2.4	2.5	2.6	2.7	2.5	2.6	2.7	2.8
Total Middle East	**13.3**	**13.6**	**12.8**	**12.5**	**13.7**	**11.6**	**12.5**	**13.3**	**14.1**	**13.2**
Indian Sub-Continent										
India	81.2	79.9	74.4	73.6	68.0	88.4	61.7	61.7	35.4	37.6
Bangladesh & Nepal	5.8	6.4	5.1	5.7	6.0	5.9	4.8	4.5	4.2	3.7
Other Countries	2.0	2.5	1.9	2.4	2.3	1.7	1.7	1.7	1.9	1.9
Total Indian Sub-Continent	**89.0**	**88.7**	**81.5**	**81.7**	**76.3**	**96.1**	**68.2**	**67.9**	**41.5**	**43.3**
East Asia										
Thailand	27.7	27.9	27.9	30.8	30.8	32.7	32.3	36.2	36.9	36.8
China	3.0	3.7	4.8	6.9	9.1	11.5	14.3	17.1	20.5	22.6
South Korea	6.6	6.3	2.6	4.5	4.9	4.6	4.5	4.6	4.7	4.7
Indonesia	3.2	3.6	2.6	3.1	3.7	4.7	4.0	4.1	5.2	4.5
Japan	2.1	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.8	2.1
Vietnam	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.0

Appendix 1

Table 1 - Silver Fabrication: Jewelry and Silverware Including the Use of Scrap (Million ounces)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Cambodia	1.1	1.0	0.8	0.9	0.8	0.9	1.0	1.0	0.9	0.9
Malaysia	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.7
Taiwan	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.4
Hong Kong	0.9	1.0	0.6	0.6	0.5	0.5	0.4	0.3	0.3	0.3
Other Countries	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4
Total East Asia	**46.3**	**47.3**	**42.9**	**50.5**	**53.6**	**58.6**	**60.1**	**67.2**	**72.7**	**74.4**
Africa										
Morocco	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Tunisia	0.3	0.3	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	0.1	0.2	0.2	0.2
Other Countries	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total Africa	**1.2**	**1.2**	**1.2**	**1.1**	**1.2**	**1.1**	**1.1**	**1.2**	**1.2**	**1.2**
Oceania										
Australia	0.5	0.6	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.7
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Oceania	**0.6**	**0.6**	**0.7**	**0.8**	**0.8**	**0.7**	**0.8**	**0.7**	**0.8**	**0.7**
CIS										
Russia	0.9	0.8	0.7	0.8	0.9	1.3	1.7	2.5	3.5	4.4
Other Countries	0.7	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7
Total CIS	**1.6**	**1.4**	**1.1**	**1.3**	**1.5**	**1.9**	**2.4**	**3.2**	**4.2**	**5.1**
World Total	**260.3**	**269.0**	**255.5**	**268.9**	**266.2**	**278.5**	**250.2**	**260.3**	**238.7**	**237.5**

Source: GFMS

Appendix 1

Table 2 - Silver Fabrication: Jewelry and Silverware Including the Use of Scrap (tons)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe										
Italy	1,260	1,392	1,410	1,592	1,680	1,493	1,415	1,362	1,299	1,177
Germany	311	304	300	304	284	271	245	240	226	213
Poland	57	71	83	89	92	78	71	91	95	105
Greece	130	140	126	126	104	94	87	90	90	90
France	62	69	81	85	88	85	84	81	69	55
Spain	140	124	126	105	93	76	74	76	60	54
UK & Ireland	104	105	102	98	100	90	68	50	48	43
Portugal	58	59	60	66	66	55	49	52	48	42
Norway	33	33	35	47	51	46	40	42	37	32
Sweden	35	40	31	30	29	20	22	26	27	27
Denmark	28	32	29	28	29	25	21	19	18	18
Switzerland	10	9	12	10	10	10	10	10	10	10
Cyprus & Malta	13	12	11	12	12	10	10	9	9	9
Finland	26	26	18	18	14	11	11	10	9	9
Austria	13	13	15	11	8	7	7	7	7	5
Other Countries	23	26	25	24	23	23	23	22	23	22
Total Europe	**2,302**	**2,456**	**2,464**	**2,645**	**2,683**	**2,395**	**2,236**	**2,188**	**2,076**	**1,912**
North America										
Mexico	442	508	477	470	410	401	437	486	504	511
United States	387	389	391	407	418	406	426	469	478	488
Canada	53	59	67	60	57	47	48	52	50	44
Total North America	**882**	**956**	**935**	**937**	**885**	**854**	**911**	**1,007**	**1,032**	**1,043**
Latin America										
Brazil	55	50	45	40	36	36	36	42	44	50
Peru	32	33	32	30	28	29	29	20	18	16
Colombia	24	24	24	20	18	16	16	16	16	16
Argentina	26	26	16	14	8	4	4	6	10	12
Ecuador	19	19	19	15	15	12	12	10	10	8
Other Countries	31	45	54	59	37	29	25	30	37	41
Total Latin America	**187**	**197**	**179**	**169**	**139**	**126**	**122**	**122**	**129**	**135**
Middle East										
Turkey	170	171	163	147	184	135	170	188	201	171
Israel	82	92	88	89	80	74	77	75	77	79
Egypt	67	62	54	58	60	51	46	53	58	52
Saudi Arabia	12	20	16	18	20	18	18	18	19	21
Other Countries	82	80	76	77	81	83	77	79	83	86
Total Middle East	**412**	**425**	**397**	**389**	**425**	**361**	**388**	**414**	**438**	**409**
Indian Sub-Continent										
India	2,526	2,484	2,315	2,289	2,115	2,750	1,918	1,918	1,100	1,170
Bangladesh & Nepal	180	200	160	178	187	185	150	140	132	116
Other Countries	61	76	60	75	70	53	54	54	58	60
Total Indian Sub-Continent	**2,767**	**2,760**	**2,535**	**2,542**	**2,372**	**2,988**	**2,122**	**2,112**	**1,290**	**1,346**
East Asia										
Thailand	861	869	869	958	957	1,017	1,004	1,127	1,147	1,145
China	92	114	149	214	283	358	443	530	637	702
South Korea	205	197	80	140	152	144	139	144	145	147
Indonesia	98	111	80	97	116	147	124	129	162	140
Japan	65	60	55	55	54	53	52	49	56	64
Vietnam	21	22	19	22	22	23	26	28	30	32

Appendix 1

Table 2 - Silver Fabrication: Jewelry and Silverware Including the Use of Scrap (tons)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Cambodia	34	30	25	28	26	28	30	32	28	28
Malaysia	12	13	12	15	17	18	20	21	22	21
Taiwan	16	16	16	13	13	10	9	10	12	13
Hong Kong	29	31	19	19	17	15	12	10	10	10
Other Countries	9	9	9	9	10	11	11	11	11	11
Total East Asia	**1,441**	**1,471**	**1,333**	**1,571**	**1,667**	**1,823**	**1,869**	**2,091**	**2,260**	**2,313**
Africa										
Morocco	11	13	11	10	10	11	11	10	11	11
Tunisia	8	9	9	9	9	9	9	10	10	10
Algeria	7	6	5	5	5	5	4	5	5	5
Other Countries	12	11	11	11	12	11	11	12	13	13
Total Africa	**37**	**39**	**36**	**35**	**36**	**36**	**35**	**37**	**39**	**39**
Oceania										
Australia	17	18	22	23	24	22	23	22	23	22
New Zealand	0	0	1	1	1	1	1	1	1	1
Total Oceania	**17**	**18**	**23**	**24**	**25**	**23**	**24**	**23**	**24**	**23**
CIS										
Russia	29	26	20	24	29	39	54	79	110	136
Other Countries	20	18	14	17	18	19	20	21	22	23
Total CIS	**50**	**44**	**34**	**41**	**47**	**58**	**74**	**100**	**132**	**158**
World Total	**8,096**	**8,366**	**7,947**	**8,363**	**8,281**	**8,663**	**7,782**	**8,095**	**7,424**	**7,387**

Source: GFMS

Appendix 2

Table 3 - Silver Fabrication: Jewelry Including the Use of Scrap (Million ounces)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe										
Italy	21.2	25.7	26.7	34.0	38.9	37.2	36.7	35.7	34.2	31.5
Germany	3.3	3.5	3.5	4.1	3.6	3.7	3.3	3.6	3.7	3.8
Poland	1.7	2.2	2.6	2.8	2.9	2.4	2.2	2.8	3.0	3.3
France	1.8	2.0	2.4	2.5	2.6	2.5	2.4	2.4	2.0	1.5
Spain	1.9	1.8	1.7	1.4	1.4	1.4	1.5	1.7	1.3	1.4
Portugal	1.7	1.7	1.7	1.9	1.9	1.6	1.4	1.5	1.4	1.2
Greece	1.2	1.3	1.2	1.2	1.0	1.0	0.9	1.0	1.0	1.1
UK & Ireland	2.8	2.9	2.8	2.7	2.8	2.5	1.8	1.2	1.2	1.0
Sweden	0.5	0.6	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4
Denmark	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Switzerland	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cyprus & Malta	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Norway	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Finland	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Austria	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Other Countries	0.6	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.6
Total Europe	**38.2**	**43.9**	**45.1**	**53.1**	**57.6**	**54.3**	**52.4**	**52.0**	**49.9**	**46.8**
North America										
Mexico	11.4	13.1	12.3	12.1	10.5	10.4	11.5	13.0	13.6	14.0
United States	9.6	9.6	9.6	10.1	10.3	10.1	10.8	12.3	12.7	13.1
Canada	1.4	1.6	1.8	1.6	1.6	1.3	1.3	1.4	1.4	1.2
Total North America	**22.4**	**24.3**	**23.8**	**23.8**	**22.4**	**21.8**	**23.6**	**26.7**	**27.6**	**28.2**
Latin America										
Brazil	1.6	1.4	1.3	1.2	1.0	1.0	1.0	1.2	1.3	1.4
Peru	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Argentina	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2
Colombia	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Ecuador	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Other Countries	0.7	1.2	1.4	1.6	0.9	0.7	0.6	0.7	0.9	1.1
Total Latin America	**3.7**	**4.0**	**4.0**	**3.9**	**3.0**	**2.7**	**2.5**	**2.8**	**3.1**	**3.4**
Middle East										
Turkey	2.0	2.3	2.1	1.9	3.2	2.6	3.2	3.6	4.2	3.3
Egypt	1.7	1.6	1.4	1.5	1.5	1.3	1.2	1.4	1.5	1.4
Saudi Arabia	0.3	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Israel	0.5	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3
Other Countries	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2
Total Middle East	**5.3**	**5.8**	**5.5**	**5.4**	**6.9**	**5.8**	**6.3**	**6.9**	**7.6**	**6.7**
Indian Sub-Continent										
India	33.8	27.6	20.9	24.4	28.4	33.2	25.9	25.7	16.1	18.0
Bangladesh & Nepal	2.4	2.2	1.4	1.9	2.4	2.2	2.0	1.9	1.9	1.8
Other Countries	0.9	1.4	0.9	1.1	1.0	0.8	0.8	0.8	0.8	0.9
Total Indian Sub-Continent	**37.0**	**31.3**	**23.2**	**27.4**	**31.8**	**36.2**	**28.7**	**28.4**	**18.8**	**20.7**
East Asia										
Thailand	23.6	24.0	24.4	27.3	27.2	28.8	28.4	32.1	32.5	32.3
China	2.2	2.8	3.7	5.3	7.0	8.8	11.0	13.1	15.6	17.4
South Korea	4.4	4.4	2.1	3.7	4.0	3.8	3.8	3.9	4.0	3.9
Indonesia	2.7	3.0	2.2	2.7	3.2	4.1	3.3	3.5	4.5	3.7
Japan	1.9	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.8	2.0
Vietnam	0.6	0.6	0.5	0.6	0.6	0.7	0.8	0.8	0.9	0.9

Appendix 2

Table 3 - Silver Fabrication: Jewelry Including the Use of Scrap (Million ounces)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Cambodia	0.7	0.6	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.6
Malaysia	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Taiwan	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3
Hong Kong	0.6	0.7	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2
Other Countries	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Total East Asia	**37.5**	**38.8**	**36.4**	**43.3**	**45.6**	**49.8**	**50.8**	**57.0**	**61.2**	**62.3**
Africa										
Morocco	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
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	0.3	0.3	0.3	0.3
Total Africa	**0.9**	**1.0**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**
Oceania										
Australia	0.5	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Oceania	**0.5**	**0.5**	**0.7**	**0.7**	**0.8**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**
CIS										
Russia	0.3	0.3	0.2	0.3	0.3	0.4	0.6	0.9	1.2	1.5
Other Countries	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Total CIS	**0.8**	**0.7**	**0.6**	**0.7**	**0.7**	**0.9**	**1.1**	**1.4**	**1.8**	**2.1**
World Total	**146.4**	**150.3**	**140.1**	**159.1**	**169.7**	**173.0**	**166.9**	**176.7**	**171.7**	**171.8**

Source: GFMS

Appendix 2

Table 4 - Silver Fabrication: Jewelry Including the Use of Scrap (Tons)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe										
Italy	660	800	830	1,058	1,210	1,157	1,142	1,110	1,065	980
Germany	104	109	108	126	112	114	104	113	116	118
Poland	54	68	80	86	89	75	68	88	92	102
France	56	63	74	78	80	77	76	74	62	48
Spain	60	56	54	45	45	42	46	52	40	42
Portugal	52	53	54	59	59	49	44	47	43	37
Greece	36	40	36	36	32	30	28	30	32	34
UK & Ireland	88	90	88	85	87	77	56	38	36	32
Sweden	16	18	14	14	13	9	10	12	12	12
Denmark	13	14	13	12	13	11	10	9	8	8
Switzerland	7	6	9	7	7	7	7	7	7	7
Cyprus & Malta	9	8	8	9	8	7	7	6	7	7
Norway	5	5	5	7	8	7	6	6	6	5
Finland	8	8	6	5	4	3	3	3	3	3
Austria	2	3	4	4	4	3	3	3	3	2
Other Countries	20	22	21	21	20	20	20	19	20	19
Total Europe	**1,189**	**1,364**	**1,404**	**1,652**	**1,791**	**1,690**	**1,629**	**1,617**	**1,552**	**1,456**
North America										
Mexico	354	406	382	376	328	325	358	403	423	434
United States	298	300	300	313	320	314	337	382	394	407
Canada	44	50	57	51	49	39	40	44	42	36
Total North America	**696**	**756**	**739**	**740**	**697**	**678**	**735**	**829**	**859**	**877**
Latin America										
Brazil	49	45	40	36	32	32	32	38	40	45
Peru	12	12	12	12	12	13	13	10	9	8
Colombia	8	8	8	6	6	6	6	6	6	6
Ecuador	10	10	10	8	8	7	7	6	6	5
Argentina	13	13	10	8	5	3	3	4	7	7
Other Countries	22	36	45	51	29	22	17	23	29	34
Total Latin America	**114**	**124**	**125**	**121**	**93**	**83**	**78**	**87**	**97**	**105**
Middle East										
Turkey	61	70	66	59	101	80	100	113	129	104
Egypt	52	49	43	46	47	40	36	44	48	43
Saudi Arabia	9	15	12	14	16	15	15	15	16	17
Israel	16	18	17	17	15	12	11	10	9	10
Other Countries	27	30	32	32	34	34	33	33	34	36
Total Middle East	**166**	**181**	**170**	**168**	**213**	**180**	**195**	**214**	**237**	**209**
Indian Sub-Continent										
India	1,050	860	650	758	885	1,032	804	800	500	560
Bangladesh & Nepal	75	69	45	59	74	69	63	58	60	56
Other Countries	27	43	27	34	32	24	24	24	26	27
Total Indian Sub-Continent	**1,152**	**972**	**722**	**851**	**990**	**1,125**	**891**	**883**	**586**	**643**
East Asia										
Thailand	734	745	760	850	845	896	884	999	1,011	1,005
China	69	86	115	165	218	275	341	408	486	540
South Korea	137	138	64	115	126	118	117	121	123	122
Indonesia	83	93	69	84	99	128	103	108	139	117
Japan	60	56	52	53	52	51	50	48	55	63
Vietnam	19	20	17	20	20	21	24	26	27	29

Appendix 2

Table 4 - Silver Fabrication: Jewelry Including the Use of Scrap (Tons)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Cambodia	21	20	17	19	18	20	21	23	20	20
Malaysia	11	12	11	14	16	17	18	19	20	19
Taiwan	9	9	10	8	8	6	6	7	8	9
Hong Kong	18	22	12	12	11	10	8	7	7	7
Other Countries	6	6	6	6	7	8	8	8	8	8
Total East Asia	**1,167**	**1,207**	**1,133**	**1,346**	**1,420**	**1,549**	**1,579**	**1,772**	**1,905**	**1,939**
Africa										
Morocco	9	11	9	8	8	9	8	8	8	8
Tunisia	6	6	6	6	7	6	6	7	7	7
Algeria	5	4	4	4	4	3	3	3	4	4
Other Countries	9	9	9	9	9	9	9	10	10	10
Total Africa	**29**	**30**	**27**	**27**	**28**	**27**	**27**	**28**	**29**	**29**
Oceania										
Australia	16	17	21	22	23	21	22	21	21	21
New Zealand	0	0	1	1	1	1	1	1	1	1
Total Oceania	**16**	**17**	**21**	**22**	**24**	**22**	**23**	**22**	**22**	**22**
CIS										
Russia	10	9	7	9	10	14	19	28	38	47
Other Countries	15	13	10	13	13	14	15	16	16	17
Total CIS	**25**	**23**	**18**	**21**	**23**	**28**	**34**	**43**	**55**	**64**
World Total	**4,554**	**4,674**	**4,358**	**4,949**	**5,279**	**5,382**	**5,190**	**5,495**	**5,342**	**5,345**

Source: GFMS

Appendix 3

Table 5 - Silver Fabrication: Silverware Including the Use of Scrap (Million ounces)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe										
Italy	19.3	19.0	18.6	17.2	15.1	10.8	8.8	8.1	7.5	6.3
Germany	6.7	6.3	6.2	5.7	5.5	5.0	4.5	4.1	3.5	3.0
Greece	3.0	3.2	2.9	2.9	2.3	2.1	1.9	1.9	1.9	1.8
Norway	0.9	0.9	1.0	1.3	1.4	1.3	1.1	1.1	1.0	0.9
Sweden	0.6	0.7	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5
Spain	2.6	2.2	2.3	1.9	1.5	1.1	0.9	0.8	0.6	0.4
UK & Ireland	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Denmark	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3
France	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2
Finland	0.6	0.6	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2
Portugal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Austria	0.4	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Poland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Switzerland	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cyprus & Malta	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Europe	**35.8**	**35.1**	**34.1**	**31.9**	**28.6**	**22.7**	**19.5**	**18.4**	**16.8**	**14.6**
North America										
United States	2.9	2.9	2.9	3.0	3.2	2.9	2.9	2.8	2.7	2.6
Mexico	2.8	3.3	3.1	3.0	2.6	2.4	2.5	2.7	2.6	2.5
Canada	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total North America	**6.0**	**6.5**	**6.3**	**6.3**	**6.1**	**5.6**	**5.7**	**5.7**	**5.6**	**5.3**
Latin America										
Colombia	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3
Peru	0.6	0.7	0.6	0.6	0.5	0.5	0.5	0.3	0.3	0.3
Brazil	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Ecuador	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Argentina	0.4	0.4	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.2
Other Countries	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Total Latin America	**2.4**	**2.4**	**2.1**	**1.8**	**1.6**	**1.4**	**1.4**	**1.2**	**1.2**	**1.2**
Middle East										
Israel	2.1	2.4	2.3	2.3	2.1	2.0	2.1	2.1	2.2	2.2
Turkey	3.5	3.2	3.1	2.8	2.7	1.8	2.3	2.4	2.3	2.2
Egypt	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Saudi Arabia	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Countries	1.8	1.6	1.4	1.5	1.5	1.6	1.4	1.5	1.6	1.6
Total Middle East	**7.9**	**7.8**	**7.3**	**7.1**	**6.8**	**5.8**	**6.2**	**6.4**	**6.5**	**6.4**
Indian Sub-Continent										
India	47.5	52.2	53.5	49.2	39.5	55.2	35.8	35.9	19.3	19.6
Bangladesh & Nepal	3.4	4.2	3.7	3.8	3.6	3.7	2.8	2.6	2.3	1.9
Other Countries	1.1	1.1	1.1	1.3	1.2	0.9	1.0	1.0	1.0	1.1
Total Indian Sub-Continent	**51.9**	**57.5**	**58.3**	**54.4**	**44.4**	**59.9**	**39.6**	**39.5**	**22.6**	**22.6**
East Asia										
China	0.8	0.9	1.1	1.6	2.1	2.7	3.3	3.9	4.8	5.2
Thailand	4.1	4.0	3.5	3.5	3.6	3.9	3.9	4.1	4.4	4.5
South Korea	2.2	1.9	0.5	0.8	0.8	0.8	0.7	0.7	0.7	0.8
Indonesia	0.5	0.6	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.8
Cambodia	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Appendix 3

Table 5 - Silver Fabrication: Silverware Including the Use of Scrap (Million ounces)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Taiwan	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Hong Kong	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Vietnam	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Malaysia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Japan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Other Countries	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total East Asia	**8.8**	**8.5**	**6.4**	**7.2**	**8.0**	**8.8**	**9.3**	**10.2**	**11.4**	**12.0**
Africa										
Tunisia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Morocco	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Algeria	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Other Countries	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Africa	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
Oceania										
Australia	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	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**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CIS										
Russia	0.6	0.5	0.4	0.5	0.6	0.8	1.1	1.6	2.3	2.8
Other Countries	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Total CIS	**0.8**	**0.7**	**0.5**	**0.7**	**0.8**	**1.0**	**1.3**	**1.8**	**2.5**	**3.0**
World Total	**113.9**	**118.7**	**115.4**	**109.8**	**96.5**	**105.5**	**83.3**	**83.6**	**67.0**	**65.7**

Source: GFMS

Appendix 3

Table 6 - Silver Fabrication: Silverware Including the Use of Scrap (Tons)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Europe										
Italy	600	592	580	534	470	336	273	252	234	197
Germany	207	195	192	178	172	157	142	128	110	95
Greece	94	100	90	90	72	64	59	60	58	56
Norway	28	28	30	40	44	39	34	35	31	27
Sweden	19	22	17	17	16	11	12	14	15	15
Spain	80	68	72	60	48	34	28	24	20	12
UK & Ireland	16	15	14	13	13	13	12	12	12	11
Denmark	15	18	16	15	16	14	12	11	10	10
France	6	6	7	7	8	8	8	8	7	7
Finland	18	18	13	13	10	8	8	7	6	6
Portugal	6	6	6	7	7	5	5	5	5	4
Austria	11	10	11	7	4	4	4	4	4	4
Poland	3	3	3	3	3	3	3	3	3	3
Switzerland	3	3	3	3	3	3	3	3	3	3
Cyprus & Malta	4	4	3	4	4	3	3	3	3	3
Other Countries	3	4	3	3	3	3	3	3	3	3
Total Europe	**1,113**	**1,091**	**1,060**	**993**	**891**	**705**	**608**	**571**	**524**	**455**
North America										
United States	89	90	91	94	98	91	89	87	84	81
Mexico	88	102	95	94	82	76	79	83	81	77
Canada	9	9	10	9	8	8	8	8	8	8
Total North America	**186**	**201**	**196**	**197**	**188**	**175**	**176**	**178**	**173**	**166**
Latin America										
Colombia	16	16	16	14	12	10	10	10	10	10
Peru	20	21	20	18	16	16	16	10	9	8
Brazil	6	5	5	4	4	4	4	4	4	5
Ecuador	9	9	9	7	7	5	5	4	4	3
Argentina	13	13	6	6	3	1	1	2	3	5
Other Countries	9	9	9	8	7	7	7	7	8	8
Total Latin America	**73**	**73**	**66**	**57**	**49**	**43**	**43**	**37**	**38**	**39**
Middle East										
Israel	66	74	71	72	65	62	66	65	68	70
Turkey	109	101	97	87	83	55	70	75	71	68
Egypt	14	13	11	12	13	11	10	10	10	9
Saudi Arabia	3	5	4	4	4	4	3	3	4	4
Other Countries	55	51	44	45	47	50	44	46	48	50
Total Middle East	**247**	**243**	**227**	**221**	**211**	**181**	**194**	**199**	**201**	**200**
Indian Sub-Continent										
India	1,476	1,624	1,665	1,531	1,230	1,718	1,114	1,118	600	610
Bangladesh & Nepal	105	131	115	119	113	116	87	82	72	60
Other Countries	34	34	33	41	39	29	30	30	32	33
Total Indian Sub-Continent	**1,615**	**1,788**	**1,813**	**1,691**	**1,381**	**1,863**	**1,231**	**1,229**	**704**	**703**
East Asia										
China	24	28	34	49	65	83	102	122	151	162
Thailand	127	124	109	108	112	121	121	129	136	140
South Korea	68	59	16	25	26	26	22	23	22	25
Indonesia	15	18	11	13	17	19	21	21	23	23
Cambodia	13	11	8	9	8	8	9	9	8	8
Taiwan	6	6	6	5	5	4	3	4	4	4

Appendix 3

Table 6 - Silver Fabrication: Silverware Including the Use of Scrap (Tons)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Hong Kong	10	9	7	7	6	5	4	3	3	3
Vietnam	2	2	2	2	2	2	2	3	3	3
Malaysia	1	1	1	1	1	1	2	2	2	2
Japan	5	4	3	2	2	2	2	1	1	1
Other Countries	3	3	3	3	3	3	3	3	3	3
Total East Asia	**274**	**264**	**200**	**225**	**247**	**273**	**290**	**319**	**355**	**374**
Africa										
Tunisia	2	3	3	3	3	3	3	3	3	3
Morocco	2	2	2	2	2	2	2	2	2	2
Algeria	2	2	2	2	2	1	1	1	2	2
Other Countries	3	2	2	2	2	2	2	2	2	2
Total Africa	**9**	**9**	**8**	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Oceania										
Australia	1	1	2	2	2	1	1	1	1	1
New Zealand	0	0	0	0	0	0	0	0	0	0
Total Oceania	**1**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**
CIS										
Russia	19	17	13	16	19	25	35	51	71	88
Other Countries	5	5	4	4	5	5	5	5	6	6
Total CIS	**24**	**22**	**17**	**20**	**23**	**30**	**40**	**57**	**77**	**94**
World Total	**3,542**	**3,693**	**3,589**	**3,414**	**3,002**	**3,281**	**2,592**	**2,600**	**2,082**	**2,042**

Source: GFMS

Appendix 4

Table 7 - Silver Jewelry Consumption, Top 10 Countries

(Million Ounces)

	2000	2001	2002	2003	2004	2005
United States	46.7	46.1	49.6	51.8	52.6	53.7
India	24.8	28.9	19.7	19.2	11.1	14.7
Germany	10.2	10.7	11.0	11.7	11.8	12.0
Italy	10.5	11.3	11.3	11.6	10.9	9.5
Mexico	6.8	7.1	8.2	9.3	8.9	9.1
Japan	5.2	5.8	5.8	6.1	6.6	7.0
UK & Ireland	3.7	4.5	4.9	5.1	4.9	5.1
France	3.9	4.1	4.1	4.5	5.0	5.0
Poland	3.1	2.7	2.5	3.2	3.5	3.9
Canada	2.6	3.1	3.2	3.4	3.4	3.6

(Tons)

	2000	2001	2002	2003	2004	2005
United States	1,453	1,433	1,542	1,612	1,636	1,670
India	773	899	613	596	345	457
Germany	318	332	341	362	366	375
Italy	326	352	350	360	339	296
Mexico	211	221	255	288	276	282
Japan	161	180	182	190	205	217
UK & Ireland	115	139	153	157	153	159
France	120	128	128	139	155	156
Poland	97	84	79	100	108	121
Canada	81	97	101	105	106	112

Source: GFMS

About GFMS

GFMS is an independent London-based research company, focused on the gold, silver and PGM markets, and best known for its flagship publication, the annual Gold Survey.

GFMS is based in London, UK, but has representation in Australia, China, India, France, Spain and Russia, and a vast range of contacts and associates across the world.

Since its inception in August 1989 GFMS' activities have grown steadily and we have expanded our portfolio of services which now includes consultancy services, seminars and price forecasts. Today we are widely regarded as the most authoritative source of information on the global gold, silver and PGM markets.

GFMS Group of companies:

- GFMS Limited: Precious Metals - www.gfms.co.uk
- GFMS Metals Consulting: Base Metals & Steel - www.gfms-metalsconsulting.com
- GFMS Mining & Exploration Consulting: Mining & Exploration - www.gfmsmining.com
- GFMS Analytics: Immediate Market Analysis - www.gfmsanalytics.com

GFMS Limited
Hedges House
153-155 Regent Street
London
W1B 4JE
United Kingdom
Tel: +44 (0)20 7478 1777
Fax: +44 (0)20 7478 1779
E-mail: gold@gfms.co.uk
Web: www.gfms.co.uk