WATTS, J.C., CLARKE, B., and ATILAN, O. Jewellery shocks from China and India . *The 4th International Platinum Conference, Platinum in transition 'Boom or Bust',* The Southern African Institute of Mining and Metallurgy, 2010.

Jewellery shocks from China and India

J.C. WATTS, B. CLARKE, and O. ATILAN
SFA (Oxford) Ltd, UK

Jewellery as an end use for platinum is an essential cushion to falling platinum prices in times of poor industrial demand. Indeed, demand peaked at 34% of total demand in 2009 as the automotive sector collapsed and the corresponding low platinum price prompted significant restocking in China.

SFA has developed sophisticated models to understand price and income elasticities of platinum jewellery demand. This modelling revealed that China has the highest price and income elasticity, while Europe shows very low price elasticity and Japan shows the lowest income elasticity. China is now the swing jewellery market, accounting for some 65% of the platinum jewellery market and 22% of total platinum demand. Total platinum jewellery demand is projected to move from 2.01 moz in 2009 to 1.8 moz in 2010. India holds significant upside for platinum jewellery demand; it is a country with a very strong jewellery tradition coupled with aggressive marketing campaigns targeting outward-looking young urban consumers.

Platinum jewellery demand migrates from Japan to China—and India?

Jewellery has long made up a significant part of platinum demand, comprising 38% of demand in 1991, 34% of demand in 2009 and a forecast 22% of demand in 2018. Within this there have been dramatic shifts across Asia. In 1991, Japan dominated the platinum jewellery market, accounting for 86% of demand. 1998 was the first year in which demand for platinum jewellery in China was recorded, at 26% of demand, whereas Japanese demand had already declined to 53%. Over the next decade, Chinese demand grew rapidly to make up 51% of demand by 2008, with the Japanese share declining to 16%, shown in Figure 1.

SFA forecasts that by 2018 China will make up 64% of platinum jewellery offtake while Japanese demand will decline further to only 8%.

SFA has developed sophisticated mathematical models to understand price and income elasticities of platinum jewellery demand. This modelling revealed that China has the highest price and income elasticity, while Europe shows very low price elasticity and Japan shows the lowest income elasticity.

Automotive crash—Chinese jewellery market to the rescue

Jewellery's significance in the platinum market grew from 21% of total demand in 2008 to 34% in 2009. The collapse of the automotive industry led to an estimated 1.1 moz loss

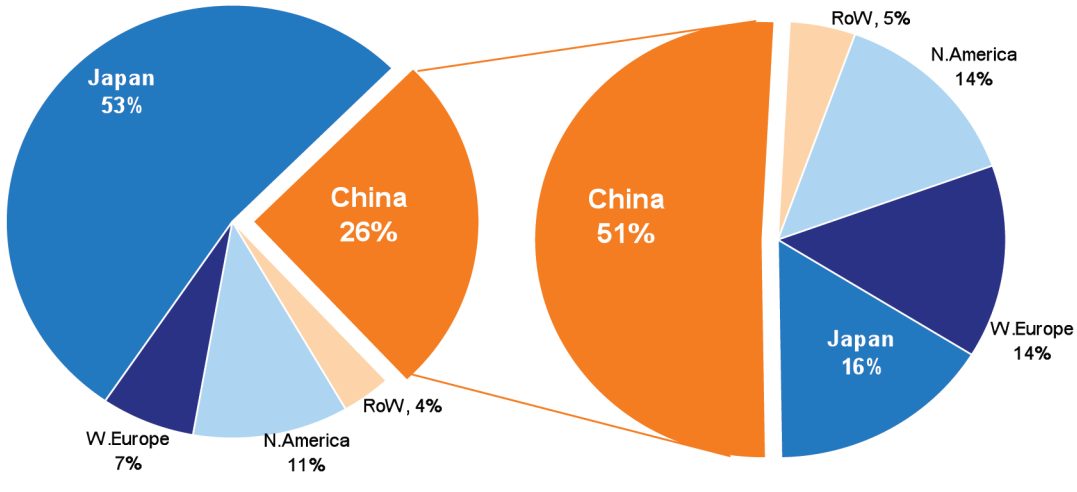

Figure 1. Regional jewellery demand split for 1998 and 2008. Source: SFA (Oxford)

in demand to 2.64 moz, which reduced the dominance of the sector to 44% of total demand from 53% the previous year. Together automotive and jewellery demand accounted for 78% of total demand in 2009.

Jewellery offtake is vital to provide a cushion to falling platinum prices in times of poor autocatalytic and industrial demand. Sustained high platinum prices over the last few years have prompted substitution to palladium in autocatalysts, while the recent collapse of automotive demand led to reduced platinum prices. China dominates the market for platinum jewellery and exhibits high sensitivity to price; demand increased during price dips. Falling auto sales in 2008, leading to the platinum price collapse in mid-2008, ignited platinum jewellery buying in China. Jewellery demand continued to pick up into 2009 and added 470 koz to the year's total jewellery demand at just over 2 moz (China accounted for 450 koz of the increase by reaching 1.3 moz). Thus, while increased jewellery demand cannot entirely replace the loss from the automotive sector, it is nevertheless a very important cushion to falling prices and industrial demand. However, as the secondary use of platinum metal after autocatalysts, jewellery demand would have to increase significantly to become a price-maker.

Jewellery's share of demand is forecast to reduce as automotive demand recovers. Jewellery is forecast to remain the second major use for platinum. From 34% of total demand in 2009, our modelling suggests the share of total demand is projected to reduce to 28%, shown in Figure 2. By 2019, jewellery demand is forecast to fall back to 1.84 moz.

The Chinese platinum jewellery market in context

Platinum's popularity in China began to accelerate with the expansion of the economy in the 1990s. The rapid growth of the Chinese platinum jewellery market during the latter part of the decade came about from a combination of rapidly spreading demand, huge expansion of manufacturing facilities and substantial stock build in shops. Platinum jewellery had by this time become desirable in the outlying provinces too, in addition to the trend-setting cities of Beijing and Shanghai. Compared to other regions, Chinese jewellery pieces at this time tended to be very lightweight, with a high proportion of the customer base having only modest personal wealth (principally spent on jewellery intended for the mass market). The purity of platinum used in jewellery remains key to its popularity in China, with a long-established cultural preference for pure metal.

Despite new investment options and reduced consumption tax, high metal prices depressed platinum jewellery demand in 2004. Platinum trading on the Shanghai Gold Exchange (SGE) began in August 2004, enabling manufacturers more easily to obtain metal and, most importantly, reducing VAT on platinum from 17% to 0%. Concurrently, the consumption tax on platinum jewellery was halved from 10% to 5%. Chinese purchases of platinum for jewellery dropped almost 20% in 2004, as the rapid price rises in the first part of the year squeezed manufacturers' margins. Many manufacturers moved to palladium instead, which was far more profitable at the time. A fabricator then typically achieved margins only of 2% for platinum compared to 11% for palladium and 24% for 18 ct gold, while a retailer could make 12% for platinum compared to 62% for palladium and 33% for 18 ct gold.

Metal stocks were drawn down to resist purchasing metal, while palladium began to grow in popularity with manufacturers as a white metal substitute. The sustained rise of the platinum price through 2004 and 2005 increased the cost of financing inventories, prompting reductions in stock levels throughout the supply chain. Jewellery manufacturers rapidly expanded production of palladium pieces with their higher profit margins and lower metal financing costs. High platinum prices cause manufacturers to cut back on production and stocks of platinum products, generally producing only to firm orders. For a given investment, wholesalers can, of course, stock significantly more white gold or palladium jewellery pieces.

Despite the high and volatile prices of 2006, Chinese demand, especially bridal, remained strong. During the year, every dip in price was met with strong physical buying on the SGE. Recycling continued apace; in this relatively new market designs have evolved rapidly and style-conscious customers and retailers are quick to trade in outmoded or unpopular designs. This substantial recycling meant that reported metal demand was significantly less than manufactured jewellery production. The government responded to rising income inequality and excessive consumption by some groups by increasing taxes, including on imported luxury goods. In 2007, the Chinese emphasis on metal purity led some manufacturers to launch Pt999 products (compared to normal Pt990 or Pt950) in an effort to generate new demand, though this is only a negligible part of jewellery fabrication. The promotion of pair rings for weddings also increased considerably.

Figure 2. Jewellery vs. automotive platinum standard. Source: SFA (Oxford)

GDP is the main driver of platinum jewellery demand

SFA has developed mathematical models to understand price and income elasticities of platinum jewellery demand.

The results in Figures 3 show the percentage change in demand with a 1% change in the respective variable.

So, from the basic model results, for China a 1% increase in the platinum price could lead to a 3.9% decrease in demand for platinum jewellery. Similarly, for North America a 1% increase in incomes could lead to a 6.3% increase in demand for platinum jewellery.

The results show that China has high sensitivity to both price and GDP growth, with elasticity to price being much higher in China than in other regions. China is an immature market undergoing a rapid growth phase; however, this is not sustainable and elasticities should reduce over time. Sensitivities drop significantly when testing the more recent time period.

The rest of the world region includes India and is a very complex collection of producing and consuming economies that has a strong market for gold jewellery. In the extended model, with income elasticity of 2.1 and price elasticity of -0.9 the relevance of gold prices is revealed. This is appropriate for a region where there has been a large market for gold jewellery, and hence there is a strong substitution effect. Demand in the rest of the world is projected to increase by only 14 koz from a low base of 70 koz to 84 koz by 2018.

Jewellery has a much reduced ability to increase platinum prices

Jewellery is forecast to represent only 20–27% of platinum demand over the next ten years. Autocatalyst–based platinum demand has accelerated in the past decade, accounting now for ~4 moz. Jewellery accounts for around 1.3 moz, under a third of the metal employed in autocatalysts. Consequently, jewellery demand no longer has a significant effect on increasing the platinum metal price.

Jewellery demand growth is projected to peak in 2015

Following the boom in platinum jewellery demand seen in 2009, jewellery demand is expected to settle in 2010, and our model indicates the next demand peak will be in 2015 at around 1.5 moz. The rate of Chinese platinum jewellery demand growth is influenced by the relative strength of opposing factors; market economics suggests growing GDP elasticity decay rates will slow demand growth, while positive demographics are expected to boost demand.

Chinese jewellery purchasing is driven more by ritual and tradition than in the west. Platinum is established as the jewellery metal of choice now in China: 50% of young high income females surveyed in the top five Chinese cities said it was their favourite precious metal. There is a demographic bulge of urban marrying-age couples (from the 1980s baby boom) between 2010 and 2015, who are strongly inclined to buy platinum wedding jewellery. The number of weddings is expected to grow by 10% a year over this period, with spending rising ahead at 20%.

China is an immature market undergoing a rapid growth phase with high price (-2.26 to -3.92) and income elasticities (4.73 to 5.66). However, this is not long-term sustainable and elasticities should reduce over time. Chinese consumer expenditure is projected to double over the next eight years (source: *Oxford Economics*) while it rises from 39% to 43% as a percentage of total GDP over the same period. In comparative terms GDP and consumer expenditure are set to outpace price increases by around 3:1. Platinum in real yuan prices is likely to remain relatively flat over the next five years as local inflation outpaces the dollar price, while GDP grows at 9% per annum during the next three years, before settling to 7% per annum. Flat real platinum prices in China are expected to allow buying for the jewellery market to resume.

India—does the greatest jewellery market have a place for platinum?

Platinum jewellery is gaining share in urban India, historically the largest market globally for gold jewellery. Indian consumers buy jewellery—traditionally gold—at every auspicious occasion in their lives and following the festival calendar.

Platinum jewellery items are now widely available: various sizes, types and weights are on sale at most mid-size jewellery makers and sellers in Tier I and Tier II cities. Chennai is the largest domestic market for platinum jewellery since its introduction to India five years ago. Simple designs are popular among both men and women, principally rings, pendants or delicate chains in the Rs 1-2 lakh category, according to leading jeweller GRT. Engagement rings and simple pendants are currently the best sellers. Combinations of platinum and white gold have

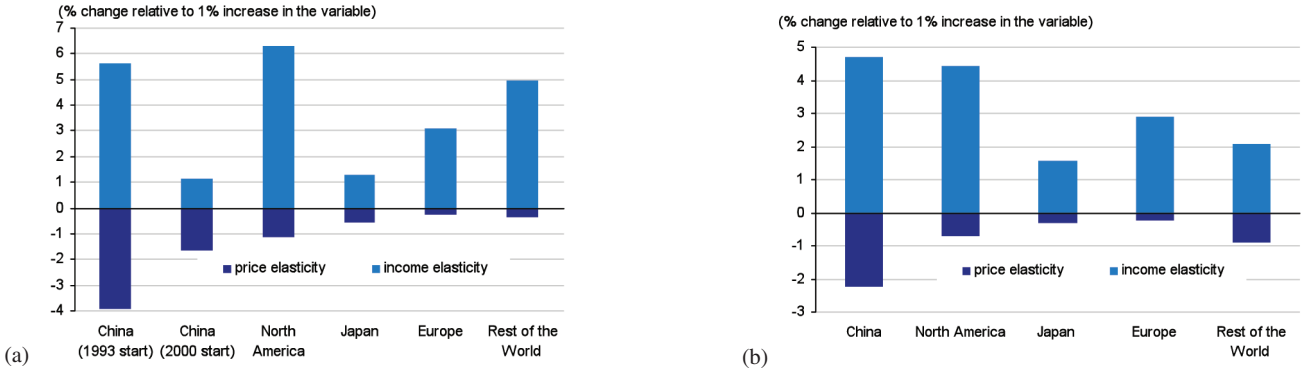

Figure 3. (a) Price and income elasticities by region: basic model and (b) price and income elasticities by region: extended model. Source: SFA (Oxford)

become very popular among the upmarket buyers of Kerala.

Platinum jewellery manufacturers are targeting the high disposable income 20–40 age group consumers, who are most receptive to new trends. GRT also introduced platinum coins for Akshaya Trithiya, an auspicious time (May 16) to buy gold, following surging platinum demand.

Sales of platinum jewellery are closely linked to the platinum: gold relative price; when platinum was much more expensive than gold it was seen as unattainable, but investment-driven gold price rises brought the metals closer to parity, bringing platinum into the frame for many first time buyers. Consumers are attracted by the strong resale value of platinum, so regard it as a safe investment, long an important part of the popularity of gold jewellery.

Conclusions

Jewellery demand has hitherto been rather opaque, leaving significant uncertainty in overall platinum demand forecasts. Modelling demand elasticity in the way we have shown here gives a unique insight into the drivers behind changes in platinum jewellery demand. Understanding the drivers of demand allows us to make a robust forecast of platinum jewellery demand in each key region. A soundly based forecast is an essential tool for new project planning, surviving industrial demand shocks and developing appropriate pricing models for metal supply into the jewellery market.

Jewellery is and will remain a vital cushion to falling prices in times of weak industrial demand for platinum. China is the swing jewellery consumer, accounting for 65% of the platinum jewellery market and 22% of total platinum demand. China, and to a small extent the rest of the world, will be the engine of platinum demand growth, contributing 1 352 koz (64%) of the forecast 2 123 koz consumption by 2018. India holds exciting prospects for platinum; even if platinum gains only a relatively small share, it is a large jewellery market.

Jenny Watts

Consulting Technology & Development Analyst

Jenny Watts is a versatile, innovative scientist with extensive business/academia/research liaison experience. She has unique expertise, enabling her to specialise in the autocatalysis sector, providing full evaluation of historical and forecast PGM use in this sector, assessing impact of future environmental legislation and future transport technology trends. Jenny spent several years working for the Cookson Group plc and Cookson Matthey plc on analytical projects in the industrial minerals sector and developing new materials for the ceramics, steel and telecoms market, with several patents granted.