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# The Impact of High Prices on Fabrication Demand for Precious Metals

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# The Impact of High Prices on Fabrication Demand for Precious Metals

- Overview

- Gold

- Silver

- Platinum

- Palladium

- Conclusion

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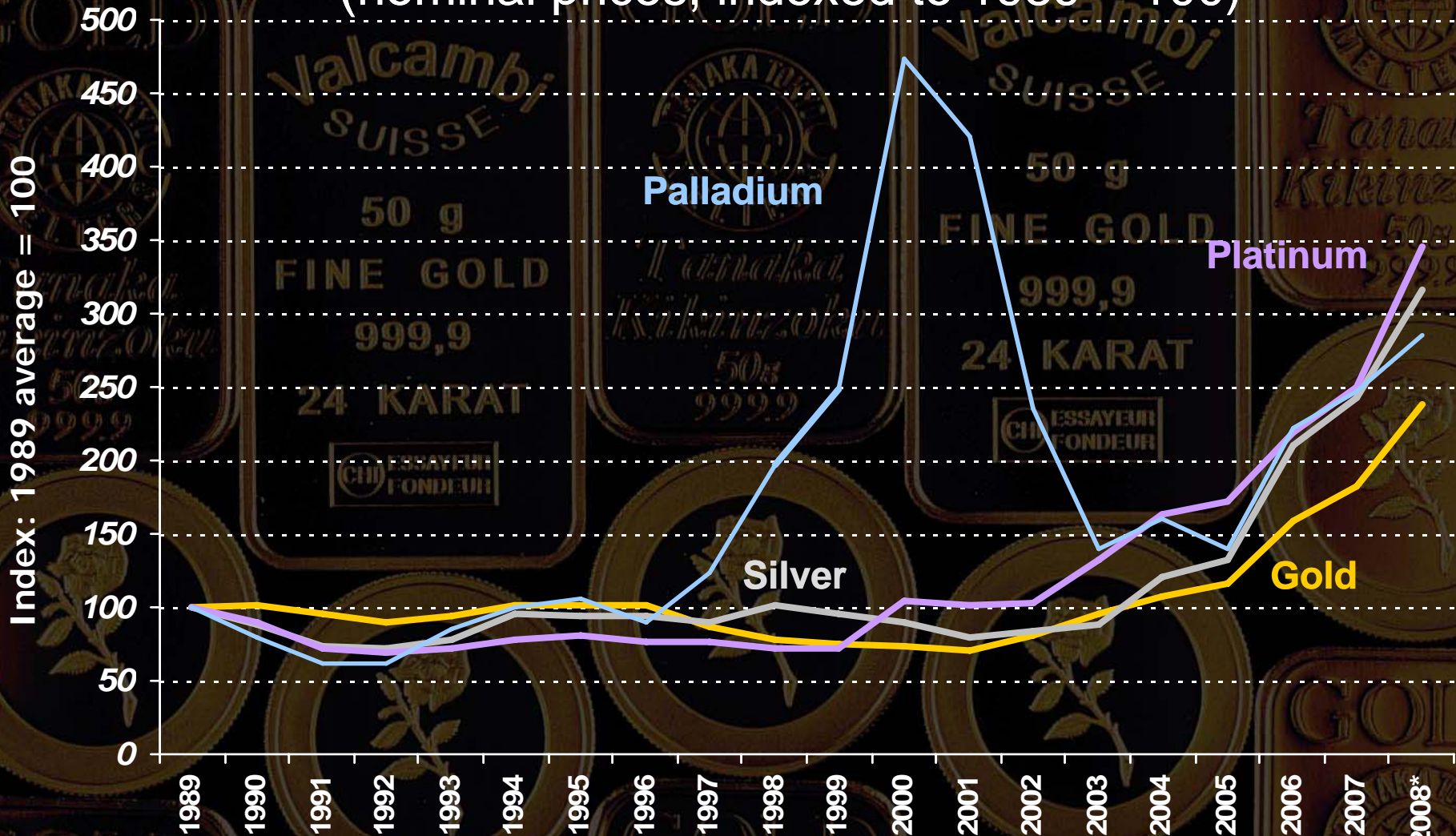
# Overview

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# Gold, Silver, Platinum and Palladium Prices

(nominal prices, indexed to 1989 = 100)



\*2008 = Jan-Aug average

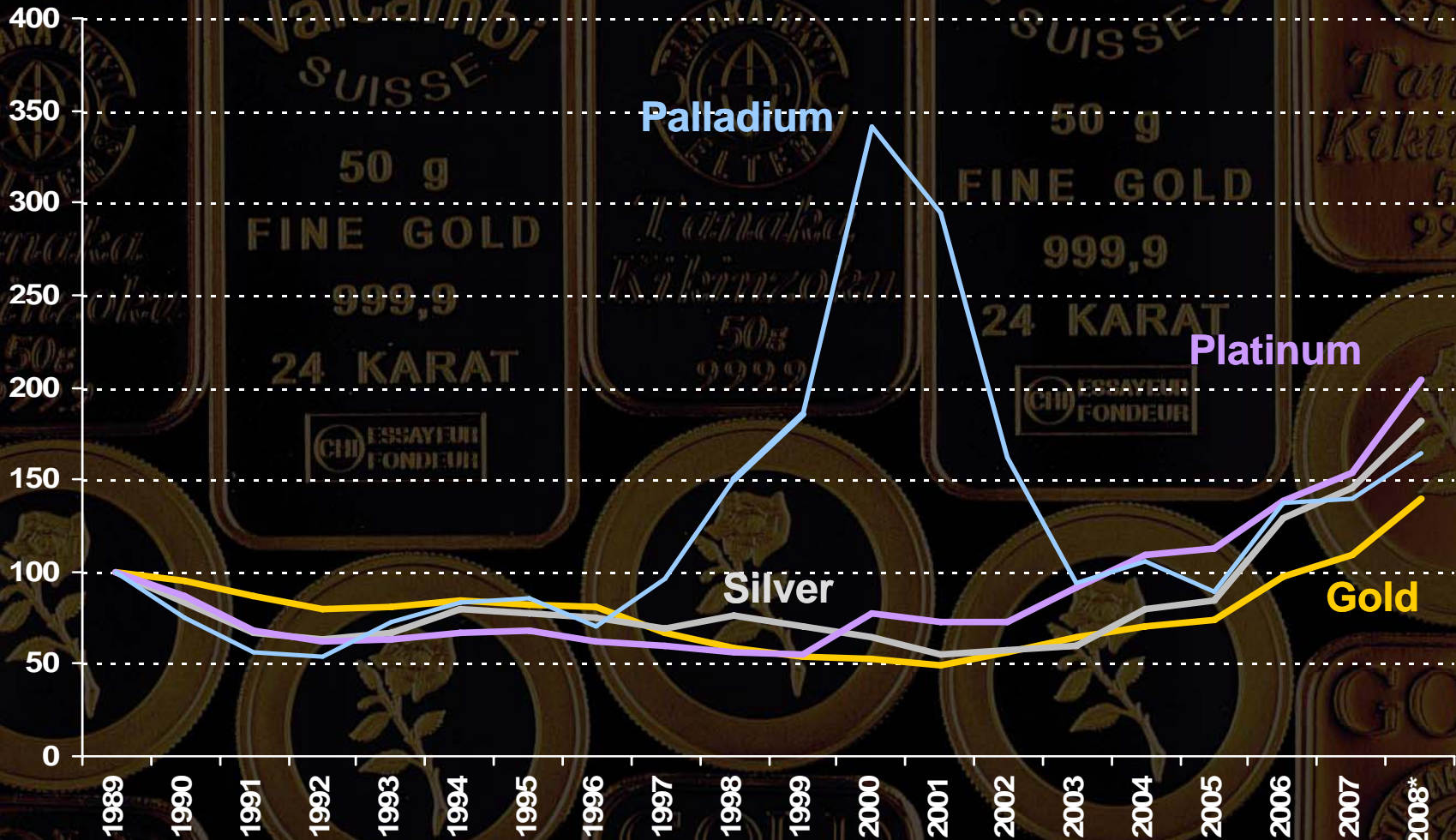
Source: GFMS Ltd.

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# Gold, Silver, Platinum and Palladium Prices

(real prices, indexed to 1989 = 100)



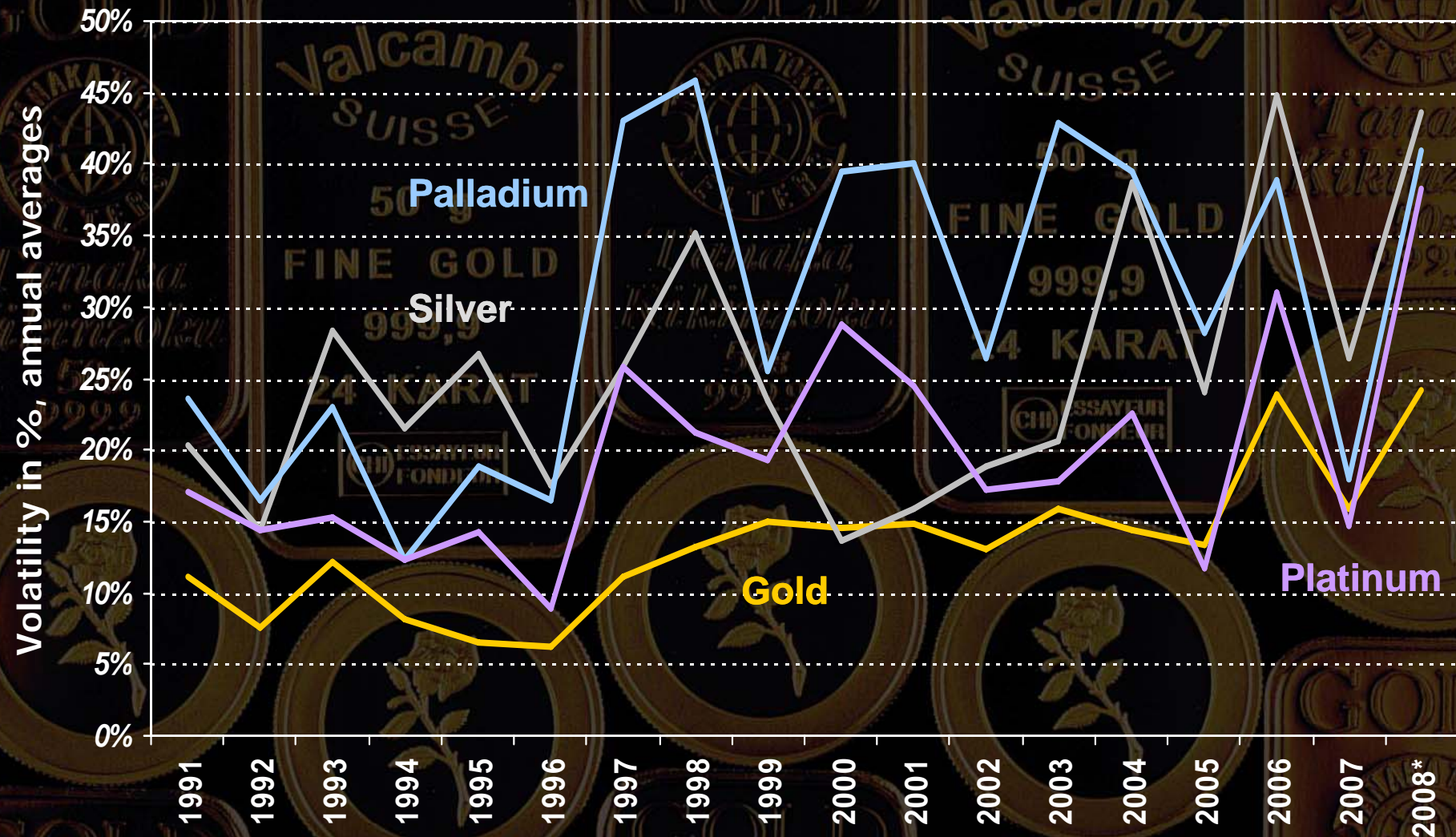
\*2008 = Jan-Aug average

Source: GFMS Ltd.

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# Gold, Silver, Platinum and Palladium Price Volatility



\*2008 = Jan-Aug average

Source: GFMS Ltd.





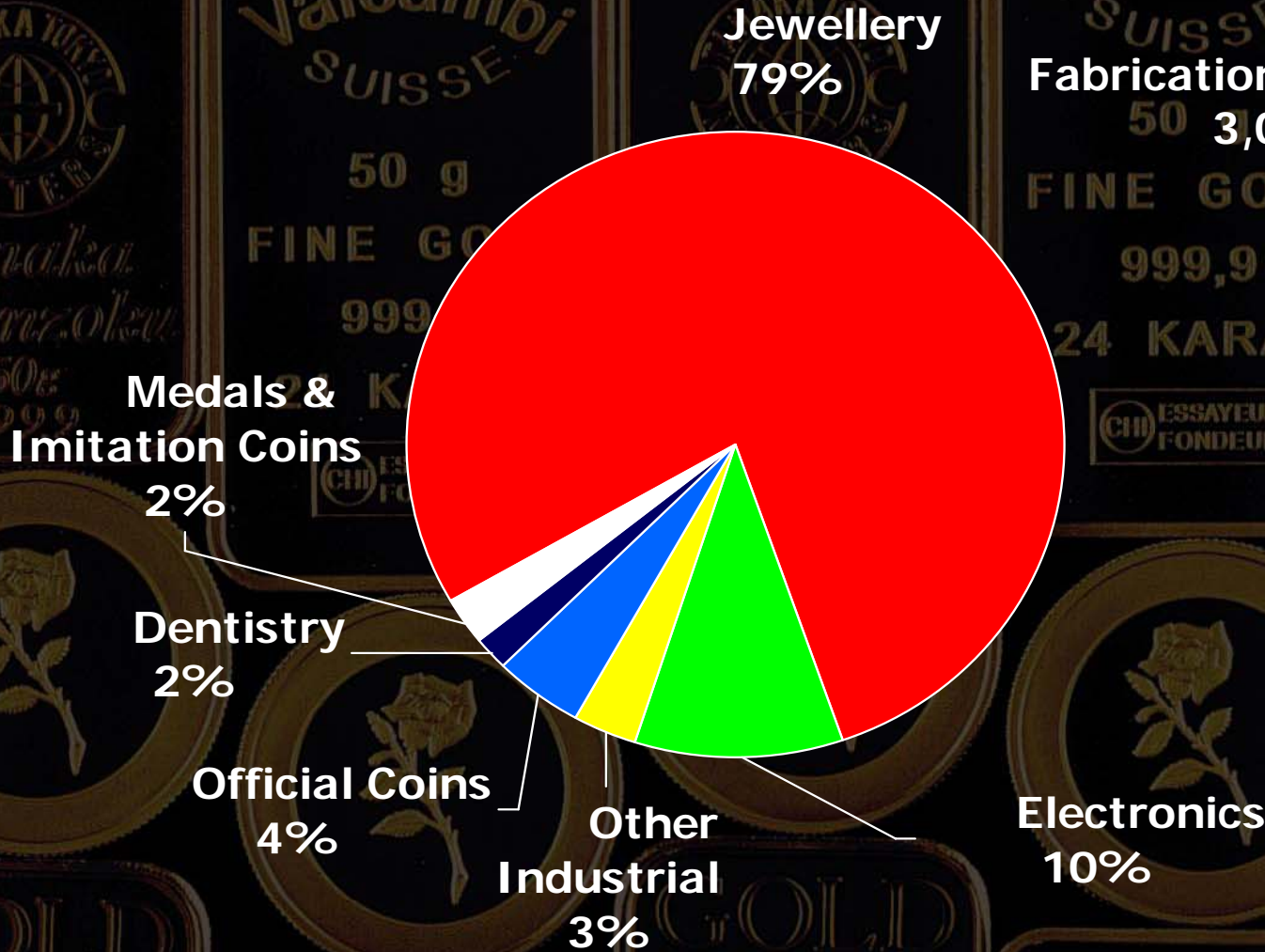
# Gold

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# World Gold Fabrication

Fabrication demand in 2007:  
3,072 tonnes

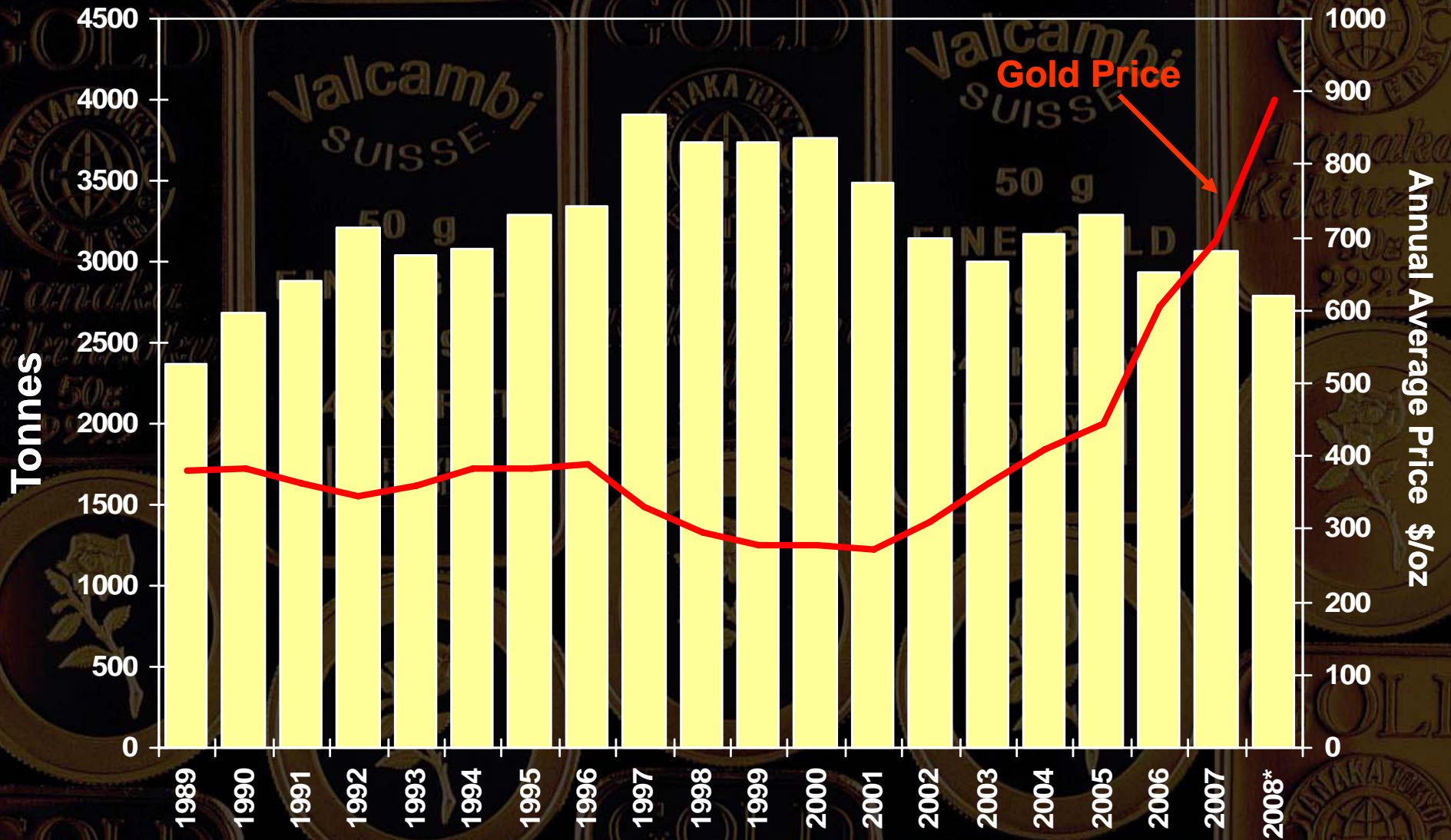


Source: GFMS





# Gold Fabrication Demand and Price



\*2008 forecast

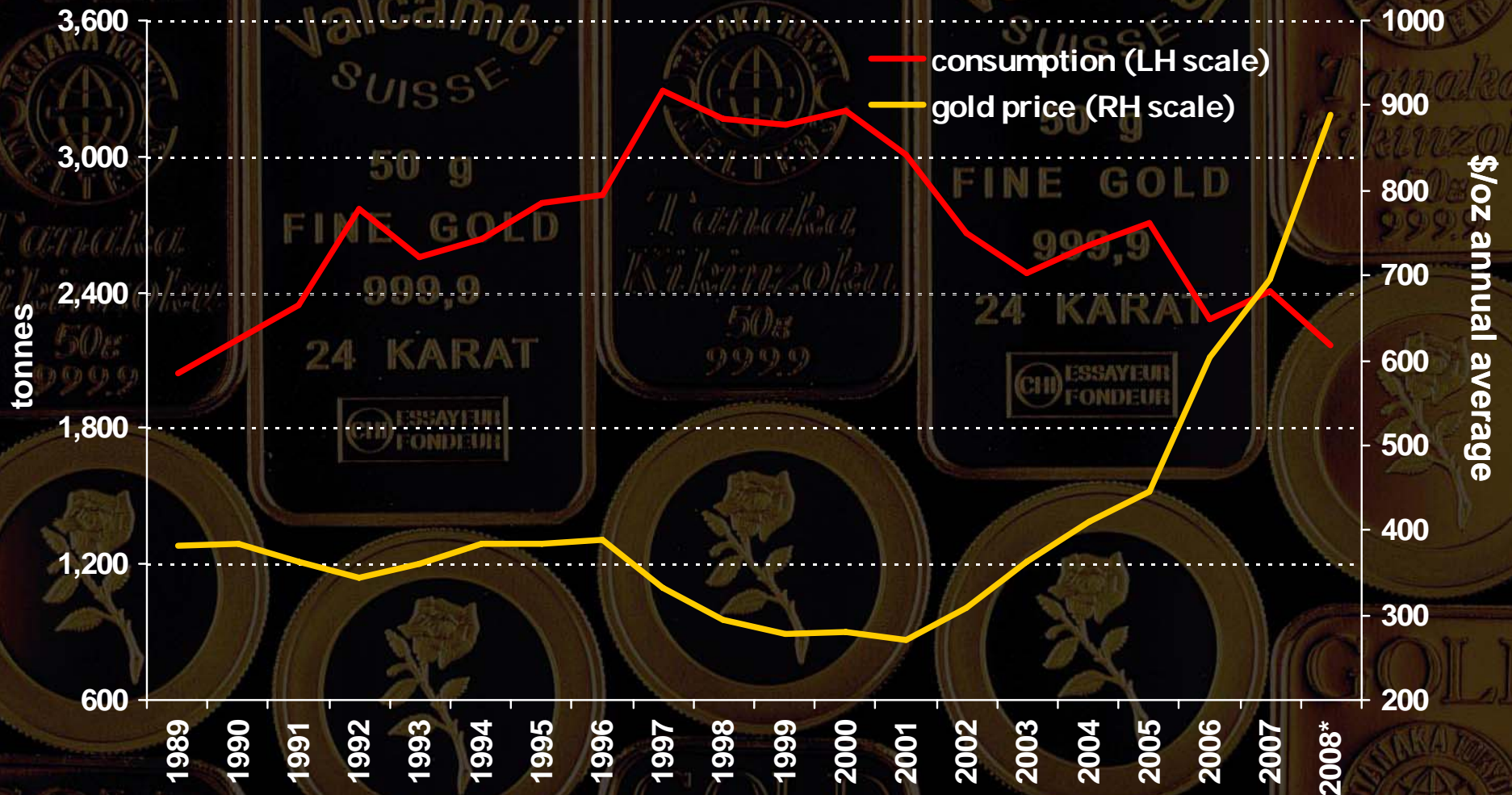
Source: GFMS Ltd.

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# Global Gold Jewellery Consumption

(annual volume in tonnes versus annual average gold price)



\*2008 forecast

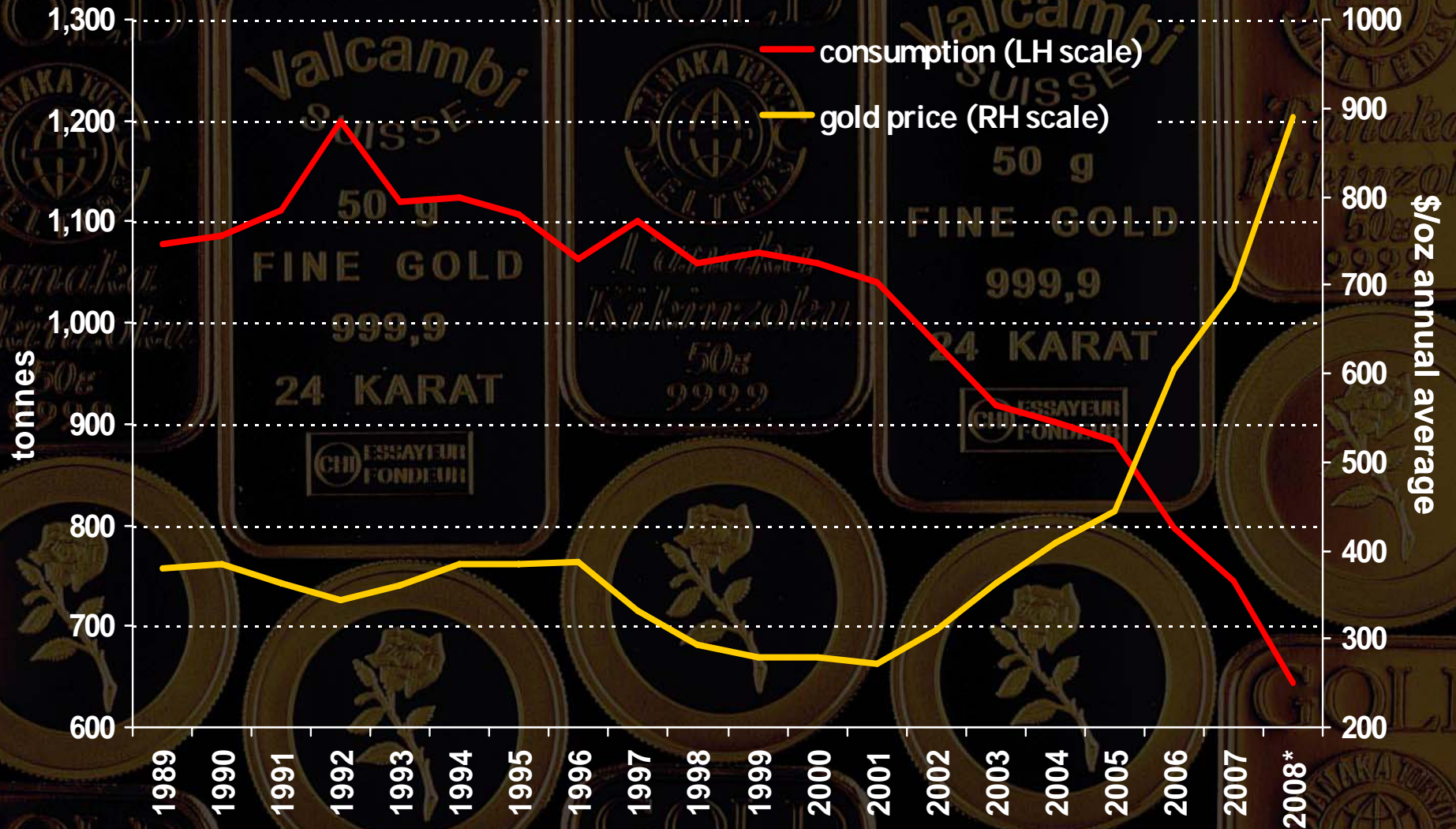
Source: GFMS Ltd.

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# Industrialised World's Gold Jewellery Consumption

(annual volume in tonnes versus annual average gold price)



Industrialised countries comprise: Europe (incl Russia, excl other FSU), North America, developed East Asia (Japan, South Korea, Singapore, Hong Kong & Taiwan) & Oceania

\*2008 forecast

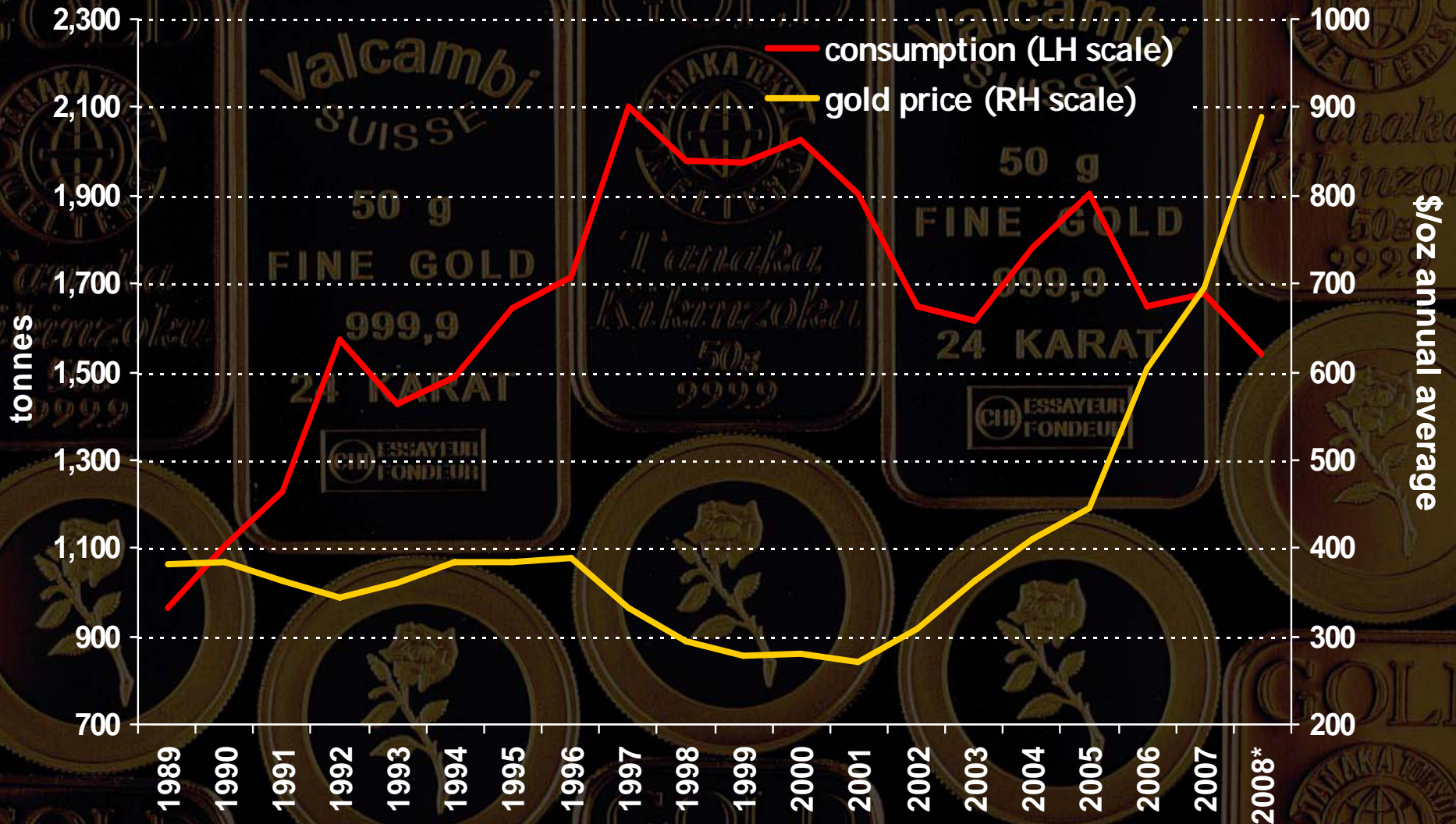
Source: GFMS





# Developing World's Gold Jewellery Consumption

(annual volume in tonnes versus annual average gold price)



\*2008 forecast  
Source: GFMS

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# Impact of High Prices on Gold Jewellery Demand – High Carat, Low-Markup Markets

- Immediate pass through of higher (local) prices in low mark-up, high carat markets in Middle East, India and East Asia.
- Higher prices not always an outright “negative” where strong investment motive. But, overall response has been for demand to weaken, with “budget constraint” of growing importance.
- Jump in price volatility has also significantly hit demand, especially in the shorter term.
- Higher gold prices have encouraged trend in some countries towards higher consumption of gem-set.
- Little outright substitution by e.g. non-precious.
- Trade stocks reduced in size due to higher funding costs and, especially more recently, growing credit concerns.



# Impact of High Prices on Gold Jewellery Demand – Low Carat, High Markup Markets

- Higher prices initially to some extent absorbed through lower margins in 'Western' markets (trade was already using e.g. \$500 benchmark). Move above +/- \$600 level has forced trade to re-price, e.g. in USA typically \$1,000 this year.
- Price points key for volume end of the 'western' markets and to meet these jewellery trade has had to adapt:
  - Lower carat: For example, switch from 14k to 10k.
  - Lighter weight: Redesigns, more electroformed products; changing styles.
  - Stones: Increase the perceived value and lower weight of gold required.
  - Substitution by silver and, more importantly, non-precious alternatives (for example, steel, brass, plastic).
  - Branding; higher added-value.
- Supply-led changes arguably as important as demand-driven ones: Manufacturers' margins already squeezed by fierce competition, added to this impact of high prices on demand and their cost of financing.
- High prices have exacerbated negative effect of ongoing structural changes and, more recently, economic downturn on gold jewellery demand.



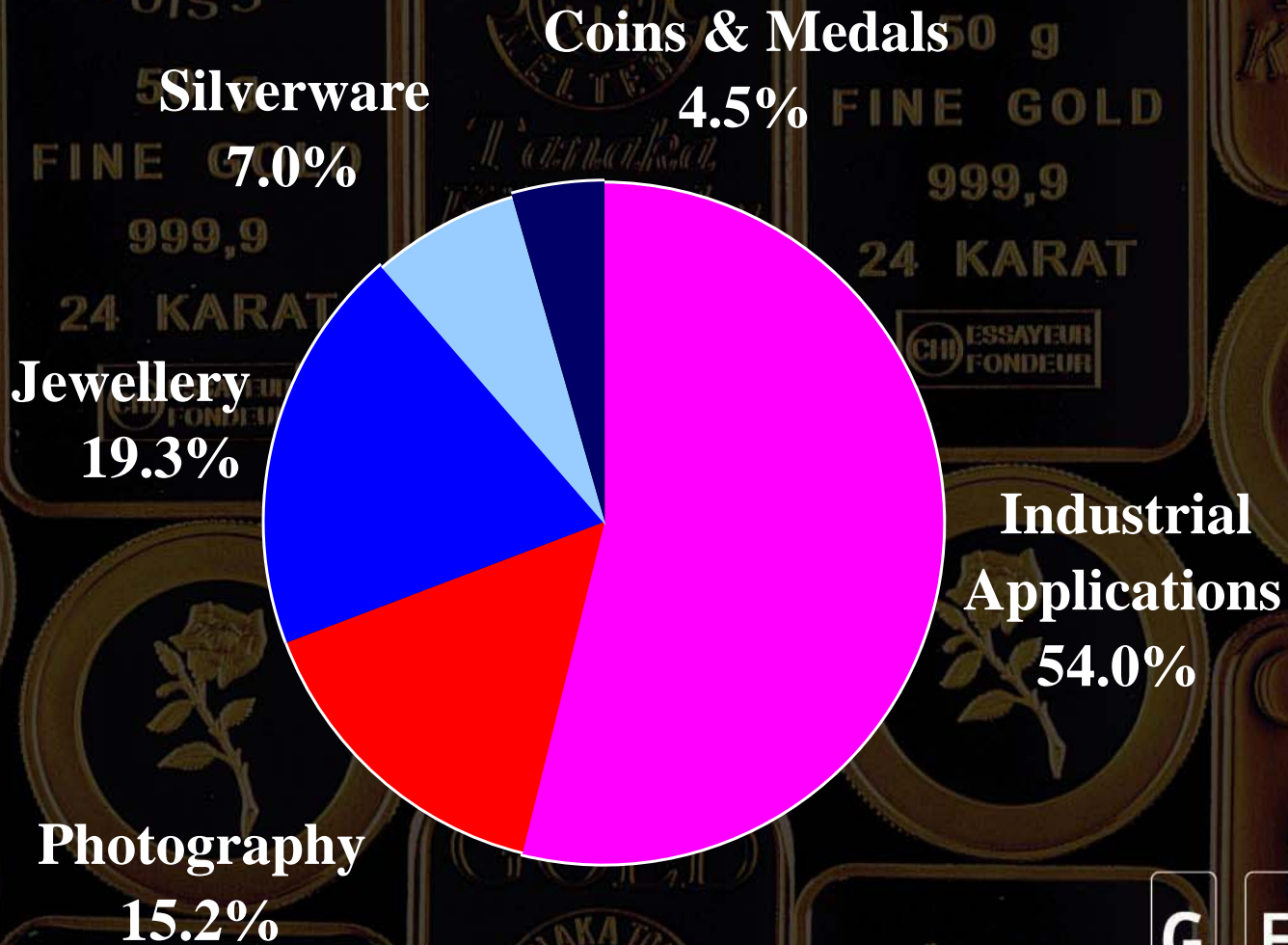
# Silver

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# World Silver Fabrication

Total Fabrication Demand in 2007: 844 Moz

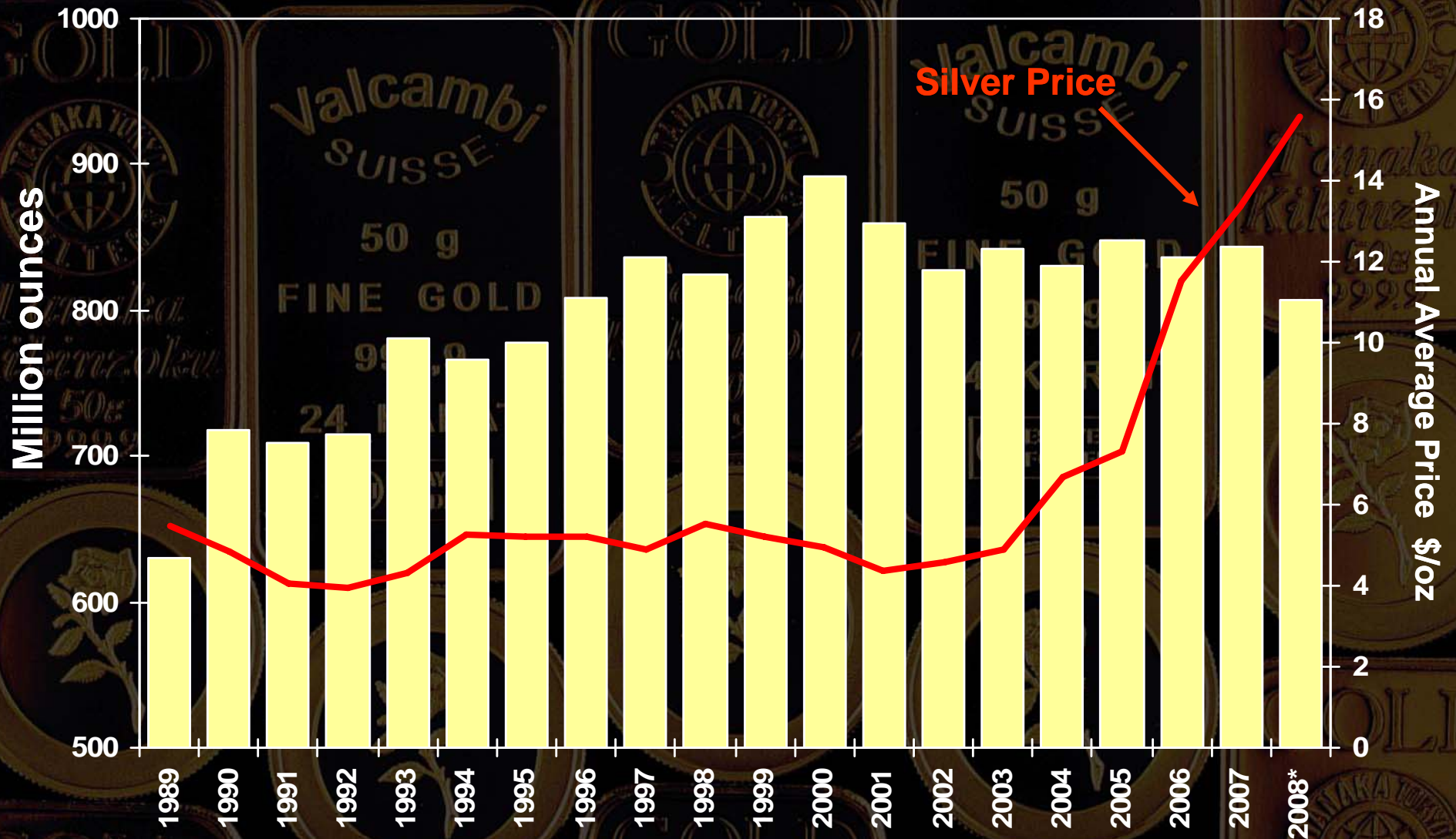


Source: GFMS Ltd.





# Silver Fabrication Demand and Price



\*2008 forecast

Source: GFMS Ltd.

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# Industrial

- Demand had risen steadily in spite of silver price rise, by 36% from 2000-07. Drop of 5% forecast for 2008.
- Silver price less important than trend in GDP, industrial production growth and state of electronics industry.
- Silver usually only a small part of overall cost of component or finished product, although it can be important for the semis manufacturer.
- Substitution a slow process and often no alternatives possible given unique properties of silver. In long run some impact though.
- Push to economise in silver use where possible. Also, industrial users facing major difficulties in financing silver, in some cases constraining production.



# Jewellery & Silverware

- Much higher mark-ups on silver jewellery mean that effect of higher metal prices has been less acute than e.g. for gold or platinum.
- Scale of price rise though has meant that it has had some negative impact.
- Some benefit from substitution away from gold but also some losses to non-precious.
- Branded, high added value and often stone set products being pushed more strongly.
- Silverware hard hit by price rise as articles typically heavier use of silver. Secular decline in flatware accentuated.



# Photography

- Substitution by digital main reason for 48% decline in silver demand volume 2000-08F.
- Metals price has played only a small part in the decline, although rise to double digit levels has encouraged economisation by manufacturers of film, where silver content has been reduced at the margin.
- High cost of metal inventory has also encouraged thrifting throughout the production process.



# Platinum

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# World Platinum Fabrication

Total Fabrication Demand in 2007: 239.0 tonnes

Autocatalyst  
56%

Jewellery  
19%

Other Industrial  
6%

Chemical  
5%

Petroleum  
3%

Glass  
5%

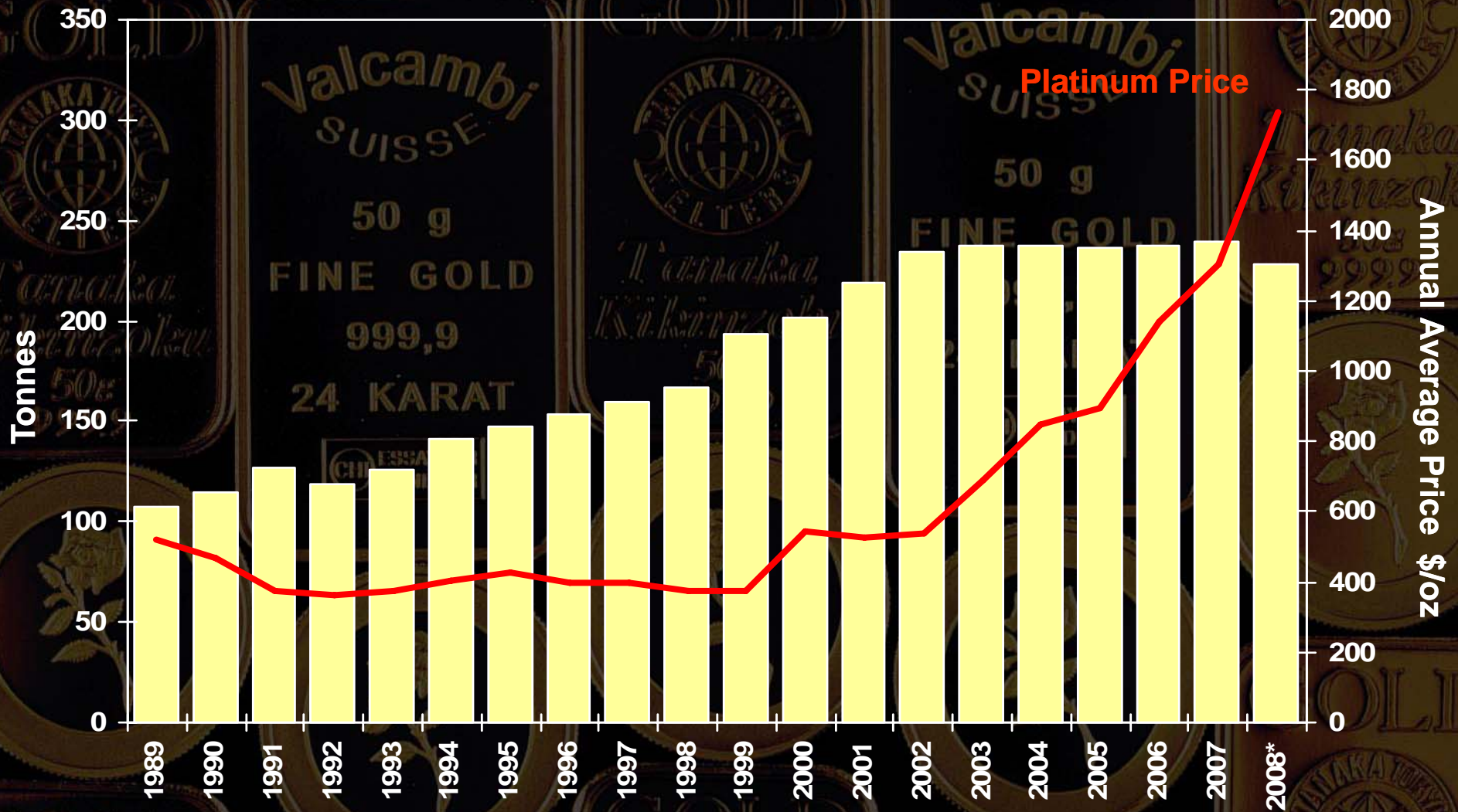
Electronics  
6%

Source: GFMS





# Platinum Fabrication Demand and Price



\*2008 forecast

Source: GFMS Ltd.

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# Autocatalyst

- Demand has risen strongly in spite of platinum price rise, by 99% from 2000-08F.
- Growth fuelled by higher automotive production, increase in share of diesel vehicles and tighter emission controls.
- Higher platinum prices have further encouraged thrifting and, with a lag, prompted a considerable degree of substitution by palladium in gasoline autocatalysts and the development of diesel autocatalysts incorporating some palladium.
- R&D looking to substitute PGMs with gold (diesel on-road) and silver (diesel off-road). Such efforts given a boost by high Pt and Pd prices but technological challenge huge and no sign of any short-medium term threat to existing PGMs based emission control technology.

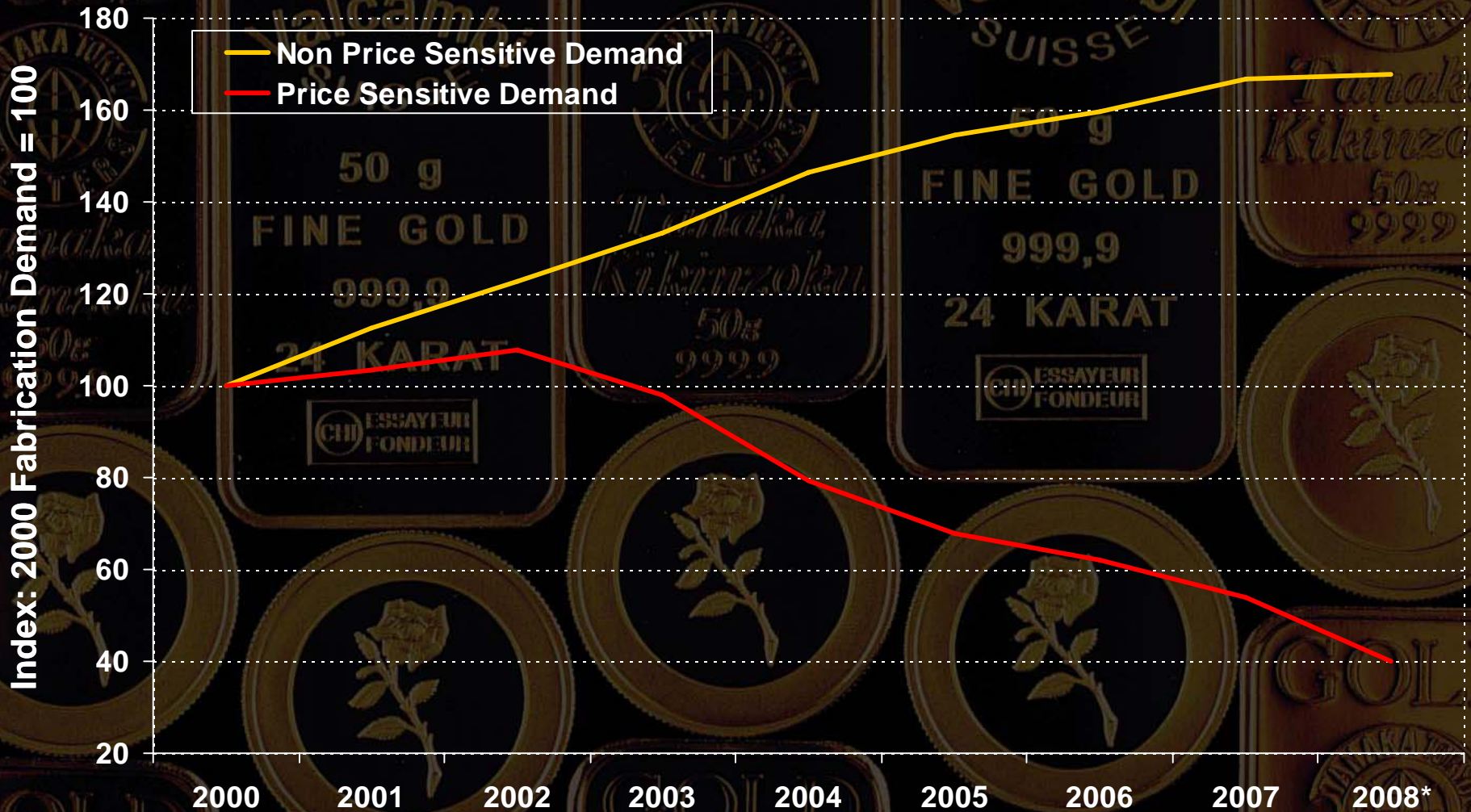


# Other Demand

- Jewellery fabrication has declined by 60% from 2000-08F. Price has been the main driver of this slump in demand.
- Platinum jewellery driven into bridal and high-end niches. Mass market for plain has disappeared in developed world as impossible to hit key retail price points with high carat Pt jewellery.
- Formerly high flying Chinese market forecast this year to be down by over 60% on 2002's peak, Rmb prices across same period will have more than doubled.
- Other areas of fabrication demand (chemical, electronics, glass, petroleum and other industrial) have in aggregate risen by 25% from 2000-08F. Impact of higher Pt prices limited in majority of end-uses: Little scope for substitution but some thrifting in the short-medium term.



# Platinum Fabrication for Price Sensitive and Non Price Sensitive Categories of Demand\*\*



\*2008 forecast; \*\*Price Sensitive = Jewellery; Non Price Sensitive = All Other Fabrication

Source: GFMS Ltd.





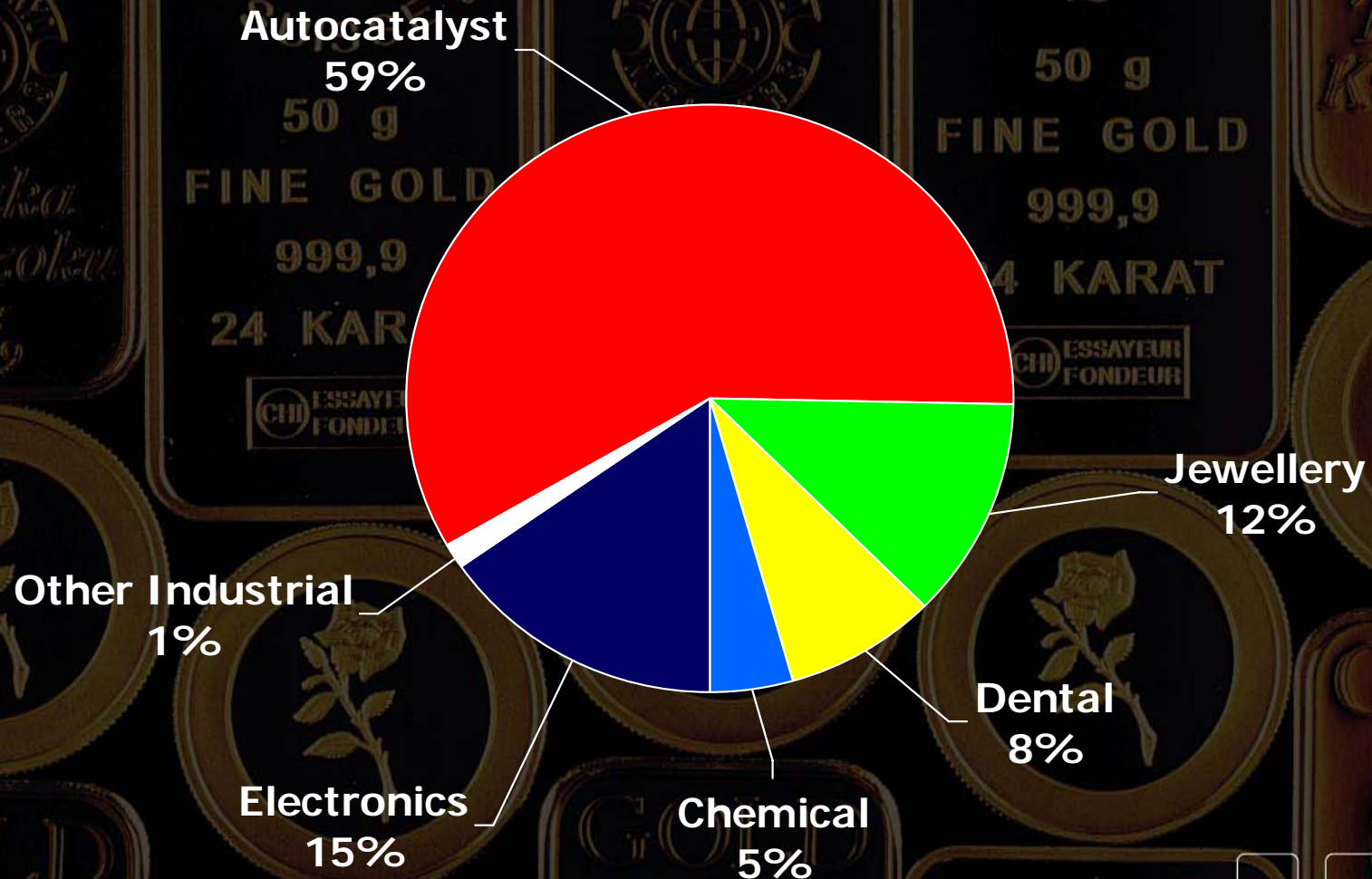
# Palladium

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# World Palladium Fabrication

Total Fabrication Demand in 2007: 258.8 tonnes

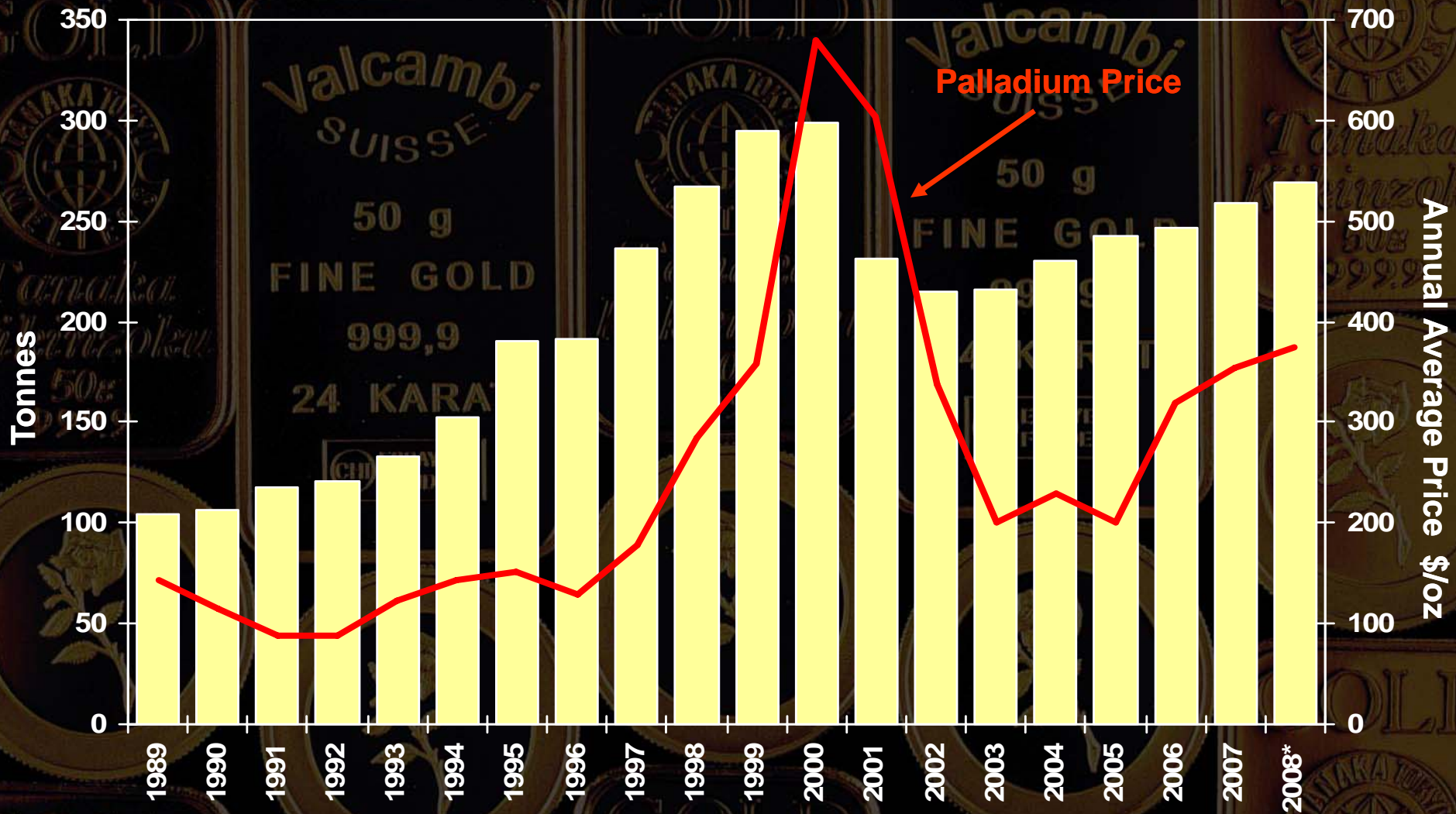


Source: GFMS

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# Palladium Fabrication Demand and Price



\*2008 forecast

Source: GFMS Ltd.





# Autocatalyst

- Lagged effect of 2000/01 price spike seen through to middle of current decade. Demand fell nearly one-third from 2000's peak. As much as price, security of supply an issue for the auto industry.
- Healthy demand growth in 2006, 2007 and 2008 driven by tighter emission controls, substitution of high priced Pt in gasoline vehicles and increasing use of Pd in diesel autocatalysts. Also, very strong growth in emerging market gasoline vehicle demand.
- Thrifting ongoing for all PGMs and this impacts palladium too. Public statements from both Nissan and Mazda in 2007 indicate auto manufacturers' desire to economise on PGMs consumption.



# Other Demand

- In the aftermath of the 2000/01 price spike dental and, especially, electronics offtake slumped. Permanent price-led structural changes in these industries have constrained the recovery in demand since then (e.g. shift to nickel-based MLCCs in electronics).
- Since 2004 demand for palladium jewellery has taken off, mostly centred in China. This phenomenon has mainly been driven by the high price of platinum, with palladium providing an alternative white PGM metal offering superior margins.



# Conclusion

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# Impact of Higher Prices on Precious Metals Demand

- **GOLD:** Jewellery demand (85% of total fabrication in 2000) hard hit by higher prices and volatility. Jewellery a discretionary good. 'Budget Constraint'. Both substitution and economisation at work. Other fabrication little overall impact.
- **SILVER:** Industrial demand only marginally affected. Likewise photography. (Though both have seen some thrifting.) Jewellery & Silverware (30% of total fabrication in 2000) impacted but some offset in case of former at expense of gold.
- **PLATINUM:** Jewellery was 43% fabrication in 2000; forecast fall of 60% through to 2008 largely price related. Autocatalyst demand affected by both substitution and thrifting. Other uses little impacted overall by high prices.
- **PALLADIUM:** Massive hit to autocatalyst and electronics demand due to price rise in 2000/01. Recovery in price since 2006 but differential has grown relative to platinum so noteworthy substitution gains in autocatalyst and, to some extent, jewellery.



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