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COURTIERS Research Note

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To: All Staff

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Subject: Gold Analysis

Summary

Demand for gold has gradually declined in the jewellery industry as prices have increased, with China and India by far the largest consumers and fabricators of gold for jewellery purposes. However the demand for investment in the precious metal has increased substantially in the last decade, particularly in the wake of the global financial crisis.

As demand for gold investment has increased, the amount of gold extracted from mines has also risen. China, Australia and Russia are the largest gold-producing countries.

The USA owns a quarter of the world's official gold reserves. Until the late 2000s, the official sector would sell more gold than it would buy, resulting in increased supply. However in the last few years these net sales have turned into net purchases, despite the higher prices.

The price of gold peaked at $1,900 per Troy ounce in the early 2010s. It has since slumped, but the recent Brexit vote has caused the price to pick up.

Introduction and data compilation

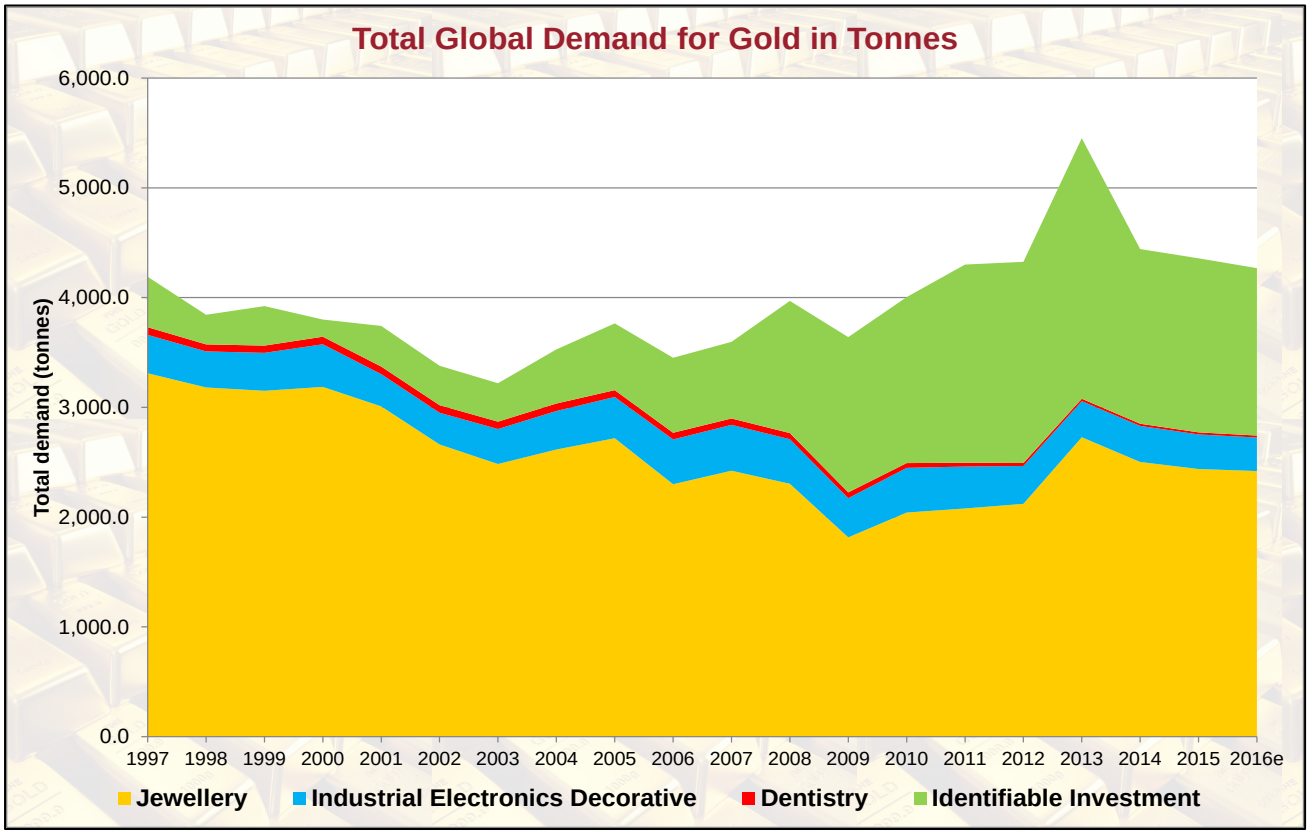
Gold is one of the most talked about investments in the commodities sector, and the most sought after precious metal. At the time of the last update in 2013, the price of gold had slumped back after a period of extreme bullish sentiment. In this note we examine how the demand, investment, supply and price of gold have changed over the last few years.

First, here is a quick note on how the data has been compiled. The provider of data relating to gold has switched from GFMS Thomson Reuters to Metals Focus. To summarize, during a transition period from 2010 to 2013, the new data points become weighted averages of the two old data points, with the weighting towards the GFMS data point becoming less and the weighting towards the Metals Focus point becoming more. We have used a similar approach, except we have used annual data rather than quarterly data. These changes only apply to the overall supply and demand data. The individual country data will be sourced exclusively from Metals Focus, as the country breakdown between the two data sources is different.

Demand

First let's look at demand, which is an important aspect with all commodities. Figure 1 displays the total global demand for gold since 1997.

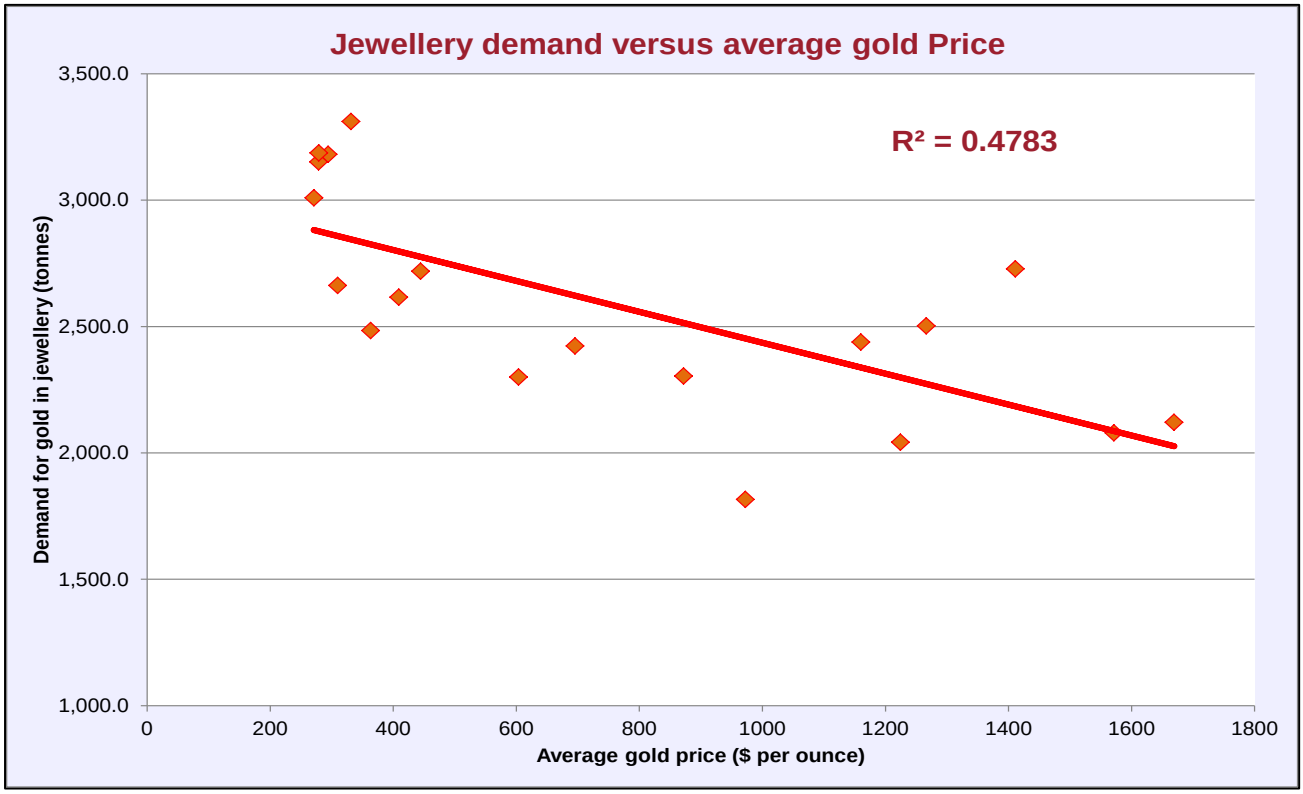
Figure 1: Total demand (Source: GFMS, Metals Focus)



Until around ten years ago, jewellery was comfortably the biggest source of demand for gold; in 2000, it formed 83.9% of total demand. However the last decade has seen a surge in popularity of investment products, such as ETFs, which enable market participants to invest in the commodity without having to hold it directly. In 2015, 36.4% of demand was in the form of these investments while 56.0% was attributable to jewellery and 7.2% was for industrial, electronic and decorative purposes.

Part of the reason for the decline in demand for gold in the jewellery industry is a marked increase in the price of gold (covered later on in the note). Figure 2 plots the total demand against the average price of gold each year.

Figure 2: Gold demand for jewellery vs. average price (Source: GFMS, Metals Focus)

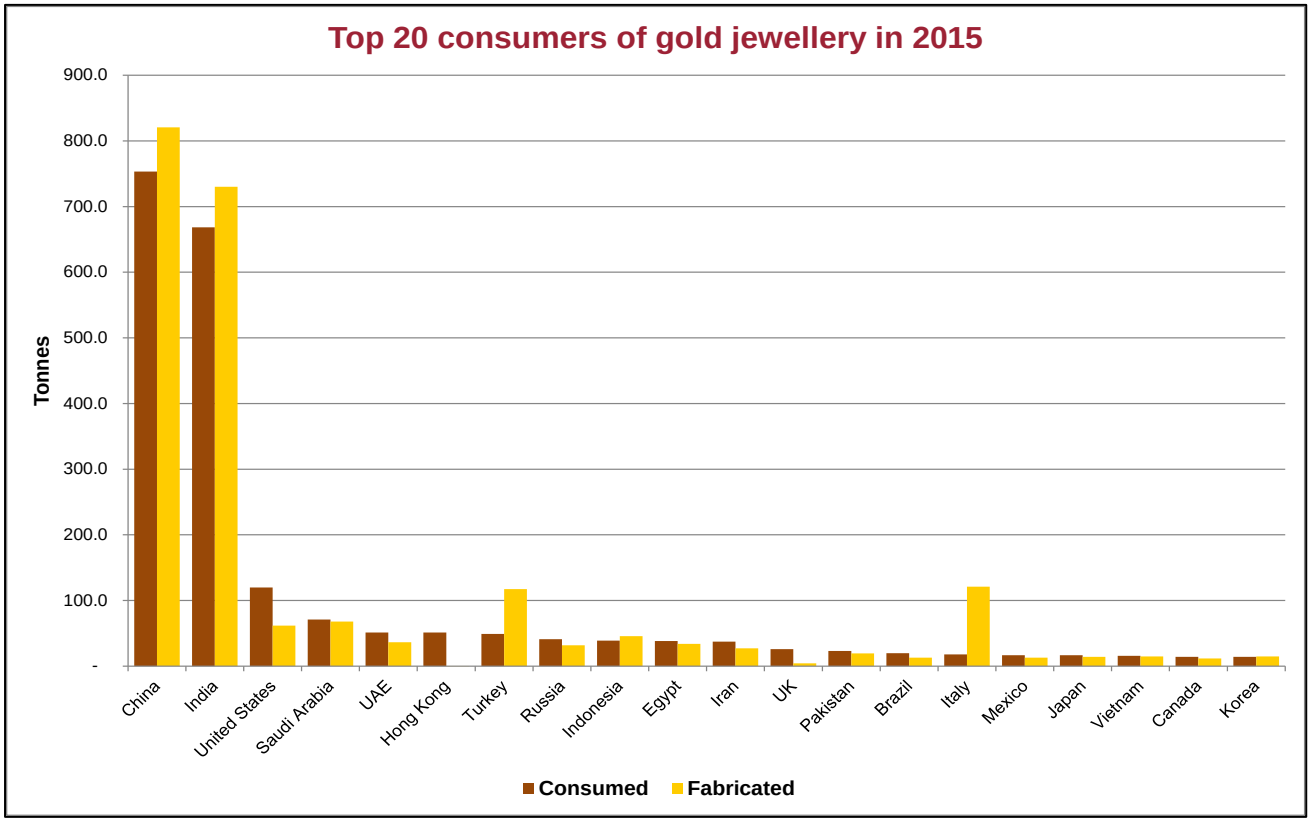


As indicated by the trend line, demand typically drops as the average price of gold increases. The R^2 value of 0.4783 indicates that around 48% of the variation in demand can be explained by the variation in price.

Jewellery fabrication vs. consumption

Figure 3 shows the countries in the world with the largest demand for gold jewellery, along with the corresponding amounts of jewellery fabricated within those countries.

Figure 3: Gold jewellery fabrication vs. consumption (Source: Metals Focus)

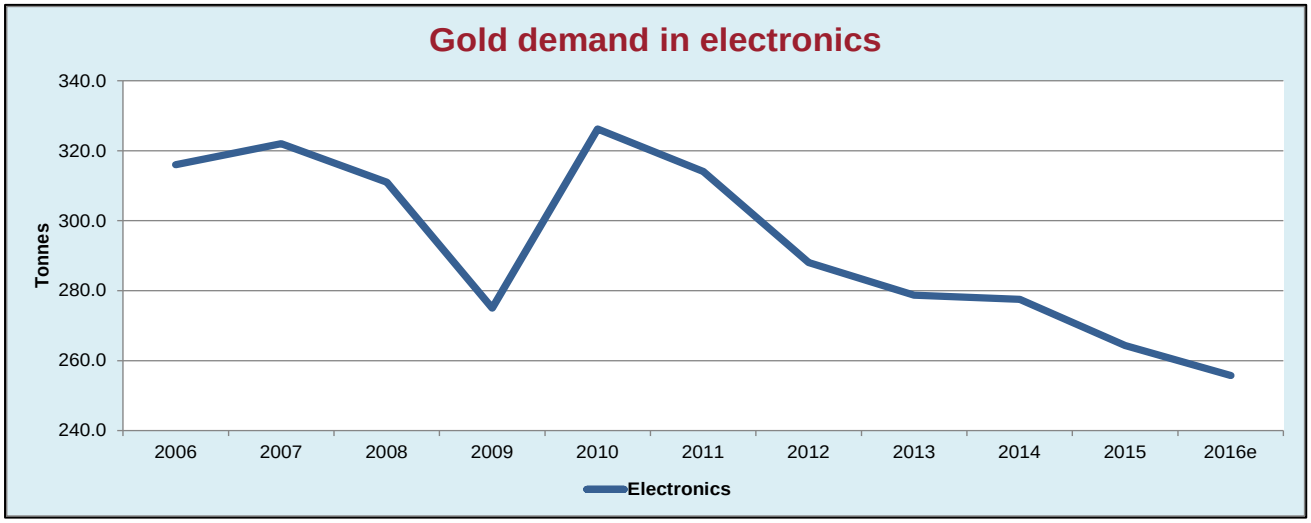


With their huge populations, China and India comfortably demand the greatest amount of gold jewellery. They are also the world's biggest gold jewellery fabricators. The United States has the third largest consumption, and has to rely on imports for half of that demand. Hong Kong has by far the largest percentage of demand relative to fabrication; its consumption in 2015 of 51.4 tonnes is equal to 12,839% of the 0.4 tonnes it fabricates. The UK also has a large portion of consumption relative to fabrication (25.9 tonnes versus 4.3 tonnes). Italy and Turkey on the other hand are the world's largest fabricators of gold jewellery outside of China and India but have relatively little demand.

Electronics

Electronics is another key source of demand for gold. If you own a smartphone then the chances are you are in possession of a tiny bit of gold. On average, a mobile phone contains 0.027 grams of the precious metal. However, the use of gold in electronics has gradually declined recently, as shown in Figure 4.

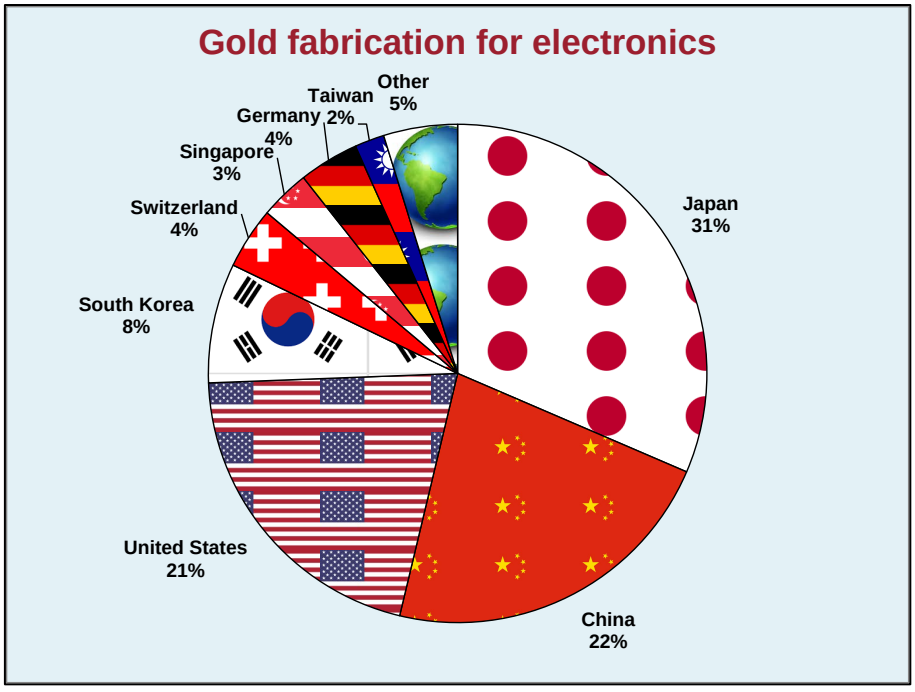
Figure 4: Gold in electronics (Source: GFMS, Metals Focus)



Metals Focus has attributed the decline in 2015 to the slowdown in global gross domestic product (GDP) growth and its impact on consumer good sales. The fall in demand was particularly prevalent in the second half of the year, as the slowdown in growth, particularly in China, became more apparent. Semiconductor billings have dropped, and global shipments of smartphones, whilst up by 10% in 2015, have seen a reduction in growth from the 28% in 2014 and over 40% in 2013.

The range of countries which fabricate gold for use in electronics is much smaller than that for jewellery. Figure 5 shows the key gold fabricators for electronics in 2015.

Figure 5: Gold fabrication for electronics, 2015 (Source: Metals Focus)



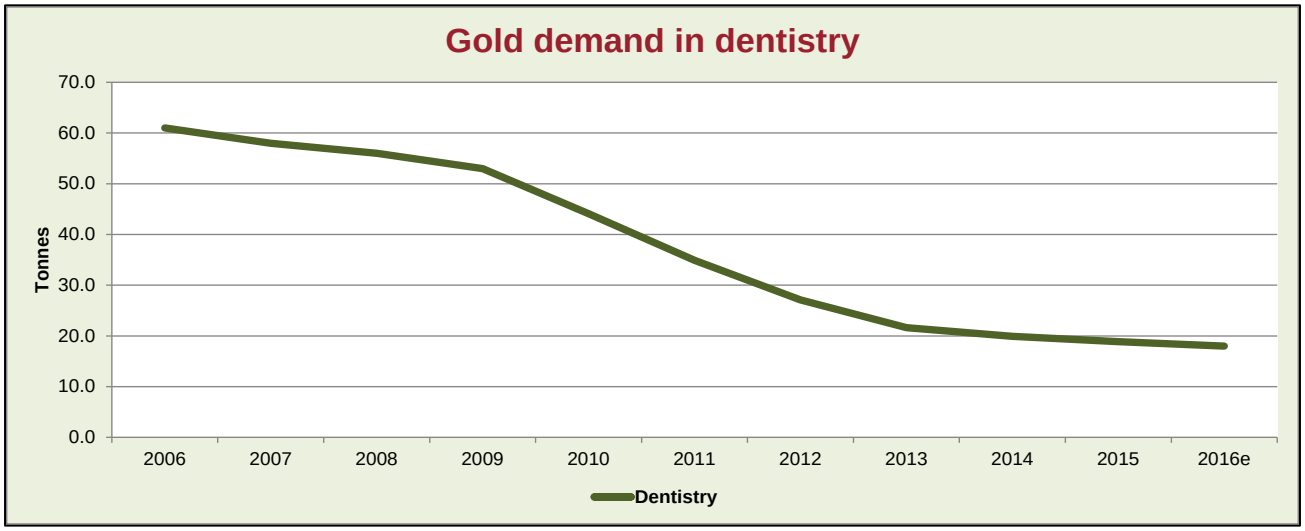
Japan is the world's largest fabricator of gold for electronics, which is unsurprising given its advances in technology; it ranked 2nd out of 140 countries for firm-level technology absorption in the World Economics Forum's 2015-16 Global Competitiveness Report. China is another key fabricator,

but India, which is one of the largest fabricators of gold for jewellery purposes, accounts for only 1% of gold used in electronics.

Dentistry

The other notable source for gold demand is dentistry, and that has seen a more pronounced decline in recent years as dental laboratories switch from gold to non-precious alternatives. Figure 6 shows the extent of the decline.

Figure 6: Gold in dentistry (Source: GFMS, Metals Focus)



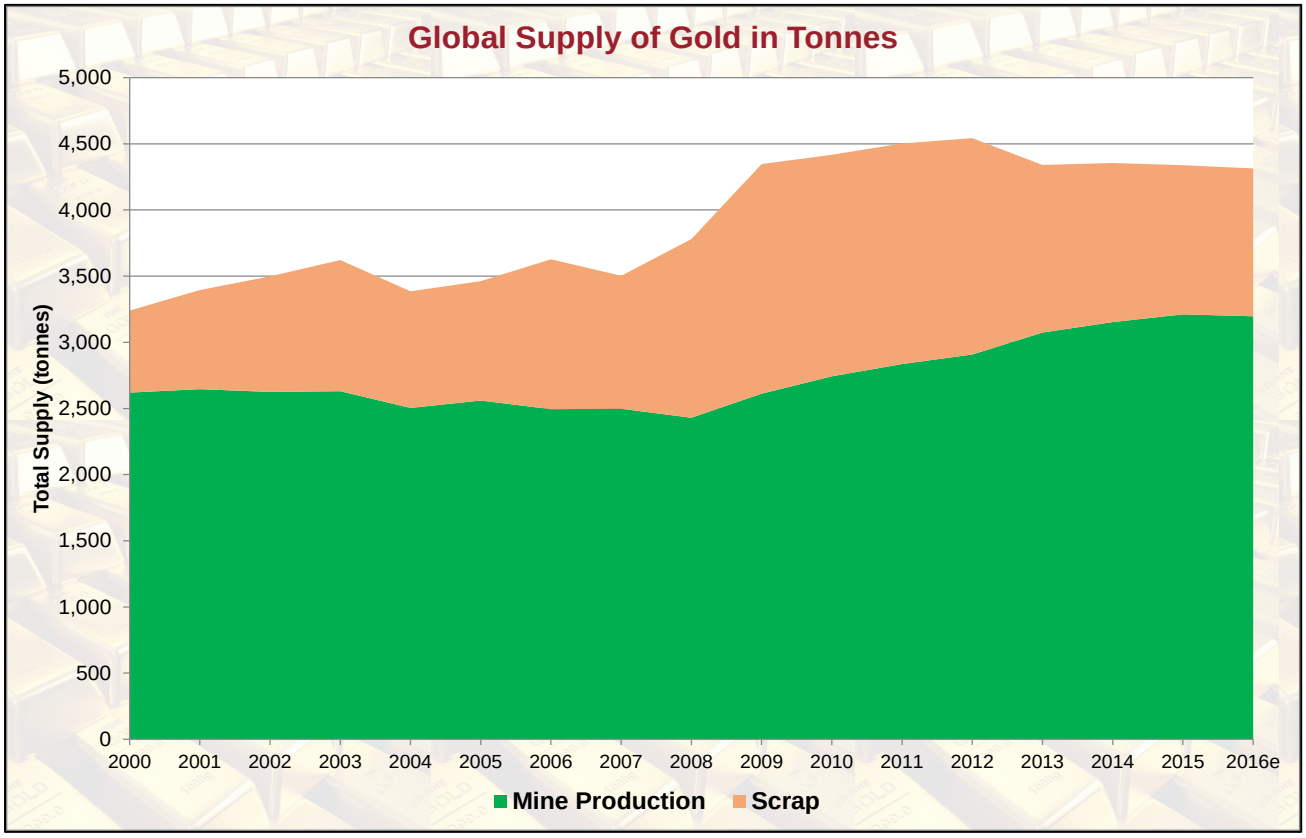
Japan, the US, Germany and South Korea are the key fabricators of gold for dentistry purposes.

Supply

The official supply chiefly consists of mine production and scrap, so we will focus on these before looking at the effects of official sector purchases and net producer hedging.

Figure 7 shows the changing levels of global gold supply since the turn of the century.

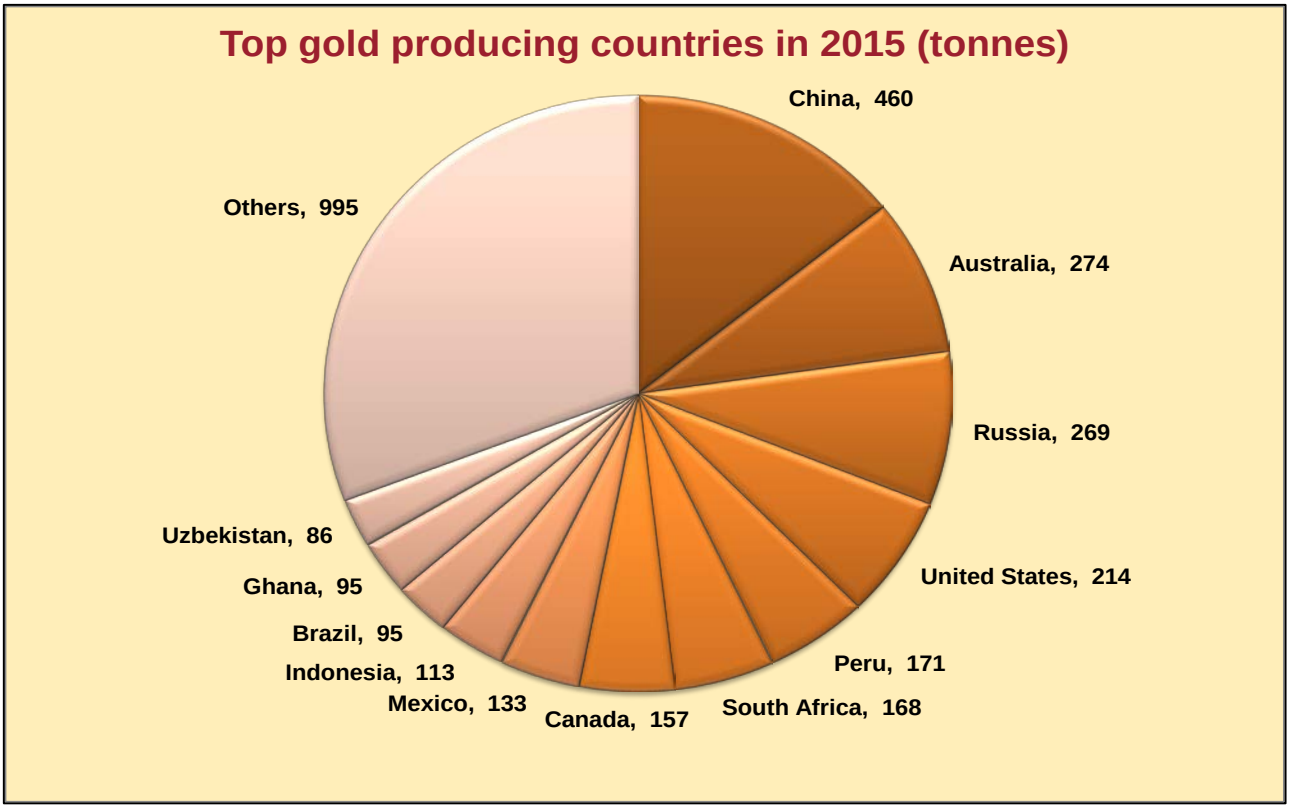
Figure 7: Global supply of gold (Source: GFMS, Metals Focus)



Mine production remained fairly consistent during the 2000s, then towards the end of the decade it began to increase as the financial crisis prompted investors to look for alternative assets and the demand for commodity-based investment products such as ETFs went up. In 2015 total global mine production rose by 1.8%, reaching another record high. However, according to Metals Focus this is expected to be the peak as cuts to capital expenditure in 2013 have caused a reduction in the global pipeline of projects, and this will ultimately place a cap on output.

Figure 8 shows the countries which produced the most gold in 2015. The top twelve producers account for over 69% of the total gold extracted from mines last year.

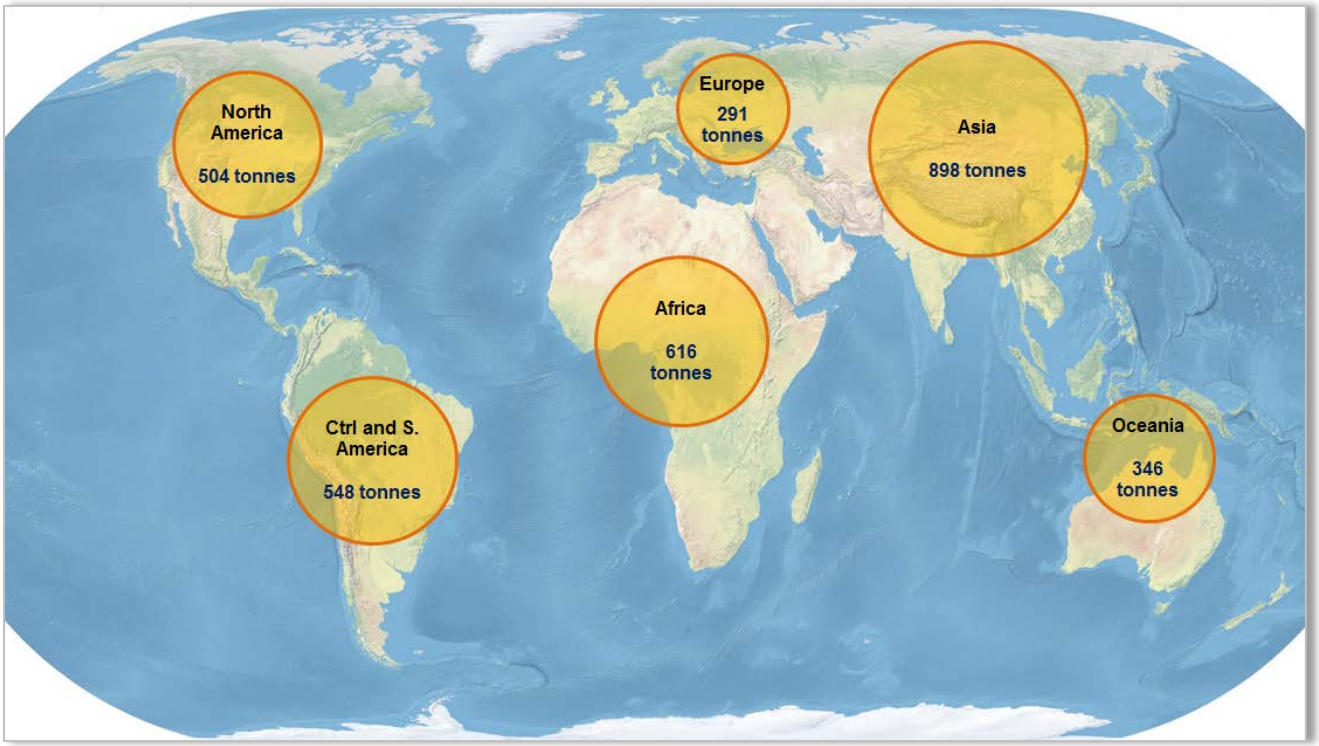
Figure 8: Biggest gold producers in 2015 (Source: Metals Focus)



Last year China was the largest producer of gold from mines. From 2000 to 2014, production in China rose by 7% per year. However this trend came to a halt in 2015 as output fell by -0.4% due to the slowdown in the Chinese economy and lower prices leading to some operations being suspended. Canada, which placed seventh, is home to the largest gold mining company in the world, Barrick Gold.

Each of the top six countries in the chart above is from a different continent, suggesting that mine production is fairly well spread across the globe. Figure 9 shows the actual allocation, and it can be seen that Asia produced the most gold from mines and Europe the least. Without Russia, the total gold produced by Europe in 2015 was just 22.7 tonnes, less than 1% of the total global production.

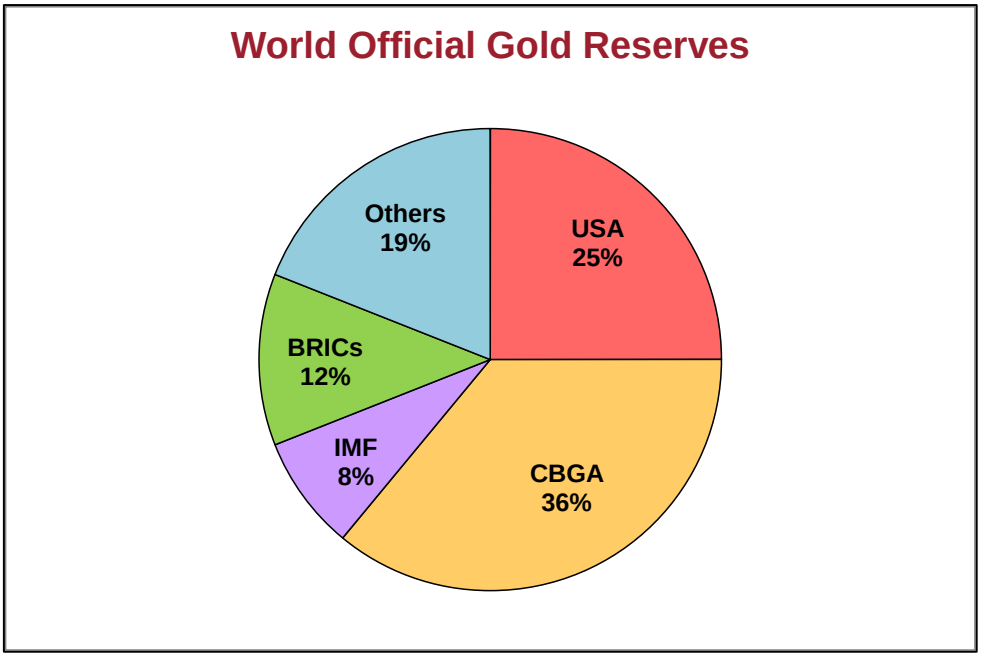
Figure 9: Global mine production by continent in 2015 (Source: Metals Focus)



Official sector

The official sector comprises mainly of central banks which hold the precious metal as part of their reserves. At the end of 2015, central banks held 31,400 tonnes of gold, which is approximately one fifth of all the gold ever mined. Before looking at the sales and purchases, Figure 10 provides a breakdown of the current location of global official gold reserves.

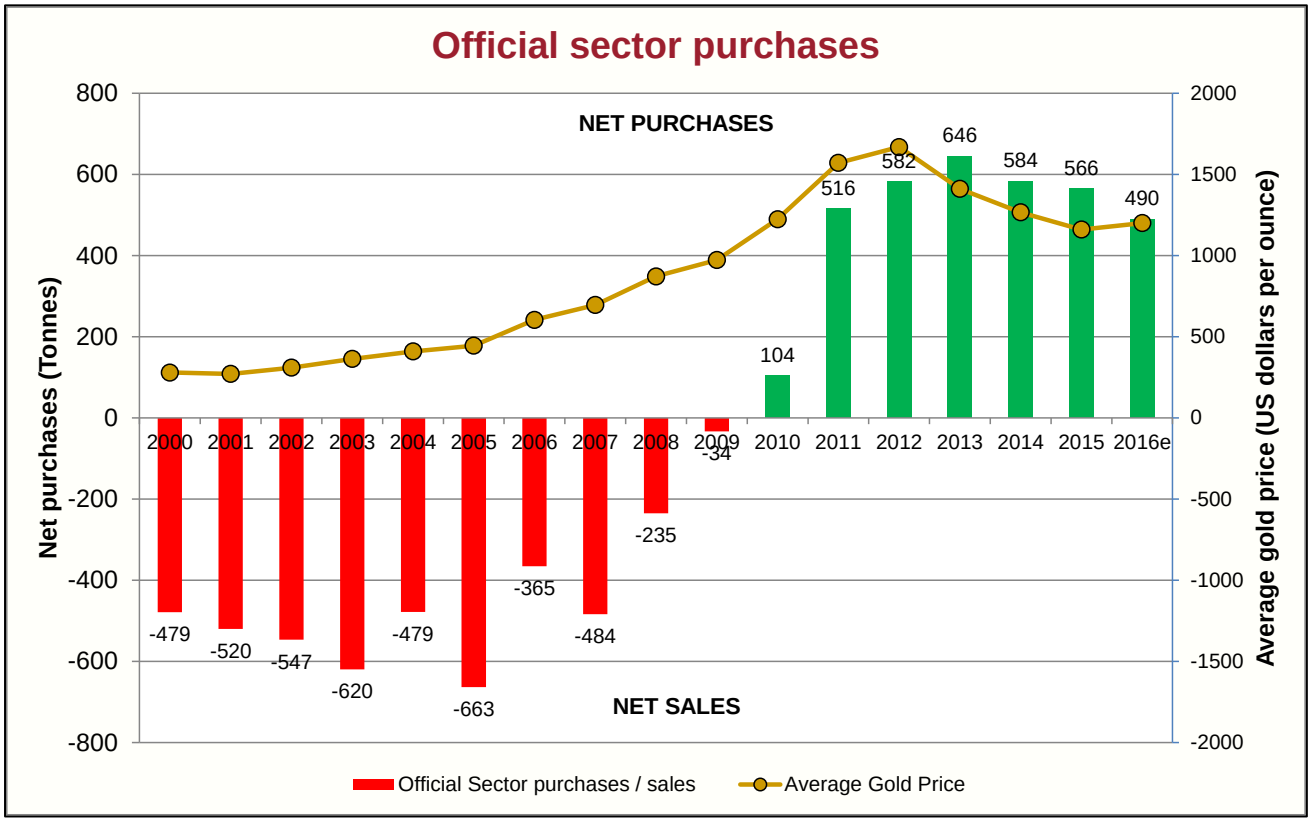
Figure 10: Official gold reserves (Source: Metals Focus, IMF)



The USA holds one quarter of all official gold reserves. In fact, 72% of the country's total reserves is made up of gold. Over a third of the world's gold reserves are held by the 20 European central banks which, alongside the European Central Bank, signed the Central Bank Gold Agreement (CBGA). This is an agreement that limits the amount of gold these countries can sell. Central Banks which signed the agreement include the Deutsche Bundesbank and the Central Bank of Ireland, but not the Bank of England. The International Monetary Fund (IMF) holds 8% of global reserves, while the four BRIC nations (Brazil, Russia, India and China) hold 12%.

If the official sector purchases a significant amount of gold then the available supply is reduced, while sales result in increased supply. Figure 11 shows the net official sector purchases since 2000, with a positive bar indicating overall net purchases (decreasing supply) and a negative bar indicating overall net sales (increasing supply). The average price each year is also shown.

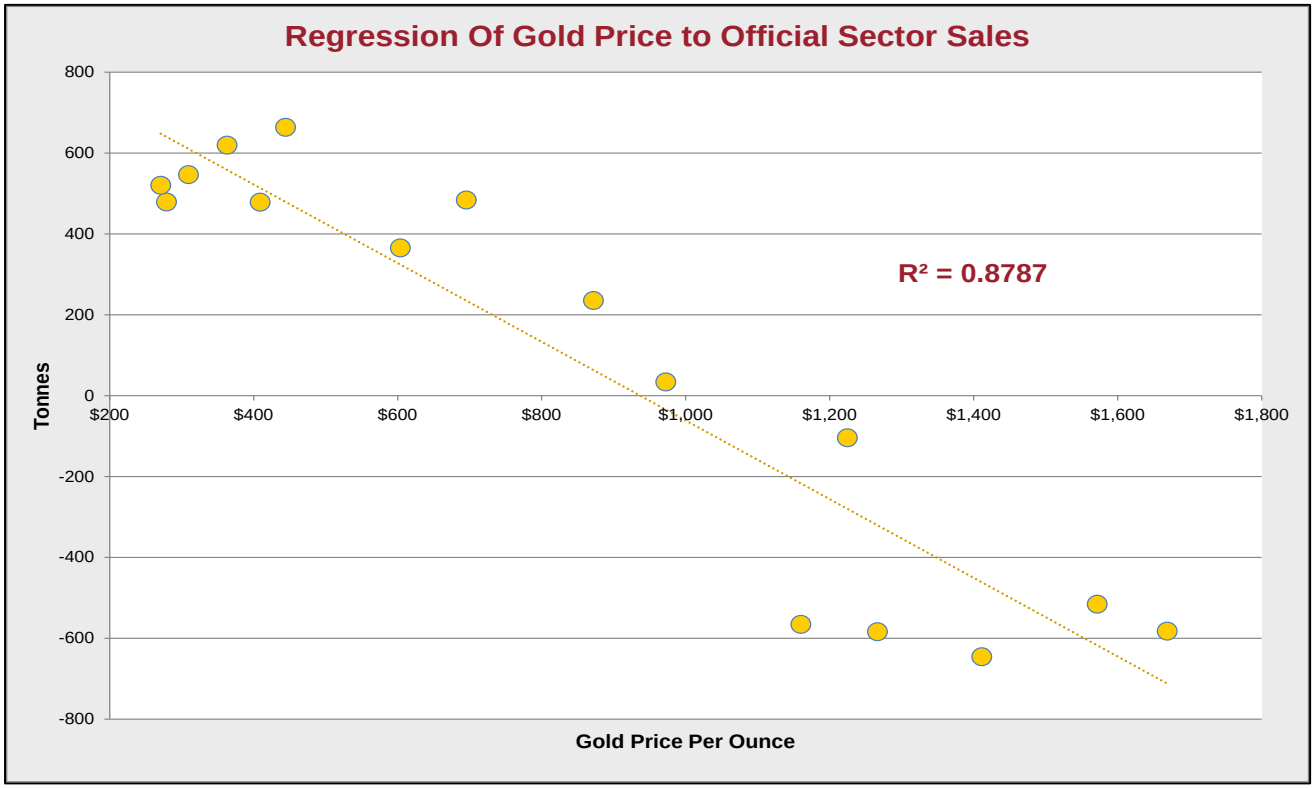
Figure 11: Official sector purchases (Source: GFMS, Metals Focus)



Throughout most of the 2000s, the official sector consistently contributed to supply by making overall net sales, but this changed dramatically in the wake of the financial crisis as banks desperately tried to increase their gold reserves and made overall net purchases. According to Metals Focus, the majority of official sector buying in 2015 was driven by emerging market countries as a result of continued efforts to add diversification to their largely US dollar-denominated reserves. By far the largest buyers of gold last year were the People's Bank of China and the Central Bank of Russia.

Figure 12 regresses the official sector sales against the average price of gold each year.

Figure 12: Official sector sales versus gold price (2000 – 2016) (Source: GFMS, Metals Focus)



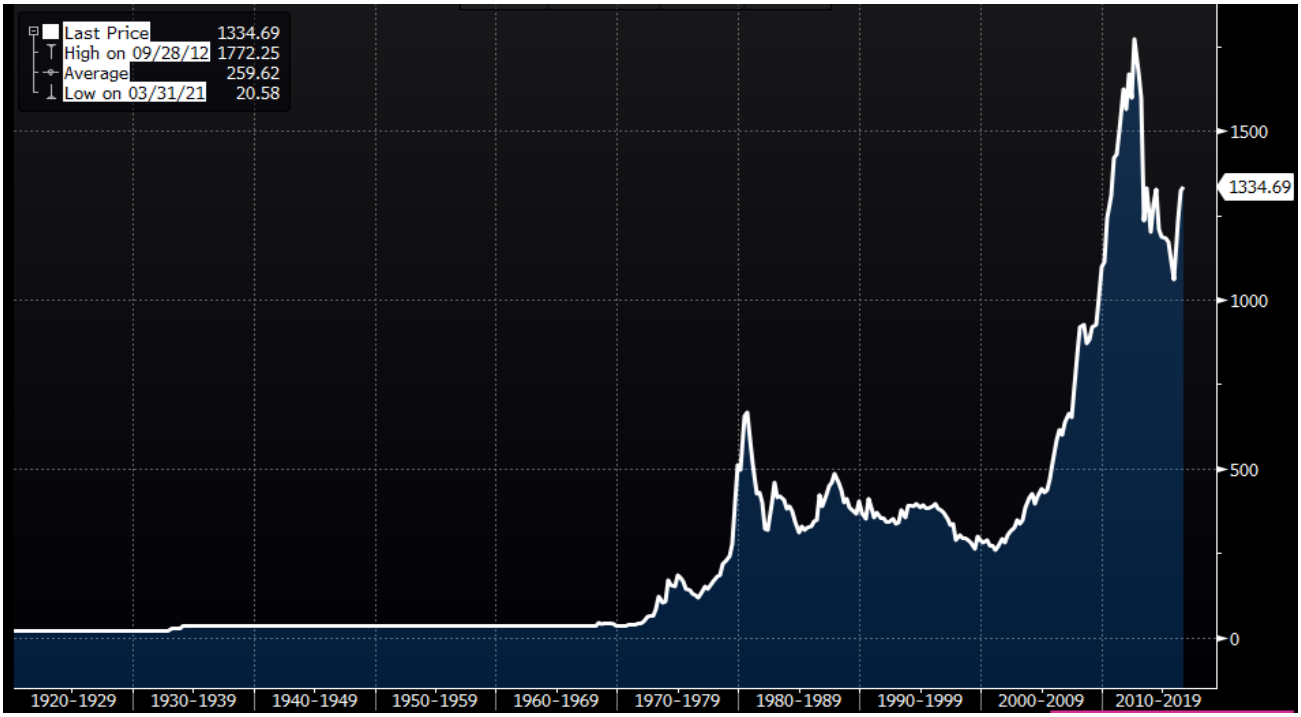
What this chart shows is that, in the last sixteen years, when gold has been relatively cheap, the official sector has engaged in net sales, but when gold has been expensive the official sector has engaged in net purchases. This is an unintuitive result, but the high R-squared value of 0.8787 (which indicates that around 88% of the variation in official sector sales is dependent on price) suggests it is a consistent one. Figures 11 and 12 together suggest that the higher gold prices in the years following the financial crisis have not deterred central banks from turning to the precious metal to diversify their reserves with alternatives to standard currencies.

The final source of supply is net producer hedging, where miners and other producers use derivatives to hedge their exposure to gold against a significant downturn in price. In 2015 the net effect of producer hedging was a forward sale of 9 tonnes of gold, which is equivalent to just 0.3% of global mine production during the year.

Price

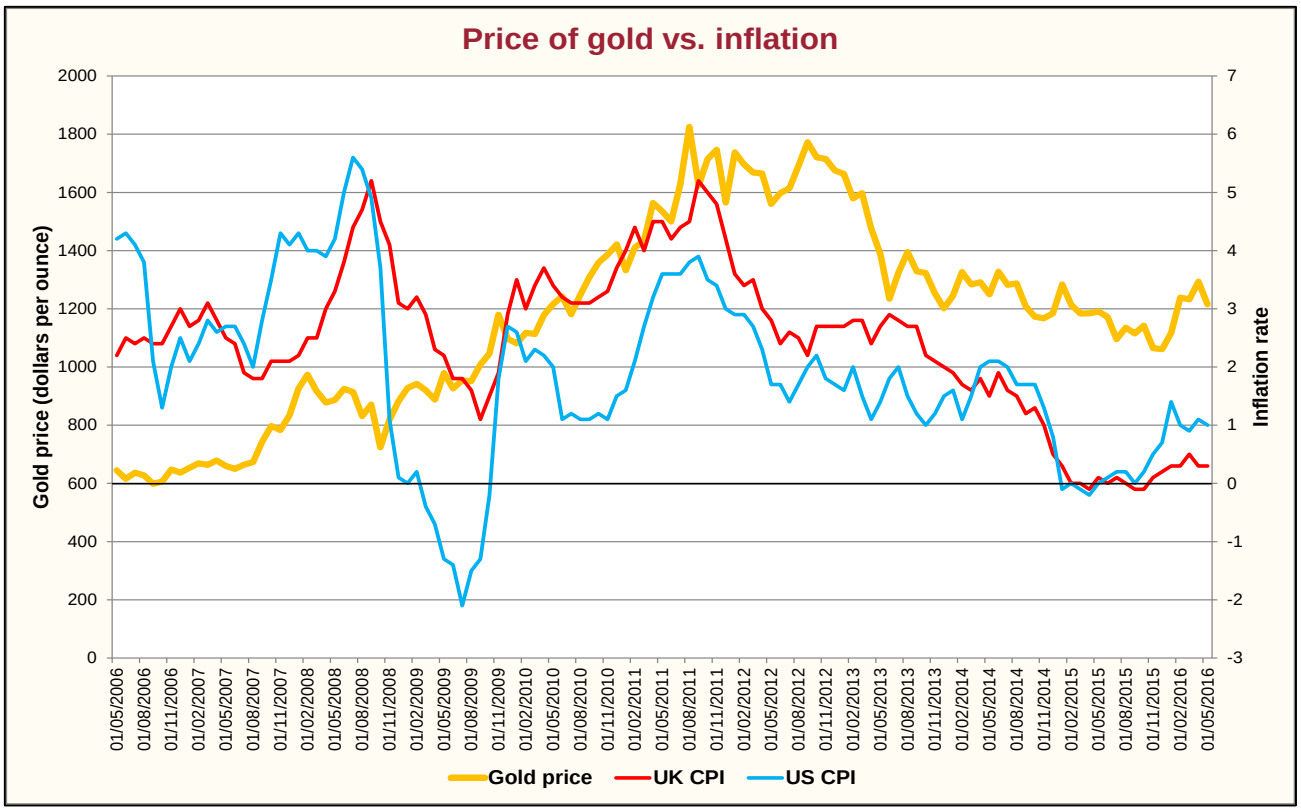
The data on Bloomberg for the value of gold in dollars per ounce goes as far back as 1920. As Figure 13 shows, back then it was worth just over $20 per ounce. The price of gold spiked in the early 1980s due to high inflation, strong oil prices, Soviet intervention in Afghanistan and the Iranian Revolution. However the most significant gold rally took place over the course of the 2000s and continued through the financial crisis, peaking in the early 2010s. The highest ever closing price of $1,900.20 per ounce was registered on 5th September 2011. The rally came to an abrupt halt thereafter, and within a couple of years the price of gold was back to just above $1,000 per ounce.

Figure 13: Historic gold price (Source: Bloomberg)



Gold, along with other precious metals, has often been viewed as an inflation hedge and is therefore expected to excel during periods of high inflation. Figure 14 maps the price of gold against the inflation rates in the UK and the US, measured by their respective Consumer Prices Indices (CPI), over the last ten years.

Figure 14: Gold vs. inflation over the last ten years (Source: Bloomberg)



When inflation in both the UK and US peaked during the financial crisis, the price of gold rose steadily. However it continued to rise when inflation temporarily receded in 2009. In the early 2010s, inflation was steadily decreasing in both countries and the price of gold fell with it. Then since the start of this year, inflation has been back on the up, and gold has also recovered slightly. Most of this is consistent with the notion that gold has at least some degree of correlation with inflation.

Metals Focus, which published its annual 'Gold Focus' study earlier this year, is forecasting a further recovery in prices over the course of the year, mainly due to an ongoing change in investor sentiment and a slower pace of monetary policy tightening, which would reduce the chance of further dollar appreciation.

The UK's decision to leave the European Union has since caused a few shocks to occur in the market. The outcome resulted in high levels of uncertainty, and gold appeared to be a benefactor as it surged upwards by +4.7% over the course of the day, as shown in Figure 15.

Figure 15: Gold Brexit movement (Source: Bloomberg)

Because of this unexpected uplift, as well as continued upward movements, the price of gold has exceeded the $1,350 peak which Metals Focus forecast by the end of the year.

Gold in the COURTIERS funds

Since the last update, we opened a short position in ComEx gold futures in the Total Return Cautious Risk, Balanced Risk and Growth Funds in November 2013 and closed it in September 2014 for a small profit. During that time our short futures position was accompanied by various short-term option positions. Since then we have not made any direct investments in favour of or against the yellow metal.

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Most of the data and facts in this research note are sourced from Metals Focus Gold Focus 2016, published in March 2016. Additional sources include GFMS Thomson Reuters, BBC, the World Gold Council, IMF, the World Economic Forum and Bloomberg.

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