

The evolving structure of gold demand and supply

A snapshot from the start of each decade since 1970 reveals that gold market fundamentals have experienced dramatic change. Shifting dynamics have driven the market's evolution from concentration to dispersion, across both borders and sources of demand and supply. We discuss the drivers for and the implications of these changes.

A time for reflection

News on the deteriorating euro area sovereign issue has been inescapably prominent over the past few months, and is likely to remain so until a detailed and viable solution is tabled.

There was a glimmer of hope in the spring of 2010 following bailouts for Ireland, Portugal and Greece, that a corner had been turned. Yet subsequent events, and to some extent the seeming inevitability of the situation, have conspired to turn what appeared to be a relatively minor European problem into an escalating global crisis. Contagion of government and bank insolvency as well as faltering economic growth is a worrying prospect. As uncertainty over the future has grown, gold's reputation as a bastion of wealth preservation, reliable collateral pledge and a monetary asset is increasingly pushing it to the forefront of financial, economic and political discourse.

However, the last couple of years, global economics aside, have also marked a pivotal period for gold through the confluence of a number of milestones and anniversaries. August of this year observed 40 years since the dissolution of the Bretton Woods

system and a fixed gold price.¹ The end of 2010 witnessed the 10th successive annual price rise, the first such run since the 1970s. January 2010 marked 30 years since gold in real terms peaked² amidst high inflation, geopolitical stress and extreme volatility in the silver market among other factors.

There is ample speculation that the gold market may repeat its prolific rise and fall during the first two decades of free float as history appears to rhyme with fiscal crises and Middle East instability, but it is a conclusion drawn from facile parallels. Firstly, the 1970s was a highly volatile period for gold prices. An 8-month correction in 1975 was almost as severe as that which took place over a 5-year period in the early 1980s. Secondly, the market was in the early phase of establishment with few participants on either the demand or supply sides. A detailed study of the last 40 years reveals that gold market fundamentals have experienced dramatic change, and it is imprudent to suggest that it is the same market it was 40, 30 or even 10 years ago. By extension, it would be imprudent to expect the gold market to behave as it has done in the past.

1 For a large part of the 20th century, prior to 1971, most countries linked the value of their currencies to a specified amount of gold or to the currency of a country that did so. Under the Bretton Woods system, designed after World War II, the US dollar would be fixed to gold at US\$35/oz, and other countries would have adjustable pegs to the US dollar.

2 In real terms (using US CPI and in today's dollars), the gold price peaked on 21 January 1980, reaching US\$2,473/oz. However, this was at the top of a move which saw gold rise and fall by US\$600/oz in real terms in less than two weeks. The average price for that month was US\$1,944/oz in real terms.

What has changed?

While macroeconomic concerns are the current driving force of gold demand in certain investment spheres, a panoply of fundamental factors underpin the prevailing price.

There is a common misconception that the price of gold is primarily determined by Western institutional investors. From time to time, and in the short-term, this may be true given the size of individual trades on an institutional level. In the medium to long-term, it is still only one of many equally important drivers. Equally, the investment component of demand often steals headlines in the press, overlooking the fact that gold jewellery still constitutes the dominant source of demand for gold. Furthermore, while gold market fundamentals have traditionally reflected events and activity in North America and Europe – whether from jewellery purchases, central bank activity or investment demand, a strong shift away from these two centres has taken place in the last 40 years. The rise of the BRIC³ countries and other high growth economies is diluting the influence of the West. This shift is undeniably conspicuous in the gold market.

The supply side of the market has not escaped the shifting sands either. In fact, the geographical concentration of supply has seen a far greater change than that of demand, particularly in mine production. Furthermore, a smaller proportion of supply is provided by mine production than in the past, with recycled gold making up the difference. A rising proportion of this increasing supply of recycled gold is stemming from emerging markets where such transactions are more fluid and less costly.

These changes in the structure of demand and supply have a direct impact on the gold price through dampening short-term volatility, swings associated with individual regional business cycles, and extreme moves brought about by idiosyncratic events. Not only does this translate into a more stable market than in the past, but it also means that gold's correlation with other asset classes is reduced. For investors, gold therefore becomes a more attractive addition to their portfolio strategy. Gold also becomes less susceptible to sharp swings, heralding its value as a tail-risk hedge. Furthermore, some economic theory provides a framework by which gold should yield a return approximate to US inflation over the very long run, equivalent to a zero real return. However, gold's real return since the end of Bretton Woods has been well in excess of zero. The changing structure of the market may well be the driving force.

3 Brazil, Russia, India and China. The acronym is attributed to former Goldman Sachs Chief Economist Jim O'Neill.

The structure of demand – East meets West

The geographical shift of gold demand since 1970 has been quite remarkable. A look at the first year of each of the five decades since the price peg was removed shows how dramatic the shift from North America and Europe to the Indian Sub Continent⁴ and East Asia⁵ has been (Chart 1). North America and Europe had a combined share of 47% of the global market in 1970, growing to 68% by 1980. This fell to 38%, 28% and 27% respectively in 1990, 2000 and 2010. The drop in global share was compensated for by the Indian Sub Continent and East Asia, rising from 35% in 1970 to 58% by 2010.

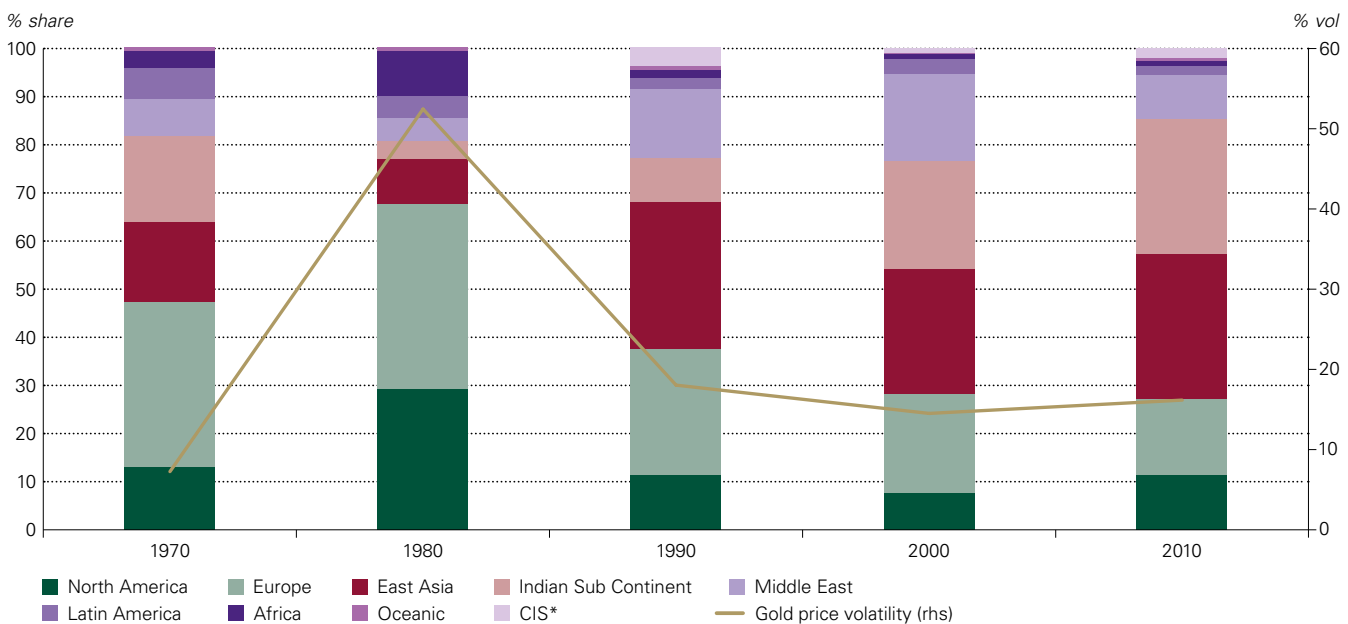
While the chart shows a general regional shift, it appears not to show much of an increase in dispersion. However, firstly as per Gold Demand Trends convention, the chart does not capture central bank demand. While the bulk of central bank gold is still held in North America and Europe, a build-up of gold reserves in emerging markets has been a consistent feature over the last few years. Secondly, OTC investment demand is excluded due to lack of granular data and would likely balance the total, on the evidence we have, further back towards Europe and North America.

The chart also hides the fact that a stronger East-West balance raises the probability of non-correlating business cycles reducing demand volatility. For example, the risks currently posed to Western investment demand by disinflation prospects are likely tempered by inflation-driven demand in many emerging markets. This geographical demand shift is likely one of the reasons that average gold price volatility is lower for each represented year since 1980 (1970 was a low volatility year as a two-tiered gold price was still in effect. It was not until August 1971, that the gold peg was completely removed. The average volatilities for 1972 and 1973 were respectively 18% and 35%).⁶

The distribution of demand across categories shows that investment has once again become a more prominent component of demand, constituting 38% of the total (excluding central bank purchases) in 2010. However, while the total distribution looks similar to 1980, the regional distribution underlying each category is very different.

Delving into categories, jewellery demand has been a major driver of the shift from west to east. As North America and Europe's dominance of the sector has diminished from a 44% share in 1970 (56% in 1980) to just 14% in 2010, the Indian Sub Continent and the Far East have grown to represent 66% of demand from 36% (just 22% in 1980) in 1970.

Chart 1: Distribution of gold demand by region



Gold price volatility = average daily volatility of London PM fix for reference year.

*CIS: Commonwealth of Independent States.

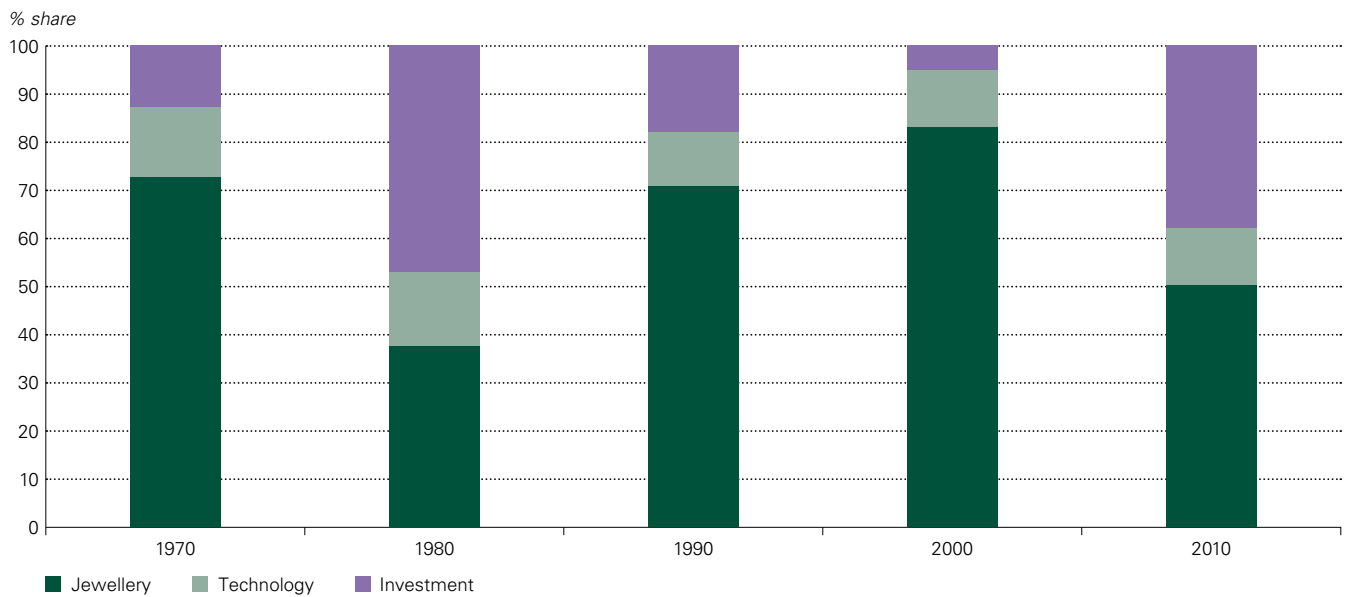
Source: Bloomberg, LBMA, Thomson Reuters GFMS, World Gold Council

4 India represents a minimum 85% of the Indian Sub Continent.

5 58% of which is now China, growing from 7% in 1990 as figures were not available for 1980 and 1970.

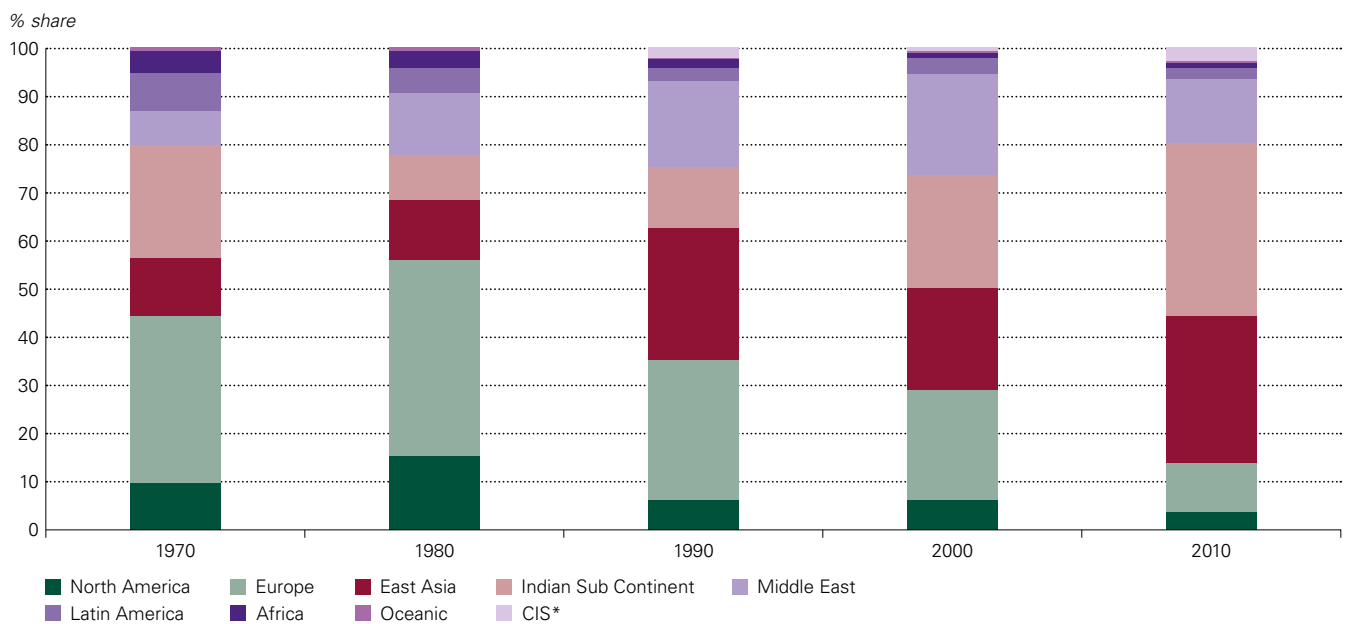
6 Volatilities calculated on a 260-day basis using daily log returns of the London PM fix.

Chart 2: Distribution of gold demand by category



Source: Thomson Reuters GFMS, World Gold Council

Chart 3: Distribution of jewellery demand by region



*CIS: Commonwealth of Independent States.

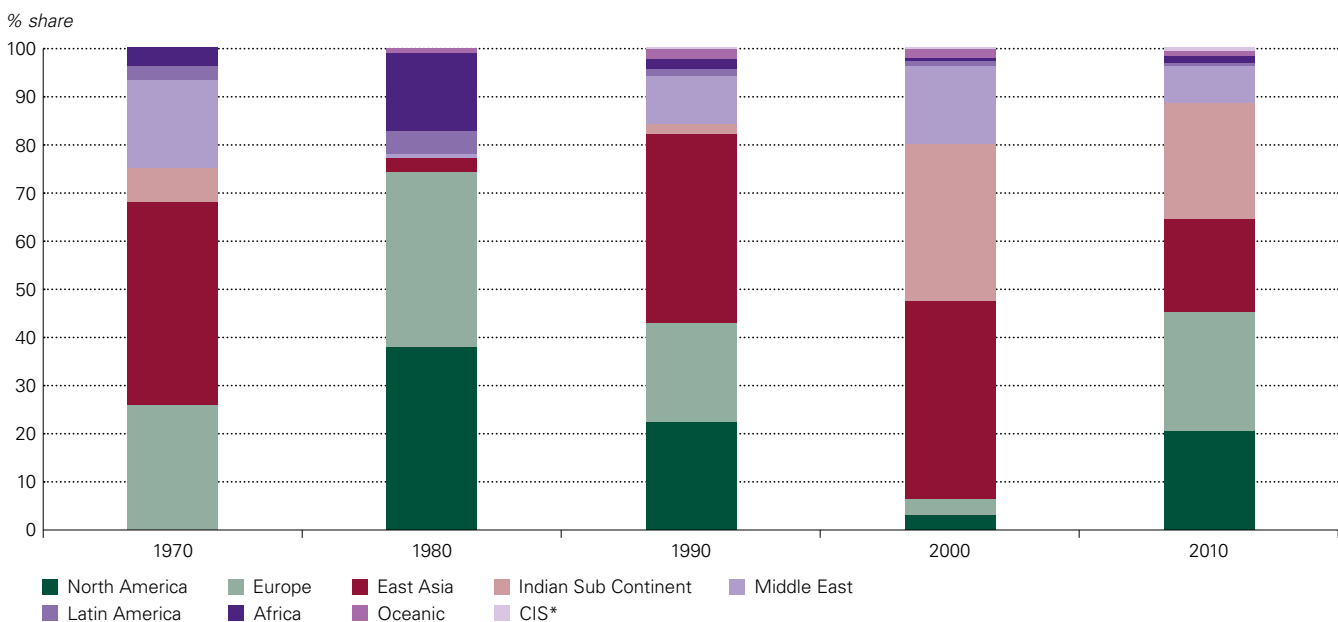
Source: Thomson Reuters GFMS, World Gold Council

The estimate of investment demand is not straightforward due to a lack of granular data. In addition, new financial innovations including ETFs have likely caused a marginal alteration of investment mix. We have therefore made a number of assumptions to be able to paint as fair a picture as possible of the distribution of investment.⁷

Investment demand⁸ is shown in Chart 4. North American and European bar demand numbers are missing from 1970 and 2000 as they were negative, representing disinvestment (an element of supply, not demand). A stark difference is apparent between 1980 and 2010 as North American and European investment demand's share fell from 74% to 45%. At the same time, the Indian Sub Continent and East Asia have accounted for a large share of the remainder of investment demand with 43% of the market in 2010. As has been noted in previous Gold Demand Trends editions, China is one of the fastest growing investment markets. However, Europe has once again become an important player, a trend born in the aftermath of the 2008 banking crisis.

Technology demand in Chart 5, formerly referred to as industrial demand, has maintained a remarkably consistent share of the total over the last four decades at just over 10%. This is despite a changing backdrop and at times, strong price increases. With electronics becoming the dominant force behind technology demand, as dental usage shrinks, the regional shift from high-cost producers to low-cost producers has been a natural process. As Chart 6 shows, East Asia and the Indian Sub Continent, led by Japan, China and South Korea are at the helm of gold use in technology with a combined regional share having grown from 17% in 1970 to 67% in 2010. This concentration of demand does however go against the grain of increasing diversity elsewhere and could render this sector vulnerable to a downturn in the region or key export markets. However, there is a widely acknowledged faith in the ability of current account surplus countries such as China to continue on their current growth path in the medium term, supported by a backbone of fiscal and monetary ammunition, solid domestic demand and investment in industrial capacity. Furthermore, gold continues to develop new diverse functions within technology thanks to its unique properties and applications.

Chart 4: Distribution of investment demand by region



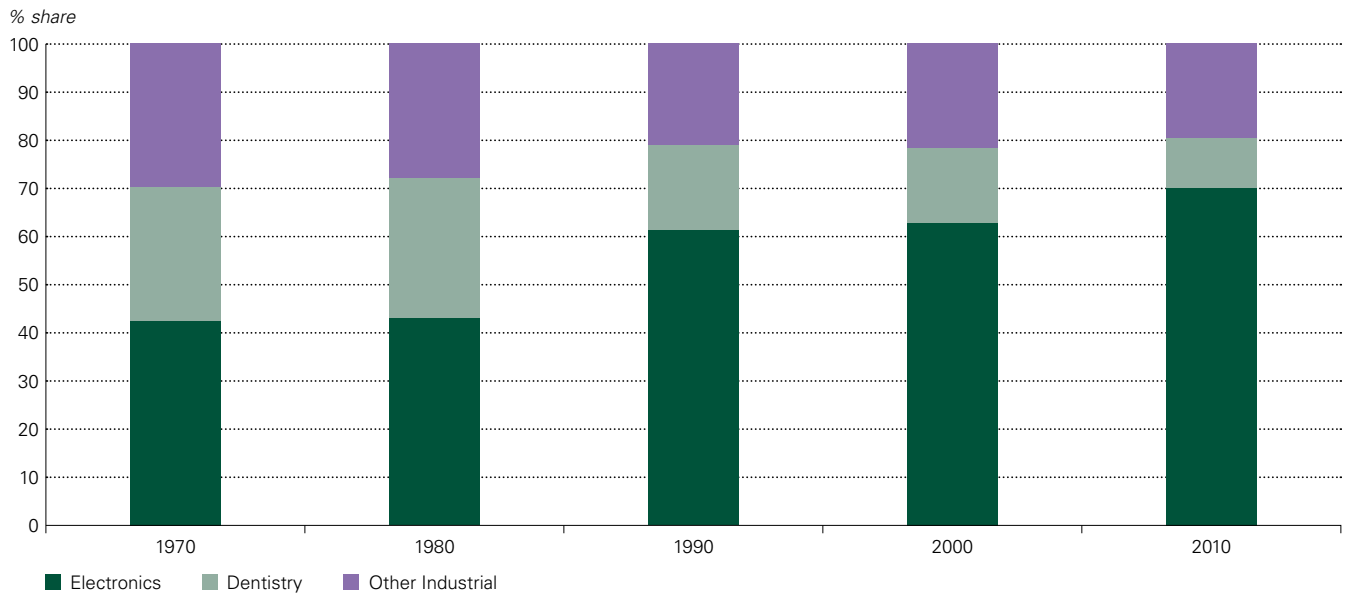
*CIS: Commonwealth of Independent States.

Source: Thomson Reuters GFMS, World Gold Council

7 Prior to 1980, information on bar demand was incomplete and prone to revision. After 1980, improvement in collection techniques meant that individual country demand was available for a broad selection of countries. However, European and North American demand has only been available on an aggregate level. Prior years reported the two regions combined as a residual, under implied investment (1980 and 1990). While this residual will contain other forms of demand such as OTC investment, we are reasonably confident that the bulk of that number is representative of bar demand in Europe and North America prior to 2000. It therefore also forms the basis of a conservative estimate of the distribution of that residual. In addition, as bar investment demand is a net figure and can be negative, we have assigned zero values in place of negative values to ensure a credible distribution. In those instances, 'disinvestment' has been assigned to supply.

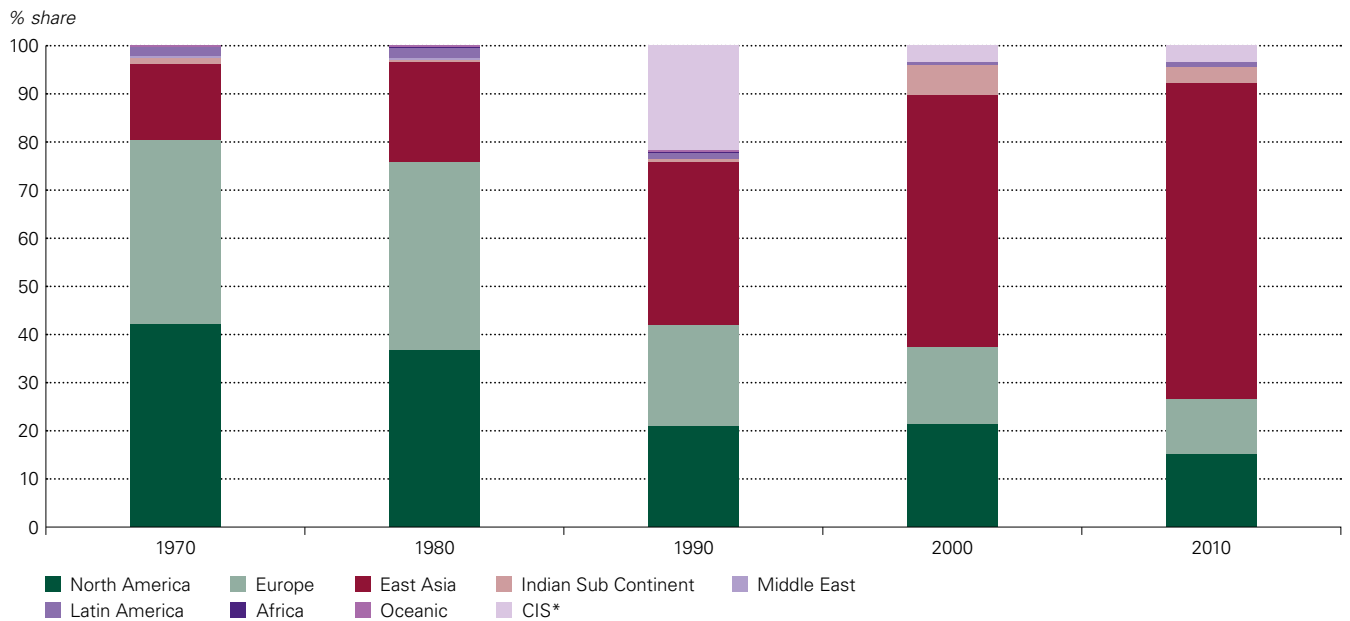
8 The geographical distribution of ETF demand, only represented in the 2010 column, is based on the location of the primary exchange of individual ETFs. While a proportion of investors will be domiciled outside the country of primary exchange, we are confident that a majority of ETFs are representative of domestic demand.

Chart 5: Distribution of technology demand by category



Source: Thomson Reuters GFMS, World Gold Council

Chart 6: Distribution of technology demand by region



*CIS: Commonwealth of Independent States.

Source: Thomson Reuters GFMS, World Gold Council

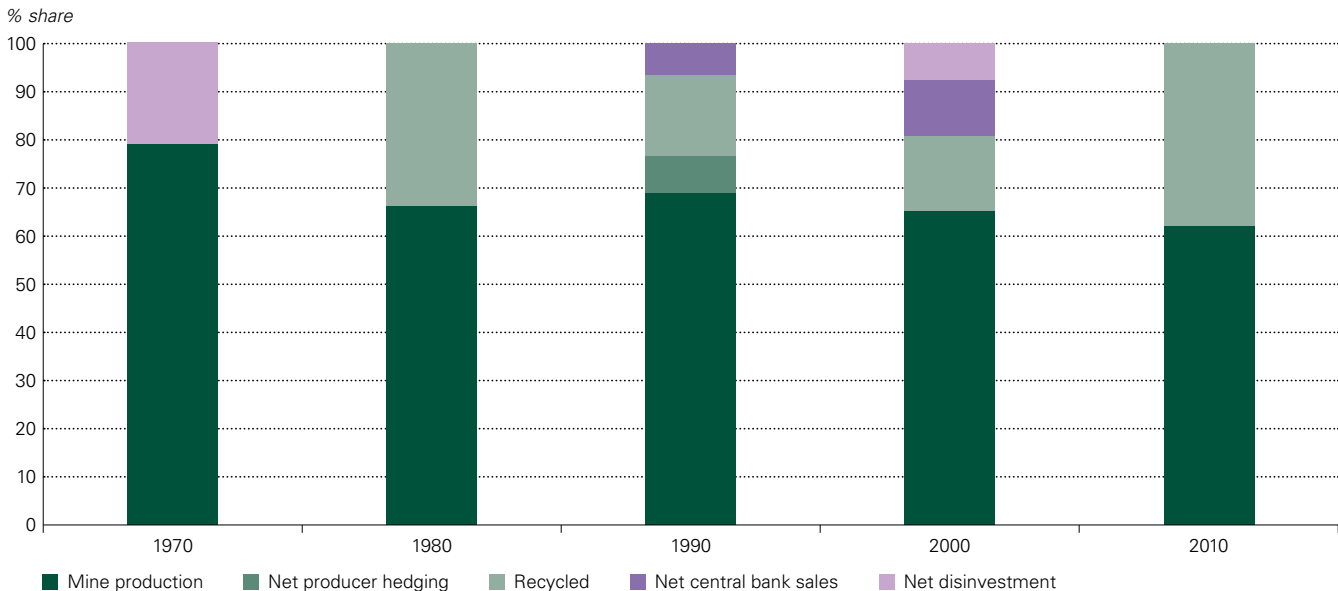
The structure of supply – Out of Africa

As the demand side of the equation has experienced a global balancing between East and West, dominated by the US, Europe, China and India, the supply side has witnessed a true dispersion across the globe. Mine production has historically constituted between 60-70% of total supply (recycling was not measured in 1970), with recycling, net central bank sales, net producer hedging and disinvestment forming the rest (Chart 7).

One of the most visible differences between the current market and that of the early years of a freely traded gold price is the geographical concentration of mine production (Chart 8).

South Africa's dominance during the first two decades was striking. In 1970, the country produced 79% of 'free world' (non-communist bloc) gold. Estimates for communist bloc production at the time were around 350 tonnes,⁹ which would have reduced this share to about 62%. However, as communist bloc supply was not available to the global market directly (traded via central banks) the former percentage is more indicative of influence.

Chart 7: Distribution of gold supply by category



Source: Thomson Reuters GFMS, World Gold Council

⁹ Thomson Reuters GFMS Annual Survey 1976.

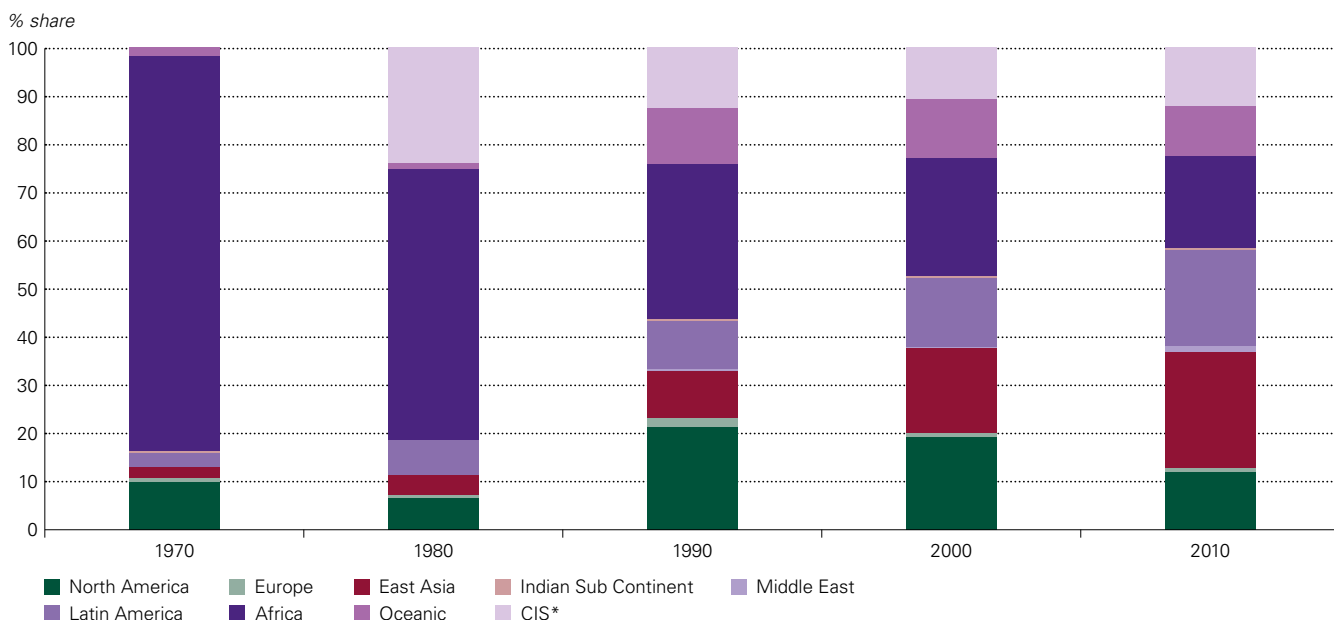
Dominance by a single state meant that protocols had to be put in place to ensure that South Africa's supply served global interests as well as domestic ones. One such agreement was made between South Africa, the US and the International Monetary Fund (IMF) in 1970 as the market price fell temporarily below the monetary price of US\$35/oz (a two-tier system of fixed and free price existed until 1971). It was decreed that in the event of urgent foreign exchange requirements, South Africa was allowed to bypass the market and sell its gold directly to the IMF.

Today, no single country supplies more than 14% of global production. In 2010, China was the largest single country producer with a 13% share, closely followed by Australia (10%), United States (9%), Russia (8%) and South Africa (8%). This lack of concentration serves as a buffer against supply

risks stemming from individual countries, a facet of gold that differentiates from the other precious metals, which have significantly higher production concentration.

Recycled gold supply (Chart 7), for which no figures were available in 1970, has experienced a marginal geographical dilution over the last 30 years. 1980 was a year of geopolitical crises, mostly centred in the Middle East with war between Iran and Iraq, American hostages in Tehran, the Soviet occupation of Afghanistan among others. These events took their toll as the Middle East became the centre for recycled gold, constituting 35% of global total. (Iran led the way with 17%, followed by Egypt and Turkey). By 2010, recycled supply had become less concentrated with East Asia the largest regional contributor at 27% (China was the largest single contributor at 8.4%).

Chart 8: Distribution of mine production by region



*CIS: Commonwealth of Independent States.

Source: Thomson Reuters GFMS, World Gold Council

Why has it changed and what are the implications?

The changes discussed in the previous section have many underlying drivers, among which are: deregulation and market reform; buyer motives; asset performance; geological constraints; liquidity; and economic imbalances.

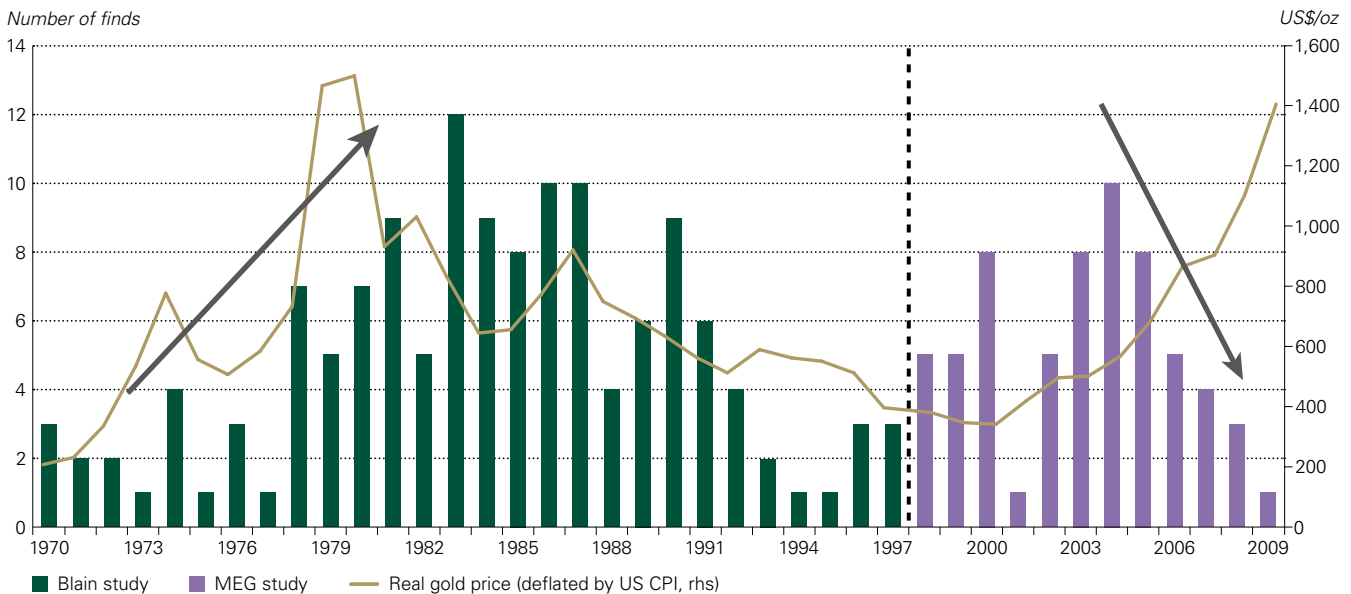
The evident shift in demand from West to East is substantially influenced by the regulatory and reform development in emerging markets following economic liberalisation. Openness and greater participation in global trade and capital markets have increased consumer access to gold and have driven wealth creation in newly industrialised nations. In addition, changes in regulation specific to the gold market such as the three consecutive central bank gold agreements (CBGAs) and the self-regulation by mining companies with regard to forward hedging, have also supported the stabilisation of the gold market. Finally, new products and ways to access to gold such

as ETFs and gold accumulation plans have released pent up demand and increased access and flexibility for individuals as well as institutions.

The shift from West to East has also diluted the motivation for holding gold. Whereas Western gold buying motives crudely involve profit, status, wealth preservation or diversification, buying motives in other regions also include affinity, auspiciousness, savings, and gifting. The rebalancing of geographical demand has also diluted motives for buying gold which, *ceteris paribus*, increases stability in the price.

One consequence of increased globalisation and capital market integration is that financial markets' performance becomes increasingly intertwined. This is evident in the increasing correlation between global asset prices, most notably equities. Gold's globalisation has not created the same problem as the motives and drivers of gold have become more, not less, heterogeneous.

Chart 9: Number of new gold finds



Please note that methodologies for each study may not be comparable.

Source: Chris Blain, Bloomberg, LBMA, Metals Economics Group, World Gold Council

While there are arguments for and against peak commodity production, most notoriously crude oil, there are signs that gold production is facing constraints going forward (Chart 9). Analysis by Metals Economics Group¹⁰ shows that the number of new finds in the latter half of the last decade was decreasing even as prices were rising rapidly. A study on the number of new finds by Chris Blain¹¹ over 50 years from 1950 to 1997 documented a peak in the mid 1980s.¹² One noticeable difference between the two is that as the price was rising in the late 1970s, the number of new finds was increasing. This, as noted, has not been the case over the last few years. The fall in finds cannot be attributed to a lack of exploration spending. In fact, this figure has been rising since 2002 and is now over four times higher¹³ than it was at the beginning of the decade, despite the global recession in 2008.

Another driver, and ultimate beneficiary, of the changing dynamics of the gold market has been liquidity. As detailed in a World Gold Council report,¹⁴ liquidity in the gold market is far greater than commonly perceived. Greater liquidity provides assurance for larger as well as smaller investors. It also provides better pricing transparency and enables gold to be bought and sold more easily; the latter being key during times when cash may be in short supply. Furthermore, recycling markets in the

West are less developed and prone to higher margins than in India for example, where jewellery can be bought and sold with ease. Increased liquidity provides a more ductile market, buffering price swings.

Finally, the global current account imbalances generated along with the emergence of BRIC countries and others have created an increased desire for sizeable holders of foreign exchange reserves to diversify. This need is a primary driver of the shift in central bank activity from net sellers to net buyers, and is expected to continue given low gold to total reserve ratios.

The recent turmoil in euro area debt markets, the consequences of global fiscal complacency, and geopolitical upheaval, has focused attention on gold as a bastion of wealth preservation, reliable collateral pledge, and monetary asset. The current environment draws parallels with similar conditions in the 1970s or 1990s and there is ample speculation that gold will mirror its behaviour in the past. However, such parallels overlook the evolution of gold fundamentals. The structure of demand and supply has changed radically over the past 40 years, driving the gold market towards increased stability, dispersion, liquidity and transparency. This evolution renders many historical parallels superficial and often fallacious.

10 Metals Economics Group, *Gold discovery and costs 1999-2010*.

11 Blain, Chris, 2000. *Fifty-year trends in minerals discovery – Commodity and ore-type targets*.

12 It should be noted that there may be differences in methodology between the two studies and as such they may not be directly comparable. However, the conclusions drawn by the authors are similar.

13 MEG 2000-2003 average = US\$640mn, 2007-2010 average=US\$2,740mn.

14 World Gold Council Research, *Liquidity in the global gold market*.