

Gold Investor

Risk management and capital preservation

In this edition:

- Investment commentary:
first quarter 2013
- Gold and currencies:
protecting purchasing power
- Gold in the *Great Rotation*
- Gold holdings: ample room
for growth in a broad and
liquid market

About the World Gold Council

The World Gold Council is the market development organisation for the gold industry. Working within the investment, jewellery and technology sectors, as well as engaging with governments and central banks, our purpose is to provide industry leadership, whilst stimulating and sustaining demand for gold.

We develop gold-backed solutions, services and markets based on true market insight. As a result we create structural shifts in demand for gold across key market sectors.

We provide insights into international gold markets, helping people to better understand the wealth preservation qualities of gold and its role in meeting the social and environmental needs of society.

Based in the UK, with operations in India, the Far East, Europe and the US, the World Gold Council is an association whose members comprise the world's leading gold mining companies.

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Foreword

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Managing Director and
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Welcome to the second edition of *Gold Investor*, which includes a selection of the latest investment research from the World Gold Council.

Gold has come under significant pressure over the past months. Following more than a year of range-bound prices, an exceptional sell-off in the middle of April has accentuated concerns that gold's bull run has come to an end.

In the short term, a stronger US dollar, fragile sentiment and worries over European central bank gold sales will create a challenging environment for gold prices. In addition, the concentrated and violent sell-off in the second week of April will shake confidence in gold prices for some time, but does not damage the long-term fundamental drivers or gold's long-term strategic value. We believe that despite the current turbulence, the fundamentals of the gold market remain well in place. Physical demand for gold remains strong in India and China. Between them, they account for over half of the annual global demand for gold. Further, irrespective of potential gold sales in Cyprus, central banks, particularly in emerging markets, have been net buyers of gold for several years and the conditions and objectives driving these purchases remain in place.

In addition, the continuing economic malaise in the OECD, high levels of accumulated indebtedness, the ramp up of quantitative easing (QE) in Japan, and the continued effects of the European sovereign debt crisis serve to remind investors that this economic and credit cycle is different: the solutions will be protracted and the background level of investment risk is higher than in the past. In our view, despite the recent and widely followed pullback in its price, gold has never been more relevant as an investment asset and currency.

In this edition of *Gold Investor*, we examine the benefits of holding gold in an environment where expansionary monetary policies and the resultant global imbalances in capital accumulation and borrowing, imply significant levels of currency debasement and more frequent tail-risk events.

We also explore what a rotation back into equities, in light of improved investor sentiment surrounding economic recovery in the US, might mean for gold. While there has been some debate about whether a shift from safe to riskier assets could be negative for gold, its diversification credentials increase portfolio efficiency in both good and bad economic times. In addition, we debate why higher portfolio risk – consistent with a rotation out of cash or bonds into equities – actually warrants a higher strategic gold allocation.

I hope you find this edition of *Gold Investor* informative and stimulating and would welcome your views on the papers contained within.

I: Investment commentary: first quarter 2013

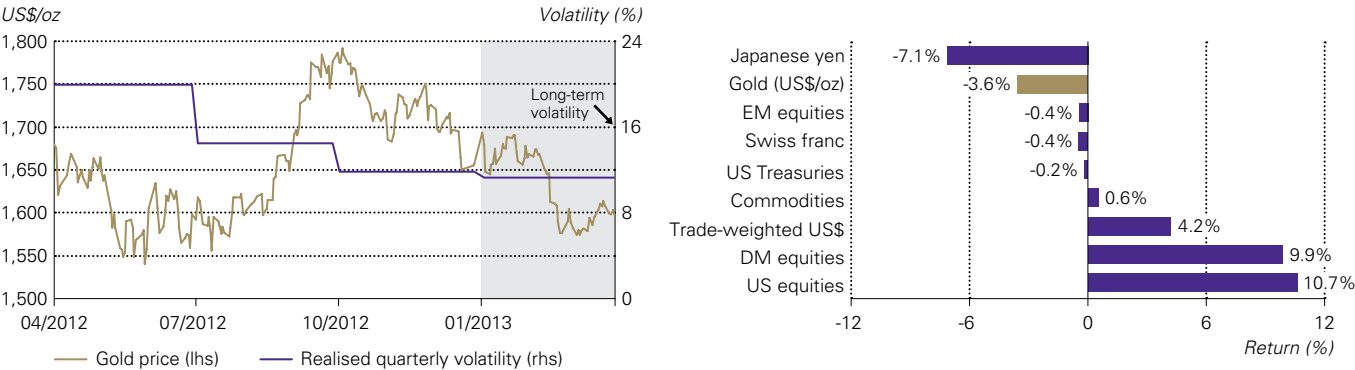
Gold’s recent price weakness and the sizeable outflows from gold-backed ETFs have rekindled speculation about the end of gold’s bull run and generated comparisons to its 1980s decline. We discuss the limitations of the most common arguments and contextualise gold’s price pullbacks. We examine structural shifts that the gold market has experienced over the last decade resulting in a robust set of demand factors, very different from that seen during the 1970s.

First quarter performance

Gold prices fell 3.6% in Q1 amid gains in developed market equities.

Gold prices fell by 3.6% during the quarter (**Chart 1a**) alongside traditionally ‘safe’ assets such as US Treasuries, the Swiss franc and Japanese yen amid sizable gains in developed world equity markets – with US equities alone gaining 11% (**Chart 1b**). The US dollar appreciated by more than 4% in the period creating some headwinds for the gold market. Following the quarter’s end, during an erratic two-day move in mid April, gold prices had dropped a further 10%.

Chart 1: (a) Gold prices continued to fall, while (b) developed market equities soared during the quarter



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

Sentiment in the US may have improved, but problems in Europe linger.

During Q1, positive economic developments in the US prompted investors to rotate funds out of cash into equities, a phenomenon we discuss in *Gold in the 'Great Rotation'*. There was also a slight improvement to European economic confidence early in the quarter, but it did not last long. News of a proposal to tax bank deposits in Cyprus eroded investor confidence and temporarily boosted gold prices. While Cyprus was a case of limited contagion, their deposit tax solution set a precedent and sent shivers throughout Europe. Subsequently, the European Central Bank signaled that Cyprus could employ central bank gold reserves to cover losses from emergency loans to commercial banks, putting downward pressure on prices and exacerbating bearish views in the gold market. While Cyprus's decision to sell gold has not been confirmed, the announcement raised concerns about central bank independence and the prospect of sales by other European nations. However, both the Central Bank Gold Agreement (CBGA)¹ and strong emerging market demand, which accounted for the bulk of 2012 central bank purchases (535 tonnes), should allay fears.

In Japan, aggressive inflationary policies will benefit gold in the long term.

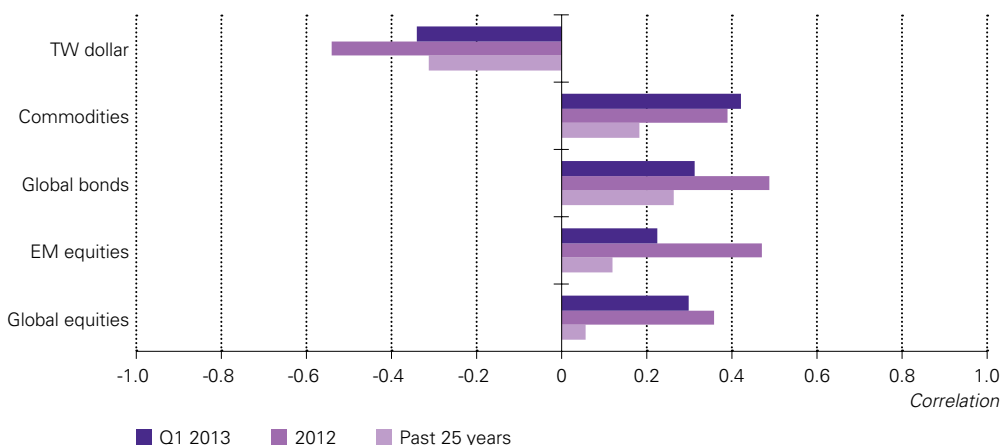
Elsewhere, the Bank of Japan (BoJ) enacted unprecedented expansionary monetary policies in early April weakening the yen to almost ¥100 per US dollar – a level not seen since 2009. Expansionary measures should generally be positive for gold. However, after more than a decade of deflation, Japanese investors have seen this as an opportunity to increase flows into equities. Additionally, one unintended consequence of a ballooning monetary base in Japan is the flow of capital into foreign assets, primarily US-dollar denominated assets, which in the short term can be negative for gold. Over the longer term, concerns about higher inflation and the sustainability of BoJ policies are likely to become more apparent and make gold's role more relevant.

Gold's volatility marginally fell during Q1 and so did correlations.

Gold's volatility marginally dropped to 11.1% during Q1 2013 – its third lowest quarter in the past decade. Gold volatility typically decreases in a falling price environment in contrast to what is typically observed in most risk assets. However, a sudden 9% price drop on April 15 has pushed gold's volatility higher; despite this gold's three-month rolling volatility (approximately 20% by the time of writing) is still within levels seen as recently as Q2 2012. At the same time, gold's correlation to other assets fell during Q1 2013 relative to 2012 as macroeconomic drivers that pushed many risk assets higher, did not have the same effect on gold. Nonetheless, correlation remains high compared to historical levels (**Chart 2**).

But what does the current period tell us about gold's bull run?

Chart 2: Gold's correlation to global assets fell during Q1, but are still high relative to history



Reference notes are listed at the end of this article.

Source: Bloomberg, J.P. Morgan, World Gold Council

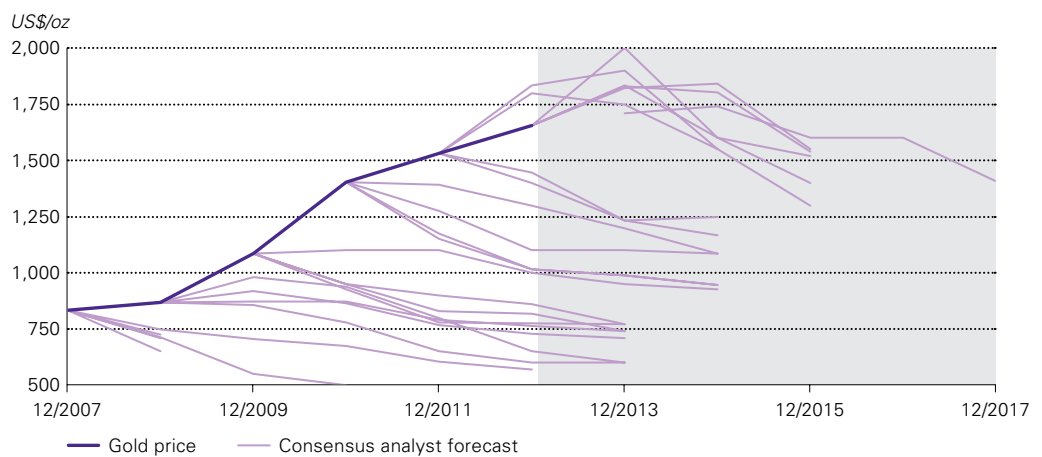
¹ CBGA prevents signatories from collectively selling more than 400 tonnes of gold in a year and includes all European Union members.

A perspective on gold's recent pullback

With gold prices dropping by 16% in Q1 from their high, analysts have called the end of the bull run, but not for the first time.

The gold price has appreciated for the past 12 years, with average and year-end prices consistently rising since 2001. However, gold prices have fallen from their nominal high of US\$1,895/oz (based on the London PM fix) set on 6 September 2011. By the end of Q1 2013, gold traded near US\$1,600/oz – a 16% pullback from its record high. In the first weeks of April, exceptional conditions pushed the gold prices down further (as much as 27% below the US\$1,900/oz level). As gold prices fell, market participants questioned whether this drop represented the end of the bull market and many gold analysts revised down their long-term price forecasts. In the past, analysts' short-term price predictions have not been without merit despite the difficult task of forecasting gold. However, gold's longer-term outlook has consistently been underestimated and the top of the market called on multiple occasions (**Chart 3**).²

Chart 3: Consensus analyst forecast has consistently been bearish on gold prices



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

Often, price predictions exclude the effect of non-US factors.

It appears that, as a consensus, gold analysts have failed to appreciate the structural changes that have taken place in the gold market, firmly supporting price increases over more than a decade. Additionally, most of the analysis tends to focus on US-driven factors neglecting other important global variables. This leads to a particularly relevant question: is the recent pullback a true sign of changing dynamics or is it consistent with gold's 12-year trend?

In 2011, gold prices rapidly rose to a record high, not giving time for organic demand to adjust.

First, we need to understand the economic environment that pushed gold prices to US\$1,900/oz. During 2011, concerns over the economic health of the US and Europe and the aggressive monetary policies that followed (Western demand) coupled with strong emerging market growth (Asian demand) boosted gold prices. Gold prices accelerated from US\$1,500/oz in June to US\$1,900/oz in less than two months – an uncharacteristic acceleration. Such sharp increase proved difficult for long-term demand drivers, such as Asian and central bank demand, to support. The issue was not the price level itself, but how rapidly prices rose. In this sense, using an US\$1,900/oz as a benchmark for comparison overstates the correction and obscures the long term trend.

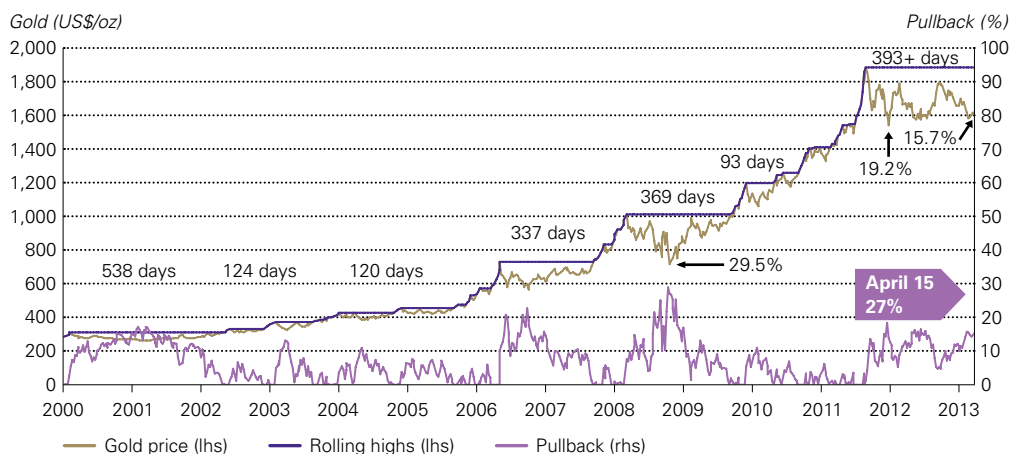
² This systematic bias is by no means confined to the gold market. Interest rate strategists have consistently had an upward bias to their forecasts of benchmark interest rates in the US, predicting higher rates even as the 2008-09 financial crisis unfolded.

However, this pullback has not been the first. Prices have fallen by more than 10% seven times and three times by more than 20% since 2001.

Even so, it is not the first time the gold market has experienced a pullback of this magnitude and will likely not be the last. Asset price pullbacks occur naturally across financial markets and gold is no exception. Instead, it is important to understand the sustainability of long-term drivers once the effect of short-term drivers wears off. For gold, price pullbacks have often been linked to investor profit taking, higher opportunity costs, and less uncertain economic environments, among others. However, given that only 35% of annual demand is currently driven by investment, many others factors influence gold's performance. These factors such as emerging market demand or central bank activity have little to do with economic conditions in developed markets. Over the course of its 12-year bull run, gold prices have fallen by more than 10% (peak-to-trough) on seven occasions and by more than 20% on three (Chart 4).³ The largest correction took place between March and October 2008, when gold prices fell by 30%. After each of those occasions, gold prices made new highs supported by healthy demand. In fact, anecdotal evidence suggests that Chinese and Indian consumers as well as emerging central banks have used price pullbacks as buying opportunities.⁴ Such purchases have made the news following gold's exceptional mid April sell off, as purchases have been brought forward in response to lower prices.⁵

So, what has made the gold market been so resilient for such an extended period of time?

Chart 4: The gold price has previously fallen by more than 10% seven times since 2001



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

A decade shaped by structural changes

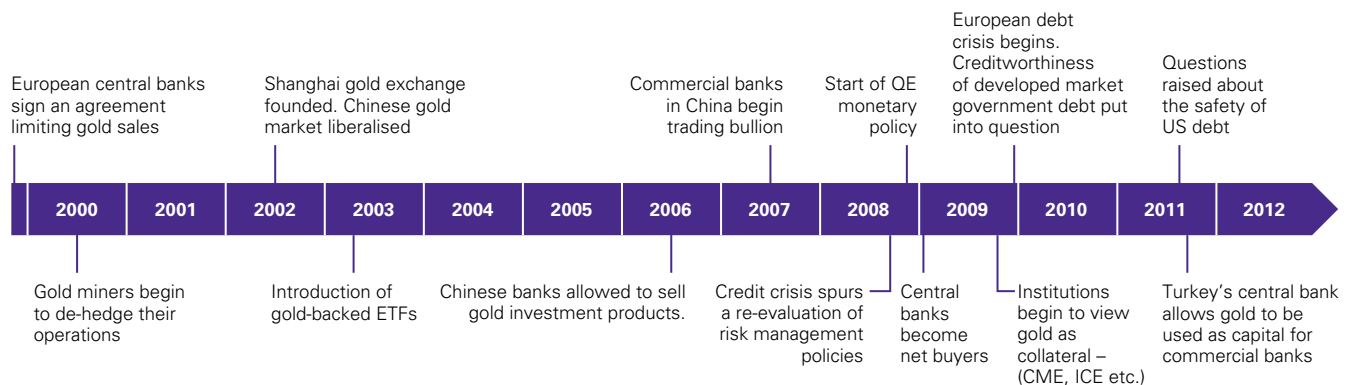
The gold market has seen multiple structural shifts since the turn of the century...

The gold market has seen a number of positive structural changes since 1999 (see timeline opposite). These include the launch of gold-backed ETFs, the liberalization of the Chinese gold market, the Central Bank Gold Agreement, developments in the use of gold as collateral, an increase in emerging markets disposable income, and the resurgence of investment demand as a by-product of the 2008-09 financial crisis and its aftermath. The effect of these events was not felt immediately, but its combined and long-term effects have had significant implications for gold.

³ We define a separate pullback as one that occurs for a unique period of a new high. In other words, multiple oscillations around the 10% pullback level for the same period were not counted.

⁴ *Precious metals daily*, UBS, 5 April 2013 and *Precious metals daily*, HSBC, 25 March 2013.

⁵ Bloomberg, *Gold tumble stokes demand from Indian bazaars to Chinese malls*, 18 April 2013.



Reference notes are listed at the end of this article.

...such as the advent of gold-backed ETFs...

The introduction of gold-backed ETFs has made gold investment accessible to a wider audience through a transparent, regulated and liquid instrument that is backed by physical gold (and thus is not a derivative contract). While gold-backed ETFs represent only 10% of average annual demand (and less than one-third of investment demand). As of the end of Q1, there were 2,600 tonnes of gold held in the form of ETFs, corresponding to just 8% of above-ground stock held by private investors. The amount held in ETFs is roughly equivalent to one full year of mine production.

...strong demand from India, China, and other emerging markets...

The establishment of the Shanghai gold exchange and the legalization of gold investment purchases were tectonic shifts for the Chinese gold market. In turn, consumer demand has increased from 200 tonnes per year in 2002 to over 750 tonnes per year in 2011 and 2012. Chinese demand growth was not only fuelled by accessibility but by higher economic output. In fact, growth in India, South East Asia and many other emerging economies has been particularly relevant to the gold price development. As GDP and incomes in these countries increased, so did demand for gold.

...a reassessment of risk management practices by investors in developed markets...

The financial crisis of 2008-09 represented a paradigm shift, structurally changing investors' risk management practices. The fallout has led developed market central banks to heavily intervene in financial markets by implementing aggressive monetary policies. A persistent increase in central bank balance sheets has motivated many western participants to purchase gold as a hedge against future inflation and currency debasement. While assets such as US Treasuries, German bunds, UK gilts, and Japanese Government Bonds are still widely considered 'safe', the financial crisis and its aftermath has exposed some of their weakness, lowered their ratings, and prompted questions not only on the underlying creditworthiness of government bonds but their excessive correlation. Even as the economic environment improves, most structural problems in developed markets have not been properly addressed leading to an increasing frequency of tail risk events as summarised in *Gold holdings: ample room for growth in a broad and liquid market*.

...and central banks have turned to net buyers.

Additionally, central banks have become net buyers after two decades of selling. The impact of central bank activity is driven by two trends. European central banks, that had been the primary source of central bank sales since the collapse of Bretton Woods and the gold standard, slowed down their sales. At the same time emerging market central banks started to increase their gold purchases as they looked to diversify their foreign reserves. As a result, what was close to 500 tonnes of annual supply less than 10 years ago had become over 500 tonnes of demand by 2012.

Two very different bull runs

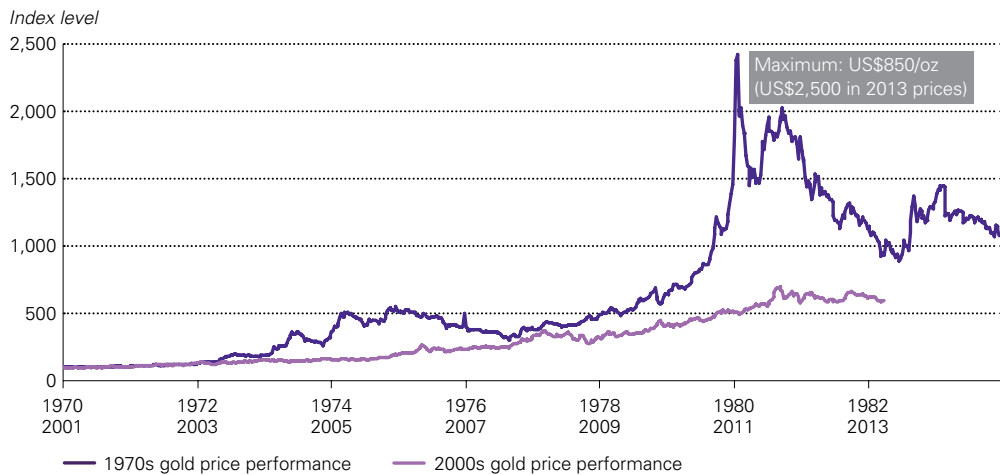
In contrast, gold demand during the 1970s was fuelled by cyclical factors.

The recurring comparison between the current gold price trend and the seemingly equivalent inflation-adjusted price appreciation gold experienced period between 1971 and 1980 is, in fact, a simplistic and flawed parallel. These two periods have been characterized by different price performance and remarkably dissimilar fundamental drivers. During the 1970s, the advent of fiat currencies made gold a free-floating market while private gold ownership was once again permitted in the US. During that decade, oil prices spiked and tensions in the Middle East rose, leading to hyperinflation and instability. Gold prices shot up on the back of these tailwinds. However, speculative flows led the way, not giving enough time for demand to grow organically.

Prices quickly rose amid violent pullbacks and ownership levels were high.

During the 1970s, gold prices rose by an average of 30% per year, with similar levels of volatility. At their peak, inflation-adjusted prices rose 12-fold to more than US\$2,500/oz amid violent pullbacks of over 40% (**Chart 5**). A combination of fewer financial assets available, strong gold investment demand, and a meteoric price increase, substantially increased gold ownership levels to a 14% share of all financial assets. In comparison, gold represents just 1% of assets today as discussed in *Gold holdings: ample room for growth in a broad and liquid market*. At the same time, the gold market was significantly less diverse. During the 1970s, demand was largely driven by purchases in the US, UK and Europe which accounted for approximately 60% of demand leading up to gold's peak (**Chart 6**). On the supply side, South Africa greatly dominated mine production and a flurry of discoveries increased supply in the early 80s, putting further downward pressure on the gold price.

Chart 5: Gold's current bull run has been measured and steady, in stark contrast to the 1970s price action

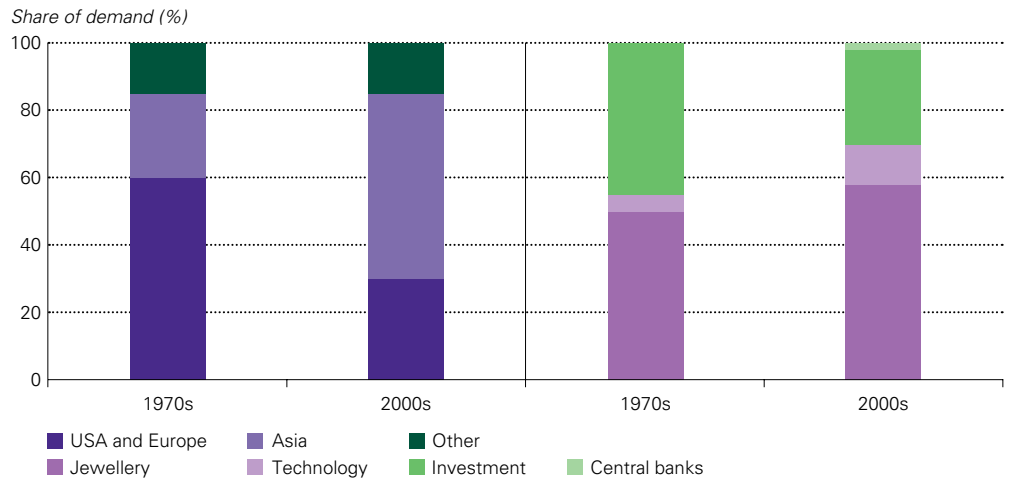


Price performance	1971 – 1983	2001 – present
CPI inflation	9%	2%
Annual return	30%	16%
Volatility	29%	19%
Maximum price increase	1,065%	465%
Maximum pullback	46%	29%
Number of 20%+ pullbacks	4	2

Reference notes are listed at the end of this article.

Source: Bloomberg, LMBA, IMF, Thomson Reuters GFMS, World Gold Council

Chart 6: Geographic composition and source of demand is more diverse today than it was during the 1970s



Source: Thomson Reuters GFMS, World Gold Council

For the past decade, gold has been supported by a robust combination of factors.

In contrast, the bull market in the 2000s, influenced by the structural factors previously discussed, has been driven by growth in Asian emerging markets and economic problems in developed markets. Demand and supply are more balanced and geographically diverse resulting in a measured and less volatile trajectory.

Short term factors can put pressure on gold, but long term dynamics remain healthy.

What does the future hold?

Short term factors including market momentum and the concentrated sell-off following analysts' downward gold price forecast revisions along with Cyprus' gold sales contagion could put pressure on gold prices in the near future. However, we consider that many of the fundamental drivers that have supported gold's 12-year trajectory are still well in place. Data suggests that some investors in developed markets are betting on a swift economic recovery, and while economic data may seem encouraging in the US, many of the underlying issues that financial markets face are still relevant: countries face high level of debt while monetary policies have yet to unwind. At the same time, gold's fate does not rely only on uncertainty and malaise in developed markets. Gold's performance is also linked to their long-term economic expansion. There is consensus that emerging market economies will continue growing. Most economists agree that emerging markets will continue to grow and surpass developed market economies by 2020 in term of GDP.⁶ Finally, the US dollar will likely remain a crucial component of the monetary system, but may have to make room for others. As central banks diversify their foreign reserves, gold will continue to be one of the most relevant assets.

⁶ Economist, *Power Shift*, 4 August 2011.

References

Chart 1: (a) Gold prices continued to fall, while (b) developed market equities soared during the quarter

(a) Realised volatility is computed using daily returns for each quarter. The wide arrow on the right represents the long-term volatility computed using return data from December 1987 to December 2012.

Chart 2: Gold's correlation to global assets fell during Q1, but are still high relative to history

Correlations are computed using daily data over the period referenced in the legend. 'TW dollar' is a trade weighted currency basket for the US. Barclays Global Aggregate, MSCI Emerging Markets and MSCI World are used for global bonds, emerging market and global equities, respectively.

Chart 3: Consensus analyst forecast has consistently been bearish on gold prices

Analyst forecast is a median of analyst estimate of future gold prices as indicated by the Bloomberg composite. Gray lines correspond to these forecasts.

Chart 4: The gold price has previously fallen by more than 10% seven times since 2001

The red line labelled rolling high is a rolling maximum price moves up when new a high is reached. The days shown in the chart represent trading days, not calendar days. Pullback is calculated by taking the percentage difference between the gold price and the relevant rolling highs.

The table below shows the relevant dates of highs at each stage, the date of the 10% pullback and the date of the maximum pullback followed by the maximum gold price for each period, the price at the maximum pullback price and percentage as well as the length of the pullback period.

Count	Date of high	First date prices fall more than 10%	Date of maximum pullback	Gold price high (US\$/oz)	Gold price (US\$/oz) at maximum pullback	Maximum pullback	Trading days to new high
1	07/02/00	28/03/00	02/04/01	312.70	255.95	-18.1%	538
2	05/02/03	13/03/03	07/04/03	382.10	319.90	-16.3%	124
3	01/04/04	07/05/04	10/05/04	427.25	375.00	-12.2%	120
4	12/05/06	19/05/06	06/10/06	725.00	560.75	-22.7%	337
5	17/03/08	01/04/08	24/10/08	1,011.25	712.50	-29.5%	369
6	02/12/09	22/12/09	05/02/10	1,212.50	1,058.00	-12.7%	93
7	05/09/11	23/09/11	29/12/11	1,895.00	1,531.00	-19.2%	-

Source: LBMA, World Gold Council

Gold market timeline of events since 1999

The events shown in the timeline have a structural influence on the gold price and were not necessarily price moving events at their announcements.

Chart 5: Gold's current bull run has been measured and steady, in stark contrast to the 1970s price action

The two price series were normalised (=100) at the beginning of each period: 1970 – 1983 and 2001 – 2013.

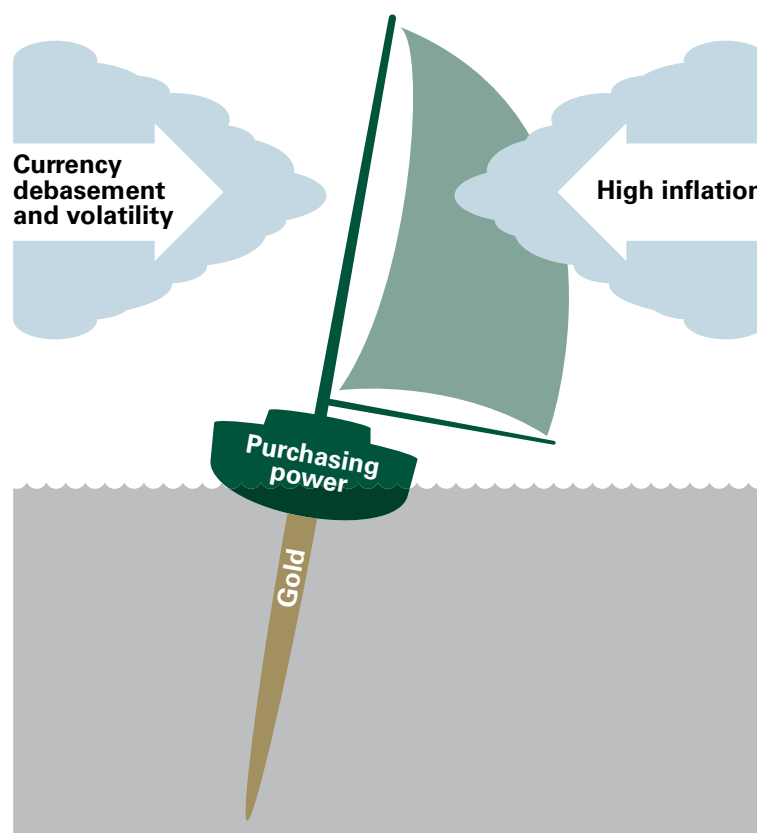
Return performance based on daily data. Fundamental drivers computations based on average annual figures.

Chart 6: Geographic composition and source of demand is more diverse today than it was during the 1970s

The 1970s period is computed using the annual demand data from 1973 to 1979. The 2000s period is computing using annual demand data from 2004 to 2012. Negative values of demand was considered part of supply and not included in the calculations. Many of these figures have been subsequently revised as a result of changes in methodology.

II: Gold and currencies: protecting purchasing power

Investors in developed markets face an economic environment marked by aggressive monetary policies, high debt-to-GDP ratios, and challenges to the long-term strength of their currencies. Gold should play an important role in any strategy adopted to preserve purchasing power and minimise downside risks in the face of these inflationary headwinds.



Gold is typically used to protect against inflation, but this quality is often misunderstood.

Gold is used today as an inflation-protection tool by many investors as it has been for centuries. However, its ability to help investors maintain purchasing power is often misunderstood, leading some market participants to question gold's usefulness as an inflation hedge. One of their primary arguments against gold has been that changes in gold prices tend to have a low correlation to changes in consumer price indices (CPI) in the US and other developed economies. This argument, however, has three important shortcomings.

Gold should be seen as a barometer of global inflation...

First, gold should be seen as a barometer of **global inflation**, one that responds to inflationary pressures in developed markets as well as in emerging markets. Notably, gold is bought in the form of bars, coins and jewellery in emerging markets as a way to preserve and transfer wealth. These markets have accounted for approximately 70% of annual demand over the past decade and many face high levels of inflation (**Chart 1**).

Chart 1: Gold demand is not limited to countries with current low inflation levels



Reference notes are listed at the end of this article.

Source: Bloomberg, Thomson Reuters GFMS, World Gold Council

...evaluated not only against consumer price baskets, but broader inflation measures...

Second, consumer price indices can be useful benchmarks in policymaking, but they are not always perfect gauges for the rate of inflation end-consumers (and investors) face: adjustments, substitutions, exclusions and weights given to each component may not coincide with what households experience day-to-day. Additionally, households' **purchasing power** is not only affected by prices for goods and services paid (ie, inflation), but also by their income level. It is important for investors to have a better sense of 'true' inflation through measures complementary to CPI, including the relative purchasing power reflected in the foreign exchange rates of their home currencies.

...and over long periods of time.

Finally, gold helps to preserve wealth over the **long run**. While there is evidence that suggests gold prices rise in periods of high inflation, as discussed in *The impact of inflation and deflation in the case for gold*, by Oxford Economics, the relationship between gold, inflation and, more broadly, purchasing power should be analysed over long periods of time and not on a monthly basis.

Here we analyse the role gold has protecting long-term wealth.

In this study, we analyse gold's role in preserving long-term wealth, focusing on its relationship to purchasing power using 'real effective exchange rates'. We show how gold can be used by investors as an integral component of their long-term investment strategies.

Is it not all about consumer price inflation?

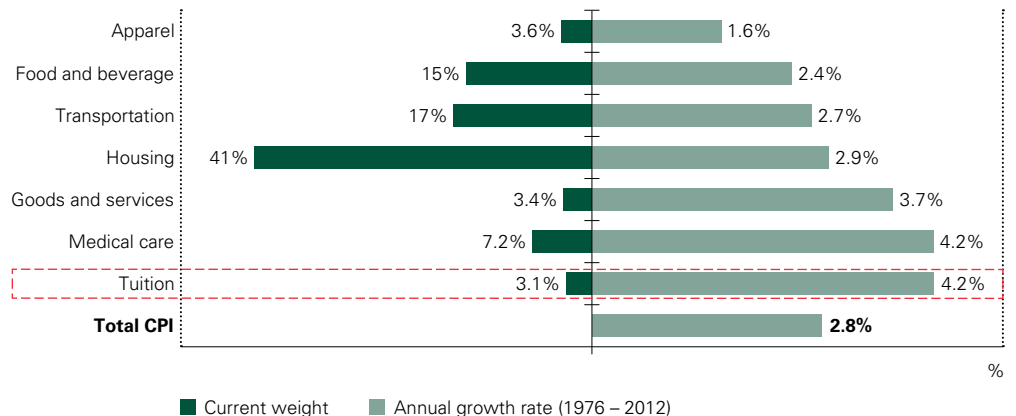
With the expansion of monetary policies, investors have grown concerned about the spectre of inflation, which has yet to materialise.

This is in part because consumer price indices do not always capture all relevant aspects of inflation for end-consumers...

Over the past five years, central banks in developed markets have engaged in aggressive monetary policies designed to steer economies away from an even deeper recession and, potentially, deflation. With the expansion of the monetary base (partly through quantitative easing measures) many investors have grown concerned about the spectre of future inflation. So far, inflation measured via CPI in many developed economies remains low, and inflation expectations appear well anchored – albeit with a higher degree of uncertainty and less consensus among economists.¹ Yet consumers feel poorer.² There are multiple reasons why this may be the case, but two are particularly relevant to investors who rely on inflation measures to make appropriate financial decisions: consumer price baskets do not always encapsulate all aspects of inflation and these need to be analysed relative to a broader set of purchasing power measures.

Baskets such as CPI are widely used for setting policy and making business decisions. The Bank of England and European Central Bank use UK CPI and European harmonised CPI (H CPI), respectively, as a benchmarks against their inflation targets. The Federal Reserve focuses on US CPI excluding food and energy (or core CPI) for policy making, despite the impact these two categories may have on households. The weights that different goods and services have in the aforementioned indices do not always correspond to what a household may experience. For example, tuition has been one of the fastest growing expenses for US households but represents only 3% of CPI (**Chart 2**). In practice, tuition costs correspond to more than 10% of annual income even for upper-middle American households³ – and a higher percentage of their consumption.

Chart 2: Important expenditures under-represented in US CPI



Reference notes are listed at the end of this article.

Source: Bureau of Labor Statistics, World Gold Council

1 *Top analysts' forecasts of the US economic outlook for the year ahead*, Blue Chip Economic Indicators, November 2012.

2 A reduction in buying power has been felt developed economies as discussed in: *Hard Times*, The Economist, October 2011, and *Dropping shopping*, The Economist, March 2013.

3 *College may become unaffordable for most in US*, The New York Times, December 2008.

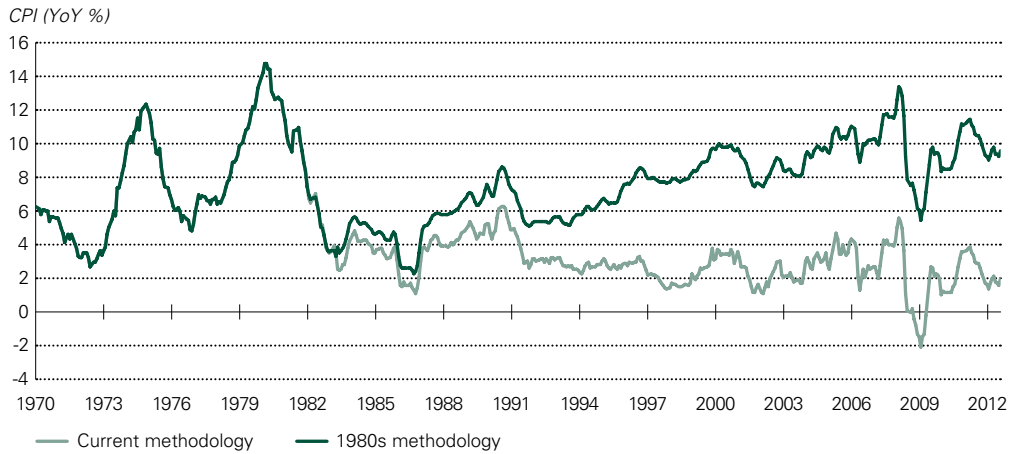
...whether for the component weights chosen, 'hedonic' adjustments made...

Moreover, consumer price baskets are frequently adjusted to incorporate the effect that advancements in technology (e.g. in computer hardware) have on prices paid. These so-called *hedonic* adjustments can overstate reductions in price compared to what consumers pay in practice. For example, a new computer can have the same nominal price it did five years ago, but adjusting for processing speed and storage capacity, it appears cheaper.

...or other methodological considerations.

In addition, there have been periodic substitutions of goods and services as well as other methodological changes that, while based in well-regarded economic theories, in practice do not always reflect the full erosion of purchasing power. In fact, as shown in **Chart 3**, the current rate of inflation calculated using the methodology in use during the 1980s – which foregoes many of these recent adjustments – is considerably higher than what is currently reflected by today's CPI methodology.

Chart 3: US CPI inflation rates computed using the current methodology are lower than indicated by a previous methodology



Reference notes are listed at the end of this article.

Source: Bureau of Labor Statistics, ShadowStats.com

While consumer price baskets are useful for policymaking, they are imperfect in measuring purchasing power...

However, we are not questioning whether CPI or core CPI are valuable measures for policy makers around the world, their theoretical validity, or whether the methodology used in the previous decades to construct these baskets is superior to the one used now. Our main argument is that consumer price baskets do not encapsulate all aspects of inflation and do not necessarily reflect actual prices paid by a large portion of consumers. Further, even if CPI inflation were the correct measure, it should be understood relative to household income. Incomes need to keep pace with inflation in order to maintain purchasing power. However, real incomes in the US, UK and Europe have been stagnant (and even falling) for the past decade, exacerbating the effect that tight economic conditions following the 2008-09 financial crisis have had on households (**Chart 4**).

Chart 4: Inflation-adjusted incomes in the US, UK and Europe have fallen



Reference notes are listed at the end of this article.
Source: Thomson Reuters, World Gold Council

...which is a more relevant metric for wealth preservation.

Understanding how to account properly for purchasing power erosion is of particular importance to investors. Thus, when making long-term asset allocation decisions, investors should focus on measures that better capture changes in purchasing power. But, if inflation as measured by CPI is not enough, what else can be added to the decision process?

Measuring purchasing power through exchange rates

As investors focus on purchasing power, they ought to consider the effects of currency devaluation...

An alternative way to measure the loss of purchasing power is by looking at the effect of currency depreciation. In theory, exchange rates should incorporate inflation rates differentials between countries. Over the long run and assuming an open global economic system, *real effective exchange rates* (REERs) – which measure exchange rates among currencies adjusting for the different levels of inflation – should remain in equilibrium (see **Focus 1**). This is what economists refer to as *purchasing power parity* (PPP). Currency intervention, trade restrictions and other factors may affect PPP.

...which can be measured using 'real effective exchange rates'.

However, free-floating currencies such as the US dollar, euro and pound sterling, with their fairly open and efficient markets, should be effective at pricing differences in inflation. When PPP does not hold for these currencies over the long-run, holding other things constant, the consumer price basket used to compute the REER may not be capturing 'true' inflation. Thus, when a free-floating currency depreciates in real effective terms, inflation in the country might be higher than what CPI would suggest. Additionally, research by the Bank of International Settlements suggests that "keeping the level of the real exchange rate depreciated (appreciated) for an extended period may lead to a sustained increase (decrease) in inflation".⁴ In other words, a structurally weak currency may fuel inflation over the long run.

Focus 1: Real effective exchange rates in summary

Why real exchange rates?, by Luis Catão offers a simple explanation on the importance of real effective exchange rates.⁵ Here's a summary of the main points:

- Nominal exchange rates reflect the domestic price of a foreign currency, but do not encapsulate fundamental differences in consumer prices vis-à-vis other countries.
- Real exchange rates (RERs) seek to measure the value of goods and services between countries and in its most simple expression is calculated as: (exchange rate) × (average price of good in one country) / (average price of good in another country).
- In practice, real *effective* exchange rates (REERs) are computed using consumer price baskets and measured against multiple trading partners at a time. The word 'effective' refers to this multi-country view of real exchange rates.
- REERs represent adjusted exchange rates that account for inflation rate differentials between a country and the rest of the world and whose weights are defined by the proportionate level of trade (or other relevant relationship) between economies.
- In the short term, REERs can exhibit considerable volatility. However, in equilibrium and over the long-term, purchasing parity should hold.
- While imperfect, REERs can be useful to identify large exchange rate misalignments and their negative consequences.

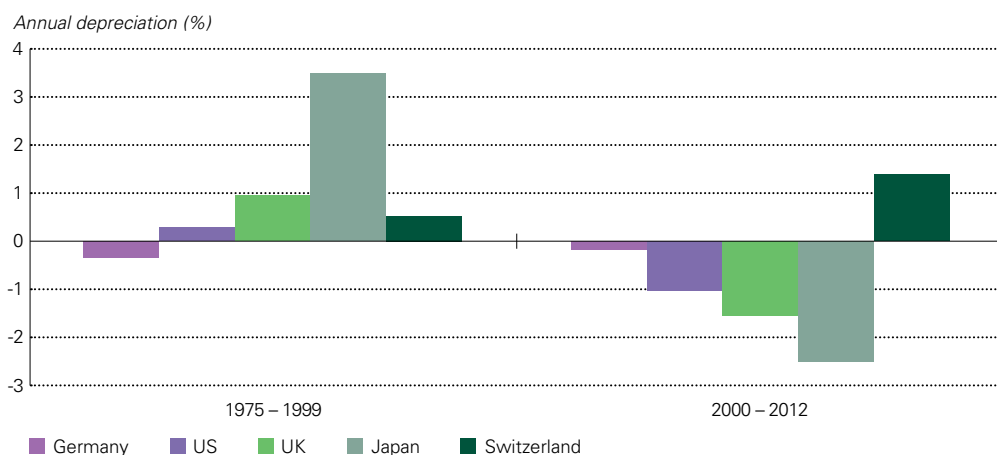
4 Kamin, S. *A multi-country comparison of the linkage between inflation and exchange rate competitiveness*, Bank of International Settlements, Working Paper No. 45, August 1997.

5 Catao, L. *Why real exchange rates?* Finance and Development, September 2007.

Most developed market currencies have been devaluating in real terms over the past decade...

For many developed economies, purchasing power has not remained constant. In nominal (non-inflation adjusted) terms, exchange rates are a zero-sum game. Some currencies appreciate at the expense of others. However, once inflation rate differentials are taken into consideration and a stable system is expected, a telling picture arises. Since the beginning of the century, only Switzerland has maintained purchasing parity with other currencies in real terms, while the US, the UK, Germany and even Japan have not (**Chart 5**). For example, US consumers have lost a cumulative 12% of their purchasing power through real effective currency depreciation alone.

Chart 5: Most developed currencies have depreciated in real effective terms over the past decade



Reference notes are listed at the end of this article.

Source: IMF, J.P. Morgan, World Gold Council

...and this trend is likely to continue.

Looking forward, as emerging markets continue their economic expansion and become even more important contributors to global GDP – and the monetary system as well – their currencies will strengthen, further challenging the purchasing power of investors in developed regions. In their paper *Gold, the renminbi and the multi-currency reserve system*, the Official Monetary and Financial Institutions Forum (OMFIF) discussed the Chinese renminbi and the likelihood of it gradually emerging to become genuine international currency as the Chinese government eases restrictions on its use in transactions and investments abroad. OMFIF further observed how, during the period of uncertainty and transition from a single to a multiple reserve currency system and as policy makers undertake alternative reserve asset management strategies, gold will play an important role.

Thus, a comprehensive wealth preservation strategy is called for.

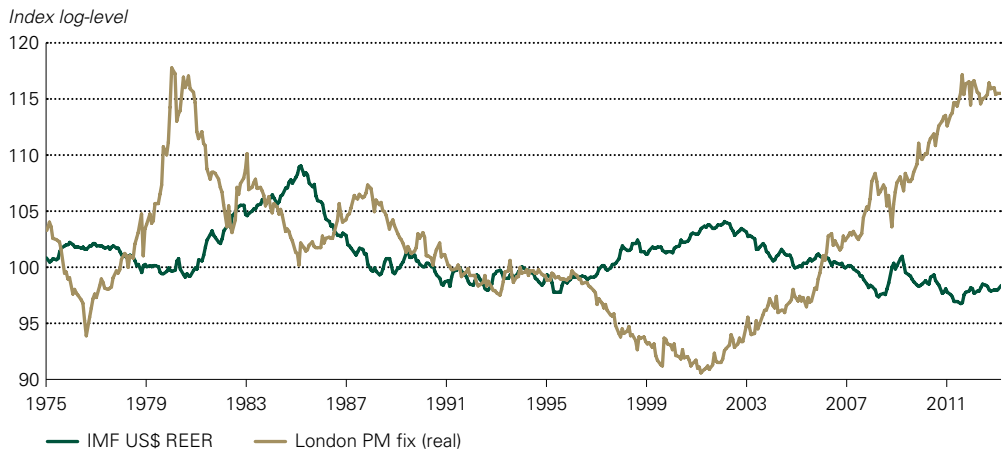
Likewise, it is particularly relevant for investors in developed markets to look for long-term strategies that can better maintain purchasing power. While it is unrealistic for US, UK, or European investors to forgo their domestic currencies, holding gold can protect investors' wealth while helping them manage downside risks.

Holding gold as a strategy for preserving purchasing power

Research has shown that gold provides benefits through its negative correlation to developed market currencies and its long-term price stability...

There is a large body of research that has studied the relationship between gold and inflation, examples of which are included in **Focus 2**. However, to fully assess the benefits that gold offers as a means of preserving wealth, the effect of both traditional inflation measures and currency depreciation ought to be included. As discussed in *Gold and currencies: hedging foreign-exchange risk*, gold not only has a negative correlation to the US dollar – a relation that is particularly apparent when using real effective exchange rates (**Chart 6**) – but it also exhibits a negative correlation to most developed market currencies in periods of systemic risk. Two natural questions then arise. First, would an investor benefit by using gold to preserve capital? And second, would gold be needed even if investors already have other currency-denominated assets as part of their long-term strategy?

Chart 6: Gold is negatively correlated to the US dollar and acts as a hedge



Reference notes are listed at the end of this article.

Source: Bloomberg, IMF, LBMA, World Gold Council

Focus 2: Gold and inflation

While gold should be seen in the context of global inflation and analysed over the long run, research suggests that even when linked to inflation in the US and other developed markets, gold tends to preserve investors' capital as it typically outperforms sharp increases in consumer prices. For example, in *The impact of inflation and deflation in the case for gold* Oxford Economics shows that gold performs better than most assets under extreme inflation conditions: namely, in periods of high inflation as well as in periods of deflation. Additionally, in his seminal work *The golden constant*, Roy Jastram finds that over long periods of time gold has maintained its value relative to wholesale (commodities) prices. This finding was extended to a CPI basket in multiple countries including the US, the UK, France and Japan by Stephen Harmston and the World Gold Council in *Gold as a store of value*.

...helping investors in preserving purchasing power.

We analysed various strategies comparing cash, foreign currencies and gold holdings...

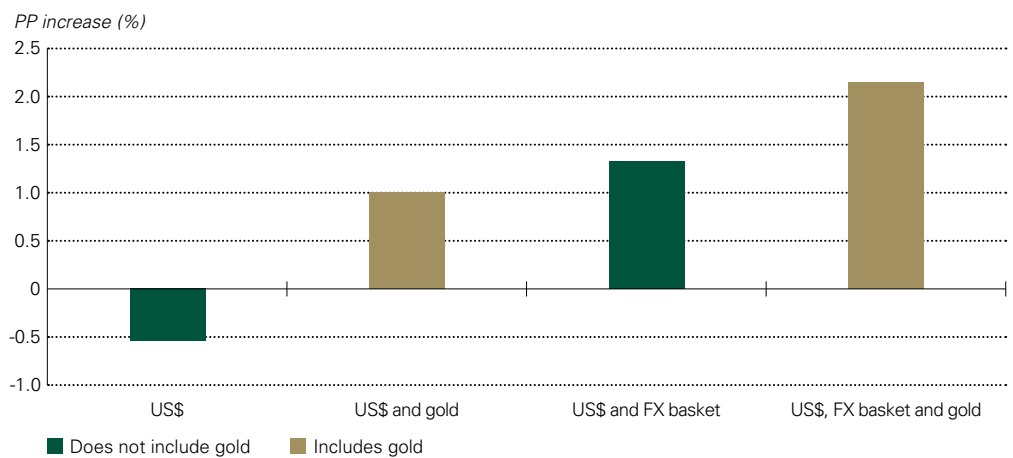
...and found that adding 2% to 18% gold improves purchasing power with equal or less risk, even when foreign currencies are part of the strategy.

Our analysis shows that investors do benefit by adding gold and, by holding a portion of their cash portfolio in gold, investors do not only maintain purchasing power but can also reduce volatility. Even if investors already hold other developed market currencies, gold provides additional (direct and indirect) advantages that improve the performance of their cash holdings.

Starting from a simple approach in which only cash was held, investors in US dollars would have lost an average of 0.5% per year for the past 40 years in *real effective* terms, and experienced annual volatility on the order of 5.1%. To understand the effect of adding foreign currencies and gold to the cash portfolio, we considered three alternatives strategies: 1) holding US dollars and gold; 2) holding US dollars, British pounds, euro, Japanese yen and Swiss francs, with no allocation to gold and 3) all previously mentioned currencies and gold.

We found that having a diversified set of currencies as part of cash holdings was substantially better at not only maintaining but increasing purchasing power. Holding gold improved the performance of a cash portfolio in US dollars as well as in a portfolio containing a basket of currencies (**Chart 7**). For example, calculations using data going back to the 1970s (when gold became free-floating) show that investors with 87% in US dollars and 13% in gold would have increased their purchasing power by 1% per year while maintaining the same level of volatility. Further, holding 47% in US dollars, 18% in gold and the rest in foreign currencies (primarily Swiss franc and yen) would have increased investors' purchasing power by 2.1% per year without incurring higher risk.⁶ In all, allocations to gold between 2% and 20% over the past 40 years have increased purchasing power for US dollar investors while reducing risk as well as extreme losses during negative economic environments.

Chart 7: Gold helps to preserve purchasing power by improving the performance of a basket of currencies



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

⁶ The optimal weights in the 'cash' portfolio were estimated with the objective of maximising purchasing power and computed using the Re-sampled Efficiency methodology developed by Michaud and Michaud and discussed in more detail in their book *Efficiency Asset Management: A practical guide to stock and portfolio optimisation and asset allocation*, 2nd edition, 2008, Oxford Press, New York.

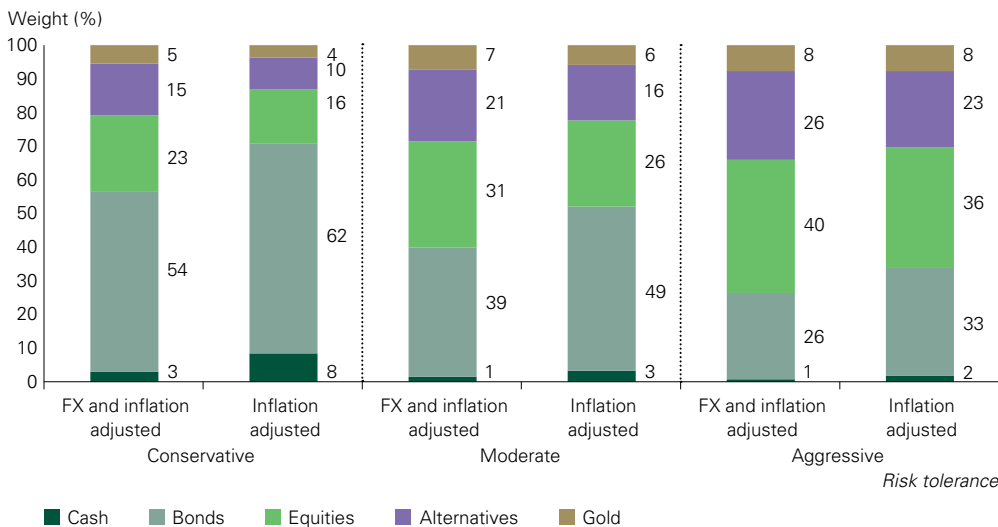
Gold can also benefit inflation-linked holdings...

...and when analysed in the context of a broader portfolio, a strategic allocation to gold not only improves purchasing power but manages risk more effectively.

We also considered the effect that purchasing power has on risk-averse investors who may focus only on hedging inflation risk as measured by CPI. A natural strategy to such investors in the US, for example, is to buy Treasury Inflation Protection bonds (TIPs). By holding TIPs only, US investors would have made 6.6% per year (in CPI inflation-adjusted terms) since 1997 when TIPs were first issued. However, once the *real effective* depreciation of the US dollar is taken into consideration, their return decreases to 4.3% per year. In contrast, by holding 95% in TIPs and 5% in gold, their portfolio return would have increased to 7% without adding volatility.

But cash or inflation-linked bonds are seldom the only assets investors hold. As summarised in *Gold in the 'Great Rotation'*, the case for gold in a multi-asset portfolio is robust across currencies. Including the effects of inflation and currency depreciation reinforces this view. For US dollar-based investors holding cash, domestic and international bonds and equities as well as additional assets such as commodities and real estate, we found that adding gold allocations between 1.7% and 7.8% improved portfolio performance by reducing risk and improving purchasing power – consistent with previous findings. Additionally, the analysis shows that taking into consideration the impact that *effective exchange rates* have on purchasing power substantially reduces the optimal weights that conservative, moderate and aggressive investors typically assign to cash and bonds (**Chart 8**). The rationale is straightforward: when the currency effect is not taken into consideration, assets such as cash, government bonds and even inflation-linked bonds appear stable and attractive. However, taking into account the inherent risks any currency has, exposes the drawbacks of holding large quantities of seemingly 'safe' assets. At the same time, optima allocations to foreign and alternative assets increase. In this case, diversification becomes paramount and gold stabilises portfolio volatility by counterbalancing risks,

Chart 8: Portfolios that take into consideration the effect of inflation and currency devaluation have more gold and less fixed income



Source: Barclays, Bloomberg, J.P. Morgan, World Gold Council

In addition, gold lacks the credit risk to which other currencies are exposed...

Our analysis used historical asset performance to estimate optimal allocations aimed at maximising purchasing power by taking into consideration currency inflation and currency depreciation. Many developed market economies currently face structural issues that increase their risk and reduce the benefits their currencies have as vehicles for diversification. These issues range from high levels of debt-to-GDP as seen in the Japanese and US economies, among others, to the long-term viability of the euro area as a single currency economy. In this case, gold has a few noteworthy characteristics: 1) it functions as a currency that has no credit or counterparty risk; 2) it trades in a liquid, global market; 3) new supply can only come from mine production, increasing the total available stock at low rates; and 4) even under the conservative assumption for the gold price to increase at the rate of inflation, its optimal weight in a portfolio is linked to its beneficial correlation to the US dollar and various other assets for investors.

...making it a valuable component of long-term investment strategies.

In sum, through a modest allocation to gold, investors are better equipped to protect purchasing power not only as measured by consumer price inflation, but also by broader measures that incorporate systemic currency depreciation.

The role of gold in a world of fiat currencies

As the global economy migrates to a multi-currency financial system, gold will help diversify risk and preserve wealth.

Many developed market currencies face a difficult time ahead. Following the collapse of Bretton Woods and the end of the gold standard, fiat currencies faced a new world with a new set of rules, originally devised to give more flexibility to central bankers. However, aggressive monetary policies developed to stimulate battered economies in the aftermath of the global financial crisis, coupled with record levels of debt issuance, large budget deficits, and a reassessment of what a 'risk-free' asset is, will likely put further pressure in developed market currencies, effectively depressing consumer purchasing power. As the global economy expands and the monetary system evolves into a multi-currency framework, gold is not only a natural participant in diversification strategies but an effective one.

References

Chart 1: Gold demand is not limited to countries with current low inflation levels

Average investment demand is the annual average of bar and coin and ETF demand from 2005 to 2012. Average jewellery demand is the annual average jewellery demand from 2005 to 2012. Annual inflation is the annual average inflation using the country's respective consumer price indices. South East Asia includes Indonesia, Vietnam, Thailand, Malaysia and Singapore. South East Asia annual inflation is a gold demand weighted average of those country's inflation rates.

Chart 2: Important expenditures under-represented in US CPI

Categories represent select segments of the CPI basket that comprise the majority of the index. Weights are as of 2012 and annual growth rates are computed using monthly data between 1976 and 2012.

Chart 3: US CPI inflation rates computed using the current methodology are lower than indicated by a previous methodology

1980s methodology computes the inflation rate using the CPI weights during the 1980s. The data and charts are taken directly from shadow stats. All questions with regards to construction of yearly inflation using the old methodology should be directed to ShadowStats.com

Chart 4: Inflation-adjusted incomes in the US, UK and Europe have fallen

All series are inflation adjusted using the country's inflation basket. US series is computed using median family income whereas UK and European series is computed using wage per capita data. Between 2007 and 2011 there were 2.6 persons per household on average in the US.

Chart 5: Most developed currencies have depreciated in *real effective* terms over the past decade

The chart shows the annual change in the real effective exchange rate. The effective exchange rate is calculated as a weighted average of a basket of currencies. For full methodology details please refer to the IMF.

Chart 6: Gold is negatively correlated to the US dollar and acts as a hedge

The chart plots CPI inflation-adjusted gold price against the US dollar's real effective exchange rate.

Chart 7: Gold helps to preserve purchasing power by improving the performance of a basket of currencies

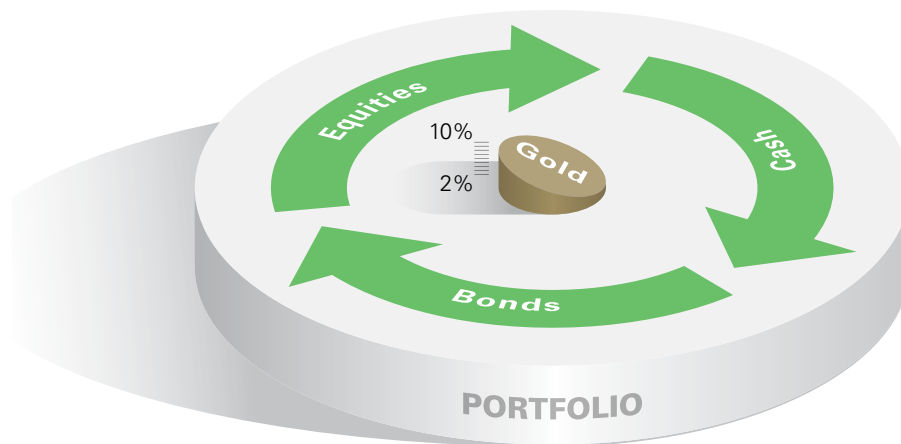
The chart shows the return of a portfolio consisting of the US\$ real effective exchange rate, gold and US\$ REER, basket of currencies and US\$ REER and gold, a basket of currencies and US\$ REER.

Chart 8: Portfolios that take into consideration the effect of inflation and currency devaluation have more gold and less fixed income

Portfolio analysis consistent of 13 assets including cash, US Treasuries, TIPs, global inflation bonds, US credit, Global treasuries, US large cap, US small cap, developed world equities, emerging market equities, real estate, commodities and gold. Returns, volatility and correlation were computed using monthly data from December 1987 to December 2012. The TIPS index incepted in March 1997 while the global inflation bond (ex-US) series incepted in December 1997. Inflation-adjustments using CPI (urban consumers).

III: Gold in the *Great Rotation*

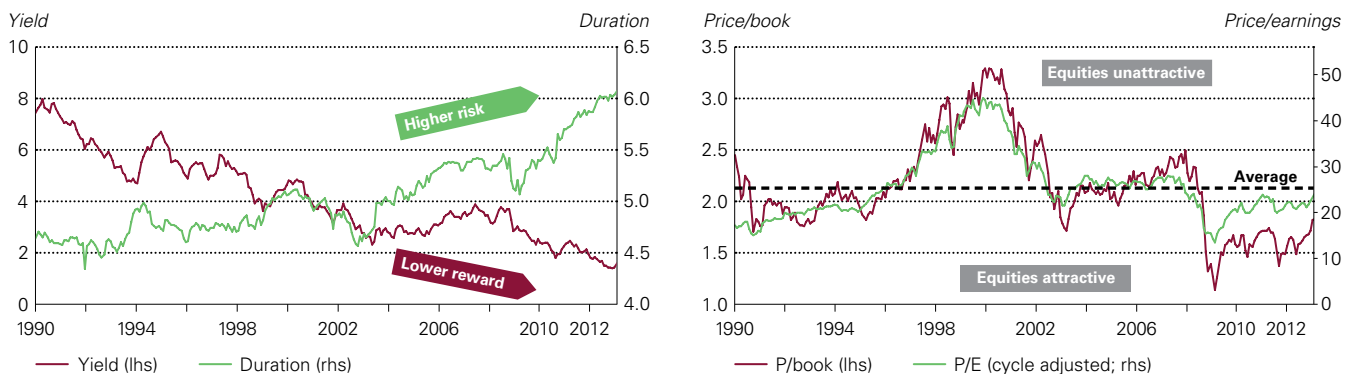
As the debate surrounding a *Great Rotation* continues to feed through both the press and the investment community, we show why gold has a perennial role in a portfolio regardless of the asset mix. We also highlight that higher portfolio risk – consistent with a rotation out of cash or bonds into equities – warrants a higher strategic gold allocation.



The ‘Great Rotation’ has been touted by strategists as a once-in-a-generation allocation shift.

Market observers have positioned the *Great Rotation*, a term loosely attributed in late 2012 to an investment bank’s global outlook for the year ahead,¹ as the replacement of a multi-year ‘cult of bonds’ with a new ‘cult of equity’.² Although by no means a new idea, this perceived shift has received particular focus of late and is currently hotly debated. Supported by a strong surge of capital into equity mutual funds and ETFs at the start of 2013, many argue that poor bond risk/reward profiles, relatively attractive equities and signs of economic recovery will prompt a large-scale reallocation to a more risk-neutral weighting involving fewer bonds and more equities (**Chart 1**).

Chart 1: (a) Bonds look poor, while (b) equities appear attractive



Reference notes are listed at the end of this article.

Source: Bloomberg, Thomson Reuters, World Gold Council

1 Bank of America Merrill Lynch, *High liquidity, policy traction and the great rotation – The Outlook for 2013*, 11 December 2012.

2 FT alphaville, *Let’s wait for a fall in stocks before declaring a great rotation*, 7 February 2013.

Whether a ‘Great Rotation’ is taking place or not, investors are right to ask how it may affect gold.

Setting aside the validity of an argument for a rotation (**Focus 1**), if we are indeed witnessing this shift, investors would want to know how it might impact gold. There are those who think that what is good for equities is naturally bad for gold, with gold seen simply as a ‘safe-haven’ asset that functions like insurance during times of market stress. They view gold as being negatively correlated to the business cycle and equate this to a negative correlation to equities. To some investors, a rotation out of bonds into equities might suggest a return to a normalised interest-rate environment – a theme discussed in the recent *Investment Commentary: Q4 and full year 2012* – raising the opportunity cost of holding gold and weakening its appeal.³ These perceptions can foster the sentiment that a *Great Rotation* calls for a lower strategic allocation to gold. We do not share this sentiment. Here’s why.

We address these concerns by showing that gold is not a luxury but a necessity.

Strong arguments support the perennial necessity of gold in a portfolio and the rationale that builds this case. In addition, portfolio optimisation analysis has consistently shown that as portfolio risk increases, the optimal strategic allocation to gold increases – a scenario synonymous with a shift from bonds to equities. Current flows suggest not an imminent large shift from bonds to equities but rather a subtle transition of new incremental income into both bonds and equities and away from cash. We show that gold’s optimal strategic allocation rises in this scenario, too. We also question whether long-term assumptions about bond performance are appropriate in setting allocation strategies, and how a relaxation of these assumptions affects an optimal gold allocation. So while we do not know how investors will react to a potential shift or to their interpretation of the current environment, we do know that an extensive body of research suggests that having gold is optimal, and should a shift occur, increasing gold allocations is warranted.

Gold and the *Great Rotation*

Gold is a foundation asset that has shown to always have an important role in a diversified portfolio...

Before we visit the implications of a historic shift from bonds to equities or safe assets to riskier assets, we first underline how a strategic allocation to gold is a necessity regardless of asset mix. In other words, the basic premise is that gold is not part of a rotation but sits apart from it as a core holding, due to diversification, tail risk and capital preservation credentials. We revisit the rationale for this assertion in the summary in **Focus 2**. The supply and demand dynamics of gold equip it with unique characteristics, visible in its statistical properties and return attributes.

It is through this set of characteristics that gold has consistently been shown to perform a critical role within a diversified portfolio. Gold’s role will become even more important as the global economic centre of gravity shifts eastwards and as surplus investment capital risks generating greater market volatility, as discussed in *Gold holdings: ample room for growth in a deep and liquid market*.

...and a rotation to equities increases its relevance.

As investors ponder whether a lower allocation to gold is warranted, as economic risks appear to recede in concert with a *Great Rotation*, we underscore that the opposite is true.

³ Goldman Sachs, *The turn in the gold cycle is likely underway*, 25 February 2013.

⁴ Buttonwood, *Time for the great rotation?* The Economist, 9 January 2013.

⁵ Dolan, M. *Awaiting proof of the “Great Rotation”*, 15 February 2013.

⁶ A shift in aggregate, holding the stock of equity and bonds fixed, cannot occur as for every shift out of bonds into equities by an investor, there must be an equal and opposite shift by someone else.

⁷ J.P. Morgan, *Flows and liquidity: Impediments to the Great Rotation*, 8 February 2013.

⁸ Bloomberg, *Bernanke defends asset purchases as benefits outweigh risks*, 26 February 2013.

⁹ Barclays, *Equity gilt study*, 21 February 2013.

¹⁰ CITI Research, *QE isn’t working: An equity perspective*, 21 November 2012.

Focus 1: The Great Rotation debate

The idea of a *Great Rotation* surfaced in late 2012 in response to a number of developments.⁴ The proponents of this theme, supported by strong flows into equity funds in early 2013 (**Chart 2a**), base their arguments partly on a number of factors including yield differentials, the risk/reward profile of bonds and signs that economic growth is returning – particularly in the US.

The catalyst for these flows, strategists argue, have been a number of recent developments.

Equities are relatively attractive, particularly on yield comparisons with bonds (**Chart 3a**). There are signs of economic recovery. In the US, housing and energy sectors show improving fundamentals.⁵ Corporate balance sheets are solid. In addition, global central bank policy is perceived to have ‘insured’ markets, paving the way for higher risk tolerance. Risk/reward appears to favour equities.

For fixed income, the outlook is poor (**Chart 3b**). Bond yields are at historic lows, with real yields negative across a swathe of the curve. Duration, which roughly gauges the interest-rate risk exposure of bonds, is at a multi-year high. Investors are concerned about credit quality and moral hazard in fiscal policy as low yields reduce incentives for austerity.

Setting aside the somewhat misleading notion of an ‘aggregate’ shift,⁶ adherents to the notion of a *Great Rotation* face a number of sceptics, and for good reason. The flows evidence that helped prompt talk of a *Great Rotation* point to an increase in bond holdings (**Chart 2b**), in tandem with equities, and only moderate reductions in cash.⁷

Demand for bonds will likely not abate. In the US, the Federal Reserve has mopped up about 90% of treasury issuance recently and has no imminent plans of retreating.⁸ This should help keep a lid – artificial as it may be – on rising bond yields. In addition, both banking regulation, through Basel III requirements, and international reserve management, through reserve accumulation, are consistent generators of demand for liquid treasuries.⁹

The current environment may continue to be equity friendly, but abundant risks remain. General underlying economic health continues to be weak in many corners, notwithstanding a brighter outlook for some core US sectors. A number of governments continue to walk the tightrope of debt sustainability. Furthermore, it has been argued that there are unintended consequences for those seeking ‘bond-like returns’ from equities, as it might incentivise corporate payouts and buybacks rather than investment in growth and employment.¹⁰

Chart 2: (a) Fund flows into equities are at a multi-year high, but (b) not at the expense of bonds

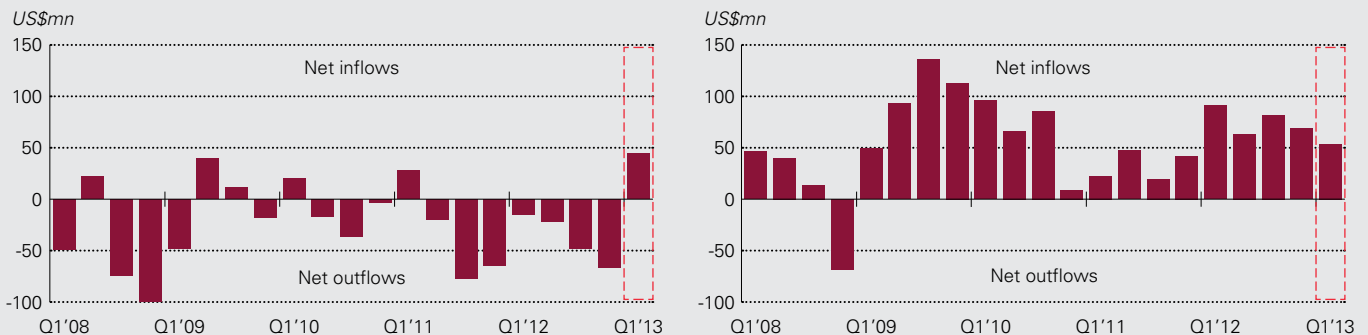
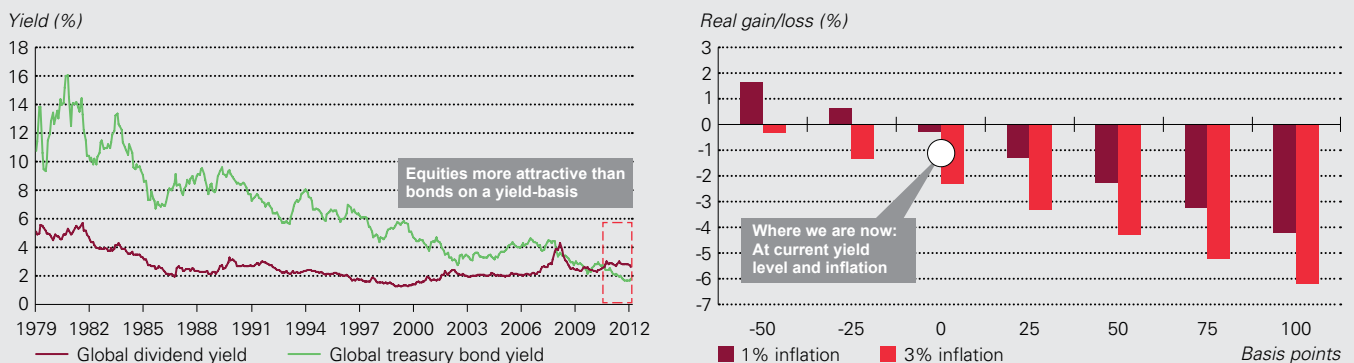


Chart 3: (a) Equities look attractive on the back of a positive yield gap, while (b) intermediate treasury return payoffs are not flattering



Reference notes are listed at the end of this article.

Source: Bloomberg, Thomson Reuters, World Gold Council

Gold in the *Great Rotation*

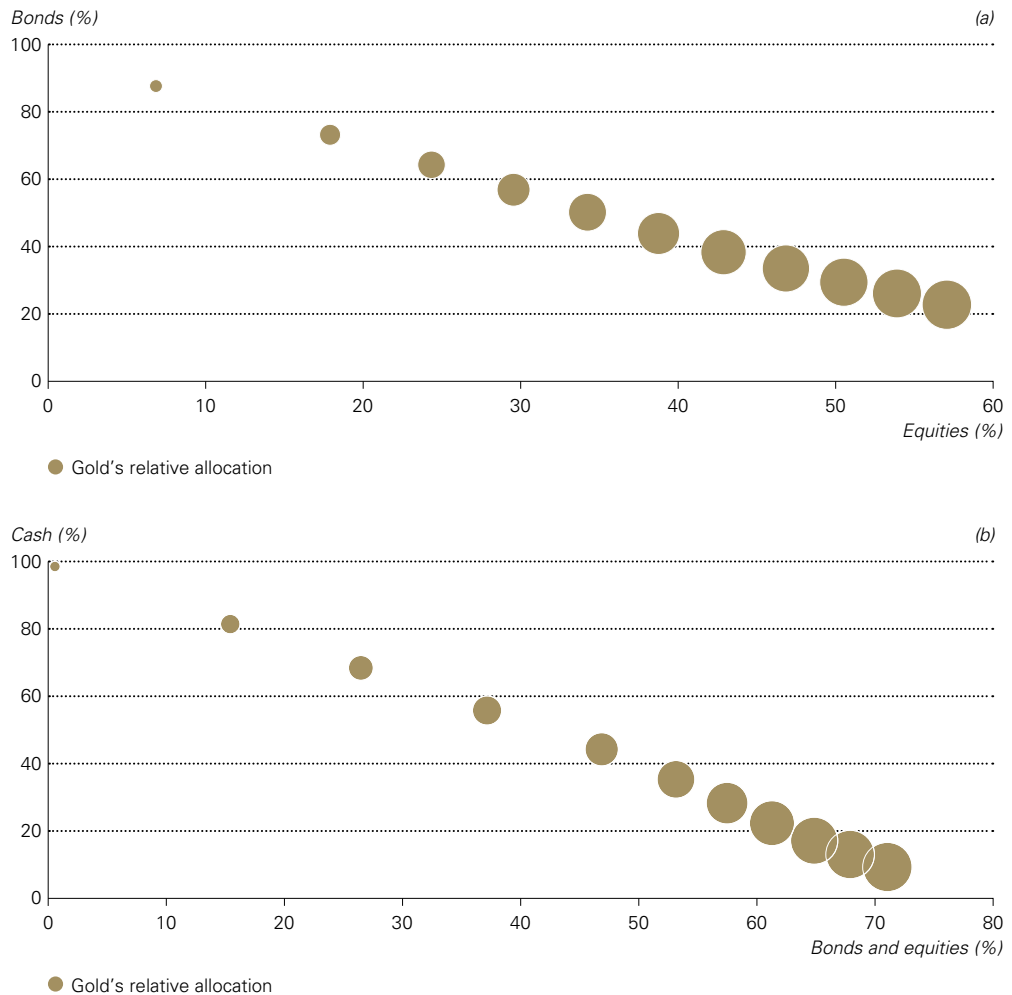
A simple three-asset case illustrates how gold optimal allocation increases in a bond-to-equity rotation to compensate for the additional risk investors incur...

A simple three-asset scenario shows that as the proportion of risk assets moves up the scale from low to moderate levels, so does gold's optimal weighting. Using Re-sampled Efficiency,¹¹ we compute the optimal allocation to gold across a rising risk tolerance as an investment portfolio rotates from bonds to equities. (It must be noted that these results are not in any way advocating a simple three-asset portfolio mix but use this mix only for illustrative purposes). Gold's diversification benefits, as shown in **Chart 4a**, become more pronounced as the proportion allocated to equities increases. Contrary to perceived wisdom, the decision to hold gold is not merely a choice between risk assets and safe-haven gold. Optimal allocations to gold have been proven to always be positive (non-zero) in diversified portfolios.

...and a similar result holds when funds flow out of cash.

Chart 4b mirrors the current environment more closely. It illustrates how gold's allocation increases as cash is reduced and allocations flow into bonds and equities, which occurs as investors' risk tolerance moves from low levels to moderate levels.

Chart 4: Optimal allocations to gold increase (a) in a bonds-to-equity rotation, and (b) also when cash moves to both bonds and equities



Reference notes are listed at the end of this article.

Source: World Gold Council

¹¹ Methodology explained in *Central bank diversification strategies: Rebalancing from the dollar and euro*, 2013.

Focus 2: Why gold is a strategic asset

What constitutes a strategic asset? Simply defined, it is an asset that helps investors achieve long-term goals. Delineating along the most fundamental strategic lines, equities are owned for capital growth, debt for income and liability matching, and gold for capital preservation. Other assets serve some or all of these roles with varying degrees of success. Gold's capital preservation credentials stem from its ability to act as a diversifier while guarding against a number of risks, including inflation, currency and tail risk. Why?

These qualities exist because of gold's unique fundamental make-up. Gold's supply and demand composition translates into statistical qualities that underpin its important role within investment portfolios.

- Demand and supply enjoy broad and balanced drivers with each sector, driven by a unique set of macro-economic drivers. On top of this, demand and supply are geographically dispersed. As a result, gold's correlation to traditional assets remains low and its volatility profile dampened.
- Gold is virtually indestructible, which has led to a large global stock. It is also a stock that is geographically dispersed and held in the poorest as well as the wealthiest nations around the globe. Despite this above-ground supply – which provides

depth, liquidity and buffers against supply shocks, thus reducing gold's volatility – gold is geologically scarce relative to other real assets. Because incremental additions to its stock are small and constrained by numerous factors, this scarcity forms the basis for stable value accretion.

- Gold carries no credit or counterparty risk and is no one's liability. These credentials lend themselves to gold's performance during periods of market stress, when correlations to risk assets fall. They also ensure that gold acts as a global currency and an anchor (albeit unofficially) to other currencies.

Gold's strategic benefits have been discussed in more detail in the following research:

Gold as a strategic asset for UK investors

Gold as a strategic asset for European investors

Gold: alternative investment, foundation asset

Gold: a commodity like no other

Gold: hedging against tail risk

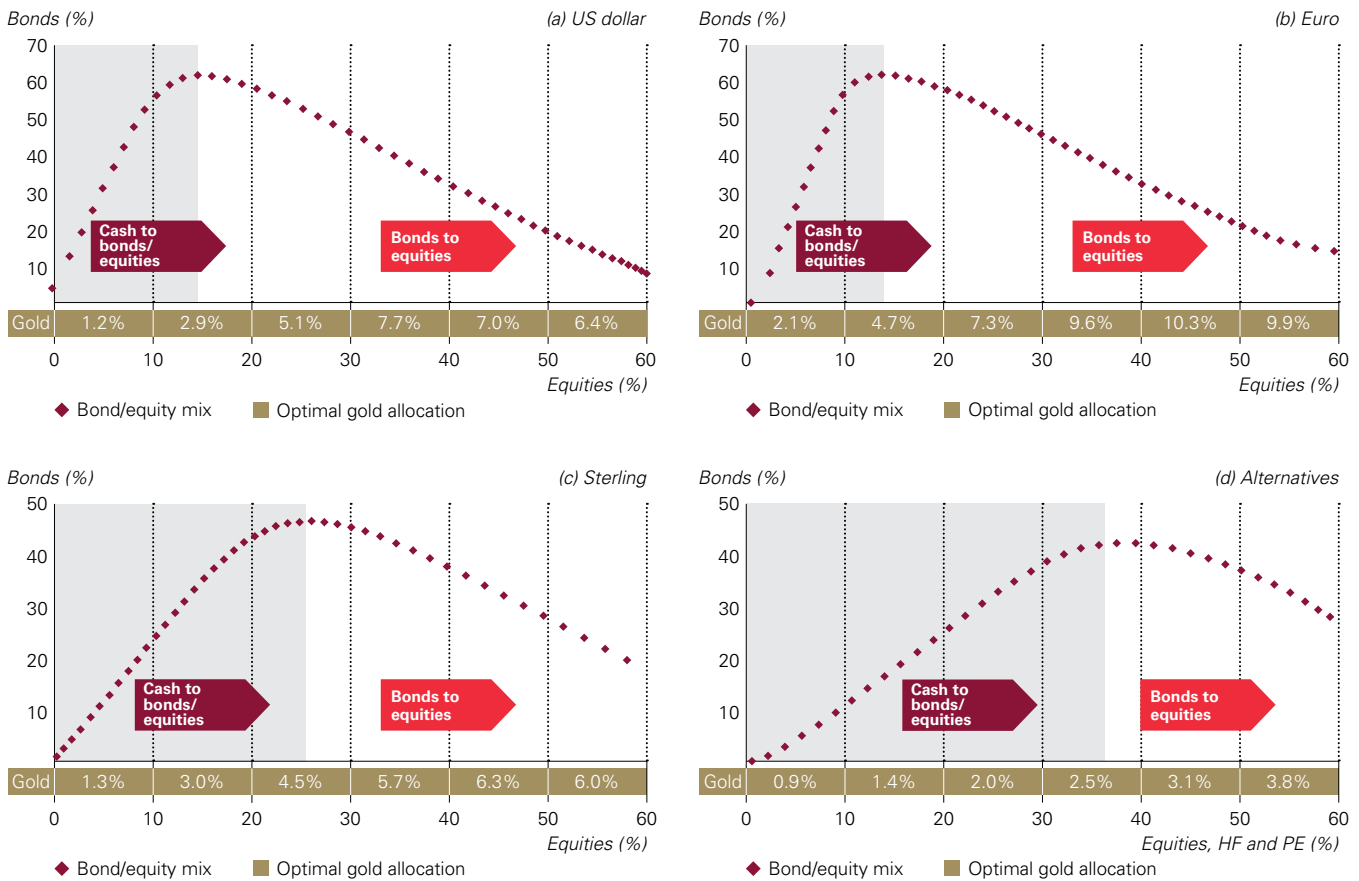
A more complete portfolio set-up delivers the same general results: more risks requires additional gold...

...regardless of investors' currency or portfolio composition.

The previous examples oversimplify portfolios investors may hold. To provide a more realistic and balanced composition, we show how gold allocations change with a shift from cash to bonds and equities as well as bonds to equities, using the results from our recent publications. **Chart 5** plots allocations sourced from previous research reports: *Gold as a strategic asset for UK investors*, *Gold: alternative investment, foundation asset*, *Gold as a strategic asset for European investors* and *Gold as a strategic asset for US investors*.

Each chart shows, equivalent to a move from very low risk to moderate risk, that an initial shift from cash to both bonds and equities takes place as the first stage of a shift unfolds. As more risk is added a rotation out of bonds into equities would materialise. During both of these phases, gold's optimal allocation rises, reflecting its increased diversification benefits. These results were obtained through analysis over periods covering several business cycles across different geographies. In each case, a shift into riskier assets warrants a higher optimal allocation to gold.

Chart 5: Optimal gold allocations increase with risk, as it has been shown for portfolios in: (a) US dollars, (b) euro, (c) sterling, as well as those including (d) alternative assets such as hedge funds and private equity



Reference notes are listed at the end of this article.
Source: New Frontier Advisors, World Gold Council

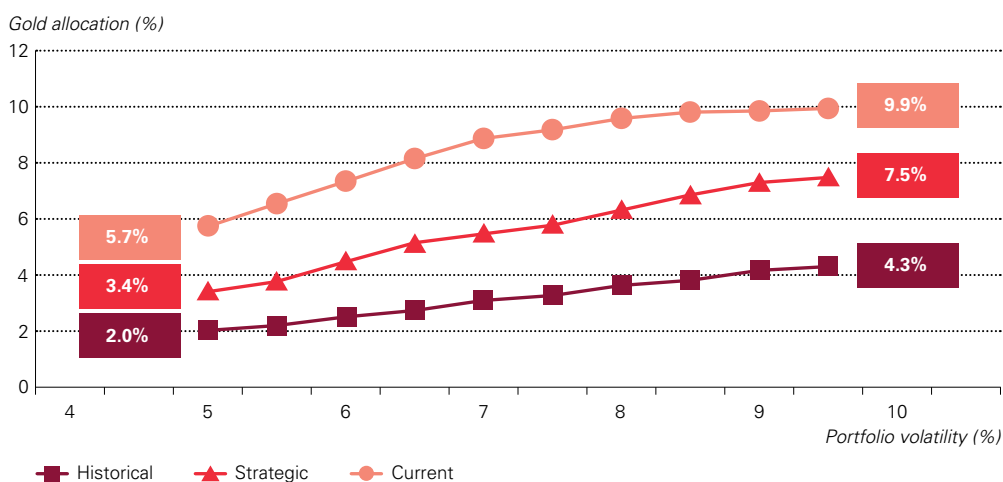
Further, adjusting return expectations for fixed income and cash to reflect current less rosy market conditions, results in higher allocations to gold.

Bonds: handle with care

The above studies use return, volatility and correlation inputs based on either actual historical returns over several decades or strategic returns.¹² How realistic these are is a subject beyond this research note. But, using historical returns risks introducing bias into the performance of bonds going forward. As outlined, current bond yields leave little scope for a continuation of the stellar and stable returns experienced over the last few decades, despite the suggestion that demand will not abate quickly. How would amending these assumptions affect the allocation to gold?

Chart 6 shows how a rotation affects the optimal gold weighting in a US portfolio using three different real return assumptions for bonds (volatility and correlations remain unchanged). Clearly, gold’s allocation rises regardless of the assumption, but lowering bonds’ expected returns from 25-year historical (highest) to long-term strategic (moderate) to current (lowest) has a significantly positive impact on the optimal gold weighting.

Chart 6: Adjusting bond returns to current market expectations results in higher optimal allocations to gold



Asset	Current real return	Strategic real return	Historical real return
US cash	-1.6%	0.0%	4.4%
US treasuries	-1.0%	2.0%	6.9%
US TIPs	-0.4%	2.0%	4.5%
US credit	0.7%	3.0%	7.8%
Global treasuries ex US	-0.7%	1.4%	6.7%

Reference notes are listed at the end of this article.

Source: Barclays, Credit Suisse, World Gold Council

Gold’s perennial role

Whether we witness a ‘Great Rotation’ or not, gold’s importance as a key portfolio asset remains.

The *Great Rotation* debate may roll on, and there may be arguments supporting a glacial shift towards equities – particularly given the risk/reward of many fixed income products. But to the question of whether a shift from safe assets to riskier assets is negative for gold, we surmise not to predict how prices may react, but contend that gold’s strategic importance is amplified in such a scenario. In the long term, gold’s diversification credentials increase portfolio efficiency, both in good and bad economic times. A shift to riskier assets further promotes gold’s portfolio benefits.

¹² Strategic returns are consistent with very long-term and conservative expected returns and widely accepted risk premia.

References

Chart 1: (a) Bonds look poor, while (b) equities appear attractive

- (a) Chart is using yield to worst and modified duration statistics for the Barclays Global Aggregate Bond Index.
- (b) Shiller PE is a cyclically adjusted price-earnings ratio defined by current price divided by the average of 10 years of inflation adjusted earnings.

Chart 3: (a) Equities look attractive on the back of a positive yield gap, while (b) intermediate treasury return payoffs are not flattering

- (a) Bond yields are represented by the yield to worst on the Barclays Global Treasuries Index.
- (b) Chart represents the total return on a 5 year treasury bond one year from now for numerous interest rate scenarios. The two series are deflated by a 1% and 3% inflation assumptions.

Chart 4: Optimal allocations to gold increase (a) in a bonds-to-equity rotation, and (b) also when cash moves to both bonds and equities

- (a) The underlying calculations use global bonds (J.P. Morgan), global equities (MSCI) and gold (US\$/oz). The relative increases in the size of the spheres represents a proportionate increase in gold allocations.
- (b) The underlying calculations use global bonds (J.P. Morgan), global equities (MSCI), global cash (J.P. Morgan) and gold (US\$/oz). The relative increases in the size of the spheres represents a proportionate increase in gold allocations.

Chart 5: Optimal gold allocations increase with risk, as it has been shown for portfolios in: (a) US dollars, (b) euro, (c) sterling, as well as those including (d) alternative assets such as hedge funds and private equity

The chart shows the bond and equity mix of portfolios across the resampled efficient frontier. The figure in the golden rectangles at the bottom corresponds to gold's mid-point optimal allocation for a given equity allocation range.

Chart 6: Adjusting bond returns to current market expectations results in higher optimal allocations to gold

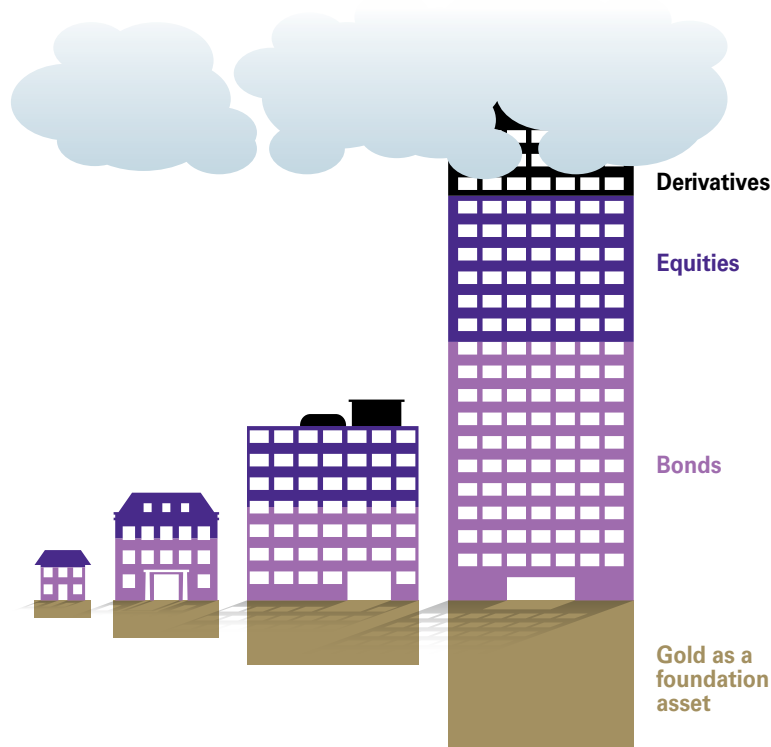
The current real return for bonds is based on yields minus the same maturity breakeven inflation rate – which is the average inflation expected by market participants derived by subtracting the yield on inflation-protected bonds from equivalent Treasury securities. Assets included (in addition to the fixed income indices listed in table 1) are US large and small cap equities (MSCI), Developed world ex-US equities (MSCI), Emerging market equities (MSCI), global REITs (FTSE), commodities (S&P) and gold (US\$/oz).

Table accompanying Chart 6

Current real returns calculated as current yield-to-worst minus aggregate breakeven inflation rates as of December 31, 2012 across maturities: US breakeven (Barclays) = 1.89%, Global breakeven (Barclays) = 2.2%. Strategic return methodology is consistent with previous research. Historical returns encompass the period December 1987 to December 2012 using annualised monthly returns.

IV: Gold holdings: ample room for growth in a broad and liquid market

While financial assets have grown at an unprecedented pace, gold holdings remain low, depriving investors of the portfolio benefits it offers. The share of gold in portfolios can sustainably increase and provide balance to a global financial system likely to experience more frequent tail events.



Financial assets have grown at an unprecedented pace for more than 20 years...

The issuance of equity and debt securities – claims on assets or future cash flows – is driven by capital markets and, unlike real assets,¹ they are not constrained by physical supply. In fact, corporations and governments routinely issue unsecured debt and equity securities not linked directly to any forms of collateral. The lack of a physical backing, coupled with a boom in financial innovation, has allowed financial assets to grow 10-fold over the past 20 years – well in excess of a three-fold increase in nominal gross domestic product (GDP) over the period. And this trend is unlikely to subside.

In the current environment of easy monetary policy and record growth in financial assets, gold has become increasingly relevant as an investment that balances risks in other assets. As a real asset, one that cannot be debased or devalued, gold is seen by many investors as a valuable risk management and wealth preservation tool. Gold supply is geologically constrained yet readily available through a broad and liquid market.

...whereas gold holdings represent only 1% of all financial assets, despite a 12-year bull run.

However, some investors and market commentators express concerns that gold may be in a bubble as a result of 12 years of price appreciation. Emerging-markets growth, economic uncertainty, central-bank demand and constrained supply are some of the reasons why gold has risen for more than a decade. Even so, gold remains a widely under-owned asset. Gold holdings account for 1% of all financial assets – a by-product both of its scarcity and the unprecedented growth in other financial assets. Further, gold's low ownership rate stands in stark contrast to levels seen in past decades, as well as what research suggests optimal gold allocations should be.

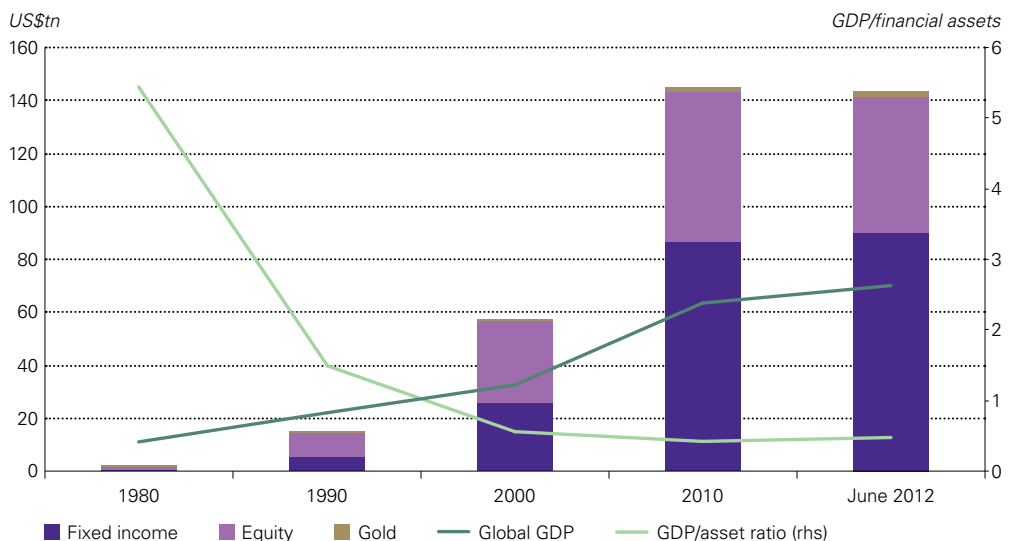
¹ A physical asset that derives its value from its intrinsic properties. Real assets include precious metals, commodities, real estate and raw land.

Financial assets are growing at a rapid and unsustainable rate

Between 2000 and 2012, debt markets have grown three-fold, to almost US\$90tn, while equity markets have increased by US\$20tn to US\$51tn.

There have been huge fluctuations in asset prices over the past decade. Despite the volatility, the stock of financial assets has almost tripled during that period. Currently at a striking US\$149tn,² the size of financial assets are a multiple of global GDP (**Chart 1**). This growth has been primarily led by fixed income markets. Between 2000 and 2012, debt markets have grown three-fold, from US\$25tn to almost US\$90tn,³ as a result of ageing demographics in many developed countries, heightened risk aversion, low interest-rate policies and record government spending to boost ailing economies. In particular, outstanding US treasury debt more than doubled from US\$4.5tn in 2007 to US\$10.5tn in 2012 – a large portion of which is held by foreign investors;⁴ and further, sovereign debt issuance was by no means restricted to the US. At the same time, global equity markets have also grown – at a relatively more modest pace of 67% – from US\$31tn in 2000 to US\$51tn in 2012, partly driven by economic growth in emerging markets and a subsequent increase in initial public offerings (IPOs).

Chart 1: Most financial assets have grown at an unprecedented rate



Reference notes are listed at the end of this article.

Source: Barclay Hedge, BIS, Prequin, World Federation of Exchanges, World Gold Council

² This figure is as of June 2012. See Chart 2 for a detail breakdown of financial assets.

³ Debt outstanding as of June 2012.

⁴ As of December 2012, foreign central banks owned 48% of outstanding treasuries followed by other holders at 38% and Federal Reserve at 14%.

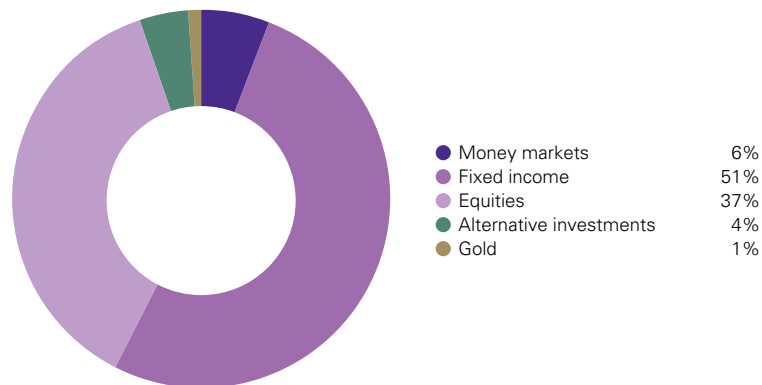
Including derivatives and securitised products brings total financial assets to an astronomical US\$200tn...

Still, we are only scratching the surface. Innovation in financial markets and a supportive regulatory environment saw an explosion of assets managed by hedge funds and private equity firms, as well as an increase in securitised products. Counting securitised products, financial assets have grown to more than US\$200tn.⁵ And this figure pales in comparison to the notional size of the derivatives market, estimated at over US\$600tn in 2012 by the International Monetary Fund (IMF).⁶

...while gold accounts for only US\$1.9tn.

The private investment stock of gold, in contrast, sits at a remarkably smaller US\$1.9tn,⁷ representing just 1% of financial assets (**Chart 2**), partly driven by gold's limited supply, which has been growing at low rates (**Focus 1**).

Chart 2: Only 1% of US\$149tn of financial assets is currently in gold



Reference notes are listed at the end of this article.

Source: BIS, Hedge Fund Research, J.P. Morgan, Preqin, Thomson Reuters GFMS, World Federation of Exchanges, World Gold Council

5 McKinsey Global Institute, *Mapping global capital markets*, August 2011.

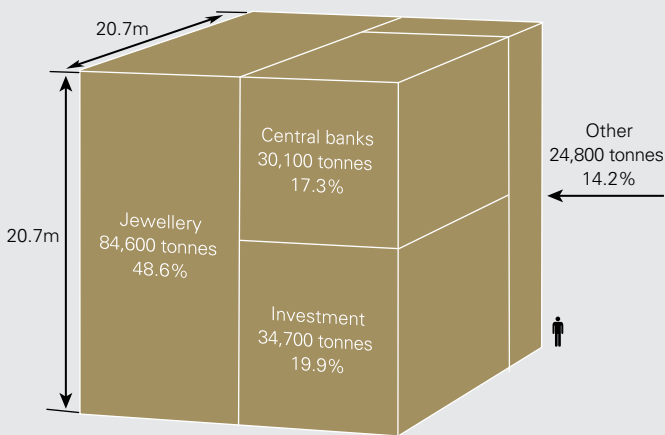
6 IMF, *Systemic risk from global financial derivatives*, November 2012. Bank of International Settlements (BIS), semi-annual OTC derivative statistics, November 2012. Notional values may not be the best measure as notional values in most derivative contracts don't need to be exchanged, but do represent exposure. A better measure is the gross market value of derivative contracts outstanding, approximately US\$27tn for reporting dealers. While a majority of derivatives are used as a hedging tool, the potential failure of counterparties to service the contract might be disastrous for an institution that thought it was "de-risking" its operational activities. During the first half of 2012, there were US\$3.7 of gross credit exposure amongst just the 55 reporting dealers participating in the BIS derivatives survey. The notional value of gold derivatives is US\$523bn, just 0.1% of the total notional size of the derivatives market.

7 Value based on the average gold price of US\$1,651.34/oz during the first half of 2012.

Focus 1: How large is the gold market?

By the end of 2012, the above-ground stock of gold was estimated to be approximately 174,100 tonnes,⁹ representing all the gold that has ever been mined, worth more than US\$9.3tn (**Chart 3**). The largest share (almost half) is held in jewellery form and is worth more than US\$4.6tn. Central banks collectively hold 30,100 tonnes as part of their foreign reserves, while bars and coins in the hands of investors (including gold-backed ETFs) account for one fifth of the above ground stock, worth US\$1.9tn. This is the figure we use to estimate the share of gold as a percentage of global assets.

Chart 3: The stock of gold held in investment form is worth US\$1.9tn

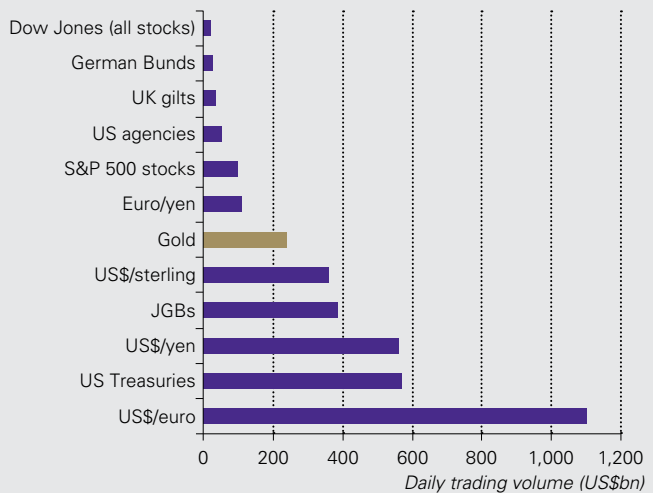


Reference notes are listed at the end of this article.

Source: Thomson Reuters GFMS, US Geological Survey, World Gold Council

Gold is geologically scarce and fundamentally constrained by physical supply.⁹ Gold mine production – which has averaged 2,600 tonnes over the past 10 years, a small fraction of the production of some other metals,¹⁰ increases the above ground stock at a rate of 1.7% per year. Because gold is virtually indestructible with only a fraction lost through technological and industrial use,¹¹ a large portion of the above ground stocks is readily available and can be sold on the secondary market. As a result, liquidity in the gold market is unmatched by most financial assets (**Chart 4**).

Chart 4: Gold is one of the most liquid assets



Reference notes are listed at the end of this article.

Source: BIS, CPM Group, German Finance Agency, Japanese MOF, SIFMA, UK DMO, World Gold Council

⁸ This computation is based on the 2012 stock figures as provided by Thomson Reuters GFMS.

⁹ According to the US geological survey, below-ground stocks only amount to 50,000 tonnes – less than one-third of the above-ground stock.

¹⁰ According to Thomson Reuters GFMS and Bloomberg, gold annual production is lower in tonnage terms than silver, copper, tin, nickel, lead and zinc as well as other base metals.

¹¹ When gold is used for technological applications, it does not enter the market until that device is scrapped and re-used for its materials. Other forms of gold however, could be re-sold to other participants.

A system vulnerable to the increasing frequency and magnitude of tail events

Imbalances in capital accumulation and leverage, coupled with financial innovation, resulted in a global crisis...

...and have prompted unprecedented levels of financial assets relative to GDP...

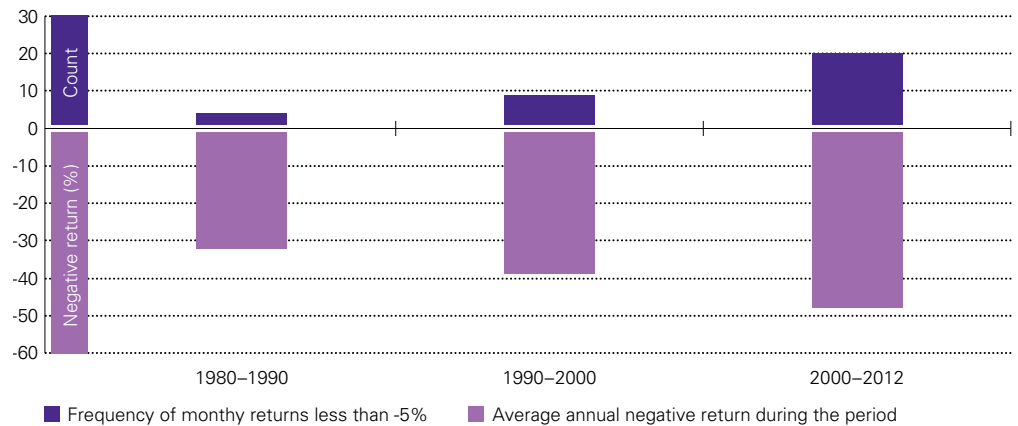
...leading to more frequent and larger tail-risk events.

The trend of increasing financial assets, by and large, was the result of two extreme situations: vast capital accumulation by a set of investors on the one hand and increased borrowing amongst the indebted on the other. Additionally, financial innovation has produced a greater number of securitised products to pool and sell risk assets that are seemingly of higher quality than their underlying components would suggest. An overexposure to these assets – especially by financial institutions – led to the Great Recession.

The government has subsequently issued debt to subsidise the losses in the banking system while plugging the spending gap left by a deleveraging private sector. This has led to a spate of sovereign debt crises and economic turmoil. Unconventional monetary policy, as discussed in our *Investment commentary: Q3 2012* has also allowed central banks to purchase unprecedented quantities of government bonds and mortgage-backed securities – to achieve their goals of lowering benchmark borrowing rates to artificially low levels and incentivise borrowing in the private sector. As a result of these policies, financial assets have continued to grow well in excess of GDP, reaching what some consider ‘critical levels’.¹² The question might thus be: Are there more financial assets than required to ensure a healthy global GDP growth, and is there enough global GDP to service these financial assets?

Rapid growth in capital markets leads to more capital chasing lower returns, tempting investors toward disproportionate levels of risk and increasing the frequency of flight-to-quality episodes. The implication is that this abundance of capital will likely spur investment activity but, at the same time, create an unstable growth environment – one characterised by frequent pullbacks in risk assets and large moves in currency markets. In fact, the number and magnitude of tail events has already increased over the past three decades (**Chart 5**). This issue is likely to be exacerbated by the increased contagion risk from cross-border and cross-holdings of large financial institutions – an important component of the ‘too-big-to-fail’ problem.¹³

Chart 5: The frequency and magnitude of negative market events keeps growing



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

¹² Bain & Company, *A world awash with money*, December 2012.

¹³ Dudley, William C. *Solving the too big to fail problem*, Federal Reserve Bank of New York, November 2012.

To balance these risks, investors need a more comprehensive risk-management strategy.

In a recent report, Bain & Co. predicted that a prolonged period of capital super-abundance could lead to persistently low interest rates and an increasing frequency, size and longevity of asset bubbles. The huge increase in debt has put global economies on a less than stable growth track. Financial markets have already seen several negative episodes as a result of unbridled deficits and growing debts in Europe – with potentially more debt-driven collapses on the horizon.¹⁴ Of course, staying on the sidelines is not a viable solution for investors. Holding large quantities of cash will erode capital over the long term. Investors must look for portfolio risk management strategies that can help them balance their search for yield with protection against unprecedented financial conditions.

Gold should be a larger share of financial assets

Gold's price rise in the past 12 years should be partly seen as a rational response to the rapid growth of 'paper' assets...

Gold prices increased from US\$250/oz to US\$1,600/oz between 2001 and 2012. At the same time, annual investment demand has grown from 348 tonnes to 1,538 tonnes. This has led many observers to believe that the gold market is saturated with investors,¹⁵ that it is an over-owned asset whose price has risen much more than fundamental drivers would dictate. In other words, that gold is in a bubble. Refuting this mistaken view, in *The 10-year gold bull market in perspective*, published in September 2010, we showed how gold's performance does not have the same statistical characteristics of well documented historic bubbles. We also discussed the lasting, structural shifts the gold market has experienced, including a diverse and robust set of supply and demand dynamics – emerging market growth, economic uncertainty, central bank demand and constrained supply – that have supported the price trend.

...such as bonds and equities, which naturally carry credit risk.

Further, the rise in gold investment demand, as well as for other real assets, should be seen as a rational response to a flood of financial instruments linked to the success and credit worthiness of their issuers. The value and security of government debt is predicated on a country's willingness and ability to pay back its debt-holders. Stocks and corporate bond prices are rooted in a company's performance and its management's ability to steer the company forward. While the private sector has had a good track record of earnings growth and debt repayment, the managerial risk or 'human element' embedded in these investments poses a risk to portfolio managers. Uncertainty and malaise in developed economies and the accompanying aggressive monetary policies have accentuated the need for a robust asset allocation, one that is better positioned to withstand swings and systemic shocks. In the context of today's market environment – one we expect to remain in place in the foreseeable future – holding gold diversifies portfolios based on its qualities as a transparent and real asset that lacks the credit and counterparty risk of other investments.

¹⁴ Gross, William H. *Investment outlook: damages*, PIMCO, October 2012.

¹⁵ Wall Street Journal, *Is Gold the next bubble?*, May 2010.

Most investors are under-allocated to gold relative to what research has found optimal...

Portfolio optimisation studies have shown that a 1% portfolio allocation to gold is generally too low and that higher long-term allocations are optimal for most investors. As summarised in *Gold in the Great Rotation*, research by the World Gold Council, Oxford Economics, New Frontier Advisors, Mercer and J.P. Morgan, among others, shows that investors can greatly benefit from a long-term strategic allocation to gold – usually between 2% and 10% across US dollars, euro, pound sterling and yen denominated portfolios (**Focus 2**).¹⁶

Focus 2: Benefits of holding gold in a portfolio

Gold's unique supply and demand fundamentals are largely responsible for its main contribution to investors' portfolios, namely, risk management and capital preservation.

Gold as a risk-management vehicle

- **Increased portfolio diversification through gold's lower correlation to other assets**
Gold's correlation to other assets is, on average, 0.1 and, as discussed in *Gold: a commodity like no other*, it has a relatively low 0.3 correlation to the broader commodity complex
- **Reduction in portfolio losses during tail-risk events**
Portfolios containing gold consistently outperform portfolios without it as summarised in *Gold: hedging against tail risk*
- **Addition of a high quality, liquid asset**
Gold trading averaged US\$240bn per day in the first quarter of 2011:¹⁷ higher than the most liquid equities, German Bunds, UK gilts, US agencies and certain currency pairs (see *Liquidity in the gold market*)

Gold as a source of capital preservation

- **Gold hedges extreme inflation scenarios like deflation and hyperinflation**
In the paper entitled *The impact of inflation and deflation on the case for gold*, Oxford Economics shows that both environments lead to gold's relative outperformance of other assets
- **Gold hedges against falls in developed market currencies**
Gold has a -0.5 correlation against the US dollar and negative correlation against most other developed market currencies (see *Gold as a hedge against the US dollar*)

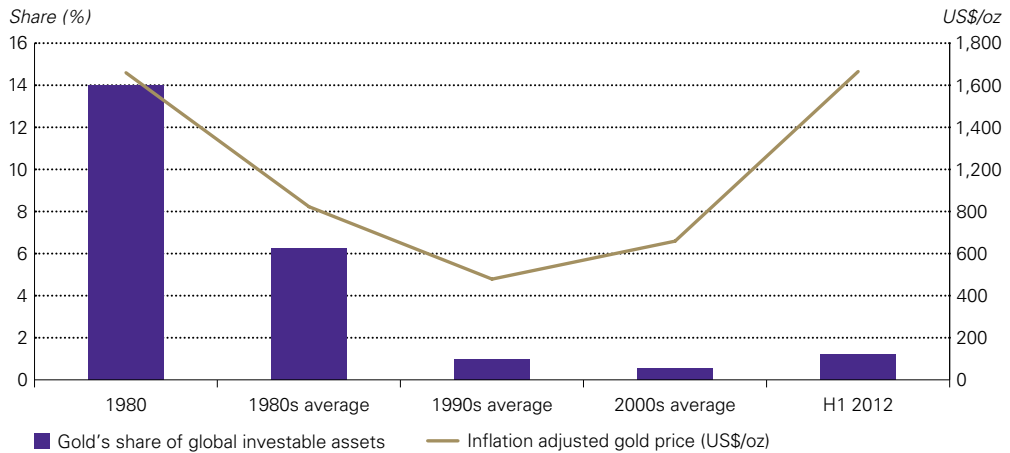
¹⁶ J.P. Morgan, *Gold in asset allocation*, July 2012; Mercer, *Gold as an asset class for institutional investors*, February 2011; New Frontier Advisors, *Gold as a strategic asset*, September 2006; World Gold Council, *Gold: hedging against tail risk*, October 2010; World Gold Council; *Gold: alternative investment foundation asset*; New Frontier Advisors, *Gold as a strategic asset for European investors*; World Gold Council, December 2011; *Gold as a strategic asset for UK investors*, July 2012.

¹⁷ See Loco London Survey conducted by the LBMA with the Bank of England.

...as well as by historical standards.

Even by historical standards, gold's current share of financial assets is low. The average ratio of the investable gold stock to the size of financial assets has fluctuated over time (**Chart 6**). Gold's share of financial assets has been as high as 14% in 1980, the last year of the previous bull market, and as low as 0.4% in 2000, before the beginning of the current one.

Chart 6: Gold's share of financial assets has fallen significantly since 1980 despite a similar inflation-adjusted gold price



Reference notes are listed at the end of this article.

Source: Barclay Hedge, BIS, Bloomberg, OECD, Prequin, World Federation of Exchanges, World Gold Council

But the gold market can easily and sustainably grow to a higher percentage of global assets.

Gold ownership rates in 2000 were depressed as a result of various structural factors that have subsequently changed: investment inaccessibility, central bank sales and large-producer hedge books, to name a few. This ratio has risen to 1.2% in 2012, a growing but sustainable trend and the result of increased ownership and an appreciation in the gold price (**Focus 3**).¹⁸ Despite this growth, gold's current share of assets sits far below the 1980's peak, which was driven not only by the sharp increase in the gold price but incipient rates of growth in many other financial instruments. So, while a 14% allocation may prove too high as a strategic holding to many investors, an increase to a more sustainable level is feasible (**Chart 7**). The gold market is deep and liquid enough to support higher global allocations and a growing investor base, and it is liquid enough to facilitate continued acquisitions.¹⁹

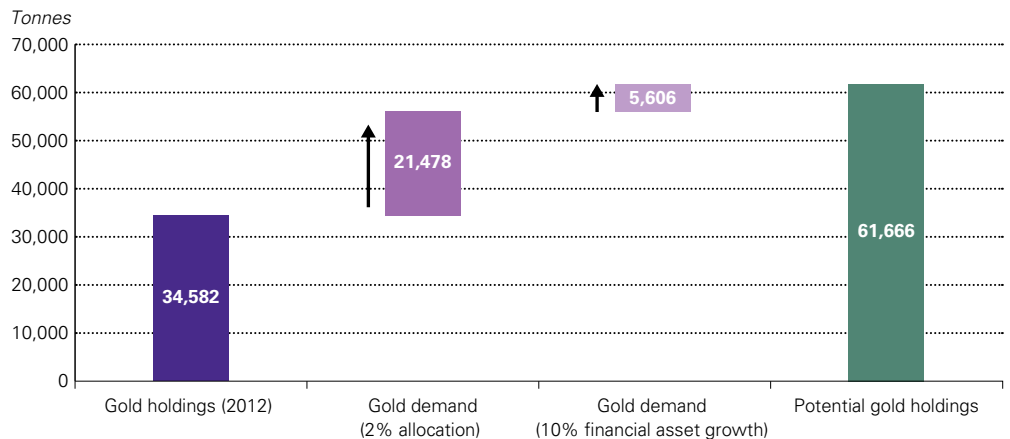
¹⁸ Gold prices increased at a pace of 18.7% per annum (between 2001 and 2011) while private investment stock grew at 3% per annum.

¹⁹ The London OTC market clears US\$240bn of gold per day with an average transfer size of 7,400oz of gold. This calculation is based on LBMA estimates of 2012 average of gold transfers and the monthly average amount of gold transferred.

Focus 3: The importance of sustainable ownership rates

Ownership rates are an important consideration for the sustainability of asset prices. For example, in 1995, at the start of the dot-com bubble, US equities comprised just 33% of US investor portfolios but grew to 50% of investor portfolios in just five short years, representing an unsustainable rate of new investment. The underlying demographic composition or investor risk tolerance had not sufficiently changed to justify such a rise in equity ownership rates. Instead, it is clear that equity risk was mispriced, and the market was likely fuelled by momentum and an exceedingly overoptimistic expectation around earnings growth in the technology sector.²⁰ Today, we are seeing a similar but less dramatic shift in fixed income ownership, as debt's share of assets has increased between 1999 and 2012 from approximately 40% to approximately 60% of financial assets. Investors will likely rebalance their portfolios once the asset mix is deemed inappropriate for their investment goals.

Chart 7: Demand would surge if investors re-allocate to a 2% gold allocation while financial assets grew by 10%



Reference notes are listed at the end of this article.

Source: Thomson Reuters GFMS, World Gold Council

Taking a closer look at gold as a strategic asset

In an increasingly risky world, investors should consider gold as a strategic and necessary portfolio allocation.

Despite a consistent bull market for more than a decade, gold holdings currently represent a small, sub-optimal portion of financial assets. This ratio is depressed as financial assets have exploded over the past two decades, fuelled by financial innovation, expansionary monetary policies and global imbalances in capital accumulation and borrowing. In a globalised economy characterised by increased cross-border flows, such an expansion of 'paper' assets has increased the frequency and magnitude of tail-risk events. As such, a closer look into strategic gold allocations is warranted. Gold is a hard asset with a deep and liquid physical market capable of absorbing considerably higher average allocations. Gold provides a foundation to portfolios, helping investors protect capital and manage risk more effectively.

²⁰ The technology sector became an over-sized portion of US market capitalisation. NASDAQ market capitalisation as a share of total US market capitalisation grew from 15% in 1994 to 31% in 1999.

References

Chart 1: Most financial assets have grown at a unsustainable rate

Equity market capitalisation encompasses publically traded REIT securities. Fixed income represents domestic and international bonds, notes and money market instruments. The value of gold holdings is computed using average gold price and end of year stock figures. GDP to asset ratio uses end of 2011 global GDP as the World Bank series has only been updated through the end of 2011.

Chart 2: Only 1% of US\$149tn of financial assets is currently in gold

The chart values are as of June 2012. Estimates include the global market capitalisation of all publicly traded stocks and REITs; the total value of outstanding bonds and money market instruments; total open interest on major commodity futures plus above ground stocks of precious metals; the assets under management of private equity and hedge funds; and private holdings of gold bullion. Central bank holdings of gold and bonds were excluded.

Chart 3: The stock of gold held in investment form is worth US\$1.9tn

The stock of gold is based on end of 2012 volume and values are based on 2012 average gold prices. Thomson Reuters GFMS has not officially update the gold stock figures but 2012 demand figures were used to compute end of 2012 stock figures. For example, end of 2012 jewellery demand is approximately equal to 2011 stock of jewellery plus 2012 jewellery demand net of 2012 recycling activity. All other categories were computed by adding 2011 stock numbers and 2012 demand numbers.

Chart 4: Gold is one of the most liquid assets

Foreign exchange liquidity is based on the BIS tri-annual foreign exchange survey. Government bond liquidity is based on statistics published by country's respective debt offices. Daily trading value of gold is based on the loco London survey conducted by the LBMA and the Bank of England in Q1 2011.

Chart 5: The frequency and magnitude of negative market events keeps growing

The count of monthly returns less than -5% is based on data from a spliced index of the MSCI World (1980 – 1987) and MSCI AC World (1988 – 2012) indices. Average annual negative return is based on the average negative monthly return over the period.

Chart 6: Gold's share of financial assets has fallen significantly since 1980 despite a similar inflation-adjusted gold price

Due to data unavailability, gold's share of financial assets in 1980 is compared to all non-financial debt or debt that wasn't issued by a financial institution. The bars labelled '1980' and 'H1 2012' represent gold's share of assets at the end of the decade, while the '1980s average', '1990s average', and '2000s average' represent gold's average share of assets during the period.

Chart 7: Demand would surge if investors re-allocate to a 2% gold allocation while financial assets grew by 10%

The 2% re-allocation is based on the minimum bound of the optimal allocation range for most investors. 10% growth is approximately equal to current growth in financial assets. The analysis assumes that the gold price remains at US\$1650/oz. To maintain the current share, gold holdings need to keep pace with the growth in financial assets.

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