

# Why invest in gold?

Gold's role in long-term strategies



## 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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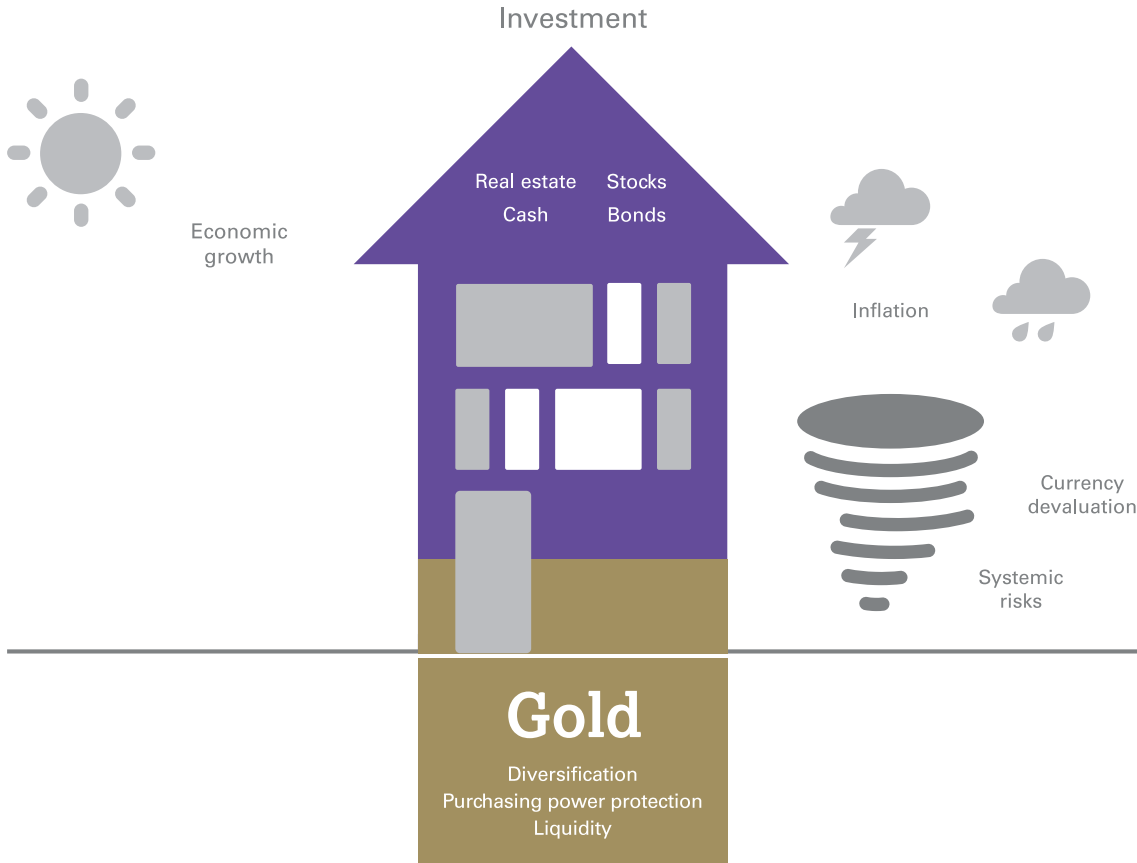
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# Why invest in gold?

## Gold's role in long-term strategies

A lot has been said about the merits of gold as an investment. Investors and market commentators fervently debate whether it could or should be used to protect against inflation, to hedge US dollar exposure, or even used as an asset of last resort. While there is abundant opinion about the rationale for holding gold or what measures should be used to assess its effectiveness, its role in a portfolio (eg, inflation protection, currency hedging, safe haven) and the measures used are quite often inadequately defined. We find that gold serves two main purposes: it protects – even improves – purchasing power and it helps manage risk. Here we define and discuss the measures that support the case for gold as a foundation for investors' portfolios.



## Gold's contribution to a portfolio

There is one consistent fact across investment strategies: they aim to obtain the greatest possible return while incurring the least risk. Additionally, a few recurring methodologies may be used (eg, optimisation, liability matching, risk factor decomposition, level of risk tolerance). Similarities end there. Whether a strategy is set to maximise long-term returns, short-term gains or outperform a given benchmark, implementation varies widely. Further, defining risk, let alone how to mitigate it, is a daunting task. Finally, measuring the success or failure of an investment strategy completely depends on the methodology used.

***Gold's effectiveness is hotly debated in part due to lack of clarity about the role it plays.***

It should not come as a surprise, then, that the role and effectiveness of gold is hotly debated.<sup>1</sup> Broadly speaking, gold is seen as performing two main functions in the context of capital safeguarding: 1) it protects purchasing power and 2) it mitigates risk in a portfolio. However, the lack of specificity as to what those really mean has created not only confusion but also disillusionment among some investors. It has led to multiple interpretations and has made it difficult to quantify gold's success in providing such benefits.

***We aim to clarify how gold protects purchasing power and reduces risk.***

Considering that investment strategies, their horizons, risk tolerances and even definitions of risk vary widely among investors, we aim to clarify the benefits gold adds to investment portfolios in a precise manner and present measures to quantify its effectiveness.

Our analysis shows that investors should use – and analyse – gold not in isolation but as a strategic component in their portfolios that:

- Protects their 'global' purchasing power (taking into consideration local inflation rates as well as currency fluctuations)
- Reduces portfolio volatility
- Minimises losses during periods of systemic market risk (ie, large shocks that affect multiple economic sectors/world regions)
- Serves as a high-quality, liquid asset that can be used when the selling of other assets can be costly or cause large mark-to-market losses.

## Gold's role in preserving capital

In addition to potential losses in asset prices, investors' capital is affected by the erosion of purchasing power through inflation and, in a global context, the relative value of the currency that serves as the benchmark for an investor. While the level of inflation and the value of a currency should be closely related, in practice the two may diverge – imperfect measurements, government interventions and trade restrictions all contribute. In this sense, gold's negative correlation to many currencies, particularly the US dollar, and its relationship to global inflation – as we explain below – make it a particularly useful tool for protecting purchasing power over the long run.

<sup>1</sup> Erb C., and C. Harvey, *The golden dilemma*, June 2012.

**Investors commonly see gold as an inflation hedge; however, not everyone agrees what that means.**

**Gold is linked to global (not only regional) inflation...**

**...measured in the long run.**

**While good reasons supported the use of US CPI in the past, today a global approach is needed.**

### What gold as an inflation hedge really means

A common argument for buying gold is that it is seen as an inflation hedge. The problem, however, is that not everyone agrees on what this really means. In the first place, measuring inflation itself can be daunting. There are numerous well-studied indices and methodologies, but in the end, inflation is not the same for people in different regions or social strata. Consumer price indices measure 'representative' baskets of goods that may well reflect a general price trend, but these will likely not reflect everyone's experience of inflation (see *Gold and currencies: protecting purchasing power*, April 2013). Further, when investors say gold is an inflation hedge, do they mean it hedges inflation in the US, Europe or elsewhere?

We summarise gold's role as an inflation hedge as follows:

- Gold, especially today, should be understood in the context of global inflation: an asset that responds to price pressures in developed markets as well as in emerging markets.<sup>2</sup> Gold is widely used in many emerging markets, especially in Asian and Middle Eastern countries, as a means to preserve and transfer wealth from one generation to the next.
- Gold helps to preserve capital over the long run. While there is evidence to suggest that the gold price rises more during periods of high inflation, as discussed in *The impact of inflation and deflation in the case for gold*, July 2011, 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.

So, why is US inflation (more specifically, US CPI) the measure most widely used to measure gold's effectiveness as hedge? (**Focus 1**) The fact that gold is traded (and influenced) by the US dollar and that real interest rates create an opportunity cost for holding gold make US inflation a logical candidate to use as a reference in long-term pricing. In fact, seminal research works such as *The golden constant*, by Roy Jastram, or *Short-run and long-run determinants of the price of gold*, June 2006, by Levin and Wright, examined and found a strong long-term relationship between gold and US inflation. Their conclusions, however, were influenced by a few additional factors.

First: tradition. In terms of physical demand and volume of transactions, the US market has traditionally been one of the key markets for gold. In fact, during the gold standard – lasting almost 100 years until 1971 – the value of the US dollar was directly linked to gold.<sup>3</sup> Second: data availability. US inflation measures are widely available, they have been extensively studied, and they are used as a guide in policymaking. In contrast, other countries' inflation measures, especially those from emerging markets, can be hard to obtain or be considered unreliable in long-term studies. Yet, many things have changed in recent years. Over the past decade, emerging market demand for gold has surged, central banks have become net gold buyers, and the global economy has become, overall, less US-centric.<sup>4</sup>

2 Levin and Wright, in *Short-run and long-run determinants of the price of gold*, June 2006, explore this notion. However, they used the US and world price levels as proxy.

3 A consequence of this is that it is difficult to disentangle the effect of inflation from the effect of the US dollar on gold in the period prior to 1971. Without proper techniques and assumptions, using gold price data prior to 1971 can lead to misleading results regarding gold's ability to protect purchasing power.

4 Levin and Wright acknowledged that gold's long-term performance should be linked to global inflation. However, they used a world index that correlated heavily with US inflation. Thus, data availability prevented them from disaggregating the influence of US inflation from the influence of global inflation on the gold price.

## Focus 1: Hedging US CPI

If an investor's objective is solely to hedge US CPI, instruments such as Treasury Inflation Protected Securities (TIPS) are constructed to do exactly that. However, TIPS are highly correlated to (non-inflation linked) US Treasuries through interest rates. When interest rates rise, the value of the underlying bond decreases. Thus, unless they are held to maturity, TIPS are directly influenced by the vagaries of monetary policy. In addition, they are subject to price dislocations (sometimes selling at a premium) due their relatively limited availability – there is less than US\$1tn in TIPS outstanding, equivalent to 8% of total Treasuries outstanding.<sup>5</sup> Gold's role is broader than hedging US CPI; it complements and enhances the role that TIPS play. As shown in *Gold as a tactical inflation hedge and long-term strategic asset*, July 2009, investors who already hold TIPS benefit from adding gold to their portfolios (**Table 1**).

**Table 1: Portfolios containing gold outperform portfolios with TIPS**

	Min variance		60/40 Portfolios	
	Portfolio TIPS	Portfolio TIPS + gold	Portfolio TIPS	Portfolio TIPS + gold
Return	4.6%	4.5%	6.6%	6.3%
Volatility	4.3%	4.2%	8.3%	7.6%
Information ratio	1.06	1.07	0.80	0.82
US equities	6%	8%	31%	28%
Global equities	6%	4%	30%	27%
US Treasuries	39%	39%	21%	19%
US corporates	1%	1%	13%	12%
TIPS	48%	41%	6%	8%
Gold	na	7%	na	6%

Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

**Gold not only satisfies basic currency criteria, it is a natural hedge to fiat currencies and its liquidity rivals that of major foreign-exchange markets.**

### Gold as a currency and as a currency hedge

Throughout human civilisation, gold has been used as a currency.<sup>6</sup> Gold satisfies many criteria that define a currency including its use as a unit of account (convertibility), store of value and medium of exchange. But as discussed in the next article, *Gold and currencies: the evolving nature of the relationship with the US dollar*, October 2013, its geological scarcity and its physical/chemical qualities as a non-corrosive, durable metal make it a natural hedge to paper currencies. Because fiat money can be printed as a result of monetary policies, part of gold's value as a hard asset is derived from its lack of supply growth. In other words, it is linked to an investor's trust (or lack thereof) in the ability and willingness of a government to fulfil its obligations. In addition, gold is a highly liquid asset, with daily trading volumes comparable to major currency pairs such as the US dollar-pound sterling, and is eclipsed only by US dollar-yen and US dollar-euro transactions.

<sup>5</sup> US Treasury Department, 30 September 2013.

<sup>6</sup> As early as c. 550 B.C., King Croesus of Lydia (in modern-day Turkey) issued gold coins of standardised purity for public circulation. Three hundred years ago, the British Empire switched from a dual gold and silver standard to gold as the single backer of its currency. The US between 1879 and 1971 backed the US dollar with gold. And the global monetary system between 1944 and 1971, driven by the Bretton-Woods accord, balanced foreign exchange rates by adjusting its gold reserves relative to its US dollar price.

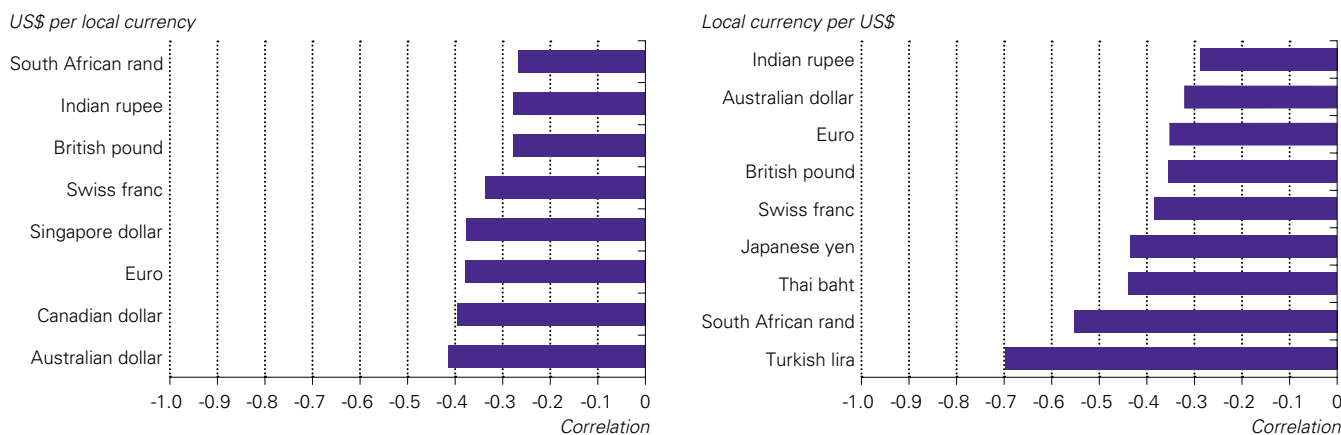
**Gold is seen and used as a currency, providing a natural alternative to fiat money.**

**It has a strong inverse correlation to the US dollar that benefits investors around the globe...**

As such, while gold is considered a commodity by many, in practice, its role as currency stands out. It is used by central banks as part of their foreign reserves, accepted in exchange for goods in parts of the world, and traded alongside other currencies in the financial system. Indeed, the Bank for International Settlements (BIS) stated in its 2013 annual report that “gold is to be dealt with as a foreign exchange position rather than a commodity because its volatility [which is almost consistently lower than commodities] is more in line with foreign currencies, and banks manage it in a similar manner to foreign currencies”.<sup>7</sup>

In addition, gold has a consistently negative correlation to the US dollar. Whether measured against a basket or against individual currencies, gold’s negative correlation to the US dollar is particularly strong (**Chart 1a**). However, US investors are not the only ones to benefit from gold’s currency hedging qualities. An allocation to gold, denominated in US dollars, represents an implicit exposure to a foreign currency, providing international investors with protection against falls in their local currency (**Chart 1b**).<sup>8</sup>

**Chart 1: (a) Gold’s negative correlation to the US dollar helps US investors, (b) as well as foreign ones**



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

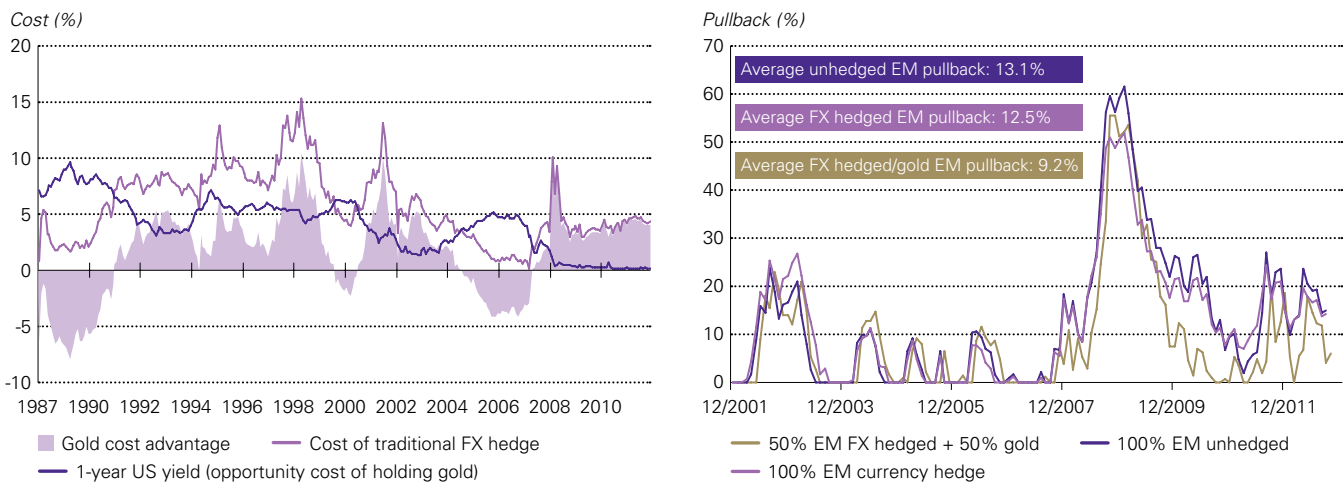
7 BIS, 83rd annual report, June 2013.

8 While gold is not the only asset that exhibits this type of behaviour, many governments restrict (or even prohibit) individuals from owning foreign-denominated assets as part of capital control policies.

...providing a useful and cost-effective complement to other hedging strategies.

Further, when evaluating a portfolio's exchange risk in light of its foreign currency denominated holdings, gold can be used as a cost-effective and better-rounded complement to other hedging strategies (see *Gold and currencies: hedging foreign-exchange risk*, January 2013). For example, for a US investor trying to hedge currency risk stemming from emerging market exposure, gold has been historically less costly than a basket of currencies (**Chart 2a**), and including gold as part of the hedging strategy has significantly reduced drawdowns (**Chart 2b**).

**Chart 2: (a) Gold is able to hedge exchange rate risk at a lower cost than traditional FX forwards; (b) when used as a currency hedge, gold reduces the draw-down of an EM equity investment**



Reference notes are listed at the end of this article.

Source: Bloomberg, Thomson Reuters, Global Financial Data, World Gold Council

**The combination of inflation and currency hedging makes gold particularly relevant in protecting purchasing power...**

**Combining inflation and currency hedging to protect purchasing power**

Gold may follow the monthly changes of regional consumer price indices, but it does not have to do that to benefit investors. The value of adding gold to a portfolio comes from protecting **purchasing power**. In other words, gold responds not only to CPI inflation, but also to the indirect effects of currency devaluation, which are particularly relevant in a globalised economy. In theory, exchange rates should reflect inflation rate differentials between countries. However, in practice there are several reasons why they do not (see *Gold and currencies: protecting purchasing power*, April 2013).

As an alternative, *Real Effective Exchange Rates* (REERs) – which measure exchange rates among currencies adjusted for inflation differentials – can be used to better measure purchasing power.<sup>9</sup> When purchasing power parity fails to hold for free-floating, open-market currencies over the long run, holding other factors 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 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”.<sup>10</sup> In other words, a structurally weak currency may fuel inflation over the long run.

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

10 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.



**...which can be measured by using real effective exchange rates (REER).**

The reason why the value of a currency (in this case a REER) is relevant to investors who may only hold local-currency liabilities is twofold. First, as well regarded as consumer price baskets can be, they do not always reflect the nominal prices paid by end consumers,<sup>11</sup> or understate certain categories (such as tuition or healthcare) which can make up a larger share of the expenditures of some segments of the population than what is reflected in the average consumer basket. Second, currencies are typically quicker (more efficient) in incorporating market views on changes to inflation rates than those generally reflected in consumer price baskets. For example, REERs show that the US dollar has been depreciating fairly consistently for the past four decades and considerably faster over the last 10 years even though inflation, measured by CPI, has been fairly muted over that period.

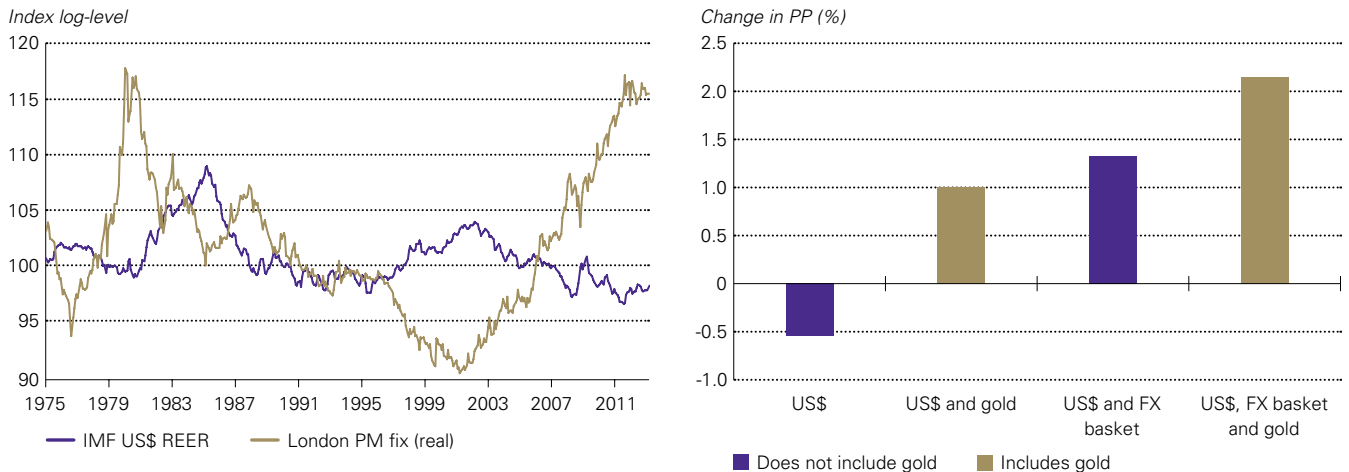
**REERs indicate investors have consistently lost purchasing power since the 1970s.**

Analysing the period since 1970s – which, as previously discussed, should be the most relevant to current investors as it captures gold’s performance as a free-floating asset – the strong inverse relationship between the purchasing power of a US investor and gold is not only very apparent (**Chart 3a**), but our analysis shows that by holding a portion of their cash portfolio in gold, investors maintain purchasing power and reduce volatility (see *Gold and currencies: protecting purchasing power*, April 2013).

**Adding gold as part of cash holdings helps prevent this erosion of capital.**

Even if investors already hold other developed market currencies, gold provides additional direct and indirect advantages that improve the performance of their cash holdings (**Chart 3b**). For example, calculations using data going back to the 1970s 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.

**Chart 3: (a) Gold has a negative correlation to the US dollar in real effective terms; (b) gold helps preserve purchasing power (PP) and improves on a basket of currencies**



Source: Bloomberg, IMF, LBMA, World Gold Council

<sup>11</sup> As an example, consider the price of consumer goods society has come to rely on. The price of high-end computers may have fallen relative to 10 or 15 years ago, but over the past few years, their price has been steady if not rising. However, consumer price baskets adjust for quality, speed, storage capacity, etc. Thus, they appear to have fallen in price, even though a person is spending the same – if not more – money to acquire one.

## Gold's role in reducing risk

**Gold is also a well-rounded hedge against multiple risks investors face.**

One of the most important contributions gold brings to a portfolio relates to risk management. Not only does gold help preserve capital over the long run, but it smoothes the bumpy rides investments may face over the course of time. This includes portfolio volatility, but also goes beyond that (**Focus 2**). Gold is a very well-rounded hedge against multiple sorts of risk. It helps reduce volatility, minimise extreme losses and enhance liquidity. All this at a relatively low cost: gold's real return – ie, the opportunity cost of holding relative to short term cash even when adjusting for inflation – has generally been positive over the course of time (**Table 2**). In this section, we explore how gold behaves as a risk-management vehicle.

**Table 2: Gold has outpaced inflation in the US and abroad, as well as short-term rates**

	Nominal gold return	Real gold return		Gold return in excess of	
		using US inflation	using global inflation	US cash	global cash
Average since 1971	10.37%	4.19%	5.96%	5.13%	na
25-year average	5.24%	2.56%	1.58%	0.99%	0.09%
10-year average	14.43%	11.94%	12.10%	12.06%	11.04%

Reference notes are listed at the end of this article.

Source: Bloomberg

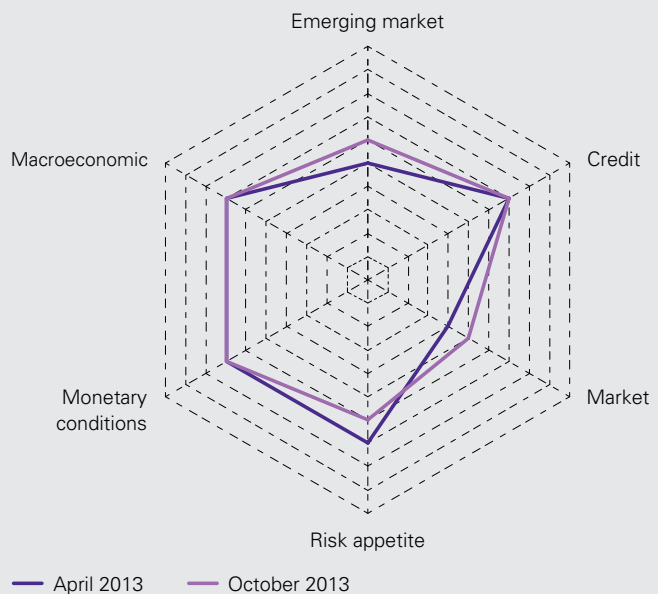
## Focus 2: What risk?

To obtain any sort of return, investors will incur risk in one form or another. However, in financial literature, *volatility* is a persistent misnomer for risk. Volatility is a characterisation of risk but it does not define it. Risk implies a chance that a given investment will not deliver its anticipated outcome, regardless of the reason. A simple example is that, for many fixed-income securities, volatility is low, but risks abound: risk of default, risk of the counterparty, risk of changing interest rates, etc.

As the importance of portfolio risk management has increased, especially after the 2008-2009 financial crisis, understanding the implications of such a diverse set of risks and finding the appropriate instruments to manage them is paramount. In its recent *Global financial stability report*, the International Monetary Fund (IMF) has done a thorough job in describing the risks the financial system faces (**Chart 4**).<sup>12</sup> Based on the IMF assessment, the risks that influence investment decisions are:

- Macroeconomic risks (stemming from either developed or emerging countries)
- Financial markets and liquidity risks
- Monetary and financial conditions risks
- Credit risks
- Market sentiment (risk aversion/appetite).

**Chart 4: Global financial stability map**



Reference notes are listed at the end of this article.

Source: IMF

<sup>12</sup> International Monetary Fund, *Global financial stability report*, October 2013.

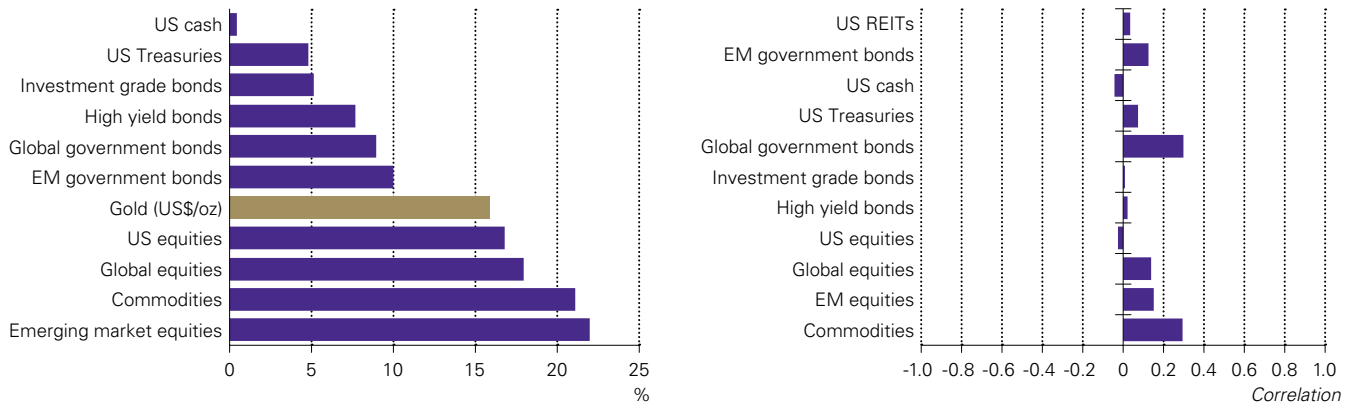
**Gold reduces volatility through diversification.**

**Why does gold reduce volatility?**

Diversification sits behind gold’s role in reducing portfolio volatility. In itself, gold is not a low volatility asset. And while gold is generally less volatile than many ‘risk’ assets, such as stocks, commodities or Real Estate Investment Trusts (REITs) – an impressive feat considering that these indices are made of many individual securities – it is still considerably more volatile than corporate bond indices and three times as volatile as US Treasury bond indices (**Chart 5a**). However, portfolio volatility is dictated not only by individual asset price variability but also by how these assets correlate to each other – in financial terms, their cross-correlation. Gold has very low correlation to most assets over the long run (**Chart 5b**). Thus, gold does not contribute as much to portfolio volatility and, in most instances, helps to reduce it significantly.

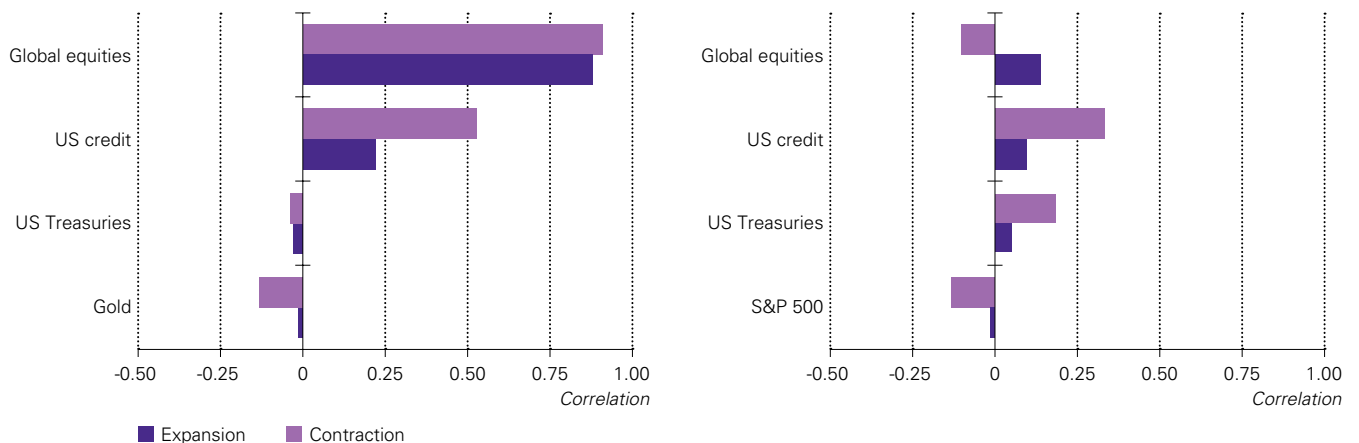
Further, unlike other assets, gold’s cross-correlation is fairly steady in periods of economic expansion and contraction. This rare quality makes gold a very useful diversifier in good and bad economic times, something we refer to as ‘true’ correlation (**Charts 6a and 6b**).

**Chart 5: (a) While gold is more volatile than bonds, (b) it has low correlations to most assets, thus helping reduce portfolio volatility**



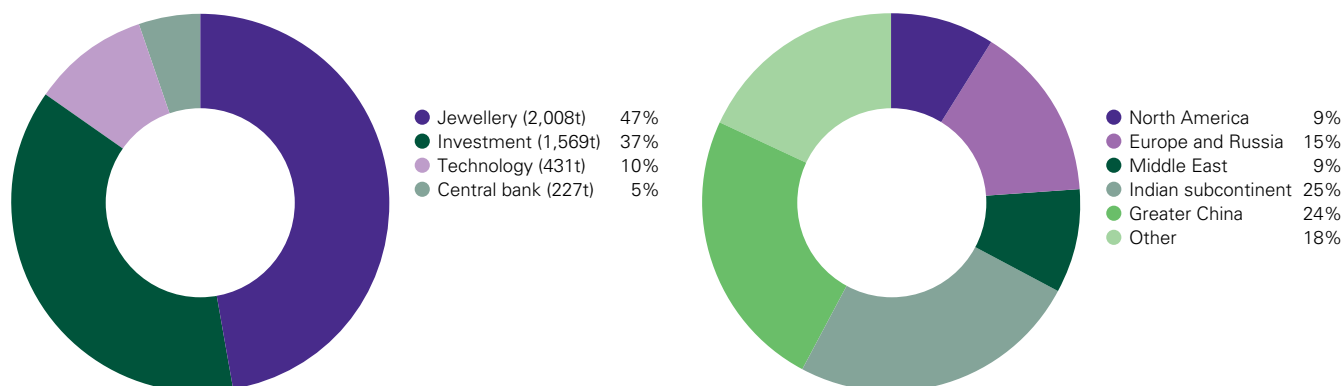
Reference notes are listed at the end of this article.  
Source: Barclays, Bloomberg, J.P. Morgan, LBMA, World Gold Council

**Chart 6: (a) Equities’ correlation to other assets increases during recessionary periods, (b) while gold’s correlation decreases**



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

**Chart 7: (a) Gold's sources of demand are diverse (Q3'08 – Q2'13); (b) gold demand is geographically diverse**



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

But why? The reason is rooted in gold's fundamental sources of supply and demand. Gold's demand is driven as much by consumer demand – and therefore linked to economic growth – as it is by investment. As a high quality liquid asset, investors use it in periods of financial turmoil (**Chart 7a**). In addition, central banks hold gold on the back of policy decisions aimed to diversify reserves. Further, geographically, demand is also fairly diverse (**Chart 7b**). And while the gold market can be heavily influenced in the short term by trading in developed markets (in particular the US), the long run is driven by a more diverse set of factors, many of which are linked to emerging markets.

**The importance of having high-quality, liquid assets and gold's function as a systemic tail-risk hedge**

It is common to find the term 'risk-free asset' in economic and financial literature; however, it should be clear that such a term stretches reality. After the 2008-2009 financial crisis and its aftermath – when even the costs of insuring against a US default increased<sup>13</sup> – a greater acknowledgement of risks previously considered negligible (such as the collapse of well-regarded institutions like Lehman Brothers and the consequences to counterparties) has helped investors realise the importance of having a comprehensive risk management investment strategy. Investors must realise (even embrace) the fact that sustainable returns are achieved by incurring and prudently managing risk.

<sup>13</sup> The premiums paid by investors buying 5-year credit-default swaps on US government debt increased from virtually zero to 100 basis points in Q1 2009 and has remained at an average of 40 basis points since then.

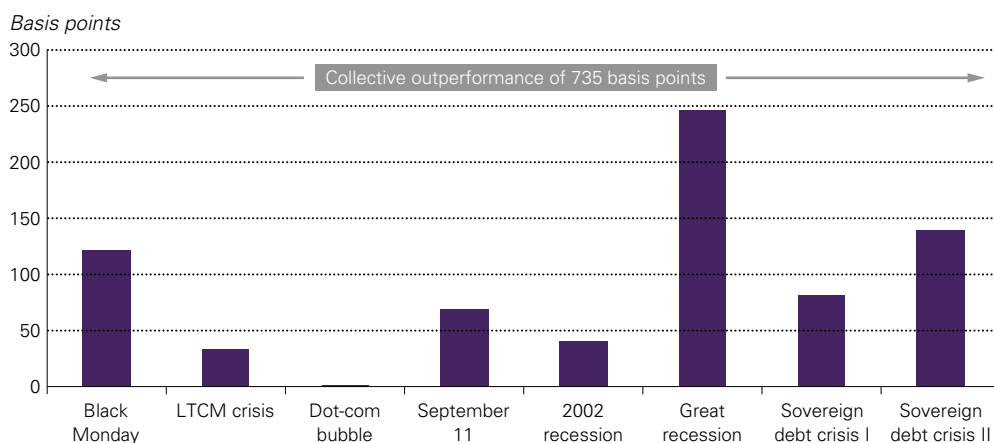
**Gold provides liquidity when investors need it most...**

**...and helps reduce losses during periods of systemic risk.**

In this light, including 'high-quality, liquid assets' as part of a portfolio can reduce risks, especially during periods when liquidity dries up. During these periods, investors 'fly to quality,' and demand for such assets increases. Because gold bears no credit risk it is viewed as a high-quality asset – it is no-one's liability and many forms to own it bear no counterparty risk.<sup>14</sup> Further, gold's market is deep (large), accessible, and extremely liquid (see *Liquidity in the global gold market*, April 2011). Therefore, investors can actually use gold to meet immediate liabilities without having to sell other assets in a portfolio that may either have lock-up periods and gating clauses (such as hedge funds or private equity funds), or may be mispriced and heavily discounted thereby exacerbating losses (eg, mortgage-backed securities during the financial crisis).

As a by-product of gold's correlation to other assets during periods of financial turmoil and its properties as a high-quality, liquid asset, it helps balance portfolio risks stemming from the low-probability, high-impact events typically referred to as 'tail-risk' events.<sup>15</sup> Tail risks are linked both to inflation and systemic risk. While gold should outperform other assets during periods of extreme inflation (see *Oxford Economics, The impact of inflation and deflation in the case for gold*, June 2011), it has also been seen to be the most effective tool for helping reduce losses during periods of systemic risk (see *Gold: hedging against tail risk*, October 2010 and *Tail-risk hedging: an international perspective*, January 2013). In other words, gold is particularly useful during periods when more than one economic sector (or region) is affected (see **Chart 8**).

**Chart 8: Gold reduces portfolio losses during tail risk events**



Reference notes are listed at the end of this article.

Source: Barclays Capital, Bloomberg, Hedge Fund Research, J.P. Morgan, Thomson Reuters, World Gold Council

14 While derivative gold contracts (such as futures, forwards, swaps and options), as well as unallocated gold accounts do incur counterparty risk, gold directly held in physical form or in allocated accounts (such as many gold-backed ETFs) has no inherent counterparty risk exposure.

15 These events, which can substantially erode the capital of an investor's portfolio in unexpected ways, produce portfolio returns that fall in the "tail" of a distribution. Depending on the likelihood of these occurrences (ie, how far into the tail of the distribution they lie), they are known as 2-sigma (2σ), 3-sigma (3σ) or 6-sigma (6σ) events – where σ is the mathematical expression to denote standard deviation.

## Gold in the context of a portfolio

It should be fairly apparent by now that gold has many useful qualities for investors. However, it is particularly important to understand these qualities in the context of other assets held by investors. Very few investors hold only one or two assets. Most investment strategies rely on diversification to avoid binary – all or nothing – outcomes.

**Gold's role should not be seen in isolation but in the context of other assets...**

The advantage of using gold in a portfolio is that, while it may not be the best at individual tasks (hedging one particular asset type or currency, one particular measure of inflation, or one specific event), it is a cost-effective investment that can give protection from simultaneous events without reducing long-term returns. In this section, we explore how investors should characterise gold's role in a portfolio.<sup>16</sup>

### Should gold be viewed as a tactical or strategic asset?

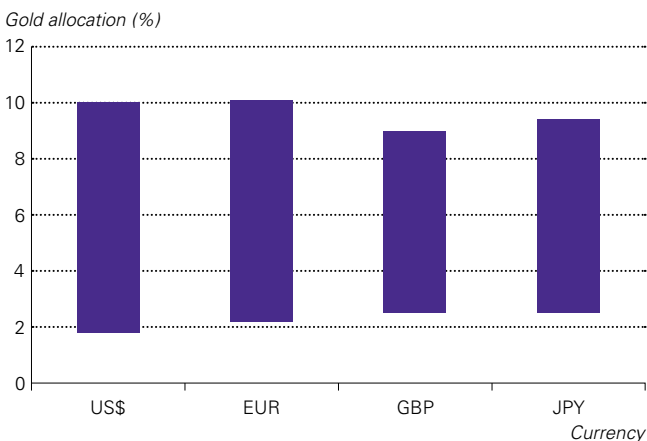
There is nothing to prevent an investor from using gold as a tactical or short-term investment purely driven by price performance. However, research has consistently shown that the true value of gold is linked to a modest, strategic allocation that serves as a core part of a portfolio – a foundation.

This has not been demonstrated by the World Gold Council alone (see [www.gold.org/investment/research](http://www.gold.org/investment/research)). Examples abound of other well respected organisations that have arrived at the same conclusion. These include New Frontier Advisors, Oxford Economics, J.P. Morgan, Mercer, and The University of Virginia Darden School of Business, among others.<sup>17</sup>

**...as a strategic component to all portfolios.**

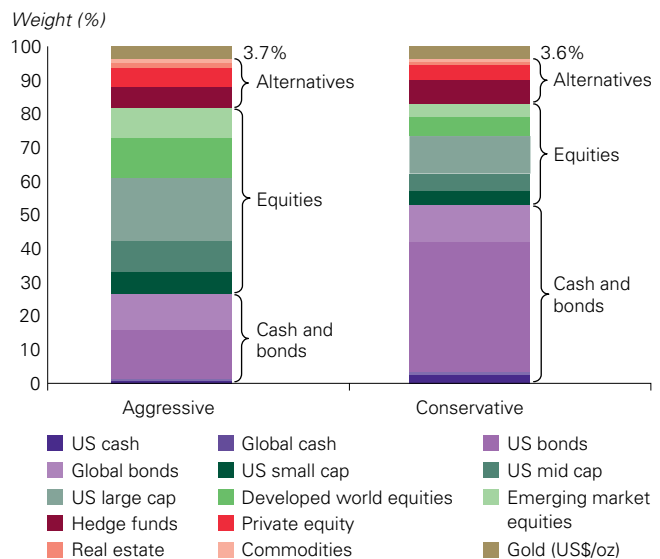
Indeed, gold's benefits should not be solely linked to its price. The key lies in gold's ability to diversify and, thus, lower volatility; reduce losses in periods of financial turmoil, in part due to its role as a high-quality, liquid asset; and preserve purchasing power. Even under the assumption that gold's average annual return is a modest 2%-4% over the long run – lower than its historical return and akin to the global rate of inflation (see **Table 2** in the previous section) – gold's benefits mean that holding 2%-10% in gold can greatly benefit investors seeking a well balanced, diversified portfolio. Interestingly, this range also applies to the international investors' portfolios (**Chart 9a**).

**Chart 9: (a) An allocation of 2% to 10% is optimal for broadly diversified portfolios denominated in several currencies; (b) in a diversified portfolio that includes alternatives, optimal gold allocations are still significant**



Reference notes are listed at the end of this article.

Source: World Gold Council



Reference notes are listed at the end of this article.

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

**Modest allocations between 2% and 10% can reduce risk without sacrificing long-term returns.**

To be sure, 2%-10% is a broad range. Let us start from a commonly used portfolio composition and explain how gold allocations should be adjusted. In particular, our research shows that a 5%-6% allocation to gold is 'optimal' for investors with a well balanced 60/40 portfolio (ie, approximately 60% in equities and alternative assets and 40% in cash and bonds). This holds true even for investors that already hold commodities, real estate and hedge funds (**Chart 9b**). See *Gold: a commodity like no other*, April 2011 and *Gold: alternative investment foundation asset*, October 2011.

What drives the allocation higher or lower? Risk. The higher the risk in the portfolio, the larger the share in gold should be.

Having a permanent allocation to gold is beneficial over the long run. However, as with any other investment, investors can increase or decrease (overweight or underweight) their core gold holding depending on various factors. For example:

- Portfolios with higher volatility require more gold to balance the additional risk incurred by investors (see *Gold in the Great Rotation*, April 2013). But, as previously discussed, risk is not limited to volatility.
- When the risk of holding bonds increases, (eg, long-term bonds during periods of rising interest rates or sovereign bonds in imminent threat of default) so should the share of gold in the portfolio (see *Gold in the Great Rotation*, April 2013 and *Gold and US rates: a reality check*, July 2013).
- During periods of heightened uncertainty, especially linked to systemic shocks to the economy, a higher gold allocation can reduce losses further (see *Gold: hedging against tail risk*, October 2010).
- Similarly, in periods of expected higher inflation, a larger allocation to gold is warranted (see Oxford Economics, *The impact of inflation and deflation in the case for gold*, July 2011).
- Finally, if investors expect their local currencies to lose value, the gold weight in a portfolio should be increased (see *Gold and currencies: protecting purchasing power*, April 2013, *Gold and currencies: the evolving nature of gold's relationship to the US dollar*, October 2013).

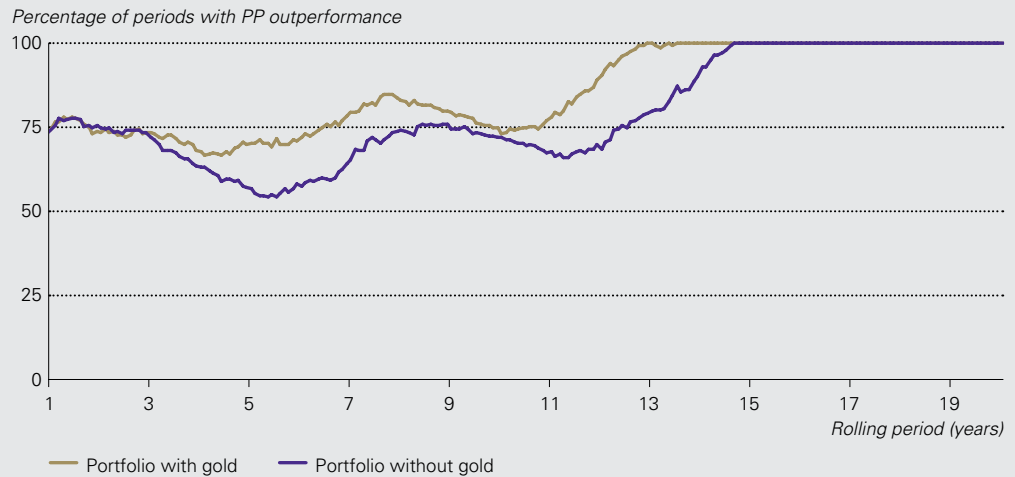
16 In *What drives gold?* July 2013, we explored seven main factors (including currencies, inflation, systemic risks and economic growth, among others) that influence gold's performance. While factors such as the value of the US dollar tend to exert significant influence, how these factors interact is more important in determining the gold price in the long run. That is one of the reasons gold does not behave like a perfect inflation hedge or currency hedge alone. Rather, these factors highlight gold's ability to protect investors from multiple risks.

17 See: New Frontier Advisors and World Gold Council, *Gold as a strategic asset*, September 2006; New Frontier Advisors, *Gold as a strategic asset for European investors*, December 2011; Oxford Economics, *The impact of inflation and deflation in the case for gold*, July 2011; J.P. Morgan, *Gold in asset allocation*, July 2012; Mercer, *Gold as an asset class for institutional investors*, February 2011; Matos, P. and R. Evans, *Gold as a portfolio diversifier: the World Gold Council and investing in gold*, Darden Business Publishing, University of Virginia, September 2012.

### Focus 3: Defining an investment horizon for gold

How long is long term? As previously discussed, gold ought to be seen in the context of a portfolio. Gold helps improve purchasing power in a more stable fashion approximately five years from the time of investment and achieves consistent purchasing power outperformance three years ahead of portfolios without gold (**Chart 10**).

**Chart 10: A portfolio that contains gold is better able to protect purchasing power**



Reference notes are listed at the end of this article.

Source: Bloomberg

### Conclusion

There is a great deal of debate regarding the function gold plays in a portfolio. Misunderstandings about gold's properties have given rise to an abundance of articles contesting gold's role as an inflation hedge, currency hedge, and tail risk hedge, among others. We contend that by properly defining these functions and using appropriate measures, gold's benefits as means for preserving purchasing power and managing portfolio risk become apparent. While gold's ability to hedge inflation or protect against a very specific kind of risk could be managed by including securities constructed specifically with those objectives, these can often be costly or add an additional set of risks (such as credit or counterparty risk exposure). Gold is a well rounded, cost effective strategic asset, which when held even in a modest amount (typically 2%-10% of a portfolio, with an average allocation of 5%-6% in a well-balanced, moderate portfolio with 60% in equities – and other risk assets – and 40% in cash and bonds) can help investors reduce risk without sacrificing long term returns.



## References

### **Table 1: Portfolios that contain gold outperform portfolios with TIPS**

A re-sampled optimisation methodology was used to derive the portfolio allocations. Historical return, volatility and correlation assumptions were used in the optimisation process. 60/40 portfolios are chosen such that the US equity, global equity and gold allocations are around 60% of the portfolio while fixed income and cash allocations tally to a 40% allocation.

### **Chart 1: (a) Gold's negative correlation to the US dollar helps US investors, (b) as well as foreign ones**

- (a) The correlations are based on monthly data from 1993 onwards. The chart shows the correlation between gold in US\$ with various dollar exchange rates.
- (b) This chart shows the correlation between gold in respective local currency to those currency's dollar exchange rates. Monthly data from 1989 onwards was used to compute these correlations.

### **Chart 2: (a) Gold is able to hedge exchange rate risk at a lower cost than traditional FX forwards; (b) when used as a currency hedge, gold reduces the draw-down of an EM equity investment**

- (a) Cost of traditional hedging is computed using the percentage difference between spot and futures markets (basis) which is typically determined by the interest rate differentials between the two currencies. Country weights from the MSCI emerging market index were used and combined with each currency's interest rate differentials. The 1-year treasury yield was used as a proxy for the opportunity cost of using gold as a currency hedge. The spread between the cost of traditional hedging and the 1-year yield, quantifies the cost advantage of using gold.
- (b) These three lines are representing peak-to-trough draw downs of the MSCI EM index, the currency hedged MSCI EM index and the MSCI EM index that's 50% currency hedged with a 50% gold overlay. Peak-to-trough drawdown is computed as rolling percentage return from the index peak. The asset that contains the gold overlay has had a lower average drawdown than a 100% currency hedged and un-hedged EM index.

### **Chart 3: (a) Gold has a negative correlation to the US dollar in real effective terms; (b) gold helps preserve purchasing power (PP) and improves on a basket of currencies**

- (a) This chart shows the inflation adjusted gold price against the US\$'s real effective exchange. A real effective exchange rate is an index of currencies adjusted for relative price differences between the two countries.
- (b) This chart compares 4 different baskets including one that contains just US dollars, a basket of dollars and foreign currencies, a basket of dollars and gold and finally a basket of US dollars, foreign currencies and gold. As you could see a basket that contains gold is able to increase the purchasing power of a currency portfolio when measure real effective terms.

### **Table 2: Gold has outpaced inflation in the US and abroad, as well as short-term rates**

This table shows the average returns for gold, average increases in US CPI, the average increases in the OECD global inflation measures as well as the average annualised yield on a 3-month T-bill between 1972 and 2013.

### **Chart 4: Global financial stability map**

This chart was taken directly out of the IMF global financial stability report published in October 2013. The chart tries to reflect the overall risk and conditions present in the global financial system. A data mark away from the centre of the web indicates higher risks, easier monetary conditions or higher risk appetite.

### **Chart 5: (a) While gold is more volatile than bonds, (b) it has low correlations to most assets, thus helping reduce portfolio volatility**

- (a) This chart shows the annualised volatility of cash, fixed income, gold, equities and commodity indices. Volatility is computed using weekly return between September 1988 and September 2013.
- (b) Correlations are computed using weekly returns between December 1987 and December 2012.

**Chart 6: (a) Equities' correlation to other assets increase during recessionary periods, (b) while gold's correlation decreases**

- (a) Contraction and expansionary periods are determined by business cycles as determined by the National Bureau of Economic Research (NBER). Correlations are computed using monthly returns conditionally on periods of expansion and contraction between the S&P 500 index and other portfolio assets.
- (b) Contraction and expansionary periods are determined by business cycles as determined by the National Bureau of Economic Research (NBER). Correlations are computed using monthly returns conditionally on periods of expansion and contraction between gold and other portfolio assets.

**Chart 7: (a) Gold's sources of demand are diverse (Q3'08 – Q2'13); (b) gold demand is geographically diverse**

- (a) The pie chart shows the average quarterly demand for 20 consecutive quarters between Q3 2008 and Q2 2013. Investment demand includes bars, coins, ETFs and OTC purchases.
- (b) The pie chart shows geographic split of gold demand by region in 2012.

**Chart 8: Gold reduces portfolio losses during tail risk events**

Standard portfolio is defined as one having 55% equities, 25% fixed income and at most 5% cash with the remaining weights optimally allocated to alternatives assets such as gold, commodities and real estate. The optimal gold allocation is 5%. Gold's allocation when included is 5%. Black Monday: 9/1987-11/1987, LTCM: 8/1998, Dot-com: 3/2000-3/2001, September 11: 9/2001, 2002 recession: 3/2002-7/2002, Great recession: 10/2007-2/2009, Sovereign debt crisis I: 1/2010-6/2010, Sovereign debt crisis II: 2/2011-10/2011

**Chart 9: (a) An allocation of 2% to 10% is optimal for broadly diversified portfolios denominated in several currencies; (b) in a diversified portfolio that includes alternatives, optimal gold allocations are still significant**

- (a) The chart shows the optimal gold allocations to portfolios denominated in US dollars, pound sterling, euro and yen. The lower (upper) end of the bar represents the bottom (top) of the optimal gold allocation range. These results were derived across several portfolio studies conducted by Oxford Economics, New Frontier Advisors and the World Gold Council. The portfolios examined were diversified and included assets like cash, fixed income, equities, alternatives and gold.
- (b) These results display the optimal portfolios that were found for the *Gold: alternative investment, foundation asset report* published by the World Gold Council in October 2011. Hedge fund index data was sourced HFRI while private equity index data was sourced from a proprietary index published by Thomson Reuters.

**Chart 10: A portfolio that contains gold is better able to protect purchasing power**

Monthly data from January 1987 was used. Loss in purchasing power is defined as an increase in inflation combined with decreases in the trade-weighted US\$ index. The portfolio that contains gold includes 35% in US equities, 15% in global equities, 10% in gold, 20% in treasuries, 15% in US credit and 5% in cash. The no-gold portfolio contains a 40% allocation to US equities, 20% allocation to global equities, 20% to treasuries, 15% to US credit and another 5% to cash.

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