WORLD GOLD COUNCIL

Gold Investor

Risk management and capital preservation

Volume 5

In this edition:

- Hedging EM risks? Think gold
- Can gold replace bonds in balancing equity risk?
- A perspective on gold as a hedge in an expanding financial system

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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

Marcus Grubb
Managing Director,
Investment Strategy

Welcome to the fifth edition of *Gold Investor.* We are pleased to share a selection of the latest investment research from the World Gold Council with you.

Following last year's strong performance by many equity markets around the globe, the first few months of 2014 have proven to be a reality check for investors. In this edition of *Gold Investor,* we address the challenges investors face from foreign exchange and potential systemic risks from emerging economies and depressed bond yields in developed markets. In addition, we provide a perspective on using gold as a hedge as financial markets continue to evolve.

First, *Hedging EM risks? Think gold* looks at how investors have benefitted from strong performance from emerging markets (EM) over the past decade, driven by strong economic growth, favourable demographics and, in many instances, market deregulation. However, as emerging markets have become an increasingly important part of global GDP and international trade, as well as a more widely recognised asset class, the risk of contagion stemming from EM has increased dramatically. The study identifies gold as a useful tool to hedge EM risk: as a currency hedge and as a tail-risk hedge. Whether investors have direct or indirect exposure to emerging markets, adding gold as a strategic portfolio component can increase risk-adjusted returns through lower volatility.

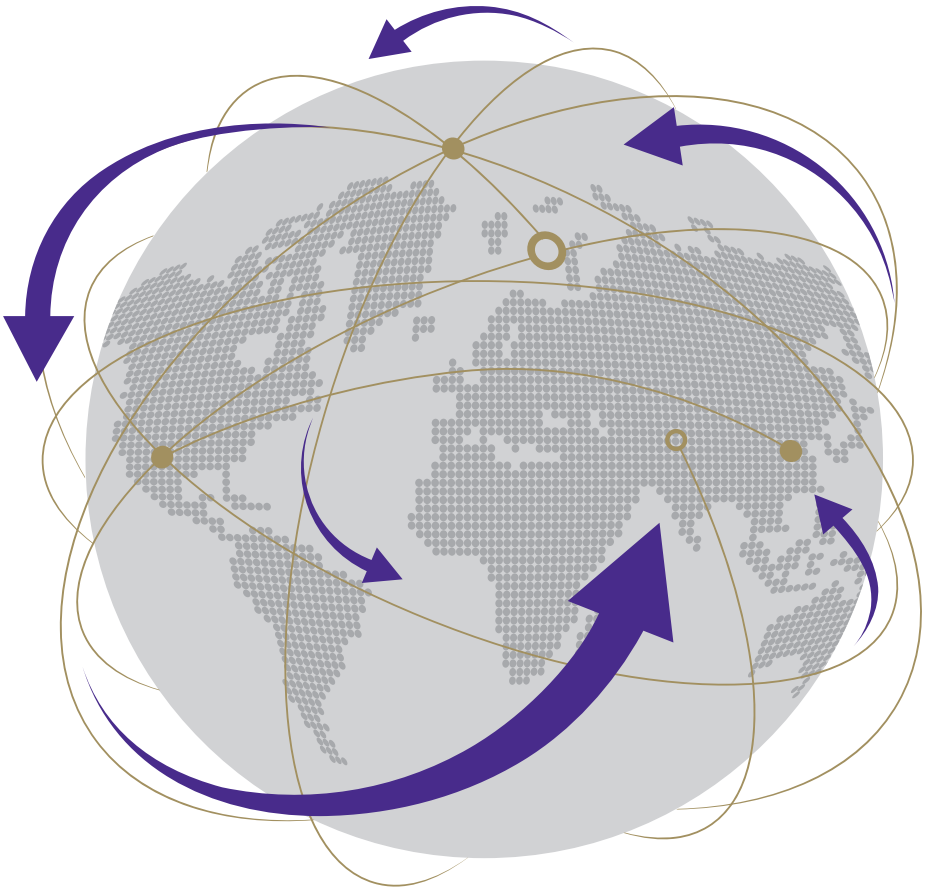
Second, in *Can gold replace bonds in balancing equity risk*? we explore how, given today's historically low bond yields, investors may have to accept greater portfolio risk in order to generate returns similar to those enjoyed in the past two decades due to a secular decline in bond yields. However, we believe that bonds may not be able to cushion these additional risks as they now have limited upside. The report finds that by complementing a likely smaller bond allocation over the coming years, gold can improve portfolio diversification and reduce tail risks.

Finally, *A perspective on gold as a hedge to an expanding financial system* examines 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 hope you find this edition of *Gold Investor* informative and stimulating, and we welcome your views.

I: Hedging EM risks? Think gold

Attractive returns across emerging markets (EM) for most of the last decade – supported by economic growth – have appealed to many investors. While the long-term view on EM is still positive, some market participants fear that its larger share in the global economy has also increased the potential for spillover effects. As current volatility surrounding EM rises, it is particularly relevant for investors to implement a sound portfolio risk management strategy. Our research suggests that as an EM currency and systemic-risk hedge, gold can enhance strategies aimed at minimising the potential for an overall portfolio loss.



Has EM become the new DM?

Exposure to EM has benefited investors over the past decade...

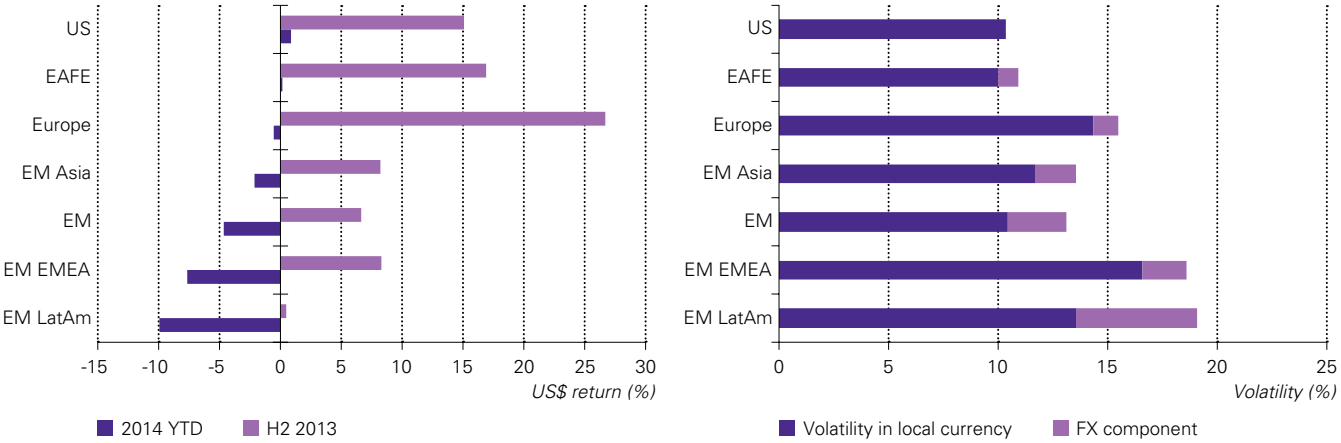
Over the past decade, EM has transitioned from being primarily a tactical play for some daring investors to a more widespread strategic component in portfolio allocation. In fact, it has been one of the best performing asset classes in recent years. EM stocks gained 12.1% per year (in US-dollar terms) between 2003 and 2012; EM bonds fared equally well, with annual returns of 11.6% over the same period.[1] Compare that to annual returns of 1%,1.9% and 4.9% for European, Japanese and US stocks,[2] respectively, and one can understand why the EM story – rooted in economic growth, favourable demographics and, in many instances, market deregulation – has been closely followed by the investment community.[3]

Not only did EM recover much faster than developed markets (DM) from the 2008-2009 financial crisis, but annual volatility for the MSCI EM equity index (19.5% in local currency terms) over the past decade has been only slightly higher than the comparable US equity index and 15% lower than its European equivalent.[4] While foreign-exchange fluctuations did increase EM volatility by approximately 5 percentage points (measured in US dollars) over the period, long gone seemed the days of major EM-led crises like the Long-Term Capital Markets (LTCM) in 1987, the Mexican crisis in 1994 or the Asian crisis in 1997. In addition, falling rates in DM (easy money) and the expansion of mutual funds and exchange-traded funds (ETFs) helped a broader set of investors gain EM exposure, fuelling their appetite for an asset class that appeared to offer better returns for not much more risk.

...but the recent EM pullback has sent chills across the investment community.

However, in 2013, potential signs of overheating became more evident and many emerging markets – in large part through their currencies – showed a vulnerable side. The announcement in May of more imminent Fed tapering had a ripple effect on EM. This combined with a drop in commodity prices – an important source of revenue for many EM countries – sent local EM equities and currencies down while pushing credit spreads up.[5] Despite retracing some of the losses during the second half of 2013, year-to-date in 2014 equities are down once again (**Chart 1a**) with a substantial component of volatility (for US-dollar investors) stemming from currency risk (**Chart 1b**).

Chart 1: (a) EM equities were down in 2013 and, despite a period of recovery during the second half, they have fallen once again year-to-date in 2014, (b) with foreign-exchange (FX) fluctuations adding, in many cases, significant risk



Reference notes are listed at the end of this article.

Sources: Bloomberg, MSCI, World Gold Council

1 Equity returns based on the MSCI EM equity index level in US-dollar terms from December 2002 and December 2012. Bond returns based on the J.P. Morgan EM Global Bond Index (EMBIG) over the same period.

2 Equity returns based on the corresponding MSCI country/region indices in US-dollar terms from December 2002 and December 2013.

3 The Economist, *Emerge, splurge, purge*, March 2014.

4 Volatility computed using weekly returns based on the indices mentioned in footnotes 1 and 2.

5 Returns and spread changes based on on the indices mentioned in footnotes 1 and 2.

Investors are left wondering whether the recent EM performance represents a temporary correction, the beginning of a change in the trend for EM, or perhaps more worryingly, that spillover effects from EM could derail a nascent DM recovery.

The good, the bad and the ugly

Many trust EM's longer term strength…

EM still carries a lot of potential. Studies estimate that more than half of global GDP will come from EM within the next decade.[6] Overall, the market seems optimistic about the long-term prospects resulting from a natural abundance of resources, innovation and favourable demographics. In addition, following previous decades of mismanagement and hard lessons learned, many of these countries reduced debt levels and, in many instances, became net creditors to the global financial system.

As such, EM will remain an integral part in many investors' portfolios and, in our view, its share will likely increase.

…but after 10 years of impressive performance, common and idiosyncratic factors have put pressure on the asset class as a whole.

However, after more than 10 years of impressive growth rates, many emerging economies have shown signs of stress. In all, the current environment has been a (not so gentle) reminder that opportunity will not likely come without risk. And while today there is a greater level of differentiation between the various countries and regions that constitute the asset class, it is still seen by many as a whole. For example, as EM investing has become more main stream, global indices such as the MSCI EM or the J.P. Morgan EMBIG, used as benchmarks for many passive and active strategies,[7] tend to pull the asset class together and can produce outflows in countries with less apparent direct risk. Further, trade, globalisation and other factors have also created stronger links thus creating a greater risk of contagion.

What is true is that the current EM pullback has been influenced by common economic developments as well as idiosyncratic country (or region) specific risks.

The common factors are linked to sources of economic growth. Many of these countries benefited greatly from (and in the case of countries like China, fuelled) the commodities super cycle that started at the beginning of the century and resulted in EM producing a significant share of global trade. In addition, falling interest rates in developed markets during the decade provided cheap funding and aided economic expansion.

But, in the same way EM benefited from soaring commodity prices, they have been hurt by falling ones. Some producers may have become too reliant on commodity exports – with currencies inextricably linked to the fortunes of specific and volatile raw materials. Other net consumers have experienced expanding current account deficits, and rising prices have either stirred food inflation or acted as a tax on consumption.

Further, expectations of rising interest rates in the US reduced the access to cheap funding that benefited EM countries – and increased the opportunity costs for investors to access the asset class.

Other factors behind the weakness in EM are more localised and respond to particular economic or political conditions. These may be the result of unsustainable economic policies, a large appetite for credit, or geopolitical turmoil. However, while in other circumstances these may have been seen separately, the overall situation has added pressure on EM.

6 Ernst & Young, *Tracking global trends: How six key developments are shaping the business world*, 2011. McKinsey & Co., *Winning the $30tn decathlon: Going for gold in emerging markets,* 2012.

7 http://www.msci.com/products/indices/country_and_regional/em/

As correlations increase, risk management is even more relevant

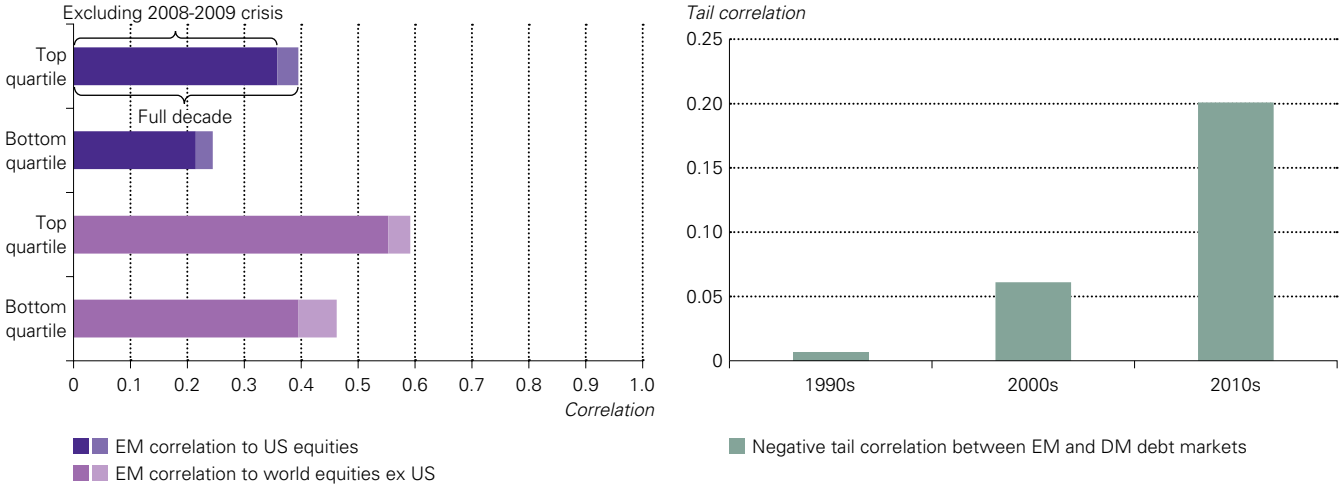
Investors' are concerned about spillover effects...

In our view, the main concerns investors face are how much a spillover from EM could affect their portfolio – whether they have direct EM exposure or not – and how may investors hedge against it?

...given that larger EM economies have the potential to inflict greater damage to the global economy.

As shown in **Chart 2a**, correlations between smaller EM countries (based on GDP from MSCI EM equity index country components) and world equities show that, generally, their performance is less linked to other markets. Conversely, correlations for the upper quartile suggest a higher interconnection. While this may seem obvious, its implications are relevant: for investors, not all EM economic woes are created equal, but there are some that can have significant consequences to portfolio performance. Further, the correlation of extreme negative returns has also increased. This is evidenced by the rise in correlation of returns between EM and DM debt markets in the lower decile of the distribution (**Chart 2b**).[8]

Chart 2: (a) Equity movements in smaller EM countries are less correlated to other markets than those from larger EM countries, while (b) correlation of extreme negative events between EM and DM debt has significantly increased over time



Reference notes are listed at the end of this article.

Source: Bloomberg, MSCI, Riskelia, World Gold Council

Hedging EM risks with gold

So, what can investors do?

We concentrate here on how investors can use gold to hedge their emerging market exposure, whether as a function of the current environment or on a longer term and more strategic basis.

Gold can help investors who:

Our analysis focuses on two types of strategies:

have direct exposure to EM...

1. For investors with direct exposure to emerging markets, our research suggests that using gold to hedge foreign-exchange risk can significantly reduce risk at a lower cost.

...and those who don't.

2. For investors more concerned about potential systemic impacts resulting from an EM event, whether they hold emerging markets directly or not, our research shows that having a strategic gold holding has not only reduced volatility historically, but has reduced losses and, in some instances, produced gains during periods of systemic meltdowns.

8 The tail correlation analysis was provided by Riskelia. For more details see reference notes for Chart 2 at the end of this article.

Foreign-exchange risk hedging[9]

Given the long term positive view on EM and the potential benefits to investors who hold it, a pertinent question is what strategies investors can employ to hedge EM exposure?

In our view, currency risk should be on top of the list.

Currencies are an integral part of EM investing.

Currencies can be effective instruments to reflecting market views on the level of risk and, as such, are often used as proxies for expressing macro views or hedging against unforeseen events.

While many EM currencies have generally appreciated over the past decade – reflecting more confidence in the underlying macro dynamics – they are still prone to violent pullbacks, as we have recently seen. This type of volatility can be difficult to manage for investors who are heavily engaged in foreign-exchange (FX) markets; it is even more difficult for investors who are not.

For many, FX hedging is an appropriate strategy, but it comes at a cost…

Deciding not to hedge may be an understandable strategy for investors who wish to take a directional view on currencies or include currencies as part of their portfolio diversification strategies. However, this may not apply to all investors. While opinions can differ, some research suggests that hedging FX risk can be a superior alternative over the long term.[10] FX hedging has been proven to lower portfolio risk, especially for volatile currencies and those that are positively related to the business cycle. However, it comes at a cost.

Costs are often excluded from return calculations because they can be difficult to quantify, but some of these costs can have a material impact on performance.[11]

…which is exacerbated by the rate differential between developed and emerging markets.

For FX hedging, the lion's share arises from interest-rate differentials, particularly prevalent between developed and emerging markets. The current environment also accentuates this cost as DM rates are exceptionally low. The differential between the two exerts strong downward pressure on hedged returns. For example, an investor wishing to hedge Indian rupee/US dollar exchange-rate risk would have to commit to paying approximately 7.5% over the following year. In other words, if an Indian equity investment generates a substantial 15% over the coming year, around half of the return would be wiped away if an investor hedges the FX risk. On the other hand, the decision not to hedge exposes investors to other sets of risks. The Indian rupee, as an example, depreciated by approximately 40% between July 2011 and December 2013 on the back of a high current account deficit and capital outflows.

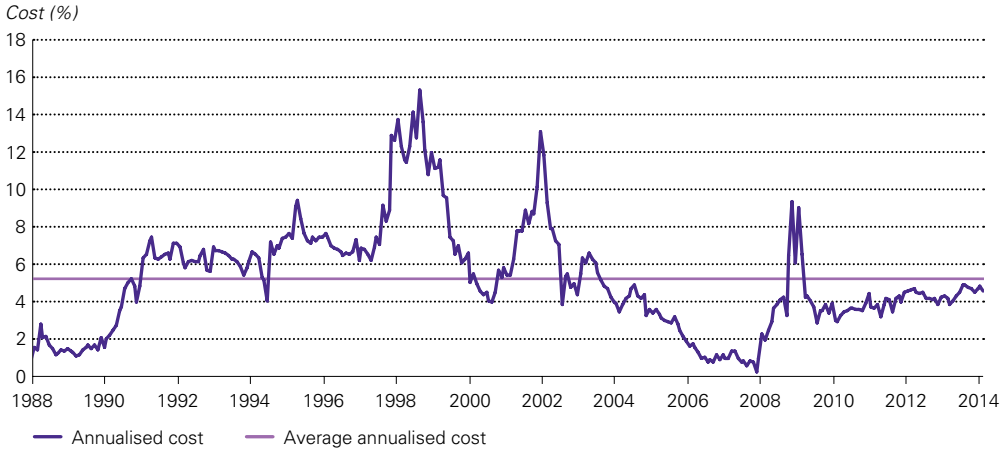
9 Parts of the text and analytics in this section were originally published in *Gold and currencies: hedging foreign-exchange risk,* Gold Investor, Volume 1, January 2013.

10 Eun, C.S. and B.G. Resnick, *Exchange rate uncertainty, forward contracts, and international portfolio selection,* The journal of finance, Vol. 43, 1988; and Schmittmann, J., *Currency hedging for international portfolios,* IMF Working Paper No. 10/151, June 2010.

11 There are other more subtle costs to consider as well including margin calls on the overlay. A hedged US dollar based investor, in the case of a US dollar rise, sees no mark-to-market FX impact on international positions, but will have to service the loss on the hedge. There is therefore a cash flow impact. This occurs whenever the duration of the hedge does not match the holding period of the asset under consideration. In addition, tracking error and re-balancing leaves investors either over- or under-hedged depending on the return on the underlying asset. This discrepancy represents an inefficiency cost. Finally, transactions costs such as trading fees and bid ask spreads can compound if the portfolio is rebalanced frequently. A higher rebalancing frequency mitigates the inefficiencies of hedging but increase transaction costs. These costs apply to any hedge.

Chart 3 details the historical cost of currency-hedging a constructed proxy for the MSCI EM equity index. Calculations show that an investor would have paid, on average, 5.2% per annum to hedge the currency exposure of this emerging-markets basket over the 25 years.

Chart 3: Approximate annualised cost of hedging currency exposure for the MSCI EM index



Reference notes are listed at the end of this article.

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

As a result of the costs of hedging, gross returns measured in many local EM currencies are unachievable for foreign investors. But having no currency hedges in place exposes the investor to harmful currency swings and tail-risk events in emerging markets, as previously discussed. What alternatives do investors have?

Gold can offer a natural alternative to currency hedging strategies.

In our view, gold offers a potential solution to these issues. Gold exhibits a number of characteristics that allows investors to hedge part of the currency-related risk while reducing costs, adding diversification and protecting against tail risks. These include:[12]

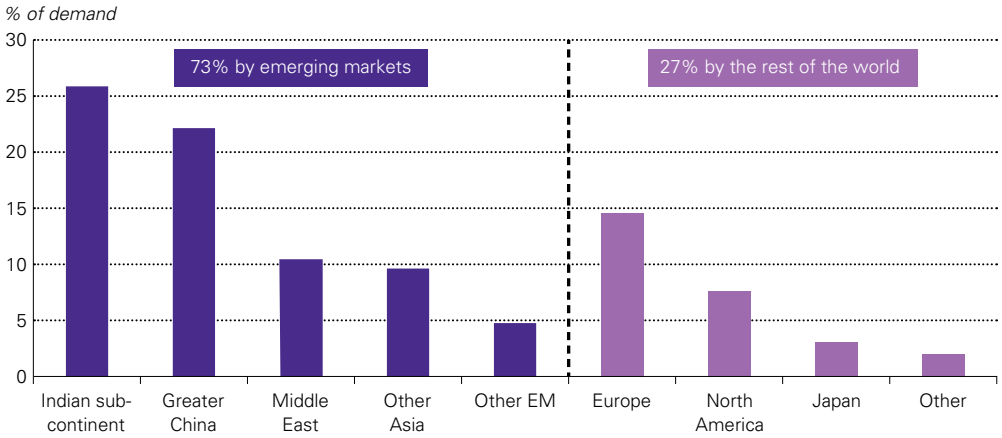
- Gold's link to emerging markets through consumer demand
- Its role as currency in the financial system
- Its negative relationship with the US dollar and other developed market currencies
- Its low correlation to most developed-market assets
- Its ability to protect against tail-risk events

Consequently, investors can benefit from including gold in their portfolios as part of their currency-hedging strategy for EM investments.

12 For a more detailed discussion on the merits of these characteristics, see: *Gold and currencies: hedging foreign-exchange risk,* Gold Investor, Volume 1, January 2013.

This should not come as a surprise to those familiar with gold market fundamentals. Countries like India, China, Turkey and the entire Southeast Asia region have a cultural affinity for gold. Physical gold demand coming from developing countries has contributed to more than 60% of annual demand since 2000 and represented more than 70% of global demand over the past five years (**Chart 4**).

Chart 4: Emerging markets make up for the majority of gold demand
Regional distribution of 5-year gold demand ending in 2013



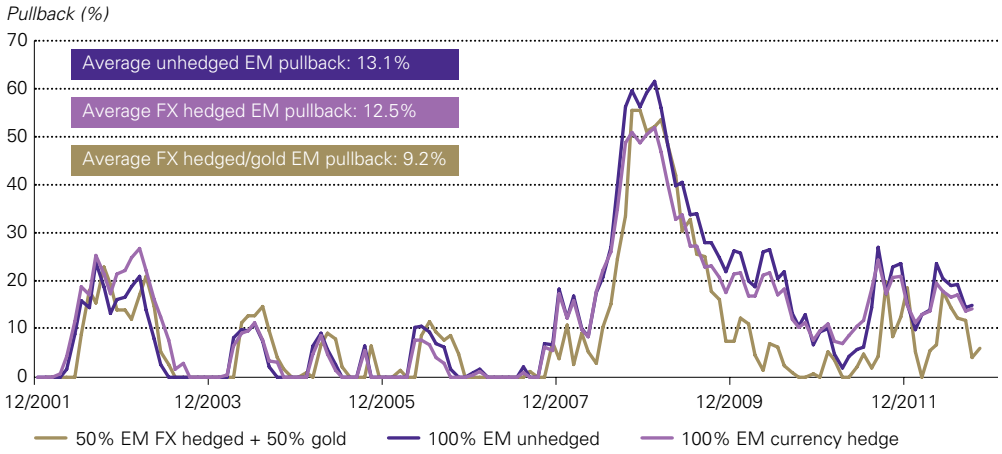
Reference notes are listed at the end of this article.

Source: Thomson Reuters GFMS, World Gold Council

Including gold has shown to reduce EM currency related risks…

Including a gold-hedging strategy with an EM position can significantly reduce the drawdown (peak-to-trough declines) on the investment. As **Chart 5** shows, gold-hedged EM equity exposure dramatically decreased portfolio drawdown from 2001 to 2013. This was particularly evident during the global credit crisis of 2008-2009 and the subsequent European sovereign-debt crisis. Adding a 50% gold overlay to a partly-hedged emerging-market-equities position achieves a lower drawdown than a 100% exchange-rate-hedged emerging-market investment.[13] Similarly, the average pullback on a 50/50 gold/currency-hedged position at 9.2% was lower than both a fully currency-hedged and a fully-unhedged emerging markets' position.

Chart 5: Drawdown of unhedged, currency-hedged and gold-hedged EM indices



Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

…and is, in many cases, much more cost effective than local currency hedging.

Further, as previously discussed, the costs of FX hedging using currencies with higher rate differentials and less liquidity can exert a considerable drag on returns. In contrast, gold allocations and overlays can be implemented in rather simple and cost effective ways. For example, the cost of vaulting allocated physical gold ranges from 5-15 basis points while the cost of owning an ETF ranges from 15-50 basis points, a fraction of the cost of hedging emerging-market currencies.

Liquidity in the gold market rivals DM currencies and surpasses EM spot currency transactions combined.

The gold market is extremely liquid. With an estimated average trading volume of US$240bn per day,[14] it not only ranks fourth relative to major currency pairs behind the US dollar/euro, US dollar/yen and US dollar/pound sterling, but dwarfs any other non-US dollar cross currency pairs, surpassing all EM spot currency transactions combined.[15]

The funds needed to implement a gold overlay can be obtained at the prevailing interest rate of the investor's home country, thus eliminating the additional costs created by rate differentials.

13 The 50% hedge ratio was used as it is a common approach for investors (FT, Hyman Robertson, State Street Global Advisors). While there is a good amount of literature on hedging ratios, many of them disagree to a large extent and optimal ratios can be time dependent (Black, 1989a).

14 London Bullion Market Association, *LBMA gold turnover survey for Q1 2011,* The Alchemist, August 2011.

15 Statistics computed using the Bank for International Settlements (BIS) database.

Tail-risk hedging

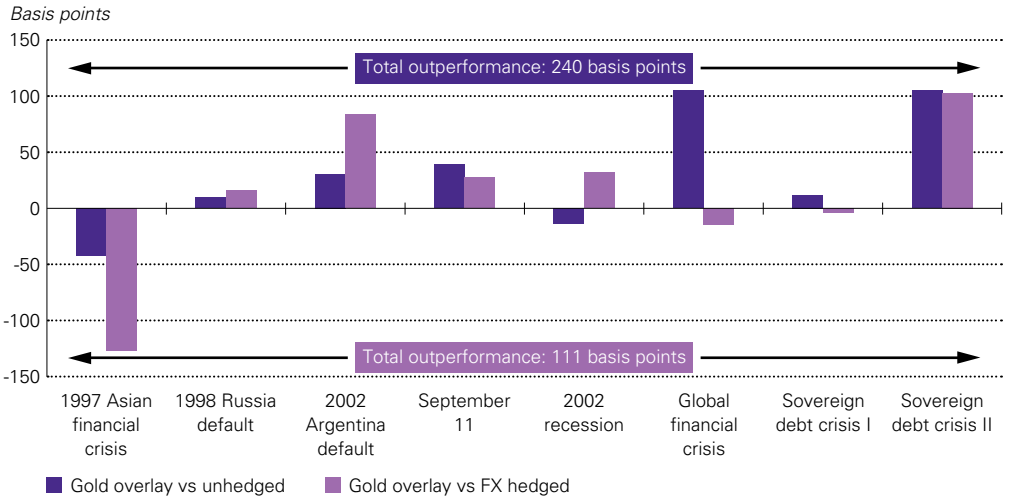
Gold can also provide a useful tool in risk management if an EM-led crisis becomes systemic. For example, one led by recessionary pressures in a larger economy with a higher level of global interconnectivity, or in the case of a widespread geopolitical event.

Gold, during times of crises, typically reduces the losses experienced by risk assets, including EM equities. These events include crises that are systemic in nature. For emerging markets, such events are often either related to or caused directly by the country's currency and debt markets.

Gold can also reduce losses during tail events, whether they are directly...

For investors with direct exposure to EM, including gold in currency-hedging strategies can improve performance during tail events. For example, a 50/50 combination of gold and an EM currency-hedging strategy outperformed fully-hedged and fully-unhedged strategies during eight recent tail-risk events (**Chart 6**). In particular, the 50/50 combination hedged portfolio outperformed an unhedged strategy by an average of 30 basis points and collectively by a total 240 basis points over the eight events under consideration. Similarly, it outperformed a fully currency-hedged strategy by an average of 14 basis points and 111 basis points collectively over the same period.

Chart 6: Outperformance of portfolios with a 50% gold overlay on EM index



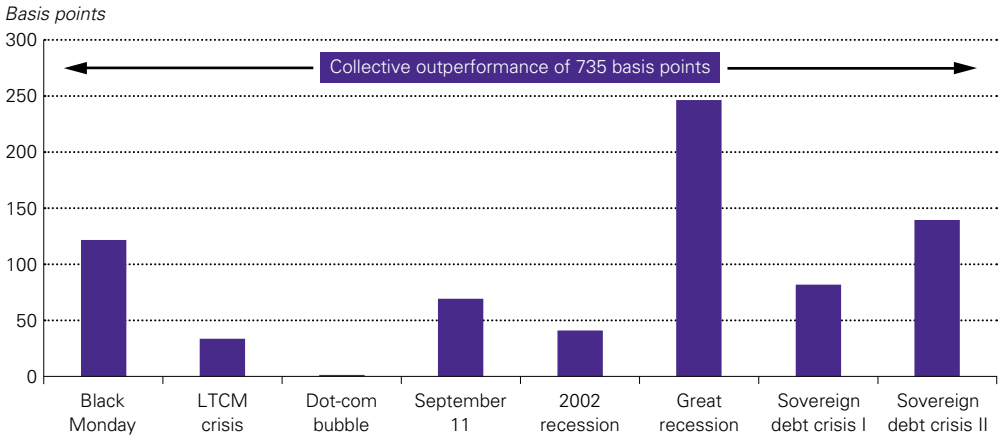
Reference notes are listed at the end of this article.

Source: Barclays, Bloomberg, World Gold Council

…or indirectly linked to EM investments.

In addition, for investors without a direct allocation to EM, holding a strategic allocation to gold can reduce the losses during tail-risk events (**Chart 7**).[16] In the current environment, a potential spillover from geopolitical events or a more noticeable slowdown in bigger EM economies could deliver a blow to other markets. In such an environment, holding 5%-6% in gold on a 60/40 portfolio (or more generally, 2%-10% in the portfolio across various levels of risk tolerance) can serve as an effective safeguard against tail risks.

Chart 7: 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

16 See *Why invest in gold?* Gold Investor, Volume 4, October 2013.

Conclusion

As the economy becomes more globalised and EM play a larger role, spillover risks have increased. This is particularly relevant to investors today.

Over the past decade, emerging markets have benefited from strong growth and cheap funding. Investors have increased their exposure and, given the positive long-term view of these economies, there is a strong rationale for investors to have EM in their portfolios. However, given recent market volatility and concerns about the sustainability of EM growth, it is more pressing than ever for investors to understand how to hedge exposure to the asset class and, even if they don't have direct holdings, how to reduce the effects of a spillover in their portfolios.

While EM crises may have been regionally contained in the past, the increasing weight of these markets in global GDP and international trade could increase the risk of contagion in any future crisis. In that context, there is a strong argument for using gold to enhance EM hedging strategies.

Holding gold can be a sound strategy for direct and indirect EM risk hedging...

Gold's EM currency hedging characteristics represent an additional benefit to a strategic allocation. Our body of research has shown that an allocation to gold in the range of 2%-10% is optimal for investors across a band of risk appetites. Gold's foreign-exchange hedging capabilities further emphasise its versatility as a portfolio component.

...in addition to being cost effective to implement.

In addition, given the low cost of a gold allocation – from the transaction, monitoring and carry perspectives – its positive relationship to EM and its application as a tail-risk hedge, gold makes an attractive alternative to traditional exchange-rate hedging programmes. The results of our analysis show how gold can reduce portfolio drawdown for investors with emerging-market allocations relative to a foreign-exchange hedge. Further, gold as a discrete allocation increases risk- adjusted returns by lowering volatility. This strategy may be particularly useful going forward based not necessarily on directional views on gold prices, but because the global economy has become more intertwined and gold has garnered a greater response in crises impacting more than one market.

References

Chart 1: (a) EM equities were down in 2013 and, despite a period of recovery during the second half, they have fallen once again year-to-date in 2014, (b) with foreign-exchange (FX) fluctuations adding, in many cases, significant risk

(a) Equity returns based on the corresponding MSCI country/region level in US-dollar terms. Year-to-day returns computed as of 15 March 2014.

(b) Volatility computed using daily returns based on the indices described on part (a). FX component corresponds to the difference between returns in local and US-dollar terms.

Chart 2: (a) Equity movements in smaller EM countries are less correlated to other markets than those from larger EM countries, while (b) correlation of extreme negative events between EM and DM debt has significantly increased over time

(a) Average correlation between top and bottom quartile MSCI EM index constituents (ranked by GDP) and MSCI US index as well as MSCI World ex US index – all in local currency terms – from December 2002 to December 2013.

Top quartile countries include: China, Brazil, Russia, India, Mexico, and South Korea. Bottom quartile countries include: Egypt, Philippines, Greece, Peru, Czech Republic, and Hungary. Excluding Greece did not have a material impact on the results.

(b Calculations of tail dependency between EM and DM debt were provided by Investment Research firm Riskelia. These correlations, localised to the lowest decile of returns for EM debt (J.P. Morgan EMBIG; J.P. Morgan EMBI before 1994) and corresponding returns for DM debt (J.P. Morgan Global Bond Index), were calculated as 500-day rolling correlations on daily data from 30 November 1992 to 14 March 2014. These values were then averaged across the three discrete periods in the chart. The method for calculating tail correlation are based on a model proposed by Bradley B., and M Taqqu, *How to Estimate Spatial Contagion between Financial Market,* Global EcoFinance, 2005.

Chart 3: Approximate annualised cost of currency hedging the MSCI EM index

Cost is computed by multiplying a constructed proxy for the MSCI Emerging Markets Index respective country weights by the corresponding interest-rate differentials. Computations are made from a US$ perspective, but results are similar for euro and pound sterling investors given the relatively similar domestic interest-rate environments investors have experienced. See Appendix II in *Gold and currencies: hedging foreign-exchange risk,* Gold Investor, Volume 1, January 2013, for more details on the methodology.

Chart 4: Emerging markets make up for the majority of gold demand
Regional distribution of 5-year gold demand ending in 2013

Includes bar and coin, jewellery, technology and ETFs. Middle East includes Turkey. Other category aggregates country demand for which no individual country data is available.

Chart 5: Drawdown of unhedged, currency-hedged and gold-hedged EM indices

The 50% EM FX hedged + 50% gold drawdown analysis assumes that gold is an overlay position. For more details see: *Gold and currencies: hedging foreign-exchange risk.*

Chart 6:Outperformance of portfolios with a 50% gold overlay on EM index

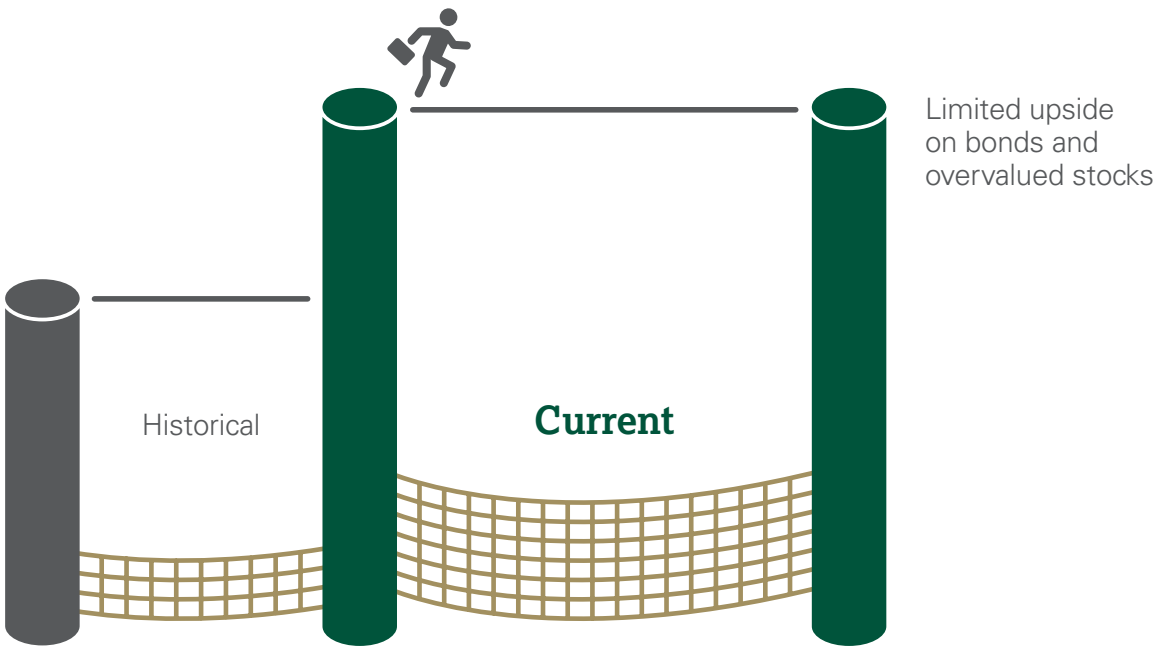
This chart shows the outperformance of a portfolio with 50% FX hedge/50% gold overlay EM index relative to two other portfolios: one with an unhedged EM index and another one with a currency-hedged EM index. Please refer to Table 5, Appendix III in *Gold and currencies: hedging foreign-exchange risk* for event dates.

Chart 7: 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: September 1987 – November 1987, LTCM: August 1998, Dot-com: March 2000 – March 2001, September 11: September 2001, 2002 recession: March 2002 – July 2002, Great recession: October 2007 – February 2009, Sovereign debt crisis I: January 2010 – June 2010, Sovereign debt crisis II: February 2011 – October 2011.

II: Can gold replace bonds in balancing equity risk?

Aggressive monetary policies have dragged US bond yields to record lows while constraining their upside. As investors look to manage portfolio risk, fixed income may not provide the same cushion it did in the past. Investors are confronted with difficult choices: add more equity risk and face increased volatility. Keep outsized bond holdings and accept lower returns or, even worse, forfeit capital if higher than expected inflation materialises. Amid these choices and in the current environment, we show that investors can benefit from increasing their gold allocation. By complementing smaller bond holdings, gold can improve portfolio diversification and reduce tail risks.



Introduction

The good times for bonds are likely behind us…

On the back of aggressive easing in the US and most other advanced economies, it has become abundantly clear to investors that the yields on bonds remain at historic low levels with little room to move down further. We do not see the outlook for fixed income as encouraging, especially as a core asset used by investors to meet liabilities and/or reach future savings goals. Broad improvements in US economic fundamentals and an expectation that the low interest rate policy environment is nearing an end have already started affecting fixed income – which in aggregate in the US posted a negative return in 2013 for the first time in 14 years.[1]

…lower expected fixed income returns call for higher optimal gold allocations…

In *Gold in the 'Great Rotation'*,[2] we discussed whether employing historical bond return assumptions in a forward looking strategy was an ideal approach in assessing optimal asset allocations given the current historically low level of bond yields across the curve. Consequently, we compared the effect that long-term strategic, observed historical, and expected bond returns had on optimal gold holdings. We found that a more realistic outlook for bonds using expected returns based on then-current yields shifted the optimal allocation for gold materially higher. Gold's lack of correlation to most assets would enhance its portfolio contribution in an environment of capped bond returns. Even under conservative assumptions for gold returns, investors needed to add anywhere from 1.4 up to 5.5 percentage points to the long-term baseline gold allocation to obtain similar risk-adjusted returns (see **Chart 2** later in the article).

…while poor equity performance would raise this allocation further.

In this article, we focus on two aspects of portfolio allocation. First, using a simple portfolio, we update our previous analysis to reflect the most current interest rate environment. As before, we show that gold allocations based on realistic forward-looking bond returns are still materially higher than strategic or historical return assumptions for bonds would suggest. Second, we expand our study to reflect current equity return expectations. We find that, based on simple but reliable measures, there appears to be little expected compensation in current valuations from equities in general. In fact, the outlook for a bond/equity portfolio could be more challenging than we have seen for quite some time – especially if economic growth does not arrive fast enough to support equity valuations, or if a slow policy normalisation by the Fed results in higher inflation. Finally, as we subject both fixed income and equity returns to a downward adjustment, in the interest of fairness, we do the same for gold and find that even under negative expected real returns, gold provides additional benefits to a portfolio that cannot be obtained solely through a combination of stocks and bonds.

1 The Barclays US aggregate total index returned -2.02% in 2013.

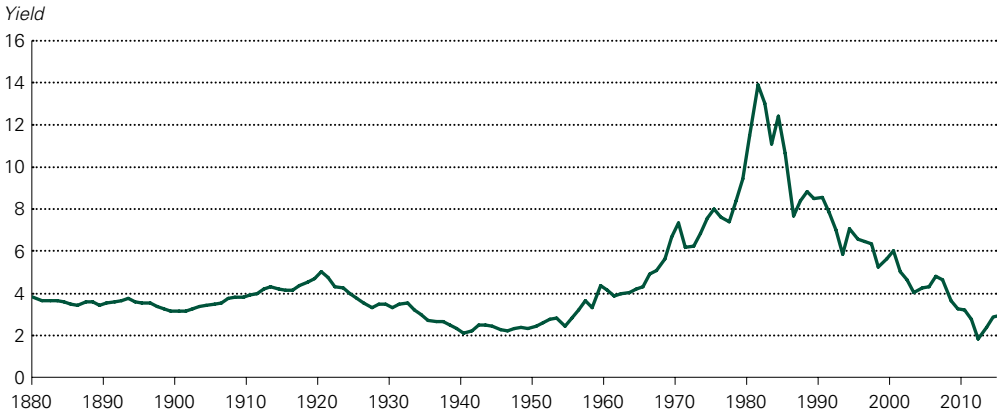
2 World Gold Council, *Gold in the 'Great Rotation'*, Gold Investor, Volume 2, April 2013.

Languid fixed income

Today, fixed income remains exposed to a normalisation of monetary policy leading to higher yields and lower prices.

The environment we laid out for fixed income in *Gold in the 'Great Rotation'* is still largely valid, though the road of rising yields is unlikely to be smooth or globally encompassing, as we have seen in 2014 so far. US 10-year bond yields are higher than they were this time last year (c. 2.6% vs. 1.9%), reflecting the positive expectations of a return to sustained growth and normal levels of inflation but also the potentially painful route away from quantitative easing. The period of bond weakness in 2013 does place today's investor with a slightly brighter outlook – longer maturity real yields are now positive. However, on the whole, a prolific rise in bond prices since 1980 and with yields today only marginally off their historic lows, providing returns in line with the historical trend to date, let alone repeating the returns over the past few decades, will prove very difficult (**Chart 1**).

Chart 1: Despite a small rebound, 10-year treasuries still offer investors historically low yields



Reference notes are listed at the end of this article.

Source: Professor Robert Shiller, Yale University

Various approaches to estimating returns ten years forward produce slightly different results, but simply using the redemption yield on a current 10-year treasury bond held to maturity gives investors a return on capital of approximately 2.7% in nominal terms and 0.6% in real terms (reflected by the US 10-year TIPS[3] yield) – a considerable discount to its real long-run average of 1.8%. The entry yield of a bond explains a large proportion of its subsequent returns,[4] so it is a valid starting point for long-term performance assessment.[5]

3 Treasury inflation-protected security.

4 Starting 10-year Treasury bond yields have explained c.89% of subsequent annualised nominal returns (1867 to 2003), as the only unknown component is the rate at which coupons are reinvested over the maturity of the bond. Real returns are much harder to forecast as expected inflation is also added to the equation. Given historically low levels of current inflation (US core PCE), the downside for real returns appears even more compelling.

5 Expectations for shorter maturity bonds will of course be contingent on the path of policy rates and the term premium. Most investors hold continuous maturity bonds that roll over, so our simple approach is perhaps not the most accurate, but it does reflect the yield-repression that we are currently experiencing and that risks to bonds yields, however slowly a normalisation may play out, are to the upside.

Adjusting gold allocations in this new fixed income environment

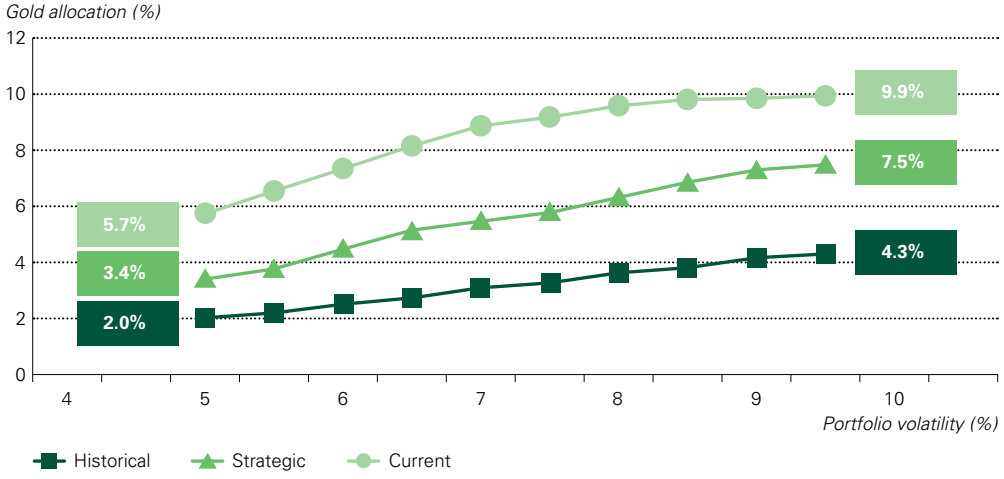
We assess the incremental effect on gold that arises from this shift in returns away from long-term assumptions for bonds, similar to our previous work, but using a simplified framework. The inputs we have used are listed in **Table 1** in the references section. The long-term inputs, as per our previous research, are sourced from work done by Credit Suisse in the *Global Investment Returns Yearbook 2014*.

Optimising a portfolio using adjusted fixed income returns raises gold allocations across the allocation curve by 0.4x to 1.5x.

Our current inputs include a mixture of expected returns, for bonds and cash – though we apply a less onerous maturity premium discount to cash than Credit Suisse. We assume that stocks will see returns as per the long term. For volatilities and correlations we employ historical values over 25 and 10 years. While we concede that correlations are arguably one of the most critical components in the portfolio formation process, forecasting correlations is a complicated task and one we will consign to future research. However for this exercise we assume that as global assets have become more entangled and interlinked via portfolio holdings, global banking and trade, correlations over the coming decade will be more similar to recent history than that of the long run.

Chart 2 is reproduced from *Gold in the 'Great Rotation'*. It uses a broad set of assets to produce a realistic representation of the incremental optimal allocation to gold as prospective bond returns are ratcheted downwards.[6] Real return inputs for US treasuries were respectively 6.9%, 2.0% and -1.0% for *historical, strategic* and then-*current* categories. In summary, it shows that optimal allocations for gold increase when expected bond returns are adjusted downward, as gold helps both to diversify a portfolio and to maintain lower portfolio volatility.

Chart 2: Reducing expected bond returns significantly increases the optimal weight that gold should have in portfolios



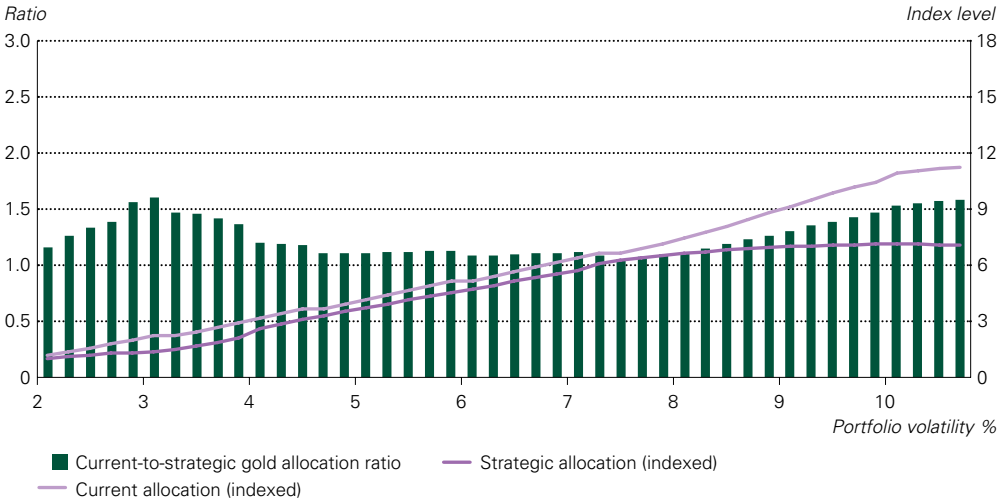
Reference notes are listed at the end of this article.

Source: Barclays, Credit Suisse, World Gold Council

6 These included: cash, treasuries, inflation-linked bonds, high-grade bonds, foreign bonds, small and large-cap equities, foreign developed-market equities, emerging market equities, global REITs and commodities.

Using a simpler and unconstrained set of inputs for the US consisting only of bonds, equities, cash and gold, **Chart 3** shows how the optimal gold allocation shifts across the curve as we adjust bond returns down from long term and strategic levels to current redemption yield levels. The green columns measure the ratio of this incremental increase – ranging from about 1.1x to over 1.5x at the higher end of the portfolio risk spectrum. The purple lines in the chart, indexed to the start, show the optimal allocation curve and that as we go above an 8.5% portfolio risk level, the incremental optimal gold allocation increases further – not only is it higher (green bars) but increasingly so. As per the original analysis and despite a higher general level of starting yields than in early 2013, the poor outlook for fixed income supports a materially higher optimal weighting to gold across the risk spectrum of a diversified portfolio.

Chart 3: Lower bond return expectations substantially increase optimal gold allocations across all levels of risk tolerance
Optimal gold allocations when bond returns are adjusted to reflect current expectations



Source: World Gold Council

Equities to the rescue?

Low bond yields and better economic sentiment shifted investors' focus towards equity markets and, especially during the second half of 2013, money flowed from fixed income into equities. This so-called 'Great Rotation' had been long anticipated and seemed like a natural choice as investors looked for sources of income outside traditional bond channels: through dividend-paying equities and expectations of better performance by growth stocks. It also opened the room for alternative investments such as hedge funds, private equities and, more recently, master limited partnerships (MLPs).

As investors migrated into equities, they also increased the risk in their portfolios. But, can equities appropriately replace bonds in longer term portfolio strategies?

Further equity gains may require a structural shift in fundamentals.

Indeed, it has been a powerful five years for US equities since the March 2009 lows, having bounced off the quantitative easing (QE) springboard to grow at an annualised real rate of 17%, compared to a long-term average of 6.5%.[7] While there are welcome signs that fundamentals are catching up with equity prices, the sustainability of performance is clearly now a key concern for investors. What is the outlook for the next ten years and will equities make up the shortfall that bonds are likely to create?

- Market observers view equities as requiring a major structural shift toward stronger fundamentals – not just to continue their run but to validate current prices. Profit growth can lead or lag GDP growth over some secular periods, but in the long run their share of GDP is typically mean-reverting.
- Current forecasts for GDP growth (c. 2.6%) are generally lower than the long term (c.3.2%) which may constrain the rise in bond yields, but should in the same vein constrain earnings, barring a marked improvement in productivity.[8]
- Government and household net dis-saving has grown profits (at least in the US) during the past decade, making profit growth susceptible to a reversal unless we see corporate investment – so glaringly absent during the past few years[9] – employed in force.
- In addition, despite an improving unemployment rate, labour force participation remains worrisome and the public purse – while better – is still bloated and household and non-financial business leverage remains very high.[10]
- Corporate profits and profit margins have reached record levels,[11] largely due to low wage costs.

Simple, yet empirically effective models for long term equity returns suggest the next decade will be similar to the last.

A number of measures of future performance converge and indicate that the next decade will under-perform not only the average returns seen in recent years, but also the long term average of 6.5% – and by quite some margin.[12]

- Using Professor Robert Shiller's well known cyclically-adjusted price earnings (CAPE) ratio, which today stands at 25,[13] and subsequent average 10-year equity performance, consistent mean reversion in valuations has resulted in an average subsequent real return of just 2.8%.
- A simple equation using the CAPE for an expected return yields c.3.5%.[14]
- Another approach by Arnott and Bernstein, as detailed by J.P. Morgan,[15] proposes about 3.7%-4.7% real returns for equities over the coming decade.

While the above exercises might oversimplify what can be a complex forecasting effort, they do appear to agree on an unusually sub-par environment for equities ahead.[16] While we take no position on the future path of growth, we use these estimates to gauge how an optimal allocation to gold would fare with a further adjustment to stocks on top of the one we made to bonds.

7 Credit Suisse *Global Investment Returns Yearbook 2014*.

8 Livingston Survey Professional forecasters: http://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey/

9 http://www.ft.com/cms/s/0/b42cae14-8425-11e3-b72e-00144feab7de.html#axzz2wVnSriVs

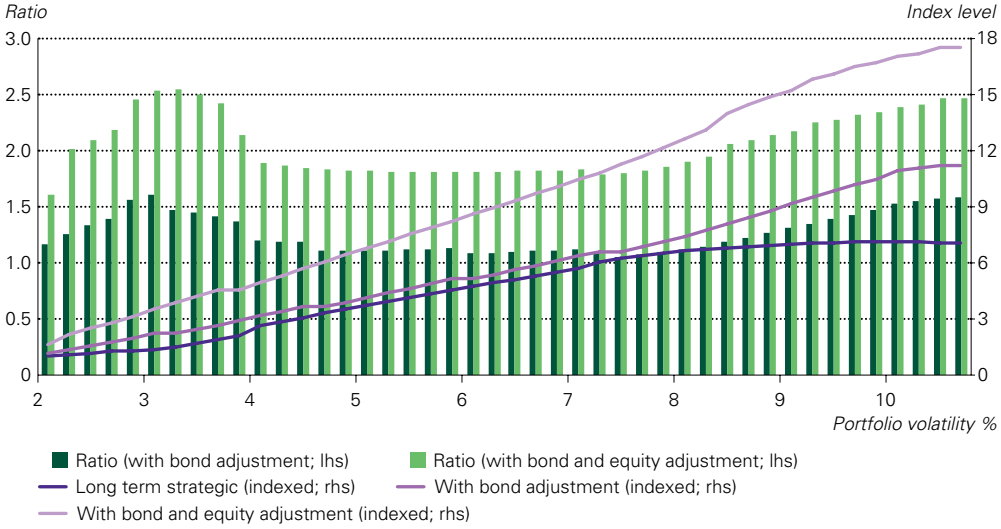
10 http://blogs.ft.com/andrew-smithers/2014/03/a-world-awash-with-debt/

11 http://research.stlouisfed.org/fred2/graph/?g=cSh

Adjusting both fixed income and equities raises gold allocations by 1.5x to 2.5x across allocation curve.

As discussed in the previous section, adjusting bond returns to this 'new reality' shifts gold's allocation curve upward. Adding the outlook for equities (**Chart 4**) results in an even greater shift from 1.5x to 2.5x the base case allocation. For all three scenarios we used our standard real expected return of zero for gold. Correlations and volatilities in the current adjustments were based on 10-year historical estimates, which being higher and slightly positive for gold's volatility and correlations respectively, penalised gold versus the long term inputs. Thus conservatism does little to diminish gold's portfolio benefits.

Chart 4: Investors who consider that the outlook for equities is not as bright either, may need to further increase their gold allocations to manage portfolio risk more effectively
Optimal gold allocations when bond and equity returns are adjusted to reflect current expectations



Source: World Gold Council

Gold's usefulness is evident…

These examples show incremental allocations to gold across the risk spectrum, which become more pronounced as portfolio risk increases – particularly above an 8% portfolio risk level. The allocations are unconstrained, highlighting the increasing ratio of gold per adjusted portfolio compared to the base portfolio.

…with its portfolio benefits holding in a constrained 60/40 portfolio.

If we add constraints to the scenario – after all, unconstrained portfolios are not common practice – and using a standard 60/40 equity-bond mix,[17] the analysis using strategic inputs produces estimates of optimal gold allocations consistent with our previous research, ranging from 5% to 6% for a moderate risk portfolio. As we adjust bonds downwards, the optimal allocation to gold rises an additional one percentage point, on average. A further adjustment to stocks on top of bonds, raises the optimal allocation by 2.5 percentage points relative to the long-term strategic level.

12 Credit Suisse *Global Investment Returns Yearbook 2014*: https://www.credit-suisse.com/uk/en/news-and-expertise/research/credit-suisse-research-institute/publications.html

13 25.15 as at 31 January, 2014.

14 http://www.hussmanfunds.com/rsi/cape.htm. Equation: 1.06 * (16 / Current CAPE)^(1/10)-1 + current dividend yield, where 16 = long-term average CAPE excluding the 1999 dot-com bubble.

15 J.P. Morgan: *Long-term capital market return assumptions*. https://am.jpmorgan.com/us/institutional/11-973a-ltcmra-2014-full

16 Criticisms of this approach, seems to apply adjustments that increase current earnings and thus lower the CAPE. One might perhaps cynically draw the conclusion that there are incentives involved here. Should that be the case then, conservatism is a good place to start.

17 Please see appendix for asset boundaries.

Finally, we also examined what the effect of introducing lower (in this case negative) expected returns for gold would have on optimal weights. We find that, in fact, even under the assumption that real gold price of gold would fall by as much as 2.5% per year – which would imply not even a nominal gain – optimal gold allocations increase relative to the long-term level given the current outlook for bonds and equities. This is a testament to gold's quality as a diversifier and the fact that the value of adding gold to the portfolio is not solely linked to its price performance, but also to how it behaves relative to other assets.

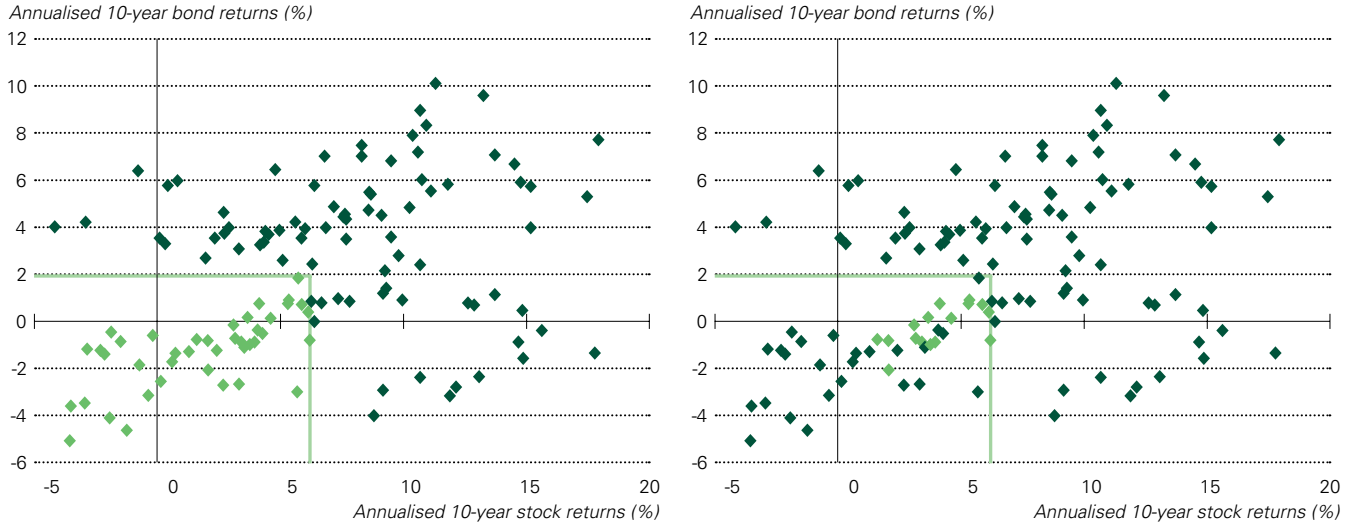
The challenges ahead

Decades when both bonds and equities under-perform relative to long-term averages are uncommon but do exist.

With the US serving as our Petri dish, we see that there have been quite a few periods when 10-year realised annualised returns have been below average, as the current outlook seems to imply, for both bonds and equities (33% of total) – annotated in the lower-left boxed quadrant of **Chart 5a**. In other words, both asset classes have underperformed during those periods. Of course, a major culprit during these scenarios has been high inflation, commonly tied to wars. But filtering out high inflation years (namely, by focusing on years with annual inflation below 4%) leaves 16 periods when the ensuing decade would have been meagre both for bonds and equities in real terms (**Chart 5b**).

While this is not a common occurrence in benign inflation scenarios, investors need to be conscious of both the implications of a joint underperformance of bonds and equities and the probability of its occurrence if inflation does become a problem over the next decade.

Chart 5: (a) Historically, there have been periods when both stocks and bonds prices fall, (b) even during benign inflation environments



Reference notes are listed at the end of this article.

Source: Professor Robert Shiller – Yale University, World Gold Council

Conclusion

Because no investor has a crystal ball, the simple application of diversification through strategic asset allocation can help address what might happen next. However, there are junctures when the assumptions that form the building blocks of long-term strategic asset allocation strategies may suggest a tactical adjustment. We appear to be at such a juncture for bonds and perhaps less so for stocks, but even if we are not, considering various scenarios and using conservative assumptions is likely not a bad place to start.

Our focus is naturally on gold and we place it within a portfolio not on a whim but on the back of more than a decade of rigorously applied research. If one considers the current economic environment with a poor bond performance outlook and a possibly challenging environment for stocks, then an allocation to gold above the long-term average is warranted. There will as always be opportunities for investors within equities and fixed income, as well as domestically and abroad, but those decisions are discretionary.

For the prudent investor, allocating to a new reality of challenged equity and bond environments will require higher levels of risk and consequently greater levels of risk management. Our research suggests that gold, as a hedge a diversifier, should form part of this risk management strategy.

References

Chart 1: Despite a small rebound, 10-year treasuries still offer investors historically low yields

Sourced from Professor Robert Shiller (http://www.econ.yale.edu/~shiller/).

Chart 2: Reducing expected bond returns significantly increases the optimal weight that gold should have in portfolios

Refer to Gold Investor 2 for reference information: http://www.gold.org/download/gold_investor/2013-04/gold-investor-201304.pdf

Chart 3: Lower bond return expectations substantially increase optimal gold allocations across all levels risk tolerance

Optimal gold allocations when bond returns are adjusted to reflect current expectations

Expected real bond returns are adjusted from their long term strategic value of 4.1% to the current redemption yield (as of 31 January 2014) of 0.2% (as per Table 1).

Chart 4: Investors who consider that the outlook for equities is not as bright either, may need to further increase their gold allocations to manage portfolio risk more effectively

Optimal gold allocations when bond and equity returns are adjusted to reflect current expectations

Adding to Chart 3 above, stock returns are adjusted to 3.5% (Table 1), which is a rounded average of CAPE-based and dividend yield-based (Arnott & Bernstein) measures consistent with outlooks provided by Credit Suisse and J.P. Morgan (referenced in this paper).

Chart 5: (a) Historically, there have been periods when both stocks and bonds prices fall; (b) ...even during benign inflation environments

(a) Uses long-term data sourced from Professor Robert Shiller (http://www.econ.yale.edu/~shiller/). 10-year bond and stock returns (total inflation-adjusted basis) are presented on annualised basis.

(b) Highlights only returns when US CPI inflation (averaged over the same period) is below 4%.

Table 1: Optimisation analysis inputs:

Strategic inputs

			Correlations			
Asset	**Return**	**Volatility**	**Cash**	**Bonds**	**Equities**	**Gold**
Cash	1.5%	1.1%	1.00			
Bonds	4.1%	4.0%	0.41	1.00		
Equities	7.4%	14.9%	0.09	0.14	1.00	
Gold	0.0%	15.4%	-0.10	0.14	-0.04	1.00

25-year historical correlations and volatilities, zero real return for gold.

Current inputs, adjusted bond returns

			Correlations			
Asset	**Return**	**Volatility**	**Cash**	**Bonds**	**Equities**	**Gold**
Cash	0.0%	1.4%	1.00			
Bonds	0.2%	3.9%	0.53	1.00		
Equities	6.3%	14.6%	-0.08	0.04	1.00	
Gold	0.0%	19.0%	0.02	0.28	0.08	1.00

Current expected 10-year real returns for bonds, adjusted cash return, strategic returns for equities 10-year correlations and volatilities, zero real return for gold.

Current inputs, adjusted bond and equity returns

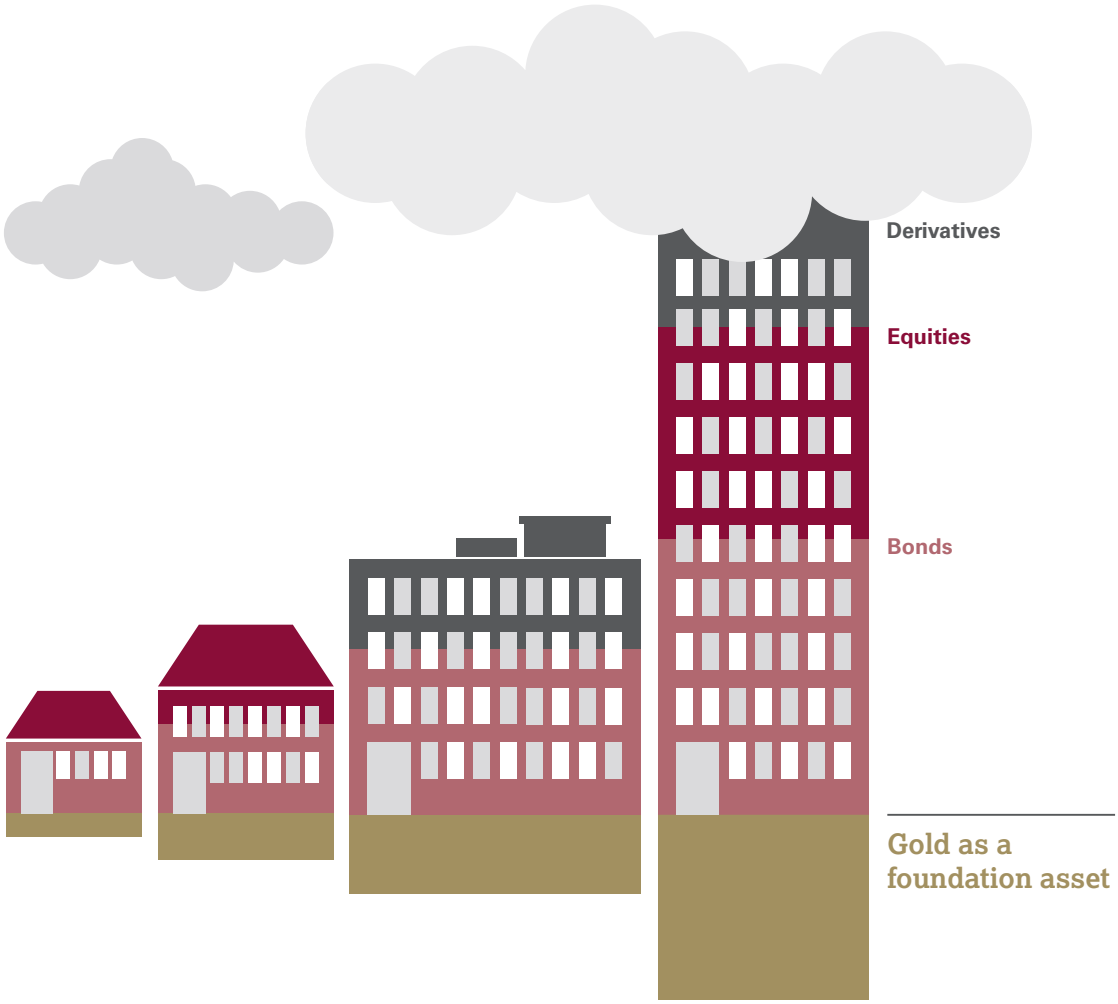
			Correlations			
Asset	**Return**	**Volatility**	**Cash**	**Bonds**	**Equities**	**Gold**
Cash	0.0%	1.4%	1.00			
Bonds	0.2%	3.9%	0.53	1.00		
Equities	3.5%	14.6%	-0.08	0.04	1.00	
Gold	0.0%	19.0%	0.02	0.28	0.08	1.00

Current expected 10-year real returns for bonds, adjusted cash return, estimated returns for equities 10-year correlations and volatilities, zero real return for gold.

Source: Bloomberg, Credit Suisse *Global Investment Returns Yearbook 2014*

III: A perspective on gold as a hedge in an expanding financial system[1]

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



1 This is the second edition of an article originally published April 2013 as part of Gold Investor, Volume 2, under the title *Gold holdings: ample room for growth in a broad and liquid market*.

Introduction

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,[2] 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.

Following a sustained period 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, once produced, is through a broad and liquid market.

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

Despite a significant price pullback mostly during 2013, gold has risen for most of the past decade on the back of growth in emerging markets, economic uncertainty, central-bank demand and constrained supply. 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.

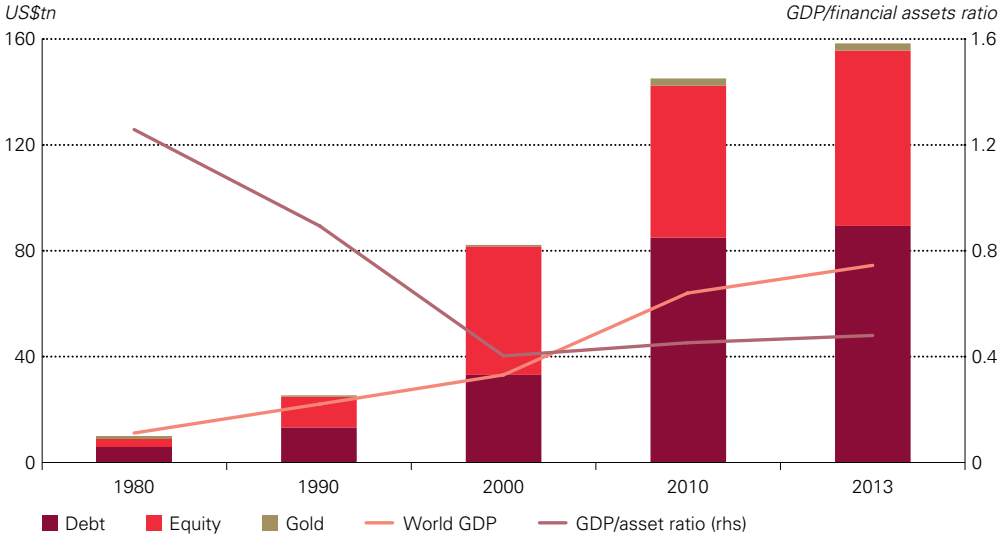
2 A physical asset that derives its value from its intrinsic properties. Real assets include precious metals, commodities, real estate and raw land.

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$17tn to US$66tn.

There have been huge fluctuations in asset prices over the past decade. Despite the volatility, financial assets have almost tripled during that period. Currently at a striking US$156tn,[3] 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 2013, debt markets have grown three-fold, from US$33tn to US$90tn,[4] 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$11.9tn in 2013 – a large portion of which is held by foreign investors.[5] At the same time, global stock markets have also grown – at a relatively more modest pace of 35% – from US$49tn in 2000 to US$66tn in 2013, partly driven by economic growth in emerging markets, better prospects for economic recovery in developed markets and an increase in initial public offerings (IPOs).

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



Reference notes are listed at the end of this article.

Source: BIS, Thomson Reuters GFMS, World Bank, World Federation of Exchanges, World Gold Council

3 Estimate based on global debt outstanding and market capitalisation of listed companies as of December 2013. See reference notes listed at the end of this article.

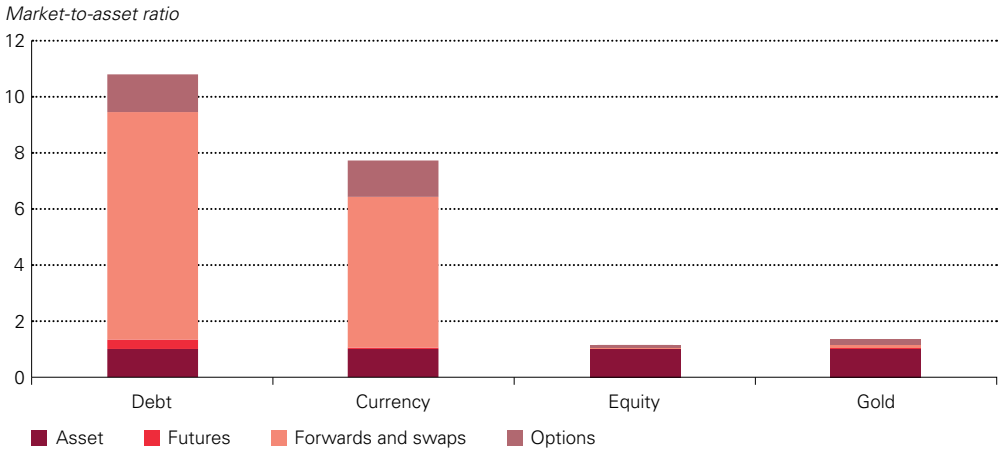
4 Ibid.

5 As of December 2013, foreign central banks owned 49% of outstanding treasuries while the Federal Reserve held 17%.

Including derivatives and securitised products brings total financial assets to an astronomical US$1,000tn…

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.[6] And this figure pales in comparison to the notional size of the over-the-counter (OTC) derivatives market, estimated at US$693tn in 2013 by the Bank for International Settlements (BIS).[7] In particular, the notional size of derivatives markets for debt and currencies are multiples of the size of the underlying assets, increasing the risks of spillover effects in the financial system. In total, underlying assets, securitized products and derivatives amount to more than US$1,000tn.[8]

Chart 2: The notional values outstanding in debt and currency derivatives dwarf the size of the available underlying assets



Reference notes are listed at the end of this article.

Source: BIS, Bloomberg, IMF, Thomson Reuters GFMS, World Bank, World Federation of Exchanges, World Gold Council

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

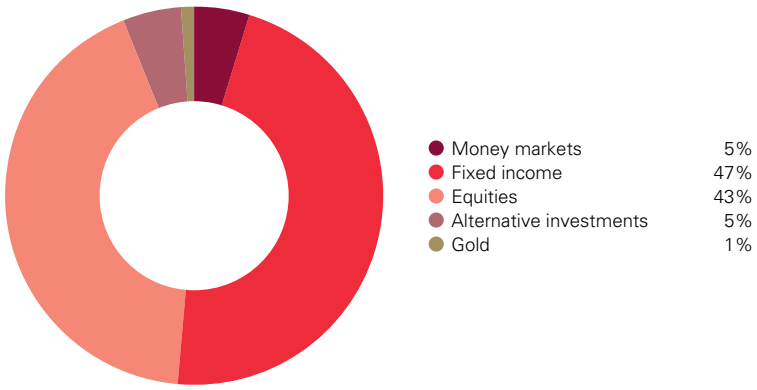
7 Bank for International Settlements, *BIS Quarterly Review,* December 2013. Reported figures correspond to notional values. In addition, the gross market value of derivative contracts outstanding, approximately US$20tn. It is important to note that while a majority of derivatives are used as a hedging 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. The notional value of gold derivatives in June 2013 was US$461bn, less than 0.1% of the total notional size of the over-the-counter derivatives market.

8 Computed by the World Gold Council based on estimates by the BIS, Bloomberg, World Federation of Exchanges, and others.

…meanwhile, gold in the hands of investors accounts for only US$1.4tn.

In contrast, the stock of gold bullion – bars and coins excluding those held in foreign reserves by central banks – sits at a remarkably smaller US$1.4tn.[9] This represents less than 1% of the US$153tn in financial assets excluding central bank foreign reserves (**Chart 3**). This is partly driven by gold's limited supply, which grows slowly (**Focus 1**). Further, the notional amount in gold derivatives (OTC and exchange-traded contracts) is estimated at US$740bn, roughly half of the gold bullion.

Chart 3: Only 1% of US$153tn of financial assets is currently in gold



Reference notes are listed at the end of this article.

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

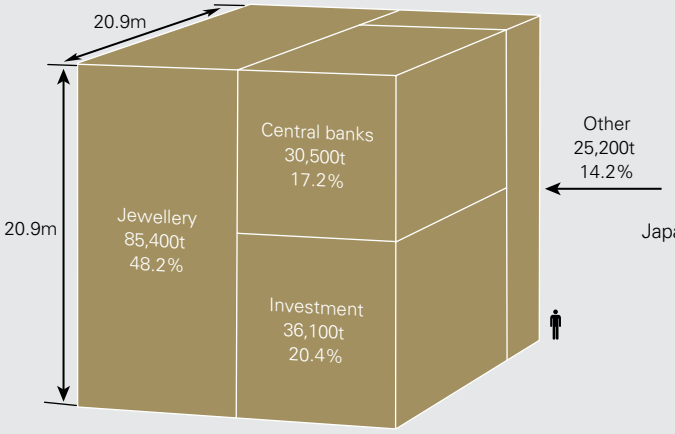
9 Value based on an estimated 35,500 tonnes held in bars and coins (including gold-backed ETFs)at the end of 2013 and the year-end gold price of US$1,204.50/oz.

Focus 1: How large is the gold market?

By the end of 2013, the above-ground stock of gold was estimated to be approximately 177,200 tonnes (t),[10] representing all the gold that has ever been mined, worth more than US$6.9tn based on the year-end gold price (**Chart 4**). The largest share (almost half) is held in the form of jewellery and is worth more than US$3.3tn. Central banks collectively hold 30,500t 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$1.4tn. This is the figure we use to estimate the share of gold as a percentage of global assets.

Gold is geologically scarce and fundamentally constrained by physical supply.[11] Gold mine production – which has averaged 2,800t annually over the past five years, a small fraction of the production of some other metals[12] – increases the above ground stock at a rate of 1.6% per year. Because gold is virtually indestructible with only a fraction lost through technological and industrial use,[13] 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 5**).

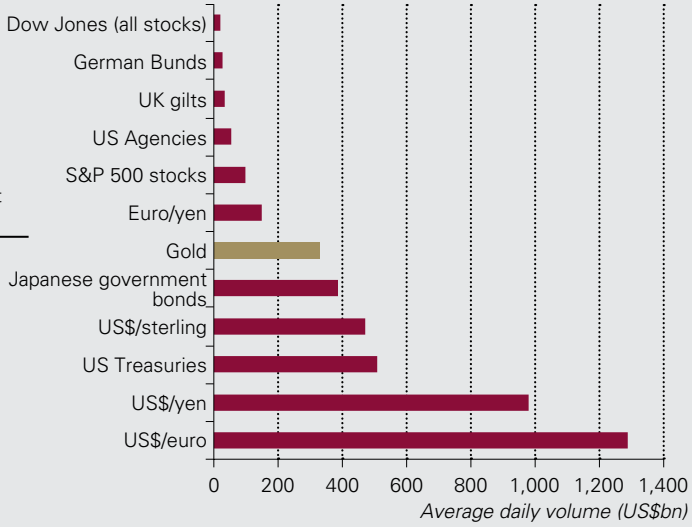
Chart 4: The stock of gold held in investment form is worth US$1.4tn



Reference notes are listed at the end of this article.

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

Chart 5: 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

10 This computation was done by the World Gold Council based on the 2012 gold stock and 2013 gold flow estimates compiled by Thomson Reuters GFMS.

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

12 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.

13 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…

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 seen to represent higher quality than their underlying components would justify. Overexposure to these assets – especially by financial institutions – led to the Great Recession.

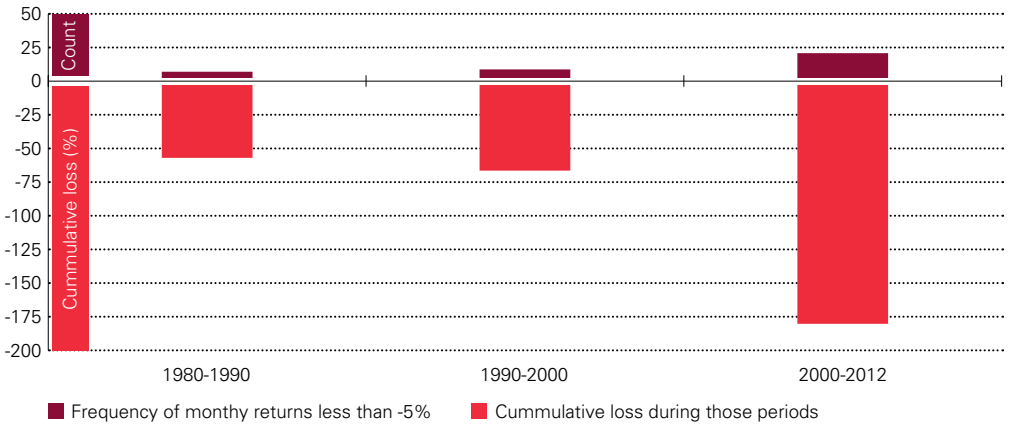
…and have prompted unprecedented levels of financial assets relative to GDP…

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 reducing benchmark borrowing rates to artificially low levels and incentivising 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 to be 'critical levels'.[14] This situation prompts us to ask: 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?

…leading to more frequent, larger and longer tail-risk events.

Rapid growth in capital markets leads to more capital chasing decreasing 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 such tail events has already increased over the past three decades (**Chart 6**). 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.[15]

Chart 6: The frequency and magnitude of negative market events keeps growing



Reference notes are listed at the end of this article.

Source: Bloomberg, MSCI, World Gold Council

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

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

To balance tail 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 growing deficits and debts in Europe – with potentially more debt-driven collapses on the horizon.[16] Of course, staying on the sidelines is not a viable solution for investors. Holding large quantities of cash erodes capital over the long term and, as seen in 2013, investors moved into riskier markets. However, investors should 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 since 2001 could partly be seen as a rational response to the rapid growth of 'paper' assets…

Gold prices increased from US$255/oz in February 2001 to US$1,900/oz in and September 2011. At the same time, investment demand grew from 360t to 1,700t per year. This led many observers to believe that the gold market was saturated with investors.[17] As the gold price pulled back in 2013, falling by 29%, many investors reduced or sold their exposure and investment demand dropped to 770t – a bit higher than pre-financial crisis levels. However, the bull market for gold was not only driven by investment. Since 2000, the market experienced several structural shifts, including a diverse and robust set of supply and demand dynamics – emerging market growth, financial market uncertainty, expansionary monetary policies, central bank demand and what we see as constrained supply, all factors to support the market.

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

Further, the rise in gold investment demand, even when taking into account the recent pullback, should be seen as a rational response to a flood of financial instruments linked to the success and credit worthiness of their issuers and representing varying degrees of risk. 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 for 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 both equities and bonds along with other investments.

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

17 Wall Street Journal, *Is gold the next bubble?,* May 2010.

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

Portfolio optimisation studies have shown that a 1% portfolio allocation to gold – as the current ratio of gold holdings indicates – is generally too low and that higher long-term allocations are optimal for most investors. As summarised in *Why invest in gold?*, 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, and a 5%-6% in a traditional 60/40 stocks-to-bonds portfolio (**Focus 2**).[18]

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,[19] 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 *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*).

18 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; *Gold as a strategic asset for UK investors,* July 2012.

19 London Bullion Market Association, *LBMA gold turnover survey for Q1 2011,* The Alchemist, August 2011.

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. These included investment inaccessibility, central bank sales and large-producer hedge books, to name a few. The proportion sat just below 1% in 2013, as the result of increased ownership and an appreciation in the gold price (**Focus 3**).[20] Despite growing over the past decade, gold's current share of assets still remains below what it used to be in decades past. Even under a more conservative target, an increase to a global strategic allocation of 2% – the lower boundary of optimal gold holdings based on our research and that of others – can be sustainable and 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.[21]

Focus 3: The importance of sustainable ownership rates

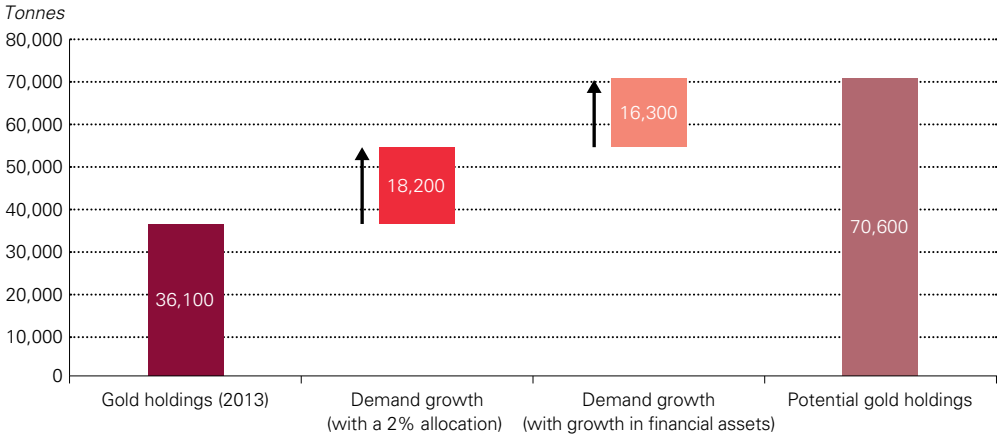
Ownership rates are an important consideration for the sustainability of asset prices. For example, in 1995, at the start of the dot-com bubble, US equities comprised just 33% of US investor portfolios but grew to 50% of investor portfolios in just five short years, representing an unsustainable rate 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.[22] 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.

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

21 See footnote 19.

22 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.

Chart 7: Estimated gold demand growth if average gold holdings by investors increased to 2% while financial assets grew 3% annually over the next decade



Reference notes are listed at the end of this article.

Source: Thomson Reuters GFMS, World Gold Council

Conclusion

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

Current gold holdings 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 increasing cross-border flows, such an expansion of 'paper' assets has increasing 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. In our view, gold can provide a foundation to portfolios, helping investors protect capital and manage risk more effectively.

References

Chart 1: Global financial assets have grown at an unprecedented 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: The notional values outstanding in debt and currency derivatives dwarf the size of the available underlying assets

The value of assets is based on the 2013 estimate provided in Chart 1. Columns show the ratio of respective asset markets (underlying and derivatives) to the underlying asset.

Chart 3: Only 1% of US$153tn 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 4: The stock of gold held in investment form is worth US$1.4tn

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 5: Gold is one of the most liquid assets

Foreign exchange liquidity is based on statistics by the Bank for International Settlements. 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 London Bullion Market Association and the Bank of England in Q1 2011 for the OTC market, as well as daily volume from futures and ETF markets. OTC gold volumes make up more than 80% of daily gold liquidity.

Chart 6: 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 7: Estimated gold demand growth if average gold holdings by investors increased to 2% while financial assets grew 3% annually over the next decade

The 2% re-allocation is based on the minimum bound of the optimal allocation range for most investors. 3% annual growth is approximately equal to current growth in financial assets. The analysis assumes that the gold price keeps up with a 2.5% inflation rate for the next decade. To maintain the current share, gold holdings need to keep pace with the growth in financial assets.

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