

Gold Investor

June 2016

Present perilous, future imperfect

Mervyn King on the risks
inherent in global
economies and
financial markets



Diversity rules

Why Texas Teachers have
turned to gold

The Brexit question

Investing before and after
the EU referendum

Shanghai benchmark

A new price discovery
mechanism for China

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Foreword

A positive outlook for gold in 2016



Aram Shishmanian
Chief Executive Officer
World Gold Council

Welcome to the new format for Gold Investor.

The timing of the relaunch of *Gold Investor* is no coincidence. Global economic conditions are beset with uncertainty, interest rates are at record lows and recovery remains elusive. In such an environment, investment decision-making is exceptionally challenging – creating a portfolio that is balanced enough to withstand turbulence yet robust enough to deliver returns is arguably more demanding than ever.

Gold Investor is designed to offer unique investment insights from the world's most influential central bankers, economists, financial institutions, investors and gold market specialists.

In this edition, **Mervyn King**, Governor of the Bank of England from 2003 to 2013, talks candidly about world economic prospects and the steps that Europe needs to take to return to growth. In a world characterised by 'radical uncertainty', Lord King concludes that monetary policy has reached its limits and there is no easy path towards recovery. Against this background, Lord King believes that gold, as a unique and uncorrelated asset, has an important role to play in central bank and institutional investment portfolios. (See page 14).

John Nugée, independent Consultant and former Chief Manager of the Reserves of the Bank of England discusses the impact of the Brexit referendum on investment

portfolios. Discussing the vote on whether the UK should remain in the European Union or not, he believes the outlook is not just unknown, but unknowable. In such a scenario, Nugée advocates that investors should undertake 'a survival analysis' of their portfolios and concludes that gold is a valuable asset to hold, whatever the outcome of the forthcoming referendum. (See page 5).

Shayne McGuire, portfolio manager at Teacher Retirement System of Texas, reveals why the 8th largest pension fund in the United States decided to invest in gold. Highlighting the diversification benefits of gold, McGuire also provides practical advice about how to overcome potential issues associated with investing in gold. (See page 8).

James Steel, Chief Commodities Analyst at HSBC, is a renowned authority on gold. He outlines gold's role as an investment asset during a time of negative interest rates, when market behaviour is unpredictable and sentiment is fragile. (See page 20).

We are keen to hear your views about our publication so please email goldinvestor@gold.org. We hope you enjoy the read.



Aram Shishmanian

The World Gold Council is the market development arm of the gold industry. Working with world-class organisations across the supply chain, we stimulate demand, develop innovative uses of gold and take new products to market. As the global authority on gold, we offer comprehensive analysis of the industry, giving decision makers unparalleled information and insight into the drivers of gold demand.

In the news



China's ICBC Standard Bank buys 2,000-tonne London gold vault from Barclays

ICBC Standard Bank has announced that it is buying Barclay's 2,000 tonne capacity gold vault. The Chinese bank has also joined the London Precious Metals clearing system.

China launches renminbi-denominated gold benchmark

The Shanghai Gold Exchange has launched a RMB-denominated gold price, in keeping with China's moves to internationalise the RMB. The auction runs twice daily and involves 18 banks.



Rogoff recommends central banks increase share of gold in reserves

Former IMF chief economist and renowned Harvard Professor, Kenneth Rogoff is recommending that emerging market central banks increase the share of gold reserves they hold, suggesting that a shift into gold would improve the functioning of the international financial system.

India's gold market re-opens after 42 day strike

A 1% manufacturing excise tax included in the Union Budget in February led to a 42 day strike by jewellery retailers; consequently Q1 consumer demand fell to its lowest level since 2009. The strike ended in April and the industry has slowly returned to normality.



Responses to Brexit

An investor's guide to surviving the UK referendum



John Nugée
independent
Consultant and
former Chief Manager
of the Reserves of
the Bank of England

The UK referendum on whether to remain in the European Union or leave it forever is an event which defies normal market planning. But, consultant **John Nugée**, former chief manager of reserves at the Bank of England, believes gold may prove its worth, whatever the outcome.

The UK's referendum on whether to stay in the European Union or become the first country ever to leave it is the major political event of 2016. It is even more important than the US election this November, despite the unprecedented nature of that election, with the aggressively populist Republican candidate Donald Trump turning normal American politics inside out.

But the UK's referendum is also a market event, and those responsible for financial assets cannot ignore it. Markets have been experiencing heightened volatility for months and, if the UK votes to leave the EU, this uncertainty and volatility will continue, potentially for years.

So how should investors react to this one-off and largely unpredictable event? How should they position their portfolios, and what should their objective be? Should they be seeking to maximise possible gains or should they have more defensive ambitions, aiming to limit the damage that markets might inflict upon their investments?

The new abnormal

The first point to bear in mind is that a referendum is not a normal market event. It is *binary*: the answer is either In or Out, with no shades of grey in between. And if the vote is to leave, it is *irreversible* so it cannot be changed.

This means that the usual portfolio measurement and management techniques, like expected value of investments and VaR calculations, are not particularly helpful here. Averages do not offer a useful guide to the outcome of a binary decision, and it is not enough to position a portfolio so that it 'comes out ahead on average.' Nor can the usual risk analysis techniques offer any guide, for the simple reason that there are no facts, no percentages, no risk factors and no predictions about the aftermath of the vote. In other words, it is impossible to predict what will happen after an event for which there is no precedent.

In situations like this, where the future is not only unknown, but unknowable, many investors choose to conduct a scenario analysis. They look at all the outcomes that could possibly arise, (however unlikely they may seem) and see what the consequences might be. However, in a one-off, irreversible decision such as the referendum, conducting a survival analysis is even better. A subset of scenario analysis, it involves looking at all the possible downsides and checking to see whether your portfolio can survive the worst that fate can throw at it.

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Onwards and upwards

In the case of the UK referendum, if the British vote to remain, there is no significant change. But this means that current issues will persist, such as the weak global economy generally; the compounding challenges of immigration and security in Europe, and mounting solvency pressures on Greece and Italy. The implication of all this is that the current monetary policy stance of the major central banks will also continue – persistently low rates in the US and UK; QE and negative rates in Europe and Japan. This is a relatively positive environment for gold, so, with no change in central bank policy, the current mildly upward trend in the gold price may stay in place.

If the UK votes to leave, the immediate reaction will be heightened uncertainty as to the consequences. And with these consequences involving not just the UK, but also the EU and the wider global economy, there may well be a flight to safety assets, including gold.

Gold rush

Longer term, Brexit could prompt a number of possible outcomes for the EU. It is possible that the shock of the UK's departure could drive the eurozone to a closer union as a defensive response, cementing the single currency by adding fiscal and financial governance to the monetary governance of the ECB. Many not only predict this, but deem it necessary for the euro to survive and prosper. But it would also reinforce the deflationary grip that the euro creates for the EU economy, increasing the pressure on the weaker peripheral economies and probably intensifying the ECB's policy of QE and negative interest rates. In such an environment, gold, as an asset that yields zero rather than less than zero, ironically becomes a high-yielding asset and very attractive. Even after storage costs, returns on gold become competitive in a world of sub-zero bond rates.



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Whatever the outcome, an investment in gold is unlikely to underperform and in some scenarios might outperform strongly.

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Another possibility is that a UK exit would increase the risk of multiple fractures in the EU, as nationalist and populist parties in other member states seek to follow the UK's example. But, if the EU were to come under such sustained pressure, doubts would arise over the value of *all* paper assets in the Eurozone, and even over the future of the euro itself. In such a scenario gold stands to benefit, not for its superior return, but because of its traditional safe haven qualities.

The important feature of this sort of analysis is that the investor does not have to forecast which outcome is the most likely or what will happen next – for an event such as the referendum this is an impossible and fruitless task. Rather, a survival analysis looks at all possible outcomes, and shows that whatever the outcome, an investment in gold is unlikely to *underperform* and in some scenarios might *outperform* strongly.

Better be safe

And having done the survival analysis, the wise investor will look at his or her portfolio and ask: “Given the uncertainties and the range of outcomes, what proportion of my assets should be in gold?” Whatever your position and whatever your beliefs, the optimal answer is unlikely to be “Nil.”

The old saying is that “All roads lead to Rome.” Given that the UK is, in effect, voting on its adherence to the Treaty of Rome, and one of the two outcomes leads the UK away from Rome, the old saying does not, in this case, hold. But instead, we might perhaps be justified in saying that “All roads lead to Gold.” ■

How Texas teachers invested in gold

Shayne McGuire is an Emerging Markets portfolio manager and runs the Gold Fund for Teacher Retirement System of Texas, the 8th largest pension fund in the United States. He explains why the fund is invested in gold.



Shayne McGuire
Emerging Markets
portfolio manager,
Gold Fund for Teacher
Retirement System
of Texas

TRS has been investing in gold for a number of years. Why did the pension fund decide to invest in gold as an investment separate from commodities?

One of the main reasons we considered gold was the diversification benefits it provides to portfolios dominated by equities, as most pension funds are. We began work on gold in 2007 and the Gold Fund was launched in October of 2009. Gold, which has different demand and supply drivers than financial assets, is generally negatively correlated with stocks. Since the end of Bretton Woods, every time the S&P 500 has fallen more than 10% in a year, gold has been up. Despite the collapse of commodities during the 2008 financial crisis and the metal's initial decline, gold was one of the few assets that ended positive for the year. We thought that adding gold as a relatively small percentage of total assets would improve the Trust's long-term risk-adjusted returns due to diversification benefits.

What were the main hurdles that had to be overcome to launch the Gold Fund? What convinced pension fund directors to deploy the strategy?

Gold presents a number of investment challenges that provided for intense discussion when we were deciding on the Gold Fund. Most notably, the metal does not offer a dividend or coupon that can allow for cash flow-based valuations that we, as financial professionals, are comfortable with. There was also the memory of the 20-year bear market the metal endured during the 1980s and 90s. (What if we get another bad one?) Since the price of gold was fixed before 1971 (excluding the few turbulent years after the Civil War and during the early FDR administration), we only have two very different bear markets and two very different bull markets for the metal, which provide a weak basis for statistical analysis. (It is important to point out that the bear markets were so different because the first started with very high real interest rates and the second one with negative real rates, which persist today.) Furthermore, there is the issue of where gold should reside in asset allocation. The precious metal is listed on the FX page on the Bloomberg financial system, but also on its Commodities page. It is an inflation hedge (it rose 2,300% during the inflationary 1970s), and yet a deflation hedge in times of deep economic stress (such as the early 1930s and 2008) – it tends to rise as investors begin to anticipate the need for dramatic inflationary monetary intervention. Given these difficulties, it is no surprise to me that, to this day, many funds struggle to implement a gold strategy. Ultimately, our decision to invest in gold as an asset separate from commodities was based on the diversification benefits to the overall portfolio.

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Since gold has low to negative correlations with traditional asset classes, most notably stocks, investors should consider the outlook for larger markets to arrive at their outlook for gold.

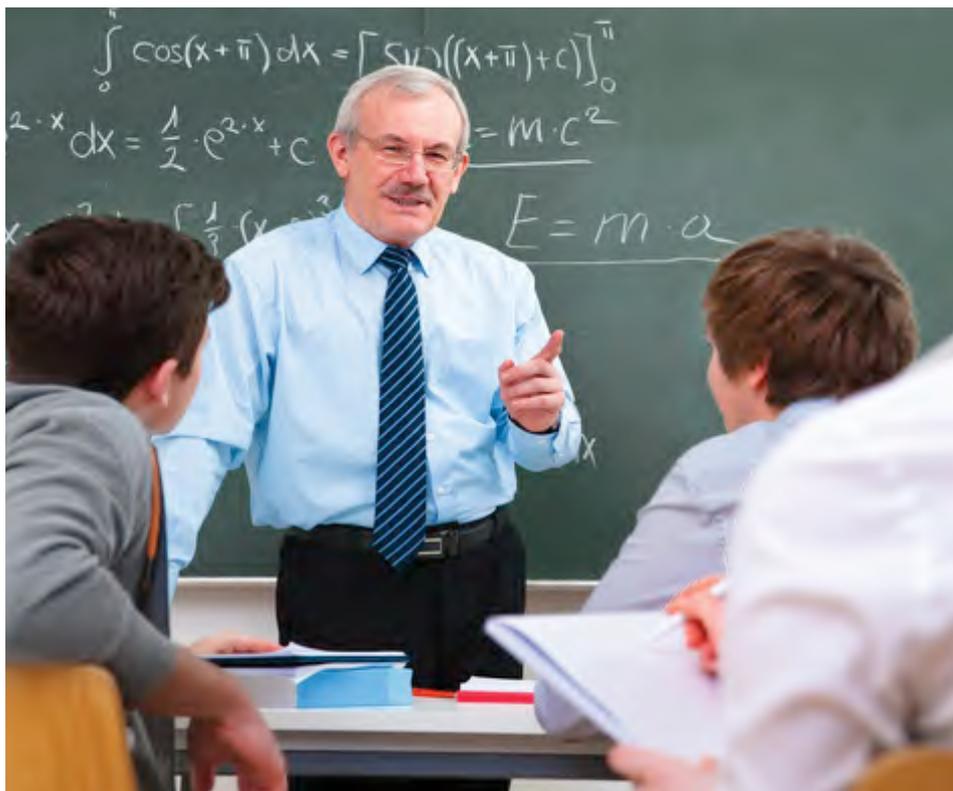
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How is gold handled at the asset allocation level and actual implementation of the investment?

The Gold Allocation Committee (comprised of the Chief Risk Officer, the heads of Asset Allocation and Trading, and myself) meets once a month along with two analysts to consider positioning in precious metals for the Trust. We reach a decision regarding the Trust’s gold positioning helped, in part, by a gold model we designed internally. The model contains factors that historically have significantly impacted the metal’s price – most notably the level of US real interest rates, the US dollar, changes in central bank holdings and demand from Asia (which represents about half of total global physical demand for gold) among others. Once a decision has been made, the team also agrees on the proper way to implement an increase or a decrease. The Gold Fund invests in both precious metals and related equities, so on an unlevered basis we can add beta to gold if we think the investment environment for precious metals is positive.

We understand the Gold Fund has held assets of as much as US\$800 million and as little as US\$100 million, often for reasons other than price movements. What factors drive the re-balancing decisions and how often do you review them? How do you measure performance?

Given that the Gold Fund at present represents less than one percent of total assets (of approx. US\$130bn), our decision to add to or subtract from the fund is based almost entirely on gold. In 2013, a difficult year for gold and the Gold Fund, we reduced our holdings in the fund ultimately down to the minimum and we started adding significantly early this year as our model began giving a positive signal for gold. In terms of performance, we measure the Gold Fund versus a custom benchmark of 35% gold, 15% silver and 50% precious metals equities (based off the Philadelphia Stock Exchange Gold & Silver Index, which has the longest history). Given that we can gain alpha by playing the metals vs. stocks and via stock selection, this has provided us with less volatility (in comparison with traditional gold equities-only funds) and yet more potential upside than gold alone can provide. This flexibility allowed us to be the only gold fund (to my knowledge) that rose in absolute and relative terms in 2014, another tough year in which both metals and equities were down. (We were significantly overweight equities vs. metals on 1 January and reversed positioning early in the summer.) Fortunately, 2016 has started on a strong note given the recovery in precious metals.



How do you address the challenge of unconventional monetary policies, such as negative interest rates, and their effect on gold portfolio management?

Unconventional monetary policies have had a tremendous effect – both good and bad – on our gold portfolio. Before 2013, they benefited the fund, as inflation was expected to rise. But in that year gold fell hard on the expectation the Fed was moving away from QE and that rate hikes were coming, that European central banks would be gold sellers (led by bankrupt Cyprus), and a strong stock market – in short, because we were going back to normal following a difficult recovery from the Global Financial Crisis. This year – and, by the way, central banks never sold, but rather bought more gold on a net basis – quantitative easing has returned as a market consideration, which has impacted gold. Perhaps the biggest surprise in this regard was that the announcement by Japan’s central bank of negative interest rates resulted in a stronger currency – the exact opposite of what the policy was intended to achieve. The notion of “quantitative failure” – that unconventional monetary policies were becoming counterproductive and that central banks might lack tools to manage the future macroeconomic environment – has benefited gold significantly, mostly via ETF holdings and precious metals equities. I would say unconventional monetary policy is one of the factors affecting our decision-making (mostly at the allocation level), but that it is one of several we consider.

Events like the British referendum on EU membership have triggered conversations about how to manage risk for outcomes whose effects are not fully understood. As these sorts of tail events seem to be increasing in frequency, what adjustments, if any have you made to investment strategies?

Although fund managers like George Soros have made fortunes in macro investing, it is impossible to know if this year’s (or week’s) crisis will truly affect financial markets for better or worse. The Asian Crisis of the late 1990s, which was devastating for a number of countries in the region, did little to help the price of gold (which at the time was responding primarily to massive central bank dumping – something our model would have detected). We are always monitoring the global political and macroeconomic environment, but focus much more on the fundamentals (such as the key factors mentioned above) that have historically affected gold prices to determine the Trust’s proper allocation to the metal.

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Considering that the metal has effectively only been trading as a risk asset for 45 years, I believe gold is, ironically, one of the newest asset classes.

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Gold thrived during the inflationary 1970s and then languished in a protracted bear market. In recent years, we have confronted the risk of deflation and gold has declined significantly from its 2011 peak. Why does it make sense as an investment now?

Gold generally competes with other asset classes, like stocks, bonds and real estate, on a weak footing since it does not offer a dividend or coupon with which to value it in a formal sense. Over the very long term (since the 1830s), gold has returned 1.1% per annum in real terms in US dollars (see Barro and Sanjay, “Gold Returns,” February 2013, NBER Working Paper No. 16026). But for an investor today, knowing this is perhaps less helpful than knowing that gold rose 2,300% in the 1970s and that it had a 20-year bear market in the 1980s and 1990s: it has higher volatility than long-term returns would imply, making holding a large position relative to other assets a complex decision. Considering that the metal has effectively only been trading as a risk asset for 45 years I believe gold is, very ironically, one of the newest major asset classes, one that funds with a very long term time horizon will be taking more seriously in the years ahead. With the exception of brief periods I mentioned before, when it traded free of a dollar link, gold has only had two bull markets (three, if you include 2016) and two bear markets in US financial history. Since gold has low to negative correlations with traditional asset classes, most notably stocks, investors should consider the outlook for larger markets to arrive at their outlook for gold. ■

Too much risk, too little gold

Pension funds and NIRP



Juan Carlos Artigas
Director, Investment
Research
World Gold Council

Pension funds face unprecedented headwinds, as interest rates remain at stubbornly low or negative levels. In such a climate, gold can mitigate risk and boost investment returns. **Juan Carlos Artigas**, Director of Investment Research at the World Gold Council, explains how.

A challenging environment

Pension systems in developed markets face a challenging environment. They are under pressure to close funding gaps – either current or expected – as returns dwindle, populations age and market contractions become more frequent. Yet, amid a low rate environment – negative in many cases – the most common solutions seem daunting:

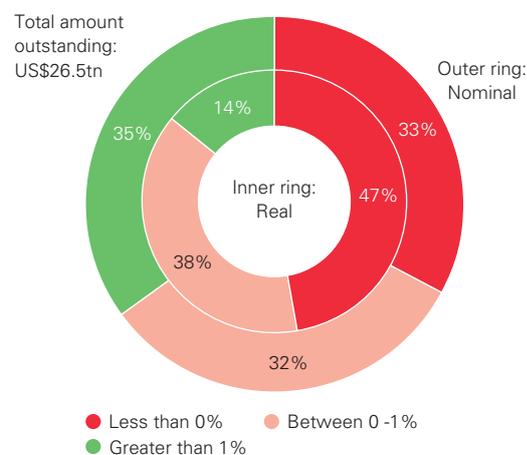
- Cutting benefits and/or increasing the retirement age are not popular with the electorate
- Adding more stocks, lower quality debt or other higher yielding (and generally riskier) assets makes funds more vulnerable to market swings.

This is not a doomsday scenario. It is a reality that pension managers are confronting right now. In the US, for example, the Financial Times reported a study estimating a US\$3.4 trillion pension fund deficit. In the UK, the deficit for final salary pensions was £375 billion (US\$562 billion) in 2015, a figure that has been increasing in recent years. In Germany, the financial services regulator has raised concerns regarding unintended consequences of unconventional monetary policy for pension funds. At the same time, Japanese pension funds are ramping up investments in the stock market.

Bond returns are limited

Then there is the issue of low (or in many cases negative) interest rates. In all, one third of developed market sovereign bonds are trading with negative yields, and two thirds trade with yields lower than 1%. In Germany and France, all sovereign debt yields with maturities of five years or less are negative. For Switzerland and Japan, only 30-year bonds have positive yields and the yields are negligible.

Chart 1: A large portion of sovereign debt now carries negative interest rates*



*As of 23 May 2016. Includes sovereign debt from Australia, Canada, Denmark, Euro area (investment grade), Japan, Sweden, Switzerland, the United Kingdom and the United States. Real yields computed as nominal yield minus the most recently available year-on-year CPI inflation rate. Totals may not equal 100% due to rounding.

Source: Bloomberg; World Gold Council

In the US, the situation is not much better. The economy is showing strength and the Federal Reserve may even raise rates at least once this year (possibly this summer) but rates are still, on average, at multi-decade lows. Nominal yields are positive but, excluding the long-term 30-year bond, they are all below 2%. And real yields are negative on bonds of up to three years in maturity.

Against this backdrop, analysis from the World Gold Council shows that bonds are likely to have limited upside: low yields mean that bond prices cannot increase as much as they did six or seven years ago, as they are already close to their face value. In addition, current yields and the steepness of the curve have historically been good predictors of future returns. For example, the current Barclays Capital US Bond Aggregate (US Agg) has a yield-to-maturity (YTM) of 2.16%, and regression analysis

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This is not a doomsday scenario. It is a reality that pension managers are confronting right now.
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shows that investors may expect a 2.9% return ($\pm 0.5\%$) over the next 7-10 years, just a fraction of the 6.4% the US Agg has returned, on average, over the last 25 years.

This means that investors would be losing money in real terms on any of their short- and medium-term bond holdings and would be making very little on longer dated bonds, while incurring additional duration risk. As a consequence, investors may have to reconsider their asset mix, especially when it comes to risk management. This may have important consequences in terms of the time it takes investors to achieve their financial objectives.

Stocks are expensive

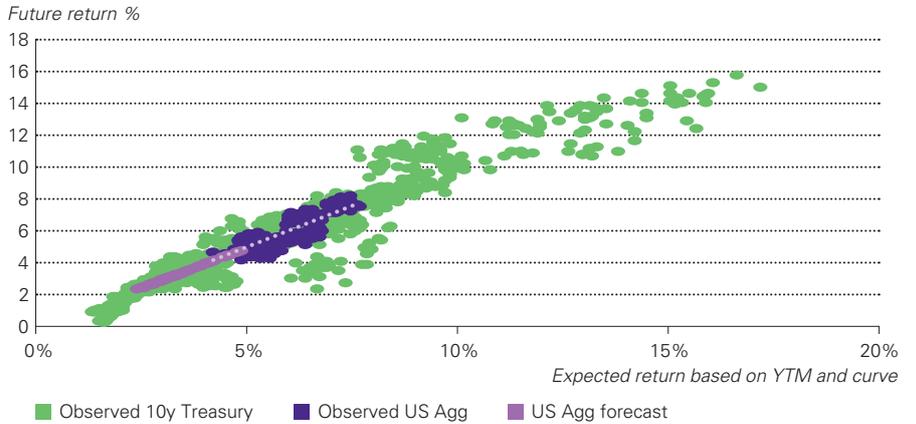
In spite of market uncertainty, stock prices continue to rise and stock valuations remain expensive. Yale Professor Robert Shiller's price-to-equity ratio data going back to 1900 shows that the situation is unprecedented, with 10-year nominal bond yields this low and equity valuations this high. In fact, the previous high was in 1929. That does not mean that the world is on the cusp of an economic depression, but risk in portfolios has increased considerably with few assets to balance it out.

Globalisation has a cost

History shows that the magnitude and frequency of significantly negative events (defined as a 5% pullback in stock markets in any given month) have only increased over time. This is due in part to the growth of financial markets worldwide and their interconnectedness. Thus, it is not unrealistic to think events like these will continue to occur and that gold will react accordingly. While isolated events may remain localised, a confluence of many events at the same time and the globalisation of financial markets could result in a broader shock to the global economy.

Chart 2: Current yields and the steepness of the bond curve are good predictors of future returns*

Regression analysis of future returns versus yield-to-maturity and Treasury curve

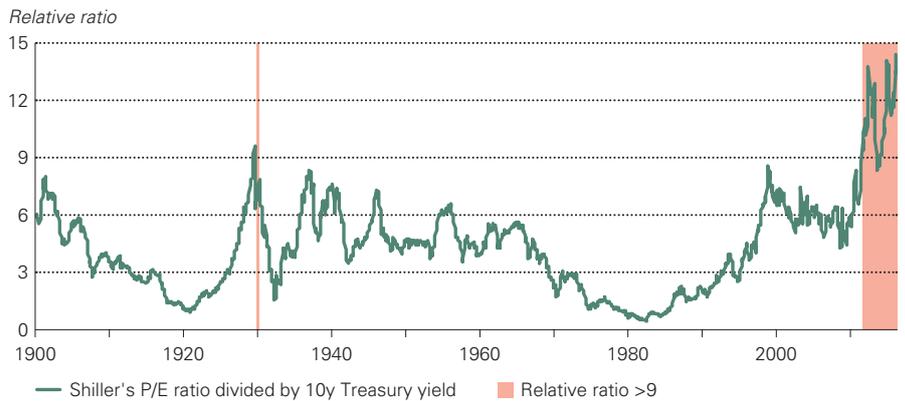


*Log-linear regression based on monthly bond data. Treasury data from January 1920 to April 2016. US Agg data from January 1992 and April 2016 due to availability.

Source: Barclays Capital; Bloomberg; Federal Reserve; World Gold Council

Chart 3: Stock P/E valuations today are at record highs relative to the level of interest*

Ratio between Shiller's CAPE and 10-year Treasury yield

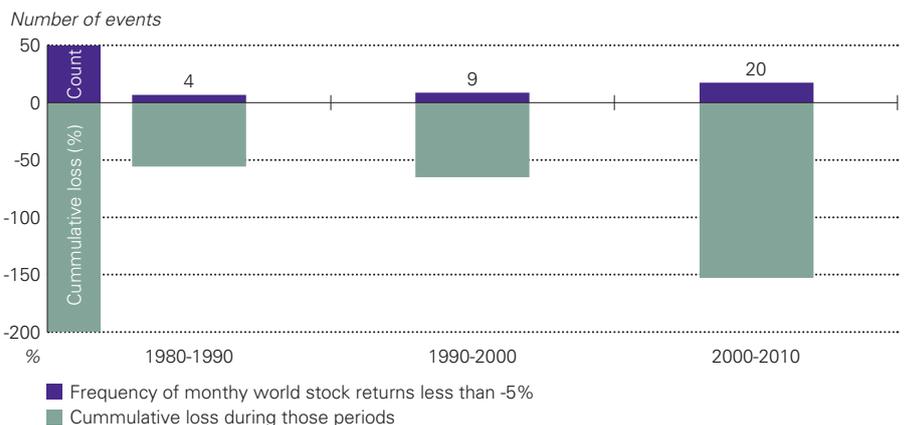


*Shiller's Cyclical Adjusted Price-to-Earnings (CAPE) ratio is a measure of relative valuation. Ratio relative to the constant maturity 10y Treasury yield.

Source: Federal Reserve; Robert Schiller; World Gold Council

Chart 4: The frequency and magnitude of negative market events keeps growing*

Count of monthly returns less than -5% and their cumulative return

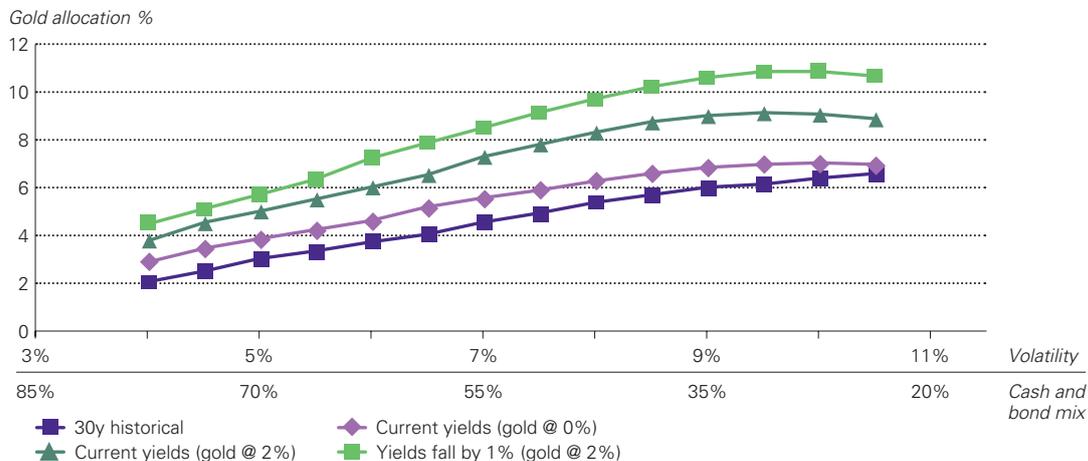


*Based on data from a spliced index of the MSCI World (1980-1987) and MSCI AC World (1988-2010) indices.

Source: Bloomberg; World Gold Council

Chart 5: Lowering expected bond returns significantly increases the optimal weight that gold should have in portfolios

Optimal gold allocations in investor portfolios under different expected returns*



*Portfolios include 3-month T-Bills, US treasuries, high grade and high yield US bonds, global treasuries, small-, mid- and large-cap US stocks, EAFE and EM stocks, commodities, REITS and gold. Historical returns computed using monthly data from February 1986 to February 2016. Current yields as of 21 March 2016.

Source: Bloomberg; ICE Benchmark Administration; World Gold Council

Low rates favour gold

For investors, the presence of low or even negative rates:

- reduces the opportunity cost of holding gold
- limits the asset pool some investors would use
- erodes confidence in fiat currencies
- increases uncertainty and market volatility as central banks run out of effective monetary policy options.

World Gold Council analysis shows that:

- in a low interest rate environment gold returns tend to be twice as high as the long-term average
- as long as short-term interest rates are below 4% (in real terms), average gold returns remain positive.

At present, even if the Fed continues to normalise policy and lifts the Fed funds rate a few times this year, interest rates would be far from that threshold.

A higher percentage in gold

Since the start of the financial crisis, there has been a prolonged period of low yields. In such an environment, pension funds should consider adding gold (or increasing their allocation if they already hold it).

Bonds generally help balance the risks inherent in portfolios. Low yields, however, not only promote risk taking, but also limit the ability of bonds to cushion pullbacks in stocks and other risk assets in investment portfolios.

Our research shows that gold can help investors balance portfolio risks in this largely unprecedented environment. For portfolios that have a mix of stocks and bonds we found that strategic gold allocations in the current low yield environment should be:

- 1 to 1.5 times higher than they would be if average bond yields were closer to their 25-year average, depending on the portfolio mix
- 1.5 to 2.2 times higher than they would be if bond yields were to fall 1% from current levels (or if current yields persist, but gold returns are close to their historical average).

For example, under conservative assumptions for gold returns, our analysis shows that an investor with a 60/40 portfolio may hold up to 8.7% in gold (up from 5.5% under historical assumptions for bond return expectations), and up to 10% if yields were to fall 1% further (or if current yields were unchanged, but expected gold returns were 4% per year).

While these examples use US-dollar portfolios, similar results apply to euro and pound-sterling investors. ■

“Low yields, however, not only promote risk taking, but also limit the ability of bonds to cushion pullbacks in stocks.”

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Misguided policies and economic risk



Mervyn King
Governor of the
Bank of England
from 2003 to 2013

Mervyn King was Governor of the Bank of England from 2003 to 2013, a period which included the most dramatic economic and financial downturn since the 1930s. Building on his experiences from that time, Lord King talks frankly about Europe, global growth and how best to respond to the current uncertain climate.

Ever since the financial crisis erupted in 2008, governments, policymakers and regulators have been determined to prevent a recurrence of those dark times. Myriad rules and regulations have been designed to strengthen bank balance sheets and limit their recourse to the taxpayer. At the same time, there have been concerted efforts to boost economic growth, through quantitative easing and exceptionally low interest rates.

Mervyn King believes many of these strategies are, quite simply, wrong.

“Monetary policy has reached its limits,” he says. “If you repeatedly bring down interest rates to try and persuade people to spend today rather than tomorrow, it works for a while. But they become increasingly resistant to being asked to spend their resources now rather than save for the future. And the longer domestic spending is in excess of potential output, the more you have to borrow from the rest of the world to finance it. Eventually people wake up to the fact that this is unsustainable and then you get a sharp adjustment downwards.”

King suggests that ultra-low – or negative – interest rates do not just have a limited shelf-life; they actually exacerbate some of the structural problems that have beset global economies from many years, namely the disequilibrium between saving and spending.

“Unless you take steps to deal with that underlying disequilibrium, all monetary policy does is to essentially buy a bit more time in the hope that policymakers will do the right thing. But we’ve bought eight years now and they still haven’t done what’s right,” King explains.



King accepts that monetary policy tools, such as cutting interest rates and quantitative easing, were appropriate in the immediate aftermath of the financial crisis. His main concern is that they have outlived their usefulness.

“If we had too much spending and too much borrowing before the crisis and we have even more spending and borrowing now, then we’re moving further and further away from the point that we’ve got to get back to. So monetary policy is not only meeting diminishing returns, but it’s making the ultimate adjustment even bigger. It’s taking us in the wrong direction,” he suggests.

King believes that there are four paths that world economies need to follow to emerge from the cycle of persistently sluggish growth and an increasingly disillusioned electorate.

No easy solution

“There is no easy way out. But I believe that first, we need explicitly to recognise that monetary policy is no longer the right approach. That’s not to say central banks should put up interest rates now. I think that would just lead to another downturn. But governments really have to do something to boost people’s beliefs in their future income, so they need to put in place a sustainable programme of improving productivity over the next 10 to 20 years. It does not have to work quickly, but if people believe their future incomes will be higher, they will be prepared to spend more today and that would give something of a recovery,” he says.

“Second, we need to tackle imbalances within and between economies so we need to move to much more flexible exchange rates. Part of the problem here has been the belief that fixing exchange rates was the right way to go and it’s just created massive imbalances both within Europe and between Asia and the West. That’s a big challenge in Europe, but it needs to be addressed.

“

If we had too much spending and too much borrowing before the crisis and we have even more spending and borrowing now, then we’re moving further and further away from the point that we’ve got to get back to.

”

“Third, there needs to be a sustained effort by the industrialised world to promote freer trade in services and not get bogged down in the Doha round, where the big emerging markets can hold us back.

“And fourth, we need a degree of international cooperation that has been absent since the spring of 2009. The IMF has not been active enough in promoting the need for this. But governments will have to recognise that it is very hard for any country to rebalance its economy unless others are doing so at the same time. Many countries have been trying to stimulate domestic growth by pushing their exchange rates down, but this is clearly counter-productive as it won’t work in aggregate,” he points out.

So far, however, there are few signs of this spirit of cooperation.

“The risk is that we just muddle through with a prolonged period of very low growth. The longer that goes on, the more output we will have lost in the interim. And in the long run, it makes another crisis more likely because, if everyone is relying on monetary policy and it isn’t the answer, we won’t get back to a new equilibrium. We do need to make that jump at some point so the question is do we get there as a result of active, conscious policy decisions and cooperation between countries or will it only happen as the side-effect of another crisis, where we dither too long and wait to write off a lot of past capital investment before we start investing again?” asks King.

Tough times in Europe

King’s fears about economic prospects are arguably even gloomier when it comes to Europe.

“There are four possible paths, but none of them is particularly palatable because the starting point is one that nobody would have recommended,” he says.

“I don’t think further austerity without any other compensating set of actions to boost demand will help in Southern Europe. There is not much prospect, let alone support for, inflation in Germany. There is some attempt to make transfers of capital within Europe and several central bank governors have suggested a Euro area finance minister, but there is no democratic support for that.

“And the last option is to have a different configuration of membership of the euro area, in which the easiest outcome would be for Germany to leave. That could be temporary. They may not want to abandon the ultimate goal of monetary union, but I think the problem is that it is very hard to be explicit about that unless you are prepared to accept political union and no country has been prepared to do that yet,” King states.

In a world characterised by what King describes as ‘radical uncertainty’, he believes long-term asset managers should adopt a pragmatic approach to investment.

“If we don’t quite know what the future holds, there is little point in getting carried away by very fancy mathematical calculations of optimal portfolios. Don’t rely on past data to be a good guide. Try to think through what mix of assets gives you the best chance of surviving some big event. That must mean including assets that are negatively correlated or uncorrelated in your portfolio,” he says.

“And I am very struck by the fact that over many many years, central banks, governments and individuals have always, despite the protestations of economists, held some gold in their portfolio. Obviously, there is no high running return, but when unexpected things happen, particularly when governments rise and fall, then gold is a means of payment that everyone is always prepared to accept. And I think that’s why even central banks have always had a role in their portfolios for gold,” he adds.

Emerging gold

In recent years, many central banks in Asia and South America have been increasing the amount of gold in their portfolios. King believes this is a sensible approach.

“I can understand why they feel that some proportion of their portfolio needs to be in gold,” he says.

“Over the last decade or so, the claims by some emerging market countries on the US have grown. Who knows what the future holds, but China and other countries do not want to be in a situation where all their international assets are in effect dependent on the US. Of course the US would not want to renege on its debts, but if some awful conflagration occurred,



People’s Bank of China.

then all China’s assets in the US might be annulled. So there are plenty of big concerns that make it extremely reasonable to have assets in your portfolio that are not dependent on the goodwill of other countries,” he adds.

A national treasure

King also sees a role for gold as a hedge against inflation.

“It’s still early days to conclude that around the world, governments have found the solution to maintaining price stability with a managed paper currency. We made real progress in the 1990s and early 2000s and a lot of countries went down that road and followed us. But hyper-inflation has clearly not disappeared – the second biggest hyper-inflation in history was in Zimbabwe in this century – so I can understand why holding gold would seem to be a sensible part of a national portfolio. Because there is clearly a need to take some precautions against an unknowable future,” he says.

Within this “unknowable future,” King is dismissive of the policies being pursued by central banks and regulators the world over.

Too much complexity

“When it comes to assessing risk, and regulating banks to ensure they can survive a crisis, there seems little point in pursuing unbelievably complex and bureaucratic regulation using complex risk weighting and models because crises involve events that you haven’t thought of, so inevitably these formulae will turn out to be irrelevant.

“

I am very struck by the fact that over many many years, central banks, governments and individuals have always, despite the protestations of economists, held some gold in their portfolio.

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Economic forecasting is no better than it was 30 or 40 years ago. Why? Because expectations and sentiment are fundamental to explaining what people will do and sentiment does not follow a physical law of nature. It is not easily predictable and it cannot be represented by a known probability distribution.

”

I find it absolutely extraordinary that we've ended up with tens of thousands of pages of rulebooks, straddling the Atlantic. No one can keep all that in their heads. The answer is to make sure that banks have a good chunk of equity finance because equity automatically absorbs losses. Don't rely too heavily on bail-ins and bail-innable debt because they require a discreet decision by a regulator. Politicians may intervene, regulators may miscalculate and markets may not believe that the bail-in approach will work so you will get the same moral hazard as existed before the crisis," he says.

King advocates a more straightforward approach to central bank policymaking too.

"We really need to keep the policy framework as simple as possible. It does not make sense to rely on one or even a small set of econometric models because they tend to build in strong assumptions and these assumptions are incompatible with the radical uncertainty that exists in our world today.

"Economic forecasting is no better than it was 30 or 40 years ago. Why? Because expectations and sentiment are fundamental to explaining what people will do and sentiment does not follow a physical law of nature. It is not easily predictable and it cannot be represented by a known probability distribution. It is the essence of radical uncertainty," he says.

Easy money

Against this backdrop, King believes that central banks' principal task is to determine how much money should be created each year.

"In good times, we call this monetary policy and in bad times, we call it the provision of liquidity or acting as the lender of last resort. But they are two sides of the same coin," he says.

King also believes that central banks should act as 'pawnbrokers for all seasons' when it comes to helping to keep the banking system safe.

"What this means is that the type of lending and the type of deposits in any given bank have to be structured in such a way that the central bank is prepared to give a cash credit line to that bank so it can meet its short-run liabilities in the event of a run. Once the central bank is satisfied with those assets and liabilities, it can announce that fact so everyone knows that the bank is effectively insured against a run on its short-term deposits," he explains.

"This would help to keep banking in its present form – using short-term deposits to finance long-term lending. It is relatively simple. And we are closer to this model than many might think," he adds.

Fearful that governments, policymakers, central bankers and regulators are in danger of making a difficult situation worse, King talks of 'the audacity of pessimism' – where those in authority become so gloomy about the world's prospects that they are prepared to undertake radical action to improve the situation. He does not expect his views to be accepted in an instant. He does however hope that: "They will gradually infuse the way people think about things."

Meanwhile, his frustration about the present and concerns about the future are both tangible and unsettling. ■

Mervyn King's *The End of Alchemy: Money, Banking and the Future of the Global Economy* was published by Little, Brown earlier this year.

Shanghai benchmark

A new price discovery mechanism for China



Jiao Jinpu
Chairman of Shanghai
Gold Exchange

The Shanghai Gold Exchange has officially launched the Shanghai Gold Benchmark Price, a new gold price discovery mechanism. Here Shanghai Gold Exchange chairman, **Jiao Jinpu**, reflects on the significance of the new benchmark and its impact both domestically and internationally.

The Shanghai Gold Exchange (SGE) formally launched its Shanghai Gold Benchmark Price on 19 April, 2016 and the new pricing mechanism has already attracted strong interest from commodity exchanges, market participants, and media both at home and abroad. The Shanghai Gold Benchmark Price will play a significant role in facilitating the price discovery functions of the Chinese gold market; accelerating the pace of internationalisation of the market, and strengthening China's financial market systems.

The Shanghai Gold Benchmark Price is an RMB-denominated spot benchmark price derived from the trading of 1 kg standard gold ingots of fineness 999.9 or higher on the trading platform at SGE. The price is quoted in RMB per gram, and is determined through an auction system, which attempts

to bring market supply and demand to a relative balance through multiple rounds of buy/sell intentions at various price points. Traded twice a day at 10:15 a.m. and 2:15 p.m. Beijing time, the Shanghai Gold Benchmark Price provides global traders with a reference price that best captures the dynamic gold supply and demand situation in China, while also enhancing the domestic gold pricing system.

In its first month, the Shanghai Gold Benchmark Price's trading volume was 105.91 metric tons of gold kilo bars, corresponding to a turnover of RMB 27.94 billion and an average daily trading volume of 4.81 metric tons. 102.10 metric tons of gold were physically settled, addressing the market's need for physical gold.



The Shanghai Gold Benchmark Price enjoyed a smooth first month and the price discovery mechanism is already in play. Pricing participants are playing an active role in trading; the Shanghai Gold Benchmark Price generated from the process is justified and fair, and its 'benchmark' functions are becoming more visible and influential.

It is this final point that is most interesting: what impact can this benchmark have on domestic and international markets?

The launch of the RMB-denominated Shanghai Gold Benchmark Price Trading has strengthened the price discovery mechanism of the Chinese gold market. It supports China's gold industry by providing gold derivatives with a benchmark price, which promotes innovation in the gold derivatives market and offers more risk management instruments to that market.

First, it serves as a benchmark price for the gold industry in terms of hedging and settlement, as, in addition to the US\$-priced New York gold and London gold, the Shanghai Gold Benchmark Price provides a third choice – pricing in RMB in the Asian time zone – when entering into trading contracts such as those for gold and gold raw materials.

Second, the Shanghai Gold Benchmark Price serves as a benchmark price in financing arrangements such as gold leasing, pledging and such like. Some commercial banks have already made the Shanghai Gold Benchmark Price their contractual basis for calculating principal and interest when they enter into leasing deals with customers.

“
The Shanghai Gold Benchmark Price has triggered strong interest from overseas institutions, which are seeking cooperation with the Shanghai Gold Exchange on various applications of the Benchmark Price.
”

Third, it serves as the cash settlement price for gold derivatives in the interbank price quotation market. By 19 May, commercial banks had concluded 72 cash-settled price-asking transactions based on the Shanghai Gold Benchmark Price at SGE's Price Asking Platform, with a total of 74.8 metric tons of gold kilo bars.

Fourth, it serves as the anchor price for financial institutions' products and services. For instance, commercial banks have started citing the Shanghai Gold Benchmark Price as the basis for their gold accumulation plans and other gold-based wealth management products, while security and fund companies have started to design their own products anchored on the benchmark price.

And finally, the Shanghai Gold Benchmark Price has triggered strong interest from overseas institutions, who are seeking cooperation with the Shanghai Gold Exchange on various applications of the Benchmark Price.

The introduction of the Shanghai Gold Benchmark Price in RMB is a strategic move by the Shanghai Gold Exchange in its efforts to align with developing trends in both domestic and international gold markets. The London Gold market and the New York Gold market built up prominent positions in the global gold market through their hard work over a hundred years. Although enjoying an auspicious start, the Shanghai Gold market is still at an early stage and has a long way to go. ■

Why gold can glow in a negative rate world

Gold prices have risen strongly so far this year. **James Steel**, Chief Commodities Analyst at HSBC, assesses the reasons behind the rally to date and explains why the current environment may presage further gains.



James Steel
Chief Commodities
Analyst at HSBC

Gold prices are up nearly 20% since the beginning of the year.

One reason for the surge is the increasing number of central banks joining the 'negative rates club.' At the end of January, the Bank of Japan cut the interest rate on bank reserves to -0.1%, echoing similar actions in the Eurozone, Switzerland, Sweden, and Denmark. Indeed, almost 27% of the world's GDP is from economies which now have negative rates.

Negative rates, positive gold

Here are six factors that explain why a negative rate environment is good for gold:

1

Distress

Gold thrives against a backdrop of economic uncertainty and distress. Negative interest rates have been introduced because of continued low economic growth, low inflation and financial market volatility. As a result, the shift in monetary policy in this direction by some of the world's largest central banks has encouraged flows into bullion. It is possible that negative rates could be cut even further, although neither the ECB nor the BoJ opted for even lower rates at their last policy meetings. Haruhiko Kuroda, the governor of the Bank of Japan, did say in February that there is no limit to measures to ease monetary policy. Such rhetoric continues to feed the demand for gold.

2

Negative rates, a flattening yield curve and gold

The impact of negative rates on gold should be understood in conjunction with risk-off sentiment. Risk aversion is still very much in the market psyche. When risk-off sentiment is high, capital tends to flow into longer-term US Treasuries. The flattening 'yield curve' is one of the more compelling developments supporting our longer-term view for higher gold prices. The difference between the two- and 10-year Treasury yields is a little more than 100 basis points. This is a historically narrow gap. A flattening yield curve often presages an economic slowdown, which may trigger policy responses that could support gold. The last time the yield curve flattened this much – in early 2008 – gold was in the early phases of a major bull rally.

“The last time the yield curve flattened this much – in early 2008 – gold was in the early phases of a major bull rally.”



3 No opportunity cost but increased opportunity

Traditionally, high rates reduce the appeal of gold by raising its opportunity cost. Investors have to juggle the risk of owning bullion against the return of government bonds. Borrowing to buy bullion at high rates is also a disincentive to own gold. Negative yields remove this barrier by eliminating the opportunity cost traditionally associated with buying bullion.

4 Better than cash

One of the intentions behind negative rates is to penalise savers and reduce savings levels. By effectively taxing savings, firms and individuals are encouraged to spend and invest, thereby stimulating the economy and raising inflationary pressures. The alternative is a shift to holding cash. This may be impractical, especially for corporations or high net worth individuals. Another option is to buy bullion. Gold is easier and cheaper to store, and more durable and easier to transport than large amounts of cash. It is likely that retail bank customers could be even more resistant to charges on their accounts than large corporations because small amounts of cash could be stashed at home, but even this has its limitations. As retail clients cope with this “upside down” world, previously unlikely solutions – such as keeping wealth in gold – become less unusual.

5 ‘Risk-off’ gains are not being diluted by the US\$

Gold currently seems well suited to benefit from periods of increased risk-off sentiment. Markets have been through periods of heightened risk aversion without a rally in gold prices. However, more recent bouts of risk-off sentiment have buoyed gold. The reason may lie in the currency and bond markets. In line with equity weakness, US 10-year Treasury yields have slumped. In previous periods of heightened risk-off sentiment, the capital flowing into US Treasuries also buoyed the US\$. This weighed on gold and explains why gold fell, even as risk aversion rose. This time around, gold is competing with the US\$ as the safe-haven choice. This may have important ramifications for gold going forward.

6 The ‘intervention free’ currency

Negative interest rates can be used as a tool to weaken domestic currencies. According to traditional macroeconomic theory, negative rates would pressure the host currency as investors shift capital to yield-bearing currencies. For the Swiss franc and Japanese yen, this has not been the case for much of the year. These currencies have tended to strengthen. If negative rates are not achieving the objective of currency depreciation, then the monetary authorities have the option of outright intervention to depress their currencies. This risk makes gold more attractive. Gold is not subject to any government’s monetary policy and, therefore, represents a low-risk option as far as intervention is concerned. This increases its attractiveness relative to other safe-haven-related investments, such as the Swiss franc and the Japanese yen. ■

“Gold is not subject to any government’s monetary policy and, therefore, represents a low-risk option as far as intervention is concerned.”

Enhancing performance with gold

Gold has been prized as an asset for centuries. The World Gold Council explains why, today more than ever, gold is a valuable addition to any investment portfolio.

Gold is a highly liquid yet scarce asset; it is bought as a luxury good as much as an investment, and it is no one's liability. As such, gold can play four fundamental roles in a portfolio. It can act as a diversifier and as a vehicle to mitigate losses in times of market stress. It can also act as a hedge against both inflation and currency risk. The combination of all these factors means that investors can use gold to enhance their risk-adjusted returns over the long term.

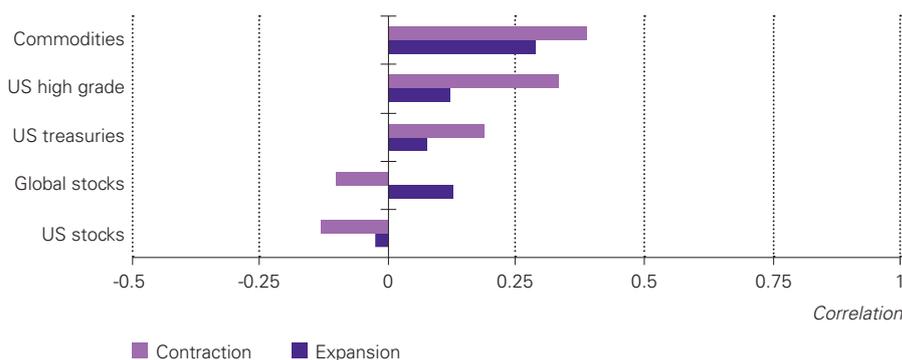
The diversity effect

First, gold displays a low – or in most cases, statistically insignificant – correlation to other major asset classes. Prices reflect the diverse drivers of gold demand and supply, which are often very different from those of other asset classes, including commodities. As such, it is very effective at diversifying a portfolio and thereby reducing its inherent risk and volatility. This characteristic of gold transcends the economic cycle, applying in periods of economic expansion and contraction.

Outperforming in a crisis

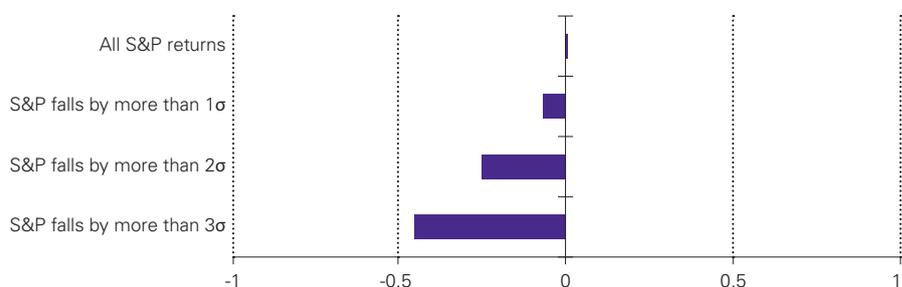
Second, there is gold's performance during periods of crisis, perhaps one of its best known characteristics. As a high-quality, liquid asset, gold often benefits from safe-haven inflows. Gold is especially effective during times of systemic crisis, when investors tend to withdraw from equities. As they pull back, gold's correlation to stocks becomes progressively more negative and its price tends to increase. Gold has performed better than other high-quality liquid assets during these periods of crisis and that has made it a good liquidity provider of last resort.

Chart 1: Gold's correlation to other assets during expansions and contractions since 1987*



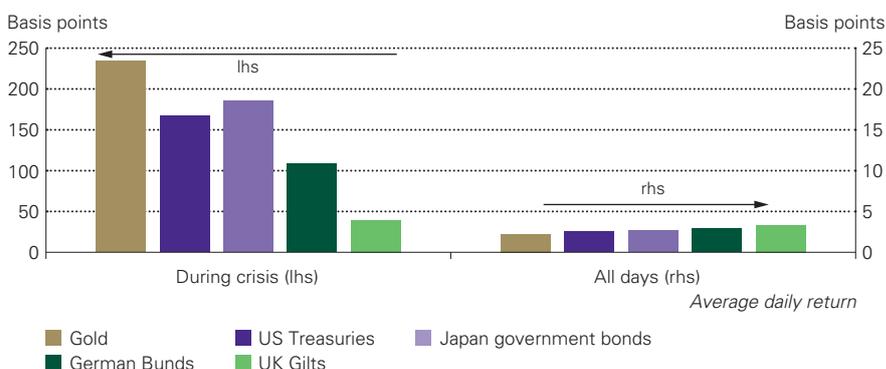
*As of April 2016. Expansion and contractions as defined by NBER.
Source: Bloomberg; NBER; World Gold Council

Chart 2: Gold's correlation to US stocks as a function of stock pullbacks*



*Computed using weekly returns between January 1975 and April 2016.
Source: Bloomberg; NBER; World Gold Council

Chart 3: Gold outperforms other assets in periods of crisis (in US\$)*



*Crises include 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 events.
Data from January 1986 to April 2016.

Source: Bloomberg; NBER; World Gold Council

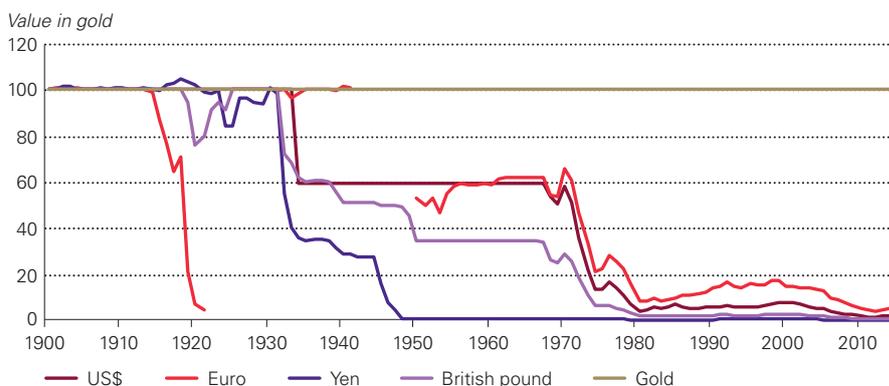
A strong currency

Third, over the past century, gold has vastly outperformed all major currencies as a means of exchange. This includes instances when major economies defaulted, sending their currencies spiralling down, and after the end of the Gold Standard, when gold became a free-floating currency. One of the reasons for this is that the available supply of gold changes little over time – growing only 2% per year through mine production. In contrast, fiat money can be printed in unlimited quantities to support monetary policies. The aggressive, unconventional monetary policies used by major central banks since the 2008-2009 financial crisis are a good example. Central banks expanded their balance sheets to record levels, increasing government liabilities and, consequently, the inherent credit risk. The Fed's balance sheet has increased five-fold since 2008, while the ECB, BOJ and BOE have increased their balance sheets by 110%, 260% and 340%, respectively. In contrast, gold above-ground stocks grew by 15% over the same period.

Hedging extreme inflation

And fourth, many investors across the globe turn to gold to help weather the capital erosion they face due to inflation. While inflation and gold do not always move together in the short term, gold has consistently outperformed US and global inflation over long periods of time. Further, gold's inflation-hedging properties become more apparent when the inflation environment is more extreme. Some studies even suggest that gold helps in periods of deflation – it serves as an alternative currency – which, intuitively, would be more apparent if deflation is accompanied by negative rates.

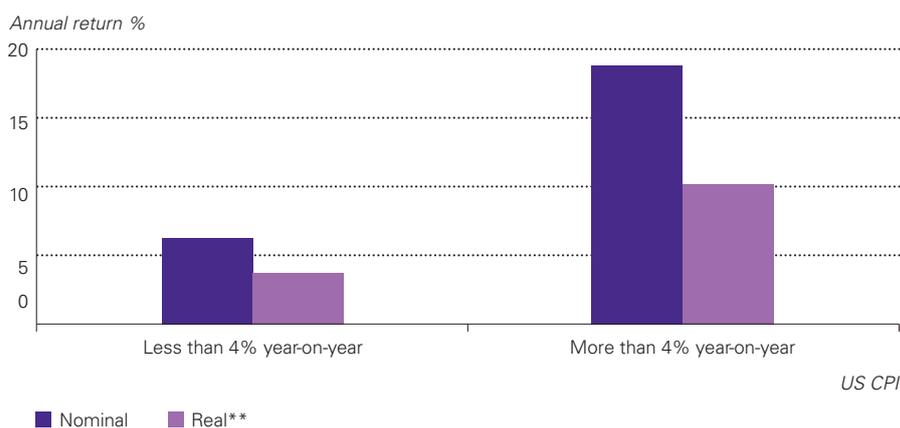
Chart 4: Value of major currencies relative to gold through history*



*Breaks in the mark/euro reflect periods of hyperinflation and WWII.

Source: Bloomberg; Thomson Reuters; World Gold Council

Chart 5: Gold returns as a function of annual inflation*



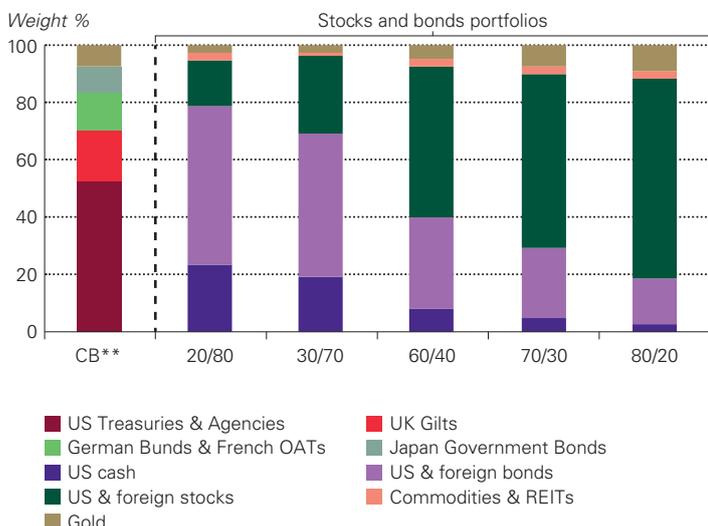
* Inflation computed using annual US CPI year-on-year changes between 1970 and 2015.

** For each year on the sample, real return = (1+nominal return)/(1+inflation)-1.

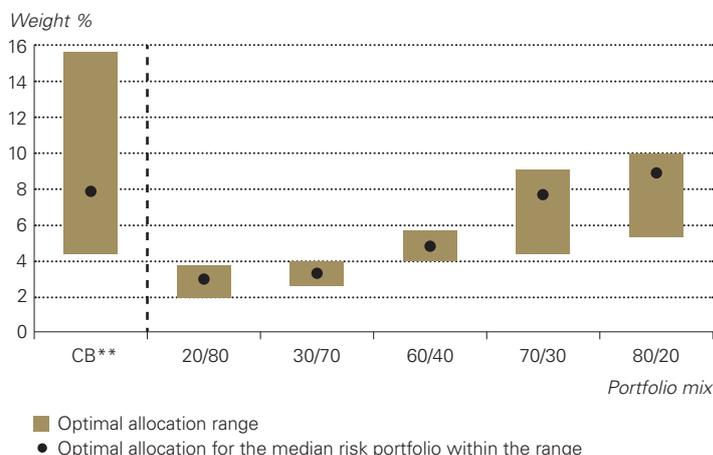
Source: Bloomberg; World Gold Council

Chart 6: Gold can significantly improve risk-adjusted returns for portfolios across various levels of risk

(a) Portfolio composition at various levels of risk tolerance based on the equity/bond mix*



(b) Range of gold allocations including the one that delivers the maximum risk-adjusted return for each portfolio mix*



* Each portfolio composition reflects the percentage in stock (and other assets) relative to cash and bonds. For example: 60/40 is a portfolio with 60% in stocks, commodities, REITs and gold, and 40% in cash and bonds. Analysis based on New Frontier Advisors Re-sampled Efficiency.

** CB represent typical portfolios held by central banks.

Source: World Gold Council

How much is enough?

The combination of all these factors means that adding gold to a portfolio can enhance risk-adjusted returns.

But how much gold should investors add to achieve the maximum benefit? Portfolio allocation analysis (based on the seminal work of Richard and Robert Michaud and praised as a robust alternative to traditional mean-variance optimisation) indicates that, for most US dollar investors, holding 2% to 10% of their portfolio in gold can greatly improve performance. This applies, even if we assume gold's average annual return is a modest 2% to 4%, which is well below its actual, long-term historical performance.

Broadly speaking, the higher the risk in the portfolio – whether in terms of volatility, illiquidity or concentration of assets – the larger the required allocation to gold to offset that risk.

This holds true even for investors who already hold other inflation-hedging assets, such as inflation-linked bonds. It also holds true for investors who hold other alternative assets, such as real estate and hedge funds, and for international investors whose portfolios have different reference currencies. For foreign reserves asset managers, given their concentration of sovereign debt, the analysis suggests a higher 5%-15% allocation to gold. ■

Table 1: Gold's returns have not only been positive over various periods of time, but they have also surpassed inflation and short-term bonds.

Compounded gold returns over various periods of time*

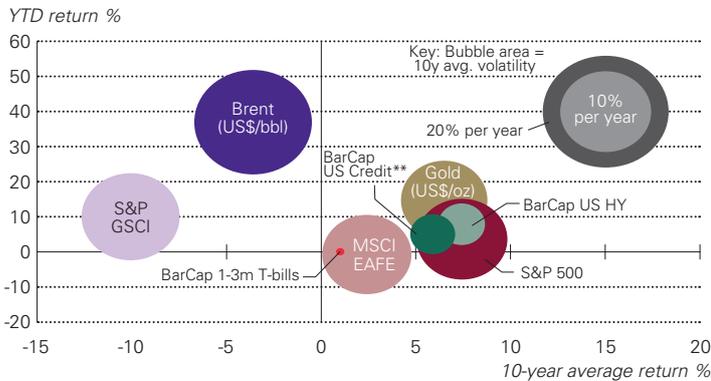
	Nominal gold return	Gold return in excess of		Gold return in excess of	
		US CPI	Global CPI	US cash	Global cash
Since 1971	7.76%	3.50%	1.73%	2.04%	1.78%
25 year average	4.54%	2.05%	1.17%	0.89%	1.30%
10 year average	10.11%	7.95%	7.91%	7.87%	8.73%

*As of April 2016. Based on monthly data. Cash represented by 3-month government bond returns. Source: Bloomberg; Bureau of Labor Statistics; ICE Benchmark Administration; J.P. Morgan; OECD; World Gold Council

Key gold market statistics

Gold returns highly competitive compared to major financial assets

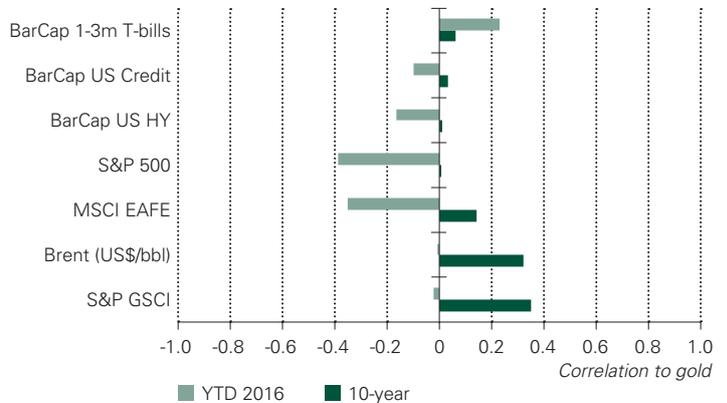
Performance metrics for major global financial assets in US\$*



*Year-to-date performance as of 27 May 2016.
 **BarCap US Credit includes government and corporate bonds.
 Source: Bloomberg; World Gold Council

Correlation of gold to major financial assets remains low

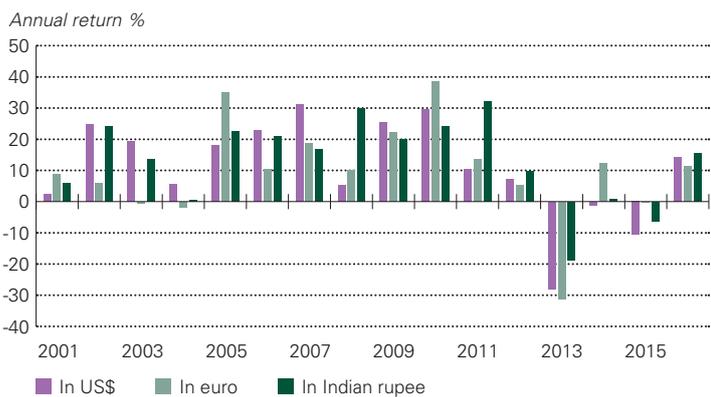
Weekly return correlation on key assets and gold in (US\$)*



*Year-to-date performance as of 27 May 2016.
 Note: BarCap US Credit includes government and corporate bonds.
 Source: Bloomberg; World Gold Council

Gold performance should be measured in more than one currency

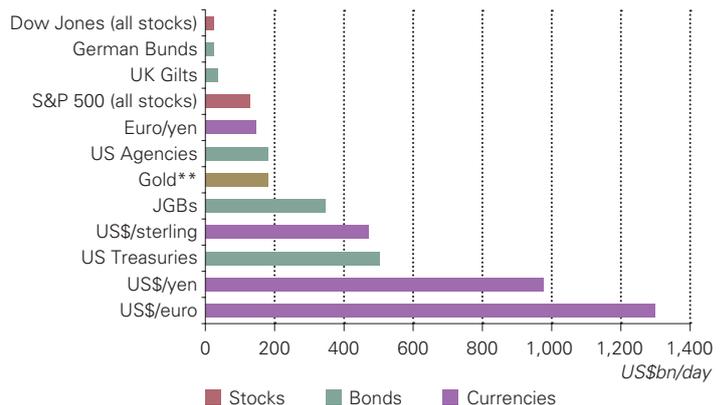
Gold returns in US dollar, euro and Indian rupee terms*



*Year-to-date as of 27 May 2016.
 Source: Bloomberg; World Gold Council

Gold trades more than many other major financial assets

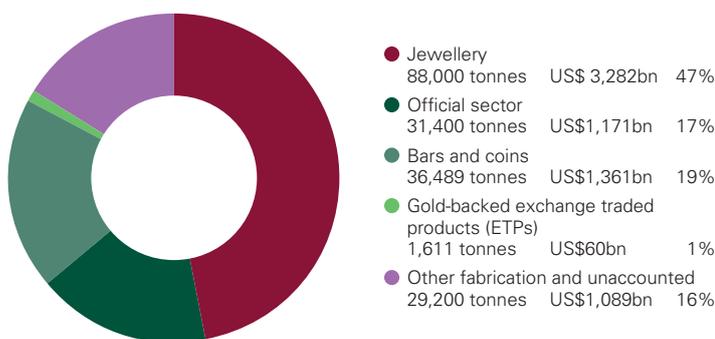
Average daily trading volumes in US\$*



*Based on estimated annual averages as of September 2015.
 **Gold liquidity includes estimates on over the counter transactions, and published statistics on futures exchanges, and gold-backed exchange traded products.
 Source: BIS; Bloomberg; German Finance Agency; Japan Securities Dealers Association; LBMA; UK Debt Management Office (DMO); World Gold Council

Financial gold accounts for more than a third of above ground gold stock*

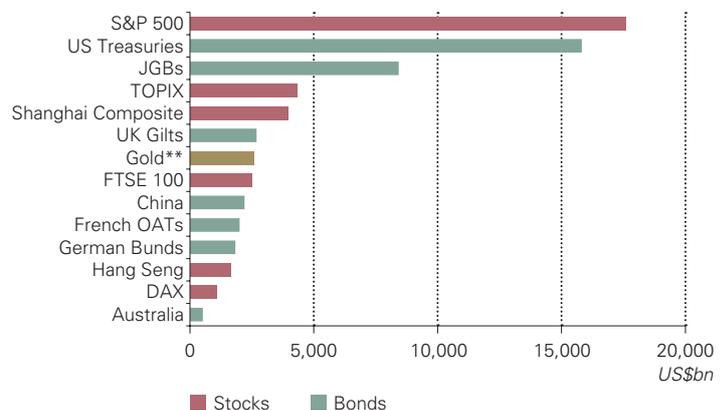
Market size (tonnes) and amount (US\$) for various gold products



*As of December 2015. Financial gold is defined as the sum of official sector holdings, bars and coins, and ETPs** (69,500 tonnes, US\$2,592bn, 37%).
 **ETPs include gold-backed exchange traded funds (ETFs) and similar.
 Source: Bloomberg; GFMS, Thomson Reuters; ICE Benchmark Administration; Respective ETP Providers; World Gold Council

Gold market larger than many major stock and bond markets

Market size of major global financial assets*



*As of 30 September 2015.
 **Includes bars, coins, gold-backed exchange traded products and official sector holdings.
 Source: BIS; Bloomberg; GFMS, Thomson Reuters; ICE Benchmark Administration; World Gold Council

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