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Quarterly statistics commentary Q3 2012

Overview

This commentary summarises gold's price performance in various currencies, its volatility statistics and correlation to other assets, and the macroeconomic factors that influenced gold's behaviour during the quarter. In this issue, we explore the influences that unconventional monetary policy has on financial markets. In particular we discuss the effect of central bank policy actions on gold.

Q3 in summary

- **Gold (US$/oz) returned 11.1% in the third quarter** as investors responded to further central bank measures aimed at stimulating the economy. Volatility decreased during the period, with gold prices experiencing little movement in the first half of the quarter; correlations to other assets, generally low, remained similar to those seen in Q2.
- **Central banks announced** a continuation of their unconventional monetary policy[1] programmes in Q3.
- **Central banks have numerous rationales** for undertaking unconventional monetary policy, including lowering borrowing costs and supporting financial markets.
- **Financial assets have responded** to central bank policy announcements, but gold's reaction has been the strongest.
- **There is a consensus that these policies drive investment** into gold purely due to inflation-risk impact. We believe that there is not one but four principal factors that provide further support to the investment case for gold:
  - Inflation risk
  - Medium-term tail-risk from imbalances
  - Currency debasement and uncertainty
  - Low real rates and emerging market real rate differentials

[1] Unconventional monetary policy refers to measures used to provide liquidity once policy rates are at the zero bound.

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Summary of gold price performance in Q3 2012

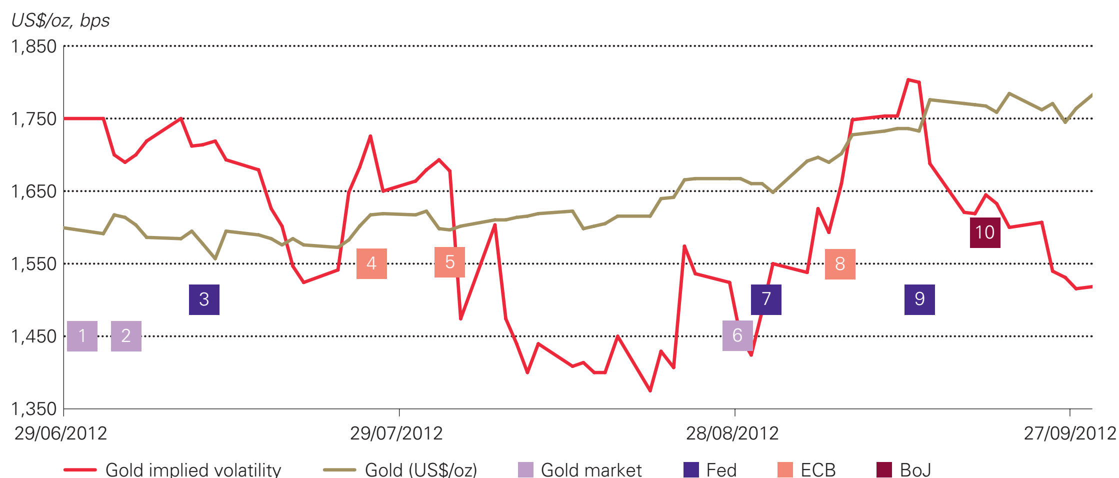
Table 1: Performance of gold with respect to various currencies

Currency	Gold price		Closing return				Volatility Q3	Max daily pullback Q3
	28/09/2012	Q3 average	QoQ – close	QoQ – average[1]	YTD return	YoY – average[2]		
US$/oz	1,776.0	1,652.0	11.1%	2.6%	16.0%	-2.9%	14.4%	-3.8%
€/oz	1,380.5	1,320.2	9.6%	5.2%	17.1%	9.4%	12.5%	-1.9%
£/oz	1,099.8	1,045.3	7.9%	2.8%	11.6%	-1.2%	12.4%	-2.6%
¥/gram	4,442.4	4,174.8	8.3%	0.7%	17.3%	-1.7%	16.4%	-4.6%
Yuan/gram	358.9	337.3	9.9%	3.0%	15.8%	-3.9%	14.2%	-3.5%
Rupee/10gram	30,117.2	29,302.1	5.0%	4.6%	15.2%	16.7%	11.4%	-3.3%

1 The % change between prices during Q2 2012 and Q3 2012.
2 The % change between prices during Q3 2011 and Q3 2012.

Source: TR DataStream, World Gold Council

Chart 1: Gold (US$/oz) performance and key events during Q3 2012



Note: Gold implied volatility uses 1-month at-the-money options traded on the OTC market.

Source: Bloomberg, World Gold Council

Table 2: Timeline of central bank action in Q3

	Date	Action	Theme
1	End of Q2	Central bank of Turkey raises the proportion of gold held by commercial banks	Gold market
2	04/07/2012	Central bank of Kazakhstan raises its target for gold purchases and production	Gold market
3	11/07/2012	Fed releases minutes from the June FOMC meeting	Fed
4	26/07/2012	Draghi pledges to protect the Euro as Spain’s 10-year bond breaches 7.5%	ECB
5	02/08/2012	Draghi signals the ECB is prepared to move forcefully into bond markets	ECB
6	28/08/2012	IMF announces central bank purchases by Turkey, Russia and others	Gold market
7	31/08/2012	Bernanke provides dovish comments during Jackson Hole conference	Fed
8	06/09/2012	ECB President, Mario Draghi pledges unlimited european bond-buying	ECB
9	13/09/2012	Fed announces their QE3 programme, pledges zero rate policy through 2015	Fed
10	19/09/2012	BoJ announces a surprise expansion to their asset purchase programme	BoJ

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Third quarter review

By the end of September, gold (US$/oz) was up 16% year-to-date with two thirds of the gains generated in Q3. This performance was echoed in most currencies with returns ranging from 5.0% to 11.1%, using end-of-period gold price data, and 0.7% to 5.2% using average prices. The difference between these two measures reflects gold's sharp price rise towards the end of the quarter.

Exchange rate shifts had a notable impact on some key regional gold prices. During the first half of the year Indian rupee depreciation caused the local gold price to breach a key psychological threshold, generating the strongest return of the 19 different currency-denominated gold prices monitored by the World Gold Council. That currency weakness reversed in the third quarter, leading to a modest return of 5% for gold in rupee terms. Consequently, the year-to-date performance of the rupee gold price ranked only 11th (+15.7%) as of the end of Q3.

As Chart 1 illustrates, gold's strong performance began in earnest only in the latter half of August. The first few weeks of the quarter had been quiet for gold as well as other assets. For equities and bonds, the likely cause was a combination of northern hemisphere vacation doldrums and low conviction amidst a slowing global economy and uncertainty about the fate of the euro area.

For gold, as for many other assets, central bank policy announcements and actions in late August and early September created a catalyst for price activity. It is critical to note that while gold prices react to monetary policy developments, they are more generally determined by a geographically and thematically broad set of factors. A number of positive gold-specific developments also took place in Q3, including the IMF's reporting of central bank purchases of gold by Russia, Turkey, Ukraine and the Kyrgyz republic. Just before the start of the third quarter, Turkey announced that it had raised to 30% the proportion of gold held by commercial banks as capital requirements. This requirement will likely boost demand as Turkish commercial banks use gold as part of their capital portfolios.

Price volatility during the period was subdued, ranging from 11.4% for rupee investors to 16.4% for yen investors. Gold's lower than average volatility was echoed in other markets: global equities, bonds and commodities all posted numbers below their long-term averages.[2]

[2] Long-term average volatilities (December 1987 to date): Gold (15.7%), Global equities (15.2%), Emerging markets (18.8%), Global bonds (5.5%), Commodities (21.4%), US dollar index (8.6%), Q3 volatility: Gold (14.4%), Global equities (12.8%), Emerging markets (15.6%), Global bonds (3.8%), Commodities (18.1%), US dollar index (6.7%).

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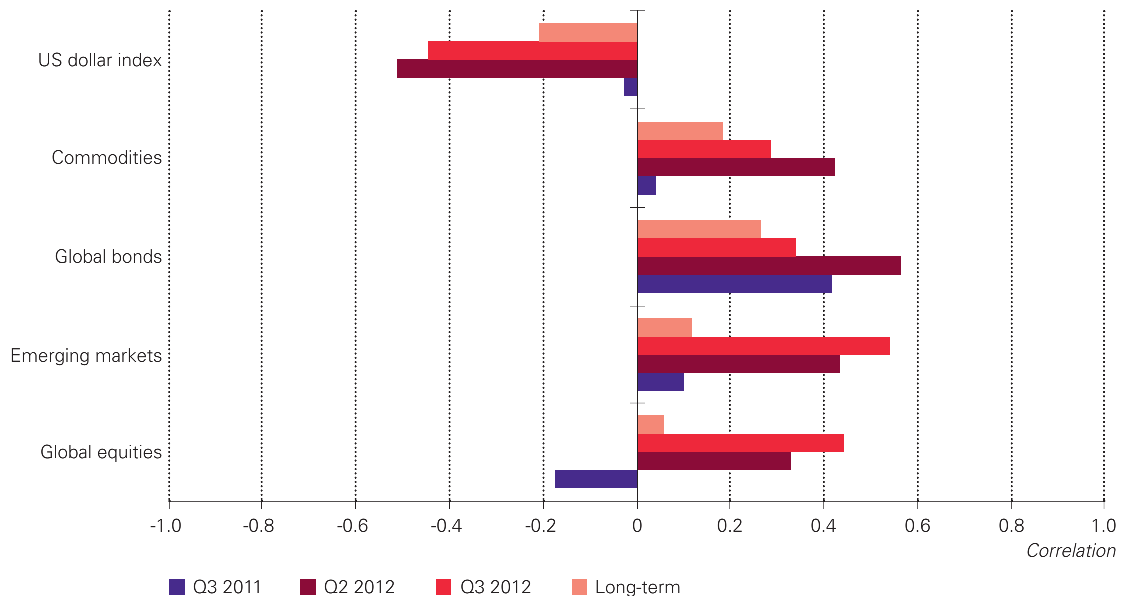
Correlation statistics between gold and other assets were similar to those experienced in Q2 2012 (see Chart 2). Its correlation to developed and emerging market equities was slightly higher than normal, but its correlation to global bonds and commodities was lower than in Q2. However, these deviations from long-term averages were not large enough to imply atypical behaviour. In prior quarterly commentaries we have shown how gold's correlation to equities hovers around zero over the long run, but can fluctuate over shorter periods of time.

In particular, both gold and equity prices moved higher during Q3, leading to an elevated correlation. However, prices were driven higher by different underlying reactions. While both responded to monetary policy announcements and measures undertaken by central banks around the world, equities responded to central banks' pledges to stimulate economic growth; gold, on the other hand, moved higher encouraged by factors that we discuss in the section titled "unconventional monetary policy and gold".

Chart 2: Gold's correlation to global assets



Note: long-term correlations calculated using the period between December 1987 and September 2012. MSCI World for global equities, MSCI EM for emerging markets, Barclays Global Agg for global bonds and S&P GSCI for commodities.

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

Unconventional monetary policy

Events leading up to Q3 announcements

The key developments in Q3 were undoubtedly the series of declarations by central banks to expand their unconventional monetary policy programmes (UMP). Weak global macroeconomic data during the preceding quarters had created expectations among investors of further stimulus from major central banks. However, policy meetings were not scheduled until the latter half of Q3; thus, positioning for outcomes was kept on hold in anticipation of announcements. In addition, a concomitant slowdown in both India and China had also raised hopes that the Reserve Bank of India (RBI) and People's Bank of China (PBoC) would act, fiscally or monetarily, to support their economies. Similar sentiment had been expressed in Brazil and South Korea.

As the quarter progressed, the case for further easing was emboldened by the weak incoming macroeconomic data. Global manufacturing indicators fell to a 36-month low in July – with noticeable slowdowns in the US and Europe.[3] China's industrial production growth reached the lowest level since May 2009, with GDP following suit to reach 7.6% YoY. The euro area contraction continued with 6 of 17 member countries in recession.[4] Japan's trade deficit quintupled to US$32bn, as a worsening export outlook compounded internal weakness.[5] The news flow, though by now largely expected and supportive of further easing, helped drive asset prices higher across the board.

By the final week of August, the Federal Reserve (Fed) provided the first hints that it would consider an extension of its QE programme, despite some signs of housing and retail sector buoyancy. In addition, the European Central Bank (ECB) announced plans for its new bond buying programme on the premise of an 'irreversible' euro plagued by severe dislocations in the region's government bond markets. By September, central-bank commitment to further stimulus had been announced in the US, Europe and Japan. China had launched a new infrastructure-spending programme to the tune of US$158bn, and India had vowed to lower its barriers to foreign investment.

The Fed extended its quantitative easing programme to an open-ended run rate of US$40bn per month. The ECB announced a new bond buying programme named "outright monetary transactions" (OMT), and the Bank of Japan (BoJ) announced a boost to its asset purchase programme, surprising markets by doubling the size of earlier extensions.

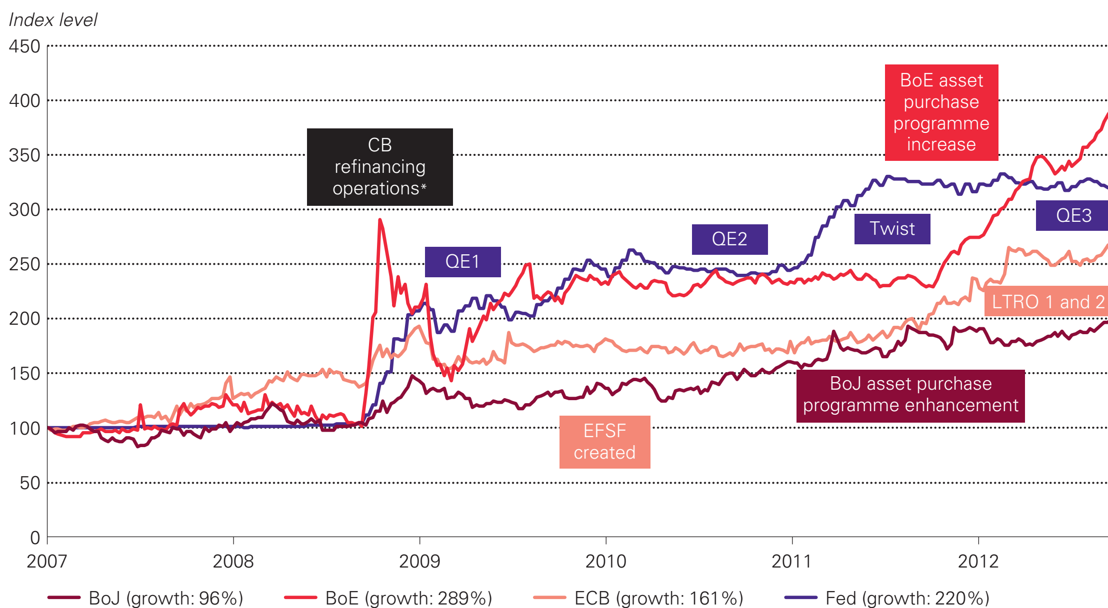
By the end of the quarter, gold was 11.1% higher, global equities finished up 6.2%, commodities were up 11.5% – the best performance since the first quarter of 2011 – and global bonds saw yields fall further and prices edge up 3.3%. Weakening economic data had finally spurred a concerted reaction by central banks, leading to a sharp rally in asset prices as the long wait for further easing came to an end.

[3] The US ISM survey has ticked up in September to 51.5, down from a high of 60 in January 2011.
[4] NBER definition of two consecutive quarters of negative growth.
[5] Gross debt reached 236% of GDP and the budget deficit 10% of GDP.

Rationale and effect of unconventional monetary policy

Universally, the motivation for UMP is the need to remedy anaemic economic activity in the face of fiscal restraint and already exhausted conventional monetary policy. Central bankers hope a policy of asset purchases will, in the short to medium term, lower borrowing costs and increase perceived wealth through rising asset prices. The weakening of a domestic currency would also be a welcome spur for the export sector. Using these motivations, central banks have undertaken unprecedented monetary policies since 2008 (Chart 3).

Chart 3: Central bank balance sheets have collectively expanded



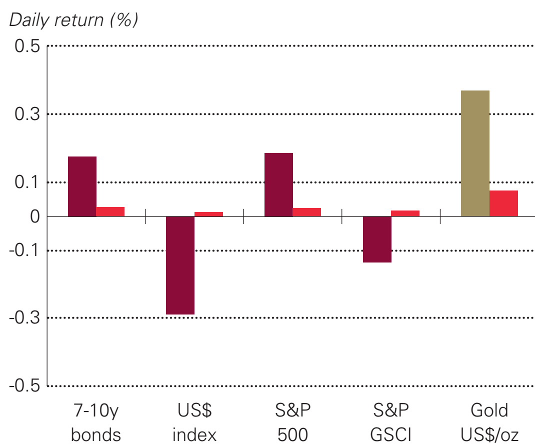
*Central banks collectively provided liquidity across various currencies and instruments.

Source: Bloomberg, World Gold Council

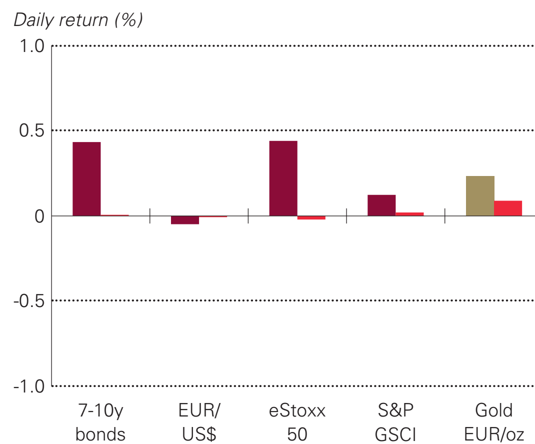
Despite the difficult environment for central banks, they have arguably achieved some successes in financial markets: as the Bank for International Settlements (BIS) asserts, “unconventional monetary policy likely helped prevent further catastrophe after the global financial crisis and helped secure liquidity in Europe during the peak of its crisis.”[6] These actions have, in aggregate, supported credit as well as equity markets (Chart 4). They have bought time for banks and governments to address solvency issues, lowered debt-servicing costs, and boosted asset prices and corresponding sentiment based on perceived wealth creation. However, few of these positive effects are directly linked to underlying growth.

Chart 4: Asset returns resulting from central bank actions

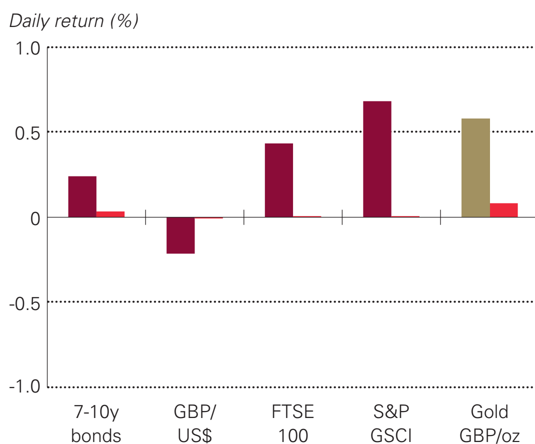
Fed action since the credit crisis



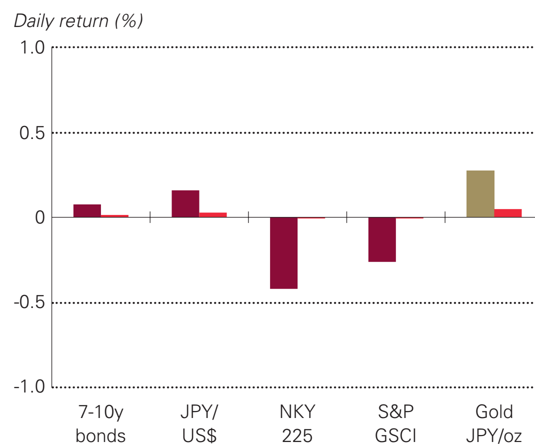
ECB action since the credit crisis



BoE action since the credit crisis



BoJ action since the credit crisis



■ Initial reaction (lhs) ■ Average daily return* (lhs)

*Average daily return is the average of all day’s returns excluding period of central bank announcements.

Source: Bloomberg, World Gold Council

Note: Market reactions measured over a three-day window from the day before the announcement to two days after. This is to ensure a long enough window to capture both the effect on assets and potential pricing of information prior to announcement.

[6] *BIS Annual Report 2011/2012*, Neely, Christopher J. *The large-scale asset purchases had large international effects*, 2012.

“Monetary policy is not panacea,” Fed Chairman Bernanke said during a Q&A session in June. There are a number of potentially negative consequences, including the returns for savers and shortfalls for pension and insurance funds, food price inflation, and ‘moral hazard’ in financial markets. These and other consequences are well documented.[7]

While the highlighted longer-term reaction of assets has largely followed expectations, as shown in Chart 4, there have been a few exceptions. Equities in Europe and Japan have fallen since the advent of UMP. In addition, strong initial responses to announcements of monetary policy – both initiations and extensions of programmes – have tended to fade. The FTSE 100 has gained a mere 2% since November 2008, despite positive jumps following announcements. Finally, the yen has disappointingly kept rising despite aggressive easing by the Bank of Japan, further hurting the critical export sector.

We may not know for some time if these untested central bank policies will work for the real economy. In fact, Bernanke, in his most recent speech at the Fed conference in Jackson Hole, said “In summary, both the benefits and costs of non-traditional monetary policies are uncertain; in all likelihood they will also vary over time depending on factors such as the state of the economy and financial markets, and the extent of prior Federal Reserve asset purchases.” Recent academic research supports this uncertainty of success and the fleeting impact of current measures.[8]

Unconventional monetary policy and gold

A common perception is that UMP has a singular effect that is reflected in gold price reactions – the rise in inflation risks. However, a closer look shows that unconventional policy affects gold through four principal channels. While these effects will to some extent be present in conventional policy easing, they are exaggerated by unconventional policy.

First, Inflation risk is understandably the strongest rationale for gold’s reaction to unconventional policy. There is a well-established relationship between the amount of money in an economy and the rate of inflation – whereby too much money chasing too few goods causes price appreciation. However, this is not a straightforward relationship, and inflation can be contained if economic growth keeps pace with money supply growth.

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[7] *BIS Annual Report 2011/2012,* White, 2012. *The unintended consequences of loose monetary policy.* Economist, *QE, or not QE?,* July 2012.

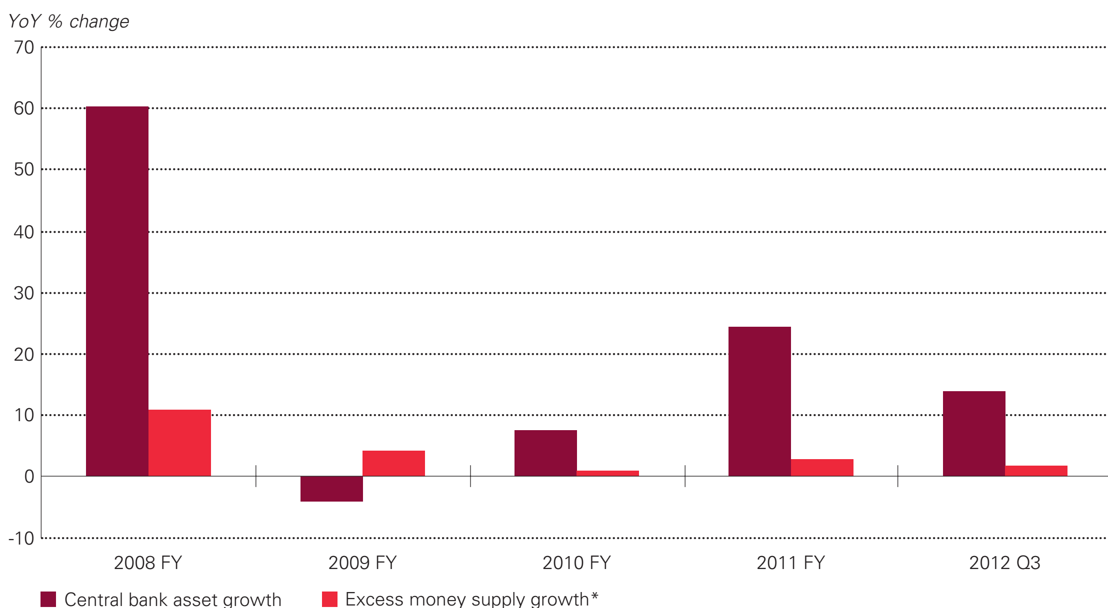
[8] Berkmen, S. *Bank of Japan’s quantitative and credit easing: Are they now more effective?;* Gambacorta et al. *The effectiveness of unconventional monetary policy at the zero lower bound: A cross-country analysis,* 2012. Kozicki et al. *Unconventional monetary policy: The international experience with central bank asset purchases,* Bank of Canada review, 2011.

Current unconventional policy has increased the monetary base in most countries without increasing the money supply (Chart 5). This is largely due to a tightening of commercial bank lending.[9] The distinction is important: a simple metaphor might be a cheque that is yet to be cashed. While recent evidence shows that central bank balance sheet expansion has not fed through to an increase in money supply growth, money supplies are likely to increase over the long-term when the liquidity in the system translates to private sector spending.

The increase in money supply could be a potential catalyst for higher inflation in the future – a likely positive for gold investment. Previous research by the World Gold Council shows that a 1% change in money supply, six months prior, in the US, Europe, India and Turkey tends to increase the price of gold by 0.9%, 0.5%, 0.7% and 0.05%, respectively.

This crisis has forced central banks to aggressively fight against the risk of deflation. While a deflationary spiral is the greatest tail risk for many of these central banks – even low levels of inflation and dis-inflation could be troubling given high public debt levels in most advanced economies. In this context many market participants speculate that central banks have actually increased their tolerance for inflation, exceeding target levels for brief periods of time to accelerate the deleveraging process. To this end, some point to Bernanke vowing to not withdraw stimulus "[prematurely]", suggesting an acceptance of higher inflation down the road. Similarly, the Bundesbank head, Jens Ulbrich, announced in May that a slightly higher inflation target could be accommodated.[10] While the inflation needle has yet to move, there appears to be a willingness to tolerate a higher rate of inflation in future to ensure the sustainability of fragile economic growth.

Chart 5: Money supply growth has not kept up with central bank asset purchases



*Figures aggregated for US, Japan, UK and Europe, in US$. Money supply growth in excess of GDP growth.

Source: Bloomberg, World Gold Council

[9] Under the 'transaction' motive of money, nominal GDP equates to demand for money.
[10] *Bundesbank prepared to accept higher inflation,* Spiegel online, May 2012.

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In summary, while inflation is to many investors a primary concern, it is still some way off. The near term threat of deflation remains real, and as long as central banks are willing to resort to unconventional measures, this will imply that the deflationary threat has not disappeared.

Research by Oxford Economics shows that both inflationary and deflationary environments could be conducive to gold investing. While gold's performance during periods of high inflation is well understood, the deflationary environment is less understood. Using its global macro-economic model, Oxford Economics found that despite currency related headwinds, a deflationary environment would prove destructive to risk assets such as equities and housing, with gold outperforming.

Second, closely linked to the inflation effect is the impact that unconventional policy has on currencies. Although seldom explicitly stated, a weaker currency is a desirable outcome for most economies in the current environment. As global trade slows, a weaker currency becomes all the more important to maintain export competitiveness. While the term 'competitive devaluation' may be a little dramatic, the problems of currency strength are evident.

If a desired indirect effect of expansionary monetary policy is a weaker currency to promote export-led growth, then at least on that front, central banks like the BoJ and the Swiss National Bank (SNB) have not succeeded. Both the BoJ and SNB have had to resort to several episodes of intervention to prevent their currencies from rising too quickly. Elsewhere, countries have voiced their concerns over the ramifications of UMP. Sweden's Riksbank will be monitoring the exchange rate closely after posting an "unexpectedly" rapid appreciation in Q3.[11] The Norwegian sovereign wealth fund has been selling the krone to counter investment flows, and the central bank has not ruled out currency intervention to maintain its inflation target.[12] Most recently, Brazil's finance minister, Guido Mantega, expressed anger at the Fed over QE3, which he termed a "protectionist" move.[13] Given that gold is typically transacted using its US-dollar price as reference, it naturally provides a hedge against an investor's concern over domestic currency debasement; this is especially true for US dollar-based investors who typically see a negative correlation between the US dollar and gold.

Third, the willingness of central banks to engage in protective strategies provides an implicit 'put' option – an implied guarantee to prevent precipitous falls in asset prices. This, however, raises the risk of undermining the efficient flow of capital, which could foster new and dangerous imbalances in the global economy. By vowing to intervene to prevent slides, some of the tail risk has undoubtedly been removed in the short term. However, by extension, the distortion created by intervention can have a longer term impact on tail risks by incentivising credit buildups and the inefficient allocation of capital to firms and households at an artificially low interest rate.[14]

[11] Minutes of the (Riksbank) monetary policy meeting, September 2012.
[12] "Norway won't tolerate persistent Krone Gains, Qvigstad says", Bloomberg, August 2012.
[13] Financial Times, September 2012.
[14] Reinhart and Reinhart. *After the fall*, 2010. Jorda et al. *When credit bites back: leverage, business cycles, and crises*, 2012.

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With increased tail risk looming in the longer term, investors need to take these rallies in financial markets with caution. As investor sentiment on the efficacy of central bank policy changes, equity markets might give away some of the central bank-led gains. During times of crisis and sharp market pullbacks, gold has proven to be an effective diversifier. Research shows that gold could play a role as a tail risk hedge by protecting investors against falls in equity and credit markets.

Fourth, an environment of unprecedented low interest rates – negative in real terms – can greatly impact savers and investors. In our Q2 commentary, we discussed the skewed risk/reward scenarios that investors face in such low-rate environments. One motivation for unconventional policy, to further depress interest rates, stems from the belief that households will increase their expenditures. However, prudent households will have to save greater sums of money to pay future obligations in a low interest rate environment. The almost universally negative real savings rates in developed countries are likely to see a shift of saving to real assets that will provide long-term real security.

In addition, the relatively higher real rates across emerging markets are attractive for investment flows into those countries from western investors as risk adjusted returns appear more favourable. Developed market currency weakness amplifies the attraction of emerging market investment. Flows of capital to emerging markets have a clear impact on wealth creation – a principal driver of gold demand in emerging countries.[15]

Conclusion

Most central banks currently view their country's economic state as unacceptable and have acted to accelerate the economic recovery. However, there are many obstacles facing developed countries that will force central banks to continue their unconventional monetary policies. In the US, the Fed is motivated by the ailing labour and housing markets and would like unemployment and inflation to be closer to normalised levels. The market expects partial normalisation to begin around mid to late 2014, though if Japan were to be used as a guide, a prolonged period of subpar performance may lie in store. BoJ's policies have set a precedent in unconventional monetary policy duration as they are now in their 12th year. The ECB is caught between regional recession coupled with fiscal austerity and a prolonged period of intervention before growth and price stability are restored to a consistent path.

The backdrop of negative real yields, a slow recovery and a likely continuation of expansionary monetary policies – with all the risks these present – provides further support to the long-term strategic investment case for gold.

[15] World Gold Council, *India: heart of gold: strategic outlook.* World Gold Council, *China gold report: gold in the year of the tiger.*