WORLD GOLD COUNCIL

Gold and currencies:
the evolving relationship with the US dollar

About the World Gold Council

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

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

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

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

For more information

Please contact Investment Research:

Juan Carlos Artigas
juancarlos.artigas@gold.org
+1 212 317 3826

Johan Palmberg
johan.palmberg@gold.org
+44 20 7826 4773

Boris Senderovich
boris.senderovich@gold.org
+1 212 317 3882

Marcus Grubb
Managing Director, Investment
marcus.grubb@gold.org
+44 20 7826 4724

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Contents

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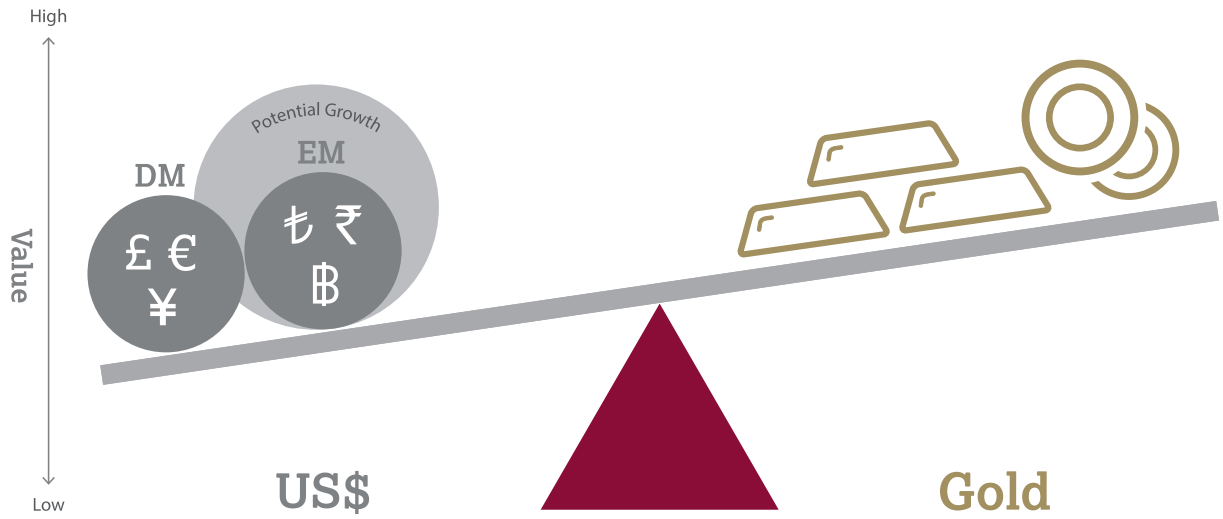
This also featured:

– Why invest in gold?
Gold's role in long-term strategies

Gold and currencies: the evolving relationship with the US dollar

For centuries, gold has played integral roles in the monetary system as a unit of exchange and a monetary anchor. While gold's official role has diminished under the existing system of floating exchange rates, it has retained several currency characteristics. As such, gold acts as a natural hedge to the US dollar – the world's reserve currency – and it is significantly influenced by it. Investors use gold as they seek the safety of supply-constrained hard assets, especially as governments implement inflationary policies. Central banks use gold no differently: they view it as an integral part of their foreign reserves, providing diversification and buffering geopolitical and sovereign risks. Looking forward, as the monetary system likely evolves into a multi-currency platform, gold will remain a key asset to balance the risks present in fiat currencies.



The link between gold and currencies

Gold is driven by seven interrelated global themes. This article focuses on the currency theme.

In *What drives gold? Gold Investor Volume 3,* we introduced a framework based on seven interrelated global factors that influence gold's performance, namely: currencies, inflation, consumer spending and income growth, systemic risks, interest rates, short-term flows and tactical positioning, and supply-side drivers. This framework allows investors to understand gold's behaviour as a function of the individual dynamics of these variables as well as the interrelationships among them. In this article, we focus our attention on the relationship between gold and currencies.

Gold is influenced by three currency-related elements:

- **The value of the US dollar vis-à-vis other currencies.** As gold is usually traded relative to its US-dollar price, the value of the dollar has a meaningful impact on gold. More importantly, gold is viewed (and used) as a natural hedge to the US dollar as it is not directly linked to the monetary or fiscal policies of a particular government. This characteristic strengthens their inverse relationship.
- **The stock of global money supply.** When the global money supply increases in excess of the rate required by global growth, inflationary pressures mount: more money chasing fewer goods, services and assets. This is likely to cause inflation and currency debasement, leading to increased interest in hard assets like gold (see *Linking global money supply to gold and to future inflation,* February 2010).
- **Gold's role in foreign reserves.** Because the US dollar is the primary currency used in global transactions and is seen as a stable and reliable unit of exchange, countries aim to have ample reserves to be able to meet their US dollar denominated liabilities. As such, the dollar forms the lion's share of foreign reserve portfolios. However, governments need to manage the concentration risk in their reserves by diversifying into high quality, liquid assets that lack credit risk – like gold.

The value of the US dollar is the factor that most influences the gold price.

While all these elements are very influential in the gold market over the long run, the fluctuation of the US dollar is one of the most important drivers in the short-term. Tactically, the US dollar is used by traders as a high frequency indicator to guide their positions in the gold market. Over the long term, however, a protracted devaluation in the US dollar showcases the value of hard currencies such as gold.

Gold: currency or commodity?

Gold is characterised as both a commodity and a currency…

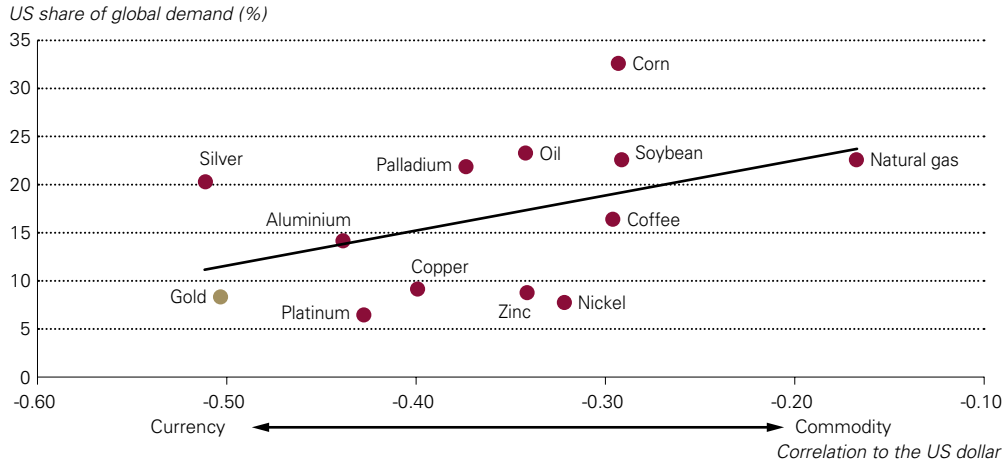
Gold is one of the few assets labelled as both a currency and a commodity. It is sought after by jewellers and designers as a metal with unique physical properties, and it is used as a store of value and unit of exchange by investors and central bankers. This duality as a commodity and a monetary asset is what makes gold truly unique. And while gold is included in commodity indices and studied by many commodity experts, in reality, it is traded alongside major currencies and its characteristics closely resemble them.

Indeed, the Bank for International Settlements (BIS) stated in its 2013 annual report that "gold is to be dealt with as a foreign exchange position rather than a commodity because its volatility is more in line with foreign currencies, and banks manage it in a similar manner to foreign currencies".[1]

…two traits that are responsible for its strong inverse relationship with the US dollar.

Commodities are broadly used, uniform materials that serve as an input to the production of other goods or services. As such, gold shares some economic characteristics with the broader commodity complex, including a negative relationship with the US dollar. The reason behind this relationship is quite simple: the incremental demand resulting from a weaker dollar, originating from non-US buyers, should have a positive impact on commodity prices. However, as discussed in *Gold: a commodity like no other*, gold investment related sources of demand produce a unique behaviour. Gold's strong inverse relationship to the US dollar – the strongest of all commodities (**Chart 1**) – is in part driven by a large portion of demand (c. 90%) coming from outside the US, but also by its use as an alternative currency and a US dollar hedge.

Chart 1: Gold has one of the strongest inverse relationships with the US dollar, partly driven by the US share of global gold demand and gold's quality as a currency



Reference notes are listed at the end of this article.

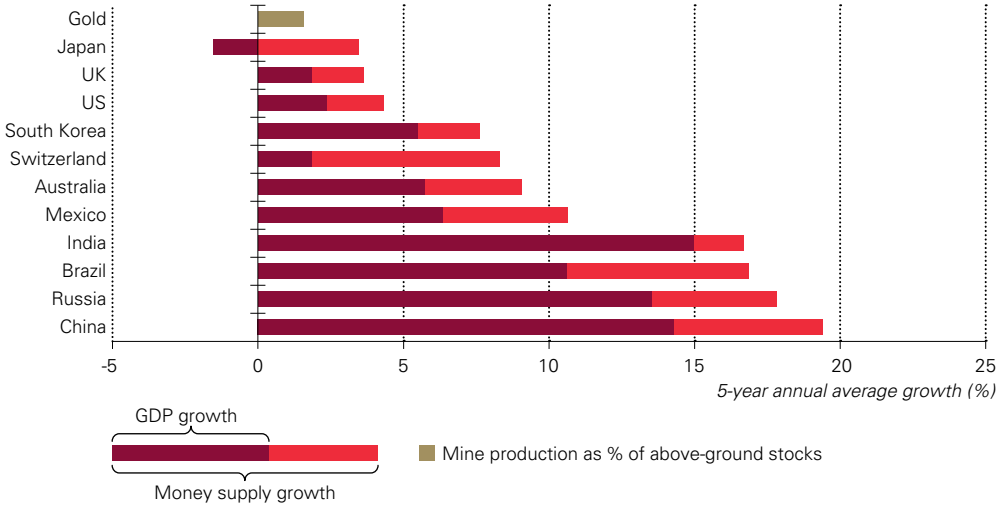
Source: Bloomberg

1 BIS, *83rd annual report*, June 2013.

Part of gold's value is derived from its geological scarcity.

Indeed, gold's geological scarcity and its physical qualities as a virtually indestructible element make it a natural hedge to paper currencies (**Focus 1**). Gold's steady growth in above ground stocks of less than 2% per year is significantly lower than the supply growth experienced by other major currencies (**Chart 2**). Money supply is not naturally constrained because of monetary policies; meanwhile, part of gold's value as a hard asset is derived from its lack of supply growth. In other words, it is linked to investors' trust (or lack thereof) in the ability and willingness of a government to fulfil its obligations. As such, gold becomes especially attractive when confidence in fiat currencies declines.

Chart 2: Gold's supply growth pales in comparison to that of fiat currencies



Source: Bloomberg

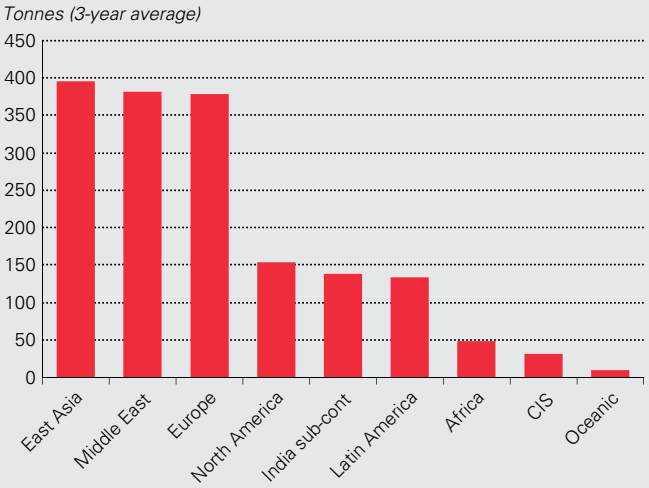
Focus 1: What makes gold a currency?

Gold satisfies many characteristics that define a currency, including its use as a unit of account, store of value and medium of exchange.

- **Unit of account (convertibility):** Gold is traded 24/7 around the globe in all of the major trading hubs. Its active and deep market provides an effective clearing mechanism for transactions all over the world. It is widely recognised as a high-quality and liquid asset.[2] Few hard assets can be converted to local cash as easily as gold, even when it is in the form of jewellery (**Chart 3a**).
- **Store of value:** Gold is a virtually indestructible non-corrosive metal, making it an ideal vehicle for preserving wealth. In fact, it has served this function over the course of human civilisation, protecting against inflation and currency devaluations.
- **Medium of exchange:** While gold is not an official currency, it can be used to purchase goods and services in many parts of the world. It buys houses in Vietnam and chickens in Malaysia.[3] It is accepted as legal tender in some regions[4] and the subject of increasing interest as an alternative currency in places like Switzerland and Mexico.[5]

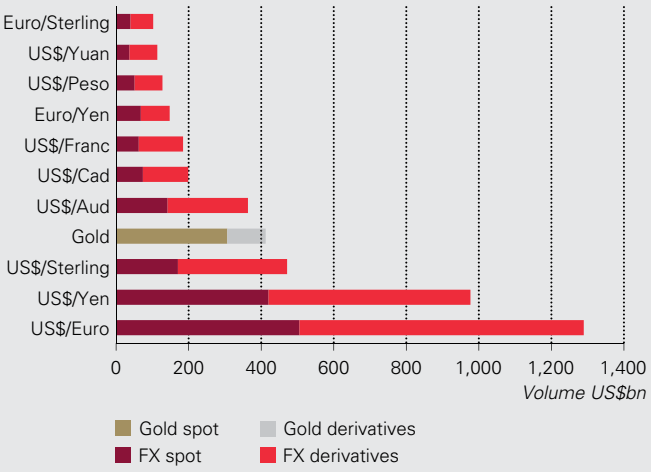
In addition, gold is a highly liquid asset, with daily trading volumes comparable to major currency pairs such as the US dollar-pound sterling, and is only eclipsed by US dollar-yen and US dollar-euro transactions (**Chart 3b**). Further, a large share of gold trading is made in physical form (non-derivative), which reduces its fluctuations especially when compared to commodities that are mostly traded through derivatives markets.

Chart 3: (a) The sources of recycled gold are geographically diverse; (b) gold's daily volumes are comparable with some of the most liquid exchange rates



Note: Reference notes are listed at the end of this article.

Source: Thomson Reuters GFMS, World Gold Council



Source: BIS, LBMA, World Gold Council

2 World Gold Council, *Liquidity in the global gold market,* April 2011.

3 Dr Olivier Ledoit, LBMA, *Alchemist 69,* January 2013.

4 Wall Street Journal, *Utah doubles down on gold laws amid inflation fears,* April 2011.

5 Dr Olivier Ledoit, LBMA, *Alchemist 69,* January 2013.

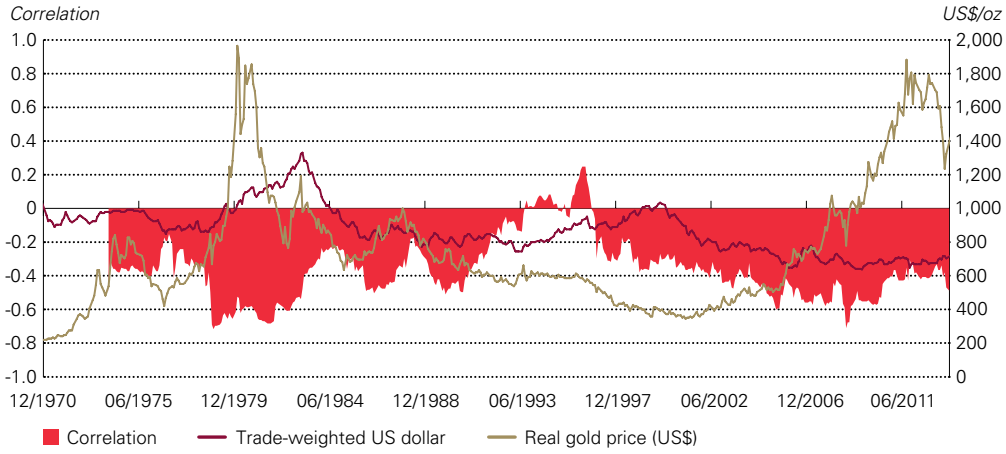
Gold's relationship to the US dollar

Gold has had a consistently negative correlation to the US dollar since the 1970s.

Once we have established gold's role as a currency, we look at its particular relation to the US dollar exchange rate. The value of the US dollar should not be seen in relation to a single currency, but relative to its broader performance against all currencies (eg, the US trade-weighted dollar index). Using this as a proxy, gold has had an average correlation of approximately -0.4 to the US dollar since the 1970s – the period that marked the beginning of a floating gold price. As such, gold has provided a consistent hedge against the US dollar, helping investors preserve purchasing power (**Focus 2**).

While the average correlation between gold and the US dollar exchange rate has been relatively strong, there have been periods when the relationship has weakened, particularly in the mid-1990s (**Chart 4**). This period of lower than usual correlation coincided with lower inflation and a stronger US dollar, reducing the demand for inflation protection.

Chart 4: Gold is negatively correlated with the trade-weighted US dollar

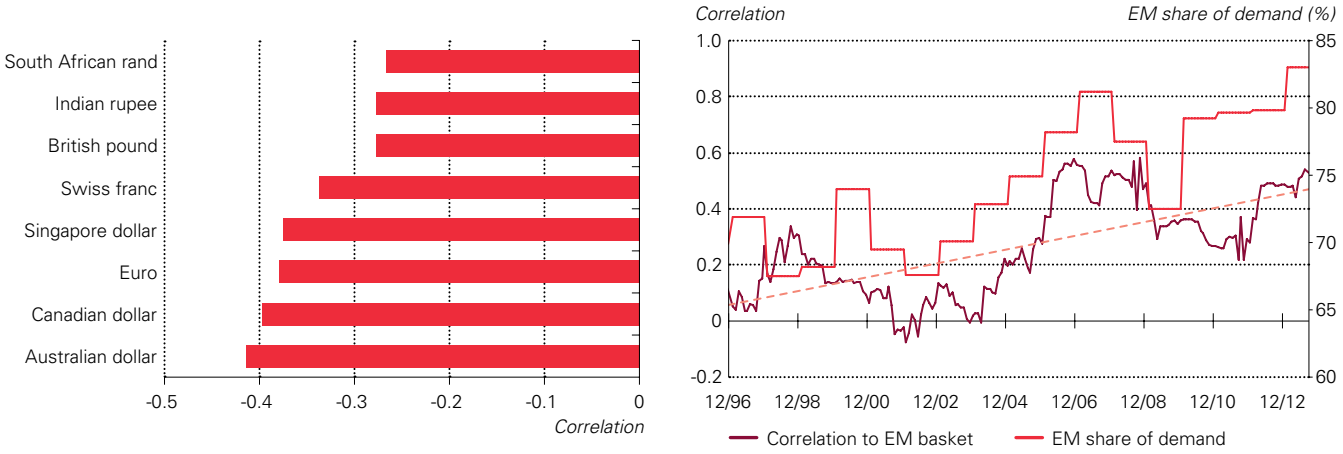


Source: Bloomberg

Gold has a strong relationship to currencies that are linked to sources of demand and supply with EM becoming a more influential component.

Seen individually, gold has a particularly strong relationship to some US dollar-foreign currency pairs (**Chart 5a**). Linked to their global weight as commodity producers, the currencies of Australia and Canada exhibit the strongest inverse relationship with the US dollar. Other relevant currencies for gold include the Indian rupee, South African rand, British pound, Swiss franc and the Singapore dollar also have a relative strong inverse correlation. Representing an increasing share of gold supply and demand, emerging market (EM) currencies are forging stronger links with the price of gold (**Chart 5b**).

Chart 5: (a) Gold is inversely correlated with several dollar-currency pairs; (b) gold's correlation to EM currencies has increased with EM's share of global gold demand



Source: Bloomberg

Focus 2: Do international investors benefit from gold's currency hedging qualities?

US investors are not the only ones that benefit from gold's currency hedging qualities. An allocation to gold, while being denominated in US dollars, represents an implicit exposure to a foreign currency, providing international investors with protection against falls in their local currency. While gold is not the only asset that exhibits this type of behaviour, many governments restrict or even prohibit individuals from owning foreign-denominated assets as part of capital control policies. Gold is not usually included in this list.

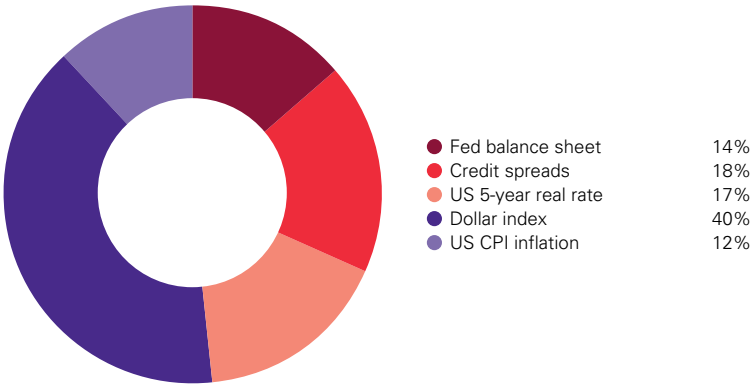
The relevance of the US dollar in explaining gold price fluctuations

As influential as the US dollar can be to gold prices, as seen by their strong inverse correlation, it needs to be studied in the context of other drivers that determine gold's performance. How these factors interact is arguably more important than their individual behaviour.

The value of the US dollar is a more significant variable, by a wide margin, than the size of the Fed's balance sheet, US real rates, CPI or credit spreads.

In its paper, *The impact of inflation and deflation on the case for gold,* Oxford Economics presented a model that explained gold's long-term performance using five primary macroeconomic variables: the size of the Fed's balance sheet, the value of the US dollar, the US consumer price basket, credit spreads and the US 5-year real rate. As discussed in *Gold and US interest rates: a reality check, Gold Investor Volume 3,* the US dollar has the most persistent significance in explaining long-term gold fluctuations. Indeed, using quarterly data from Q3 1976 to Q1 2013, we re-estimated the model and found that the US dollar has at least twice the significance of any of the other long-term macroeconomic variables (**Chart 6**).

Chart 6: The dollar has more influence on gold prices than other macro variables



Reference notes are listed at the end of this article.

Source: Oxford Economics

Focus 3: Gold, the US dollar and purchasing power

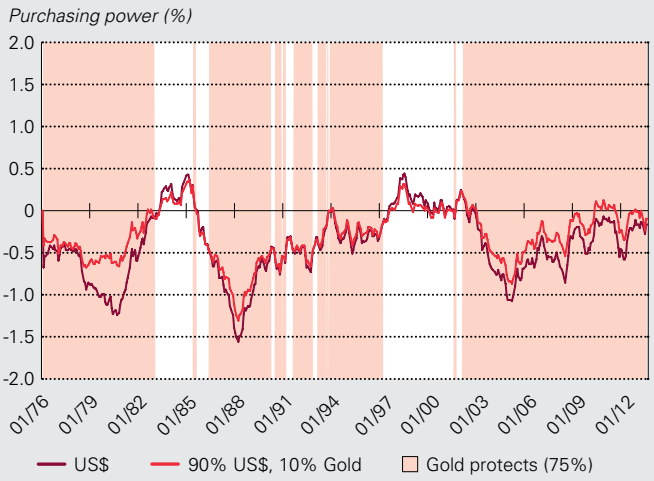
Gold preserves purchasing power (and investors' wealth) by virtue of its strong inverse relationship to the US dollar and its role in hedging long-term inflation. In *Gold and currencies: protecting purchasing power*, we showed that the long protracted devaluation of the US dollar in real (inflation-adjusted) terms, such as the one that we have seen over the past 15 years, indicates an erosion of purchasing power – even for those individuals who do not have direct foreign currency liabilities.

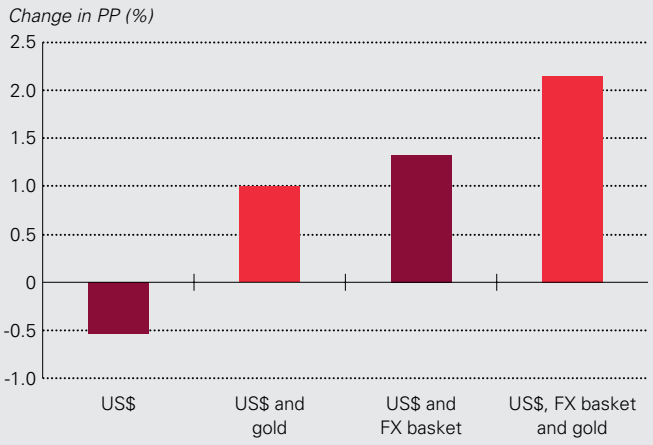
As the purchasing power parity framework explored in the paper shows, the long-term depreciation of a currency (as indicated by its real effective exchange rate) implies that individuals experience inflationary pressures even when traditional measures such as the consumer price index (CPI) are muted. In other words, an extended fall in a currency reflects a capital flight from a country with more expensive goods and services into countries with cheaper goods and services. As freely-floating assets, currencies have the potential to reflect more information than static, survey-based and methodology-changing consumer price baskets.

Chart 7a shows that for the majority of the period from 1976 to today (about 75% of months considered), gold was able to reduce the loss in purchasing power of US$ holdings. In many instances this outperformance was very significant, especially during the high inflation periods of the late 1970s, early 1980s and during the period of dollar devaluation in the 2000s.

But investors could also preserve their 'global' purchasing power by buying a basket of currencies to diversify the potential risk of holding only US dollars. Our research showed that while holding a diversified basket of currencies helped, adding gold to such basket was even more efficient, increasing purchasing power and reducing risk (**Chart 7b**). Further, even if other assets such as stocks, bonds, real estate and commodities were taken into consideration, having a currency basket that included gold improved the long-term performance of the portfolio.[6] In fact, assets such as short- and long-term government bonds, typically deemed virtually 'risk free', are less effective in protecting against the loss of purchasing power when the impact of inflation and currency fluctuations is taken into consideration.

Chart 7: (a) Gold has protected against losses in purchasing power over time; (b) gold helps preserve the purchasing power of a portfolio





Reference notes are listed at the end of this article.

Source: Bloomberg, World Gold Council

6 This analysis scaled all asset returns by fluctuations in the dollar's real effective exchange rate. The optimal allocations to gold maximise portfolio returns net of the historical loss in purchasing power. In other words, these portfolios are taking into consideration the effect of inflation and currency devaluation together.

Trends into the future: gold's potential role in the monetary system and its evolving relationship with the dollar

The state of the US dollar

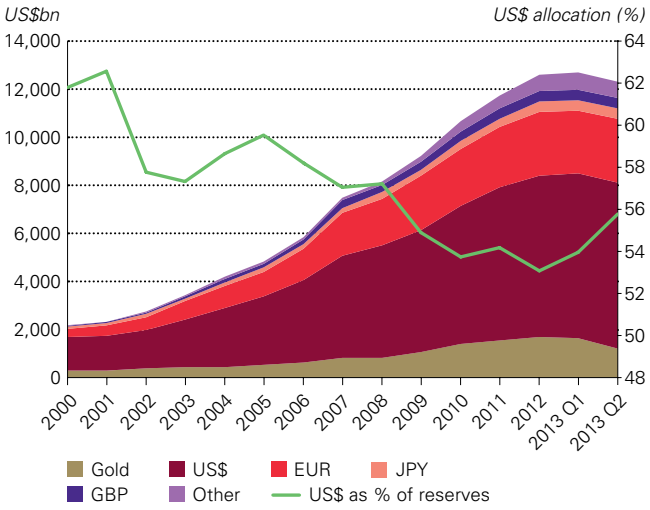
The purchasing power of US investors has eroded over the past four decades. In fact, they lost almost 80% of their purchasing power to inflation and another 30% to a protracted devaluation of the US dollar.[7] And while the US dollar will continue to be one of the most (if not the most) relevant currencies, many economists expect the US dollar to be challenged in the longer term by EM currencies. Market consensus forecasts indicate US-dollar depreciation against 14 out of the 27 major currencies including the Chinese yuan, Australian dollar, Mexican peso, Singapore dollar and Korean won by 2016.[8]

Bearish views on the US dollar are supported by weak fundamentals that will influence the dollar in the long term.

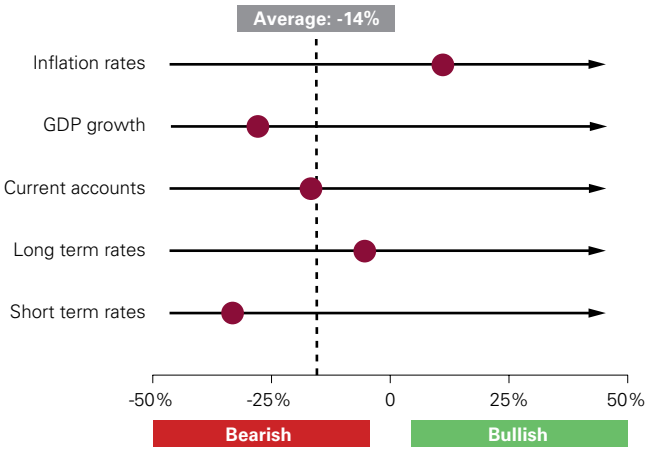
More importantly, these bearish views are firmly supported by weak fundamentals. Traditional currency drivers indicate a bleak outlook for the US dollar (**Chart 8**).[9] Relative GDP growth, current account deficits and short- and long-term interest rates suggest that the dollar is poised for a decline. The relatively lower US inflation rate is the only factor that appears to be in favour of dollar strength.

These trends are likely to continue as deficit spending continues in the face of a low-rate, low-growth environment. While technical factors, including momentum and investment flows, drive the US dollar in the short term,[10] fundamental factors have more influence over the long run. In light of these developments, reserve asset managers have decreased their US dollar allocation considerably, from 63% in 1999 to 53% in 2012.

Chart 8: (a) US$ allocations in reserve portfolios have fallen; (b) the US$ appears to be fundamentally weak



Source: IMF COFER, IMF IFS, World Gold Council



Source: Bloomberg, Economist

7 1971 is the year in which the dollar began to trade as a free floating currency. These figures are based on a increase in the US CPI and the % return of the trade-weighted dollar index.

8 Consensus forecast for currencies is sourced from Bloomberg.

9 Bloomberg data was used to rank the US against other countries within the above mentioned seven factors.

10 Technical analysis typically refers to charting patterns and other elements of price behaviour that some observers claim are likely to influence future price fluctuations.

The emergence of other currencies

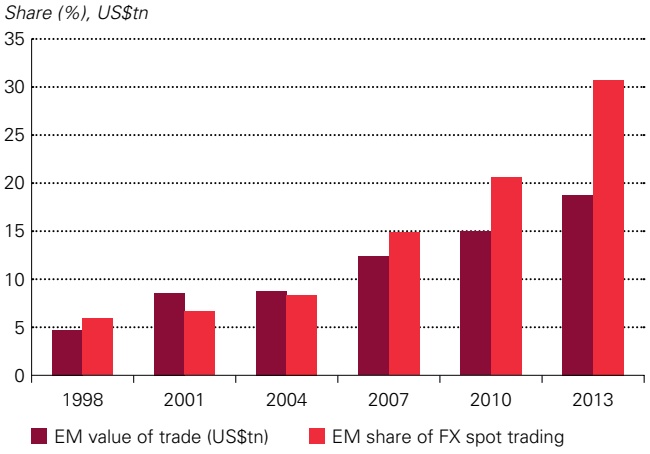
The recent growth in emerging markets has led to increased interest in their currencies.

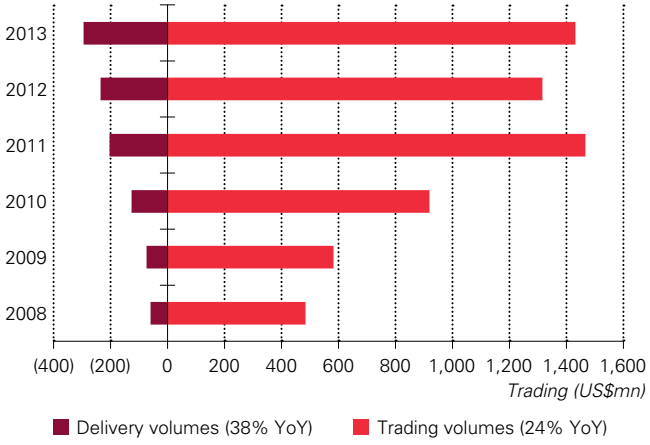
The unprecedented growth of emerging markets, coupled with the decline in the US dollar over the past decade, has led many policy makers to consider whether EM currencies should play an increasing role in the global monetary system. In its paper, *Gold, the renminbi and the multi-currency reserve system,* the Official Monetary and Financial Institutions Forum (OMFIF) observed that the ongoing internationalisation of the renminbi will add an additional currency to the reserve system. As emerging markets continue to capture an increasing share of global trade, their currencies will likely acquire a bigger share of reserve portfolios. Over the past 15 years, the growth of emerging nations' international trade activity has translated into an increased use and liquidity in their currency (**Chart 9a and 9b**).

As EM currencies become more relevant in the monetary system, they will have a stronger influence on assets like gold.

The trend of internationalisation has also been seen in the gold market. With investment gold increasingly flowing towards the East, emerging markets are likely to overtake developed markets in their gold ownership in the not too distant future. Recent trends indicate that an increased proportion of gold demand is coming from developing economies and that trading hubs in Shanghai, Hong Kong, Singapore, Mumbai and Istanbul are drawing liquidity away from the traditional US dollar-dependent New York and London markets. For example, the Shanghai Gold Exchange has grown tremendously since its founding in 2002, expanding its trading volume at a 24% CAGR and increasing delivery volume at 38% CAGR in the past five years. As this trend develops, the direction and fluctuations of the Chinese yuan will likely have a material influence on gold prices in years to come.

Chart 9: (a) Emerging market FX spot volume has increased together with EM participation in global trade; (b) the Shanghai Gold Exchange has experienced tremendous growth in trading





Reference notes are listed at the end of this article.

Source: Thomson Reuters, Bloomberg

Source: Shanghai Gold Exchange

As the world moves towards a multi-currency reserve system, gold will play an important role as a foundation asset that diversifies risk. As more currencies are included in the reserve system, gold's relationship with other currencies will likely evolve. It is likely that gold will retain its generally negative relationship with the US dollar, but it will also serve as a hedge against all fiat currencies.[11] Gold will retain its quality of being a hard asset without being anyone's liability, and it will remain a buffer against geopolitical uncertainty.

11 OMFIF, *Gold, the renminbi and the multi-currency reserve system,* January 2013.

Conclusion

Gold has played a prominent role in the monetary system throughout history. In the current system of floating exchange rates, gold continues to be seen as a monetary asset. It provides a natural hedge against currency devaluation, and it plays a role as a foundation of foreign reserves. These characteristics are so prevalent that gold behaves more like a currency than a commodity and is treated like one by investors, analysts, central bankers and regulators alike. As the monetary system evolves to make room for alternative reserve currencies, gold will have a growing prominence as a balancing mechanism against the risks inherent in fiat currencies.

References

Chart 1: Gold has one of the strongest inverse relationships with the US dollar, partly driven by the US share of global gold demand and gold's quality as a currency

Correlations are computed using 10 years of weekly commodity data. For commodities, spot indices were used unless unavailable in which case front month futures total return indices were used. Demand was computed using 10 years of annual global demand data.

Chart 2: Gold's supply growth pales in comparison to that of fiat currencies

The entire bar represents money supply growth, while the first part of the par represents GDP growth. The second half of the bar reflects additional money supply growth not accounted for by GDP growth. Money supply growing in excess of GDP growth could lead to inflation and/or currency devaluation. In Japan's case, the GDP growth is negative and thus excess money supply appears to be larger than overall money supply. Money supply growth was computed using a broad money aggregate that includes M0, M1, M2 and M3. Growth in gold supply was computed by averaging yearly increases in the above ground stock of gold resulting from annual mine production.

Chart 3: (a) The sources of recycled gold are geographically diverse; (b) gold's daily volumes are comparable with some of the most liquid exchange rates

(a) A three year average of annual recycled gold supply was used for the computation. Europe includes western European, eastern European and Nordic countries. North America includes the US and Canada. Latin America includes South American countries, Mexico and the Caribbean. Middle East includes all countries in the region plus Turkey. The Indian subcontinent includes India, Afghanistan, Pakistan, Bangladesh and Sri Lanka. East Asia includes Japan, Greater China and all the countries in Southeast Asia. CIS represents Russia and other former Soviet Republics. Oceanic region includes Australia. The majority of recycled gold is sourced from jewellery and the rest from technological components.

(b) Spot transactions include only physical transactions for gold and cash transactions for foreign exchange. Derivatives include futures, forwards, options, swaps and etc. Foreign exchange data was sourced from a BIS survey of dealers during April 2013. For consistency, LBMA turnover, COMEX volume and other gold related data from April 2013 was used.

Chart 4: Gold is negatively correlated with the trade-weighted US dollar

Correlations are computed using the nominal gold price and the trade-weighted dollar index as reported by the Federal Reserve. Correlation was computed using rolling 36-month data. The real gold price was computed using nominal gold prices adjusted by the US CPI index.

Chart 5: (a) Gold is inversely correlated with several dollar-currency pairs; (b) gold's correlation to EM currencies has increased with EM's share of global gold demand

(a) Correlation was computed using monthly return from 1993 to 2013. All currencies listed on the y-axis were measured against the US dollar.

(b) Emerging market share of demand was computed using quarterly demand figures from Thomson Reuters GFMS. Half of demand that was categorised as 'other' was assumed to originate from Emerging markets. Correlations were computed using monthly data from 1993 to 2013.

Chart 6: The dollar has more influence on gold prices than other macro variables

These figures are a comparison of t-statistics of individual macro-economic variables that were used in the gold model developed by Oxford Economics for the paper entitled 'the impact of inflation and deflation on the case for gold'. Other variables were included in the model including lagged values of the gold price and an error correction term. The dollar was the most significant variable out of all the macro-economic variables selected as measured by its t-statistic. The model used quarterly data from 1976 to 2013.

Chart 7: (a) Gold has protected against losses in purchasing power over time; (b) gold helps preserve the purchasing power of a portfolio

(a) Purchasing power is measured by increases in US CPI inflation and declines in the trade-weighted US$. The US$ line represents a non-interest bearing cash position. The gold line represents a 90% allocation to a non-interest bearing cash position and a 10% gold position. Gray areas denote instances when gold was able to improve investor's purchasing power.

(b) This chart illustrates the purchasing power of several portfolios in real effective terms. The US dollar real effective exchange rate was used for the US$ holdings. This chart compares the purchasing power of a US$ cash holding to a US$ cash and gold holdings to US$ cash and foreign currency holding to a US$ cash, foreign currency and gold holding.

Chart 8: (a) US$ allocations in reserve portfolios have fallen; (b) the US$ appears to be fundamentally weak

(a) US$ as a % of foreign reserves is computed using quarterly data of US$ denominated holdings as reported by the IMF against total foreign reserves (including gold).

(b) The US was ranked against 20 other countries/regions with a distinct currency. Values shown are derived from the US ranking against 20 other countries in inflation rate, GDP growth, current account deficit, long term interest rates and short-term interest rates.

Chart 9: (a) Emerging market FX spot volume has increased together with EM participation in global trade; (b) the Shanghai Gold Exchange has experienced tremendous growth in trading

(a) Emerging market share of FX spot trading was sourced from the BIS survey of dealers. EM value of trade includes, exports, imports and re-exports by emerging market countries as any type of trade flow leads to a foreign currency transaction.

(b) Trading volumes represent volumes across all gold-related products that are traded on the SGE. Delivery volumes only include those transactions that lead to a physical delivery of a bar. The Shanghai gold exchange includes several products including 50 gram, 100 gram, 1 kg, 3 kg and 12.5 kg physical bars and gold forwards.

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World Gold Council
10 Old Bailey, London EC4M 7NG
United Kingdom

T +44 20 7826 4700
F +44 20 7826 4799
W www.gold.org

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