

Gold as an inflation hedge may be over priced.

## INFLATION AND THE "GOLDEN CONSTANT"

by Daniel P. Collins

Gold is one of the most interesting markets to follow because for some it is a commodity with a set of specific fundamentals and for others it is a currency, with a completely separate set of fundamentals and for others it is simply a store of value—a means to measure true value in the age of fiat currencies.

In fact for much of history gold was simply money, a standard for which currencies were measured. Since the price of gold was allowed to float after the breakdown of the Bretton Woods agreement in 1975 and currencies were no longer tied to gold, gold has been viewed by many as

the ultimate inflation hedge.

Gold spiked above \$800 per ounce in the inflationary late 1970s and early 1980s. The recent bull market in gold coincided with the return of deficit spending in the early 2000s and went into hyper drive after the extraordinary stimulus from the Federal Reserve and bouts of quantitative easing — which many analysts saw as out right money printing — following the 2008 credit crisis, which was seen as inflationary.

In a 2012 white paper titled "The Golden Dilemma," Claude B. Erb and Campbell R. Harvey explored the relationship between the inflation adjusted price of gold and

future real gold returns.

In the paper Erb and Harvey identified a "Golden Constant," which posits that inflation is the fundamental driver of the price of gold and while gold is subject to volatility and prices can fluctuate, it will return to their mean value based on inflation.

In a more recent white paper, "The Golden Constant," Erb and Harvey assert that based on the Golden Constant theory, the average yearly real return on gold over the next decade would be -3% and could be as low as -11% if future sell-offs overshoot as has been the case in past volatile markets.

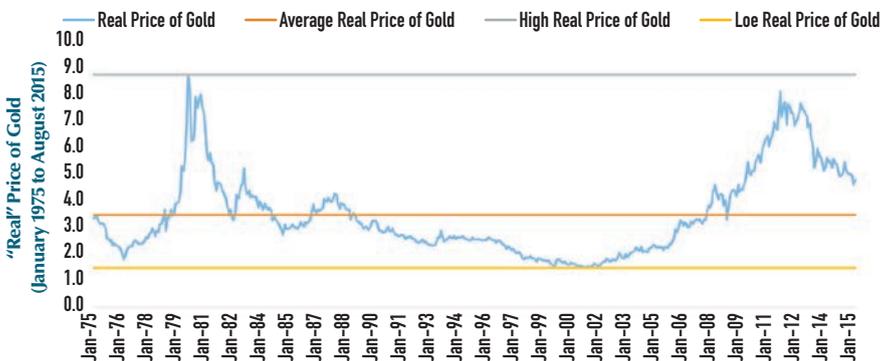
"In both papers we explore a frequently mentioned belief that gold is an inflation hedge. Starting with the view that it is hard to prove a vague theory wrong, we specifically examine the historical relationship between the price of gold and the observed level of a widely used inflation index (U.S. consumer price index), Erb says." Based on the historical relationship between realized inflation we arrived at a fair value price of gold of about \$825 an ounce."

They arrived at the \$825 by calculating the answer to what the price of gold would be if the average price of gold relative to inflation were constant.

"Real value," (right) shows a gold chart from 1975 when gold futures contracts began to trade and creates a basis to measure the average price on a 10-point scale.

### REAL VALUE

This shows a gold chart with its average price, low and high.

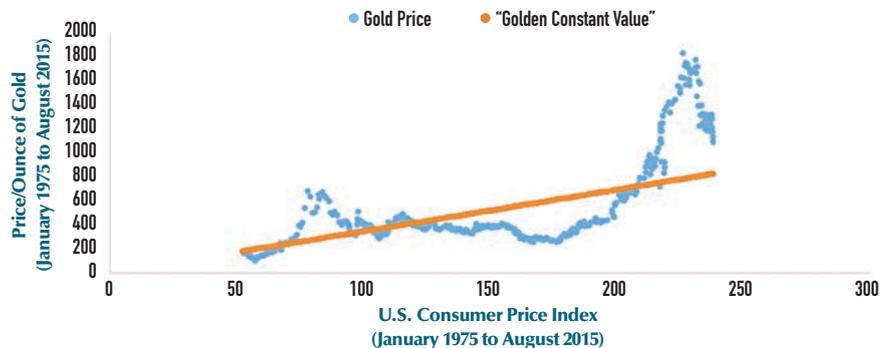


Note: Bloomberg data. The "real price of gold" is the U.D. dollar price of an ounce of gold divided by the U.S. Consumer Price Index. The average price of gold is the equally weighted average of the Real price of gold observations. Monthly observations.

Source: Erb & Harvey

## INFLATION ADJUSTED

This Shows the Gold Constant (red line) plotted against the price of gold since 1975.



Note: Bloomberg data. The "golden constant value" of gold is derived by multiplying the value of the U.S. Consumer Price Index by the average "real price of gold", the average of the nominal price of gold divided by the U.S. Consumer Price Index.

Source: Erb & Harvey

When they take the recent gold price of \$1,157 an ounce and divide it by the August 2015 value of the U.S. Consumer Price index of 237.93, it yields a real price of gold of about 4.9. The gold price in "Real value" (blue line) shows that 4.9 is well above the historical average real price of gold (the average has been about 3.4 since January 1975). Since 1975, this measure of the real price of gold has risen as high as about 8.0 and fallen to as low as 1.4. The real price of gold has wandered over time but, since 1975, there is no obvious indication that the real price of gold has tended to persistently rise or fall.

Erb and Harvey note that these observations do not prove the existence of a "golden constant"; rather it provides a historical range of movement in the price of gold if the "golden constant" is a valid idea.

"Inflation adjusted," (right) plots the Golden Constant, which is the real price of gold (as the value calculated in "real value) multiplied by the CPI. While this calculation suggests a "fair value" of gold of \$825 per ounce, the price of gold fluctuates and does not simply stays at fair value. If you calculate the historical low real price of gold and multiply it by the current CPI, it yields a price of about \$350 an ounce. "This process of multiplying the average real price of gold by the level of the CPI provides a way to map out the "fair value" of gold over time," Erb says.

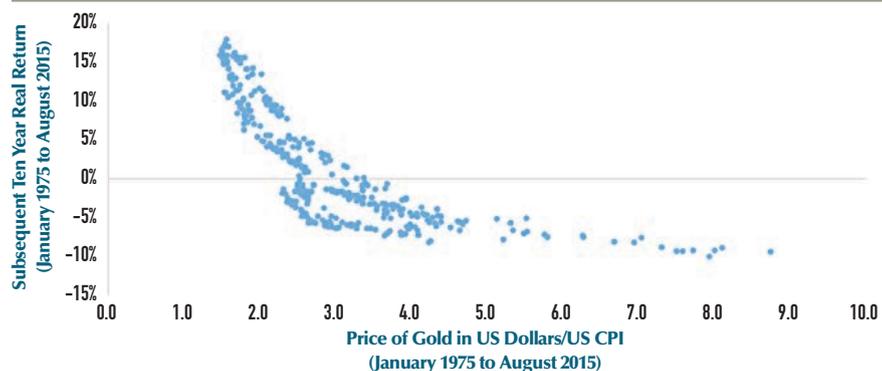
Despite the 2011 spike in gold to above \$1,900, the historical peak in the real price of gold occurred around 1980 and the historical low in the real price of gold occurred in 2000, according to the Golden Constant.

"As a result, the difference between the price of gold and the "fair value" of gold was quite wide in both 1980 and in 2000," Erb says. "It is unlikely that the twenty-year period from 1980 to 2000, in which both nominal and real gold prices declined substantially, contributed positively to a common belief that gold is an inflation hedge."

The wide swings in value suggests that traders can take advantage of this is a reversion type strategy. Erb points out that the high real gold price of about 8.0 in 1980 was followed by a real gold return of about -10% per year, and the low real gold price of about 1.4 in 2000 was followed by a real gold return of about 15% per year

## REVERTING TO THE MEAN

The plot shows the 10-year return for gold following its calculated real value. When real value is below its average, gold outperforms and when it is above the average, it underperforms.



Note: Bloomberg data. The "expected" price of gold is derived by multiplying the value of the U.S. Consumer Price Index by the average "real price of gold", the average of the nominal price of gold divided by the U.S. Consumer Price Index. Starting with the real gold price for a specific date, the "real gold return" is the annualized geometric real gold return over the next ten years. Monthly observations.

Source: Erb & Harvey

(see "Reverting to the mean," right).

"If you believe that in the long run the real price of gold is constant, and that we have accurately measured the long run average real price of gold, and if the real price of gold mean reverts over the next 10 years then the real return will be -5% per year," Erb says, adding, "As with almost everything relating to investing, the devil is in the details."

He says that "Gold will be a great 10-year inflation hedge during a hyperinflationary environment if the real price of gold is low. Gold will be a horrible 10-year inflation hedge during a hyperinflationary environment if the real price of gold is high."

While this seems obvious it provides a perspective on what move the price of gold. Many analysts and traders believe

that gold is an inflation hedge. In the aftermath of the credit crisis and resultant extraordinary measures taken by the Fed, there was an army of analysts and gold bugs who warned that a mountain of inflation—perhaps even a hyperinflationary environment—was headed our way. When that inflation did not occur (at least as measured by CPI), the real price of gold rose to extreme levels creating an opportunity for a reversion trade.

Erb concludes, "Gold is like many other assets, sometimes its prospective returns are attractive and sometimes its prospective returns are unattractive. Given a "golden constant" perspective prospective real gold return are likely to be very unappealing over the next ten years. ▲

