

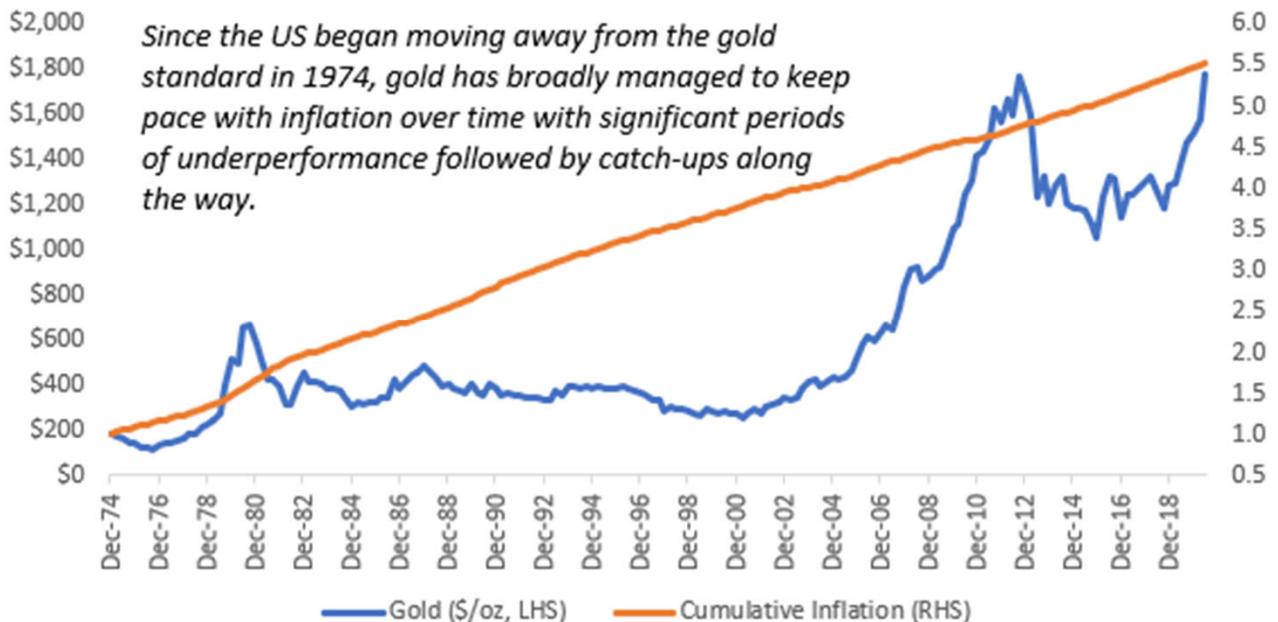
In Focus: All that glitters...

September 2020

Gold has played an important role historically as a store of wealth, with pure gold coins first introduced as currency approximately 2,500 years ago at the royal command of King Croesus of Lydia (an area now part of Turkey)<sup>1</sup>. This long history as a medium of exchange and the fact that the US and developed economies adopted a gold standard where paper currency could automatically be redeemed by the holder for a stated amount of gold in the late 1800's (up until roughly the Great Depression) has cemented the value of gold in the mind of many investors as an alternate currency that can act as a safety of last refuge in times of financial stress. Post Great Depression, the global economy largely abandoned a strict peg to the price of gold, with the US officially abandoning the gold standard in 1976 (although it had not been officially enforced for several years at that point)<sup>2</sup>. As a result, gold is no longer tied directly to the US dollar and the implication of owning gold in a portfolio may often be misunderstood. Additionally, since there are no longer stated redeemable values for gold and as an investable asset, gold does not produce any earnings or cash flow that grow in value over time, alternate methods of analysis must be employed to understand gold's value.

From a portfolio perspective, as shown below, gold has been able to generally keep pace with inflation since the US moved off the gold standard, but it has just kept pace (not outperformed) over longer term time frames. As a result, for gold to add value in a portfolio as a potential hedge against inflation, it is critical to own gold when it is appreciating faster than inflation and avoid gold during periods it lags inflation.

Gold vs. Inflation Over Time



<sup>1</sup> [www.gold.org](http://www.gold.org)

<sup>2</sup> "Brief History of the Gold Standard in the United States", Congressional Research Service, Craig K. Elwell, June 23, 2011  
Source: Bloomberg, quarterly values as of 06/30/2020

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Said another way, the investor needs to believe they can correctly time investing in (and divesting of) gold, buying before runups and selling before long sideways/downward moves. Otherwise they risk devoting a portion of their assets to an asset class that just keeps pace with inflation over time and dragging down total portfolio returns, since the money could have otherwise been invested in liquid asset classes like stocks and even bonds, which tend to outperform inflation over time. If only timing market tops and bottoms were easy!

Since gold does not have earnings or cash flow, an investor can't easily compare it to stocks to arrive at a fair value. However, for some time there has effectively been a self-fulfilling relationship between gold and US interest rates adjusted for inflation since so many investors believe gold can still function as a currency of last resort. When interest rates after expected inflation (real interest rates) are high, investing in gold has a large opportunity cost to hold as an investment since the money could be invested in higher yielding bonds instead. When real interest rates are low, more investors are willing to buy gold in the event the US dollar collapses in value or inflation accelerates materially. The chart below shows this relationship since 2005 and is broken into three periods of rapidly changing real interest rates: 2008-2011, 2012-2015 and 2018 to present. Gold (the gold colored line) is graphed in dollars per troy ounce on the left axis, whereas real 10 year Treasury interest rates are shown on the right axis on an inverted basis, since gold tends to rise with falling real rates and tends to fall with rising real rates, much like US Treasury Inflation Protected Securities (TIPS). From a high level, what is evident from the chart is that gold prices have historically risen (and currently appear to be rising) slightly ahead of declines in real yields and have fallen concurrently with rising real rates.

Gold vs. Real 10 Year Treasury Rate



Source: Bloomberg, as of 09/1/2020

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Looking at this relationship closer, we see from the table below:

- 1) during Period 1 (from November 2008 to September 2011), real yields declined by 3.15%, and gold increased by roughly \$1,100 per troy ounce, climbing \$349 for every one percent decline in real interest rates;
- 2) during Period 2 (from December 2012 to December 2015), once the market realized inflation would be contained and 10 year Treasury rates started increasing as investors began to demand a higher risk premium to invest in government bonds, real rates increased by 1.71% and the price of gold declined by \$641, or a \$375 decline for every one percent increase in real rates; and
- 3) during Period 3, as the US deficit began to increase and investors initially became more worried about the prospects of rising inflation, followed by the decline in absolute rates due to COVID-19 related accommodative Fed policy, real rates have declined 2.20% thus far from November 2018 through September 1<sup>st</sup>, 2020 and gold prices have risen \$746 to \$1,970, or a \$332 increase for every one percent decrease in real interest rates.

Sensitivity of Gold to changes in Real Interest Rates (\$/troy oz)

<u>Period 1</u>	<u>Start Date</u>	<u>End Date</u>	<u>Change</u>
Date	11/21/2008	9/5/2011	
10 Yr Real Treasury(%)	3.15	0	-3.15
Gold \$/oz	800.45	1,900.20	1,099.75
<b>Sensitivity Gold \$/oz to 1% Real Rate Change</b>			<b>\$ (349.13)</b>

<u>Period 2</u>	<u>Start Date</u>	<u>End Date</u>	<u>Change</u>
Date	12/10/2012	12/16/2015	
10 Yr Real Treasury(%)	-0.87	0.84	1.71
Gold \$/oz	1,713.11	1,072.32	(640.79)
<b>Sensitivity Gold \$/oz to -1% Real Rate Change</b>			<b>\$ (374.73)</b>

<u>Period 3</u>	<u>Start Date</u>	<u>End Date</u>	<u>Change</u>
Date	11/8/2018	8/26/2020	
10 Yr Real Treasury(%)	1.17	-1.08	-2.25
Gold \$/oz	1,224.00	1,970.18	746.18
<b>Sensitivity Gold \$/oz to -1% Real Rate Change</b>			<b>\$ (331.64)</b>

Source: Bloomberg, as of 9/1/2020

Given this historical relationship, it seems likely that gold prices will continue to exhibit price sensitivity of about \$350 per troy ounce for every one percent change in real interest rates.

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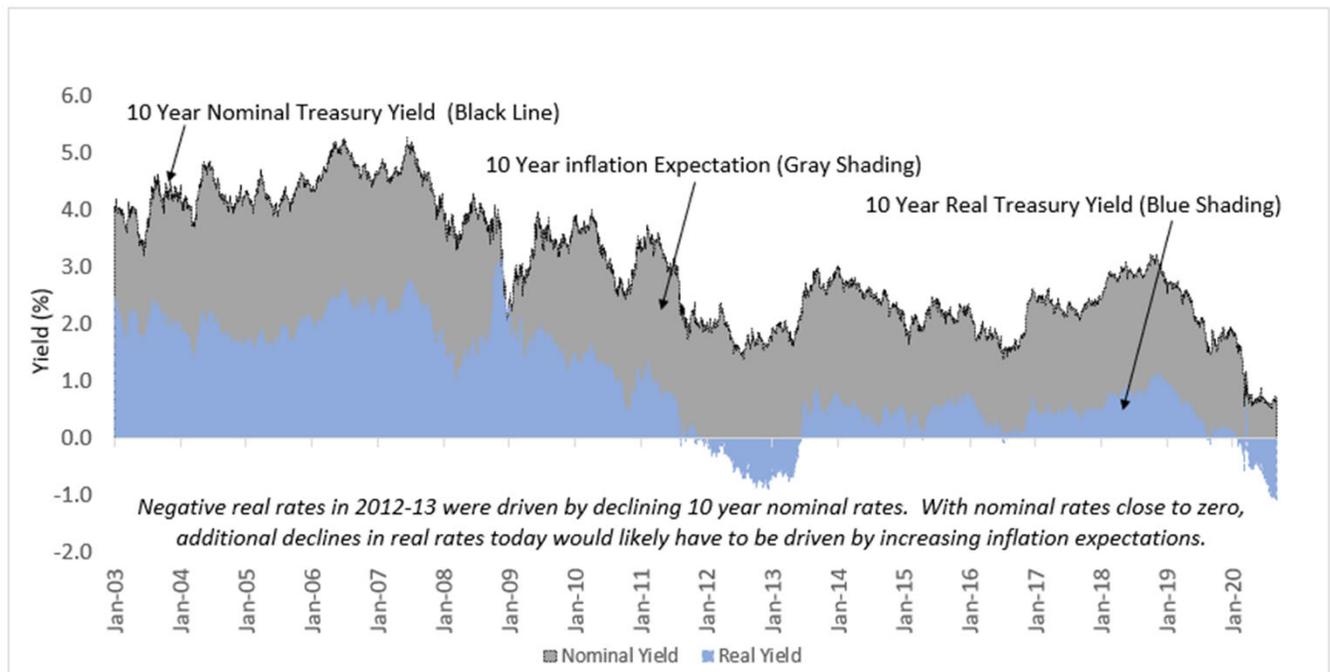
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Knowing the historical sensitivity of gold prices to changing real rates, looking at real rates over time to better understand potential drivers of changes in real rates in the future is helpful. In the chart below, we show three interest rate relationships: the nominal 10 Year Treasury (black line at the top of the chart), 10 year US inflation expectations (the gray shaded area) and the 10 Year real rate (blue shaded area). As discussed prior, real interest rates are defined as nominal rates minus inflation expectations, so declines in real rates are driven by either nominal treasury rates declining faster than inflation expectations or inflation expectations increasing faster than nominal rates, while increases in real yields are driven by nominal rates rising faster than inflation expectations or inflation expectations falling faster than nominal yields.

Several observations are readily apparent based on the chart below:

1. real rates today are already as low as they were during 2012-2013, so it's not surprising gold has returned to prior peak prices experienced at the end of 2011;
2. the large drop in real rates in Period 1 (2008—2011), as well as the current drop in real rates, have been driven by a drop in nominal 10 Year Treasury yields, not by a big increase in inflation expectations;
3. nominal treasury yields are very low today and if they are unable to go below zero (our view is US rates will stay positive) then further declines in real yields (hence increases in gold prices) would have to be primarily driven by rising inflation expectations.

10 Year Treasuries – Nominal vs. Real Rates over Time



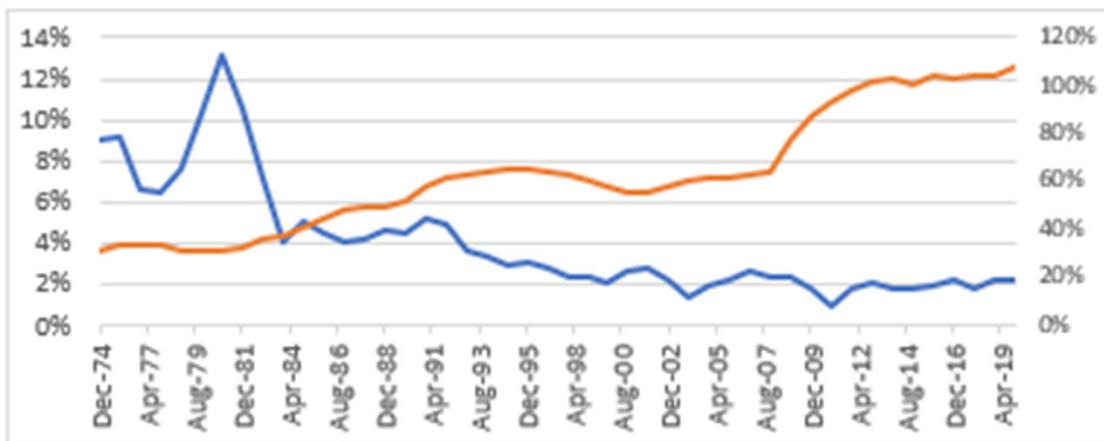
Source: Bloomberg, as of 9/1/2020

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What can we discern from inflation history? One of the current concerns of gold proponents is that massive increases in US Debt compared to US GDP will drive rapidly accelerating inflation. With the recent and likely further ongoing stimulus packages to support the US economy during COVID-19, US Debt to GDP could exit 2020 at 140%-150% depending on the size of the stimulus package and the GDP run rate at the end of the year, growing at roughly \$1T/year or 5% of GDP per year for the next several years after that. Will this spark massive inflation? From a conceptual basis, higher debt levels should drive higher, not lower, real rates as creditors demand more compensation to invest in US treasuries. This would present a headwind for US growth, resulting in lower inflation expectations and be a negative development for gold prices generally. History also suggests rising debt levels do not cause rising inflation. As shown in the graph below, annual US inflation has declined steadily post the 1970s Gold standard shift and the late 1970's oil triggered inflation era despite steadily and sometimes rapidly increasing US Debt to GDP levels.

Inflation and US Debt/GDP post Gold Standard



Source: Monthly data, Bloomberg, FRED (St. Louis Fed Database) as of 09/1/2020

On the 10 year forward inflation expectations front today, not surprisingly inflation expectations immediately dropped in March 2020 when the economy shut down for COVID-19, similar to the 2008 drop during the global financial crisis, as investors realized excess economic capacity compared to depressed demand levels meant inflation pressures would be low. However, as shown on the inflation expectations chart on the following page, inflation expectations recovered relatively quickly over the next several quarters and years following 2008 as confidence built the 2008 demand destruction was temporary. Today we see a similar dynamic and it's reasonable to believe inflation expectations can increase to the 2% to 2.5% range in the next several quarters, but that increases above this level in the next several years are not likely.

10 Year US Inflation Expectations



Source: Bloomberg, as of 9/1/2020

From a practical perspective, what does that mean for the outlook for gold? While other factors may drive the price of gold over short or intermediate periods of time, real rates have been by far the best predictor of gold prices. 10 year Treasury rates that are expected to stay low as the Fed remains accommodative but not go below zero means further gold price increases would have to be tied to rising inflation expectations.

Turning our focus back to a multi asset class portfolio, how best to incorporate this information? First, recognize timing markets is incredibly difficult and most often counter productive as shown by the wide potential divergence in performance of the following three hypothetical illustrations: 1) note that nominal 10 year Treasury rates returning to just 1.75%, well below historical averages, combined with inflation expectations topping out at 1.75% would result in an estimated gold price of \$1,600, nearly a 20% decline from current levels assuming historical price sensitivities stay intact; 2) for investors that believe nominal rates can stay low and even decline modestly, e.g., to 0.25% as the Fed remains accommodative, with inflation expectations increasing to historical levels of the past 20 years of 2.0%-2.5% as shown in the chart above, there could be another 10%-20% additional gold appreciation remaining; and 3) for those investors who are very bullish on gold, recognize that if historical price sensitivities to real rates to remain intact, significant changes in interest rates would be required to drive materially higher gold prices, e.g., nominal treasuries declining to 0% and inflation expectations increasing to 4% (well above the levels experienced since the 1980's) would only propel gold to \$3,000 an ounce from current levels.

Given how large the change in the interest rate environment would need to be to materially change prices, strategies that derive a levered benefit from higher gold prices, e.g., gold miners whose profit can grow faster than gold prices or structured investments that attempt to provide enhanced upside to a maximum return level while also providing some downside protection, may make more sense for a small portion of the portfolio for clients seeking to gain gold exposure than purchasing gold outright. For investors of the view that gold can move materially higher from here, while possible, they should recognize that such a move would mean the historical relationship of gold vs. real interest rates (i.e., the opportunity cost of owning gold) would have to break down or inflation expectations would have to increase significantly relative to recent history, neither of which is likely in the next couple years in our view.

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As always, tax and risk considerations vary by individual or institution and should be incorporated in your decision making process. Please contact your investment advisor to discuss further.

Sincerely,



Sean Leonard  
Chief Investment Officer  
Rockefeller Capital Management Family Office

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