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All That Glitters . . .

"Gold is a way of going long on fear, and it has been a pretty good way of going long on fear from time to time. But you really have to hope people become more afraid in a year or two years than they are now. And if they become more afraid you make money, if they become less afraid you lose money, but the gold itself doesn't produce anything."

Warren Buffett

In recent days, investors have become increasingly anxious as concerns mount about the health of the global economy and terrorism. Not surprisingly, the price of gold has jumped and it just saw its biggest weekly percentage gain in nearly a year. As gold's popularity tends to wax and wane in line with Wall Street's state of mind, we thought this an appropriate time to review the precious metal.

While gold has been mined for thousands of years, no one really knows how much gold exists. Some observers think that since the beginning of civilization, the total amount of gold that has been mined is about 171,000 metric tons. This estimate is widely accepted as the world's total stock of gold. In addition, the U.S. Geological Survey thinks there might be roughly 51,000 metric tons still in the ground around the world.

Over the last few years, the amount of gold mined has averaged about 2,500 metric tons per year. Some mining executives have talked about a coming period of "peak gold" when production begins to fall as it becomes increasingly difficult to reach and extract deposits. Other observers have noted that if the estimates of below-ground gold are correct and if annual production continues at the same rate, then the world's supply of gold could be exhausted in 20 years or so.

However, technology will undoubtedly impact these scenarios. Deep sea mining for gold has already begun and such deposits may total some 250,000 metric tons. Eventually, near-Earth asteroids also may be a source. Over 500,000 have been catalogued and fifteen are thought to contain vast amounts of precious as well as strategic metals -- one in particular may have up to 125,000 metric tons of gold. The recent landing of a drone on a comet may prove to be a first step in developing asteroid mining technologies. Finally, the world's oceans contain an estimated 18 million metric tons of gold which, with the right technological innovations, might be electrochemically mined in the future.

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At any rate, gold is basically used for three different purposes. Jewelry accounts for roughly 50% of the worldwide demand while investment uses of gold have a 40% share, split evenly between central banks and private investors. Finally, industrial uses, such as in the high technology, health care and aerospace industries, comprise the remaining portion.

Thus, private investors account for about 20% of the total worldwide demand for gold. It is worth noting that at current prices, the total stock of gold is worth about $9 trillion whereas the global equity and fixed-income markets are estimated to have a combined market value of some $90 trillion.

There are a number of widely-held assumptions about gold and its uses as an investment vehicle. According to conventional wisdom, gold is an effective hedge against inflation as well as against fluctuating currency values. Gold is also believed to be a good investment in times when real interest rates are low and a safe haven when the social or geo-political order is at risk of breaking down.

In mid-2013, the *Financial Analysts Journal* published a study which reviewed these assumptions in depth. The study was entitled "The Golden Dilemma" and its authors were Claude B. Erb, CFA and Campbell R. Harvey. Erb is now retired but did manage a commodities portfolio for the Trust Company of the West. Harvey is a professor of finance at Duke University. Neither Erb nor Harvey was pre-disposed against gold, and in fact Erb frequently bought and sold gold for the commodities portfolio.

In their research, the authors examined the basic supply-and-demand factors for gold and looked at the distribution of gold ownership in both developed and emerging countries. They estimated the impact on the demand for gold if key emerging market countries were to follow the same patterns of central bank gold ownership as in large, developed countries. For data, they focused on the period in which it has been legal to own gold in the United States -- since 1975.

The study's findings were surprising. There was little evidence that gold has been a hedge against inflation, whether in the short term or over the long run. The authors noted that over the very long run, gold may well be an effective inflation hedge but, importantly, the very long run is likely to be at least a hundred years -- longer than most investors' time horizons or life spans.

The study also found that gold has not been a hedge against fluctuating currency values and, in fact, the real price of gold tends to move in unison across different currencies. Gold as a hedge against low real interest rates was problematic and the authors noted that there seemed to be another factor -- fear -- at work in the data. Finally, in examining the safe haven argument, Erb and Harvey "came up empty-handed."

One finding from the study that intrigued them had to do with the price elasticity of investment demand for gold. Price elasticity is a concept that economists use to measure

how demand for a good reacts to changes in the price of the good. It is the ratio of the change in demand to the change in price. For example, if the price of a good is lowered by 10% and the result is a 15% increase in the demand for the good, then the price elasticity of the good is 1.5 (15 ÷ 10 = 1.5).

Erb and Harvey found that the price elasticity of the investment demand for gold over the years 2001 through 2011 was 0.98 -- in other words, a 10% increase in the price of gold was met with a 9.8% increase in the investment demand for gold. This is the opposite of what might be expected -- theoretically, when the price of a good increases, consumers tend to find more attractively priced substitutes or they do without.

Of course, the years 2001 through 2011 were tumultuous for the financial markets, encompassing the terrorist attacks in the U.S., the war on terror, the recession, the housing bubble, and the financial crisis and recovery. Given conventional wisdom, it is likely that investors saw no substitute for gold and many may have been uncomfortable doing without.

Erb and Harvey attributed the results to momentum investors. The momentum strategy focuses on trends in the financial markets. Once a trend has been established, momentum investors assume it will likely continue in the same direction. Thus, if the price of gold increases, momentum investors would assume that the price will keep increasing and would therefore buy more gold. The converse holds as well -- if the price of gold decreases, momentum investors would foresee further declines and would sell more gold.

The authors theorized that both central bankers and private investors were at work. As the global economy recovered from the financial crisis, some central banks increased their holdings of gold (China, Russia and Saudi Arabia, for example) while others decreased their holdings (Netherlands, France and Switzerland). However, they noted that even though China was an enthusiastic purchaser of gold, it still held less gold in 2011 than the exchange-traded fund SPDR Gold Trust.

The SPDR Gold Trust ETF ("GLD") was launched in 2004 by the World Gold Council, a trade group for global gold-mining companies. In the early 2000s, the mining companies were frustrated by the Council's inability to stem twenty years of depressed prices and to find buyers for the growing glut of gold. The Council created the ETF specifically to expand the pool of U.S. gold buyers.

It was wildly successful. At its height in 2011, GLD was the world's largest owner of bullion. Buying shares of GLD was easier and cheaper than investing in gold futures or buying coins, which typically entail large amounts of cash or steep markups. Also, there were no storage costs as there is with bullion. The success of the fund spawned an industry of competing ETFs. Interestingly, the managing director of the World Gold Council noted in 2010 that between 60% and 80% of GLD investors had never bought gold before.

However, this success was not without a price. In 2011, industry observers thought that all of the ETFs competing with each other likely added $100 to $150 to the price of an ounce of gold. In the two decades before the launch of GLD, gold had steadily declined from a high of $850 in 1980 to about $445 in 2004. From 2004 to its high in 2011, the price of gold more than quadrupled. At the end of 2014, the price of gold was $1,206 per ounce, still more than three times its price in 2004.

Owning gold may make some feel more secure in troubled times and a troubled world, but it is important for investors to understand what they own and why they own it. They also should know what to expect from their investments. In his 2011 Chairman's Letter to shareholders of Berkshire Hathaway, Warren Buffett wrote:

> *"Today the world's gold stock is about 170,000 metric tons. If all of this gold were melded together, it would form a cube of about 68 feet per side. (Picture it fitting comfortably within a baseball infield.) At $1,750 per ounce – gold's price as I write this – its value would be $9.6 trillion. Call this cube pile A.*
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> *Let's now create a pile B costing an equal amount. For that, we could buy all U.S. cropland (400 million acres with output of about $200 billion annually), plus 16 Exxon Mobils (the world's most profitable company, one earning more than $40 billion annually). After these purchases, we would have about $1 trillion left over for walking-around money (no sense feeling strapped after this buying binge.) Can you imagine an investor with $9.6 trillion selecting pile A over pile B?*
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> *Beyond the staggering valuation given the existing stock of gold, current prices make today's annual production of gold command about $160 billion. Buyers – whether jewelry and industrial users, frightened individuals, or speculators – must continually absorb this additional supply to merely maintain an equilibrium at present prices.*
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> *A century from now the 400 million acres of farmland will have produced staggering amounts of corn, wheat, cotton, and other crops – and will continue to produce that valuable bounty, whatever the currency may be. Exxon Mobil will probably have delivered trillions of dollars in dividends to its owners and will also hold assets worth many more trillions (and, remember, you get 16 Exxons). The 170,000 tons of gold will be unchanged in size and still incapable of producing anything. You can fondle the cube, but it will not respond.*
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> *Admittedly, when people a century from now are fearful, it's likely many will still rush to gold. I'm confident, however, that the $9.6 trillion current valuation of pile A will compound over the century at a rate far inferior to that achieved by pile B."*

We could not agree more. As long-term investors, we think it makes sense to invest in companies that emphasize research and innovation, that create and produce goods and services and that steadily add to economic growth and higher living standards around the world. With time, we expect many of these leading high-quality companies to glisten, even on Wall Street.