Testing a Market Hypothesis: The Counter-Cyclical Nature of Gold Prices

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Introduction

The Chippewa Valley Center for Economic Research and Development (CVCERD) collects and maintains a variety of stock market data. In particular, the CVCERD tracks the performance of an exchange traded fund based on the price of gold (SPDR Gold Shares, GLD). In recent years, gold has generated a lot of investment attention as the price of gold has reached numerous record highs.

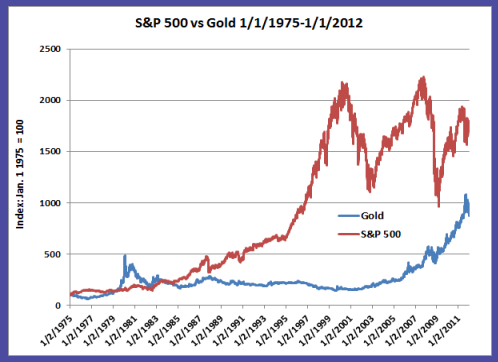
One theory that has gotten a lot of attention is that gold is counter-cyclical to the overall stock market and is thus a good investment in a bear market. This poster examines the relationship between the Standard and Poor's 500 Stock Index and the price of gold between 1975 and 2011. It then examines the sensitivity of the price of gold to the level of volatility in the overall market as measured by the Chicago Board of Trade's volatility index (VIX) from 1990 through 2011.

Figure 1 shows the Standard & Poor's 500 Stock Index (S&P 500) and the price of gold per ounce over the period from January 1975 through the end of 2011. Both series are indexed to a base of January 1975 = 100.

Overall, the early part of the graph is relatively uneventful compared to what happened beginning in the mid to late 1990s through the 2000s. In particular, the S&P 500 increased 235% between 1975 – 1985 and rose an additional 178% over the next ten years. Despite how large these numbers seem, this represents an average annual return of about 10.5%.

In comparison, the price of gold increased 75% between 1975 – 1985 and rose an additional 25% over the next ten years. Overall gold saw an average annual return of about 8%. The rise of the S&P 500 over this twenty year period was generally slow and steady whereas the price of gold surged in the late 1970s and then dropped off during the early 1980s eventually flattening through the mid 1990s.

Figure 1:



What happened over the next seventeen years is quite dramatic in comparison to the previous twenty years.

The S&P 500 rose quickly and then underwent a series of peaks and troughs through the 2000s. In particular, the S&P rose to more than 2,000 times its 1975 level in March of 2000 only to fall to just over 1,000 times it's 1975 level in March of 2003. In similar fashion, the S&P 500 jumped back to more than 2,100 times its 1975 level in October of 2007 and subsequently fell to about 850 times its 1975 level in March of 2009.

It is worth noting that this period has become known as the *Great Recession*. At the end of 2011, the S&P 500 was at nearly 1,700 times its 1975 level after a slight decline from a peak in April 2011.

Gold on the other hand rose from about 120 times its 1975 level in January of 1995 to a peak of almost 1,000 times its 1975 level in September of 2011. After declining slightly, gold sat at almost 900 times its 1975 level at the end of 2011. The consistent climb of gold during the 2000s is in stark contrast to the bouncing volatility experienced by S&P 500 over the same period.

Therefore, the data suggests that the relationship between gold and the overall stock market is more complex than a simple counter cyclical relationship. That is, perhaps the extreme market volatility over this period has played a role in the rise of gold.

Figure 2 presents a more detailed look at the annual rates of return for both the S&P 500 and the price of gold over this entire period

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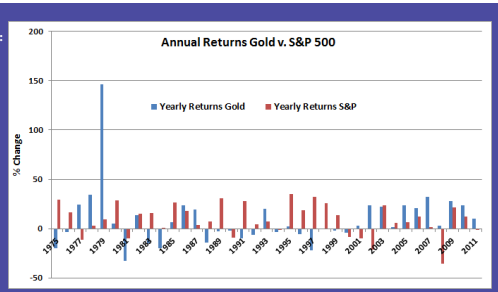


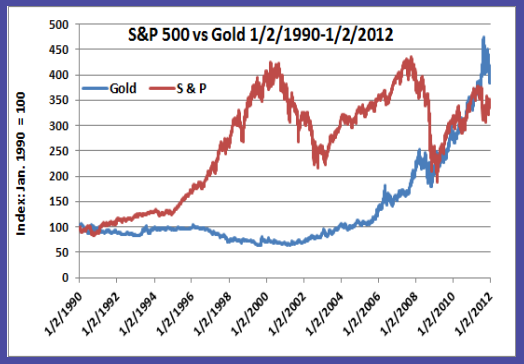
Data Sources

All data and information was obtained from Yahoo! Finance

This part of our analysis of the overall market and the price of gold is restricted to the period from January 1990 through the end of 2011. This period is when most of the action happened as well as because 1990 was the first year the Chicago Board of Trade released its Index of Market Volatility (VIX).

Figure 3 clearly shows the series of peaks and troughs experienced by the S&P 500 as well as the strong rise of gold through the 2000s. In addition to the dramatic peaks and troughs, the S&P 500 also shows a noticeable series of repeated sharp ups and downs throughout this period compared to the 1990s.

Figure 3:

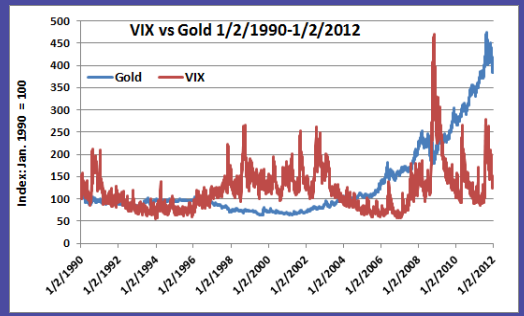


This portion of the analysis focuses on the relationship between the overall market volatility as measured by the VIX and the price of gold. Figure 4 shows higher than average levels of market volatility from the late 1990s through the early 2000s. Although the market volatility declined over the next several years, the price of gold began to rise signaling a sort of lagged response to the previous volatility.

From the end of 2007 to early 2009, the stock market dropped sharply as the Great Recession took hold while the price of gold continued to increase. In November of 2008, the stock market volatility reached its highest level by a wide margin, followed by several episodes of continued volatility over the next two years. Despite a slight decline in the last months of 2011, the price of gold rose dramatically through this period.

Although this analysis is not conclusive, it does provide suggestive evidence that the price of gold is counter-cyclically related to overall market performance as well as influenced by the level of market volatility. In conclusion, the 2000s represents a historically interesting and unique time period for both the stock market and the gold market. Additional research is needed to identify and describe how these two investment markets perform as well as how they are related to each other.

Figure 4:



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