

# THE FINAL NAIL IN THE CROSS OF GOLD

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### Abstract

There is little, if any, academic support for viewing gold as an effective primary investment strategy. Yet the idea persists in the public and has seen a revival in the years following the Great Recession. We perform a novel empirical comparison of gold with the S&P 500 from 1975 to 2016 in demonstrating how poor of a choice it is as a general strategy. A particularly striking finding is that gold outperforms the S&P 500 (27% of the time) approximately as often as holding cash outperforms gold (28% of the time).

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One investment strategy popular with some members of the public is gold. For many of these investors, gold is not merely seen as insurance against a spike in inflation rates, but a credible means of reaping significant profits in the aftermath of a forthcoming economic collapse. The present article makes no claim against the use of gold as a small part of a broad portfolio. However, not only is gold seen occasionally as a useful hedge for turbulent times, the argument for buying gold to profit from crises is omnipresent since the closing of the gold window. In the literature in question, the authors do not recommend temporarily purchasing gold and then later on recommending selling it off. Instead, now is always the time to buy gold, regardless of actual economic conditions or the market's inflationary expectations.

The purpose of this paper is to provide a far more concrete refutation of gold as an investment than has been made previously. Of course, comparing the return on the overall market with the return on gold over the long run has been performed before, as in Siegel (1994). The novel empirical exercise this note will perform, however,

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is to calculate how frequently gold has outperformed the market, as measured by the S&P 500.<sup>3</sup>

When the gold window was first closed and the United States began its experiment with a truly floating fiat currency, it was not wholly clear that this particular monetary arrangement would provide adequate incentives to constrain central banks. In subsequent years many concerns regarding inflation were borne into reality, even if temporarily. However, concerns regarding these arrangements have never disappeared from the shelves of American bookstores. (Peter Schiff, the most prominent contemporary example, has achieved bestseller status writing on the topic.) An imminent collapse has been predicted continuously for nearly a half century at this point. This is documented in Table 1. At least one example of a publication in every five year span predicting that gold will be valuable due to something like a collapse of the monetary system is provided 1970-present. If anything, the frequency of these publications has increased since the onset of the Great Recession. What this all means is that the relevant hypothesis to test is not if gold has increased over one particular time period, but what the expected profit of gold is if the dates to buy and sell are chosen at random.<sup>4</sup>

To do this, we assembled monthly data from January, 1975 to March, 2016 on the S&P 500 and the price of gold. Data on dividends earned in conjunction with stock prices is derived from Shiller (2016), while data on the price of gold was accessed through Bloomberg. We used two definitions of gold, its spot price (XAAUSD), and its future (GC1). The number of possible month pairs is 121,771. Instead of calculating all possible combinations, we employed random number generators to choose ten thousand combinations for us. For each combination, the asset is “purchased” for which ever month occurs first temporally, held, and “sold” in the later month in the combination. As these months are chosen at random, no restrictions were placed on the month pairs, besides that they must occur in the sample period, and the pairs of months cannot be two of the same month-

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3 Other measures of “the market” are possible. The S&P 500 was chosen due to the ease of acquiring monthly total return data for an extended period of time.

4 The Sharpe ratio for gold is 0.318 for its spot price and 0.314 for its future, for our monthly sample. For our sample, the Sharpe ratio of the S&P 500 is 0.946. For those educated formally in finance, these metrics may be persuasive, but the purpose of this paper is to provide another way of looking at the question which is a bit more tangible.

year. We then calculated the nominal return for each pair, deflated them, and annualized them.

The distributions of the differences between these real annual returns for each asset are one empirical contribution of the paper. Figure 1 provides the distribution of the differences of the S&P 500 (SPY) and XAAUSD, while Figure 2 provides the distribution of the differences of SPY and GC1. The median difference and the first four moments of the differences are provided with each figure. The mean of SPY's performance relative to gold was about 3.6% in annualized return for both. Gold outperforms the market around 27% of the randomly selected month intervals. Following descriptive statistics of the full sample, descriptive statistics of the short run (subsample of investing less than one year), medium run (subsample of investing one to five years), and long run (subsample of investing five year or more). The mean and median returns remain qualitatively unchanged.

Figures 3 and 4 provide analogous analyses comparing the returns on gold and on cash. The "return" on cash is simply the generally negative return via inflation. Holding gold is superior to holding cash under most circumstances, both because of the inflation and the very modest real appreciation gold has achieved since the closing of the gold window. However, cash outperforms gold in 28% of randomly selected month intervals, by either definition of gold. In other words, gold outperforms the market approximately as frequently cash outperforms gold. As before, descriptive statistics are provided for subsamples of lengths of time and again the results remain qualitatively unchanged.

There is no case for gold as the primary vehicle for growing wealth via investment. A small amount of gold may play a role in an efficient portfolio. Trading gold or gold futures obviously plays an important role for the finances of manufacturers or others whose fates are closely tied to shifts in the price of the asset. But this empirical refutation of gold as a general investment strategy hopefully will prevent a credulous investor from falling prey to hucksters and firms looking to take their money in exchange for poor financial advice.

## References

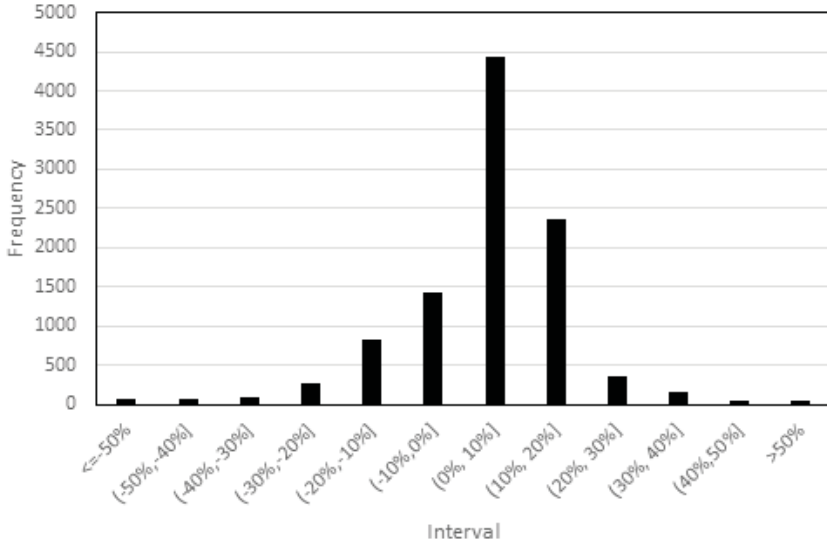
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TABLE 1.

## Documentation of Gold as an Investment since Closing of Gold Window

Period of Years	Citations
1970-1975	Browne (1970)
1975-1980	American Institute for Economic Research (1975); Casey (1979)
1980-1985	Baker (1981)
1985-1990	Nichols (1987)
1990-1995	Lassonde (1990)
1995-2000	Cook (1999)
2000-2005	Kosares (2005)
2005-2010	Ruff (2006); Goyette (2009)
2010-present	Schiff (2012); Maloney (2015)

Figure 1. Distribution of Differences of SPY and XAAUSD



Descriptive Statistics (full sample / less than one year / one to five years / greater than five years)

Median Difference Real Annualized Return: 4.75 / 7.97 / 5.42 / 4.65

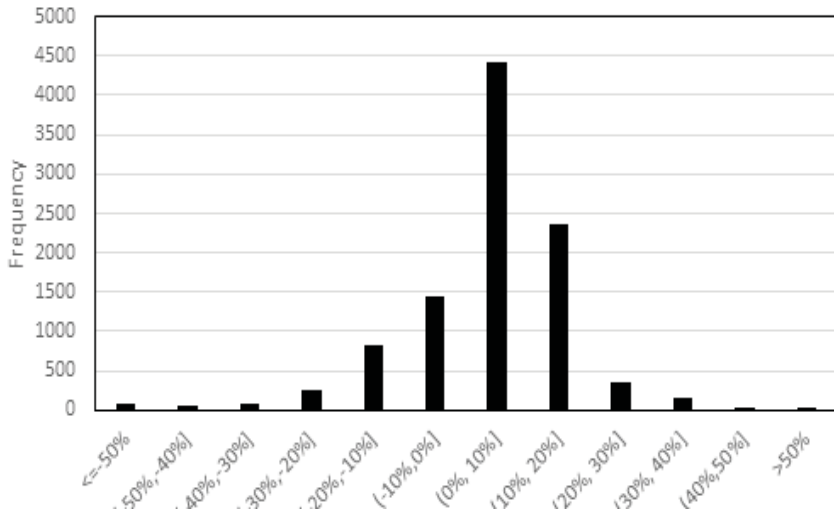
Mean Difference Real Annualized Return: 3.59 / 0.50 / 1.27 / 4.29

Std. Dev. Difference Real Annualized Return: 15.66 / 47.64 / 21.19 / 8.62

Skewness: -2.19 / -1.11 / -0.55 / -0.65

Kurtosis: 37.20 / 6.20 / 0.18 / 0.57

Figure 2. Distribution of Differences of SPY and GC1



Descriptive Statistics (full sample / less than one year / one to five years / greater than five years)

Median Difference Real Annualized Return: 4.75/ 7.50/ 5.33/ 4.66

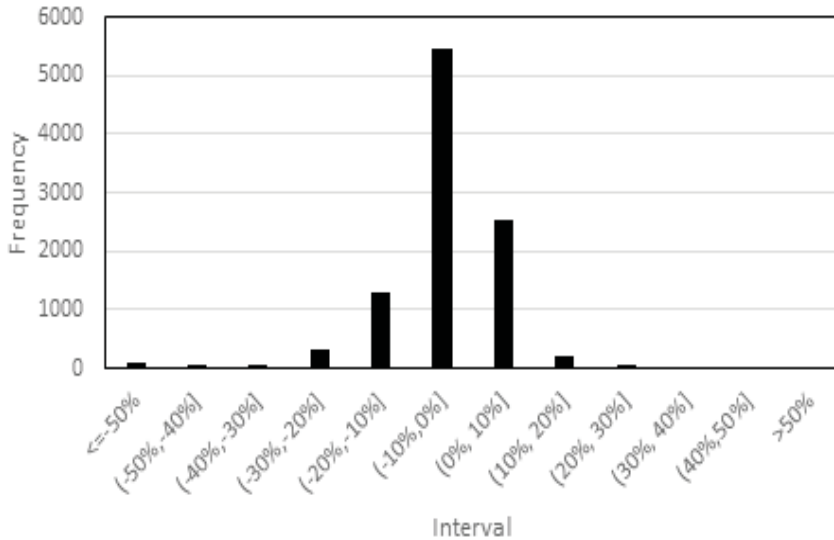
Mean Difference Real Annualized Return: 3.58/ 0.40 / 1.24 / 4.30

Std. Dev. Difference Real Annualized Return: 15.80 / 48.41 / 21.26 / 8.62

Skewness: -2.27/ -1.11/ -0.58/ -0.65

Kurtosis: 38.62/ 6.20/ 0.32/ 0.57

Figure 3. Distribution of Differences of Cash and XAAUSD



Descriptive Statistics (full sample / less than one year / one to five years / greater than five years)

Median Difference Real Annualized Return: -3.81/ -1.98 / -3.71/ -3.84

Mean Difference Real Annualized Return: -4.92/ -10.21/ -7.27/ -4.08

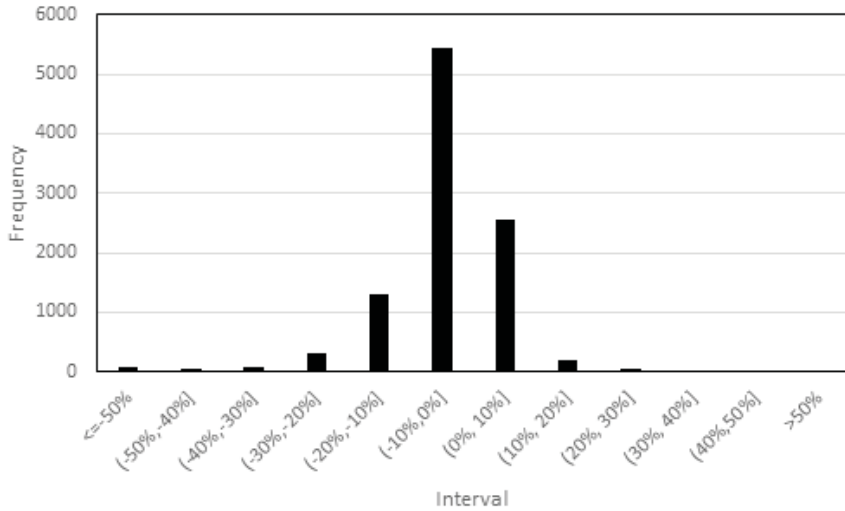
Std. Dev. Difference Real Annualized Return: 11.73/ 38.18/ 15.55/ 5.39

Skewness: -5.57/ -2.51/ -1.30/ -0.87

Kurtosis: 89.26/ 12.23/ 3.33/ 1.08



Figure 4. Distribution of Differences of Cash and GC1



Descriptive Statistics (full sample / less than one year / one to five years / greater than five years)

Median Difference Real Annualized Return: -3.78/ -2.12/ -3.73/ -3.83

Mean Difference Real Annualized Return: -4.92/ -10.31/ -7.29/ -4.07

Std. Dev. Difference Real Annualized Return: 11.87/ 38.81/ 15.66/ 5.40

Skewness: -5.69/ -2.51/ -1.34/ -0.87

Kurtosis: 90.03/ 11.89/ 3.69/ 1.10