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Price Drivers and Investment Strategies of Gold

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ABSTRACT

The price determinants of gold are explained in this paper. Benefits from holding gold as an investment class asset in several forms, including ETFs are explored. Disadvantages of holding various gold investments are described, particularly in Contango markets. The gold prices are examined in the past two decades, focusing on the relationship with the S&P 500 and Dow index and various currencies, producer and consumer indices. We conclude with advice to potential individual investors in gold and an overview of some variables that affect the future trend of gold.

INTRODUCTION

Gold has never quite lost its shine as a proxy for value even though it has very little practical utility from an industrial or economic stance. It is the most popular precious metal in which people invest. It is a safe-haven against any economic, political, social or currency-based crises, such as: investment market declines, currency failure, inflation, war and social unrest. It can be held indefinitely without fear of insolvency or being margin called and it has historically played a central role in the creation of the world's monetary systems. While the trading in gold by institutional investors has been increasing in the past decade, this precious metal has also witnessed much interest by various central banks around the world. Because gold is non-correlated with other asset prices, and because it lacks all counterparty risk, gold is a highly attractive alternative to include in a well-diversified portfolio. If the reason for this renewed interest was purely speculative we probably would have witnessed, as in classic bubbles, a crash in the price of gold by now. Since this has not happened, we are pushed to explore some market fundamentals, including the stability of monetary systems, in relation to the gold prices and characteristics that make it a unique asset in managing investment risk.

Unlike other prices, the gold price reflects not only the inherent value of gold, but also the relative strength of the currency in which it is quoted. For example, the dollar price of gold may decrease more in percentage terms than the euro price of gold, to the extent that the change in price is a reflection of dollar strength (here, against the euro) rather than an intrinsic change in gold market fundamentals. In this paper, we review the benefits and risks of investing in physical and exchange-traded forms of gold, providing some advice to the individual investor. Next, gold price drivers are investigated starting with a brief historical overview of the metal, and including the relationship with exchange rates, price indices, and stock market indices. We conclude with expectations for the gold price for the near future citing major variables affecting this movement.

RISKS AND BENEFITS OF INVESTING IN GOLD

One of the incentives to hold the precious metal in investment portfolios is that gold tends to protect against tail risks (i.e., World Gold Council has shown that when equity prices fall by more than two standard deviations, the correlation between gold and equities tends to turn negative), or events that are not very likely and may not be frequent. Cumulative returns on gold during the 1991-2010 period was 262.8% based on futures market. There are risks involved in carrying physical gold or investing in exchange gold. The investor should appreciate the risk of loss and theft usually associated with holding physical gold. Property insurance does not always cover this asset type and the investor may need to purchase additional coverage for unexpected losses. Transporting and storing gold is costly whether one keeps it at a secret location or in a private vault at home or in a bank's safety deposit box. The latter are not always secure, depending on the bank's security system, and even then, the insurance will not usually cover the contents of the box more than a certain dollar amount. In Germany, for example, safety deposit boxes are

insured only up to US\$ 28,000, less than one kilo's worth of gold at current prices, a meager amount compared to the total value of gold that can potentially be stored in any one of these boxes.

An important concept in portfolio management is wide diversification of investments across a broad range of assets, maximizing the total return while minimizing the risk through diversification. Hence, an investment in commodity (including gold) futures is just one more so-called asset class, like government bonds, corporate bonds, large stocks, and small stocks. Trading gold in exchanges is subject to their rules and regulations. Exchange-traded funds (ETF) are investment funds that trade on a stock exchange. Like a stock, an ETF's price changes throughout the trading period as shares are exchanged, and they can be sold short or bought on margin. Gold ETFs naturally are low-cost compared to other investment instruments, and are considered a relatively simple way to diversify a portfolio. Not all gold ETFs trade in future contracts. For example, the SPDR Gold Shares ETF buys physical gold bars and stores them in London vaults. The exchanges can trigger market changes accidentally or intentionally when they decide to change their trading rules. These include margin requirement change, liquidation only policy or complete stopping of trade. An exchange may decide to increase the margin requirements, the money that needs to be available in a futures account in order to purchase these types of contracts. This happened in 2009 when COMEX (a division of NYMEX, the New York Mercantile Exchange) raised the margin on gold and silver contracts (Mayer, T., COMEX Gold And Silver Margin Requirements Raised, 2009). Such a decision can have a negative effect on the price of gold since it may result in larger sales of gold in substitution with another asset that has lower margins. Sometimes, exchanges can temporarily restrict buying, this means only selling would be allowed, which would push the price down. For instance, COMEX restricted the buying of silver when the price reached an all-time high of \$50 an ounce in 1980. A complete stopping of trading in a future contract is a possible, though rarer event.

If the futures contract in which the gold ETF invests is experiencing contango, that ETF can lose value, resulting in possibly significant and unexpected losses for investors. When the forward price of a futures contract is above the expected future spot price usually due to the carry costs, the market is said to be in contango (see Figure 1 below). This is a normal circumstance because investors and traders are willing to pay a premium to avoid the inconvenience and costs associated with transporting, storing and insuring a commodity. The price of a futures gold contract will join with the spot price as its expiration date approaches in relation to arbitrage, supply and demand of gold. If a future gold contract is priced above the spot gold price, like a market dealing in contango, price ultimately must decrease to rejoin the spot price. For example, a fund may be forced to sell low and buy high each time it rolls over to the next contract, thus decreasing profits. Because contango implies that price must drop, long positions in such markets can lose value.

Before the investor chooses their ETF, they should understand the risk involved with this investment beforehand and get to know the particular ETF's structure, whether it invests in future contracts or trades at spot prices. The latter involves more losses (higher returns) if the market is in contango (in normal backwardation). Investors can also consider investing in smaller funds in order to avoid the expectations of investors seeking profits by trading ahead of large funds. Since normal backwardation and contango can alternate in a particular market the investor can choose a fund that invests in different length contracts because this reduces the exposure of contango as compared to a fund that only invests in one month future contracts. Overall, gold returns tend to be consistent regardless of whether an investor chooses to use spot or futures.

Figure 1:



GOLD PRICE DRIVERS

a. Historical Overview

Prices and price movements being the main focus of any investor, we now review the recent history of gold prices. Gold was \$20.67 a troy ounce in 1933, when gold was money and a \$20 gold coin actually contained 0.9675 ounces of gold. But President Roosevelt had set the gold price at \$35 an ounce in 1934, thereby overvaluing gold and undervaluing the dollar. As a result, the US Treasury's gold reserves increased by 117% from 1934 to 1940, as foreigners sold massive quantities of the metal to the United States. In 1944, Bretton Woods agreement was signed which laid down a monetary order that established the rules for global commercial and financial relations. This agreement promoted the US dollar to the reserve currency with a fixed exchange rate of US\$ 35 for one ounce of gold. The currencies of participating countries were tied to the US dollar. The Bretton Woods System also bound the United States to redeem the participating countries' foreign dollar reserves for gold. From 1940 to 1957 the US Treasury's gold reserves remained relatively constant but by 1958 they started falling since foreign governments held more dollar reserves than the US central bank had gold reserves. Within three years, by 1960, Treasury gold reserves had declined as much as twenty two percent. Just as the increase in gold reserves from 1935 to 1940 indicated that gold was overvalued and the dollar was undervalued, the decline in reserves after 1957 indicated that the dollar was now overvalued, and gold was undervalued.

It was becoming more and more difficult for the European and American Reserve Banks to maintain the gold price at \$35 an ounce. In 1961 the situation was severe enough that the United States, Britain, West Germany, France, Switzerland, Italy, Belgium, the Netherlands and Luxemburg all agreed to sell gold into the market to try and prevent the price from exceeding \$35 an ounce; and so the London Gold Pool was created.

The French, who were smart enough to realize that the London Gold Pool was a losing proposition, eventually started selling francs for dollars and sent the dollars back to the United States in exchange for gold.

By 1968, when the London Gold Pool croaked, US gold reserves had declined more than fifty two percent from their 1957 levels. In 1971 US gold reserves were 9,070 tons, only seventy-two tons more than they had been in 1935. It was clear that thirty-five dollars were no longer worth an ounce of gold. In 1971, for instance, when Nixon closed the Gold Window (the direct dollar convertibility of gold) in a desperate attempt to retain some gold in the Treasury, This led to a collapse of Bretton Woods and the fixed gold price of US\$ 35 per ounce ceased to exist. The gold price should have been \$103 an ounce then. It is therefore no surprise that gold was being bought hand over fist at thirty five dollars an ounce, and that the gold price began to increase immediately after it was emancipated. But by 1974 it had essentially reached its inflation-adjusted price of \$150 an ounce. In 1975 the New York Commodities

Exchange was established and trading in gold futures could begin. By 1978 it was trading around \$200. Gold was behaving as freely supplied money: a currency independent of any government, whose value is market determined. In 1980, a 20 year-long gold bear market began. In 1983 a new financial risk management tool was developed to mitigate the impact of gold price volatility on mining companies: hedging. Total gold hedging increased very rapidly in the eighties and nineties. Gold inflation (annual mine production as a percentage of above ground gold or total amount of gold ever mined) also contributed to the fall of gold prices in this period.

The establishment of the Shanghai Gold Exchange in 2002 expanded considerably the gold trade and thus increased demand for this precious metal. Within the next five years, China overtook the United States to become after India the second biggest gold buyer. The financial crisis in 2008 increased the demand for physical gold and exchange traded funds (ETF). The gold reserves of the largest gold ETF, SPDR Gold Trust, reached in 2010 a record of 1320 tons. Therefore, this gold fund controlled more gold than the Chinese National Bank. In the same year, several central banks planned to increase their gold reserves, among others the Chinese National Bank, the Reserve Bank of India and the Central Bank of Russia.

b. Gold price and exchange rates

Compared to gold, the US Dollar experienced an all-time low. This can be seen by looking at the Figure 2 below, the gold price in terms of US dollars shot to record levels since 2003, despite the minor relative fall in 2012. During the period 2003-2013, the average rate of increase was 13.57%, the median was 20% the interquartile range, the indicator of the middle 50% of the growth rates during this period, was 16.9%, while the geometric average rate of increase for the same period was 12.56%. This implies that the dollar experienced a drastic fall in value. Hence, the gold value increase will be exaggerated when examined strictly in terms of the US Dollar. Reasons for the deterioration of the US Dollar were uncertainties about a sustainable economic recovery from the financial crisis of 2006/2008, increasing inflation as a result of the quantitative easing policies of the Federal Reserve, possible corporate insolvencies and defaults of corporate bonds and insurance companies.

Figure 2

Gold spot price in US dollars, London PM fix



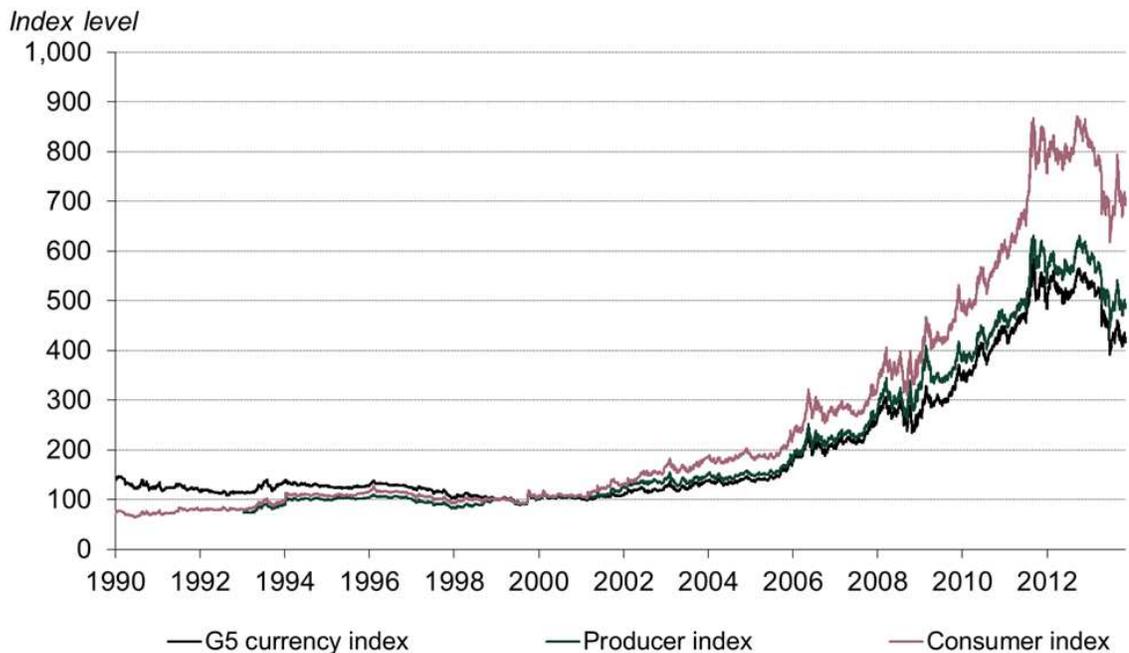
Source: Reuters Datastream, LBMA, World Gold Council

Therefore, one needs to measure the US Dollar using an index such as the US Dollar Index (USDIX), which quantifies the US dollar's value relative to a basket of six currencies (euro, British pound, Canadian dollar, Swedish krona, Swiss franc and Japanese Yen). We find the following: when the US dollar increases in strength, the USDIX goes up. Moreover, between 2004 and 2006, the correlation between gold and the USDIX was negative 44 hundredths, between 1989 and 2006 it was negative 28 hundredths. This means that the relationship was negative between the two (when the USDIX goes up, gold goes down) and that relation intensified after 2004, or that gold became more negatively related to USDIX.

Since looking at gold prices in nominal dollars provide a distorted picture, we try a real measure instead. The Consumer Index is used to calculate the inflation adjusted gold price, taking 1999 as the base year. It answers the question what price does gold have to reach in inflation adjusted dollars to equal the purchasing power of, for example, one thousand 2008-dollars? When one looks at the G5 currency index the gold spot price (see Figure 3 below), one finds that it increased the least compared to the producer or to the consumer index. The two, consumer and producer, indices provide more real measures albeit different inflation adjusted gold prices. There are a couple of important conclusions from the below figure. First, gold at its present price of \$1300 per ounce today is slightly overpriced. In other words, it is a long way from the purchasing power an ounce of gold achieved in January 2000. Second, both producer and especially consumer measures on the below figure reinforce that the dollar is losing purchasing power every year. So if gold in the future were to reach a \$4,500 per ounce price, the inflation between now and then would require gold to reach an even higher price to equal the purchasing power it had in January 2000. Therefore, even though gold is trading at a record high in terms of nominal dollars, the real gold price is far below the old January 2000 record when adjusted for inflation.

Figure 3

Gold spot price in G5 currencies, producer and consumer indices (01/01/1999=100)

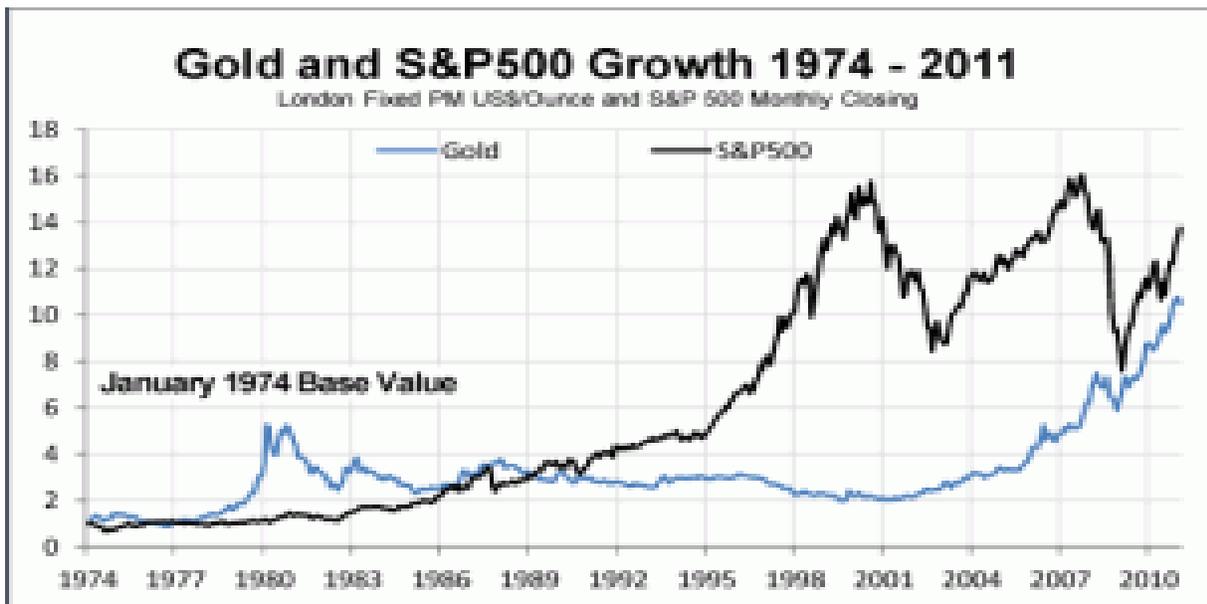


Source: Reuters Datastream, OECD, Bloomberg, LBMA, GFMS, World Gold Council
 G5, GDP weighted = (USD, EUR, YEN, GBP, CAD); Producers , production weighted= (CNY,USD, AUD, RUB ,ZAR); Consumers, demand weighted=(INR, CNY, USD, TRY, EUR)

c. Gold price and the stock market

Is the stock price affecting gold price? One might expect a negative relationship: when stock prices go up, investors gain more in the stock market and thus sell their gold in order to invest it in the stock market. This pushes the gold price to fall. However, the observed prices tell us differently. In the last thirty years, gold prices have fluctuated usually, with major spikes in 1980 and in 2010. Using an index starting with 1 in 1974, the graph in Figure 4 below shows that gold outperformed S&P 500 in the gold rush in the 1970s. In the 1990s, the S&P 500 gained over the gold. In the 2001 and 2008 financial crises, the stock market fell and gold started rising from its bear market. The relation between the two changed significantly in the 2000s to one that is more unstable over time, underlining the gold price sensitivity to a number of scheduled U.S. and Euro area macroeconomic data including stock prices.

Figure 4



Other drivers of demand for gold are the growing national debt, low interest rates and an expansion of money supply. The decrease of gold production by 10 percent since 2001 and strong demand for jewelry and by institutional investors were other factors that have been driving up the value of gold. In addition, the financial crisis of 2008, during which the US government publicly owned the two biggest US mortgage lenders and the biggest US insurer, drove up demand for physical gold and exchange traded funds. SPDR Gold Trust, the largest ETF gold fund carries now more gold reserves than the Chinese Central Bank. To encourage the economy, the US Treasury decreased the federal funds rate to historically low levels (it is about 0.25 per cent at the time of writing, Wall Street Journal). This low interest rate also made investing in gold a more lucrative business.

The S&P500 and the Dow Jones Industrial Average are usually highly correlated (excluding times of crisis), so the correlation coefficient is very close to 1. The next Figure 5 shows the ratio of Dow Jones industrial average to the gold price. It represents the number of ounces of gold it takes to buy one share of the Dow. For example, with the Dow at 10,000 and gold at \$500 an ounce, it requires 20 ounces of gold to buy one share of the Dow, so the ratio is 20. The striking point about this relationship is that while the Dow showed a sharp increase in the nineties compared to gold, this momentum has since reversed and the ratio fell back in 2009 to its early ninety levels. We have probably witnessed the end of an era for equities. Stocks had an 18 year (1982-2000) bull market where buy and hold was the guaranteed way to make money. Unfortunately for the stock market bulls, asset classes

go in and out of favor, and gold has potential to be the next great asset class. The Figure 5 shows that it would be logical to expect the ratio to return to at least a value around 5. Perhaps a ratio of 5 would be gold 2000, Dow 10,000.

Figure 5: Dow Jones Industrial Average-to-gold ratio for the past 36 years



CONCLUDING REMARKS

Finally, we will discuss expected price movements of gold in the remainder of 2013. In fact, it is observed that over the last 15 years, gold prices usually decline from mid-February into the summer, then again in October. That leaves the largest gains to be reaped between November and early February – the annual chaos run served by overall healthier Asian buying. Currently, the volatility in gold seems to have died down: a move of \$30-\$40 an ounce is a large change, although most days witness a much smaller movement. This is a significant reduction from the days where \$150 an ounce was more frequent.

Not only do we have the seasonal demand from Asia (i.e., strong demand from Asian consumers and institutional investors has been absorbing gold that flows onto the market from sales by Western hedge funds and speculative investors, World Gold Council, 2013), but also a large US domestic debt and the inability of the government to resolve differences on how to address the financing of budgets have imposed a deep concern that affects most lenders to the US government. Another source of instability is the undetermined effect of euro zone economic problems (especially Greece, Spain and Italy). The steps that would have to be taken in order to rescue the euro, including complete debt-sharing, fiscal unions, a political union, and other conflicting points cannot be embraced by the Northern Europeans. This would mean more uncertainty toward the euro zone. Global market deterioration and the tendency of central bankers to create more money to deal with the financial crisis of 2006/2008

is very supportive of higher gold prices. In addition, the actions of the Federal Reserve are helping to keep interest rates exceptionally low through to at least late 2014. This dampens hopes for a bolder plan to support the US economic recovery, such as a continuing the quantitative easing. However, if the Fed is forced into using quantitative easing again, the gold prices may shoot up to \$2,000 an ounce.

It was argued in this paper that investing in gold should be an integral part of any diversified investment portfolio because it can decrease the tail risks and because index and exchange trading, which is a major class of financial investment in commodities, has become an extension of traditional portfolio management. Looking at the exchange rate and various indices it becomes evident that gold is not expensive and that it has room to grow in value. If the Fed feels that it has to constantly inflate, and convince its major trading partners to go along with the same policy, in order to keep the financial and economic institutions viable, the alternative may be to return to sound money based on precious metals. In this case, one cannot ignore the oldest metal when trying to manage a portfolio.

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