

# Gold as an Investment

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## Introduction

Throughout history, gold has always played a prominent role in investment, due to the fact that it is viewed by many as the ultimate store of value and hedge against inflation. It possesses these properties due to its tangibility, durability, high value for small bulk (which aids both concealment and portability) and due to the fact that there is a continual demand for gold to create jewellery and other valuable objects.

The duality of gold's role is such that it is seen as both a real asset of exceptional value and a monetary asset of exceptional liquidity. It has been at the core of domestic and international monetary systems for many centuries, and in the present century it has served as the basis for the gold standard system (continued from the 19th century), by which currencies were directly convertible into gold; and the system agreed at Bretton Woods whereby currencies were convertible into a currency based on gold, namely the dollar which was convertible into gold at \$35 per ounce.

Gold is traded internationally and studies show that gold assets represent between 5% and 10% of a typical European or Middle Eastern portfolio, while investment in gold bullion represents more than 5% of total investible wealth (Solnik, 1991).

Investment in gold can take several forms, including bullion, gold stocks, coins, jewellery, bonds, mining equities, futures and options. These forms differ on many counts, including marketability, trading costs and other features. However, it is noticed that all tend to rise and fall in relative unison with the free market price of gold bullion. It is this compelling feature of gold which motivates an examination of the price of gold.

## Price of Gold

The London Gold Bullion market (1972-88) shall be used as the backdrop for examining investment in gold using a multiple regression of the form:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + e_i, \\ i = 1, \dots, 17$$

where

$Y_i$  = real price of gold (\$US) on the London market

$X_1$  = rate of inflation

$X_2$  = real rate of interest

$e_i$  = error term

A rudimentary knowledge of micro-economic theory dictates that the price of gold is determined by the simultaneous interaction of supply and demand and it is, however, interesting to note that hoarding demand is the decisive factor in setting the price of gold (Clendenin, 1978), with supply remaining relatively inelastic.

Therefore, we can make the simplifying assumption that the price of gold is a function of the demand for gold, which in turn is a function of the inflation rate and real interest rate.

### *Inflation*

Inflation has been chosen as the  $X_1$  variable, as there is a general consensus that inflation and gold prices are positively correlated. Therefore,  $\beta_1$  should have a positive value. Gold is seen as the ultimate hedge and store of value, and hence as the best protection against inflation crises and monetary devaluation. Thus, the price is influenced by expectations of future price changes. Gold provides no income and thus price increases constitute the only return to the investor. Generally speaking, price expectations that are not linked directly to income flows are quite volatile, which explains the large volatility observed in international gold markets (Solnik, 1991).

### *Interest rates*

Over the past decade, gold prices have not risen greatly, and a possible explanation for this has been the high real interest rates available in most currencies. This has made gold, which pays no income, less attractive as an investment. Therefore,  $\beta_2$  would be expected to have a negative sign, reflecting a negative correlation between gold price and the real interest rate. This encapsulates the idea of a negative substitution effect, with rising interest rates effectively raising the opportunity cost of holding gold.

### **Beyond the model**

Other factors affecting the demand for gold which are subsumed in the error term are: 1) movements in the dollar - when it weakens people look for other investments, and if currencies are unstable, investment in gold becomes attractive; 2) shocks to the economy - the oil price shocks and the 1987 stock market crash are examples; 3) the price of oil - rising oil prices necessarily entail inflation, and thus the price of gold tends to follow the price of oil; 4) alternative investments providing a hedge against inflation - there has been an explosion in the availability of such investments as futures and options, especially since the 'Big Bang'; 5) the stock market - gold price changes are slightly negatively correlated with stock returns (Sennholz 1975). This renders gold attractive for diversifying a portfolio of wealth. Gold enables investors to diversify against types of risk that affect all stock markets simultaneously. It would thus seem that the error term in our model is likely to be large, owing to a degree of misspecification in the current model.

The supply of gold depends on the Western mine production (mainly from South Africa); that production is steady, rising slowly in the 1980's. In any case, each annual output of gold adds only a small percentage to the quantity available from previous years (Solnik, 1991).

### **Results**

In estimating the model, time series data from 1972-1988 has been

used. The price of gold has been taken from "Financial Statistics" (published by the Central Statistics Office (UK)), as has the rate of interest. Both figures are provided by the Bank of England. The rate of inflation is published in "Economic Trends Annual Supplement" (CSO, UK). The inflation figures have been used to calculate the real price of gold and real interest rates.

The multiple regression has an  $R^2$  of 0.70118, suggesting that inflation and interest rates together explain 70% of the variation in the price of gold. The forecasting power of the model has yet to be ascertained. The t-statistics are significant at the 5% level, indicating that their contribution to the explanatory power of the model justifies their inclusion. A reliable model could, in theory, be used to make predictions about the price of gold, which could prove invaluable for trading on the gold market. However, it is extremely difficult to predict both the extent and

timing of price level increases, and to gauge accurately the behaviour of different investments under conditions in the future.

### Relevance

On an international scale the price of gold no longer has much policy relevance. As gold is no longer the basis for currency, governments are unlikely to intervene to affect its price. It is also highly unlikely that a return to the gold standard is desirable. International trade and financial transactions grew to such an extent that the gold standard exploded in the 1970's. This trend has been even more marked since the 'Big Bang', making a return to the gold standard even less probable. Gold does not play the role in international monetary systems and transactions that it once did, but nevertheless it retains its attractiveness as a valuable, low-risk investment.

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### REGRESSION RESULTS

$$R^2 = 0.70108$$

Independent Variable	Parameter Estimate	t-statistic $H_0 : \beta = 0$
Constant	82.187072	1.25657
Inflation	45.336761	5.72990
Interest	44.580425	5.09468

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Table 1

## References

Clendenin, J. and Christy, G. (1978) *Introduction to Investments*. New York: McGraw-Hill.

Sennholz, H.F. (1975) *Gold is Money*. London: Greenwood Press.

Sharpe, F. *Investments*. Englewood Cliffs, N.J.: Prentice Hall.

Solnik, B. (1991) *International Investments*. Reading, Mass. Wokingham: Addison-Wesley.