

The Many Values Of Gold

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The present article gives an overview of various ideas on how much an ounce of gold might be worth.

We know the *price* of an ounce of gold. Last week, on 3 February 2012, the price of gold was US\$ 1734.00 per ounce ([London pm fixing](#)). So much about the price. But what is its *value*?

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1. The Value of Gold versus the Bond Yield

There is one correlation related to the price of gold that has been established rather well empirically. The story of its discovery is somewhat convoluted and reads roughly as follows.

We first need to think about the yield on long-term bonds. Naively, one would expect that the **nominal** yield on long-term bonds correlates with present inflation or, perhaps more accurately, with the presently expected future inflation, i.e. it correlates with the **rate of change** of the price level. Alfred H. Gibson discovered in 1923, however, that the **real** yield on long-term bonds correlated with the **absolute** price level. His study was based on interest rates and price levels in Britain over more than two centuries! Why would this be the case?

[John M. Keynes](#) termed this observation [Gibson's Paradox](#) and called it *one of the most completely established empirical facts in the whole field of quantitative economics*. In 1988, Robert B. Barsky and [Lawrence H. Summers](#) (who later became US Secretary of the Treasury) solved the paradox:

R. B. Barsky, L. H. Summers: [Gibson's Paradox and the Gold Standard](#), *Journal of Political Economy* **96** (1988) 528.

The data that Gibson had studied, originated from the time of the gold standard. The effect occurs because at that time, gold had two functions:

- Currency (i.e. medium of exchange)
- Store of Value

In the former function, gold is responsible for the general price level while in the latter function, it competes with long-term bonds.

The market participants decide about the allocation. If future real interest rates are high, the opportunity cost of holding gold as a store of value is high, and most of the gold circulates as currency. As there is plenty of circulating gold, the price of gold in terms of real goods and services is low. Under the gold standard the gold is the currency, and so this means that the general price level is high.

If future real interest rates are low, however, gold is preferred as a store of value and is withdrawn from circulation as currency. As there is little circulating gold, the price of gold in real terms is high. Under the gold standard, this means that the general price level is low.

So the correlation that Gibson observed, namely a correlation of the future real yield on long-term bonds with the present absolute price level was actually an anti-correlation of the future real yield on long-term bonds with the present real price of gold. What is even more remarkable is the observation that the correlation involves the future **real** yield, i.e. the market is quite efficient and is indeed able to predict the future real yield rather than suffering from inaccurate predictions of price inflation.

In order to test their idea, Barsky and Summers also studied the period after [1971](#) in which the price of gold in US\$ was determined by the market and floated freely. Indeed, the correlation persists as an anti-correlation between the present real price of gold and the future real yield on long-term bonds, confirming their model that resolved Gibson's Paradox. In other words, even in the absence of a gold standard and in a monetary system in which gold is not currency, gold still serves as a store of value and as such competes with long-term bonds.

One can now take this result of Barsky and Summers and go even further and

- Design a numerical model that uses the known correlation and past prices in order to estimate the future price of gold.
- Observe during which periods of history was the correlation of Barsky and Summers absent, and investigate whether the price of gold was perhaps politically controlled during these periods.

A specific model was presented by [Eddy Elfenbein](#). We also refer to [this](#) and [this blog article](#).

Nick Laird and Reginald H. Howe have identified [the period since 1995](#) (their study covers the period 1977-2001) as a period in which the correlation discovered by Barsky and Summers is particularly weak in the data. Coincidentally, [Lawrence H. Summers](#) was Deputy Secretary of the Treasury from 1995 and Secretary of the Treasury from 1999 until 2001. Go figure. This period is also known for the rapid expansion of the London gold market. We will come back to this in Section 8 below.

Let us keep in mind that the work of Barsky and Summers yields an empirically well-tested correlation, but that it does not give any information about the absolute price for an ounce of gold.

Before we proceed to more conceptual questions about the value of gold, let us briefly mention a couple of other ideas that one might wish to consider.

2. Brief Overview of Other Valuation Ratios

There are plenty of other ways of valuing gold by comparing it to other quantities, for example,

- Gold might protect against inflation and have a constant real value. This is somewhat supported by data from the gold standard period over long time frames, but in the short run, the price level fluctuated considerably. One can see this in particular in the data set in which Gibson's Paradox was discovered.
- The ratio of the gold price to the [monetary base](#) might revert to the mean. If true, it works only on time scales longer than 50 years. One major problem is that on such long time scales, the monetary system has also evolved, and so we would be aiming at a moving target.
- The ratio of the gold price to the [Dow Jones Industrial Average](#) might revert to the mean. The idea has essentially the same status.

Rather than going into greater technical detail as far as such ratios are concerned, let us explore further ideas at the conceptual level.

3. Commodity Value

One might also try to view gold as a commodity similar to copper, iron ore or wheat.

The market for commodities, say, iron ore, works basically as follows. There is a certain supply from mines and recycling; there is demand from industrial consumers; and there are warehouses and trading centres that store a certain amount of the commodity. Note that it is hardly common that the warehouses store more than, say, one year worth of supply.

In order to understand the market for iron ore, you therefore need to estimate the supply and demand curves, i.e. how supply and demand depend on price, and you need some knowledge about the warehouse inventories and capacities. Finally, perhaps you need to study how present price affects future supply and future demand due to investment in mining capacity on one hand and due to substitution by other materials on the other hand. Then you can try to come up with a prediction of the price of iron ore.

The problem is that this model does not apply to gold. Whereas nobody stores more than one year worth of supply of iron ore or wheat, the above ground stock of gold is estimated to be over 130000 tonnes. This is more than 50 times the annual mine production of presently about 2600 tonnes. The price of gold is therefore not determined by the annual mine production and recycling on one hand and by industrial and jewellery demand on the other hand, but rather by the trading of the above ground stock.

This is the reason why studies that view the gold market as that of a commodity, for example the studies regularly published by [GFMS](#) and by [CPM Group](#) are of rather limited use in understanding the gold market. The situation becomes considerably worse if one takes into account the market for gold denominated bank credit (Section 8 below). In fact, one might claim that these studies are promoted deliberately in order to distract from the true issues at hand.

4. Warehouses, Term Structure, and the Future Value of Gold

Gold is not only traded for immediate delivery, i.e. in the spot market, but also for future delivery. For example, you can today purchase a gold forward contract which guarantees you a delivery of gold at some fixed date in the future for a US\$ price agreed today.

The origin of the forward (and the futures) markets was the trading of agricultural commodities, and so let us first think about wheat. Almost all the supply of wheat is brought to the market during the harvest period

whereas demand is spread out uniformly over the year. So why would not the price of wheat be extremely low immediately after the harvest and then extraordinarily high right before the next harvest?

The answer is that there exist storage facilities, the grain elevators. Let us say you operate a grain elevator, and your business is well capitalized. Assume that you have spare capacity. When exactly should you buy and for how long should you store the wheat? You ought to watch two prices: first the spot price and second the forward price. In order to stock your elevator, you would buy wheat in the spot market, pay with US\$ and receive the wheat immediately. At the same time you would forward-sell the same wheat for delivery at a specified date in the future. On that day, you will deliver the wheat to someone else and receive US\$. Since you enter both contracts, buying at spot and selling the forward, simultaneously and since the forward price is determined when you sign the contract, you have no price risk. It does not matter to you if the price of wheat changes while the wheat is in your elevator. You operate a storage facility, but you are not a speculator in the wheat market.

Effectively, you have lent a part of your business capital in US\$ to the wheat market and received wheat as the collateral for this loan. Usually, the forward price of wheat is higher than the spot price, and this difference, the *contango*, is the interest that you receive for lending your US\$ to the wheat market. This interest is your business revenue.

It is now easy to see that the term structure of the forward market, i.e. how the forward price of wheat depends on the date of delivery, regulates the inventory levels of the grain elevators. Just in order to maximise their revenue, they will choose to store wheat for those periods over which the contango is maximum. In an ideally efficient market, the contango would thus equal the interest rate on a US\$ loan plus the operating expenses and the profit margin of the storage facilities. In other words, in an efficient market, the grain elevators perform term structure arbitrage in the forward market for wheat.

Now you can apply these ideas from agricultural commodities to physically settled forward (and futures) markets for gold, for example the New York [Commodities Exchange](#) (COMEX).

If we not only take into account interest rates and storage expenses, but also counterparty risk, we can see that a negative contango (which is called *backwardation*) in the gold market indicates the counterparty risk that the gold may not be delivered. We refer to a [previous article](#) for more details. Backwardation in the gold market would lead to gold being withdrawn from public trading venues because the market makers operate in a fashion similar to the grain elevators and would simply cease to earn any revenue from their operations and therefore shut down their business. As far as we know, this point of view was first advocated by Antal E. Fekete. See, for example, his [Red Alert](#). Let us finally note that these ideas about the term structure do not exactly apply to the London gold market because what is traded there is not only physical gold, but also bank credit (Section 8).

5. Monetary Value And Seigniorage

Take a [US\\$ 100](#) bill from your purse and think about it. What do you think is its value? You can buy US\$ 100 worth of groceries with it, and this is already a good answer. This is its monetary value.

Its production cost, however, is probably closer to 50 cents. And should the US\$ ever cease to be the accepted currency, all you have is a small piece of cotton blend fabric whose intrinsic value is probably even less than its production cost. During the [hyperinflation](#) in Germany 1922-23, when a dozen eggs cost a billion marks, people just carelessly dropped their smaller denomination notes, say of a million or less. When the market closed, the cleaning staff came and wiped up these notes in order to use them as fuel for their fireplaces and ovens. This was the intrinsic value of these bank notes.

So in the language of a value investor, the US\$ 100 bill is clearly overvalued. It has a lot of monetary value, but close to no intrinsic value. It is merely a token. A token that expresses the fact that somebody owes you a certain amount of goods and services, according to the prevailing social contract. A contract that may be honoured or may be broken. A pure token that has almost no intrinsic value on its own.

When gold or silver coins are used as currency, one way of managing such a currency is completely analogous. The government purchases gold bullion from the market and mints it into coins whose denomination is such that their monetary value is higher than their intrinsic value. The difference is what was historically called *seigniorage*. Since this term is sometimes used with a certain [technical meaning](#), we prefer to call it the *monetary premium*, i.e. the amount by which the monetary value exceeds the intrinsic value. The minted coins bought more goods and services than bullion of the same weight. In this sense, these coins were tokens very similar to our US\$ 100 bill.

Well, the difference was that you still had the bullion in case the government messed with the monetary system at some point in the future. But as long as there was a monetary premium, melting down these coins would have been a waste, squandering precisely the monetary premium that had been created when the bullion was minted into currency tokens.

The gold coins that circulated as currency, however, did not retain their monetary premium forever. In the United States, the monetary premium must have been lost well before the 1920s. This is the story of how the gold standard failed, how in fact any gold standard will fail, and finally why the present London gold market still carries the burden of a gold-standard-about-to-fail.

6. The Undervaluation of Gold and the Self-Destruction of the Gold Standard

Before [1933](#), a part of the US dollar cash circulated in the form of one dollar gold coins, originally intended as tokens of a monetary value that exceeded their intrinsic value. The period immediately before 1933 was a particularly perverse period of the gold standard of the US dollar because the US dollar gold coins must have traded at a negative monetary premium, i.e. at a *monetary discount*.

In order to understand how this can happen, we need to recall how paper money enters the picture. There are basically two ways of introducing paper:

- The first way is in the form of warehouse receipts. People deposit their gold coins in a vault, and the custodian issues warehouse receipts. These warehouse receipts can then circulate as currency. It is important that the original coins are kept segregated and remain one-to-one associated to the warehouse receipts. These receipts have no credit risk and will trade at the same price as actual gold coins. Strictly speaking, since storage in the vault is not for free, the holder of these warehouse receipts would have to pay a storage fee to the custodian.
- A second way of introducing paper is that some owner of gold coins lends these coins to a bank and receives a credit note, i.e. a tangible bank note, or another form of credit money, for example, an account balance, in return. The bank is free to use the gold coins that have been deposited on their own account. In particular, the bank can lend the coins to somebody else or write further credit notes or account balances against these coins. Both the credit notes and the account balances can circulate as currency.

Our bank will probably have to offer interest on its account balances and perhaps even on its credit notes. Otherwise, people would not assume the risk of lending their coins to the bank. The interest payable by the bank would equal the risk premium minus storage expenses.

The credit notes and account balances have credit risk because in case the bank suffers business losses elsewhere, the customers may be unable to redeem their credit notes or account balances for

gold coins. Or the bank may suffer from a mismatch of maturities and may be unable to recall an outstanding loan quickly enough in order to allow another customer to withdraw her or his coins. In particular in an economic crisis, these credit notes and account balances may trade at a discount, reflecting all these risks. Runs on individual banks will happen occasionally.

Things get really botched up when one tries to make these two sorts of papers equal, for example, by trying to 'guarantee' that the holder of a credit note will always receive a gold coin. Such a 'guarantee' might be motivated by the desire to avoid bank runs. Several banks might join forces and set up a [Federal Reserve](#) that keeps an emergency reserve of gold coins in stock in order to inspire more confidence in the 'guarantee'. Whereas before, individual banks had issued their own credit notes and one could associate the credit risk of a specific note with a specific bank, the Federal Reserve could issue Federal Reserve Notes in order to remove the link to a specific bank and its creditworthiness.

There is still a problem though. Since the banks have created credit, there exist more credit notes and account balances than gold coins. The 'guarantee' therefore rests on a shaky foundation and will ultimately remain unenforceable (unless all credit can be liquidated instantly). In a very serious crisis in which everyone tries to cash in their notes and withdraws their account balances, it would be plainly impossible to deliver on the promised 'guarantee' and make enough gold coins available. Also such a run on the banking system would create a credit crunch with serious implications for the real economy.

Let us now come back to the initial remark that the US dollar pre-[1933](#) traded at a monetary discount. In order to see this, we need to take into account another effect of the 'guarantee'. As long as the system functions and the 'guarantee' has not been broken, credit notes and account balances can always be freely exchanged into gold coins and vice-versa. Both therefore trade at the same price. The price is set at the margin.

Obviously, as soon as the banking system creates credit and the credit money, i.e. account balances (for example in electronic transfers) and credit notes (tangible bank notes), circulates freely along with gold coins, all being equivalent at the margin, the total currency supply is a lot larger than the number of actual gold coins. The term *currency supply* here refers to the total amount of gold coins (currency base) plus the credit created by the banking system. If the currency supply increases faster than [GDP](#), more currency bids for the same amount of goods and services, and so the real value of the currency unit declines. If it declines below the intrinsic value of the gold coin, we get a negative monetary premium, i.e. a monetary discount.

If you are still uncomfortable with the idea that it is the currency supply, i.e. the total volume of monetary base plus credit created in the banking system, that is the primary driver of consumer and asset price levels, we have some mandatory reading for you:

[Richard A. Werner, *New paradigm in macroeconomics: solving the riddle of Japanese macroeconomic performance*](#), Palgrave Macmillan, 2005.

Richard A. Werner, [Towards Stable and Competitive Banking in the UK ...](#) (his contribution to the [Vickers Commission](#))

What is important here is

- Firstly that the credit money is generally accepted as payment, i.e. that it circulates as currency.
- Secondly that people trust the credit money and that therefore, at the margin, the credit money trades at the same price as the original gold coins.

Note that before the introduction of nation wide Federal Reserve Notes, each bank had issued their own credit notes, and so the counterparty of the credit risk could always be identified. Also, these specific notes traded as currency only regionally and so they had not fully lead to additional currency supply.

It is furthermore the confidence of the market participants that matters, even if it is obvious that the 'guarantee' will ultimately fail and even if there is no law that guarantees that credit notes will be redeemable for gold coins. As soon as there is confidence in the credit money, however misplaced it might be, the currency supply will be effectively larger, and the currency unit may trade at a value lower than the intrinsic value of the gold coin.

In this situation of a monetary discount, it is rational to withhold gold coins from circulation and to spend credit notes instead. This can be seen as a variant of [Gresham's Law](#). This eventually results in a run on the gold reserve of the banking system. Since all credit money is initially equal as per confidence, or perhaps as per 'guarantee', once this trust is lost, the run will not be on a specific bank that is perceived as unsound, but rather on the currency itself. Just as in the period after 1929. Although the Federal Reserve was at that time required to back 40% of its notes with gold, this was still not enough because it did not cover all account balances, i.e. all the credit money that had been created by the banking system.

The claim that the US dollar had traded at a monetary discount before 1933 was finally acknowledged officially by the [Gold Reserve Act \(1934\)](#) which lowered the amount of bullion that corresponded to one pre-1933 one-dollar coin from 1/20.67 of an ounce to 1/35 of an ounce, thus bringing the monetary and the intrinsic value of the US dollar back in line. Well, not quite, because nobody inside the United States had been allowed to keep their gold after [1933](#). Only in international trade was the US dollar still related to gold. Foreign governments were still able to exchange credit notes for US dollars.

The US dollar actually developed a long track record of trading at a monetary discount compared to its claimed gold value. Gold convertibility was finally [terminated](#) even internationally. With the [Smithsonian Agreement](#), although the US dollar was no longer convertible into gold, its value was further adjusted to 1/38.02 ounces and then one further time down to 1/42.22 of an ounce. (This last official price of US\$ 42.22 per ounce was never changed – internationally, the United States are still in default of payments at that price of gold). As we have learnt so far, all this was no surprise at all, simply because the banking system kept creating credit, lowering the monetary premium further and further.

Another aspect of gold coins trading at a monetary discount is that it allows interested parties to accumulate bullion at a discount. Rather than purchasing bullion in the free market for which they would have to pay the intrinsic value (which we will call the *free gold value* below), they can take coins out of circulation and pay only the lower value of the currency unit. Market participants who know that this system will eventually fail and who are aware of the intrinsic value of bullion (let us call them *smart money*), can accumulate gold at a discount at the expense of the general public and the stability of the system.

Who played the role of the smart money in the past? In [1933](#), it was the United States Government. They were not very sophisticated, but rather took the gold by force of law. Between [1944](#) and [1971](#), it was the trade partners of the United States. Whenever they exported goods into the United States, they received US dollars which were then converted into gold. Settling international balances in gold was the standard procedure at that time, but due to the monetary discount at which the US gold traded, the foreign trade partners of the US received a disproportionate weight of gold. Finally, between about 1982 and [1999](#), it was Saudi Arabia and China. For this latter remark, we refer to Section 8 on the modern London gold market and to FOFOA's [It's The Flow, Stupid](#) and [Flow Addendum](#).

7. The Free Gold Value

In the previous section, we have seen that *paper gold*, i.e. bank credit that can be exchanged for a fixed weight of gold, regularly leads to a monetary discount, i.e. making physical gold available at a currency price that is below its intrinsic value.

This allows the smart money to take physical gold out of the system at a discount and, in a situation of crisis, renders a run on the currency the rational response. We will come back to this when we discuss the modern London gold market below in Section 8.

Let us summarize

1. If the value of credit that trades as currency, is tied to a weight of physical gold (we call this *paper gold*), the creation of credit in the banking system leads to physical gold trading at a monetary discount. This will happen as soon as
 - Credit circulates as currency, for example, in the form of electronic transfer of account balances or as tangible bank notes, i.e. credit money is accepted as payment in transactions,
 - At the margin, credit can be exchanged for gold, rendering the prices of both equal.
2. If gold trades at a monetary discount, the rational response to a loss of confidence is a run on the gold that is part of the currency, leaving behind the collapsing credit part of the currency.
3. Furthermore, even before such a loss of confidence, the system allows the smart money to accumulate physical gold at a discount and at the expense of the stability of the entire system because this accumulation drains reserves from the system.

Following the work of [Another](#), [FOA](#) and [FOFOA](#) who developed the ideas presented in this section, we use the term *free gold value* for the price of gold that you would get if gold were not tied to credit in such a fashion.

Nobody knows exactly what the free gold value is since the world has not seen gold trade free from credit for more than a century. Even in the absence of a gold standard, the price of gold is presently tied to the US dollar through the London market (Section 8). The International Reserve Value of gold, however, gives us a strong hint (Section 9).

For further thoughts, we refer to FOFOA's [The Return To Honest Money](#), and for more details on the history of the gold standard, to his [Once Upon A Time](#).

From the discussion in the preceding section, it is quite clear what went wrong during the gold standard: it was the fact that physical gold and the unit of credit traded at the same price. It is quite natural to expect that the free market rather wants to discover two different prices:

- That of a gold coin as a store of value, depending on savings rates, risk tolerances and future real interest rates on competing bonds, etc.
- That of credit notes and account balances, depending on economic prospects, the solvency and liquidity of the issuer, interest rates, currency supply, etc.

If both prices are equal because credit is denominated in a weight of gold and, at the margin, can be exchanged for gold, it is quite obvious that one gets some arbitrage flow, basically a form of [Gresham's Law](#). If it is possible to accumulate physical gold at a discount, the smart money will attempt to do precisely this, rendering the system unstable by draining its reserves. Eventually, in some crisis of confidence for whatever economic or external reason, the system collapses because the run on the gold in the currency is the rational response for all market participants. Think of 1929-1933 or 1999-2001.

The solution is now also quite obvious:

Never denominate credit in a weight of gold.

More precisely, one has to avoid that any of the credit that circulates as currency, i.e. that is accepted as payment, is denominated in a weight of gold.

8. The London Gold Market and the Value of Paper Gold

Before January 1997, outside a small circle of insiders in the London bullion trading houses, basically nobody had any idea of how the London gold market worked. They traded gold, sure, and they [fixed](#) the price of gold, but how big was the market and how did things work at the technical level?

On 29 January 1997, the [London Bullion Market Association](#) (LBMA) for the first time published statistics of their clearing volumes. [Red Baron](#) has preserved the following article from the [Financial Times](#) of London the next morning:

The London Financial Times

Gold global market revealed, THURSDAY JANUARY 30 1997

By Kenneth Gooding, Mining Correspondent

Deals involving about 30 million troy ounces, or 930 tonnes, of gold valued at more than \$10 billion are cleared every working day in London, the international settlement centre for gold bullion. This is the first authoritative indication of the size of the global gold market, and was revealed yesterday by the London Bullion Market Association. With the blessing of the Bank of England, the association overturned years of tradition and secrecy to provide statistics illustrating the size and depth of the London market.

The volume of gold cleared every day in London represented nearly twice the production from South African mines in a year, Mr. Alan Baker, chairman of the association, pointed out. It was also equivalent to the amount of gold held in the reserves of European Union central banks. The size of the gold market will surprise many observers, but traders insisted the association's statistics were only part of the picture because matched orders are cleared without appearing in the statistics. Mr. Jeffrey Rhodes, of Standard Bank, London, said the 30m ounces should be "multiplied by three, and possibly five, to give the full scope of the global market".

Mr. Baker said the association would produce average daily clearance figures every month. "They will provide a useful benchmark for comparison and analysis of trends in the volume of the global bullion business," he predicted. He denied suggestions that the move might drive business away from London by upsetting clients who preferred secrecy. "These figures do not in any way affect the confidentiality of the market. While discretion and integrity will always be bywords in the London bullion market, the LBMA is nevertheless conscious of the general call for greater transparency in markets. "The statistics demonstrate the prominence of London in the world of bullion, something we have long been aware of but which until now has been difficult to demonstrate with statistics."

LBMA members were divided over the move. One said he was puzzled. "What will people make of it?" Another said the exercise was "futile" because it did not give a complete picture of bullion market activity. But Standard Bank's Mr. Rhodes suggested the statistics would "become the key indicator in the world of gold, providing the numbers by which the market can be monitored".

Mr. Martin Stokes, vice-chairman of the association, said: "This shows we have a serious market with a lot of depth and deserving of more attention." The statistics showed, for example, that the 300 tonnes of gold sold recently by the Dutch central bank – a disposal that badly affected bullion market sentiment – was not a large amount by the market's standards. The association was "making a bid to attract investors' interest".

The association also gave details yesterday about the silver market. Roughly 250 million ounces of silver valued at more than \$1 billion are cleared daily in London. It also published the results of a Bank of England survey of turnover that the 14 market-making members of the LBMA in the London bullion market conducted in May last year. This showed about 7 million ounces of gold, worth nearly \$3 billion, was traded daily by these market-makers.

This official revelation by the LBMA and their regulator, the [Bank of England](#), was the starting point that led to the contributions by the users [Another](#) and [FOA](#) first in the discussion forum of [Kitco](#) and later in that of [Centennial Precious Metals](#). The press release showed that gold was traded in the same fashion as a foreign currency in the Over The Counter (OTC) market between the major banks and bullion trading houses, completely analogous to, say, [eurodollars](#).

The gold in the vault plays the role of tangible cash, but there are also [unallocated accounts](#) which correspond to credit money, i.e. bank account balances. These unallocated accounts are denominated in ounces of gold. The banks can create credit and clients can borrow this sort of credit gold (I have illustrated in a [previous article](#) how this works in principle). When a customer has her or his gold account balance allocated, i.e. receives title to individual bars, this is finally analogous to withdrawing tangible cash from the bank account and putting it into a safe deposit box, thus eliminating the credit risk. The Bullion Bank needs to manage their reserve, i.e. the physical gold in their vaults, in such a way that they can honour these allocation requests. Depending on whom they lent credit gold, they may or may not be able to recall these loans quickly enough in order to replenish their reserves.

We have, of course, heard this story before in Sections 6 and 7. This is yet another flavour of *paper gold*. The unallocated accounts are a form of bank credit denominated in a weight of gold. At the margin and as long as there is confidence in the London gold market, both bank credit and physical gold trade at the same price. One is, however, the tangible asset free of counterparty risk that serves well as a store of value in the long run whereas the other one is merely another form of bank credit. The only difference to the historical gold standard is that the unit of the unallocated gold accounts is no longer the official currency of the United States. The other aspects are completely analogous though.

Before we delve into the matter in greater detail, let us contrast the situation with the eurodollar market which is just a government fiat currency traded by non-US banks as a foreign currency. If there is a loss of confidence and depositors withdraw their eurodollar balances, this run on the eurodollars has the potential to cause a serious credit crunch. Thanks to the fact that the US dollar is a fiat currency and no longer equal to a weight of gold, the Federal Reserve can always avert a bank run on the eurodollar market simply by providing the relevant non-US banks with ample liquidity in the form of currency swaps. So the fiat money does not have the same intrinsic instability as the gold standard. The price to pay for this advantage is the fact that the Federal Reserve may have to increase the monetary base in order to re-liquify the eurodollar market. The London gold market, however, suffers from the intrinsic instability of the gold standard simply because no government department can create additional gold in order to provide liquidity to the market.

In comparing the London gold market to the gold standard, we have already noted that unallocated gold is no longer the official currency of any country. How about the other features of the gold standard? Is the US\$ price of gold in the London market lower than its intrinsic value? Does the market offer the smart money an opportunity to accumulate physical gold at a discount to its intrinsic value? In order to answer these questions, we need an estimate of the relevant *currency supply*, i.e. the aggregate balance of all unallocated gold accounts plus the physical reserve that underlies the London gold market.

The [clearing statistics](#) published by the [London Bullion Market Association](#) (LBMA) [indicate](#) that over 650 tonnes of gold are cleared by the LBMA member institutions each trading day (as of early 2012). According to the [World Gold Council](#), the annual mine production is about 2600 tonnes per year. Even if the full global mine production went through LBMA institutions, that would amount only to 10.4 tonnes per trading day (assuming 250 trading days per year). Per year, the LBMA institutions clear more than 150000 tonnes – this is the order of magnitude of the total amount of gold ever mined. Admittedly, the

LBMA is likely to trade not only new mine supply, but also a part of the investment stock, but assuming that the typical owner of physical gold is not a high-frequency trader, these data strongly suggest that unallocated balances dominate the London gold market.

A second piece of information on the ratio of the physical reserve of the London market relative to the aggregate balance of unallocated gold is courtesy to Jeffrey Christian of [CPM Group](#) in his [debate with Bill Murphy](#) of [GATA](#):

Many banks use factor loadings of five to 10 for their gold and silver, meaning that they will loan or sell five to 10 times as much metal as they have either purchased or committed to buy. One dealer we know uses a leverage factor of 40. (Long-Term Capital Management had a leverage factor of 100 when it nearly collapsed in 1998.)

Finally, the user Another has given a rule of thumb from which we obtain a factor 18.9 as of 7 February 2012 (see Section 10 below).

Let us summarize this section. Although gold is no longer the official currency of the United States, it still exists as an independent currency in the OTC market between the banks and bullion trading houses, a currency that is managed in a fashion completely analogous to a foreign currency: with tangible cash, account balances, the creation of credit, lending, debt, swaps, forward and futures contracts, and so on. Since this currency uses bank credit denominated in a weight of physical gold, it shares the major deficiencies of the historic gold standard:

- If the banking system creates credit, this leads to physical gold trading at a discount to its intrinsic value.
- In a crisis of confidence, the run on the physical gold reserve of the banking system is the rational response.
- It allows the smart money to accumulate physical gold at a discount, draining reserves from the system and further contributing to its instability.

9. The International Reserve Value

We mentioned above (Section 7) that it is difficult to estimate how high is the *free gold value*, i.e. how high would be the price of gold in the absence of any bank credit denominated in ounces.

We suspect that a large part of the present global trade imbalances are a consequence of the practice that international trade accounts are not balanced by a flow of physical gold as it was the custom during the gold standard before World War I, but rather offset by an opposite balance in the capital account. The reasoning is as follows.

If country *A* had a trade surplus with country *B*, then *A* received B\$ (*B*'s currency) in turn. Country *A* now has several options. The two extreme choices are

- (a) *A* spends the B\$ in order to purchase physical gold in the market.
- (b) *A* spends the B\$ in order to purchase debt denominated in B\$ and issued by counterparties in *B*.

Choice (a) was the *rule of the game* before World War I. The consequence of the gold purchase was that gold flowed from *B* to *A*. Since the amount of gold in *A* increased and that in *B* decreased, the real price of gold, i.e. the price of gold relative to goods and services, therefore decreased in *A* and increased in *B*.

Internationally, the price of goods and services in terms of gold decided about whether these goods and services were competitive or not. Due to the change in the real prices of gold in *A* and in *B*, goods and services from *A* became less competitive relative to goods and services from *B*. This was the major balancing mechanism that counteracted the trade imbalances and regulated the trade flows.

In his [Once Upon A Time](#), FOFOA identifies the [Genoa Conference](#) of 1922 as the end of the classic *rule of the game*. With the accord of Genoa, country *A* was encouraged to keep B\$ for the long run. If *B*'s currency contained credit money, this automatically implied choice (b) above. It is no surprise that this removed the primary mechanism that had balanced international trade flows before. Again, we notice that now debt and gold are commingled.

In order to get some idea of the order of magnitude of the free gold price, let us pretend that international trade balances would still be settled in physical gold. How much gold do the present trade imbalances correspond to? Let us first take a look at the most serious offenders in terms of trade deficits:

- The United States have a trade deficit of more than [US\\$ 40bn](#) per month. At the official US gold price of US\$ 42.22 per ounce, this would be 29500 tonnes of gold per month. At last week's London price of US\$ 1734 per ounce, it would still correspond to 715 tonnes per month. The official gold reserve of the US government of [8100 tonnes](#) would disappear in less than one year.
- The United Kingdom has a trade deficit of about [£ 3bn](#) or US\$ 4.8bn per month. This would correspond to 3500 tonnes (at US\$ 42.22) or 86 tonnes (at US\$ 1734) per month. Even in the latter case, the official British gold reserve of [310 tonnes](#) would last only for 3 months and 18 days.

These are aggregate figures, i.e. after netting exports and imports. Finally, an example of a major trade hub: Germany.

- Germany exports goods and services for about [US\\$ 125bn](#) per month and imports goods and services for about US\$ 113bn per month (2010 figures). At US\$ 1734 per ounce, this would correspond to a monthly inflow of 2240 tonnes of gold due to exports minus an outflow of 2025 tonnes due to imports for a monthly gain of 215 tonnes. The official German gold reserve of [3400 tonnes](#) would double in just under 16 months.

With these figures it is rather obvious that, if international balances were still settled in gold (or if they will again be settled in gold in the future!), the price of gold would have to be an [order of magnitude](#) higher than today.

As a disclaimer, we should add that we have above focused on the official gold reserves only to illustrate the magnitude of the imbalances. What matters in a real world scenario in which trade balances are settled in gold, is also (and in the long run: primarily) the gold held by private entities, i.e. companies and individual savers.

10. Another on the Free Gold Price

The following information on the free gold price was contained in [Another's](#) postings:

Date: Tue Nov 25 1997 10:06

ANOTHER (THOUGHTS!) ID#60253:

The US\$ is today, backed by oil. As all other currencies are but "digital units" tied directly to the dollar, they are indirectly on the oil standard also. This world currency position is supported thru the BIS. In CB

circles, it is well known that the world debt markets as we know them, can only be maintained with cheap and cheaper oil! Without cheap oil the entire system fails and reverts back to pay as you go economies. This is the central reason for "two price gold".

With gold discounted to its production cost and below, those that have it can trade it for its monetary value. Make no mistake, the BIS knows gold in the many thousands. The future "reset value" of gold is the key. "support the dollar with oil and the currency system works" "fail the currencies and the dollar will come off the oil standard and the BIS will reset gold to \$10,000+ with many conditions"

That is why they continue to accept the dollar as a reserve. If Japan or any other COUNTRY sells US treasury debt it's all over!

Date: Sat Feb 14 1998 19:10

ANOTHER (THOUGHTS!) ID#60253:

[...] Look to LBMA, for currency looking for gold! Compare the Comex average open interest with its average daily trading volume. Now use average daily trading volume at LBMA and convert to open interest in London, using comex ratio. Here you will find "real currency" in "paid for" gold derivatives (not futures) ! This money is now looking to convert to physical! [...]

Date: Mon Feb 16 1998 14:40

ANOTHER (THOUGHTS!) ID#60253:

So where are we now? I'm not sure! How much gold paper is out there? If you look at the comex ratio of average daily volume to open interest, it's sometimes around 8. Funny thing that ratio is close to the gold commitments traded in London. Multiply, say 40 million ozs by the ratio of 8 and we get 320,000,000 ozs. of gold. Now, the money is in this gold paper, paid up. Just no gold yet, I think? That's about [VtC: 10000] tons, I'll be dam! That's a lot of IOU gold, don't you think? Add to this, that between the IMF and what CBs could sell, only about 1/3 of it is available at a much higher price, if at all! Then again, I'm not in any position to know this, am I?

The ratio of COMEX average daily trading volume to open interest is the frequency by which the currency supply (open interest) is turned over, i.e. the velocity of the currency relative to the total currency supply. Another's basic idea is that both COMEX and LBMA have comparable velocities, and so one can estimate the LBMA currency supply from its daily trading volume.

As of 7 February 2012, [COMEX Open Interest](#) was 437000 contracts (43.7 million ounces) and daily trading volume was 167000 contracts (16.7 million ounces) for a ratio of 2.6. According to Another's rule of thumb in his posting of 16 February 1998 and using the daily LBMA [clearing volume](#) of 22 million ounces as in December 2011, we get a figure of 1780 tonnes of unallocated gold waiting for allocation.

We should remark that before the collapse of [MF Global](#), COMEX volume was much higher, around 200000 contracts. This would give an estimate of 1500 tonnes waiting for allocation. Finally, if COMEX has changed over the years, for example through the introduction of high frequency trading, but the ratio of LBMA outstanding contracts to daily volume were still 8 as in February 1998, we would get an estimate of 5500 tonnes.

Date: Sat Apr 18 1998 19:18

ANOTHER (THOUGHTS!) ID#60253: [VtC: probably written by FOA]

[...] In this modern world, the current value of every asset is formed by a relationship of gold/currencies/oil. This cross relationship is the "very basis of our modern world banking system"!

Through this basis, all currencies are given value as the local government treasuries hold US\$ as reserves. The US\$ is given backing as it's government is guaranteed, that all crude oil, worldwide, will be settled in dollars. An oil reserve backing, if you will. And, the "value" that the "future supply of "currency traded "oil" imparts to the world economy, is guaranteed by an "INTERBANK paper gold MARKET" that values "physical bullion" in the Thousands!

I'll let Another explain:

But, how can this be, you ask? It is done, "right before your eyes" and we see it not! I ask you, if you have one ounce of gold, and sell it on the market for \$300, it is worth \$300, yes? Now, what if CB hold one ounce of gold, and sell it twenty times, that one ounce is now worth \$6,000, no? The difference between you and CB? The persons that hold "interbank" IOU for gold, value it at the multiple of leases/sales made against reserves. This leverage, it is held for performance on bank part. The BIS, it force performance, on any economy! You ask Korea about gold, yes?

This is why oil can take a small amount of physical gold out of world supply, at current "freely traded", "managed prices", and hold it at a many times valuation. That is what gives this "new world gold market" much value in trade at high levels. Look even at your "Comex", and divide the daily volume by the "eligible stocks for delivery". That number (perhaps three million ounces divided by 150,000 stocks, deliverable, times the spot close gives close, real world price of physical, \$6,000. It follows close to paper trade on LBMA.

You see, "physical gold is of much greater value than public traders can move it for"! In your world, this cannot be, but it is, and will show for all to see in your time.

After some discussion at [FOFOA's](#) blog, we think that Another here rather wants to divide the COMEX open interest (not daily volume) by the COMEX *registered* (not *eligible*) inventory. This would be an estimate of the inverse [reserve ratio](#) at the COMEX. The point is that the registered inventory is the part that can be immediately delivered on long contracts, but the eligible part is largely owned by others and just happens to be stored in COMEX warehouses.

Again, it is Another's idea that the COMEX reserve ratio is comparable to the reserve ratio at the LBMA, and there the 'open interest' actually represents buyers that have fully paid for unallocated gold and are waiting for allocation. So one unit of physical reserves supports a multiple in currency and would therefore be worth the corresponding multiple in US\$ terms if there were no credit gold.

As of 7 February 2012, the ratio of the COMEX open interest of 47.3 million ounces per [COMEX registered inventory](#) of 2.5 million ounces (6 February 2012) is 18.9. This gives an estimate of US\$ 32700 per ounce for the free gold price. Of course, a run on the LBMA would have its own dynamics, and most international trade balances are still not yet settled in gold.

Finally, combining both estimates, we get a rather rough picture of the present physical bullion reserve of the LBMA institutions: between 80 tonnes (with our low estimate of 1500 tonnes in open interest) and 290 tonnes (with 5500 tonnes).

Acknowledgements

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Comments

If you have comments, suggestions or corrections concerning this article, please comment here (comments are moderated, and it may take a while until I have time to check for new comments). For the general discussion on the role of gold in the monetary system, please go to the comments section at [FOFOA's](#) and so we do not fragment the discussion.