CENTRAL BANK GOLD HOLDINGS

by

E. Juerg Weber

DISCUSSION PAPER 01.03

DEPARTMENT OF ECONOMICS

THE UNIVERSITY OF WESTERN AUSTRALIA
CRAWLEY, WESTERN AUSTRALIA 6009
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I would like to thank Ken Clements for helpful comments.
Although the gold standard era has long passed, gold continues to be an important asset on the balance sheet of central banks. At the end of 1998, central banks held 966 million troy ounces of gold with a market value of US$ 278 billion. Using an interest rate of 4%, the cost of financing central bank gold holdings was US$ 11.1 billion. Why do central banks invest in gold at great economic cost? A popular view holds that official gold reserves make a currency more secure. The idea is that central banks are unable to inflate a currency that is covered by gold because, unlike paper money, gold is a physical commodity whose supply monetary authorities do not control. Accordingly, a complete analysis of central bank gold holdings should compare the opportunity cost of gold holdings with the benefits of monetary stability. In this paper it is demonstrated that this argument goes astray by applying principles that were true under the gold standard to the modern monetary system. Section 1 reviews the monetary role of gold during the gold standard. Section 2 ascertains that central bank gold holdings do not provide effective protection against inflation in the modern paper standard. In section 3 the analysis is extended to other physical assets. In section 4 it is found that central bank gold holdings, far from being an innocuous relic, indeed compromise financial markets and monetary policy. Consequently, central banks should dispose of their gold holdings because they are an ineffective cover of the currency, they interfere with the operation of financial markets, and they are detrimental to the conduct of monetary policy.

1. The Gold Standard

The gold standard ties the purchasing power of money to gold by defining the monetary unit as a fixed quantity of gold. The inverse of the gold weight of the monetary unit is the official gold price. The market price of gold moves within narrow limits that are determined by the cost of striking gold coins and melting them down. It is worthwhile to strike gold coins when the gold price falls below the official price, and coins are hoarded or melted down when the gold price rises above the official price. It was profitable to strike, say, ducats when the gold price fell so that the metal value of one ducat in coin was less than one ducat in money of account. Alternatively, ducats were hoarded or melted down when the gold price increased so that one ducat in coin included more than one ducat's worth of gold. Hence, the operation of the gold standard required a profit seeking agent that struck gold coins when the gold price fell below the official price. During the Middle Ages the right of coinage was a feudal privilege that was exercised by princes, cities and church bodies. By the 18th century the public had gained the right of free coinage at the government mint, which charged a fee for its service (the brassage).

In practice, idiosyncratic measuring units, whose origins are lost in history, considerably complicated monetary calculations. For example, Great Britain maintained three pound systems during the 19th century. As a monetary unit of account, one pound equaled 20 shillings and one shilling was 12 pence. In commerce, the avoirdupois pound system was used to weigh all goods except precious metals and stones, and medicines. The commercial pound was divided into the ounce (1/16 of a pound) and dram (1/16 of an ounce). Gold and silver weights were measured in troy pound, a somewhat lighter
pound weight that equaled 0.823 commercial pound. The subdivisions of the troy pound included the troy ounce (1/12 troy pound), pennyweight (1/20 troy ounce) and grain (1/24 pennyweights). After the Napoleonic wars, Great Britain returned to the gold standard, restoring the historic sovereign. The gold weight of the sovereign determined the gold weight of the pound because one sovereign equaled one pound. The new sovereign, which weighted 123.3 grains of gold, 11/12 fine, included 113 grains of fine gold. The inverse of this was the official gold price, 2.1 pence per grain of fine gold.\(^2\)

The purchasing power of money concept is made operational by assuming that money is used to buy a commodity basket that is representative of household consumption expenditures. The purchasing power of money is inversely related to the price level: a continuous increase in the purchasing power of money is tantamount to deflation. Arbitrage required that the purchasing power of money equaled the gold weight of the monetary unit times the purchasing power of gold.

\[
\text{Purchasing Power of Money} \quad = \quad \frac{\text{Gold Weight of Monetary Unit}}{\text{Purchasing Power of Gold}} \quad \times \quad \text{Purchasing Power of Gold}
\]

The gold weight of the monetary unit is measured as gold units (G) per monetary unit (M). The purchasing power of gold shows how many units of the commodity basket (C) must be paid to get one gold unit (G). It should be noted that the measuring units are the same on both sides in arbitrage condition 1, as the gold units cancel out on the right-

\(^1\) Applying metric measuring units, one commercial (avoirdupois) pound equals 453.6 grams and one troy pound is 373.2 grams. Although the commercial pound is heavier than the troy pound, the commercial ounce is lighter than the troy ounce because the two pound units are divided into 16 ounces and 12 ounces, respectively. One commercial ounce equals 28.35 grams and one troy ounce is 31.1 grams.
hand side. The gold standard did not give rise to a monolithic monetary unit, whose purchasing power never changed. Arbitrage condition 1 shows that changes in the purchasing power of money arose from two sources. First, the government could change the official gold weight of the monetary unit, the first item on the right-hand side. Second, the purchasing power of gold, the second item on the right-hand side, was a relative price that depended on market conditions. The following paragraphs deal with both determinants of the purchasing power of money in the gold standard.

First, governments were prone to debase the monetary unit by reducing its gold weight. Less frequently, the gold weight was raised in the course of a currency reform. Arbitrage condition 1 shows that the purchasing power of money changes one-to-one with a change in the gold weight of the monetary unit. Institutional factors determined the mechanics of a change in the gold weight of the monetary unit. The government could modify the weight of gold coins and/or their fineness. In countries with dual weight systems – a common occurrence – the ratio of monetary weights relative to commercial weights could be manipulated. As seen, the weight of the monetary troy pound had fallen to 82.3% of the commercial (avoirdupois) pound in Great Britain by the 19th century. Most pre-industrial coins lacked value marks, giving the government the power to change the value of the monetary unit by adjusting the official valuation of coins by ‘crying’ them up or down in terms of money of account. As late as in the 19th century, the British government could have reduced the gold weight of the pound by raising the pound value of the sovereign, which was set equal to one in 1816.

3 Weber (2000) deals with the significance of the introduction of value marks in coinage during the Industrial Revolution.
Contrary to popular opinion, metallic monetary standards never provided a safeguard against deliberate inflation through willful adulteration of coins and/or changes in their valuations. Spufford (1988, pp. 296-299) graphs the price of gold in terms of local pound units in a dozen medieval cities and countries. Particularly violent inflationary episodes, in some cases repeatedly, occurred in Bohemia, France, Flanders, Austria, Castille and Cologne, whereas the pound units of the Italian city states, Aragon and England remained quite stable. As in modern times, the motives of medieval inflation included seigniorage and the redistribution of wealth between social groups.\(^4\)

Second, the purchasing power of money varied because the purchasing power of gold was a relative price that was subjected to market forces. Arbitrage condition 1 indicates that an autonomous change in the purchasing power of gold produces a one-to-one change in the purchasing power of money. The purchasing power of gold fell when there were gold discoveries or advances in mining technology. During much of the history of the gold standard, war booty was considered a legitimate source of gold, putting downward pressure on the purchasing power of gold in the victor country and raising it in the defeated one.\(^5\) In the last quarter of the 19th century, economic growth increased the demand for gold for monetary and industrial needs, raising the purchasing power of gold. In this situation, monetary authorities could have reduced the gold weight of the monetary unit in order to avoid deflation. Monetary authorities put up with deflation because they did not yet distinguish between money and gold, condemning a

\[^4\] Weber (1996) analyzes the inflationary process in Basle in the late Middle Ages. Selgin and White (1999) stress the fiscal motive of money creation. Rolnick et al. (1996) question the ability of medieval authorities to impose a seigniorage tax.

\[^5\] In the 19th century, the incipient international law distinguished between private gold holdings, which were protected, and official gold holdings, which remained fair game.
reduction in the gold weight of the monetary unit as being a fraudulent diminution of the currency.

Paper money, which has a long history in China, became common in the west only during the 18th and 19th centuries. First private banks and then central banks issued bank notes that were backed by precious metals. The gold standard worked differently with free banking as opposed to central banking. Free banking disciplined banks because any suspension of gold convertibility by a private bank led to immediate bankruptcy. Private bank notes, which are legally related to bills of exchange, embodied an unconditional promise to pay to the holder gold on demand. In the 19th century, the move to central banking watered down the principle of gold convertibility because governments do not allow central banks to fail. This made the legal connection between bank notes and bills of exchange meaningless. Selgin (1999) argues that "a completely free banking system, where no bank enjoys special government privileges or immunities, would be most likely to stick to its commitments."6

An important consequence of central banking is that the gold standard can be suspended by giving government money legal tender status. The leading industrial countries – Great Britain, Germany, France and the United States – suspended gold convertibility only during major wars, but other countries were less restrained. Bordo and Kydland (1996) view the gold standard as a contingent rule allowing for the suspension of gold convertibility during wars and other national emergencies, on the understanding that convertibility would eventually be restored at the old gold price. The commitment to

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6 Scottish banks followed the example of the Bank of England suspending gold convertibility in 1797. This casts doubt on White’s claim that ‘near-laissez-faire’ banking prevailed in Scotland until the enactment of the Peel’s Act in 1844 (White 1992). Dowd (1992) includes a collection of essays on the experience of free banking.
return to the old gold parity facilitated access to credit markets during the emergency. Bordo and Eichengreen (1999) find that the commitment to return to the old gold parity encouraged stabilizing capital flows during currency crises. On the downside, the return to the old gold parity required a deflationary process after the emergency. Still, this did not affect economic activity as long as the promise to return to the old gold parity remained credible, with the public expecting that wartime inflation would be followed by deflation.

A contentious issue in the literature on the gold standard concerns the effect of central banks on the purchasing power of money when convertibility is maintained. A central bank that overissued bank notes experienced a loss of gold through the balance of payments. The price-specie-flow mechanism of David Hume (1711-1776) posits that an excess supply of money raises domestic prices relative to foreign prices, making domestic goods uncompetitive in world markets. Accordingly, the central bank had the power to influence the purchasing power of money for a limited time, although sustained inflation was incompatible with the gold standard. In the 19th century, improvements in transportation (railway and steamboat) and communication (telegraph) accounted for a reduction in transaction costs in international trade. The observed co-movement of commodity prices across countries suggests that commodity markets were well integrated by the late 19th century. Central banks were unable to influence domestic prices if they were linked to foreign prices through international commodity arbitrage. As a

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7 Frenkel and Johnson (1976) and Bordo (1984) review the historic literature on the gold standard. Modern research on the gold standard can be found in the volumes edited by Bayoumi et al. (1996), Eichengreen (1985) and Bordo and Schwartz (1984), and in the collected essays of Bordo (1999). McCloskey and Zecher (1976) apply the monetary approach to the balance of payments to the gold standard.
consequence, monetary policy ceased to have an effect on the price level, making the price-specie-flow mechanism obsolete.\(^8\) The monetary approach to the balance of payments abandons the notion that changes in relative price levels were the main force behind the balance of payments in fixed exchange rate regimes, including the gold standard. Instead, it is maintained that monetary policy affected the balance of payments directly through aggregate spending.

To sum up, the gold standard tied the purchasing power of money more or less securely to gold. The government could change the gold weight of the monetary unit by adjusting the weight and fineness of coins and, in pre-industrial times, by manipulating monetary weights relative to commercial weights and changing the official valuation of unmarked coins. The introduction of bank notes did not change the nature of the gold standard as long as bank notes were supplied by a large number of banks in a competitive system of free banking. The emergence of central banks undermined the principle of convertibility because central banks are exempt from bankruptcy laws. Central banks had the power to influence the balance of payments through aggregate spending and possibly prices. As a consequence, the gold standard had lost its main operational advantage, the ability to work automatically without government interference, well before its demise in the 20\(^{th}\) century.

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\(^8\) An increase in the money stock had a small effect on domestic prices by raising world prices. The strength of this effect depended on the central bank's share in the world money supply.
2. Inconvertible Paper Money

The decline of the gold standard coincided with the economic disruptions during World War I and the Great Depression in the 1930s, although gold continued to play a residual role until the demise of the Bretton Woods international monetary system in 1971. The adoption of flexible exchange rates produced a monetary system in which central banks can print paper money at will. A modern central bank can inflate or deflate the monetary unit without limit because it does not have to defend a fixed gold price and/or exchange rate. In case the central bank issues an excessive amount of paper money, the gold price rises because the public no longer has the right to buy gold from the central bank at a fixed price in exchange for bank notes. The shift to inconvertible paper money changed the way in which central banks conduct monetary policy. Modern central banks target the inflation rate because the economy lacks a nominal anchor in the form of an official gold price or a fixed exchange rate.

In the paper standard, arbitrage condition 1 continues to hold but the gold equivalent of the monetary unit, the inverse of the gold price, is market determined. Inflation reduces both the purchasing power of money on the left-hand side and the gold equivalent of the monetary unit on the right.

The move to inconvertible paper money makes central bank gold reserves obsolete. The following analysis shows that gold reserves fail to constrain the issuing power of the central bank if the gold price is market determined. For simplicity it is assumed that the central bank is the only bank in the economy, and central bank transactions accounts are included in the paper money. The starting point is a central bank with 100% gold reserves and no capital.
At first sight, this currency looks rock solid because all bank notes are backed by gold. But look what happens if the central bank prints more paper money, doubling the amount of circulating notes. The perfect gold cover is maintained if the central bank puts the extra notes in circulation by buying more gold.

This is not yet the final state of the central bank balance sheet because the increase in the money stock produces inflation. Ignoring all real effects of inflation and the purchase of gold, the doubling of the money stock will lead to a doubling of the price level. Since inflation involves a uniform increase in the prices of all commodities, also the gold price doubles. After the inflationary process has run its course, the balance sheet is:
Thus, the central bank makes a profit on its gold reserves of 200. The reason for this is that physical gold holdings are valued at the market determined price of gold, which has doubled. The profit is added to the capital account.

This shows that gold reserves do not limit central bank discretion in the modern paper standard. Gold reserves do not prevent the central bank from starting an inflationary process by printing paper money and buying gold, printing more paper money and buying more gold, and so on. Even if the central bank just printed paper money without buying extra gold, the gold backing of the currency would be maintained. Central banks are free to choose the money growth rate because inflation increases the nominal value of their gold reserves. Clearly, it is futile to tie a nominal quantity, the price level, to another nominal quantity, the value of gold reserves.

Central bank gold holdings are problematic because they create an incentive to inflate. The balance sheet (CB 3) shows that the central bank makes a profit of 200 on its gold holdings by doubling the price level. In fact, central banks made huge profits when the gold price was freed in response to inflationary pressures in 1971. Industrial countries held about 900 million troy ounces of gold, which, priced at US$ 35 per ounce, had a value of US$ 30 billion. Using a market price of US$ 400 per ounce, the value of 900 million ounces of gold was US$ 400 billion in the 1980s. Hence, central banks made a staggering profit of US$ 370 billion simply by inflating.  

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9 An appreciation of the home currency relative to the US$ reduced the central bank’s profit on its gold holdings in terms of home currency.
Yet, there is no free lunch; inflation does not create wealth. The following two balance sheets show that the central bank's profit was funded by the public. The public holds paper money, gold and the shares of the central bank. There are not many countries where the public indeed holds central bank shares, a notable exception being Switzerland. Still, the capital of the central bank is included among the assets of the public because in a democratic society government agencies are answerable to the public. Initially, the capital of the central bank is nil and the shares are valueless. The public wealth (600) equals the gold stock in the economy, which is held by the public (500) and the central bank (100).

<table>
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<tr>
<th>Assets</th>
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<td>Notes</td>
<td>Wealth 600</td>
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<td>Gold</td>
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<td>CB Capital</td>
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The gold purchase by the central bank leads to a change in asset holdings of the public, reducing gold by 100 and increasing bank notes by 100. The next balance sheet shows the final situation after the doubling of the price level in response to the doubling of the money stock. Public wealth increases because gold holdings double in value from 400 to 800 and the value of central bank capital, which is assigned to the public, increases from zero to 200.

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<td>Notes</td>
<td>Wealth 1200</td>
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<td>Gold</td>
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<td>CB Capital</td>
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Although wealth nominally increases from 600 to 1200, the public is not better off in real terms because the price level has also doubled. Not surprisingly, inflation that is fueled by paper money creation does not create wealth. However, public wealth is only unaffected if the central bank's profit of 200 is really transferred to the public via the capital item. The increase in the value of central bank shares compensates the public for the reduction in the purchasing power of money. The public is worse off if it does not receive the central bank profit. Thus, the crucial question is what happened to the US$370 billion that central banks earned in the 1970s?

Basically, central banks may have used the profit for three purposes: they may have transferred it to the treasury, they may have used it to cover losses in their foreign exchange dealings and other speculative activities, and they may have hidden it by undervaluing their gold holdings. (1) The treasury can pass on the profit to the public by reducing taxes. If the windfall is used to finance extra government expenditures, the effect on public welfare depends on the nature of these government expenditures. (2) Using the profit to cover losses in the foreign exchange market amounts to a subsidy to banks and foreign exchange dealers, which is hard to justify. (3) Hiding the profit by undervaluing gold is unproblematic if the central bank capital is represented by tradable shares. These shares would reflect the true value of central bank gold holdings and people could sell the shares if they considered the gold holdings of the central bank being too risky. But the hands of the public are tied because most central banks do not issue shares. Even the shares of the Swiss National Bank do not reflect the value of official gold holdings because the distribution of profits is strictly regulated. In effect, central banks that kept their gold holdings made a risky investment on behalf of the public. Most
people must have felt worse off because they would have given a lower weight to gold in their private portfolios than the central banks.

3. Other Monetary Fallacies

The idea that physical assets are suitable to back up bank notes has a long tradition in commercial banking. In the 18th and 19th centuries, the emergence of bank notes raised concerns that banks may overexpand the currency. In particular, it was feared that banks might fuel a speculative boom, for example in real estate or shares, by discounting so-called financial bills. It was considered a sound banking principle that banks discounted only bills of exchange that had been created in commercial transactions that involved the purchase and sale of commodities. Prudent banks avoided financial bills that arose from the extension of credit without an underlying commercial transaction. This is the real bills doctrine, which was embraced by the banking school in the 19th century. In practice, it was difficult to distinguish between commercial bills and financial bills because a bill may have passed through several hands before it was discounted at a bank. There is no doubt that banks often invested in financial bills despite the prominence of the real bills doctrine. In fact, financial bills provided a convenient vehicle for unsecured loans because the rigorous bankruptcy rules for bills of exchange made them tradable in secondary markets.

10 The real bills doctrine precedes the controversy between the currency school and the banking school by several decades. Viner (1937), Mints (1945) and Fetter (1965) review the development of monetary theory in the 18th and 19th centuries.
The real bills doctrine accounted for much mischief in early central banking.\textsuperscript{11} Central bankers believed that the discount of commercial bills would produce an elastic currency whose circulation harmonized with the business cycle. Commercial bills were thought to be more closely linked to economic activity than financial bills, which might be used for speculative activities. During the Great Depression in the 1930s, central bankers, whose monetary policy conception was still rooted in the 19\textsuperscript{th} century, adopted a hands-off policy, claiming that it was futile to force money into circulation beyond business needs. Curiously, the central element of the real bills doctrine, the belief that business needs determine the money stock, reemerged in Japan during the recession in the 1990s. The Bank of Japan steadfastly refused to implement a monetary expansion that would have halted deflation. It could easily have reflated the economy by buying government securities, monetizing the huge government budget deficit that arose from ineffectual fiscal policy.\textsuperscript{12}

The central concern of the banking school, that it was possible to overissue bank notes, has to be taken seriously because a central bank was unlikely to experience a loss of gold as long as an asset price boom was in the making. However, the proposed cure, the real bills doctrine, was ineffective. The crucial proposition was that business needs determined the money stock if the central bank discounted only real commercial bills. The law of reflux stated that superfluous bank notes would automatically return to the

\textsuperscript{11} See Friedman and Schwartz (1963, pp. 191-193, 373).

issuer when the bills matured. The main flaw of the real bills doctrine is that it ties the money stock to a nominal quantity, the value of commercial bills on the balance sheet of the central bank. Suppose that the central bank reduces the discount rate below the level that is compatible with price stability. The amount of discount loans would increase, expanding the money stock and fueling inflation. A central bank that accommodates business needs would replace expiring commercial bills with nominally inflated new ones in order to keep real central bank credit constant. This would further increase the money supply, fueling more inflation. As in the case of gold, the discount of commercial bills does not provide a nominal anchor because the face value of commercial bill rises one-to-one with the price level.

The spectacular collapse of John Law’s financial empire exposed the same fallacy.\textsuperscript{13} John Law (1671-1729), the son of a Scottish banker, led an adventurous life. In 1694 he fled to the continent after having killed an opponent in a duel, for which he received the death penalty (he was pardoned in 1717). Law traveled widely promoting various bank projects at European courts. He tried to convince his audience that inconvertible paper money would be perfectly secure if it was backed up by land, a physical asset like gold that had the advantage that it was available in all countries. His breakthrough came when he became a confidant of the French regent in 1715. The concept of paper money must have appeared to the regent, who ruled on behalf of the infant king, like manna from heaven, as the royal house was broke. Law rapidly established the Banque Général and the Compagnie de Commerce d’Occident, which eventually monopolized the entire colonial trade of France. Later, Law converted the

\textsuperscript{12} Garber (2000, pp. 91-107), Niehans (1990, pp. 48-51) and Pohl (1993, pp. 139-149) discuss John Law’s monetary system.
Banque Général into a state bank, the Banque Royal, and the Compagnie d'Occident was renamed the Compagnie des Indes.

Law monetized the French public debt through a two-tiered process. The Compagnie d'Occident raised capital by issuing shares; the unusual aspect was that the public could pay for the shares with government securities. This was popular because the Compagnie d'Occident accepted government securities at face value, even though they had fallen far below par. In turn, the Banque Royal issued bank notes by extending credit, accepting the shares of the Compagnie d'Occident as collateral for margin loans. This two-tiered procedure effectively monetized the French public debt. As a consequence of the monetary expansion the shares of the Compagnie d'Occident rose fiftyfold and the general price level doubled. In 1720 the scheme collapsed and the bank notes became worthless. Law fled to Venice, where he died as an impoverished gambler, propagating his monetary doctrines to the end.

Economists owe to John Law the practical proof that asset holdings do not limit a central bank’s ability to issue inconvertible paper money because inflation increases the price of these assets. In fact, the value of the shares that the Bank Royal held as collateral for margin loans rose even faster than the price level during the inflationary process. Law’s experiment demonstrated early on that a central bank had the power to influence the price level by issuing paper money. The monetization of the public debt through open market operations produced inflation because bank notes and government securities are not perfect substitutes. However, central bankers did not draw the right lesson, adhering in spite of Law’s misadventure to the real bills doctrine, which suffers from the same flaw as Law’s scheme, until the 20th century.
4. Moral Hazard

Since gold no longer serves a monetary function, central banks are trying to reduce their gold holdings without disrupting the gold market. In September 1999, 15 European central banks, including the European Central Bank, signed an agreement in Washington that limits the sale of gold to 400 tons a year for the next five years. This amounts to about one sixth of world gold production. The purpose of the Washington agreement is to prevent a fire sale of official gold that would lead to a collapse of the gold price. The following inset reproduces the Washington agreement.

Washington Agreement, September 26, 1999

1. Gold will remain an important element of global monetary reserves.
2. The above institutions will not enter the market as sellers, with the exception of already decided sales.
3. The gold sales already decided will be achieved through a concerted program of sales over the next five years. Annual sales will not exceed approximately 400 tons and total sales over this period will not exceed 2,000 tons.
4. The signatories to this agreement have agreed not to expand their gold leasings and the use of gold futures and options over this period.
5. This agreement will be reviewed after five years.

The signatories are Oesterreichische Nationalbank, Banque Nationale de Belgique, Suomen Pankki, Banca d'Italia, Banque centrale du Luxembourg, De Nederlandsche Bank, Banque de France, Deutsche Bundesbank, Central Bank of Ireland, Banco do Portugal, Banco de España, Sveriges Riksbank, Schweizerische Nationalbank, Bank of England, and European Central Bank.
The first clause, which states that gold will remain an important element of global monetary reserves, is opaque. It may either be an empty declaration that aims at calming down the gold market, or it may be an indication that, even three centuries after John Law, central banks still do not understand the operation of an inconvertible paper currency. Clauses 2 and 3 determine the gold sales for the next five years. During the first year, the signatories abided by the agreement, selling about 400 tons of gold. Three countries – the Netherlands, Switzerland and the United Kingdom – accounted for more than 90% of gold sales.\(^\text{14}\) Clause 4, which refers to gold loans and gold derivatives, is designed to curb short-selling of gold by private institutions. Short-selling operations that rely on central bank gold put downward pressure on the gold price to the detriment of central banks that wish to sell gold.

The Washington agreement triggered a panic in the gold market, catching short-sellers by surprise. The gold price, which had hovered precariously above US$ 250 during the summer, immediately shot above US$ 300. The freezing of gold loans by central banks led to a tightening of the credit market for gold, raising the interest rate on gold loans, which is payable in gold, to 10% in the first few days after the agreement. By the end of the year, the gold price was still about 10% higher than before the agreement, while the gold interest rate had fallen to 1-2%, the rate to which “the market is historically used to”\(^\text{15}\).

\(^{14}\) Gold in the Official Sector, World Gold Council, October 2000.

\(^{15}\) The Washington Central Banks Agreement on Gold, World Gold Council, October 1999.
Central bank gold holdings may interfere in three ways with the primary goal of modern monetary policy, price stability. First, the central bank may not be impervious to profits and losses on its gold holdings; actually it shouldn’t be because these profits and losses are ultimately carried by the public. Second, the application of principles of modern asset management to official gold holdings, in particular the use of gold loans and derivatives, may expose the central bank to risk in a way that the preservation of central bank investments becomes a concern in the conduct of monetary policy. Finally, the central bank’s gold holdings may become embroiled in political controversy.

Central bank gold holdings create a moral hazard since the central bank makes a profit when it inflates the currency. In the preceding section it is shown that inflation increases the value of central bank gold holdings in the modern paper standard. The increase in the gold price produced enormous accounting profits in the 1970s. It is irrelevant whether central banks really succumb to the temptation to enrich themselves by inflating. Any regulatory framework must address the issue of moral hazard, there is nothing special about monetary regulations in this regard. Monetary regulations belong to the body of basic laws that govern a country, including constitutional arrangements. An important objective of constitutional constraints is to limit moral hazard by officials and government institutions. Monetary regulations must avoid the moral hazard inherent in central bank gold holdings when paper money is inconvertible.

Central bankers are not impervious to the profit motive. This can be seen from the fact that many central banks actively manage gold holdings in order to make a profit. The asset managers of central banks have found a way to put the gold stock to productive use by making gold loans and dealing in gold derivatives. Clause 4 in the Washington
agreement mentions gold loans (leases), gold futures and options. The size of these operations is substantial, although information is hard to come by as they often involve off-balance-sheet items. A report commissioned by the World Gold Council estimates that “the amount of gold in the lending and swaps market (total liquidity) at end-1999 was 5,230 tons, with 90% of it – 4710 tons – supplied by central banks and other formal official holders (BIS, ECB, etc.).” ... “Analyzing the position of 118 countries (those with traceable reserves), the [report] found that 29 didn’t lend at all or lent no more than 10% of their gold reserves, 4 lent 10-25%, 48 lent 25-50%, while 37 lent more than 50%. When all known official reserves are taken into account (including those of the BIS, ECB, etc.), average lending was found to be 14% - or 25% if the USA, Japan, the IMF and non-lending European countries are excluded.” Central banks in the Middle East, Latin America and Africa are particularly active in the gold market, although their gold holdings are small.16

Private institutions borrow gold from central banks in order to sell it in the spot market. The motives for these short-selling operations include hedging and speculation, with the hedging being done mostly by gold mining companies. It is common practice to finance a new gold mine by borrowing gold from the central bank and selling it. The short-selling operation locks in the gold price but, unlike a forward contract, it generates immediate cash that can be used to finance the development of the mine. Central bank gold loans are immensely popular among gold miners because they make it possible to set up a mine without own capital at a very low interest rate, about 1-2%. The mining company carries no gold price risk since the gold loan, principal plus interest, can be paid

back with newly produced gold when the mine becomes operational. The World Gold Council, which is not a disinterested party, estimates that hedging by mining companies "accounted for three-fifths – 3,021 tons – of total use [of gold loans] at the end of 1999. In contrast, the financing of consignment and other inventory stocks accounted for only 1,465 tons, net speculative short positions for some 394 tons, and other uses some 350 tons."\(^{17}\) The report also includes figures for June 1999.

The central banks’ involvement in the gold market is questionable. Although the lure of gold remains strong, there is nothing special about gold that would justify preferential treatment of the gold industry by central banks. As with other primary commodities, the production of gold can be hedged by selling it forward, and capital costs of gold mines can be financed through bank loans and share market floats. Central bank gold loans, which effectively subsidize the production of gold, contributed to the expansion of gold mining in the 1990s. World gold production increased from an average output of just under 2250 tons a year in the first half of the decade to 2490 tons a year from 1996 to 1999.\(^{18}\) Central banks have finally become aware of the connection between gold loans and gold production. Clause 4 in the Washington agreement freezes gold loans because the expansion of gold mining is depressing the gold price at a time when central banks want to sell gold.

The management of central bank gold holdings threatens monetary policy independence. The beneficiaries of central bank gold loans include speculators who sell gold short. The World Gold Council’s estimate of net speculative short positions are 647

\(^{17}\) Ibid.

\(^{18}\) Ibid.
tons at the end of June and 394 tons at the end of December, 1999. These snapshots do not give a true impression of the importance of speculation in the gold market. They do not show the volatility of speculative positions, which must be considerable because speculation depends on market sentiment. Central banks face a dilemma when speculators to whom they have lent gold run into trouble. Similarly, gold futures and options involve contingent liabilities that entangle the central banks’ interests with those of private parties. This may compromise monetary policy during a financial crisis, precisely a time when the central bank needs a free hand. The central banks’ involvement in financial markets – not only gold – gives rise to moral hazard in monetary policy. A central bank that is entangled with the private sector through loans and derivatives may bail out a financial institution to protect its own direct and indirect exposure. What were the motives of the Federal Reserve when it hastily brokered a rescue, without using its own funds, for Long-Term Capital Management in September 1998?\(^{19}\) Rescue packages involve a cost in terms of a loss of monetary policy independence. The easing of money market conditions by the FED in the fourth quarter of 1998 was a payoff to the financial institutions that participated in the rescue package for LTCM.

Central bank gold loans affect the operation of financial markets. A bailout of speculators is detrimental to the efficient allocation of capital because it undermines accountability, giving rise to moral hazard. The rescue of LTCM rewarded excessive risk taking by the wealthiest investors in the world. Asset prices impart a realistic appraisal of investment opportunities only if risk is valued correctly. A culture of bailouts leads to the

\(^{19}\) The FED does not deal in gold loans and gold derivatives, but it manages a portfolio of foreign exchange and government securities. The FED may also have acted on behalf of other central banks.
undervaluation of risk, distorting the risk-return tradeoff. As a consequence, capital flows to industries where risk is subsidized, for example the gold industry. Economists do not agree on the merits of speculation, as certain practices may destabilize markets. At their best, speculators play an important economic role by assuming risk from investors who wish to hedge. Individual agents have a comparative advantage in carrying different risks that may be either natural or acquired, leading to specialization among speculators. The rapid growth in financial markets during the past two decades is explained by financial innovations that make it possible to allocate risk efficiently among speculators. Central bank gold loans interfere with the process of risk allocation in financial markets. Why do central banks assume the risk of gold producers by lending them gold that can be sold short? It is doubtful that central banks can carry risk at lower cost than gold producers who have first hand knowledge of mining techniques and the gold industry. Central banks make these gold loans simply because they are stuck with a large quantity of gold that would otherwise remain idle.

The sale of gold by European central banks will depress the gold market for many years to come. Official gold sales will not stop when the Washington agreement is reviewed after five years (clause 5). The sale of 2000 tons of gold makes barely a dent into central bank gold holdings, which will fall by only 6.1%. After the sales, central banks will still hold more than ten times the annual world production of gold. Gold producers oppose the inevitable disposal of central bank gold with the same determination as silver producers resisted the move away from silver at the end of the 19th century. In 1997 the sale of a small quantity of gold by the Reserve Bank of

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20 See Friedman and Schwartz (1963, chapter 3.2.).
Australia caused a stir among Australian gold producers. The World Gold Council, the premier lobbyist of the gold industry, spends a fortune on propaganda material praising the monetary role of gold.21 The Council poured scorn on the Washington agreement, being particularly incensed by the freezing of central bank gold loans. In Switzerland a citizens initiated referendum is pending on the distribution of gold holdings of the Swiss National Bank. The referendum, which is opposed by the government, asks for the transfer of 'excess' gold to the Swiss old age pension fund. A highly politicized debate of central bank gold holdings is detrimental to the conduct of independent monetary policy. The central bank does not operate in a political vacuum; it may find it necessary to compromise on monetary policy in order to accommodate public opinion on an issue that is peripheral to monetary policy. For these reasons, central bank gold holdings are a threat to central bank independence in the modern monetary system.

5. Conclusion

The gold standard tied the purchasing power of money to gold by defining the monetary unit as a fixed quantity of gold. The official gold price served as a nominal anchor for the price system as long as the government did not set sail for another anchorage. Although abuse did happen, the gold standard provided a high degree of monetary stability for long stretches of time. It took central banks about two decades, from the onset of serious inflation in the 1960s to the 1980s, to achieve the same degree of price stability that was common under the gold standard. Have central banks finally learnt the right lesson from John Law’s misadventure three centuries ago, that it is

21 This material is available on the internet site: www.gold.org.
possible to overissue paper money? The price stability that has been achieved in major industrial countries warrants some optimism, but the jury on the central banks’ ability to manage the paper standard that emerged in 1971 is still out. A poor understanding of the operation of the modern paper standard explains the Bank of Japan’s failure to prevent deflation in the 1990s.

In the gold standard era central bank gold reserves were crucial for the defense of the official gold price. A central bank that overexpanded the currency was penalized by an outflow of gold through the balance of payments. A central bank that was seriously committed to a fixed gold price had to use the discount rate in a way to reinforce the effect of international gold flows on the money stock. Central banks are no longer subject to the rigors of the gold standard. In the modern paper standard they are free to choose the national inflation rate by setting the money growth rate. There arises no need to hold gold reserves because the gold price floats freely. Exchange rate changes account for international adjustment instead of international gold flows. Nevertheless, central banks have kept their gold reserves without having any real use for them since 1971. Despite the high cost of gold holdings, central banks have so far escaped public censure. The popular attachment to gold arises from a vague notion that central bank gold holdings somehow make the currency more secure. This argument falsely applies principles that were true under the gold standard to the modern paper standard. Central bank gold holdings no longer provide a safeguard against deliberate inflation because their value increases with a general increase in prices. The same is true for other physical assets, including commercial bills (real bills doctrine), land (proposed by John Law) and shares.
(used by John Law and sometimes proposed by share owners in a bear market). In fact, asset prices often race ahead during an inflationary episode.

Central bank gold holdings are a risky investment in the name of a disenfranchised public. Given the high volatility of the gold price, central banks grossly underprice gold loans. The meagerly return, about 1% to 2%, does not provide adequate compensation for the risk on gold holdings, which is comparable to that on shares. The underpricing of risk by central banks distorts the allocation of capital in financial markets. The implied subsidy to gold producers, who borrow gold as a source of finance with an automatic hedge, contributed to the recent expansion of gold mining and the falling gold price. Gold loans entangle the central banks’ interests with those of speculators, a moral hazard that rewards excessive risk taking. Even worse, central bank gold holdings subvert monetary policy that aims at price stability. Inflation produces an accounting profit on central bank gold holdings, giving rise to moral hazard. The central banks’ entanglement with speculators threatens monetary policy independence. Central bank gold holdings are not an innocuous relic from the gold standard era. They should be disposed of because they are an ineffective cover of inconvertible paper money, they give rise to moral hazard in monetary policy, and they may become the focus of political attention. As an immediate measure, central bank gold holdings should be transferred into a special fund that is given the task to dispose of them without disrupting the gold market.

Another view holds that central bank gold holdings provide emergency cash for the government. But what kind of emergency do the adherents of this view really have in mind? Certainly, it must be a global crisis because it is easy to set aside funds for a
national disaster, for example an earthquake, by accumulating international assets that yield more than gold. But a return to the gold standard wouldn't be an option during a global economic crisis of the type of the Great Depression in the 1930s. The gold standard was a contributing factor to the Great Depression because the fixed gold price precluded a monetary easing after the stock market crash in 1929. Anyhow, gold cannot protect against a global catastrophe because, like any other good, gold has value only as long as it can be exchanged into another commodity, somewhere. On this account, gold would be downright useless after a full-blown world war. The only eventuality in which gold may again become useful as an international means of payment is a rise of rogue states and an emergence of global thuggery that would end international borrowing and lending. The Great Depression and World War II provide a historical precedent of a collapse of international financial relations. However, it is not worthwhile to prepare for this dire eventuality because it presupposes a cultural and commercial retrogression in which monetary issues would be a mere bagatelle.
References


31


