

# The Monetary Economics of Gold

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IN THE last two years there have been two changes in the official dollar price of the U.S. gold stock. In May 1972 Congress approved a change in the official price of gold from \$35 an ounce to \$38 an ounce; Congress approved a further change effective in October 1973 from \$38 an ounce to \$42.22 an ounce. The act of changing the official dollar price of gold, under the situation in recent years where the United States has not bought or sold gold at the official price, does not by itself have monetary consequences. However, subsequent transactions between the Treasury and the Federal Reserve do have important monetary effects.

This article analyzes the monetary effects of the two recent changes in the official price of gold. As will be shown, a change in the price at which the United States does not buy or sell gold can have an influence on aggregate demand in the economy, and does have implications for the level of the national debt.

Before beginning the analysis, it should be emphasized that this article is concerned only with the monetary effects of changing the *official* price of the gold held by the United States. During the last five years the market price of gold has changed daily and has been much higher than the official gold price.<sup>1</sup> Also, the change in the dollar value of the U. S. gold stock

on the two occasions discussed in this article resulted solely from official revaluation of the gold stock, not from changes in the amount of gold owned by the United States. In the analysis that follows, it is assumed that the Federal Government did not alter its spending plans as a result of the changed official price of gold.

In this article the term "gold stock" will refer to the "monetary" or "Treasury" gold stock of the United States. The Treasury gold stock consists of monetized gold (gold against which gold certificates have been issued to the Federal Reserve Banks) plus nonmonetized gold (gold against which no gold certificates have been issued). The Treasury gold stock differs from the total gold stock of the United States. The total gold stock also includes gold in the Exchange Stabilization Fund, a Treasury account that has been used for stabilization operations in foreign exchange markets and for official purchases and sales of gold. Both the Treasury and the total gold stock exclude the U.S. gold subscription to the International Monetary Fund.<sup>2</sup>

First, Treasury actions subsequent to the two recent changes in the official dollar price of gold are examined; then Federal Reserve actions and the monetary consequences of the combined Treasury and Federal Reserve actions are discussed; and finally the effects of Treasury and Federal Reserve actions on the national debt are analyzed.

## *Treasury Actions*

Given an increase in the official dollar value of the gold stock, the Treasury may decide to hold the increased value of its assets as more "cash," in which case, there is no effect on bank reserves or the monetary base. On the other hand, the Treasury may de-

<sup>1</sup>In March 1968, the United States and major European governments agreed to discontinue intervention in the private gold market to stabilize the price of gold. In effect, this decision established a so-called "two-tier" system under which central banks agreed to buy and sell gold only at the official price of \$35 an ounce. The two-tier system separated the official price of gold for transactions among central banks from the market-determined price. In August 1971, the President announced that temporarily the United States would no longer redeem dollars for gold. Finally in November 1973, the United States along with six European countries agreed to abandon the two-tier gold system. According to Arthur Burns, Chairman of the Board of Governors of the Federal Reserve System, at a press conference held on November 13, "the practical upshot of all this is, that from the standpoint of the American Government, the U.S. may henceforth sell gold from its stockpile but the U.S. Government will not buy gold either from other central banks or from the market, in present circumstances and in foreseeable circumstances."

<sup>2</sup>Federal Reserve Bank of New York, *Glossary: Weekly Federal Reserve Statements*, "Factors Affecting Bank Reserves" (September 1972), pp. 19 and 20.

Table I

**SOURCES OF THE MONETARY BASE**

- I. Factors Supplying Monetary Base
  - Federal Reserve holdings of Government securities<sup>1</sup>
  - Loans
  - Federal Reserve float
  - Gold stock plus Special Drawing Rights certificate account<sup>2</sup>
  - Treasury currency outstanding
  - Other Federal Reserve assets
- II. Factors Absorbing Monetary Base
  - Treasury cash holdings
  - Deposits with Federal Reserve Banks
    - Treasury
    - Foreign
    - Other<sup>2</sup>
  - Other Federal Reserve liabilities and capital
- III. Reserve Adjustments<sup>3</sup>
- IV. Monetary Base (I—II+III)

<sup>1</sup>Includes acceptances held.

<sup>2</sup>On January 1, 1970, the United States received an initial allocation of \$866.9 million of Special Drawing Rights (SDRs) from the International Monetary Fund. The Treasury, through its Exchange Stabilization Fund, monetized \$400 million of this allocation within a few months. In monetizing, the Treasury issued \$400 million of SDRs to the Federal Reserve Banks and in return received an equal credit, initially, to its Exchange Stabilization Fund at the New York Federal Reserve Bank which is included in other deposits.

<sup>3</sup>Computed by this Bank. It includes the effects of reserve requirement changes and shifts in deposits where different reserve requirements apply.

side to “monetize” the increased dollar value of the gold stock. In this case the Treasury engages in transactions with the Federal Reserve Banks.

*May 1972 Change in the Official Price of Gold* — In early May 1972 Congress approved an 8.6 percent increase in the official price of gold from \$35 an ounce to \$38 an ounce. As a result, the official dollar value of Treasury gold holdings rose by about \$800 million.<sup>3</sup> Initially, in the accounts of the monetary authorities, Treasury cash holdings, which include nonmonetized gold, also rose by \$800 million, the amount of the increase in the official dollar value of the Treasury gold stock.

An increase in the gold stock is a factor that increases the monetary base, as shown in Table I.<sup>4</sup> Increases in Treasury cash holdings decrease the

<sup>3</sup>The actual change in the official value of the Treasury gold stock was \$822 million. For expositional ease, this figure is rounded to \$800 million. As a result of the change in the official price of gold, total reserve assets of the United States rose by \$1,016 million on May 8, 1972; this consisted of \$822 million Treasury gold stock, \$6 million in gold holdings in the Exchange Stabilization Fund, \$33 million in the reserve position at the International Monetary Fund, and \$155 million in SDRs.

<sup>4</sup>For a discussion of the monetary base, see Leonall C. Andersen and Jerry L. Jordan, “The Monetary Base — Explanation and Analytical Use,” this *Review* (August 1968).

monetary base. Since the \$800 million increase in the dollar value of the gold stock was absorbed into Treasury cash holdings,<sup>5</sup> there was no net increase in monetary base which would have provided more bank reserves to support additional private deposits.

On May 15, 1972, the Treasury took steps to monetize the increased value of the gold stock. This occurred as follows: the Treasury issued to the Federal Reserve Banks gold certificates equal to the increased official dollar value of the gold stock and, in return, the Treasury received from the Federal Reserve an increase of an equal amount in its deposits at the Federal Reserve Banks. These results are shown in Illustration I.

Illustration I

**Monetization of Gold**

Treasury	
Assets	Liabilities
+ \$800 million Treasury deposits at Federal Reserve	+ \$800 million gold certificates

  

Federal Reserve	
Assets	Liabilities
+ \$800 million gold certificates	+ \$800 million Treasury deposits

The Treasury does not buy goods and services directly with gold. The Treasury disburses its payments for goods and services from its accounts at the Federal Reserve Banks. Hence, the Treasury converted the increased dollar value of gold, a non-spendable item, into a spendable item, deposits at the Federal Reserve Banks. Meanwhile, the increased value of the gold stock became a 100 percent backing for the gold certificates which the Treasury issued to the Federal Reserve.

Referring back to Table I, it can be seen that the monetary base would still be unchanged. The expansionary effect on the base of a decrease in Treasury cash holdings was offset by the contractionary effect of an increase in Treasury deposits at the Federal Reserve Banks. The amount of base money held by the public and the commercial banks was still unchanged.

<sup>5</sup>Treasury cash holdings represent the funds that the Treasury technically has at its disposal without drawing on its deposits at the Federal Reserve or Tax and Loan accounts at commercial banks. This account includes any currency and coin held by the Treasury in its own vaults plus nonmonetized gold and silver bullion, silver dollars, and nonsilver coinage metal. Federal Reserve Bank of New York, *Glossary: Weekly Federal Reserve Statements*, “Factors Affecting Bank Reserves” (September 1972), p. 20.

The monetary base expanded only as the Treasury subsequently used its newly acquired \$800 million to pay for goods and services. In the week ended May 17, Treasury deposits at the Federal Reserve Banks decreased by over \$800 million. The effects of these transactions are shown in Illustration II. As the Treasury bought goods and services from the private sector of the economy, there was an increase in demand deposits of the public at commercial banks. Reserves of commercial banks (member bank deposits at the Federal Reserve Banks) increased as deposits of the Treasury at the Federal Reserve Banks decreased. Referring again to Table I, on the sources side of the monetary base, Treasury deposits decreased, and therefore the previously increased dollar value of the gold stock resulted in an equal rise in the monetary base, other factors remaining constant.

*October 1973 Change in the Official Price of Gold*

— In the week ended October 24, 1973, following Congressional approval, the official dollar price of gold was again increased, this time by slightly over 11 percent. The Treasury gold stock, which had been officially valued at about \$10.4 billion in the previous week, was now valued, with the new official price of gold, at about \$11.6 billion. The official dollar value of the gold stock rose by about \$1.2 billion.<sup>6</sup>

The U.S. Treasury again, as in May 1972, had a choice of actions — either neutralize the effect on the monetary system of this increase in the dollar price of gold or monetize the \$1.2 billion and use it to pay for goods and services, hence increasing bank reserves by this amount.

In the week ended October 24, 1973 the dollar value of the gold stock rose by about \$1.2 billion, and Treasury cash holdings also increased by \$1.2 billion. At this point there was no net effect on the monetary base. On October 25 the Treasury issued gold certificates to the Federal Reserve Banks and Treasury deposits at Federal Reserve Banks increased \$1.2 billion. Thus the increase in the official value of the gold stock was monetized, or, in other words, was available for the Treasury to use to pay for goods and services produced by the private sector.

So far, there still had been no net effect on the monetary base. Then, over the three-week period

<sup>6</sup>As a result of the change in the official price of gold, total reserve assets of the U.S. rose by \$1,436 million on October 18, 1973. The total increase consisted of the following: \$1,157 million Treasury gold stock, \$8 million in gold holdings in the Exchange Stabilization Fund, \$54 million in reserve position at the International Monetary Fund, and \$217 million in SDRs.

Illustration II

Treasury Purchases Goods and Services

Treasury	
Assets	Liabilities
—\$800 million Treasury deposits	no change
+ \$800 million goods and services	

  

Federal Reserve	
Assets	Liabilities
no change	—\$800 million Treasury deposits
	+ \$800 million member bank deposits

  

Banks	
Assets	Liabilities
+ \$800 million reserves	+ \$800 million demand deposits of public

  

Public	
Assets	Liabilities
+ \$800 million demand deposits	no change
—\$800 million goods and services	

from October 24 through November 14, as the Treasury made payments, Treasury deposits at the Federal Reserve decreased by \$1.2 billion, and deposits of the public, the monetary base, and bank reserves were increased by \$1.2 billion (assuming other factors affecting reserves and deposits were unchanged).

*Federal Reserve Response to the Monetization of Gold*

The analysis of the effect of the change in the official price of gold has proceeded up to this point with the assumption that Federal Reserve actions did not offset the expanding effects of the Treasury's actions on the monetary base. By altering its holdings of Government securities, the Federal Reserve can offset any other factors operating to change the monetary base.

The following analysis is not intended to ascribe any policy intent to Federal Reserve actions. The analysis is only concerned with whether Federal Reserve open market actions, regardless of the reason for which they were conducted, offset the effects of the monetization of gold and subsequent Treasury actions on the monetary base.

Following the May 1972 change in the official price of gold and the subsequent actions by the Treasury, initially the monetary base rose by \$800 million. The

\$800 million effect on the monetary base was not offset by Federal Reserve sales of Government securities. From the week ended May 10 through the week ended May 31, 1972, the Federal Reserve's average holdings of Government securities remained unchanged.

The private sector had exchanged \$800 million of goods and services for \$800 million of noninterest-bearing debt (monetary base) of the monetary authorities (assuming other factors affecting the supply of base were unaffected by the transactions following the change in the official price of gold). In the process by which commercial banks adjusted their portfolios to the increased amount of monetary base, the money stock expanded by a multiple of the increase in the monetary base. Given the prevailing value of the money multiplier, an increase of about \$800 million in the monetary base supported about a \$2 billion higher level of the money stock.

The Treasury was able to pay for \$800 million of goods and services without using tax revenues or putting additional upward pressures on market interest rates by increasing the stock of Government securities held by the public. However, this does not mean that the Government sector was able to acquire goods without any effects on the real disposable income of consumers. Since the effect on the monetary base was not offset by Federal Reserve actions, there was a resulting expansion of the money stock, an expansion of total demand, and ultimately upward pressures on prices.

Following the October 1973 monetization of gold, the expansionary effect on the monetary base of the subsequent Treasury actions was offset by Federal Reserve sales of Government securities. From the week ended October 24 through the week ended November 14, the Federal Reserve reduced its average holdings of Government securities by about \$1.2 billion, an amount equal to the increased dollar value of the gold stock.

The complete process by which Federal Reserve actions offset the effect of the monetization of gold is shown in Illustration III. In the first stage, gold certificates held by Federal Reserve Banks and Treasury deposits at the Federal Reserve Banks both rose by an equal amount. In the second stage, the Treasury paid the public for goods and services by writing checks on its accounts at Federal Reserve Banks. Demand deposits of the public rose, demand deposits of the Treasury at the Federal Reserve Banks fell, and bank reserves rose.

In the third stage, the rise in bank reserves was offset as the Federal Reserve sold securities to the public. U.S. Government securities held by the public rose and, as they paid for these securities, demand deposits of the public fell and bank reserves contracted. The final result is also shown in Illustration III. The public had exchanged goods for interest-bearing Government debt. The monetary base was unchanged and the money stock was either unchanged or somewhat higher, depending upon the interest rate effects necessary to induce the public to hold a larger stock of interest-bearing Government debt.

Federal Reserve open market operations offset the effect of the Treasury actions on the monetary base and hence nullified the possible multiple expansion of the money stock. However, the stock of Government securities held by the public was increased as a result of the Federal Reserve open market sales.

### *The Effect of Monetization of Gold on the National Debt*

For the operations of the Treasury, one of the main effects of the two increases in the dollar value of the gold stock was that the Treasury now had an alternative means, in addition to using tax revenues or the proceeds from the sale of Government securities, to finance its planned expenditures. By monetizing the increased dollar value of the gold stock the Treasury was able to pay for \$800 million of goods in the spring of 1972 and \$1.2 billion of goods in the fall of 1973 without using tax revenues or issuing more Government securities, and hence increasing the amount of Federal debt subject to the statutory debt limit set by Congress. This result holds regardless of whether Federal Reserve actions offset the effects of the Treasury actions on the monetary base.

In the case where the Federal Reserve did not sell Government securities to the private sector as the Treasury bought goods and services from the private sector, as appears to be the case after the May 1972 gold price change, the amount of noninterest-bearing Government debt (monetary base) held by the private sector increased. There was no increase in the amount of interest-bearing debt (Government securities) held by the private sector, as would have been the case if the Treasury had financed its \$800 million expenditure through proceeds obtained by selling Government securities to the private sector. Hence, the amount of outstanding Government debt subject to the national debt ceiling was less than it otherwise would have been for the same amount of Government expenditures.

Illustration III

## MONETIZATION OF GOLD — OCTOBER 1973

(Dollar Amounts in Billions)

### STAGE I — GOLD REVALUATION IS MONETIZED

TREASURY	
Assets	Liabilities
Treasury deposits at Federal Reserve \$+1.2	Gold certificates \$+1.2

FEDERAL RESERVE	
Assets	Liabilities
Gold certificates \$+1.2	Treasury deposits \$+1.2

BANKS	
Assets	Liabilities
No Change	

PUBLIC	
Assets	Liabilities
No Change	

### STAGE II — TREASURY DISBURSES MONETIZED FUNDS

TREASURY	
Assets	Liabilities
Treasury deposits at Federal Reserve \$-1.2	
[Goods and services] \$+1.2	

FEDERAL RESERVE	
Assets	Liabilities
	Treasury deposits \$-1.2
	Member bank deposits \$+1.2

BANKS	
Assets	Liabilities
Member bank deposits at Federal Reserve \$+1.2	Demand deposits of public \$+1.2

PUBLIC	
Assets	Liabilities
Demand deposits \$+1.2	
[Goods and services] \$-1.2	

### STAGE III — FEDERAL RESERVE OFFSETS EXPANSIONARY TREASURY ACTIONS

TREASURY	
Assets	Liabilities
No Change	

FEDERAL RESERVE	
Assets	Liabilities
U. S. Government securities \$-1.2	Member bank deposits \$-1.2

BANKS	
Assets	Liabilities
Deposits at Federal Reserve \$-1.2	Demand deposits of public \$-1.2

PUBLIC	
Assets	Liabilities
Demand deposits \$-1.2	
U. S. Government securities \$+1.2	

### FINAL RESULT

TREASURY	
Assets	Liabilities
[Goods and services] \$+1.2	Gold certificates \$+1.2

FEDERAL RESERVE	
Assets	Liabilities
Gold certificates \$+1.2	
U. S. Government securities \$-1.2	

BANKS	
Assets	Liabilities
No Change	

PUBLIC	
Assets	Liabilities
U. S. Government securities \$+1.2	
[Goods and services] \$-1.2	

MONETARY BASE	
Sources	Uses
Gold stock \$+1.2	
Treasury deposits at Federal Reserve \$ (-) 1.2*	

MONETARY BASE	
Sources	Uses
Treasury deposits at Federal Reserve \$ (+) 1.2*	Member bank deposits at Federal Reserve \$+1.2

MONETARY BASE	
Sources	Uses
Federal Reserve holdings of Government securities \$-1.2	Member bank deposits at Federal Reserve \$-1.2

MONETARY BASE	
Sources	Uses
No Change	

\*The signs on these entries reflect the impact on the monetary base, not the direction of change in those entries. See Table I for further explanation.

In the case where the Federal Reserve engaged in open market operations and sold Government securities as the Treasury disbursed the funds it acquired from monetizing gold, the national debt was also less than if the Treasury had financed its purchases by selling securities to the private sector. This situation occurred in the fall of 1973 and was shown in Illustration III. Federal Reserve sales of Government securities offset the influence of Treasury actions on the monetary base. The stock of Government securities held by the Federal Reserve Banks fell and the stock of Government securities held by the private sector rose by an equal amount. Government securities held by the Federal Reserve Banks are also counted in the Federal debt subject to the debt ceiling. Therefore, on balance, there was no additional upward pressure on the national debt ceiling.

Whenever the Treasury finances its expenditures by selling Government securities to the private sector, then clearly the net nominal interest cost to the Treasury rises. When the Treasury finances its expenditures through monetization of gold, the effect on the *net* interest cost to the Treasury depends upon subsequent Federal Reserve actions. Net interest payments made by the Treasury are affected by whether Federal Reserve actions offset the monetary effects of Treasury actions following the changed dollar value of the gold stock.

To understand the effects on the net interest cost to the Treasury it is necessary to understand that the proportion of the national debt held by the Federal Reserve Banks affects the *net* interest cost to the Treasury. Interest earned by the Federal Reserve Banks on their holdings of Government securities, except for a small percentage used for operating expenses, is returned to the Treasury.<sup>7</sup>

Hence, as the proportion held by the Federal Reserve of the total outstanding stock of Government securities rises, the *net* interest cost to the Treasury falls. Essentially, the Treasury makes interest payments to the Federal Reserve on the Government

securities it holds, just as to any other holder of Government securities. Then, the Federal Reserve transfers most of the interest payments back to the Treasury. For all practical purposes, the amount of Government securities held by the Federal Reserve represents interest free debt to the Treasury. Therefore, when the Federal Reserve sells Government securities to the private sector, net interest costs of the Treasury rise. The Treasury must then make interest payments to the private holders of its securities, and the interest payments are not directly returned to the Treasury.

When net interest costs to the Treasury rise this means that Treasury financing requirements also rise to meet the increased net interest payments. Therefore, the Treasury must seek to have Congress raise taxes or must issue more Government securities with the attendant upward pressures on market interest rates.

During the most recent monetization of gold, as discussed earlier, Federal Reserve holdings of Government securities decreased by about the same amount as Treasury actions subsequent to the monetization of gold added to the monetary base. Government securities held by the private sector rose by about \$1.2 billion, just as they would have if the Treasury had issued securities to finance its expenditures. Hence, the net interest cost to the Treasury increased by the same amount as if the Treasury had financed the purchases by sale of securities, although the total Government debt subject to the debt ceiling remained unchanged.

However, during the May 1972 monetization of gold, there was no decrease in Federal Reserve holdings of Government securities. In this case, the private sector's holdings of *non*interest-bearing Government debt was increased. Hence, not only was the amount of Government securities subject to the national debt ceiling lower, but, also, the net interest cost to the Treasury was reduced from what it would have been if the Treasury had financed its expenditures by selling Government securities. As stated earlier, however, this process, unless offset, results in an increase in the money stock and, ultimately, an acceleration in the rate of inflation.

<sup>7</sup>The Federal Reserve System returned to the Treasury an average of 89 percent of current earnings during the past five years. For an example, see "Earnings and Expenses of the Federal Reserve Banks in 1972," Federal Reserve *Bulletin*, January 1973, pp. 35 and 36.

