

# World Reserves and World Inflation (\*)

## Introduction

World reserves have almost tripled since 1968, world monetary growth has accelerated since 1971, and world inflation jumped to double digits in 1974. In addition, the 1971 realignment of parities, the 1973 move to floating exchange rates, the rise in the price of gold, and the massive oil deficits have significantly affected the demand for international reserves, its potential supply, and its distribution among the individual countries.

A key question, in light of these recent developments, is whether the stock of world reserves has grown so rapidly that it may generate further world inflation, or whether it is deficient and potentially deflationary. One assessment associates the rapid 1971-73 acceleration in monetary growth and the 1973-74 jump in world inflation with the rapid growth in external reserves. The growth in the monetary bases in many countries is seen as a factor that will continue to fuel world inflation.

An alternative approach, utilizing the IMF procedures in setting up the SDR's, views the current stock of international liquidity as potentially deficient. A related view is that the redistribution of reserves from the oil importing to oil exporting countries may cause reserve stringency and deflationary policies — at least for particular countries.

In Section I of the paper we review the expansion of global reserves in the 1968-73 period of fixed exchange rates and the recent acceleration of world inflation. Several key developments, including the March 1973 move to floating rates which may affect the demand, the supply, and the distribution of international reserves, world

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monetary growth, and world inflation, are then considered. A comparison of the transitional and permanent effects of floating rates on the demand for international reserves, on excess reserves, on monetary growth, and world inflation is presented in Section II. The impact of gold prices on the monetary bases, monetary growth, and inflation is taken up in Section III. OPEC's accumulation of foreign assets and its impact on the international reserves and on the monetary bases of individual countries is considered in Section IV. Other influences on world liquidity are reviewed in Section V, and our conclusions are presented in the last section.

### I. Reserve Changes, Monetary Growth and Worldwide Inflation

The stock of international reserves valued in dollars increased over \$40 billion to \$226 billion in 1974 — the largest increase ever recorded in a single year. The cumulative expansion of international reserves since the 1970's, when the SDR's were first introduced, is now approaching \$150 billion; the 1974 stock of international reserves is nearly three times as large as the \$77 billion held in 1968. (See Table 1.)

WORLD RESERVES IN BILLIONS OF DOLLARS  
end of years 1968-1974

TABLE 1

Year	Gold Stock	SDR's	Reserve Position in IMF	Foreign Exchange	Total Reserve Assets
1968 . . . . .	38.9		6.5	32.0	77.4
1969 . . . . .	39.1		6.7	32.4	78.2
1970 . . . . .	37.2	3.1	7.7	44.6	92.6
1971 . . . . .	39.2	6.4	6.9	78.2	130.6
1972 . . . . .	38.8	9.4	6.9	103.6	158.7
1973 . . . . .	43.1	10.6	7.4	122.0	183.2
1974 . . . . .	43.7	10.8	10.8	160.7	226.1

SOURCE: *Annual Reports* of the IMF and BIS.

While total reserve assets almost tripled in the 1968-74 period, the foreign exchange component of reserve assets exploded even more dramatically, increasing fivefold from \$32 billion in 1968 to \$161

billion in 1974. Total reserves and foreign exchange holdings moved simultaneously with the dramatic increase in U.S. liabilities from about \$18 billion in 1968 to almost \$70 billion in 1973; approximately 80 per cent of this extraordinary surge in U.S. liabilities occurred in the three years 1971-73.<sup>1</sup> The growth in foreign exchange holdings and reserve assets accelerated in 1971 as the U.S. official settlements deficit skyrocketed to an unprecedented \$30 billion.

In the face of such mammoth U.S. payments deficits, the surplus countries bought dollars to maintain the fixed exchange rate regime up until March 1973. This attempt to maintain the par value system brought about an explosion of international reserves and accelerated growth in the monetary bases and in money starting in the fourth quarter of 1970. World reserves almost doubled from 1970 to 1973, and most of the \$91 billion growth in reserves was in the foreign exchange component; growth in the monetary bases (IMF reserve money) and in money for ten industrial countries accelerated sharply in the years 1971-73 as the surplus countries expanded their domestic money to acquire the flood of dollars resulting from the extraordinary jump in the U.S. deficit. (See Tables 2a and 2b.)

Inflation emerged as an increasingly important worldwide problem during the 1973-74 period, with annual inflation rates ranging between 7 per cent and 16 per cent. World inflation defined as a weighted average for the ten industrial countries leaped to a 7.6 per cent rate in 1973 and to 13.2 per cent in 1974, accompanied by the oil price hike which lifted inflation rates throughout the world. The 13.2 per cent rate in 1974 compares with world inflation rates of about 4 per cent in the latter half of the 1960's and 5 per cent for the 1970-72 period. (See Table 3.)

<sup>1</sup> The increase in Eurodollar and Eurocurrency deposits is the other major source of growth in the foreign exchange component of total reserves. This category grew from about \$5 billion in 1968 to over \$40 billion in 1973, with the really dramatic increases starting sometime in 1970-71. And the Eurodollar proportion may be higher, depending on what part of the \$13 billion unidentified residual also consists of Eurodollar holdings. See the 1974 *IMF Annual Report*, pp. 31-34.

Eurodollar claims are clearly the most prevalent form in which foreign exchange is now held next to direct dollar holdings. At the end of 1973 Eurodollar holdings were estimated at approximately two-fifths of foreign exchange other than claims on the United States; and Eurodollars were the second largest component contributing to reserve expansion in 1973, excluding the devaluation loss on the stock. Except for the increase in official sterling holdings, a considerable part of the \$36 billion increase in foreign exchange holdings in 1974 took the form of dollar reserves held in the U.S. or in the Eurocurrency market.

TABLE 2a

GROWTH IN MONETARY BASES FOR TEN INDUSTRIAL COUNTRIES  
Selected Years \*

	1968	1969	1971	1972	1973
Belgium . . . . .	2.5	2.2	7.2	14.1	12.5
Canada . . . . .	8.2	5.3	15.2	15.6	16.1
France . . . . .	7.2	7.6	10.6	31.6	7.5
Germany . . . . .	6.9	3.3	15.0	26.3	7.4
Italy . . . . .	8.0	13.1	17.0	14.0	17.1
Japan . . . . .	18.9	19.6	14.6	29.0	34.3
Netherlands . . . . .	2.0	7.3	5.0	9.1	4.8
Switzerland . . . . .	18.3	7.3	20.3	8.9	4.7
U.K. . . . .	3.9	2.0	15.1	21.2	31.5
U.S. . . . .	6.6	4.4	9.4	3.8	8.0

\* The monetary base data are IMF Reserve Money.

SOURCE: IMF *International Financial Statistics*.

TABLE 2b

MONETARY GROWTH IN TEN INDUSTRIAL COUNTRIES  
Selected Years\*

	Avg. 1960- 67	1968	1969	1971	1972	1973
Belgium . . . . .	6.6	6.6	4.8	10.1	12.4	12.7
Canada . . . . .	6.1	4.3	7.5	12.8	13.9	14.5
France . . . . .	12.0	4.0	6.7	12.7	13.2	10.5
Germany . . . . .	7.6	7.7	10.1	12.1	14.1	5.8
Italy . . . . .	13.8	13.2	15.2	21.7	19.2	21.9
Japan . . . . .	18.6	14.6	18.4	25.5	22.0	26.2
Netherlands . . . . .	8.2	8.8	8.9	16.6	17.7	7.4
Switzerland . . . . .	8.0	10.8	9.7	18.5	13.3	0.4
U.K. . . . .	3.5	4.1	0.3	15.3	14.0	5.1
U.S. . . . .	3.4	7.0	6.3	7.0	6.5	7.4

\* The money concept used is  $M_1$ .

SOURCE: *Rates of Change in Economic Data for Ten Industrial Countries*, Federal Reserve Bank of St. Louis.

TABLE 3

WORLD MONETARY GROWTH AND WORLD INFLATION  
TEN MAJOR INDUSTRIAL COUNTRIES\* 1960-1974

Year	Percentage Growth** of World Money	Percentage Change** in World Inflation
1960 . . . . .	5.5	2.0
1961 . . . . .	7.9	2.0
1962 . . . . .	7.1	2.8
1963 . . . . .	8.0	2.8
1964 . . . . .	7.1	2.4
1965 . . . . .	7.4	3.0
1966 . . . . .	7.0	3.4
1967 . . . . .	6.1	2.9
1968 . . . . .	8.0	3.9
1969 . . . . .	8.0	5.0
1970 . . . . .	7.2	5.6
1971 . . . . .	12.3	5.1
1972 . . . . .	11.6	4.5
1973 . . . . .	11.0	7.6
1974 . . . . .	7.6	13.2
1975*** . . . . .	9.1	10.2

\* The countries are :U.S., Canada, Japan, U.K., Germany, France, Italy, Netherlands, Belgium, and Switzerland.

\*\* This series is calculated by the First National City Bank of New York as a weighted average for the ten major industrial countries. Each country's monetary growth and inflation rate is weighted by its real GNP.

\*\*\* Estimated.

The linkage between the accumulation of foreign exchange reserves, growth in the monetary bases, monetary growth, expansive aggregate demand policies, and world inflation is controversial. While granting that inflation has many and complex causes, the 1973-74 jump in world inflation cannot be divorced from the cumulative buildup in international reserves since 1968 and the 1971-73 acceleration in monetary growth. Redundant reserves may relax the pressure on individual countries to pursue internal anti-inflationary policies, and may thereby magnify and intensify expansionary influences from trading partners.

The B.I.S., which does not start with any monetarist preconception, describes the 1971-74 experience as follows in its 1974 Annual Report:

One of the limitations on monetary restraint in recent years has been the huge volume of external flows of funds, largely associated with

exchange rate uncertainties... The strength of monetary expansion by early 1973 was based largely on cumulative foreign exchange inflows showing up in the banking system's net acquisition of foreign assets... Since then the surplus countries have found that floating, leading off from an already more realistic international structure of rates, has been helpful in bringing monetary expansion under better control.

Rapid monetary growth in the 1971-73 period was thus one consequence of the buildup of foreign exchange holdings under the fixed exchange regime, and the acceleration in money growth was, in turn, an integral part of the process responsible for the 1973-74 jump in world inflation.

The major countries abandoned fixed rates in early 1973, and the move to floating rates did provide the surplus countries with some means to control their domestic money stocks and to defend themselves against imported inflation. World monetary growth slowed slightly to an 11 per cent rate in 1973 and dropped substantially to a 7.6 per cent rate in 1974, and recent data suggest a deceleration of world inflation in 1975.

## II. Floating Exchange Rates and World Inflation: the Transitional and Permanent Effects<sup>2</sup>

The very substantial increase in global reserves from 1968 to 1973 was associated with an acceleration in world monetary growth and imparted an inflationary thrust to the world economy. The question that we now consider is whether the March 1973 move to

<sup>2</sup> In an earlier version of the paper I distinguished between the short-run and long-run effects of floating on inflation. The monetary effects associated with excess reserves that I now refer to as the transitional effects, I called the short-run effects, and the effects of floating on money stock control that I now refer to as the permanent effects, I called the long-run effects. Dr. Gottfried Haberler questioned my classifying the redundancy of reserves stemming from floating as a short-run effect. He argues that reserve holders have not as yet engaged in a spending spree, but since he agrees that it may come at some time, he views this as a potential long-run effect. He also argues that what I referred to as the long-run effect of floating, that a country can achieve better control of its money stock and be in a better position to resist imported inflation, has indeed happened. He points out that the German performance with respect to inflation has improved immediately, and this relative success in resisting imported inflation should be viewed as a short-run effect.

As a result of Dr. Haberler's comments, I have decided to drop the distinction between short-run and long-run effects and to distinguish instead between the transitional (one-shot effects) and permanent effects of floating rates on inflation. But I do leave open the possibility that the transitional effects need not be short-run effects and may indeed show

floating rates has created an environment which can further fuel inflation by converting a substantial part of the officially held reserves into excess reserves.

World inflation may accelerate following a transition to floating rates if countries permit exchange rates to adjust and find less need for external reserves. Specifically, if the monetary authorities are under less compulsion to defend, or maintain, a given set of exchange rates, their demand for international reserves should decline relative to their pre-floating requirements. Some portion of the \$226 billion in official reserve holdings may prove to be excess reserves — if we maintain a regime of floating rates. Some countries may utilize these seemingly redundant reserves by following more expansionist aggregate demand policies and risk larger deficits, thereby fueling a further rise in world inflation. The change from fixed rates to floating rates would result in a *transitional*, one-shot, reduction in the global demand for international reserves.

The move to floating rates may thus bring about an increase in excess reserves, and its monetary impact is potentially inflationary. But in addition to these transitional and potentially inflationary, indirect monetary effects associated with excess reserves, floating rates have been seen as being *directly* responsible for the recent emergence of double-digit inflation in many countries.<sup>3</sup> Some critics have argued that the temporary declines in exchange rates that have occurred since March 1973 have been inflationary in many countries through a ratchet effect on cost-price structures, that the monetary policies of the non-reserve currency countries have not been as independent under floating rates as some had expected, that the deficit countries have followed more expansive monetary policies than would have been the case under fixed rates. These critics also cite

up in the long-run and that the permanent effects could show up in the short-run. See G. HABERLER, "Thoughts on Inflation: The Basic Forces", *Business Economics*, January 1975; "Remarks at the Japan-U.S. Assembly Meeting", April 1975; and letters to the *Wall Street Journal*, June and August 1975.

<sup>3</sup> The question raised by these critics, whether floating rates are more inflationary than a fixed rate regime, goes beyond the scope of our paper which focuses on the monetary aspects. This more general question requires that we consider whether deficit countries may follow more expansionary policies under floating rates, whether surplus countries would follow less expansionary policies and better resist imported inflation, and we would also need to consider the manner in which price changes are transmitted in the world economy under these two regimes. Since we are considering the monetary consequences of the move to floating rates, we focus on the excess reserves and the money stock control aspects. See *Business Review*, Federal Reserve Bank of San Francisco, Spring, 1975, pp. 18-30.

the British case as one example where the authorities appear to be under less constraint to restrict monetary growth in the face of a deficit; they assume that loss of reserves would exert more restraining influence on the authorities than a depreciation of the exchange rate.

The extent to which floating rates have pared down the demand for official reserves and generated inflationary excess reserves is still somewhat uncertain.<sup>4</sup> The monetary authorities are still experimenting with, and adjusting to, this relatively new system of managed floating, and may not view some of the reserve assets as redundant. Moreover, the manner in which individual countries perceive their reserve needs is undoubtedly influenced by the several international monetary disturbances since March 1973. Consequently, while floating rates may ultimately reduce the official demand for international reserves, the potential redundancy in reserve holdings may have been temporarily offset by other disturbances. And many central banks may have other reasons for holding foreign exchange reserves.<sup>5</sup>

In sharp contrast to the critics who argue that floating rates have directly speeded up world inflation, defenders of floating rates argue that they give the monetary authorities greater control over the money stock, and that the *permanent* and continuing effects of floating rates should be less world inflation; floating rates therefore are consistent with, and indeed indispensable to, achieving less world inflation. Defenders of floating rates do, however, acknowledge that the monetary effects of the transition to floating rates are potentially inflationary.<sup>6</sup>

<sup>4</sup> Several exchange rate actions in mid-1974 lend support to the hypothesis that some central banks viewed their reserve holdings as somewhat redundant relative to demand. Thus, several countries imposed restrictions on exports while removing them on imports, despite the potential reduction in foreign exchange earnings. Other measures taken in 1973 to curb capital inflows and liberalize outflows may also be viewed as reflecting a general feeling of reserve adequacy. This attitude may have changed substantially at the end of the year. See the *1974 IMF Annual Report*, pp. 4-45.

<sup>5</sup> Some countries find it necessary, or desirable, to intervene in the foreign exchange market; some countries hold reserves to preserve confidence in their currency and to secure foreign borrowing; some countries may hold foreign exchange reserves in order to preserve their option of joining a monetary bloc or of returning to a par value system; and most countries still peg their currencies to some other currencies.

<sup>6</sup> They do concede that the move to floating rates may cause the price level to rise. On the other hand, since these jumps in the price level end as the redundant international reserves are eliminated, the successive price level increases should not be viewed as permanent changes in the inflation rate.

The March 1973 move to floating rates has, in our view, two opposing effects on world inflation: the change from fixed to floating rates will reduce the demand for reserves relative to supply — a *transitional* monetary factor potentially contributing to world inflation until the excess reserves are eliminated; at the same time, the establishment of floating rates provides the national monetary authorities with better control over their monetary bases and monetary growth — a *permanent* factor contributing to less world inflation.

Our analysis enables us to rationalize the emergence of two opposing views on the relation between floating rates and inflation. To the extent that the move to floating rates resulted in excess international reserves, it may have been a monetary factor contributing to the emergence of double-digit inflation. But these indirect and transitional monetary effects of floating on inflation recede as the excess reserves are eliminated. They are not to be identified with the direct effects of floating rates on cost-price structures and inflation emphasized by the critics. At the same time, once floating rates are established, they may, as claimed by the defenders, help us achieve better monetary control — a continuing factor helpful in slowing down world inflation.

### III. Gold and World Inflation

#### A. Supply and Demand Affecting Gold Prices

The very sharp rise in gold prices in the past seven years, and especially in the past four years, reflects both stock and flow factors. On the flow side, gold production output fell from 1,265 tons in 1970 to approximately 985 tons in 1974, a drop of over 20 per cent, with South Africa accounting for 90 per cent of the decline.<sup>7</sup> The stock supply of gold, dominated by the monetary gold held in central banks and by private gold holdings, is many times larger than

<sup>7</sup> The strategy and foreign exchange needs of South Africa and the USSR play a major role in determining the world supply of gold. Russian gold sales depend on the liabilities incurred in its transactions with the West. The South African reserve bank functions as a price leader and withdraws gold from the market when the demand is sluggish and also, apparently, when the U.S. sells gold. See *Business Review*, Federal Reserve Bank of San Francisco, Winter 1974-1975.

annual world production. The total stock is estimated at 3.7 billion ounces, and central bank holdings are 25 times as large as annual production.<sup>8</sup> (See Table 4.)

TABLE 4  
ESTIMATED SOURCES AND USES OF GOLD 1970-1974

Items	1970	1971	1972	1973	1974
	In Metric Tons				
Production . . . . .	1,265	1,230	1,170	1,085	985
Estimated sales by communist countries . . . . .	50	90	200	330	150
Total . . . . .	1,315	1,320	1,370	1,415	1,135
Change in western official gold stocks . . . . .	285	- 125	90	- 35	- 45

SOURCE: BIS.

The demand for gold depends on both stock and flow considerations: there is a flow demand for gold for industrial, commercial, and artistic purposes; there is also a stock demand for gold by central banks, by private hoarders, by investors, and by speculators. Not surprisingly, the flow demand for gold has declined as its prices have risen, with the largest decline in jewelry fabrication. The central banks' stock demand for gold has been relatively constant for several years; the increase in overseas official gold holdings of 72 million ounces was almost matched by the 63 million ounce decline in U.S. holdings. The private stock demand for gold increased recently as world inflation accelerated and as investors bought gold as an inflation hedge.<sup>9</sup>

<sup>8</sup> Central banks' decisions to sell gold in the free market will depend largely on its future role as an international money. If gold is demonetized, the central banks may sell more of their gold holdings. Recently gold has been used as collateral for loans, and this may be viewed as one step in this direction.

<sup>9</sup> The speculative, investment and hoarding demand for gold is characterized by different motives. Hoarding demand appears to be price elastic and is strong in those parts of the world where there is political and economical turmoil. The investment demand seeks gold until investment in other assets is more attractive and the speculative demand is fueled by inflationary expectations. The speculative demand was manifest some in the 1973-74 inflation as asset holders shifted from conventional assets into commodity speculations. See *Business Review*, Federal Reserve Bank of San Francisco, Winter 1974-1975.

### B. Recent Gold Developments

Gold supplies fell in recent years at the time of accelerating inflation, weak security markets, and continuing currency unrest — a combination of events which strongly stimulated investment demand for gold. The U.S. Treasury, in December 1973, announced that it would permit the holding of coins dated 1959 or earlier. The London gold price rose by 75 per cent from \$112 an ounce at the end of 1973 to \$197 an ounce at the end of 1974.

The U.S. private demand for gold has proved thus far to be very small, and the January 1975 gold auction here did not attract much buyer interest. In April of this year the price had fallen to \$165 an ounce, and the current price is approximately \$140 an ounce. The Treasury auction in June and the possibility of additional Treasury auctions and IMF sales may have further depressed gold prices.

The need to finance oil deficits led some countries to reactivate their monetary gold stocks. The EEC and the Group of Ten agreed on the use of gold as collateral for central bank credits, and gold served as collateral for a \$2 billion loan from Germany to Italy. The U.S. and the French announced on December 16, 1974 that they would favor the revaluation of official gold holdings on the basis of current market prices. In January 1975 the French revalued their gold stocks at \$170 an ounce, and also announced that they would adjust the valuation every six months. Thus far, no other country has followed the French lead in revaluing its gold stocks on the basis of market price.

The price of gold lived up to its role as a thermometer of international economic disturbance. The combination of large currency fluctuations, double-digit inflation, and the quadrupling of oil prices pushed gold quotations in 1974 to levels that could hardly have been envisaged in earlier years.

### C. On the Monetary Role of Gold

At the end of 1974 central bank gold holdings were approximately \$43.7 billion, assuming the official gold price of approximately \$42 per ounce. Valued at, say, \$150 per ounce, the central bank gold stock is worth approximately \$150 billion.

Two agreements affecting the monetary role of gold were terminated in 1973: the 1968 Washington agreement not to sell gold to the private market was terminated in November 1973; and the

agreement regarding the purchase of South African gold was terminated in December 1973. These agreements were terminated as the market price of gold was rising from \$100 an ounce in mid-1973 to over \$160 an ounce in mid-1974.

Sales of the officially held gold to the private market could generate a very major increase in world liquidity for two related reasons: first, gold sales would enable the central banks to utilize a frozen asset and thereby increase their supply of usable foreign reserves; and second, the substantial difference between the market price of gold and the official price would further increase their total stock of foreign reserves.<sup>10</sup> The possibility of utilizing the official gold stocks — valued at their market price — constitutes a potentially extraordinarily large addition, of perhaps 50 per cent, to the stock of world reserves.

An increase in official reserves of this magnitude could generate, facilitate, or accommodate more worldwide inflation in the next five to ten years. Gold has a very substantial potential for fueling further world inflation unless we develop a coordinated policy to deal with it.

The U.S. has sought to reduce and eventually eliminate gold's monetary role on the grounds that it was incompatible with a stable international monetary system. There has been a broad agreement that the key role of gold should be reduced, and some techniques have been developed for achieving this objective. The communiqués of the January 1975 and June 1975 meetings of the IMF Interim Committee revealed substantial agreement to enhance the SDR, rather than gold, as the central asset in the international monetary system. The issues relating to gold, still unresolved at these meetings, concerned the transitional arrangements and whether the IMF should be allowed to acquire gold from members.<sup>11</sup>

<sup>10</sup> Termination of the 1968 Washington agreements did not result in central bank gold sales to the private market. The reluctance to sell gold may have reflected a fear that such sales would precipitate a sharp price decline, or possibly a belief that gold prices would rise still further. Nevertheless, the opportunity to use gold as collateral, and to value this gold collateral at a price significantly higher than the official gold price, enabled some countries to use their gold holdings.

<sup>11</sup> Correspondence with F. Lisle Widman, Deputy Assistant Secretary, U.S. Treasury Department. See testimony of Governor Henry Wallich, Board of Governors, Federal Reserve System, and Treasury Secretary William E. Simon before the Joint Economic Subcommittee on International Economics; and the House Banking, Currency and Housing Subcommittee on International Trade, Investment and Monetary Policy, July 21, 1975. See also the IMF "Press Communiqué of the Interim Committee of the Board of Governors on the International Monetary System", June 12, 1975.

In these negotiations the U.S. has strongly supported proposals to move gold out of the system and to eliminate those rules and practices that gave gold a special status different from other commodities. The U.S. has advocated abolition of the official price of gold; elimination of provisions which require use of gold in transactions between the IMF and members; provisions enabling the Fund to sell its gold; elimination of restrictions on transactions by monetary authorities, subject to safeguards to ensure that gold's monetary role does not re-emerge; limiting the amount of officially held gold to the levels currently being held (including IMF gold); and constraints on a country's ability to acquire gold.

At the August 1975 meeting specific operational provisions were developed to reduce the role of gold in the international monetary system: The Group of Ten countries agreed to observe these *transitional* arrangements for a two-year period. But even if gold loses its role as a key asset in the international monetary system, the official gold stocks may be revalued to reflect the current market price. Thus, even if gold is phased out of the monetary system, we may still face a substantial increase in world reserves.<sup>12</sup>

#### IV. The Oil Deficits and World Inflation

The oil deficits can change world reserves and thereby change world money and world inflation. To investigate the inflation consequences of the oil deficits, we shall examine their effects on the demand, supply, and distribution of world reserves.<sup>13</sup>

<sup>12</sup> The Board of Governors of the IMF at the August 31, 1975, meeting noted that the Group of Ten have agreed to observe the following arrangements for two years (which could be subscribed to by any other member of the Fund): that there be no action to peg the price of gold; that the total stock of gold now in the hands of the Fund and in the hands of the monetary authorities of the Group of Ten would not be increased; that the parties will respect any further condition governing gold trading agreed to by the central bank representatives; that each party report semi-annually to the Fund and to the BIS the total amount of gold that has been bought or sold; and that each party agrees that these arrangements will be reviewed at the end of two years and then either continue, modify, or terminate. See IMF "Press Communiqué of the Interim Committee of the Board of Governors on the International Monetary System", August 31, 1975.

<sup>13</sup> In analyzing the impact of oil developments on world inflation, we have focused primarily on its effects via the demand, supply, and distribution of international reserves. We have abstracted from the *direct* impact of the oil price hike in raising inflation rates throughout the world since early 1974. Our analysis focuses primarily on the impact of the oil developments on inflation through its effect on world reserves and world monetary growth.

### A. *The 1974 Deficit*

OPEC earned \$126 billion from oil exports and \$9 billion from investments, for a total of \$135 billion, and expended approximately \$65 billion on imports of goods and services and \$4 billion on transfers, leaving them with a current account surplus of about \$65 billion. Three-fourths of this surplus accrued to the middle-eastern members of OPEC and perhaps one-third to Saudi Arabia. OPEC external financial assets increased from \$16 billion in 1973 to over \$80 billion in 1974.

Private financial markets financed more than half of the 1974 deficit with OPEC: new Eurocurrency bank credit facilities totaled \$28 billion in 1974; American banks increased their claims on foreigners by \$15 billion in the first eleven months of 1974; and new bond issues, including publicly announced private placements, totaled about \$6.3 billion in 1974.<sup>14</sup>

OPEC imports increased over \$30 billion, but did not grow as rapidly as exports. Accordingly, OPEC's accumulation of financial and real claims abroad increased. The currencies, the assets, and the countries that OPEC selects for their rapidly growing stock of foreign assets will vary with the circumstances and opportunities.<sup>15</sup> The international commercial banking system played a major role in this extraordinary intermediation function. Middle-east petrodollar investments in the U.S. are still relatively small, but OPEC investments in the U.S. may grow in the next year or so, probably at the expense of the Euromarket share.

Effective intermediation of the commercial banking system has enabled the oil-importing countries to finance their 1974 deficits without undue difficulty. But the international commercial banking system may not be able to continue its international intermediary role at last year's pace. The initial estimates of the payments imbalance between the oil exporters and the oil importers projected an accu-

<sup>14</sup> Lending by American banks and new Eurocurrency bank credits both declined in the latter half of 1974. A modest rise in new international bond issues followed this slowdown in bank lending.

<sup>15</sup> A recent U.S. Treasury tabulation gives the following estimated OPEC investments in 1974: \$11 billion in the U.S., \$22.5 billion in the Eurobanking market, \$7.5 billion in the U.K., \$5.5 billion to other countries, \$3.5 billion in IFI bonds and IMF oil facility, and approximately \$10 billion in grants and investments to LDC's and others.

mulation of OPEC assets reaching \$653 billion in 1980 and \$1.2 trillion in 1984. Recent studies have questioned these initial estimates and have suggested instead that OPEC's accumulation of foreign assets may peak in 1978-79.<sup>16</sup>

### B. *The 1975 Deficit*

The 1975 current account deficit with OPEC is expected to be smaller than the 1974 deficit, and its financing may take different forms. Official recycling may finance between 15-20 per cent of the expected 1975 deficit: the IMF oil facility may help finance about \$7.5 billion; and the EEC Community Loan is expected to provide approximately \$2 billion later on in the year.<sup>17</sup>

The slowdown in international bank lending in the latter part of 1974 is expected to continue in 1975. Commercial banks are expected to finance only one-quarter to one-third of the 1975 deficit, relative to the 50 per cent financed in 1974, because of the credit risks in financing large, and persistent, current account deficit countries, and because bank capital ratios have fallen to low, and possibly, imprudent levels.

The international bond market is providing more financing in 1975. The decline in short-term interest rates, together with the slowing of inflation in some countries, may have stimulated more international bond issues. New public offerings and private placements in the Eurobond market have averaged over \$500 million

<sup>16</sup> Recent analyses suggested that OPEC financial accumulations will not reach some of the large sums predicted last year. The World Bank in July 1974 projected OPEC accumulation of \$653 billion in 1980, or approximately 400 billion in 1974 dollars. Hollis Chenery in *Foreign Affairs*, January 1975, lowered the projected 1980 accumulation to approximately 300 billion in 1974 dollars. The Morgan Guaranty Bank in *World Financial Markets*, January 1975, projects total OPEC financial accumulations of \$180 billion in 1980, with a peak of approximately \$250 billion in 1978. Edward Fried in a 1975 Brookings study, *Energy and U.S. Foreign Policy*, estimated the 1980 OPEC financial accumulation to be approximately \$150 billion, but he assumes a lower real price for oil. T. D. Willett, in a January 1975 Treasury paper, projects OPEC accumulations of approximately \$200 billion in 1980, assuming that the current real price of oil is maintained. A similar result is also given in "Why Opec's Rocket Will Lose its Thrust" in the First National City Bank's *Monthly Economic Letter*, June 1975.

<sup>17</sup> In addition, the Group of Ten has agreed on Secretary Kissinger's proposed \$25 billion Fund to serve as a safety net and supplement the IMF oil facility and to be spread over two years.



monthly this year. And more foreign borrowers have come to the U.S. bond market.<sup>18</sup>

The official recycling facilities, commercial bank loans and credits, and the international bond issues may provide \$30 billion to finance the expected 1975 deficit with OPEC. Recent estimates suggest that OPEC's 1975 current account surplus may be \$40 billion, or less. The deficit countries' need for additional financing is thus lower than previously expected.<sup>19</sup>

### C. Changes in the Stock and Distribution of International Reserves

The brief review of the 1974-75 deficits suggests that OPEC accumulation of financial assets may continue for several years although possibly at a lower rate than initially projected. There are some differences of opinion whether these holdings will peak in 1978-79 or later, depending in part on the assumptions introduced concerning OPEC's capacity to expand imports in the short run.<sup>20</sup> The world economy may have to face the prospect of substantial OPEC reserve accumulations in the next several years which can have major implications on the demand, supply, and distribution of international reserves.

Suppose first that the deficit countries use their own reserves to settle their payments imbalances. In this case, as OPEC acquires the reserves of the oil deficit countries, the collective reserves of the deficit countries would be reduced by an amount equal to the increase in reserves of the oil exporting countries. The stock of

<sup>18</sup> A recent analysis of the international credit markets summarizes the 1975 development as follows: "New-issue activity in the international bond market has been at a record level so far this year. In the first seven months of 1975, over \$10 billion has been raised or announced. Interestingly, new publicly-announced medium-term Euro-currency bank credit facilities totaled about the same amount during this period. This is in marked contrast to all of last year, when only \$6.5 billion was raised in the international bond market, and \$29.3 billion in the Euro-currency market". *World Financial Markets*, Morgan Guaranty Trust Company of New York, July 15, 1975.

<sup>19</sup> Direct OPEC lending and investing is not expected to expand sufficiently to match the financing requirements of individual deficit countries. Additional private intermediary institutions may be helpful to facilitate the flow of OPEC funds to the deficit countries and to provide whatever additional financing may be needed in 1975 and subsequent years.

<sup>20</sup> The factors that determine the size of OPEC's current-account surplus and its accumulation of financial assets are the demand elasticity for OPEC oil; the supply of non-OPEC oil; the supply of non-OPEC, non-oil energy; the substitution of non-oil energy for oil; and OPEC's demand for imports from the oil consuming countries.

world reserves would remain unchanged.<sup>21</sup> There are, however, plausible cases in which the total stock of reserves may change.

World reserves will increase in the case (which appears important in practice) where the deficit countries borrow reserves to pay for their oil deficits. World reserves *may* also increase in the case where the deficit countries transfer foreign exchange that they held in the *issuing* country and OPEC places these funds in the *offshore* markets. World reserves may decline if the oil importers transfer reserves in *offshore* markets and OPEC places them in the country of issue. A transfer by OPEC of foreign exchange from the country of issue to the offshore market facilitates an expansion of international reserves, while a transfer from the *offshore* market to the country of issue tends to accentuate the reserve decline of the oil importers, except to the extent that the deficit countries are able to borrow in the reserve center.<sup>22</sup>

In 1974 global reserves increased by over \$40 billion. The reserves of the oil exporting countries increased approximately \$36 billion, while the oil importing countries' reserves went up by approximately \$3.9 billion. Most of the increase in global reserves was associated with a sharp rise in foreign exchange holdings of approximately \$36 billion. As in previous years, this rise took the form of an increase in dollar reserves held either in the U.S. or in the Eurocurrency market. But unlike previous years, it was not the result of a U.S. deficit, but was primarily the consequence of the deficit countries borrowing in order to avoid reserve losses. The oil deficit countries may nevertheless feel that their reserve positions have deteriorated, even though their total holdings show a slight statistical increase. (See Table 5).

<sup>21</sup> The deficit countries' demand for foreign reserves may increase because of uncertainty as to their ability to secure financing, and because they may want additional reserves as security for borrowing.

<sup>22</sup> While the investment policies of the countries gaining and losing reserves may change world reserves, this impact may be lessened to the extent that capital is mobile. For example, an OPEC decision to deposit reserves in the U.S., rather than in the Eurodollar market, may tend to reduce world reserves. But the deficit countries could rebuild their reserve holdings if they are able to borrow more in the U.S. — a possibility enhanced by the U.S. removal of capital control in January of 1974. Of course, if U.S. monetary policy sterilized capital inflows in order to facilitate domestic monetary management, the oil importers may not be able to borrow more as OPEC investments in the U.S. rise.

TABLE 5

CHANGES IN INTERNATIONAL RESERVES \* OF THE OIL-IMPORTING  
AND THE OIL-EXPORTING COUNTRIES 1972-1974

Areas & Periods	Gold	Foreign Exchange	IMF Reserve Positions	SDR's	Total
	In millions of U.S. dollars				
Total oil-importing countries					
1972 . . . . .	— 390	+20,080	— 135	+ 2,895	+22,450
1973 . . . . .	+ 4,160	+15,300	+ 515	+ 1,145	+21,120
1974 . . . . .	+ 520	+ 1,750	+ 1,450	+ 180	+ 3,900
Amounts outstanding at end- 1974 . . . . .	42,220	110,450	8,495	10,430	171,595
Oil-exporting countries **					
1972 . . . . .	— 5	+ 3,155	+ 55	+ 160	+ 3,365
1973 . . . . .	+ 160	+ 4,365	+ 110	+ 45	+ 4,680
1974 . . . . .	+ 55	+34,410	+ 1,935	+ 40	+36,440
Amounts outstanding at end- 1974 . . . . .	1,485	50,335	2,335	415	54,570

\* Including valuation changes.

\*\* Ecuador, Venezuela, Iran, Iraq, Kuwait (central bank's holdings plus BIS estimate of government holdings), Oman, Saudi Arabia, Indonesia, Algeria, Libya and Nigeria. For Bahrain, Aqtar and the United Arab Emirates only IMF reserve positions are included.

SOURCE: BIS.

The oil importers' demand for reserves may rise *pari passu* with the growth of their deficits, and they may seek to borrow additional reserves. The stock of world reserves may rise in the next several years because of a widespread and increasing feeling of reserve stringency. The \$3.9 billion increase in international reserves of the oil deficit countries, brought about through larger borrowings, may thus reflect their growing sense of reserve stringency and their increased demand for reserves. Such an increase in world reserves need not be inflationary, and may even be deflationary, if the increase in demand exceeds the increase in supply. Moreover, the monetary consequences of the \$36.4 billion buildup of OPEC reserves in 1974 differs from the 1971-73 increase in reserves to the extent that some of the oil exporting countries do not issue domestic currency for the dollars and reserves they accumulate. In this sense, expansion

of OPEC's reserves need not be inflationary, and may even be deflationary, depending on domestic monetary growth in all of the oil exporting countries.<sup>23</sup>

## V. Other Influences on World Liquidity

In its 1974 Annual Report the IMF examines the ratio of reserves to imports for a sample of 60 countries in the period 1954-73. This ratio has declined continuously from over 75 per cent in 1954 to 28 per cent in 1970, except for the years 1958 and 1961. Some analysts interpret this decline as evidencing a need for additional supplies of international reserves.

There are, however, several problems with this approach. First, if we utilize this indicator to conclude that the demand for reserves is overtaking the supply, we are implicitly assuming that the ratio of international reserves to imports — or its reciprocal the velocity of these reserves — is a constant. Second, if floating exchange rates do, in fact, reduce the demand for reserves, any demand relationships derived from the pre-floating regimes data will tend to overestimate the current demand for official reserves. Third, if the market price of gold exceeds the official price, estimates of world liquidity which peg central bank gold stocks at the official price will tend to underestimate the stock of potential liquidity — especially if oil deficit countries take actions to mobilize their gold reserves.

In contrast, the redistribution of reserves from the deficit countries to OPEC in the next several years may cause us either to overestimate the available supply or to underestimate the relative growth in demand. Estimates of world liquidity aggregate the reserves of the oil exporters and the oil deficit countries. But the

<sup>23</sup> Dollars acquired by the foreign central banks in the years 1971-73 were bought with national currencies. Thus, the accumulation of international reserves by the Swiss National Bank and by the German Bundesbank was associated with an expansion of francs and marks. In contrast, the Saudi Arabian National Bank does not apparently issue rials against the dollar, and its accumulation of reserves does not necessarily correspond with an expansion of its domestic currencies. Saudi Arabia, and perhaps Kuwait, are, in effect, sterilizing their accumulation of reserves. Of course, some OPEC countries, like Venezuela, may be increasing their money supply just as the non-OPEC countries are. But to the extent that the domestic currencies in some OPEC countries do not expand with the accumulation of reserves, monetary consequences are not inflationary, and may even be deflationary. See GOTTFRIED HABERLER, "Remarks at the Japan-U.S. Assembly Meeting", April 1975.

redistribution of reserves reduces the liquidity of the deficit countries, even though the stock of global reserves is unchanged. Finally, the deficit countries' demand for reserves may rise *pari passu* with their rising deficits, and the demand for reserves may be rising even faster than the supply of reserves.

Private holdings of internationally liquid assets more than doubled in the 1968-73 period, growing at about the same rate as official reserves. This is another factor that we need to consider in assessing world reserves and inflation. Although they are privately held, these international liquid assets can be used to finance a payments deficit, in addition to the official reserve holdings. This would suggest that we add the private international liquid assets to the official reserve assets. On the other hand, the availability of these privately held assets to finance payments imbalances may be diminished somewhat to the extent that floating rates may have increased the private demand for international liquidity.<sup>24</sup> (See Table 6).

ESTIMATED PRIVATE INTERNATIONAL LIQUIDITY  
AND OFFICIAL RESERVE HOLDINGS 1964-1974  
(in billions of U.S. dollars)

TABLE 6

Year	Estimated Private International Liquidity	Official Reserve Holdings
1964 . . . . .	24.4	70.3
1965 . . . . .	27.3	72.4
1966 . . . . .	32.9	73.2
1967 . . . . .	36.9	74.3
1968 . . . . .	49.5	77.4
1969 . . . . .	71.6	78.1
1970 . . . . .	74.4	92.5
1971 . . . . .	76.7	132.7*
1972 . . . . .	96.1	158.4*
1973 . . . . .	126.1	182.6*
1974 . . . . .	n.a.	218.2*

SOURCE: IMF *Annual Report*, 1974 and 1975.

\* These data on Official Reserve Holdings taken from the IMF *Annual Report* differ slightly from the Total Reserve Assets for these years shown in Table 1 and taken from the BIS *Annual Report*.

<sup>24</sup> The contribution of private international liquidity is offset somewhat to the extent that the increased liabilities by a debtor country reduce what it regards as its available reserves. This means that increased private liquidity holdings make a net addition to reserve

Some of the official actions taken in 1973 to restrict exports, to relax import restrictions, to curtail capital inflows and to liberalize outflows may be interpreted as evidence for the view that world reserves were ample relative to supply. This sense that international reserves were adequate may have changed substantially at the end of 1973 when some of these policies were reversed. A sense of reserves stringency was manifest in 1974 when some deficit countries took actions to restrict imports, to increase official borrowing in order to curtail reserve losses, to maximize access to the oil facility, and to mobilize gold reserves at the highest possible price. And finally, the reduction in the real value of reserves as a result of the depreciation of the reserve currencies and the speed-up in world inflation may have further aggravated the feeling that international reserves were inadequate.<sup>25</sup>

### Conclusion

The stock of international reserves has been increasing very rapidly in recent years and has been associated with an acceleration of world monetary growth and a burst of double-digit inflation in the world economy. Waiving the question of cause and effect, it is clear that the three-fold increase in global reserves was a factor facilitating worldwide inflation.

Several developments in the last two years can significantly affect the prospects for world inflation. The move to floating rates in 1973 may have reduced the demand for reserves, rendering some of the reserve holdings into excess reserves; the transition to floating rates can bring about a speed-up of money growth and a temporary increase in inflation. On the other hand, floating rates also enable the monetary authorities to regain control over their domestic money stock; the maintenance of a floating rate regime may in this sense be a necessary, though not a sufficient, condition for non-inflationary monetary growth and a reduction in world inflation.

A second recent change which can influence the prospects for world inflation is a very sharp run-up in the price of gold, which

case only if there is an asymmetry between the creditor and debtor countries. Whether such an asymmetry is likely to persist in the changed circumstances following the oil developments is not clear.

<sup>25</sup> See "Development in World Liquidity", Chapter 2 in the 1974 IMF *Annual Report*, pp. 41-46.

can add over \$100 billion to world reserves. There have been official discussions, and the IMF recently announced an agreement to phase gold out of the monetary system. But the official gold holdings may be revalued to reflect the current market price. We may thus see some additional increase in the monetary bases and world liquidity unless active steps are taken to offset this potential increase in international reserves.

The oil price increase is another factor influencing world inflation through its effects on the demand, the supply, and the distribution of international reserves. The deficit countries may desire additional reserves in order to finance their prospective oil deficits. This could result in another increase in global reserves. Also, depending on how OPEC chooses to hold its assets — i.e., whether they hold them in the offshore Eurocurrency markets or the country of issue — world reserves may either increase or decrease. The oil developments are likely to result in an increased demand for reserves to finance the expected oil deficits and some increase in the supply.

The distribution of global reserves has worsened in recent years, and the oil deficit countries' demand for international reserves may be rising. This demand could be satisfied by official borrowing and by a continued growth of foreign exchange component of international reserves. A revaluation of the official gold holdings would also tend to increase the stock of reserves, and a continuation of floating rates should tend to reduce the demand for reserves.

Those who are concerned about reserves stringency point to a decline in the real value of global reserves because of world inflation and to the oil deficits which suggest some increase in demand relative to supply. Actions by the deficit countries in 1974 to restrict imports, to increase foreign borrowing, to gain access to the oil facility, and to mobilize their gold reserves may be interpreted as suggesting a sense of reserve stringency relative to earlier years.

There is no evidence yet of inappropriate deflationary policies being dictated by reserve stringency. On the contrary, some countries have used their reserves on a substantial scale to prevent the depreciation of their currencies. Import restrictions have not spread to countries that are not suffering from large non-oil deficits, and the move to floating exchange rates has reduced the payments disequilibria and the need for reserves by several countries.

World liquidity may thus be subject to opposing forces. The

transition to floating rates would tend to reduce the demand for international reserves, and the rise in gold prices would tend to increase supply; these two factors together operate to bring about an increase in supply relative to demand and suggest a potential increase in excess reserves and a speed-up of world inflation. The oil deficits tend to increase both the demand for, and the supply of, reserves with demand growing relative to supply; *ceteris paribus*, the oil developments would suggest a potential problem of deficient reserves and deflationary policies in some countries.

These two forces may have offset each other in the past year, but there is no inherent reason why the oil deficits should increase the demand for international reserves just sufficiently to offset the influence of gold and floating rates operating to increase the supply of global reserves. A revaluation of gold may bring about a jump in reserves which is not likely to just net out the influences of other factors on raising the demand for reserves. Accordingly, the rapid growth in global reserves may pose a potentially serious inflationary problem which needs to be monitored.

If the oil developments should dominate and the world turns out to be short of international liquidity, we must be alert to recognize any deflationary policies that will emerge. But we must be equally alert to monitor and detect evidence of excessive liquidity that could ignite a further increase in world inflation.

*Detroit*

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