

FEDERAL RESERVE BANK OF ST. LOUISIS

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REVIEW



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ANNOUNCEMENT

Homer Jones, Senior Vice President and Director of Research, retired from the Federal Reserve Bank of St. Louis on June 30, 1971. Mr. Jones has been head of the Research Department since 1958, after serving many years with the Federal Deposit Insurance Corporation, the Committee for Economic Development in Washington, D. C., and the Board of Governors of the Federal Reserve System.

Leonall C. Andersen assumed the duties of Director of Research and Senior Vice President, effective July 1, 1971.

Dollars, Deficits, and the International Monetary System

THE U.S. balance-of-payments deficit, according to most of the commonly used definitions, has reached record magnitudes in the past two years. Within the last several months, the persistence of large deficits has aroused sharp controversy both in official and private circles. For example, the Bank for International Settlements (BIS), in its latest *Annual Report*, commented in the following manner on the U.S. balance-of-payments situation:¹

Apart from technical measures to contain the outflow of funds, the Administration had no plans for curing the U.S. payments deficit. The Council of Economic Advisers declared in its Annual Report that unilateral policy action by the United States cannot eliminate the deficit so long as other countries insist on running surpluses over and above their SDR allocations. This attitude seems rather far removed from the spirit—and the letter—of the Bretton Woods system, which SDRs are supposed to be preserving.

This brief statement touches certain sensitive areas of international monetary relations that are currently receiving considerable attention. First, and most urgent, are the problems of foreign countries, and in particular their central banks, in dealing with a huge influx of dollars. This large flow of dollars is partially a result of the reduction in U.S. borrowings from the Eurodollar market, and of the decline of interest rates in the United States.² In addition, a “multiple expansion” of Eurodollars occurred as European central banks placed dollar balances with the BIS. Second, the balance-of-payments deficit of the United States is being reappraised in light of the policies of the Administration and in view of the prospects for improvement in the U.S. balance-of-payments position. Third, there is a new sense of urgency in the search for alternatives to the continued accumulation of dollars by foreigners, especially central banks. One possible solution, which has not received full consideration, calls for a U.S. policy of stable noninflationary monetary growth. These issues will be examined at length in this article.

¹Bank for International Settlements, *Forty-first Annual Report*, (Basel, 1971), p. 20.

²For an illuminating analysis of the Eurodollar market, see the immediately following article by Professor Milton Friedman, “The Eurodollar Market: Some First Principles,” reprinted by permission from the *Morgan Guaranty Survey*, October 1969.

As is generally the case in international monetary policy matters, these difficulties have little likelihood of quick resolution, although Germany and the Netherlands have attempted to meet their immediate dollar inflow problems by allowing their currencies to float. Austria and Switzerland have revalued their currencies.³ The following article reviews recent issues and developments in international monetary affairs, and discusses some proposed measures to improve conditions.

Europe’s Dollar Problem

U.S. Interest Rates and Short-term Capital Flows

Private foreigners have accumulated large amounts of dollars to hold as liquid assets and as a medium of exchange for world trade. Many foreigners have chosen to hold these liquid dollar balances as deposits in European banks (Eurodollars) rather than as direct deposits in U.S. banks. Extremely high Eurodollar interest rates encouraged private foreigners to channel currently accruing dollar receipts into Eurodollar deposits, especially in 1968 and 1969. Private foreigners also converted their domestic currencies into dollars for the same purpose. Foreign central banks, obligated to maintain fixed exchange rates, supplied these dollars by drawing down their official reserve holdings of dollars, and even sold \$1 billion of gold to the United States in order to obtain dollars in 1969. In addition, central banks themselves have been attracted by high interest yields, and have lent funds in the Eurodollar market through the Bank for International Settlements, which acted as an intermediary.

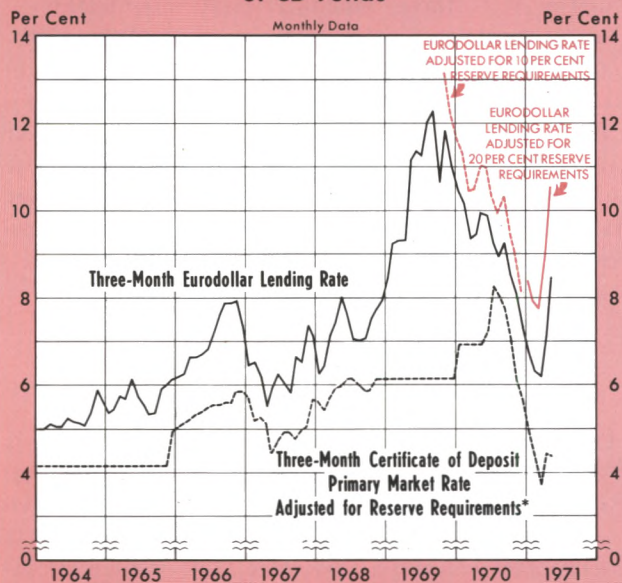
In large measure, the upward pressure on Eurodollar interest rates was transmitted by U.S. banks borrowing on a “nondeposit” basis in the Eurodollar market. Eurodollar interest rates normally rise and fall with U.S. short-term rates. In 1968 and 1969, Eurodollar rates were also pushed up, as U.S. banks sought to find alternative sources of cash. The rise in U.S. short-term rates above existing interest rate ceilings had made it extremely difficult for banks to raise funds through the sale of negotiable CDs. With the

³A country that revalues raises the price, in terms of foreign currency, at which it buys or sells its own currency. A country that devalues does the opposite.

decline in U.S. interest rates that began in early 1970, and the removal of interest ceilings on large 30- to 89-day maturity CDs in June 1970, U.S. banks once more were able to issue CDs at attractive rates, and

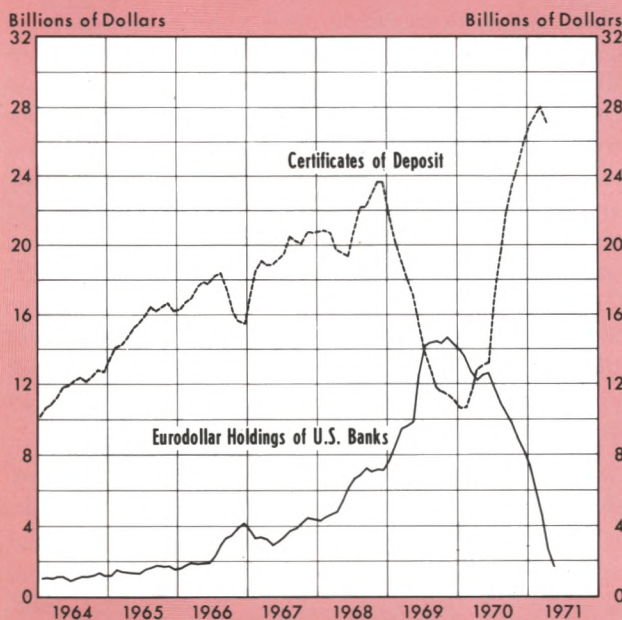
no longer found it profitable to compete for reserves in the Eurodollar market. The accompanying chart shows how the volume of CDs and Eurodollar borrowings of U.S. banks have fluctuated in response to CD interest rate ceilings and relative interest costs of obtaining funds in the two competing channels. As Eurodollar borrowings by U.S. banks were repaid, interest rates on Eurodollars declined sharply. Private foreigners then sought more attractive returns in domestic European money markets, and converted dollars back into European currencies through foreign central banks.

U.S. Bank Borrowing in Eurodollar Market Reflects Relative Cost and Availability of CD Funds



The Mark-Dollar "Crisis"

In West Germany, where the Bundesbank attempted to cool inflationary pressures by following a restrictive monetary policy, domestic interest rates were above Eurodollar interest rates by mid-1970, contrary to previous years. This induced German companies, which have free access to the Eurodollar market, to borrow funds from it, converting the dollar proceeds into marks. Multinational corporations and other investors were likewise encouraged to exchange dollars for marks which could earn attractive yields when placed on deposit in German banks or lent in German money markets. The following chart shows how German banks and enterprises increased their net foreign liabilities sharply in 1970, as Eurodollar interest rates fell below domestic German rates.



Sources: Board of Governors of the Federal Reserve System, Continental Illinois National Bank and Trust Company of Chicago, and Morgan Guaranty Trust Company

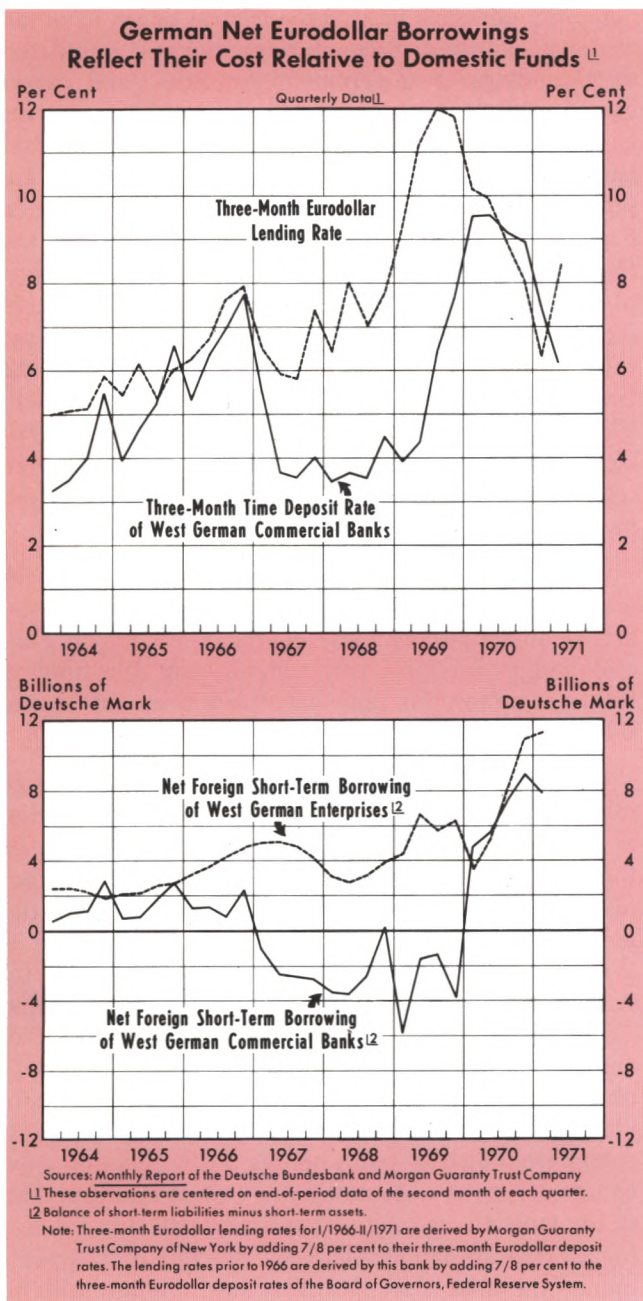
* The certificate of deposit market rate is based on the legal ceiling rates during the following periods: Jan. 1, 1964 - Nov. 23, 1964: 4 per cent on 90-day deposits
Nov. 24, 1964 - Dec. 5, 1965: 4 per cent on 89-day deposits
Nov. 8, 1968 - Jan. 20, 1970: 5.75 per cent on 89-day deposits
Jan. 21, 1970 - June 23, 1970: 6.5 per cent on 89-day deposits

Note: Three-month Eurodollar lending rates for 1/1966-11/1971 are derived by Morgan Guaranty Trust Company of New York by adding 7/8 per cent to their three-month Eurodollar deposit rates. The lending rates prior to 1966 are derived by this bank by adding 7/8 per cent to the three-month Eurodollar deposit rates of the Board of Governors, Federal Reserve System.

As a result, the Bundesbank was obliged to purchase approximately 3 billion dollars between January and April in support of the official mark-dollar parity. The Bundesbank's dollar reserves grew, increasing expectations that official action would be taken to stem the inflow by adjusting upward the value of the mark. Conversion of dollars into marks by those in position to speculate on exchange rates then swelled the German central bank's dollar reserves even further, especially after official support of the dollar in forward exchange markets was suspended on April 28.

In just two days, before the foreign-exchange markets were temporarily closed on May 5, the Bundesbank was forced to acquire an additional 2 billion dollars in order to maintain parity on the "spot" exchange market.⁴ Finally, on May 10, the decision was announced that official dollar-mark convertibility

⁴The spot exchange market involves trading of currencies for current delivery. Trading of currencies for future delivery is conducted in "forward" exchange markets. For an exposition of these terms, see Alchian and Allen, *University Economics* (Belmont: Wadsworth Publishing Co., 1967), pp. 686-690, 753-760.



at 27.3 cents per mark was suspended for an indefinite period. Since then, the dollar price of the mark has fluctuated in the free market at a spot price ranging from two to five per cent above the old parity. Permitting the mark to float reduced the incentive for speculative conversion of dollars into marks.

German officials are apparently not unanimously agreed that an early revaluation is out of the question. Although a sharp improvement has occurred in 1971, some German officials point to their 1968-1970 balance-of-payments deficits ("basic balance") as evidence that a mark revaluation may be either unneces-

sary or unwise. Some reports suggest the mark might be permitted to float for as long as six months or more until speculative sentiment wanes, after which the old parity might be restored. Recent accumulations of dollars due to short-term capital inflows are assumed by some officials to be temporary and reversible. The recent rise in Eurodollar lending rates may reduce the incentive for Germans to borrow Eurodollars.

Opposition to a revaluation of the mark stems from several industries, including German exporters of automobiles and machinery and import-competing industries, such as textiles, chemicals and electrical equipment. Revaluation of the mark by nine per cent in 1969 is still fresh in mind, and further appreciation might hurt the international competitive position of some German goods. Subsidized German agriculture, whose price support levels are geared to dollar equivalents under the European Economic Community (EEC) Common Agricultural Policy, stood to receive lower prices and incomes until assured that compensating adjustments in support levels and subsidies would be made.

Short-term Capital Flows and Monetary Stabilization

One of the advantages claimed for fixed exchange rates and free convertibility among currencies is that they tend to promote close international linkages among markets. These linkages pose certain monetary control problems, however. The mobility of short-term capital, in response to interest rate differentials among countries, diminishes the leverage of foreign central banks in pursuing independent domestic monetary policies. Inflows of dollars into a given country tend to expand its monetary base, leading to faster growth in domestic money supply, easier credit conditions in the short run, and when resources become fully employed, to inflation and ultimately higher interest rates.

A monetary authority that seeks to prevent this must either discourage the inflow of dollars or offset the impact of the inflow on the domestic money supply through restrictive policies. But efforts to discourage the inflow of dollars may involve exchange controls and other interferences with markets. Restrictive monetary policies that temporarily result in higher domestic interest rates may actually tend to increase the inflow of dollars seeking short-term investment. Moreover, if the inflows are due, in part, to a favorable balance of trade, restrictive monetary policies will postpone, rather than hasten, the reduc-

tion of exports relative to imports that would be required to restore balance-of-payments equilibrium.

Among the more frequently used methods for discouraging dollar inflows are: (a) central bank operations (frequently on a preferential basis with domestic commercial banks) to drive the price of the dollar upward in forward exchange markets so as to increase the "covered interest" rates on Eurodollar loans relative to interest rates on domestic loans; (b) reduction of central bank discount rates for the same purpose; (c) prohibition of interest payments to foreign owners of domestic bank deposits; (d) raising reserve requirements on such deposits; (e) exchange controls to limit the conversion of dollars into "resident" domestic currency; (f) capital restraints on the amount of foreign borrowing by domestic banks, other financial institutions and business firms; (g) lowering of tariffs and other barriers to imports; and (h) relaxation of restrictions on foreign investment by domestic individuals and companies.⁵

During the recent dollar-mark "crisis," West Germany, in order to discourage capital inflows, discontinued its operations in the forward exchange market, lowered its bank rate from seven and one-half to five per cent, and stopped interest payments and doubled reserve requirements on foreign-owned bank deposits. Until now, West Germany has avoided direct controls of type (e) and (f), but the British Treasury recently prohibited additional short-term Eurodollar borrowing by British companies for domestic use.

The Japanese, who are currently running a balance-of-payments surplus, have maintained an extensive system of exchange controls to discourage short-term inflows of dollars. Opposition to yen revaluation is strong, so other measures to alleviate upward pressure are being adopted. Recently, the Japanese government announced an eight-point program that includes lower import barriers and complete liberalization of foreign investment by Japanese citizens and firms. Other actions have included lowering the central bank discount rate, relaxing controls on private ownership of dollars, and subsidizing banks desiring forward cover on dollar holdings.

Attempts to stem the flow of dollars into and out of central bank reserves have generally been ineffective or insufficiently vigorous. Therefore, in order to neutralize the effects of these movements on domestic spending, a somewhat different set of tactics has sometimes been adopted. To limit expansion of the

domestic monetary base, some central banks have, on occasion, adjusted discount rates upward, liquidated their holdings of government securities, and raised commercial bank reserve requirements. Governments have sometimes increased their deposits at central banks. The leading practitioner of this general approach to dealing with recent dollar inflows has been France. The rates on loans and discounts at the Bank of France have been raised, taxes have been placed on bank deposits of foreigners, and reserve requirements have been increased. In West Germany, reserve requirements have been raised across the board on domestic bank deposits by 15 per cent. The Bundesbank in the past has been able to neutralize a high proportion of the changes in its foreign reserves through offsetting adjustments of the domestic sources of the monetary base.⁶

Governments at times have also raised taxes, increased their borrowing, or undertaken other fiscal actions in support of these efforts. The German Federal budget for 1971 and commitments for funding future spending programs each have been cut by one billion marks.

If a country desires to maintain a fixed exchange rate, and finds it cannot prevent the accumulation of foreign exchange reserves or offset their effect on the domestic monetary stock, then the ultimate adjustment must be through changes in aggregate domestic demand, prices and interest rates. There is evidence that this has occurred in a number of instances. As world short-term capital markets become more closely linked, through the Eurodollar market and other transmission mechanisms, surplus and deficit countries will have less latitude to postpone these ultimate balance-of-payments adjustments. The present international system imposes a discipline on each country to foster a domestic price trend at a rate that, in the long run, is roughly consistent with the average for all trading nations. To some foreigners it appears more and more that this long-run average will be determined by the United States.

When a Eurodollar Becomes a Dollar of Reserves

The Eurodollar market has been blamed for accentuating the problems of central banks by increasing the mobility of short-term funds. There is reason

⁵George W. McKenzie, "International Monetary Reform and the 'Crawling Peg,'" this *Review* (February 1969), pp. 15-23.

⁶Manfred Willms, "Controlling Money in an Open Economy: The German Case," this *Review* (April 1971), pp. 10-27. In 1969 and again this year, however, when the extremely large size of the inflows was due in part to speculation on revaluation, German monetary authorities made exchange rate adjustments.

to believe, however, that these problems may have been aggravated partly by some of the central banks' own actions. As Table I indicates, in December 1970, recorded foreign exchange assets of central banks were \$13.4 billion greater than dollar and sterling liabilities to foreign central banks, as recorded by the United States and England. No less than \$6 billion of this discrepancy appeared in 1970 alone. Since the bulk of official foreign exchange reserves are dollars, and most of the remainder is sterling, the discrepancy has been attributed to a kind of "multiple counting" of dollar claims on the United States which arises out of central bank lending in the Eurodollar market.

Attracted by high yields on Eurodollars, a number of foreign central banks deposited dollars with the Bank for International Settlements (BIS), which in turn redeposited these funds with Eurobanks.⁷ After Eurobanks lent these deposited funds, some borrowers exchanged the dollar proceeds of the loans for foreign currencies obtained from central banks. The dollars that foreign central banks originally placed with the BIS became the basis for creation of new Eurodollars, some of which were acquired by central banks. Instead of counting as reserves only those dollars which are liabilities of the United States, the central banks counted some created liabilities of Eurobanks as well.

From the point of view of reconciling official central bank records of assets and liabilities, it is as if foreign central banks counted some of their true dollar claims on the United States twice (or possibly more times, in the case of Eurobank created dollars that were again fed back into the Eurodollar market). Unless offset by other actions, when these Eurodollars were converted into domestic currencies, foreign central banks would increase their domestic money supplies. There is little doubt that the willingness of central banks to supply funds to the Eurodollar market supported multiple expansion of Eurodollar deposits. It may also have kept Eurodollar interest rates lower than they otherwise would have been.

Realization of the extent to which Eurodollars have been recycled in this manner is very recent. Some estimates suggest that at least \$5 billion of foreign official dollar reserves have been generated in this way.⁸ The BIS has confirmed the intention of central

⁷Eurobanks are banks located outside the United States (including foreign branches of U.S. banks) which accept deposit liabilities denominated in dollars.

⁸Fritz Machlup, "The Magicians and Their Rabbits," *Morgan Guaranty Survey* (May 1971), pp. 3-13.

Table I

INTERNATIONAL LIQUIDITY (Billions of Dollars)					
	1960	1965	1967	1969	1970
Liquid Assets Recorded by Central Banks					
Gold	\$38.0	\$41.9	\$39.5	\$39.1	\$37.2
SDR's	—	—	—	—	3.1
IMF Reserve Position	3.6	5.4	5.7	6.7	7.7
Foreign Exchange Assets	18.6	23.6	28.9	31.9	43.9
Total Reserve Assets	60.2	70.9	74.1	77.7	91.9
Liabilities to Official Foreigners Recorded by Central Banks of Reserve Currency Countries					
U.S. Dollar Liabilities	11.1	15.8	18.3	16.0	23.9
U.K. Sterling Liabilities	7.1	7.1	8.3	8.9	6.6
Total Dollar and Sterling Liabilities	18.2	22.9	26.6	24.9	30.5
Difference between Foreign Exchange Assets and Total Dollar and Sterling Liabilities¹	.5	.6	2.4	7.0	13.4

¹Figures may not add because of rounding.
Source: International Financial Statistics, IMF (Monthly)

banks to withdraw funds from the Eurodollar market "when such action is prudent in the light of market conditions." Quick withdrawal of funds might drive Eurodollar rates up, causing contraction of the Eurodollar borrowing.

It is not surprising in light of these discoveries that many international monetary officials are now calling for regulations on Eurodollar banking. There has been conjecture about imposing reserve requirements on Eurodollar deposits. Unless these are made uniform and universal, opposition may be forthcoming, particularly from the British. About half of such Eurobanking is conducted in London, and uneven application of regulations might result in loss of some of this market to other countries.

U.S. Balance of Payments

Balance-of-Payments Policies

The recent upheaval in foreign exchange markets disturbed a calm that had prevailed over the international financial system since the 1969 mark revaluation. Except for strong disapproval of the use of exchange rate adjustments as an instrument of short-run domestic cyclical control,⁹ responses to the current mark-dollar crisis among U.S. officials have been

⁹Speech by Arthur Burns, Chairman, Board of Governors of the Federal Reserve System, before the International Banking Conference, Munich, May 28, 1971.

restrained. Administration spokesmen have acknowledged a concern over controlling the size of the "basic" balance-of-payments deficit,¹⁰ which specifically excludes short-term dollar flows that have been the source of recent unrest. Some foreign observers have been prompted to accuse the present Administration of pursuing a policy of "benign neglect" toward its balance-of-payments deficits.¹¹ While U.S. international monetary policy has not been materially modified in the light of recent events, it is incorrect to describe the United States as responding completely passively to the build-up of dollars in official foreign hands.

Last December, the Federal Reserve attempted to encourage banks to maintain their Eurodollar "reserve free base" liabilities by raising reserve requirements on liabilities in excess of this base from 10 per cent to 20 per cent. In an effort to push up Eurodollar interest rates relative to rates in other foreign money markets, the Export-Import Bank between January and April borrowed \$3 billion from foreign branches of U.S. banks. The U.S. Government paid almost a two percentage point premium for such funds over comparable U.S. short-term interest rates. According to Federal Reserve Governor Dewey Daane, the Federal Reserve and the Treasury also undertook a mild revival of "operation twist," emphasizing purchase of coupon issues to restrain long-term rates from rising while issuing short-term debt to exert upward pressure on short-term rates.¹² As a further step, announced in June, the Treasury would exchange \$5 billion of short-term Treasury securities held by the German Bundesbank for higher yielding medium-term securities.

Beyond this, the reaction of some officials to foreign criticism that more should be done has been to emphasize that by reducing inflationary pressures, the restrictive monetary policies of 1969 and early 1970

have, in fact, contributed to improved international stability. Continuance of tight money, it is felt, not only might weaken the U.S. economy, but depress our demand for imported goods to the point of plunging the rest of the world into serious economic contraction. The Vice-President of the United States expressed it bluntly when he said, "We will not . . . put the United States through the wringer in order to deal with a temporary situation."¹³ Ironically, the recent low interest rates, of which Europeans complained, were substantially the result of previous tight U.S. monetary policies, which led to a weakening in demand for credit.

There seems to be an inclination of U.S. policymakers to assign to other countries some of the responsibility for our balance-of-payments deficits. The United States, it is maintained, cannot succeed in reducing its payments deficits if other countries are determined to follow policies that enable them to have surpluses. Chairman Arthur Burns of the Federal Reserve has called upon foreign countries to relax their import restraints and capital investment controls, and to use fiscal policy more actively in domestic stabilization. Citing the excessively stringent monetary policies conducted by European countries in the past year, Dr. Burns advised these countries to coordinate their monetary policies more closely with the requirements for stabilization of international short-term capital flows.¹⁴ Proposals that the United States arrange somehow to devalue the dollar with respect to other major currencies have made little headway. Administration leaders have, in turn, suggested that some foreign currencies may be undervalued.¹⁵

The U.S. Balance of Payments in Retrospect

The U.S. balance of payments (on a liquidity basis) has been in deficit in all but two years since 1950 — the year the Korean War began and one year after most major currencies underwent major devaluations with respect to the dollar. Until the last three years of the Eisenhower administration, these deficits were generally small and aroused no great concern among

¹⁰Speech by Paul A. Volcker, Under Secretary of the Treasury, before the joint meeting of the American Economic, Finance, and Statistical Associations, Detroit, December 29, 1970. The "basic" balance is the sum of: (a) the current account balance; (b) the balance on long-term U.S. and foreign private capital; and (c) the balance of U.S. and foreign government capital other than changes in U.S. and foreign official reserve holdings.

¹¹A policy of "benign neglect" by the U.S. of its balance-of-payments deficits has been advocated in two recent articles: Gottfried Haberler and Thomas D. Willett, *A Strategy for U.S. Balance of Payments Policy*, American Enterprise Institute for Public Policy Research (February, 1971), and Lawrence B. Krause, "A Passive Balance-of-Payments Strategy for the United States," *Brookings Papers on Economic Activity*, Volume 3, 1970.

¹²Speech by Dewey Daane, Member of the Board of Governors, Federal Reserve System, before the Bankers' Association for Foreign Trade, Boca Raton, Florida, April 27, 1971.

¹³Speech by Vice President Spiro Agnew, before the Business Council, Hot Springs, Virginia, May 8, 1971, as reported in the *Wall Street Journal* (May 10, 1971).

¹⁴Testimony by Arthur Burns before the Senate Banking Committee, May 19, 1971, as reported in the *New York Journal of Commerce* (May 20, 1971).

¹⁵Testimony by John Connally, Secretary of the Treasury, before the Senate Finance Subcommittee, May 17, 1971, as reported in the *New York Journal of Commerce* (May 20, 1971). Also see Annual Report of the Council of Economic Advisers, *Economic Report of the President*, 1971, p. 152.

policymakers. By 1959, however, our balance of payments had become a problem that called for, and received, corrective treatment in the form of a restrictive monetary policy. In the wake of the 1960-61 recession, the economy operated below capacity for several years. Inflation, which had accelerated between 1955 and 1958, was brought under control. Wholesale prices, for example, did not increase at all between 1960 and 1964, compared with a 1.9 per cent average increase for the other major industrial countries. Along with this improved price performance came somewhat reduced balance-of-payments deficits, largely because our exports expanded faster than our imports. In 1964 the current account balance reached a surplus of \$5.8 billion, the highest it had been since 1947.

The benefits of monetary restraint during the late 1950's and early 1960's were not fully reflected in the balance of payments, owing to increasingly large outflows on long-term capital account. Long-term net U.S. foreign investment exceeded \$4 billion in both 1964 and 1965 and had risen steadily from \$1.6 billion in 1959. Direct and portfolio investment in the Common Market countries of Europe was largely responsible for this increase. Congress enacted the interest equalization tax in 1964 to discourage borrowing by foreign corporations in U.S. money markets. Restrictions on foreign lending were imposed on banks and other financial institutions in 1965. Voluntary controls on direct investment abroad by American corporations were imposed in 1965 and made mandatory in 1968.

While the capital controls program served to reduce the outflow of long-term funds in the latter half of the 1960's, the U.S. current account surplus began to shrink after 1964. By 1968 it had become a deficit of \$0.4 billion. Again, relative trends of prices at home and abroad had a telling impact. Expansive monetary policies created substantial inflation in the United States beginning in 1965. U.S. wholesale prices advanced at 2 per cent annually between 1964 and 1968, compared with 1.4 per cent for other industrial countries. The increase in direct U.S. overseas military expenditures from \$2.9 billion in 1964 to \$4.5 billion in 1968 was another factor contributing to the smaller balance on current account. Between 1968 and 1970, however, wholesale prices in other major countries increased more rapidly than corresponding U.S. prices (4.2 versus 3.2 per cent, respectively); the U.S. balance of payments on current account showed only slight further weakening in 1969 and improved in 1970.

Capital flows became the dominant factor causing changes in our balance-of-payments position during 1969 and 1970. Increased net outflows on long-term capital account contributed \$1 billion of the \$1.5 billion increase in the "basic" balance-of-payments deficit in 1969. Our "net liquidity" deficit rose in 1969 to \$6.1 billion from \$1.6 billion the previous year. Most of this change could be accounted for by: (a) imperfections in the balance-of-payments statistics related to transfers of deposits to Eurobanks;¹⁶ (b) reduction in purchases of U.S. stocks and bonds by private foreigners; and (c) lessened growth in non-liquid short-term foreign borrowing by U.S. businesses. The "official settlements" balance, which reflects changes in foreign official net dollar claims, showed a surplus of \$2.7 billion in 1969, mainly because private foreigners, seeking high interest returns available on Eurodollars, converted their domestic currencies into dollars at foreign central banks, thus causing a decrease in official foreign holdings of dollars.

With the decline in U.S. interest rates in 1970, unrecorded transfers of deposits to the Eurodollar market by U.S. individuals dropped sharply. This, plus the initial SDR allocation to the U.S., combined to cut the net liquidity deficit to \$3.9 billion. Improvement in the current account balance was offset by an increase in our deficit on long-term capital account, so that the "basic" balance-of-payments deficit was slightly larger in 1970. The fall in U.S. interest rates brought about a decline in Eurodollar interest rates, which led to a huge conversion of dollars into local currencies by private foreigners. As liquid dollar holdings of foreigners were shifted from private to official hands, the official settlements deficit reached \$9.8 billion, compared with a surplus in the previous year.

Short-Run Prospects

Expansion of the domestic economy at a pace faster than foreign economic expansion tends to carry with it an increase in demand for imports relative to exports, and a deterioration of the balance of payments on current account. Consequently, a weakening of our balance of payments might seem to be in prospect, as the U.S. economy recovers from the 1969-70 recession. U.S. imports may be stimulated by rising domestic incomes. Our excess of exports over imports, after reaching a seasonally adjusted annual

¹⁶A substantial volume of deposits transferred by Americans from U.S. banks to foreign branches were not recorded as increasing our liquid assets, but the simultaneous borrowing of these funds by U.S. banks from their foreign branches was recorded as increasing our liquid liabilities.

rate of \$2.7 billion in the first three quarters of 1970, shifted to one-quarter of this rate in the six months ended March 1971.

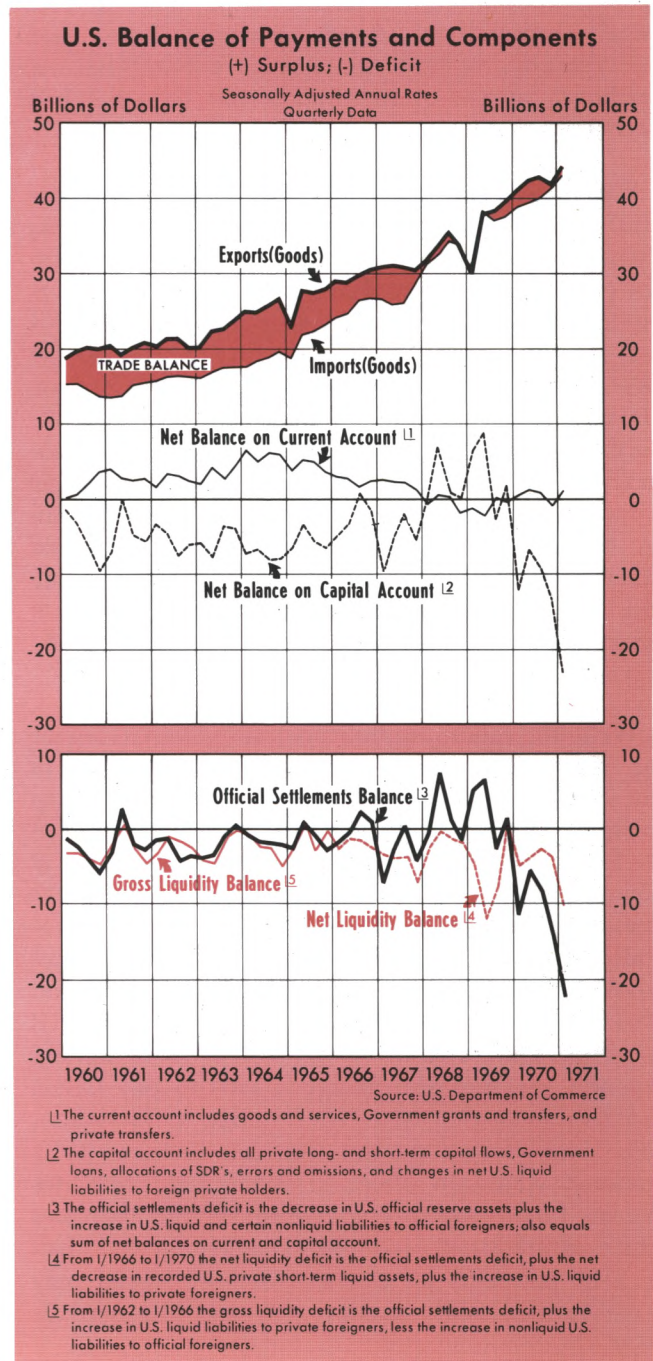
Although this smaller trade surplus is traceable mainly to rapid expansion of imports relative to exports, there are disturbing signs that demand for our exports may deteriorate because a number of important trading nations are now encountering economic slowdown. Industrial production indexes for France, Italy, and Germany have levelled off since the second quarter of 1970, while Japan's industrial growth began to decelerate in the fourth quarter. Unemployment has increased in all of these countries since 1969. British industrial production has been moving erratically upward, but unemployment remains relatively high. In the year ended fourth quarter 1970, wholesale prices in the United States rose 2.8 per cent, compared with 4.5 per cent in other major industrial countries. However, with a business expansion underway in the United States and economic slowdown occurring in other major trading countries, the forces that recently have moved the relative price trend in our favor may not continue. Upward adjustment of the value of the mark (floating), guilder (floating), Austrian schilling (revalued 5.05 per cent), and Swiss franc (revalued 7.07 per cent) will help, but very little. The effect of adjustments made so far would be to reduce the relative prices of American goods and services in world markets by well under one per cent on average.

This emphasis on imports and exports fails to take into consideration cyclical forces whose influences on the capital account are opposite to their influences on the current account.¹⁷ International flows of short-term capital have become highly sensitive to interest rate differentials among countries, and have tended to exercise a powerful influence on short-run fluctuations in the U.S. balance of payments. As the accompanying chart shows, capital account changes have frequently more than offset current account changes. The dominance of capital flows has been especially evident since 1968.

In the first quarter of 1970, our balance-of-payments deficit, on an official settlements basis, reached a seasonally adjusted annual rate of \$22.1 billion; on a net liquidity basis the deficit was more than \$10.4 billion. These deficits were among the largest ever recorded, and reflected speculative outflows and a

¹⁷The balance of payments on current account includes all transactions involving exports and imports of goods and services and transfer payments. The capital account, as used here, consists of all private transactions in assets and liabilities, whether classified in the balance-of-payments as long-term, short-term, nonliquid or liquid.

very sharp decline in U.S. and Eurodollar interest rates. Speculative movements of funds may have already diminished, and if the domestic economy expands faster than foreign economies, there will be a rise in domestic interest rates relative to those overseas. Short-term rates in the United States have already risen substantially from their February lows. The cyclical upswing in interest rates can be held in check only temporarily by an exceedingly expansive monetary policy, and such a policy will ultimately result in even higher interest rates.



Forces are therefore operating once again to make short-term investment in the United States relatively attractive to foreigners, and short-term foreign investment less attractive to Americans. Long-term foreign investment in the United States, although modest in comparison with overseas long-term asset acquisitions by U.S. investors, has also begun to recover from the low levels of the first half of 1970. If recent performance is any guide, the favorable swing in the capital account could outweigh the deterioration of the current account, so that the U.S. balance-of-payments position, on both the official settlements and liquidity balance basis, might soon improve.

Proposed Alterations to Present International Monetary Arrangements

The large flow of dollars into foreign central banks, and the decision to allow the mark to float, touched off a new round of diagnoses of the problems in managing the present international monetary system. These ranged from warnings of the impending collapse of the entire system, to enthusiastic approval of recent developments as demonstrations of progress toward greater exchange rate flexibility.

The system being reappraised is the product of central bank adherence to International Monetary Fund (IMF) rules. The effect of these rules has been (a) to reinforce the United States' commitment to redeem on demand in gold at \$35 per ounce all official foreign dollar claims, and (b) to induce other individual governments, to maintain, for long periods, fixed parity prices of dollars in terms of their own currencies. In recent years, foreign central banks, with few exceptions, have avoided exercising their gold conversion option.¹⁸ A foreign central bank, if it wishes to continue supporting the price of the dollar in terms of its own currency at the existing exchange parity, must be willing to absorb as reserves whatever dollars are offered to it. As the "dollar standard" has evolved, with discretion for monetary growth lodged in U.S. hands, foreign governments would face inflationary pressures should U.S. monetary and fiscal actions persistently take an excessively expansive course. On the other hand, in the short-run, dollar flows may be erratic and create difficult problems of economic stabilization for foreign governments.

¹⁸Germany has not purchased gold from the U.S. since 1964. France recently obtained \$282 million, but has been a net seller to the U.S. since 1966. The U.K. has international financial obligations which make it an unlikely potential purchaser of gold. Canada, despite strong balance-of-payments surpluses, has been selling gold as a producer nation. Japan last bought U.S. gold in 1966. Among major industrial nations, only the Low Countries and Switzerland frequently exercise their gold conversion option.

Raise the Dollar Price of Gold?

Foreign reactions to this dilemma have therefore been directed toward finding viable alternatives to present international monetary arrangements. One option advocated at times — devaluation of the dollar in terms of gold — has been losing support. Five years ago, when dollar claims held by foreigners were perhaps no more than twice as large as the U.S. gold stock, it was possible to give serious consideration to a doubling of the dollar price of gold (which would double the dollar value of our gold stock) as a means of restoring U.S. ability to meet all dollar claims at a fixed gold price. Now that total foreign official and private liquid dollar claims are more than three times as large as our gold stock, as shown in Table II, the required threefold increase in the price of gold is beyond reasonable probability of adoption.¹⁹ The tremendous gains from such a change in the official gold

Table II

U.S. OFFICIAL RESERVES AND LIQUID LIABILITIES

(Billions of Dollars)

	1960	1965	1967	1969	1970
Gold Stock	\$17.8	\$14.1	\$12.1	\$11.9	\$11.1
SDR's	—	—	—	—	.9
IMF Gold Tranche Position	1.6	.6	.4	2.3	1.9
Foreign Exchange	0	.8	2.4	2.8	.6
Total Official U.S. Reserves	19.4	15.5	14.9	17.0	14.5
U.S. Dollar Liabilities ¹ to Official Foreigners	11.1	15.8	18.3	16.0	23.9
U.S. Liquid Liabilities to Private Foreigners	7.6	11.5	15.8	28.2	21.8
Total U.S. Liquid Liabilities to Foreigners	18.7	27.3	34.1	44.2	45.7

¹Includes nonmarketable securities

Source: International Financial Statistics, IMF (Monthly)

price would be very unequally distributed among nations. A devaluation would penalize those countries which have cooperated with the United States by refraining from exercising their gold conversion op-

¹⁹Since the abandonment of the London Gold Pool in 1968 and its replacement by the "two-tier" gold market, only foreign central banks have even *pro forma* rights to purchase gold at the official price of \$35 per ounce. All other demands must be met in the free London gold market. The "two-tier" system effectively eliminated private speculative runs on gold as a source of direct pressure on official gold reserves. However, in measuring U.S. dollar liabilities to foreigners, it should be recognized that insofar as foreign central banks maintain convertibility of foreign currencies into dollars at par, dollar liabilities to private foreigners can readily become liabilities to official agencies. The recent large scale conversion of Eurodollars into foreign currency is an illustration of this.

tion. Gold producers would benefit a great deal from this devaluation; in 1968 South Africa supplied 76.8 per cent of the world's gold output.

More "Paper Gold"?

Another alternative is to place greater reliance on paper gold, that is, Special Drawing Rights. A major criticism of the present system is that dependence on dollar deficits as a source of additions to international liquidity is an unreliable and erratic device for controlling growth in the world's monetary reserves. It has even been suggested that there is paradox in a system in which growth in the supply of dollars is greatest when U.S. balance-of-payments deficits are the largest. Confidence in the "soundness" of the dollar may then be weakest. As confidence lessens, the demand for dollars would be reduced. Shifts in the supply and foreign private demand for dollars as international currency may be inversely related. This might tend to magnify domestic instability of countries that adhere to fixed exchange rates, since their central banks would be forced to acquire dollars that private foreigners do not want. The problems of maintaining control over the domestic money supply in the face of large dollar flows have been discussed previously.

Under the present *de facto* dollar standard, a variety of emergency credit facilities have been provided for countries under temporary balance-of-payments pressure. These arrangements include the following: (a) currency "swap" agreements, arranged by the Federal Reserve, which permit the central banks of 14 major countries limited lines of credit to borrow each other's currencies for periods up to one year; (b) IMF quotas which permit members to draw, for periods up to five years, fund currencies in amounts equal to their 25 per cent IMF gold contribution ("tranche") on demand, and their 75 per cent domestic currency contribution with IMF permission; and (c) emergency lending commitments of the "Group of Ten" large trading nations to come to the aid of countries in liquidity crisis when other credit facilities are inadequate.

The international monetary system has been criticized by those who believe that neither the existing conditions under which dollars are supplied nor these emergency credit arrangements satisfactorily provide for stable growth in international liquidity. For this reason, the expansion of Special Drawing Rights (SDRs)²⁰ and quotas in the IMF has been

²⁰SDRs are allocated by the IMF to its members. Title to SDRs can be transferred from one member to another in exchange for convertible currency, which can then be used in settlement of balance-of-payments deficits. Each member country initially receives SDR "allocations" in proportion to its subscribed quota in the IMF, and agrees to accept

advocated. So far, IMF members have agreed to the allocation of \$9.4 billion of SDRs; \$3.4 billion were issued on January 1, 1970 and \$3 billion each on January 1, 1971 and 1972. Negotiations on additional allocations will begin next year.

Two features of SDRs deserve emphasis. First, they are intended to substitute for gold as an ultimate means of settling balance-of-payments deficits. Since SDRs can be created by a weighted 85 per cent majority of the voting members of the IMF, shortages of international liquidity, such as might arise if gold production were the only source of new international reserves, can in principle be eliminated by international agreement to allocate additional SDRs—a simple bookkeeping operation.

Secondly, SDRs can substitute for dollars as an international reserve currency. Instead of being a fortuitous by-product of U.S. balance-of-payments deficits, as some critics describe the present situation, the creation of additional reserve currency can be made a matter of international planning and agreement on the long-run rate of growth of world liquidity. Potentially, the growth in international currency reserves could be rendered more stable.²¹

Greater Flexibility of Exchange Rates?

Broader recognition of the extent to which present arrangements based on pegged exchange rates reduce the monetary autonomy of individual countries has recently sparked an unprecedented amount of discussion and experimentation concerning increased flexibility of exchange rates. West Germany's decision to allow the mark to float is the second in less than two years. An important prelude to the more recent of these actions was a unanimous report by five private German economic research institutes advocating

additional SDRs (upon request of the IMF, and in exchange for its own currency) up to twice its own cumulated SDR allocation. Each member country pays interest on its cumulated allocation, and receives interest on all SDRs held. A country whose cumulated allocation exceeds its holdings of SDRs will be a net payer of interest; one whose holdings exceeds its allocation will be a net recipient of interest. See Michael Keran, "A Dialogue on Special Drawing Rights," this *Review* (July 1968), pp. 5-7.

²¹Also, each country can share in the seigniorage benefits of liquidity creation in proportion to its quota in the IMF. These benefits now accrue to the United States insofar as it is the supplier of reserve currency to the world. Seigniorage is received if the interest paid to holders of international reserve assets is less than the monetary yield such holders could earn on other assets. The interest paid on SDRs is 1.5 per cent per year, which is considerably less than the average interest paid on dollar claims.

Flexible Exchange Rates

The case for flexible exchange rates is very similar to the case for free unregulated competitive markets in other contexts:¹ markets would be cleared without rationing, subsidies, or stockpiling. An automatic mechanism is provided for achieving balance-of-payments equilibrium through adjustment of relative price and cost levels of imports and exports rather than through quantitative controls or adjustments of domestic price and cost levels. Most importantly, flexible exchange rates eliminate the balance of payments as a serious constraint on the use of monetary and fiscal policy to pursue domestic economic stabilization objectives. Restrictions on free movement of goods, services and capital across frontiers would no longer be justifiable because of the balance of payments.

¹For an extended discussion, see Harry Johnson, "The Case for Flexible Exchange Rates, this *Review* (June 1969), pp. 12-24.

Critics of exchange rate flexibility often have recognized its theoretical virtues as an automatic adjustment mechanism, but have raised practical objections related to (a) the possible destabilizing effects of speculators on exchange rates, and (b) the discouragement to international trade and investment from increased uncertainty with respect to future exchange rates. The first objection rests on the mistaken assumption that speculators can, in the aggregate, derive profits by driving exchange rates away from their equilibrium levels. The second objection fails to allow for development of forward markets in foreign exchange that could provide hedging facilities to eliminate uncertainty with respect to trade and short-term capital transactions. As for long-term capital transactions, the present system's mixture of exchange controls, special taxes, and periodic exchange rate adjustments provides no greater certainty and reliability than would a flexible exchange rate system — perhaps less.

that the mark be allowed to float to determine a new exchange rate — a report which was termed "constructive" by West German Economics Minister Schiller. The guilder was also allowed to float at the same time as the mark. In June 1970, Canada returned to a floating rate, after a lapse of eight years. This year the U.S. Council of Economic Advisers voiced approval of "greater flexibility of exchange rates within the framework of the present system established at Bretton Woods."²² Treasury Secretary Connally, in a recent speech in Munich, suggested that consideration be given to incorporating additional elements of flexibility of exchange rates into the present system.²³ Against this background, the international financial community awaits with interest the IMF's first major study of floating rates.²⁴

The principal objection to a system of flexible exchange rates remains a practical one — it has never been tried on a sufficiently widespread scale, under sufficiently normal worldwide economic conditions, to justify the claims made for it (or against it). If progress toward freeing exchange rates is to be made,

it may therefore evolve within the present system which, despite its weaknesses, provides a known, agreed-upon organizational and procedural framework.

Two major steps that could be implemented, if present IMF rules were modified, would be (a) to widen to as much as 5 per cent, from the present 1 per cent band, the permissible margins around parity within which each country's exchange rates could vary; and (b) to permit smaller and more frequent changes in parity levels. Since, even now, the IMF concurs in parity adjustments whenever these are necessary to correct a "fundamental disequilibrium," the IMF itself could establish criteria that would encourage such adjustments. For example, although rejected in the past, the IMF might still adopt the "crawling peg" proposal, under which the parity level would be a continuously adjustable moving average of recent past market exchange rates, appreciating if the currency had previously tended to sell at its "ceiling" level, and depreciating if it had tended to sell at its "floor" level.

Measures are being taken or proposed which could undermine adherence to and support for IMF "adjustable peg" policies. Aside from the actions of Canada, Germany, and the Netherlands, Belgium has modified its "two-tier" system, so as to maintain a fixed ex-

²²Annual Report of the Council of Economic Advisers, *Economic Report of the President*, 1971, p. 145.

²³Speech by John Connally before the International Banking Conference, Munich, May 28, 1971, as reported in *The American Banker* (June 1, 1971), p. 16.

²⁴International Monetary Fund, *Annual Report*, 1970, p. 14.

change rate on current account transactions, while permitting the exchange rate on a wider range of capital transactions to float. Other countries are reported to be considering similar measures. Another possibility would be the coalescing of national currencies into two or more "key currency" blocs, whose respective national currencies would exchange at fixed rates within the bloc, and at fluctuating rates with respect to currencies in other blocs. The reported German proposal for a "concerted float" of all EEC currencies against the dollar is a step in this direction. A floating rate against the dollar might be required if a common EEC currency unit and monetary policy, now planned for 1980, is to be achieved. Alteration of the IMF's operating rules may therefore become necessary if it is to play an influential role in guiding the future course of international monetary organization.

Stable Monetary Growth and the Dollar's Role as a Key Currency

In recent years, the dollar reserves of foreign central banks have been subjected to sharp variations, due to changes in the willingness of private foreigners to hold dollars. Fluctuations in U.S. interest rates were largely responsible for these variations in demand for dollars. These interest rate movements were, in turn, ultimately attributable to wide swings in the growth rate of the U.S. money supply. As a result, foreign central banks have found it difficult to control the growth in their own domestic money stocks in the face of fluctuations in their dollar reserves. Unsteady inflows of dollars under fixed exchange rates are viewed by some foreign governments as a serious impediment to successful pursuit of their domestic economic stabilization policies.

The 1971 *Annual Report* of the Council of Economic Advisers asserts that . . . "inconsistency of balance-of-payments goals [among countries] cannot, in short, be solved through unilateral policy action by the United States." Instead, says the *Report*, ". . . it requires multilateral action by the members of the International Monetary Fund."²⁵ Interpreting this passage broadly, it seems to deny that there is any policy the United States could alone undertake which would provide a fully adequate foundation for a stable, non-inflationary international monetary system.

The present international position of the dollar as a reserve currency and liquid asset makes it an alternative to any reserve currency (such as SDRs)

that might be created by international agreement. In order for the dollar to achieve an acceptable position as an international reserve currency, however, two conditions must be fulfilled. First, the purchasing power of the dollar in terms of goods and services must not be subject to rapid and unpredictable erosion that might impair its attractiveness as a liquid asset. Second, the stock of dollars used as international currency should grow at a stable rate, so that the dollar reserves of foreign monetary authorities may expand at a reasonably steady rate.

These requirements might appear to pose an excessively burdensome constraint on the exercise of discretionary power by U.S. monetary authorities. Yet, there is mounting evidence that efforts at discretionary monetary management have increased, rather than reduced, instability of domestic aggregate demand. More often than not, this instability has been associated with unsuccessful attempts by the Federal Reserve to manipulate interest rates (or money market conditions) instead of concentrating on the provision of moderate, steady growth in monetary aggregates, such as the money supply. The paradox of the more aggressive discretionary "contracyclical" U.S. monetary management of the past five years is that it has produced procyclical results, including wider fluctuations in monetary growth, interest rates, and final demand, as well as faster inflation. Insofar as unstable U.S. monetary growth in the past five years has resulted in increased fluctuations in our interest rates and economic conditions, relative to those abroad, the U.S. balance-of-payments position has also fluctuated more widely—especially compared with the results of the less variable monetary policies of the previous five years.

There is no evidence of an inherent conflict between the goals of a stable noninflationary international monetary system and a stable U.S. economy. Steady, non-inflationary growth in the U.S. money supply would appear to serve both objectives very effectively. Under such a program of steady monetary growth, the problem of removing inconsistencies between other countries' balance-of-payments policies and our own, could, with justification, be considered the responsibility of other countries to correct. Increased stability of the U.S. economy would lessen U.S. short-term cyclical interest rate fluctuations and would tend to reduce short-term capital flows now caused by these interest rate fluctuations. Increased domestic U.S. price stability would help preserve the attractiveness of the dollar as a liquid asset.

²⁵*Economic Report of the President*, 1971, p. 151.

Under more stable conditions in the United States, some foreign countries might find it advantageous to maintain fixed parity values of their currencies in terms of dollars. The monetary policies of such nations could then be geared to steady expansion of their domestic money supplies at rates that would maintain balance-of-payments equilibrium with the United States. A pattern of price stability similar to the United States is very likely to develop in such countries.

On the other hand, countries that found such accommodation to be difficult or undesirable could maintain balance-of-payments equilibrium and pursue independent monetary policies by permitting the exchange value of their currencies, relative to the dollar, to adjust freely in the foreign exchange market. Yet, even for such countries, the very stability of U.S. monetary growth would foster an international monetary environment less subject to external shocks and uncertainty. There would therefore be little reason to expect the policies of the United States to be conducive to widely fluctuating exchange rates. There would be still less reason for such

countries to resort to direct controls on capital or current account transactions to protect their domestic economy from the effects of U.S. policy on the world economy.

In the view of many of its proponents, the fundamental appeal of the gold standard was the protection it afforded against rapid inflation, and the automatic mechanism it provided for expansion of the world money supply through new gold production. Before World War I, the great financial prestige of the United Kingdom supported the gold standard. No multilateral negotiations were necessary—each country adopted the gold standard or abstained, as it saw fit. The maintenance of a steady, moderate rate of monetary growth by the United States can offer the advantages of a gold standard more reliably and at less cost in real resources. Moreover, such a “dollar standard” could, through voluntary and piecemeal adaptation by individual nations, become the basis for a stable international monetary system, without the negotiations, stalemates, compromises, and makeshift agreements that inevitably accompany multilateral efforts to reform the present system.



The Euro-Dollar Market: Some First Principles

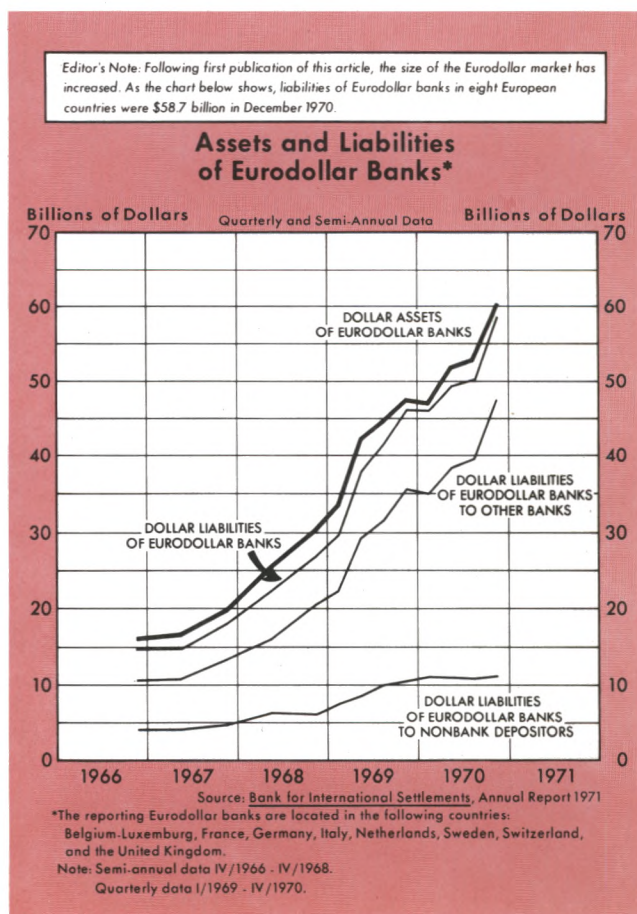
by MILTON FRIEDMAN

Increasing concern over recurring U.S. balance-of-payments deficits has prompted authorities, both here and abroad, to re-examine some aspects of the international monetary system. One of the most elusive and probably least understood aspects of this system is the Eurodollar Market.

The following article by Professor Milton Friedman of the University of Chicago is presented in the REVIEW to provide the general reader with a basic understanding of the Eurodollar market. This article was first published in the October 1969 "Morgan Guaranty Survey". We wish to acknowledge and thank Professor Friedman and the Morgan Guaranty Trust Company for permission to reprint this article. In granting his permission to reprint this article, Professor Friedman stressed that much of the apparent controversy in discussions since his article was first published is due to the failure of subsequent writers to distinguish clearly between Eurodollar creation and the Eurodollar multiplier. This distinction is explained in the section under the heading, "Some Complications", appearing on page 20 in this REVIEW.

THE Euro-dollar market is the latest example of the mystifying quality of money creation to even the most sophisticated bankers, let alone other businessmen. Recently, I heard a high official of an international financial organization discuss the Euro-dollar market before a collection of high-powered international bankers. He estimated that Euro-dollar deposits totaled some \$30 billion. He was then asked: "What is the source of these deposits?" His answer was: partly, U.S. balance-of-payments deficits; partly, dollar reserves of non-U.S. central banks; partly, the proceeds from the sale of Euro-dollar bonds.

This answer is almost complete nonsense. Balance-of-payments deficits do provide foreigners with claims on U.S. dollars. But there is nothing to assure that such claims will be held in the form of Euro-dollars. In any event, U.S. deficits, worldwide, have totaled less than \$9 billion for the past five years, on a liquidity basis. Dollar holdings of non-U.S. central banks have fallen during the period of rapid rise in Euro-dollar deposits but by less than \$5 billion. The dollars paid for Euro-bonds had themselves to come from somewhere and do not constitute an independent source. No matter how you try, you cannot get \$30 billion from these sources. The answer given is precisely parallel to saying that the source of the \$400 billion of deposits in U.S. banks (or for that matter the much larger total of all outstanding short-term



claims) is the \$60 billion of Federal Reserve credit outstanding.

The correct answer for both Euro-dollars and liabilities of U.S. banks is that their major source is a bookkeeper's pen.¹ The purpose of this article is to explain this statement. The purpose is purely expository. I shall restrict myself essentially to principle and shall not attempt either an empirical evaluation of the Euro-dollar market or a normative judgment of its desirability.

Another striking example of the confusion about Euro-dollars is the discussion, in even the most sophisticated financial papers, of the use of the Euro-dollar market by U.S. commercial banks "to evade tight money," as it is generally phrased. U.S. banks, one reads in a leading financial paper, "have been willing to pay extremely high interest rates . . . to borrow back huge sums of U.S. dollars that have piled up abroad." The image conveyed is that of piles of dollar bills being bundled up and shipped across the ocean on planes and ships — the way New York literally did drain gold from Europe in the bad — or good — old days at times of financial panic. Yet, the more dollars U.S. banks "borrow back" the more Euro-dollar deposits go up! How come? The answer is that it is purely figurative language to speak of "piled up" dollars being "borrowed back." Again, the bookkeeper's pen is at work.

What are Euro-dollars?

Just what are Euro-dollars? They are deposit liabilities, denominated in dollars, of banks outside the United States. Engaged in Euro-dollar business, for example, are foreign commercial banks such as the Bank of London and South America, Ltd., merchant banks such as Morgan Grenfell and Co., Ltd., and many of the foreign branches of U.S. commercial banks. Funds placed with these institutions may be owned by anyone — U.S. or foreign residents or citizens, individuals or corporations or governments. Euro-dollars have two basic characteristics: first, they are short-term obligations to pay dollars; second, they are obligations of banking offices located outside the U.S.

¹The similarity between credit creation in the U.S. fractional reserve banking system and in the Euro-dollar market has of course often been noted. For example, see Fred H. Klopstock, "The Euro-Dollar Market, Some Unresolved Issues," *Essays in International Finance*, No. 65 (Princeton, March, 1968), p. 6. A recent excellent analysis is given in an article by Joseph G. Kvasnicka, "Euro-Dollars — an Important Source of Funds for American Banks," *Business Conditions*, Federal Reserve Bank of Chicago, June, 1969. A useful but analytically less satisfactory examination of the Euro-dollar market is Jane Sneddon Little, "The Euro-Dollar Market: Its Nature and Impact," *New England Economic Review*, Federal Reserve Bank of Boston, May/June, 1969.

In principle, there is no hard and fast line between Euro-dollars and other dollar denominated claims on non-U.S. institutions — just as there is none between claims in the U.S. that we call "money" and other short-term claims. The precise line drawn in practice depends on the exact interpretation given to "short-term" and to "banks." Nothing essential in this article is affected by the precise point at which the line is drawn.

A homely parallel to Euro-dollars is to be found in the dollar deposit liabilities of bank offices located in the city of Chicago — which could similarly be called "Chicago dollars." Like Euro-dollars, "Chicago dollars" consist of obligations to pay dollars by a collection of banking offices located in a particular geographic area. Again, like Euro-dollars, they may be owned by anyone — residents or nonresidents of the geographic area in question.

The location of the banks is important primarily because it affects the regulations under which the banks operate and hence the way that they can do business. Those Chicago banks that are members of the Federal Reserve System must comply with the System's requirements about reserves, maximum interest rates payable on deposits, and so on; and in addition, of course, with the requirements of the Comptroller of the Currency if they are national banks, and of the Illinois State Banking Commission if they are state banks.

Euro-dollar banks are subject to the regulations of the relevant banking authorities in the country in which they operate. In practice, however, such banks have been subject neither to required reserves on Euro-dollar deposits nor to maximum ceilings on the rates of interest they are permitted to pay on such deposits.

Regulation and Euro-dollars

The difference in regulation has played a key role in the development of the Euro-dollar market. No doubt there were minor precursors, but the initial substantial Euro-dollar deposits in the post-World War II period originated with the Russians, who wanted dollar balances but recalled that their dollar holdings in the U.S. had been impounded by the Alien Property Custodian in World War II. Hence they wanted dollar claims not subject to U.S. governmental control.

The most important regulation that has stimulated the development of the Euro-dollar market has been Regulation Q, under which the Federal Reserve has

fixed maximum interest rates that member banks could pay on time deposits. Whenever these ceilings became effective, Euro-dollar deposits, paying a higher interest rate, became more attractive than U.S. deposits, and the Euro-dollar market expanded. U.S. banks then borrowed from the Euro-dollar market to replace the withdrawn time deposits.

A third major force has been the direct and indirect exchange controls imposed by the U.S. for "balance-of-payments" purposes — the interest-equalization tax, the "voluntary" controls on bank lending abroad and on foreign investment, and, finally, the compulsory controls instituted by President Johnson in January 1968. Without Regulation Q and the exchange controls — all of which, in my opinion, are both unnecessary and undesirable — the Euro-dollar market, though it might still have existed, would not have reached anything like its present dimensions.

Fractional reserves

Euro-dollar deposits like "Chicago deposits" are in principle obligations to pay literal dollars — i.e., currency (or coin), all of which consists, at present, of government-issued fiat (Federal Reserve notes, U.S. notes, a few other similar issues, and fractional coinage). In practice, even Chicago banks are called on to discharge only an insignificant part of their deposit obligations by paying out currency. Euro-dollar banks are called on to discharge a negligible part in this form. Deposit obligations are typically discharged by providing a credit or deposit at another bank — as when you draw a check on your bank which the recipient "deposits" in his.

To meet their obligations to pay cash, banks keep a "reserve" of cash on hand. But, of course, since they are continuously receiving as well as paying cash and since in any interval they will be called on to redeem only a small fraction of their obligations in cash, they need on the average keep only a very small part of their assets in cash for this purpose. For Chicago banks, this cash serves also to meet legal reserve requirements. For Euro-dollar banks, the amount of literal cash they hold is negligible.

To meet their obligations to provide a credit at another bank, when a check or similar instrument is used, banks keep deposits at other banks. For Chicago banks, these deposits (which in addition to facilitating the transfer of funds between banks serve to meet legal reserve requirements) are held primarily at Federal Reserve banks. In addition, however, Chicago banks may also keep balances at correspondent banks in other cities.

Like cash, deposits at other banks need be only a small fraction of assets. Banks are continuously receiving funds from other banks, as well as transferring funds to them, so they need reserves only to provide for temporary discrepancies between payments and receipts or sudden unanticipated demands. For Chicago banks, such "prudential" reserves are clearly far smaller than the reserves that they are legally required to keep.

Euro-dollar banks are not subject to legal reserve requirements, but, like Chicago banks, they must keep a prudential reserve in order to be prepared to meet withdrawals of deposits when they are demanded or when they mature. An individual bank will regard as a prudential reserve readily realizable funds both in the Euro-dollar market itself (e.g., Euro-dollar call money) and in the U.S. But for the Euro-dollar system as a whole, Euro-dollar funds cancel, and the prudential reserves available to meet demands for U.S. dollars consist entirely of deposits at banks in New York or other cities in the U.S. and U.S. money market assets that can be liquidated promptly without loss.

The amount of prudential reserves that a Euro-dollar bank will wish to hold — like the amount that a Chicago bank will wish to hold — will depend on its particular mix of demand and time obligations. Time deposits generally require smaller reserves than demand deposits — and in some instances almost zero reserves if the bank can match closely the maturities of its dollar-denominated liabilities and its dollar-denominated loans and investments. Although a precise estimate is difficult to make because of the incompleteness and ambiguity of the available data, prudential reserves of Euro-dollar institutions are clearly a small fraction of total dollar-denominated obligations.

This point — that Euro-dollar institutions, like Chicago banks, are part of a fractional reserve banking system — is the key to understanding the Euro-dollar market. The failure to recognize it is the chief source of misunderstanding about the Euro-dollar market. Most journalistic discussions of the Euro-dollar market proceed as if a Euro-dollar bank held a dollar in the form of cash or of deposits at a U.S. bank corresponding to each dollar of deposit liability. That is the source of such images as "piling up," "borrowing back," "withdrawing," etc. But of course this is not the case. If it were, a Euro-dollar bank could hardly afford to pay 10% or more on its deposit liabilities.

A hypothetical example

A Euro-dollar bank typically has total dollar assets roughly equal to its dollar liabilities.² But these assets are not in currency or bank deposits. In highly simplified form, the balance sheet of such a bank — or the part of the balance sheet corresponding to its Euro-dollar operations — must look something like that shown below (the numbers in this and later balance sheets are solely for illustrative purposes).

It is the earnings on the \$9,500,000 of loans and investments that enable it to pay interest on the \$10,000,000 of deposits.

Where did the \$10,000,000 of deposits come from? One can say that \$700,000 (cash assets minus due to other banks) came from “primary deposits,” i.e., is the counterpart to a literal deposit of cash or transfer of funds from other banks.³ The other \$9,300,000 is “created” by the magic of fractional reserve banking — this is the bookkeeper’s pen at work.

Let us look at the process more closely. Suppose an Arab Sheik opens up a new deposit account in London at Bank H (H for hypothetical) by depositing a check for \$1,000,000 drawn on the Sheik’s demand deposit account at the head office of, say, Morgan Guaranty Trust Company. Let us suppose that Bank H also keeps its N.Y. account at Morgan Guaranty and also as demand deposits. At the first stage, this will add \$1,000,000 to the deposit liabilities of Bank H, and the same amount to its assets in the form of deposits due from New York banks. At Morgan Guaranty, the transfer of deposits from the Sheik to Bank H will cause no change in total deposit liabilities.

But Bank H now has excess funds available to lend. It has been keeping cash assets equal to 10% of deposits — not because it was required to do so but because it deemed it prudent to do so. It now has cash equal to 18% (2/11) of deposits. Because of the \$1,000,000 of new deposits from the Sheik, it will want to add, say, \$100,000 to its balance in New York. This leaves Bank H with \$900,000 available to add to its loans and investments. Assume that it makes a loan of \$900,000 to, say, UK Ltd., a British corporation engaged in trade with the U.S., giving corporation UK Ltd. a check on Morgan Guaranty. Bank H’s balance sheet will now look as follows after the check has cleared:

Assets		Liabilities	
Cash assets	\$1,100,000	Deposits	\$11,000,000
Dollar-denominated loans	7,900,000	Due to other banks	300,000
Dollar-denominated bonds	2,500,000	Capital accounts	200,000
Total assets	\$11,500,000	Total liabilities	\$11,500,000

We now must ask what UK Ltd. does with the \$900,000 check. To cut short and simplify the process, let us assume that UK Ltd. incurred the loan because it had been repeatedly troubled by a shortage of funds in New York and wanted to maintain a higher average level of bank balances in New York. Further assume that it also keeps its account at Morgan Guaranty, so that it simply deposits the check in its demand deposit account.

This particular cycle is therefore terminated and we can examine its effect. First, the position of Morgan Guaranty is fundamentally unchanged: it had a deposit liability of \$1,000,000 to the Sheik. It now has a deposit liability of \$100,000 to Bank H and one of \$900,000 to UK Ltd.

Second, the calculated money supply of the U.S. and the demand deposit component thereof are unchanged. That money supply excludes from “adjusted demand deposits” the deposits of U.S. commercial banks at other U.S. commercial banks but it includes deposits of both foreign banks and other foreigners. Therefore, the Sheik’s deposit was included before. The deposits of Bank H and UK Ltd. are included now.

Third, the example was set up so that the money supply owned by residents of the U.S. is also unchanged. As a practical matter, the financial statistics gathered and published by the Federal Reserve do not contain sufficient data to permit calculation of the U.S.-owned money supply — a total which would exclude from the money supply as now calculated cur-

Assets		Liabilities	
Cash assets*	\$1,000,000	Deposits	\$10,000,000
Dollar-denominated loans	7,000,000	Due to other banks	300,000
Dollar-denominated bonds	2,500,000	Capital accounts	200,000
Total assets	\$10,500,000	Total liabilities	\$10,500,000

*Includes U.S. currency, deposits in N.Y. and other banks, and other assets immediately realizable in U.S. funds.

²Which is why it is not subject to any special foreign exchange risk simply by operating in the Euro-dollar market. The balance sheet of its Euro-dollar operations balances in dollars; if it is, for example, a British bank, the balance sheet of its pound sterling operations balances in pounds. It is operating in two currencies but need not take a speculative position in either. Of course, it may take a speculative position, whether or not it operates in the Euro-dollar market.

³Note that even this is an overstatement, since most of the deposits at N.Y. banks are themselves ultimately “created” rather than “primary” deposits. These are primary deposits only vis-à-vis the Euro-dollar market separately.

rency and deposits at U.S. banks owned by non-residents and include dollar deposits at non-U.S. banks owned by residents. But the hypothetical transactions clearly leave this total unaffected.

Fourth, Euro-dollar deposits are \$1,000,000 higher.

However, fifth, the total world supply of dollars held by *nonbanks* — dollars in the U.S. plus dollars outside the U.S. — is \$900,000 not \$1,000,000 higher. The reason is that interbank deposits are now higher by \$100,000, thanks to the additional deposits of Bank H at Morgan Guaranty. This amount of deposits was formerly an asset of a nonbank (the Arab Sheik); now it is an asset of Bank H. In this way, Bank H has created \$900,000 of Euro-dollar deposits. The other \$100,000 of Euro-dollar deposits has been transferred from the U.S. to the Euro-dollar area.

Sixth, the balance of payments of the U.S. is unaffected, whether calculated on a liquidity basis or on an official settlements basis. On a liquidity basis, the Arab Sheik's transfer is recorded as a reduction of \$1,000,000 in short-term liquid claims on the U.S. but the increased deposits of Bank H and UK Ltd. at Morgan Guaranty are a precisely offsetting increase. On an official settlements basis, the series of transactions has not affected the dollar holdings of any central bank or official institution.⁴

⁴It is interesting to contrast these effects with those that would have occurred if we substitute a Chicago bank for Bank H of London, i.e., suppose that the Arab Sheik had transferred his funds to a Chicago bank, say, Continental Illinois, and Continental Illinois had made the loan to UK Ltd., which UK Ltd. again added to its balances at Morgan Guaranty. To simplify matters, assume that the reserve requirements for Continental Illinois and Morgan Guaranty are the same flat 10% that we assumed Bank H of London kept in the form of cash assets (because, let us say, all deposit changes consist of the appropriate mix of demand and time deposits).

First, the position of Morgan Guaranty is now fundamentally changed. Continental Illinois keeps its reserves as deposits at the Federal Reserve Bank of Chicago, not at Morgan Guaranty. Hence it will deposit its net claim of \$100,000 on Morgan Guaranty at the Chicago Fed to meet the reserves required for the Sheik's deposit. This will result in a reduction of \$100,000 in Morgan Guaranty's reserve balance at the New York Fed. Its deposits have gone down only \$100,000 (thanks to the \$900,000 deposit by UK Ltd.) so that if it had no excess reserves before it now has deficient reserves. This will set in train a multiple contraction of deposits at Morgan Guaranty and other banks which will end when the \$1,000,000 gain in deposits by Continental Illinois is completely offset by a \$1,000,000 decline in deposits at Morgan Guaranty and other banks.

Second, the calculated money supply of the U.S. and the demand deposit component thereof are still unchanged.

However, third, the money supply owned by the residents of the U.S. is reduced by the \$900,000 increase in the deposits of UK Ltd.

Fourth, there is no change in Euro-dollar deposits.

Fifth, there is no change in the total world supply of dollars.

Sixth, the balance of payments of the U.S. is affected if it is calculated on a liquidity basis but not if it is calculated on an official settlements basis. On a liquidity basis, the

Clearly, there is no meaningful sense in which we can say that the \$900,000 of created Euro-dollar deposits is derived from a U.S. balance-of-payments deficit, or from dollars held by central banks, or from the proceeds of Euro-dollar bond sales.

Some complications

Many complications of this example are possible. They will change the numbers but not in any way the essential principles. But it may help to consider one or two.

(a) Suppose UK Ltd. used the dollar loan to purchase timber from Russia, and Russia wished to hold the proceeds as a dollar deposit at, say, Bank R in London. Then, another round is started — precisely like the one that began when the Sheik transferred funds from Morgan Guaranty to Bank H. Bank R now has \$900,000 extra deposit liabilities, matched by \$900,000 extra deposits in New York. If it also follows the practice of maintaining cash assets equal to 10% of deposits, it can make a dollar loan of \$810,000. If the recipient of the loan keeps it as a demand deposit at Morgan Guaranty, or transfers it to someone who does, the process comes to an end. The result is that total Euro-dollar deposits are up by \$1,900,000. Of that total, \$1,710,000 is held by nonbanks, with the other \$190,000 being additional deposits of banks (the \$100,000 extra of Bank H at Morgan Guaranty plus the \$90,000 extra of Bank R at Morgan Guaranty).

If the recipient of the loan transfers it to someone who wants to hold it as a Euro-dollar deposit at a third bank, the process continues on its merry way. If, in the extreme, at every stage, the whole of the proceeds of the loan were to end up as Euro-dollar deposits, it is obvious that the total increase in Euro-dollar deposits would be: $1,000,000 + 900,000 + 810,000 + 729,000 + \dots = 10,000,000$. At the end of the process, Euro-dollar deposits would be \$10,000,000 higher; deposits of Euro-dollar banks at N. Y. banks, \$1,000,000 higher; and the total world supply of dollars held by nonbanks, \$9,000,000 higher.

deficit would be increased by \$900,000 because the loan by Continental Illinois to UK Ltd. would be recorded as a capital outflow but UK Ltd.'s deposit at Morgan Guaranty would be regarded as an increase in U.S. liquid liabilities to foreigners, which are treated as financing the deficit. This enlargement of the deficit on a liquidity basis is highly misleading. It suggests, of course, a worsening of the U.S. payments problem, whereas in fact all that is involved is a worsening of the statistics. The additional dollars that UK Ltd. has in its demand deposit account cannot meaningfully be regarded as a potential claim on U.S. reserve assets. UK Ltd. not only needs them for transactions purposes; it must regard them as tied or matched to its own dollar indebtedness. On an official settlements basis, the series of transactions does not affect the dollar holdings of any central bank or official institution.

This example perhaps makes it clear why bankers in the Euro-dollar market keep insisting that they do not "create" dollars but only transfer them, and why they sincerely believe that all Euro-dollars come from the U.S. *To each banker separately in the chain described, his additional Euro-dollar deposit came in the form of a check on Morgan Guaranty Trust Company of New York!* How are the bankers to know that the \$10,000,000 of checks on Morgan Guaranty all constitute repeated claims on the same initial \$1,000,000 of deposits? Appearances are deceiving.

This example (involving successive loan extensions by a series of banks) brings out the difference between two concepts that have produced much confusion: Euro-dollar creation and the Euro-dollar multiplier. In both the simple example and the example involving successive loan extensions, the fraction of Euro-dollars outstanding that has been created is nine-tenths, or, put differently, 10 Euro-dollars exist for every U.S. dollar held as a cash asset in New York by Euro-dollar banks. However, in the simple example, the Euro-dollar multiplier (the ratio of the increase in Euro-dollar deposits to the initial "primary" deposit) is unity; in the second example, it is 10. That is, in the simple example, the total amount of Euro-dollars goes up by \$1 for every \$1 of U.S. deposits initially transferred to Euro-dollar banks; in the second example, it goes up by \$10 for every \$1 of U.S. deposits initially transferred. The difference is that in the simple example there is maximum "leakage" from the Euro-dollar system; in the second example, zero "leakage."

The distinction between Euro-dollar creation and the Euro-dollar multiplier makes it clear why there is a definite limit to the amount of Euro-dollars that can be created no matter how low are the prudential reserves that banks hold. For example, if Euro-dollar banks held zero prudential reserves — as it is sometimes claimed that they do against time deposits — 100% of the outstanding deposits would be created deposits and the potential multiplier would be infinite. Yet the actual multiplier would be close to unity because only a small part of the funds acquired by borrowers from Euro-dollar banks would end up as additional time deposits in such banks.⁵

(b) Suppose Bank H does not have sufficient demand for dollar loans to use profitably the whole \$900,000 of excess dollar funds. Suppose, simultaneously, it is experiencing a heavy demand for sterling loans. It might go to the Bank of England and use

the \$900,000 to buy sterling. Bank of England deposits at Morgan Guaranty would now go up. But since the Bank of England typically holds its deposits at the New York Federal Reserve Bank, the funds would fairly quickly disappear from Morgan Guaranty's books and show up instead on the Fed's. This, in the first instance, would reduce the reserves of Morgan Guaranty and thus threaten to produce much more extensive monetary effects than any of our other examples. However, the Bank of England typically holds most of its dollar reserves as Treasury bills or the equivalent, not as noninterest earning deposits at the Fed. It would therefore instruct the Fed to buy, say, bills for its account. This would restore the reserves to the banking system and, except for details, we would be back to where we were in the other examples.

The key points

Needless to say, this is far from a comprehensive survey of all the possible complications. But perhaps it suffices to show that the complications do not affect the fundamental points brought out by the simple example, namely:

1. Euro-dollars, like "Chicago dollars," are mostly the product of the bookkeeper's pen — that is, the result of fractional reserve banking.
2. The amount of Euro-dollars outstanding, like the amount of "Chicago dollars," depends on the desire of owners of wealth to hold the liabilities of the corresponding group of banks.
3. The ultimate increase in the amount of Euro-dollars from an initial transfer of deposits from other banks to Euro-dollar banks depends on:
 - (a) The amount of their dollar assets Euro-dollar banks choose to hold in the form of cash assets in the U.S., and
 - (b) The "leakages" from the system — i.e., the final disposition of the funds borrowed from Euro-dollar banks (or acquired by the sale of bonds or other investments to them). The larger the fraction of such funds held as Euro-dollar deposits, the larger the increase in Euro-dollars in total.
4. The existence of the Euro-dollar market increases the total amount of dollar balances available to be held by nonbanks throughout the world for any given amount of money (currency plus deposits at Federal Reserve Banks) created by the Federal Reserve System. It does so by permitting a greater pyramiding on this base by the use of deposits at U.S. banks as prudential reserves for Euro-dollar deposits.

⁵This is precisely comparable to the situation of savings and loan associations and mutual savings banks in the U.S.

5. The existence of the Euro-dollar market may also create a greater demand for dollars to be held by making dollar balances available in a more convenient form. The net effect of the Euro-dollar market on our balance-of-payments problem (as distinct from our statistical position) depends on whether demand is raised more or less than supply.

My own conjecture — which is based on much too little evidence for me to have much confidence in it — is that demand is raised less than supply and hence that the growth of the Euro-dollar market has on the whole made our balance-of-payments problem more difficult.

6. Whether my conjecture on this score is right or wrong, the Euro-dollar market has almost surely raised the world's nominal money supply (expressed in dollar equivalents) and has thus made the world price level (expressed in dollar equivalents) higher than it would otherwise be. Alternatively, if it is desired to define the money supply exclusive of Euro-dollar deposits, the same effect can be described in terms of a rise in the velocity of the world's money supply. However, this effect, while clear in direction, must be extremely small in magnitude.

Use of Euro-dollars by U.S. banks

Let us now turn from this general question of the source of Euro-dollars to the special issue raised at the outset: the effect of Regulation Q and "tight money" on the use of the Euro-dollar market by U.S. banks.

To set the stage, let us suppose, in the framework of our simple example, that Euro-dollar Bank H of London loans the \$900,000 excess funds that it has as a result of the initial deposit by the Arab Sheik to the head office of Morgan Guaranty, i.e., gives Morgan Guaranty (New York) a check for \$900,000 on itself in return for an I.O.U. from Morgan Guaranty. This kind of borrowing from foreign banks is one of the means by which American banks have blunted the impact of CD losses. The combined effect will be to leave total liabilities of Morgan Guaranty unchanged but to alter their composition: deposit liabilities are now down \$900,000 (instead of the \$1,000,000 deposit liability it formerly had to the Sheik it now has a deposit liability of \$100,000 to Bank H) and other liabilities ("funds borrowed from foreign banks") are up \$900,000.

Until very recently, such a change in the form of a bank's liabilities — from deposits to borrowings — had an important effect on its reserve position. Spe-

cifically, it freed reserves. With \$1,000,000 of demand deposit liabilities to the Arab Sheik, Morgan Guaranty was required to keep in cash or as deposits at the Federal Reserve Bank of New York \$175,000 (or \$60,000 if, as is more realistic, the Sheik kept his \$1,000,000 in the form of a time deposit). With the shift of the funds to Bank H, however, and completion of the \$900,000 loan by Bank H to Morgan Guaranty, Morgan Guaranty's reserve requirements at the Fed fell appreciably. Before the issuance of new regulations that became effective on September 4 of this year, Morgan Guaranty was not required to keep any reserve for the liability in the form of the I.O.U. Its only obligation was to keep \$17,500 corresponding to the demand deposit of Bank H. The change in the form of its liabilities would therefore have reduced its reserve requirements by \$157,500 (or by \$42,500 for a time deposit) without any change in its total liabilities or its total assets, or in the composition of its assets; hence it would have had this much more available to lend.

What the Fed did effective September 4 was to make borrowings subject to reserve requirements as well. Morgan Guaranty must now keep a reserve against the I.O.U., the exact percentage depending on the total amount of borrowings by Morgan Guaranty from foreign banks.⁶ The new regulations make it impossible to generalize about reserve effects. A U.S. bank losing deposits to a Euro-bank and then recouping funds by giving its I.O.U. may or may not have additional amounts available to lend as a result of transactions of the kind described.

If Bank H made the loan to Chase instead of to Morgan Guaranty, the latter would lose reserves and Chase would gain them. To Chase, it would look as if it were getting additional funds from abroad, but to both together, the effect would be the same as before — the possible release of required reserves with no change in available reserves.

The bookkeeping character of these transactions, and how they can be stimulated, can perhaps be seen more clearly if we introduce an additional feature of the actual Euro-dollar market, which was not essential heretofore, namely, the role of overseas branches of U.S. banks. In addition, for realism, we shall express our example in terms of time deposits.

Let us start from scratch and consider the head office of Morgan Guaranty in New York and its Lon-

⁶The required reserve is 3% of such borrowings so long as they do not exceed 4% of total deposits subject to reserves. On borrowings in excess of that level the required reserve is 10%.

don branch. Let us look at hypothetical initial balance sheets of both. We shall treat the London branch as if it had just started and had neither assets nor liabilities, and shall restrict the balance sheet for the head office to the part relevant to its CD operations. This set of circumstances gives us the following situation:

New York Head Office			
Assets		Liabilities	
Deposits at F. R. Bank of NY	\$ 6,000,000	Time certificates of deposit	\$100,000,000
Other cash assets	4,000,000		
Loans	76,000,000		
Bonds	14,000,000		
Total assets	\$100,000,000	Total liabilities	\$100,000,000
(Note: Required reserves, \$6,000,000)			

London Office			
Assets		Liabilities	
	\$ 0		\$ 0

Now suppose a foreign corporation (perhaps the Arab Sheik's oil company) which holds a long-term maturing CD of \$10,000,000 at Morgan Guaranty refuses to renew it because the 6% interest it is receiving seems too low. Morgan Guaranty agrees that the return should be greater, but explains it is prohibited by law from paying more. It notes, however, that its London branch is not. Accordingly, the corporation acquires a time deposit at the London office for \$10,000,000 "by depositing" the check for \$10,000,000 on the New York office it receives in return for the maturing CD — or, more realistically, by transfers on the books in New York and London. Let us look at the balance sheets:

New York Head Office			
Assets		Liabilities	
Deposits at F. R. Bank of NY	\$ 6,000,000	Time certificates of deposits	\$ 90,000,000
Other cash assets	4,000,000		
Loans	76,000,000	Due to London branch	10,000,000
Bonds	14,000,000		
Total assets	\$100,000,000	Total liabilities	\$100,000,000
(Note: Required reserves, before issuance of new regulations, \$5,400,000; since issuance of new regulations, between \$5,400,000 and \$6,400,000).			

London Office			
Assets		Liabilities	
Due from N. Y. office	\$10,000,000	Time certificates of deposit	\$10,000,000

Clearly, if we consolidate the branch and the head office, the books are completely unchanged. Yet these bookkeeping transactions: (1) enabled Morgan Guaranty to pay a rate in London higher than 6% on some certificates of deposit; and (2) reduced its required reserves by \$600,000 prior to the recent modification of Regulation M. The reduction in required reserves arose because until recently U.S. banks were not required to keep a reserve against liabilities to their foreign branches. With the amendment of Regulation M, any further reduction of reserves by this route has been eliminated since the Fed now requires a reserve of 10% on the amount due to branch offices in excess of the amount due on average during May.⁷

Hypocrisy and window dressing

This example has been expressed in terms of a foreign corporation because the story is a bit more complicated for a U.S. corporation, though the end result is the same. First, a U.S. corporation that transfers its funds from a certificate of deposit at a U.S. bank to a deposit at a bank abroad — whether a foreign bank or an overseas branch of a U.S. bank — is deemed by the Department of Commerce to have made a foreign investment. It may do so only if it is within its quota under the direct control over foreign investment with which we are still unfortunately saddled. Second, under pressure from the Fed, commercial banks will not facilitate direct transfers by U.S. corporations — indeed, many will not accept time deposits from U.S. corporations at their overseas branches, whether their own customers or not, unless the corporation can demonstrate that the deposit is being made for an "international" purpose. However, precisely the same results can be accomplished by a U.S. holder of a CD making a deposit in a foreign bank and the foreign bank in turn making a deposit in, or a loan to, the overseas branch of a U.S. bank. As always, this kind of moral suasion does not prevent profitable transactions. It simply produces hypocrisy and window dressing—in this case, by unnecessarily giving business to competitors of U.S. banks!

The final effect is precisely the same as in the simple example of the foreign corporation. That ex-

⁷An amendment to Regulation M effective September 4 established a 10% reserve requirement on head office liabilities to overseas branches on that portion of such liabilities in excess of the average amount on the books in the four-week period ending May 28, 1969.

ample shows, in highly simplified form, the main way U.S. banks have used the Euro-dollar market and explains why it is that the more they "borrow" or "bring back" from the Euro-dollar market, the higher Euro-dollar deposits mount. In our example, borrowing went up \$10,000,000 and so did deposits.

From January 1, 1969 to July 31, 1969 CD deposit liabilities of U.S. banks went down \$9.3 billion, and U.S. banks' indebtedness to their own overseas branches went up \$8.6 billion. The closeness of these two numbers is not coincidental.

These bookkeeping operations have affected the statistics far more than the realities. The run-off in CD's in the U.S., and the accompanying decline in total commercial bank deposits (which the Fed uses as its "bank credit proxy") have been interpreted as signs of extreme monetary tightness. Money has been tight, but these figures greatly overstate the degree of tightness. The holders of CD's on U.S. banks who replaced them by Euro-dollar deposits did not have their liquidity squeezed. The banks that substituted "due to branches" for "due to depositors on time certificates of deposit" did not have their lending power reduced. The Fed's insistence on keeping Regulation Q ceilings at levels below market rates has simply imposed enormous structural adjustments and shifts of funds on the commercial banking system for no social gain whatsoever.

Correcting a misunderstanding

A column that appeared in a leading financial paper just prior to the Fed's revision of reserve requirements encapsules the widespread misunderstanding about the Euro-dollar market. The Euro-dollar market, the column noted, has:

"... ballooned as U.S. banks have discovered that they can ease the squeeze placed on them by the Federal Reserve Board by borrowing back these foreign-deposited dollars that were pumped out largely through U.S. balance-of-payments deficits. Of this pool of \$30 billion, U.S. banks as of last week had soaked up \$13 billion . . .

"Thanks to this system, it takes only seconds to transmit money — and money troubles — between the U.S. and Europe . . . The Federal Reserve's pending proposal to make Euro-dollar borrowing more costly to U.S. banks might make their future demands a shade less voracious, but this doesn't reduce concern about whether there will be strains in repaying the massive amounts already borrowed."

Strains there may be, but they will reflect features of the Euro-dollar market other than those stressed by this newspaper comment. The use of the Euro-dollar market by commercial banks of offset the decline in CD's was primarily a bookkeeping operation. The reverse process — a rise in CD's and a matching decline in Euro-dollar borrowings — will also require little more than a bookkeeping operation.



Proposed Solutions to Inflation – Effective and Ineffective

Speech by DARRYL R. FRANCIS, President, Federal Reserve Bank
of St. Louis, at the University of Mississippi School of Banking,
Oxford, Mississippi, June 13, 1971

I AM GLAD to have this opportunity to speak to Mississippi bankers about some vital issues relating to inflation and price stabilization. The numerous proposals advanced in the past year to stabilize prices indicate the wide concern of this nation for the inflation problem. Some persons view the continuing rise in prices and the large wage increases negotiated in some sectors as evidence that monetary and fiscal actions have been ineffective. They suggest that other measures must be applied to stem the tide of rising wages and prices. Such proposals include Governmental admonishment, wage and price guidelines, and mandatory wage, price, and credit controls.

The Committee for Economic Development (CED), a proponent of voluntary wage and price controls, in a recent discussion of measures for controlling inflation stated, “. . . while appropriately stabilizing fiscal and monetary policies are clearly essential for the containment of inflation, it seems doubtful that these policies *alone* can fully succeed in reconciling price stability and high employment.”¹ The CED further stated, “. . . that the United States should include voluntary wage-price policies among its tools for reconciling price stability and high employment.”² I find, however, that in May 1946, near the end of that period of mandatory controls, the CED issued a statement which represents a different view. At that time it concluded, “. . . prices cannot be centrally controlled for any sustained period without inefficiency, inequity, breakdown of respect for law, and most important, serious danger to our personal and political freedoms.”³ “The government has a responsibility to supplement and supplant price control by

anti-inflation measures which do not restrict the full and free operation of the American productive system. In the traditional governmental functions of taxation, public expenditure, and monetary control we can find the necessary tools.”⁴

I prefer the Committee’s 1946 statement made while experiencing the impact of direct government controls on wages and prices. It then recognized that the mandatory controls interfered with the profit incentive and led to a breakdown of respect for law. I see no reason why voluntary controls will engender greater respect for law or governmental authority than mandatory controls.

It is my view that the general stabilization measures will work if applied with patience. Neither official admonishments, voluntary controls, nor direct controls are workable; they are useless as substitutes for or long-run supplements to less expansive monetary actions. The elimination of inflation requires great patience; with ideal monetary policies it takes longer than most of the public realizes.

Direct Controls Not Workable in United States . . .

Our most extensive experience with “jawboning,” “moral suasion,” and direct controls on wages and prices was during World War II and a short period following the war. Beginning in early 1941, the forerunner to the Office of Price Administration (OPA) issued schedules setting maximum rents and prices on other “critical” items.⁵ Although these schedules were issued on the basis of dubious legal authority, this deficiency was remedied in early 1942 following the United States declaration of war. Retail prices of

⁴*Ibid.*, p. 10.

⁵U.S. Office of Price Administration, *Chronology of the Office of Price Administration, January 1941 - November 1946*, prepared by Lawrence E. Tilley under the direction of Harvey C. Mansfield, Chief, Policy Analysis Branch (Washington, D.C.: Government Printing Office, November 30, 1946).

¹Committee for Economic Development, Research and Policy Committee, *Further Weapons Against Inflation, Measures to Supplement General Fiscal and Monetary Policies* (New York, November 1970), p. 12.

²*Ibid.*, p. 22.

³Committee for Economic Development, Research Committee, *The End of Price Control – How and When?* (New York, May 1946), p. 4.

most items were frozen at the March 1942 level, and mandatory price controls remained in effect for most items until October 1946.⁶ However, as a result of excessive monetary growth, demand for goods and services grew rapidly.

During the initial period of jawboning and price schedules (January 1941 to March 1942), the stock of money rose at a 16 per cent annual rate and the consumer price index at a 12 per cent annual rate.⁷ While mandatory controls were in effect (March 1942 to October 1946), the stock of money rose at an 18 per cent rate and consumer prices at a 6 per cent rate. Such data, however, tend to underestimate the real increase in prices since they exclude numerous black market transactions and deterioration of quality.

The number of workers required to operate and enforce this direct controls program was staggering. By 1944, 325,000 price control volunteers, in addition to 65,000 paid employees, were being utilized. This was a period when the country was faced with a labor shortage, and most of these people could have worked at productive jobs, thereby contributing to an increase in total output and a lower rate of inflation. In addition to the number of employees required directly by OPA, the program was a burden to all business establishments. For example, the banking system was handling 5 billion ration coupons per month in 1944.

By the end of the war most Americans had become disenchanted with rationing, price controls, empty grocery shelves, and queuing up for purchases. After a year of postwar domestic crises, including numerous strikes and food shortages combined with a high rate of inflation, direct controls were largely ended. During the three years following the termination of controls on most items in October 1946, money rose at less than a one per cent rate, and consumer prices increased at a 4 per cent rate.

We have no way of knowing how much inflation would have occurred during World War II had free market conditions prevailed, nor how stable prices would have been following the war had controls continued. Generally accepted economic theory does tell us something about such controls. If prices or wages are arbitrarily set above equilibrium levels, sales will decline and fewer workers will be employed. On the other hand, if wages and prices are set below equilib-

rium levels, consumers will want to purchase more goods and services than are available, and output must be rationed.

...Nor in Western Europe

The foreign experience with direct controls has been no more favorable than our own. A study for the President's Council of Economic Advisers of the experience with controls in Western Europe following World War II reports, "Holders of public office . . . have sought . . . to avoid the excessive exercise of private power, not by eliminating the source of such power but by preventing its full exploitation. This is the essence of what has come to be known as incomes policy."⁸ It was concluded that none of the methods used were very effective, and public disillusionment was reflected in the decline or abandonment of such controls in most of these nations by the end of the last decade.

Typical of the experience with direct controls in Western Europe is that of the Netherlands where these methods received their most determined and innovative support.⁹ The Dutch Government passed a labor relations act in 1945 which provided mediators with stringent powers to control labor markets and wages. With the Socialists in power the incomes policy in the early postwar period was quite effective, but the honeymoon did not last long. The guidelines kept all wages below equilibrium rates as intended. In 1951, with a balance of trade deficit and a high rate of inflation, real wages actually fell. Labor shortages developed, and considerable pressure built up for additional labor resources, especially in the high profit industries. The willingness of employers to grant wage increases in excess of the legal limits began to undermine the guidelines. Black market wages were common, and prosecutions, fines, and even jail sentences followed.

When union leadership agreed to a wage increase of only 3 per cent in 1955, members began to criticize their leaders for supporting the guidelines, an unusual action in the Netherlands. As a result, the wage negotiating agency failed to function, and the government was forced to grant higher wages through arbitration. In 1957, with wages rising 8 to 9 per cent per year and a balance-of-payments crisis developing, the union leadership again accepted a policy of extreme re-

⁶*Ibid.*

⁷Money stock data through 1946 from Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States 1867-1960* (Princeton: Princeton University Press, 1963), Appendix A, Table A-1; 1947-71 from Board of Governors of the Federal Reserve System. Consumer price data from U.S. Department of Labor.

⁸Lloyd Ulman, University of California, Berkeley, and Robert J. Flanagan, University of Chicago, "Wage Restraint: A Study of Incomes Policies in Western Europe" (unpublished study made possible by grant from Council of Economic Advisers, 1971), p. i.

⁹*Ibid.*, Chapter 1.

straint. This time, however, the leadership could not carry the members with them. The new policy required that all wage increases in excess of 3 per cent come out of profits, but it failed as both wages and prices soared above guideline rates, and the balance of payments worsened.

The Labor government was replaced in 1959 by a more conservative government which espoused greater freedom in wage determination. More flexible limits on wage settlements and increased use of collective bargaining were permitted at the industry level. This policy achieved more government regulation but failed to control wages and prices. A 1961 law limited wage increases to increases in productivity. It acknowledged no role for interoccupational wage differences, however, and ran into difficulty almost immediately.

A new wage policy, based on the Central Planning Bureau's econometric model, was adopted in 1963. The model was no more competent to establish wages than the mediators. It implied a wage increase of 1.2 per cent, but this was arbitrarily raised to 2.7 per cent. Pressure for higher wages developed within the unions, and employers, short of help at the established scale, openly announced plans to pay more. As a result, wages and salaries rose 13 per cent in 1963, 15 per cent in 1964, and 11 per cent in 1965. No agreements were reached in 1966 and 1967, and by the autumn of 1967, all factions of labor refused to participate in the policy any longer.

In response to these challenges, the Government decided in 1969 to introduce more stringent legislation which gave it formal authority to freeze wages after consultation with the Social and Economic Council and the Foundation of Labor. The measure, finally passed in 1970, was strongly opposed by the unions, and they withdrew from the Social and Economic Council and from central bargaining. The minister in charge was warned that Parliament had given him nothing but a "paper sword."

Thus, the Sixties witnessed the collapse of an ambitious attempt by the Netherlands Government to supervise a private incomes policy, and the Seventies revealed the failure of a policy based on compulsion. The formal incomes policies adopted in the United Kingdom and Denmark have likewise been less than successful, and the more limited attempts to administer wages or prices in France, West Germany, and Italy have generally failed. Yet, the incomes policy's popularity in principle has thus far proved almost as durable as the problem which it was designed to solve.

Stable Prices Not Inconsistent with Current Economic Structure

Despite the failures of direct controls in other countries, the arguments for their use in the United States continue. Such arguments are generally based on the belief that a large portion of the labor and commodity markets is comprised of noncompetitive elements and that prices of goods and services sold in such markets are not sensitive to a reduction in demand. Most analysts admit that demand for goods and services can be increased by public policies. Nevertheless, some contend that after periods of excessive demand, the noncompetitive elements in labor and business can continue to push prices upward despite less expansive monetary policies.

It is my view that in the absence of excessive demand average prices cannot be pushed up significantly, even by noncompetitive elements. The price lag relative to declining demand probably reflects imperfect information in forming price expectations rather than monopolistic power. Current wage settlements are being made on the basis of recent price trends rather than on conditions likely to prevail during the period covered by the agreements.

When the rate of monetary growth is reduced, consumers and business firms find themselves with less money than anticipated. They reduce their rate of spending in an attempt to maintain cash balances. Some producers will find themselves with excessive inventories. They may first attempt to cut costs by reducing hours worked or overtime. Then, if the price incentive is not sufficient to maintain current output at current wage rates, producers will lay off workers or reduce their work force through attrition until output clears the market at a profitable price. Most workers who are unemployed because of excessive wage settlements will eventually find acceptable jobs. Thus, the restricted output and increased prices in specific sectors resulting from noncompetitive elements are partially offset by increased output and lower prices elsewhere.

Economy Still Subject to Competitive Forces

Even if large unions and business firms could induce price changes, we have no evidence that they have greater power than during the period 1953 to 1961 when the postwar inflation was slowed to a one per cent rate, as measured by the consumer price index. Let me quickly add that I do not condone monopolistic power, either in the hands of unions or of businesses. It has without doubt caused misallocation of resources and higher levels of unemployment, but we

have no evidence that such power has been an important factor contributing to the current inflation. For example, following the high rate of inflation during World War II and the Korean War, the rate of inflation was reduced from 1953 to 1961 with a slower rate of monetary growth. The stock of money during this period rose only 1.4 per cent per year and prices only 2 per cent as measured by the GNP price deflator, or only 1 per cent as measured by the wholesale and consumer price indices. This slower rate of inflation was achieved despite the fact that a larger per cent of the labor force was unionized than is the case today. The share of nonagricultural workers in unions declined from 34 to 28 per cent and the total labor force in unions from 25 to 23 per cent during the period 1953-68.¹⁰ Such data suggest that the non-competitive elements in the labor market have not increased.

We likewise have no evidence of an increase in monopoly power in commodity markets since the mid-1950's. The fifty largest manufacturing firms had 23 per cent of value added in 1954, 25 per cent in 1963, and 25 per cent in 1966.¹¹ Shipments accounted for by the largest four firms in each of twenty-two selected industries showed little change in concentration from 1947 to 1966. The share of the largest four firms increased in half the industries and declined in the other half. Furthermore, any tendency toward domestic concentration has been more than offset by the rising competition from manufacturing firms abroad.

In addition, if greater competition is desired, there are actions which the government can appropriately take within a free market framework to improve both labor and commodity markets. I suggest further relaxation of tariffs and other import controls. The resulting increase in worldwide competition would tend to stabilize prices for all goods and services traded in international markets. The removal of archaic building codes would aid the construction industry.

Action should also be taken to reduce restrictions on entry into unions. Relatively higher pay scales for trainees after attaining moderate skills might be helpful in attracting more labor into some sectors. Where bottlenecks to entry are retained through union action, I suggest the application of anti-trust legislation. Minimum wage laws which restrict the employment of students, the unskilled, and the handicapped should

¹⁰U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1970. For a further discussion of this point see Alfred L. Malabre, Jr., "Troubled Unions," *Wall Street Journal*, June 25, 1971.

¹¹*Statistical Abstract*, 1970.

be repealed. An incomes policy that includes only these actions will not only improve the functioning of the labor and product markets but will also enhance output of goods and services for the entire community.

Excessive Money Growth: Cause of Inflation

In contrast to the view that imperfect labor and commodity markets are an important cause of inflation is my belief that an excessive rate of monetary growth is the chief culprit. All substantial and prolonged general price increases throughout history have been associated with a rapid increase in the stock of money per capita. Following successive debasements, the precious metal content of the Roman coin had been reduced until it was almost worthless in the early 300's. Prices had increased four to eight times their former level. Through price and wage edicts, an incomes policy was established which quickly failed because people began to make most payments, including taxes, with commodities or other nonmoney assets.¹²

A similar debasement followed by a rapid rise in prices occurred in England under Henry VIII in the early 1500's.¹³ Landowners who had long-term crop-share leases maintained their living conditions of prior years. Many, however, had long-term fixed payment leases, and their real rental returns were reduced while their tenants received a windfall.

A hyper-inflation in Germany following World War I can be traced to monetary growth. From July 1922 to June 1923, the quantity of money rose 86-fold, and the cost of living (food) rose 137-fold. By June 1923, German money was worth less than one per cent its value a year earlier.¹⁴

Our experience with excessive money growth and inflation has been consistent with the experience elsewhere. Many of you are doubtless familiar with the excessive money creation and the consequent inflation in the Confederate States during the Civil War. By January 1864 the stock of currency in circulation had increased about elevenfold, and prices had increased faster as a result of declining output of goods and

¹²Paul-Louis, *Ancient Rome at Work* (New York: Alfred A. Knopf, 1927), pp. 313-315.

¹³William Cunningham, *The Growth of English Industry and Commerce During the Early and Middle Ages*, 5th ed. (Cambridge: At the University Press, 1910-27), p. 543.

¹⁴Constantino Bresciani-Turroni, *The Economics of Inflation; A Study of Currency Depreciation in Post-War Germany 1914-1923*, translated by Millicent E. Sayers (New York: Barnes & Noble, Inc., 1937), p. 35.

services.¹⁵ One contemporary reporter observed, "Before the war I went to market with the money in my pocket and brought back my purchases in a basket; now I take the money in the basket and bring the things home in my pocket."¹⁶

Our more recent inflations, although on a much smaller scale than these hyper-inflations, can be traced to the same causal forces. For example, from 1915 to 1920 the stock of money rose at the annual rate of 14 per cent and wholesale prices 17 per cent. From 1938 to 1948 the stock of money rose at a 14 per cent rate and wholesale prices at a 7 per cent rate, despite the sharp increase of resource utilization during the period.¹⁷ In the recent inflation from 1965 to 1970 the stock of money grew at a 5 per cent rate, wholesale prices at a 3 per cent rate, and the general price index at a 4 per cent rate. The leveling off or a prolonged decline in the stock of money likewise is associated with a leveling off or decline in prices. For example, in 1920 and early 1921 both the stock of money and prices declined, a pattern which was repeated in the period 1929-33.¹⁸ The decline in the stock of money in this latter period was sufficiently prolonged and intense to cause a major depression.

Slower Money Growth the Solution

The solution to inflation is the elimination of its cause. Actions were taken in early 1969 to slow the rate of money growth. The stock of money rose only about 3 per cent during the year, down from an 8 per cent rate in the previous two years. In response to slower money growth, spending on goods and services began to moderate late in the year. Such spending rose at a 4 per cent annual rate from the third quarter of 1969 to the end of 1970, following an 8 per cent rate of advance in the previous five quarters. Consistent with past experience, however, the momentum of the inflation continued following the reduced rate of spending growth.

By mid-1970 the rate of inflation began to decline. Since last June consumer prices have risen at the annual rate of 4 per cent, compared with a 6 per cent rate in the previous year. While the rate of inflation was slowing, the nation was paying for the previous excesses. Unemployment was rising, and real product was down. The immediate impact of a change in

monetary growth was on spending and output, but there was a lagged effect on prices.

Early last year monetary policies were relaxed as a consequence of the decline in output and higher unemployment. During the year the stock of money rose 5 per cent, but the recovery of spending and production may have been delayed a few months by the automobile strike last fall. Early this year the growth rate of money again accelerated. In the last three months it has risen at a 13 per cent annual rate – the highest rate of any three-month period since 1950. Recovery is now underway. Retail sales have risen markedly, housing starts have increased, and industrial production is up. Again an early impact of monetary growth on economic activity is observed, while prices are affected only in the longer run.

Expectations Have Exceeded Possibilities

The relatively long lag between monetary actions and their impact on prices has probably been the major disappointment with the progress made in slowing the rate of inflation to date. Most people fail to recognize the length of time required for monetary actions to have a significant impact on average prices. Monetary restraint first induces a slower rate of growth in cash balances relative to money demand. Individuals and firms reduce their rate of spending in an attempt to build up cash balances to desired levels. This reduction in spending growth reduces nominal GNP growth and the growth rate of overall demand for goods and services. Expectations based on past trends in prices and wages, however, continue to provide inflationary momentum until offset by basic supply and demand conditions. The lag between appropriate monetary actions and the achievement of relatively stable prices may thus be expected to extend over a period of three or four years, following a prolonged and relatively high rate of monetary expansion, as in 1967 and 1968.

The slowdown is aggravated by imperfect functioning of labor markets as reflected by a relatively high unemployment rate. In addition to higher unemployment in the civilian sector, unemployment has been aggravated by a sharp decrease in some types of defense expenditures. Aircraft manufacturers on the West Coast have made sharp cutbacks.

In some occupations unemployment was further increased by the sufficiently strong bargaining power of unions. Excessive wage rate settlements relative to supply and demand conditions tend to reduce the number employed.

¹⁵Margaret G. Myers, *A Financial History of the United States* (New York: Columbia University Press, 1970), p. 169.

¹⁶Harold Underwood Faulkner, *American Economic History*, 7th ed. (New York: Harper, 1954), p. 357.

¹⁷Friedman and Schwartz, *Monetary History*; Board of Governors; Department of Labor.

¹⁸Friedman and Schwartz, *Monetary History*, Chart 62.

It takes time for the laid-off workers and the new entrants into the labor market to find jobs. Time is also required for business firms to adjust to a change in demand. During this adjustment period the nation's resources are underutilized, and production of goods and services is well below potential levels. This is the price we pay for reducing inflation. It is a cost which we must accept, and it cannot be legislated into nonexistence through the provision for nonworkable controls on our economic system.

Conclusion

In summation, direct controls on wages and prices have been tried both here and abroad and found unworkable. They may suppress the rate of inflation for a short period under favorable conditions, but the inflationary pressures soon build up, and the controls are usually abandoned. Furthermore, all attempts to control inflation by such methods have led to a reduction in economic efficiency and a breakdown of respect for the law.

The argument that inflation can no longer be moderated by monetary actions is not valid. Non-competitive elements in the labor and commodity markets were probably stronger in the early 1950's, when a similar inflation was slowed.

Excessive money growth is the cause of inflation, and a slower rate of money growth is the solution to the problem. Money has an early impact on spending and production, but a longer period is required to

slow an inflation. The length of this period has been misjudged by many people who have concluded on the basis of recent experience that monetary actions are ineffective. If we exercise the patience to wait for the economy to adjust to a slower rate of demand growth and maintain appropriate monetary policies, I am sure that we can again stabilize prices at a relatively low rate of unemployment.

Stabilization can be attained at higher levels of employment and output if we adopt policies to eliminate sharp changes in the rate of monetary growth and reduce barriers to a more rapid adjustment to market forces. The stop-and-go method of monetary actions in recent years tends to reduce both output and employment.

Expectations of future price trends must be changed before reduced demand growth can have a major impact on prices. This changed outlook, first evident about mid-1970, has caused the momentum of the current inflation to slacken. I am vitally concerned, however, about the rapid rate of money growth in recent months. There is great danger of rekindling the flames of inflation.

Furthermore, if we attempt to halt the inflation through direct controls, I fear that we will not exercise the necessary monetary restraint and will lose much of the gain achieved from the slower rate of money growth in 1969. In addition, such controls will mean further losses of freedom for individual action which has through the years provided us with the world's most efficient economy.



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