

The Dollar and the International Monetary System

Greater liquidity of free-world resources in times of pressure would help solve the dollar problem.

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The last three or four years have witnessed spectacular changes in the international monetary and financial position of the United States. From the early 1870's through the mid-1950's the U.S. dollar, except for a few brief intervals, was always a "strong" currency, and in the decade after 1945 it was the *only* currency universally accepted in international payments throughout the free world. But in 1958 this picture began to shift drastically, and in late 1960 and early 1961 an international run developed against the dollar. Our stock of "free" exportable gold fell sharply; the open-market price of gold in London shot up to more than 20 percent above the mint price, in expectation of a devaluation of the dollar; and in the spring of 1961 an international rescue operation—the Basle agreement—had to be organized by the leading European central banks to shore up both the British pound and, indirectly, the dollar itself. The danger was real, and the damage to the prestige of the dollar, at least for the short run, was great. Nor is there any reason to think that the storm is over. On the contrary, the pressure has continued without substantial letup, and grave new troubles may still lie ahead.

These events have produced a variety of proposals for dealing with "the international dollar problem." The same events, together with various other de-

velopments that preceded them, have also led a number of students to conclude that the dollar problem is, at least in certain important respects, a symptom of a serious weakness in the entire international monetary system as it exists today, and have led them to propose major changes in the system itself.

These various problems and proposals, which obviously involve matters of tremendous practical importance, are closely—indeed inextricably—related. In what follows I shall try to describe the general character of the present international monetary system; show what has happened to the American balance of international payments and hence to the dollar in recent years, and why; and appraise the more important current proposals for solving the dollar problem as such, and for reorganizing the international monetary system as a whole.

Evolution of the System

The present international monetary system can be understood most easily by taking a quick look at the recent evolution of the system itself. From the 1870's to 1914 the so-called international gold standard was dominant. All of the more highly industrialized countries, and many others as well,

based both their domestic monetary systems and their international-payment arrangements primarily on gold. Their national currencies were kept freely convertible into gold, with occasional brief exceptions, both for internal purposes and to make any net payments due abroad. To ensure this convertibility most countries maintained substantial and often large gold reserves, though never as much as 100 percent of the relevant liabilities. Moreover, in most of the gold-standard countries both the total volume of the domestic currency circulation and the total volume of commercial-bank demand deposits usually responded in some degree to changes in the size of the country's central gold reserve. In many though by no means all historical cases, any substantial decrease in the gold reserve was quickly followed by decreases of at least equal size, and often by very much larger decreases, in the sum of the country's internal currency circulation and the volume of its commercial bank deposits, and usually by higher interest rates. On the other hand, any substantial and continued increase in the reserve usually had—though somewhat less promptly and somewhat less commonly—the opposite consequences. Hence, especially in Western Europe and North America, the general levels of domestic business activity and of prices in each country were usually tied quite closely to the country's exports and imports of gold, and therefore to its balance of international payments.

World War I disrupted this whole complex of relations and interactions. By the middle of the 1920's, however, much of the old system had been restored—but with at least one major difference. Many smaller countries could no longer afford to hold large amounts of gold. Instead, they kept much of their central monetary reserves in the form of bank balances in, or of foreign exchange on, those countries, especially the United Kingdom and the United States, that *did* hold gold alone as their

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Table 1. World monetary reserves, 1951-61, in billions of dollars (end-of-year figures). Communist countries are not included. [*International Financial Statistics* (Dec. 1961)]

Areas	Gold: Official			Foreign exchange: Official		
	1951	1957	1961	1951	1957	1961
U.S.	22.9	22.9	16.9			0.1
Canada	0.8	1.1	0.9	1.0	1.9	1.1
United Kingdom	2.2	1.6	2.3	0.2	0.8	1.0
Belgium	0.6	0.9	1.2	.4	.2	0.4
France	.6	.6	2.1	.02	.1	1.1
West Germany	.03	2.5	3.7	.5	2.6	2.4
Italy	.3	0.5	2.2	.4	0.9	1.2
Netherlands	.3	.7	1.6	.2	.3	0.2
Switzerland	1.5	1.7	2.6	.2	.2	.2
Total continental Europe	4.4	8.2	15.1	3.1	5.9	8.2
Latin America	2.0	1.9	1.4	1.0	1.9	1.3
Sterling area except United Kingdom	0.6	0.7	0.8	6.8	6.5	6.5
Rest of non-Communist world	1.1	1.0	1.3	3.0	3.1	3.8
Total countries	33.9	37.4	38.9	15.1	18.9	22.6
International institutions	1.6	1.4	2.2			
Total non-Communist world	35.6	38.8	41.1	15.1	18.9	22.6

central reserves. But this so-called gold exchange standard system in turn created a potentially dangerous structure of inverted pyramids of reserves, deposits, reserves, and more deposits. The central reserves of a group of small countries, *A*, often consisted chiefly or even wholly of bank deposits in a large country *B*, deposits which in turn rested on and were "secured" by the much smaller volume of *B*'s own gold reserves. And sometimes even a third level of pyramids was added, as when a third group of countries, *C*, kept part of their central reserves in the form of bank deposits with the *A* group.

In this situation a loss of gold by *B* could and often did cause not only a contraction of *B*'s own bank deposits but also—since some of *B*'s deposits were at the same time the *A* group's reserves—a contraction of the currency circulation and the bank deposits of the *A* group. This happened to the extent that the contraction in *B* turned the balance of international payments of the *A* group in an adverse direction and thus compelled the *A* group to draw down its deposits with *B* to make net settlements. It also happened to the extent that the original contraction in *B* aroused adverse speculation against the *A* group's currencies. And these effects were often passed on from the *A* group to the *C* group.

In the disastrous international crisis of 1931 such cumulative contractions erupted on a large scale, especially in Europe, and enormously intensified the crisis itself. Thereafter the whole gold-exchange-standard structure collapsed; nearly all currencies depreciated severely; foreign-exchange controls sprang up on all sides, and "the international

monetary system," at least in the pre-1931 sense of the term, abruptly disintegrated. A number of countries continued to use gold to settle their net international debit balances, but the link between international gold movements and domestic business activity was rapidly eroded, and soon almost completely broken. Changes in national gold stocks came to serve merely as international buffers and shock absorbers, not as transmitters of economic changes and pressures. At the same time many countries, some of them in response to the coercion of Nazi Germany, began to build up complex networks of bilateral barter, payment, and clearing agreements. In the main, these agreements were intended only as a last-ditch attempt to keep foreign trade moving despite the collapse of the international monetary system, but their end result was the virtual destruction of the pre-1931 type of world economy. The outbreak of World War II merely put the capstone on the process.

Even before the outcome of World War II was decided, many Allied economists and statesmen had begun discussions intended to provide the world with some better set of international monetary arrangements than had ever existed previously. One major result was the creation of the International Monetary Fund, whose charter was hammered out at the Bretton Woods Conference of 1944. Put in the most summary form, the charter (i) required each Fund member to maintain (with specified exceptions) the stability of its foreign exchange rates and the multi-lateral external convertibility of its currency into gold, and (ii) provided for loans by the Fund to any member

having balance-of-payments difficulties, under prescribed conditions and up to amounts that were either specified or determinable (but which for most countries were relatively small).

The world-wide economic disruption which followed World War II was so severe, however, and the need for emergency forms of help was so urgent, that no immediate attempt could be made to put the obligations imposed by the Fund agreement into full force. For a number of years after 1945 nearly all countries felt compelled to maintain tight and complex controls over their foreign trade and payments, and most of the leading currencies, with the exception of the U.S. dollar, remained partly or wholly inconvertible.

By the early 1950's the situation had begun to change. The enormous economic aid programs of the American Government (*1*) were at last beginning to bear fruit, especially in Western Europe. European production had increased tremendously above the post-war lows; foreign trade was flourishing; most national reserves of gold and convertible foreign exchange were growing (see Table 1); and the choking tangle of foreign-exchange and trade restrictions was gradually being cut away. By the end of 1958 nearly all of the more important Western currencies had become convertible into gold for nearly all types of current-account transactions, though in many cases capital exports by residents were still severely restricted. Through a series of small steps, a new international monetary system thus came slowly into being, and most of the members of the new system could now, for the first time, fulfill their more important obligations under the International Monetary Fund. This system has operated fairly effectively ever since.

Structure and Operation

It is essential to emphasize, however, that the present system is *not* the same thing as the pre-1914 international gold standard. First, it works more like an enlarged form of the mixed gold and gold-exchange standard system of the 1920's and early 1930's. In contrast to pre-1914, all of the more important countries (save only the United States) now hold substantial amounts of foreign exchange which they count as part of their "official" monetary reserves. The "official" foreign exchange holdings of the Western European countries as

a group amount to over one-third of their total "official" monetary reserves, and for the world as a whole outside of the United States, the figure is over 50 percent (see Table 1). Second, the gold-exchange-standard part of the system is at the least bipolar. At the end of 1961 nearly two-thirds of the total "official" foreign exchange holdings of the members of the International Monetary Fund consisted of U.S. dollars, but nearly one-third was pounds sterling, and about 5 percent was other convertible currencies (2). The consequence of these developments has been the reappearance of something like that potentially dangerous pyramiding of reserves on reserves which evolved in the 1920's and 1930's. But now the chief risk seems to be the danger to the two principal reserve-currency countries themselves, the United States and the United Kingdom, rather than to their creditors. When the balance of international payments of either country becomes markedly less favorable than it was before, or is even merely expected to become so, private speculators, traders, and even central banks and governments which hold or deal in that country's currency may start an international "run" against it—as happened repeatedly to sterling in 1955–57 and to sterling and the dollar in 1960–61. At the limit, such a run could force a suspension of gold payments, or even the formal depreciation of the currency. The opposite can also take place, as happened in Germany in the early spring of 1961. The bipolarity of the system also increases the difficulty of obtaining quick and effective action in times of crisis.

The great structural weakness of the

present system lies in this pyramiding of reserves and, to a less extent, in its bipolarity. These weaknesses, plus the high mobility of short-term balances, today greatly increase the impact of shifts in the tides of optimism and pessimism, whether on the part of private speculators or of central banks, and make disastrous runs against any major reserve currency an ever-present possibility. The International Monetary Fund can help to slow down such runs, if it is asked to, but its own resources are probably not large enough, at least under its present operating rules, to save a major currency that is subjected to heavy and continued pressure.

Balance of Payments since 1954

Such is the general structure of the international monetary arrangements, within which the recent acute problems of the U.S. balance of payments and the U.S. dollar have developed.

The main facts about the history of our balance of payments since 1954 are set out in Table 2. The crucial figures, that summarize the effects of the whole complex of forces, are given in rows 13 through 16. Especially with respect to gold, we were doing all right through 1957. But in the 4 years from 1958 through 1961 we had to sell over \$5.9 billion of gold to help pay our current bills, and in addition we had to increase our debts to foreigners by roughly another \$9.6 billion, of which some \$8.3 billion was short-term or demand debts, chiefly in the form of increased holdings by foreigners of dollar bank deposits and dollar foreign exchange. Our cumulated international deficits over the

last four years have hence totaled more than \$15.5 billion. These deficits pulled our own gold reserves down uncomfortably near the minimum we are required by law to hold, and by the end of 1961 they had increased our demand and short-term liabilities to foreigners—liabilities constituting potential additional claims on our gold stocks—to the enormous sum of \$22.6 billion (3). The principal gainers of both gold and dollars were the larger industrial countries of continental Europe (see Table 1).

It is therefore hardly surprising that the U.S. dollar encountered severe adverse pressure in the foreign exchange markets during the winter of 1960–61 and later; indeed, the trouble might well have come sooner. At the end of 1957 our gold stock was still nearly \$23 billion (see Table 3). But by the end of 1959 it was down to \$19.5 billion, in December 1960 it was under \$18 billion, and in March 1961 it fell to \$17.38 billion. This last period, the winter of 1960–61, was the period when the speculative "run" against the dollar became acute. Thanks to the international cooperation which was made effective through the informal Basle agreement of the spring of 1961, various foreign central banks both sold gold and bought pound and dollar exchange in volume (4). These steps stopped the run on the dollar and also forced down the price of gold. But our overall position was and still is precarious, and a slow trickle of gold abroad still continues.

Why has all this happened, and to a country which is certainly not suffering from either serious internal inflation or dangerous fiscal policies? The proximate answer lies chiefly in our uni-

Table 2. United States balance of payments, 1954–61, in billions of dollars (selected items). Net cumulated totals for 1958–61 were as follows: Gold sales, \$5.9; imports of foreign short-term capital, \$8.3; imports of foreign long-term capital, \$1.3; total deficit, \$15.5. [Figures for 1954–58 from *Statistical Abstract of the United States* (1961), p. 865; for 1959–61, from *Survey of Current Business* and *Federal Reserve Bulletin*]

Row	Item	1954	1955	1956	1957	1958	1959	1960	1961
1	Merchandise exports	12.8	14.3	17.4	19.4	16.3	16.3	19.4	19.9
2	Military transfers under grants	3.2	2.3	2.6	2.4	2.3	2.0	1.8	2.3
3	Total exports of goods and services	21.1	22.3	26.3	29.2	25.6	25.7	27.3	28.3
4	Merchandise imports	10.4	11.5	12.8	13.3	13.0	15.3	14.7	14.5
5	Military expenditures abroad	2.6	2.8	3.0	3.2	3.4	3.1	3.0	3.0
6	Total imports of goods and services	16.1	17.9	19.8	20.9	21.1	23.5	23.3	23.1
7	Balance on goods and services	5.0	4.4	6.5	8.2	4.6	2.1	4.0	5.2
	Unilateral transfers, net:								
8	Government	-4.9	-4.4	-4.4	-4.2	-4.1	-3.8	-3.4	-4.1
9	Total	-5.4	-4.8	-5.0	-4.8	-4.6	-4.4	-4.3	-5.0
	U.S. capital exports (-), net:								
10	Private	-1.6	-1.2	-3.0	-3.2	-2.8	-2.4	-3.9	-4.0
11	Government	0.1	-0.3	-0.6	-1.0	-1.0	-0.4	-0.6	0
12	Total	-1.5	-1.5	-3.6	-4.1	-3.8	-2.7	-4.5	-4.0
	Foreign capital imports (+), net:								
13	Short-term	1.2	1.1	1.3	0.3	1.2	3.2	2.2	1.7
14	Total	1.5	1.5	1.8	.7	1.2	3.7	2.4	2.3
15	Gold sales (purchases: -)	0.3	0	-0.3	-0.8	2.3	1.1	1.7	0.9*
16	Foreign capital plus gold sales (credits), net	1.8	1.5	1.5	-0.1	3.5	4.8	4.1	3.2

* Includes net foreign convertible currencies held by U.S. authorities.

lateral transfers abroad and our capital exports, shown in Table 2 (rows 8 through 12). Our commercial exports of merchandise fell in 1958 and 1959 but then rose sharply, and are now running at or near all-time peaks, while our commercial imports of merchandise have been dropping since 1959. Hence our overall commercial trade balance, arising from private transactions in merchandise and services, has been increasingly favorable. But in 1960 and 1961 the exportation of American capital, if we take as a single total both private and government investment (Table 2, rows 10 through 12) and the government aid program (row 8), reached the highest levels in many years. This was the principal straw—and a big one—that finally broke the camel's back and produced the 1960–61 crisis.

Table 2 also makes it clear, however, that this crisis was only the culmination of a much longer set of developments running back to at least 1954, when the effects of the Korean war had pretty well disappeared. From 1954 through 1961 our government spent abroad, chiefly on military and economic aid and for our own military expenditures, a total of over \$61 billion—in 8 years! In the same period our private investment abroad increased by \$22 billion. The two outflows together totaled roughly \$83 billion, an average of over \$10 billion a year. These enormous transfers were paid for in various ways: chiefly by net *commercial* exports of goods and services of \$45 billion, exports under military grants of \$19 billion, and foreign long-term investment in the United States of \$3 billion. But all this still added up to only \$67 billion, and left a total cumulated deficit for the 8 years (after allowance had been made for a few other small adverse-balance items) of \$17 billion. This deficit was met in the only two ways remaining, short of national bankruptcy: by net gold sales of over \$5 billion and by net additional short-term borrowing abroad of \$12 billion. It is no wonder that we have had trouble with the international position of the dollar.

This growing pressure against the dollar, which has been especially severe since 1958, has obviously created a precarious and potentially very dangerous situation. At any time the pressure might have mushroomed into a full-scale panic run on the dollar, and it still can. Such a run could be met initially either by paying out more gold,

until the legal minimum gold reserve had been reached (now roughly \$11.5 billion; but this minimum can be breached, subject to certain conditions and penalties), or by borrowing from foreign countries or from international institutions such as the International Monetary Fund. But while these last two potential resources are large, they are not limitless. Continued severe pressure could eventually compel us to go off the gold standard and to devalue the dollar, *de facto* if not *de jure*, as we did in 1933. This is clearly not an attractive prospect.

The pressure against the dollar has also had still another effect, which in the long run may be even more harmful. To make the holding of dollars more attractive to foreigners and to discourage outflows of American funds, since 1959 our monetary authorities have felt obliged to keep interest rates somewhat higher, and general credit conditions somewhat tighter, than they presumably would have under more favorable international conditions. It seems to be fairly generally agreed that the resulting monetary constriction probably delayed the termination of the 1960–61 recession in general business activity and almost certainly reduced the speed and perhaps the duration of the subsequent and now-current recovery, which indeed may already be approaching its end. This is bad in itself. Worse, the monetary constriction has materially handicapped the federal government's attempts to decrease the average volume of unemployment substantially and to increase our average growth rate (5). The traditional policies for controlling a seriously adverse balance of international payments are precisely the wrong policies for stimulating employment and economic growth.

The state of our balance of payments and the consequent weakness of the dollar on the foreign exchanges together constitute one of the most serious economic problems the United States faces today. On closer examination, however, this turns out to be not one problem but two, which are closely related but different. The first is the problem of dealing with the forces which have produced such large and persistent deficits in our balance of payments proper. This we may call, if somewhat inaccurately, the longer-run or "structural" problem. The second is the problem of increasing the supply of international "liquidity," especially with respect to the dollar. In recent years, as I have already pointed out, the dollar has been

the principal international reserve currency; and because of this fact it has been exposed to additional severe pressures which have often arisen from changes in foreign financial conditions, or from adverse speculative movements in the exchange markets, rather than from actual current deficits in the American balance of payments as such. We shall next look briefly at the more important proposals that have been put forward to solve these two problems.

The "Structural" Problem

The "structural" problem, stated in its most rudimentary form, is simply the problem of doing things that will enduringly increase our aggregate receipts from other countries, or enduringly decrease our payments to them, or both. In the last year or so a variety of steps to achieve these results have been suggested. Among the more widely circulated have been proposals to (i) increase our protective tariffs and quota restrictions sharply; (ii) reduce or even forbid foreign travel by Americans; (iii) forbid the investment of American funds abroad; (iv) slash or abandon outright our military and economic foreign aid programs; (v) bring home all American troops stationed abroad; (vi) require that foreign aid funds be spent only on American goods or services, and that the goods be shipped only in American-flag vessels; (vii) give American export firms tax relief, to increase their competitiveness; (viii) borrow from the International Monetary Fund; (ix) devalue the dollar; and (x) both devalue the dollar and abandon the international gold standard entirely, substituting for the latter some form of exchange-rate system under which the rates would move up or down more or less freely in response to shifts in the balance of payments. Under the latter system no permanent limits would be set on the fluctuations of the rates themselves, and there would be no permanent exchange-rate par.

Substantial objections can be levied, I think, against all of these proposals. The first and second are likely to be self-defeating. They would invite retaliation, and even in the absence of retaliation would reduce the current supply of dollars to foreigners, thus eventually cutting our own exports (6). The third would constitute an undesirable type of interference with economic mobility and competition and, insofar as our foreign investment is linked to

our own production, would require us to substitute more expensive domestic resources or equipment for cheaper foreign supplies. The fourth and fifth would compel us to abandon the principles which have been at the very heart of our foreign policy since well before the end of World War II. They should be judged on the merits of those principles, not as cures for the dollar crisis. The sixth would again require domestic procurement of things that could often be bought more cheaply abroad, thus increasing the cost of foreign aid to our taxpayers; in any event it is not feasible insofar as the nature of the aid programs requires that funds be spent on labor or supplies in the areas receiving the aid. The seventh proposal offers no assurance that the tax relief granted would produce lower prices, not merely be channeled into higher profits. The eighth and ninth are essentially one-shot devices that do not go to the heart of the problem (7), which our experience clearly shows is not temporary but, on the contrary, reflects deep-seated and continuing maladjustments.

Finally, with respect to the tenth proposal, it is far from certain that in our present situation a regime of fluctuating exchange rates would restore and maintain equilibrium in our balance of payments without at the same time inducing a more or less continuous series of declines in the rates themselves. On this question professional opinion is divided. I think it doubtful that installing a regime of fluctuating rates would help much, even if other countries were in fact willing (and this is most unlikely) to let us devalue the dollar substantially relative to their own currencies instead of adjusting their rates *pari passu* with ours, and even if severe adverse speculative movements were not evoked. The source of our difficulties is not internal inflation, excessively high internal prices, and a consequent seriously unfavorable trade balance, which exchange depreciation *could* correct under appropriate conditions. Rather, the source is chiefly our heavy foreign aid programs, military expenditures, and private investment abroad, none of them kinds of pressures on our balance of payments which depreciation, as such, could do much to reduce. In this situation it is possible and even probable that any one depreciation would be followed fairly rapidly by internal price increases, which would soon reduce and even wipe out the benefits from the initial depreciation and which would thus

Table 3. United States gold stock, 1945-61 (end-of-year figures). [*Federal Reserve Bulletin*]

Year	Amount (\$ billions)
1945	20.065
1949	24.563
1950	22.820
1951	22.873
1952	23.252
1953	22.091
1954	21.793
1955	21.753
1956	22.058
1957	22.857
1958	20.582
1959	19.507
1960	17.804
1961	16.947
1962 (August)	16.139

make further depreciations necessary to restore our international equilibrium.

This list of objections should not be taken, however, to mean that no solution is possible. On the contrary, solutions can be and are being sought in three main directions. First, since 1945 the United States has been carrying by far the greatest part of the financial cost of defending the free world against Communist threats and aggressions. In view of the spectacular economic recovery of the European industrial countries in recent years—a recovery itself chiefly triggered and in its earlier stages heavily supported by American aid—it is only reasonable that these latter countries should now take over a larger share of the cost of American overseas defense efforts in the common cause. Indeed, this is already starting to happen, though as yet on only a rather small scale. Second, the United States has also been carrying much the largest part of the cost of Western aid to the underdeveloped countries, and again the European industrial countries, in particular, can and should take over an increased share of the burden. These two steps alone, if accompanied by appropriate fiscal and monetary policies within the United States (aimed chiefly at the prevention of substantial general price rises, at the same time that average unemployment is substantially reduced and the rate of growth is increased), could eliminate most or all of our present international deficit. Finally, a still more intensive and continued drive to increase American productive efficiency in both the export and the import-competing industries is also essential. Indeed, if we do not keep our own costs down, the steadily growing efficiency of our foreign competitors will get us into balance-of-payments

trouble anyway, regardless of our foreign military and economic aid programs.

If these several measures nevertheless fail to solve our balance-of-payments problem we may be forced into devaluing the dollar again, as we did deliberately in 1933. The difficulties with this step, however, were pointed out in an earlier paragraph. First, if other nations retaliate with devaluations of their own, the intercurrency exchange rates will obviously end up about where they started. Then no one will gain much in the long run except the gold producers, especially South Africa and the U.S.S.R., whose output will be worth more in terms of the devalued currencies. Second, even if other countries do not devalue, devaluation is probably not a permanent solution for international disequilibria of the type we now face; for such disequilibria, it is only a one-shot stopgap. Within a quite short period the problem would almost certainly be back on our hands again. We should then have to make a very difficult and painful choice, between accepting more or less continuous depreciations of the dollar and abandoning much or all of our foreign economic and military programs.

I do not believe that we will be compelled to take such extreme steps. On the contrary, with any luck at all the measures already under way for increasing the participation of our free-world associates in outlays on mutual defense and on development and for increasing our own productive efficiency will turn the tide *if* adequate machinery is established for absorbing *short-run* international financial shocks and pressures, and for stopping or preventing runs on the major reserve currencies. But these last are precisely the things that an effective international monetary system should be able to achieve. I therefore turn now to the final problem sketched at the outset of this article, that of making the international monetary system work a good deal better than it does now. Put differently, this is chiefly the problem of increasing international liquidity in times of international pressure—that is, of increasing the available supply of liquid resources. Success in that endeavor is crucial to a solution of the difficulties of the U.S. balance of payments and the U.S. dollar, because success will provide the leeway in time and in money—the short-run buffer—which is essential until the more fundamental correctives can take hold and exert their full force.

I have already summarized the weaknesses and defects of the present international monetary system. The most important weakness is the difficulty the system has had in coping with serious pressures against its central-reserve currencies, like those against the pound in 1955-57 or against the dollar in 1960-61. The dollar was rescued in 1960-61 only by emergency procedures not built into the normal working of the system itself. The existing international reserves are difficult though not impossible to mobilize, and most countries have great trouble in obtaining large *increases* in their reserves within short periods—that is, in emergencies. For most countries, access to the resources of the present International Monetary Fund is relatively restricted, and few can count on support from foreign central banks (8).

A good many observers have therefore concluded that substantial changes in the mode of operation and even in the basic structure of our present international monetary arrangements are imperative. Two main types of plans have been proposed.

Bernstein and Triffin Plans

One would retain, with certain modifications, the general framework of the present system. The proposed modifications, originally suggested in broad outline by E. M. Bernstein (9), place their chief reliance on arrangements to secure greater cooperation in times of emergency among the several national monetary authorities. The International Monetary Fund itself has recently endorsed one variant of the Bernstein plan (10), and in January 1962 a corresponding preliminary agreement was reached by ten leading members of the Fund. Under this agreement, in an emergency each of the signatories would undertake to lend up to a specified amount of its own currency, through the Fund, to purchase the currencies of other members then suffering from severe speculative or other short-run adverse balance-of-payments pressures, under specified conditions. The total resources thus made potentially available would amount to \$6 billion. The U.S. commitment would be \$2 billion. This arrangement will clearly be a step forward. Its power, however, is limited. The commitments by members other than the U.S. would total \$4 billion. But this sum is just about the size of the average annual U.S. balance-of-

payments deficits in 1958-61, and barely one-sixth of our total foreign indebtedness at short term. It would hence be too small to cope with a protracted major run against the dollar. Moreover, under specified circumstances any prospective lender could in fact refuse to lend. This escape clause is in itself sensible, but its operation could severely restrict the effectiveness of the scheme (11). Finally, the scheme will do nothing to reduce the importance of the dollar or the pound as international reserve currencies, or to reduce the consequent potential pressures on them *before* these pressures actually materialize.

A number of students have therefore continued to hold that a more substantial revision of our present arrangements is necessary. Such a revision would be provided under the proposal originally put forward in 1959 by Robert Triffin (12). Under Triffin's plan the International Monetary Fund would be completely reorganized and would become an international central bank, with power to create its own deposit liabilities against appropriate security. Since each member would necessarily have to agree to accept Fund deposits in payment of any net debt due from another member (otherwise the deposits would have no function), the Fund could create and lend its deposits to any member in need of help, under appropriate conditions, and the member could then use the deposits to pay off its own debts. In effect, the Fund would thus become an international lender of last resort, just as each national central bank is now for the commercial banks within its own country. Moreover, members could and presumably would hold much of the foreign-exchange portion of their own "official" reserves in the form of these Fund deposits, thus greatly reducing their holdings of the present international-reserve currencies, and hence also reducing the potential pressures on these currencies (13).

These arrangements might still not be of great value to a small country whose credit-worthiness was questionable, but they would undeniably permit the Fund to safeguard the more important currencies, and especially the great international-reserve currencies, against the effects of temporarily adverse balance-of-payments pressures and against speculation and panic. They would, in a word, enable the Fund to do the main job in any *one* emergency, whereas the present system has no built-

in machinery of this sort at all, and the effectiveness of the Bernstein type of arrangement is in no way assured. The latter is also clumsier and slower.

I am convinced that the Triffin plan constitutes the right general approach. It has a number of defects, however, which over a period of time could produce destructive consequences. Two of these defects are especially important. First, the plan does not give the Fund adequate protection against *involuntary* acquisitions of member currencies, especially of the weaker and inconvertible currencies. Second, and more serious, it proposes to retain gold as a major means of settling net international payment balances among members (as do both Bernstein's and the Fund plans). Yet it was Triffin himself who demonstrated so convincingly that the world supply of monetary gold is already grossly inadequate. What is worse, in Triffin's proposed reorganization it is inevitable that the Fund would itself become an active competitor for gold, to protect its own reserve position.

The truth of the matter is that we now demand far too much of our limited monetary gold stocks. We require that they shall serve as part or as all of the internal reserves in the leading countries (in the United States gold is the *only* legal reserve) and as the last-resort *international* means of payment, and under Triffin's plan gold would also serve as the reserve against the Fund's own deposits. But there is simply not enough monetary gold available in the whole Western world to perform all of these tasks effectively at the same time. Because of the strength of the legal and traditional motivations for retaining gold as an internal national reserve, I have proposed that under all ordinary circumstances the Fund's members shall agree not to demand gold from one another in payment for net balances not settled in other ways, but instead shall agree to accept the deposit balances of the reorganized Fund itself (14).

If appropriate safeguards on the creation of Fund deposits are thus set up, this reorganization of the Fund will give us an effective and smoothly operating international monetary system, and one which will protect its members against all the shorter-run pressures on their exchanges that any such system can appropriately try to counteract. It will provide this protection precisely because the Fund *will* then be able to operate as the international lender of last resort. Like any national central

bank dealing with pressures and crises inside its own national frontiers, it will be able to oppose and to disarm all serious adverse speculative and other temporary disturbances, and thus to furnish the essential element—time—which is required until these disturbances can correct themselves.

This reorganization of the Fund and of its operations is also, I think, the remaining major step required to get the U.S. dollar back on a sound basis. The present Fund is too small, in terms of the resources which now seem likely to be available, and it is ordinarily too restricted in the use of these resources to do the job adequately. But if reorganized in the way that has been proposed, the Fund can provide an essential temporary buffer, both in terms of the absorption of short-run pressures on dollar (or other) exchanges and in terms of time. Such a buffer is necessary until the other measures described—chiefly increased foreign participation in the costs of mutual defense and of aid to underdeveloped countries and increases in the efficiency of our own industries—can take hold, and thus eventually assure an enduring equilibrium in our balance of international payments.

References and Notes

1. From July 1945 to the end of 1953 the total of our foreign aid was \$47.8 billion, of which \$35.3 billion was essentially economic aid and \$12.5 billion military aid. By the end of 1960 the respective totals were \$82.7, \$54.9, and \$27.8 billion.
2. These are unofficial estimates by a skilled observer. Of the Fund's own holdings of currencies, totaling \$11.46 billion on 30 September 1961, roughly \$6.7 billion were estimated by the same observer to be convertible (the Fund does not publish these data). Of this it was estimated that U.S. dollars constituted roughly \$2.4 billion; pounds sterling, \$2.5 billion; other European convertible currencies, \$1.0 billion; and Canadian dollars and Japanese yen together, \$0.7 billion. The "official" sterling holdings of members of the IMF include the reserve balances of the sterling area countries.
3. In the first 8 months of 1962 we lost another \$808 million of gold, and our short-term foreign debt increased another \$1663 million, making a total further deficit, net of increase in our own "official" holdings of convertible foreign currencies, of \$2137 million. This is somewhat larger, on an annual basis, than the 1961 deficit.
4. These banks also held or renewed maturing claims on pounds and dollars, instead of presenting them for payment.
5. The average economic output of the United States, per capita and as measured in real terms, increased only 5 percent from 1953 through 1961, and only 2 percent in 1957-61.
6. The recent heavy reductions in the duty exemptions of American tourists abroad are increasing the federal revenues somewhat, however.
7. This is also true of the proposal to abandon the 25-percent gold-reserve requirement for Federal Reserve notes and deposits. I think this requirement should be reduced or abolished, but for a different reason. As long as gold continues to be used as a major means of settling net international payment balances, lowering the requirement would give us a bigger cushion of "free" gold than we would otherwise have, with which to absorb international shocks and pressures.
8. It is also often argued that the total supply of international reserves ("liquidity"), either in existence or obtainable, is grossly inadequate. This may or may not be true, since "adequacy" is at best a relative concept. What is not debatable is that the supply is badly distributed, as shown in Table 1. Four-fifths of the Western world's total stock of monetary gold is held by only eight countries, and over 40 percent by the United States alone. The "official" holdings of foreign exchange are somewhat more evenly distributed, but they are almost entirely holdings of U.S. dollars and British pounds. It is also obvious that in the last 10 years the total holdings of gold and "official" foreign exchange have not increased nearly as rapidly as world trade or industrial production. The percentage increases for the free world from 1951 to mid-1961, as given in *International Financial Statistics* and *Monthly Bulletin of Statistics*, were as follows: Gold stock, 15; "official" foreign exchange, 48; total gold and "official" exchange, 25; exports (dollar volume), 54; exports (quantum), 70; industrial production, 53.
9. E. M. Bernstein, "International effects of U.S. economic policy," *U.S. Congress Joint Economic Committee Study Paper No. 16* (25 Jan. 1960).
10. See *International Financial News Survey* (29 Sept. 1961); *ibid.* (6 Oct. 1961); *ibid.* (12 Jan. 1962).
11. Legislative ratification will also be required in the case of the United States and of certain other countries.
12. R. Triffin, *Gold and the Dollar Crisis* (Yale Univ. Press, New Haven, Conn., 1960).
13. Fund deposits held by a member, if created by its sale of either gold or second-country currencies to the Fund, would normally bear interest. This provision would make such deposits as attractive to hold as second-country currencies themselves.
14. For a fuller statement of these proposals and of my criticisms of Triffin's plan, see J. W. Angell, *Economic J.* (Dec. 1961).

The Chemical Bond Approach Course in the Classroom

A 3-year evaluation shows that the course is
within the capabilities of high school students.

Arthur H. Livermore and Frederick L. Ferris, Jr.

Education in chemistry in secondary schools of the United States has fallen progressively behind the accelerating pace of development in the science of chemistry itself. While our knowledge of chemistry has been doubling every decade since the 1920's many of our high school textbooks on chemistry have barely emerged from the 19th century.

Until as recently as 1959, most high

school chemistry teachers were virtually isolated from professional chemists in the nation's colleges and universities. Sizable numbers of high school chemistry students were going on to college or terminating their formal education with little appreciation of the science of chemistry as an experimental or investigative method of inquiry. More often than not, work in the high school laboratory had little relevance to the

rest of the course and was conducted in "cookbook" fashion. All too frequently the students thought of chemistry as little more than an abstract manipulation of mysterious symbols and formulas.

At the same time, the climate of opinion in many universities was cool toward the inclusion of any form of chemistry instruction in the curricula of the secondary schools. Professional chemists in the colleges felt obliged to "unteach" the "evils" perpetrated in the secondary schools. "Teach them English and mathematics and leave the chemistry to us," was the attitude on most campuses.

This lag between the high school classroom and the university laboratory had reached such serious proportions by the late 1950's that it was clear some unprecedented effort would have to be made to rectify the situation. In 1957 (1) a group of high school and college teachers met to discuss the problem. A survey of existing high school text-

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