

Official Intervention in the Forward Exchange Market: Some Recent Experiences

I

In recent years, especially since the restoration of currency convertibility in Western Europe at the end of 1958, monetary authorities have shown an increased willingness to operate in the forward exchange market as a means of influencing the international flow of short-term funds in desired directions and as a substitute for or supplement to interest-rate changes or other instruments of policy. These operations have been undertaken against the broad background of a greatly increased mobility and volatility of short-term capital transfers, which at times have exerted major disequilibrating effects upon the balances of payments of the countries concerned; the large and persisting balance-of-payments disequilibrium between the United States and continental Western Europe which has had as its counterpart opposing movements in their official net reserve positions; the development of a high degree of cooperation between monetary authorities in the foreign exchange market designed to check disturbing large-scale international movements of short-term funds, or to counteract their effects upon official reserves; and the emergence of the Euro-dollar system, which has contributed significantly to the internationalization of money markets (1).

Official forward exchange operations are by no means a novelty. Even before World War I a number of central banks, most notably the Austro-Hungarian Bank, intervened systematically in the for-

(1) The research underlying this paper was done in Europe in the first half of 1963 during the tenure of a Ford Foundation Faculty Research Fellowship. I have consulted all the available official publications. I have benefited also from helpful conversations with many central and commercial bankers. Responsibility for errors of fact and judgment is my own alone.

ward market to influence the flow of covered interest arbitrage funds; and the post-1914 period up to the late 1950's provided more numerous and sophisticated examples of forward exchange policy (2). Yet until very recently monetary authorities were usually sceptical of, if not downright hostile to, the use of such operations except under extreme conditions, such as speculative attacks on the national currency. Since 1958, however, this attitude appears to be giving way to a less dogmatic position and to a growing appreciation, based on the lessons of experience, of the potentialities of this instrument under a wide variety of conditions.

Recent forward exchange policy provides examples of a number of techniques undertaken in differing circumstances and with differing underlying objectives in mind. Since 1958 there have been examples of outright forward operations in the market, as well as swap transactions between monetary authorities and the commercial banks on the basis of fixed or variable swap rates; operations undertaken at times of speculative attacks on currencies and under more "normal" exchange-market conditions; sporadic as well as persisting intervention in the forward market; and operations undertaken independently by national authorities and in cooperation with the authorities of other countries. There have been examples of intervention in the forward market to encourage or discourage outflows or inflows of short-term funds. The underlying objectives have differed in focus from case to case. These have included a desire to check heavy drains on official reserves or to reduce embarrassingly large reserve accumulations; to influence domestic liquidity and to facilitate the implementation of domestic monetary policy; to meet special situations such as year-end window-dressing by the banks or seasonal pressures in the money market; to assist banks in placing liquid funds at more attractive rates of interest abroad than at home or in expanding their international banking operations generally; and, in at least one case, to help a government meet its special budgetary difficulties. It need hardly be added that some of these objectives have been combined in a number of cases.

(2) For an extremely valuable and detailed account see P. EINZIG, *A Dynamic Theory of Forward Exchange* (London, 1961), pp. 402-84. The only significant omission that I can find in Einzig's list of examples is the swap operations between the Russian State Bank and Russian banks and business firms in 1900-09, to which I referred in my study, *Short-Term Capital Movements under the Pre-1914 Gold Standard* (Princeton, 1963), p. 42.

Although the theoretical literature on forward exchange policy continues to grow apace — much of it being concerned with the pros and cons of unlimited official counterspeculation in the forward market — almost no attempt has as yet been made to assemble and analyze the growing body of information available on the official forward operations of the past five years (3). While that information is still far from complete in many cases, it is sufficiently abundant to justify a comparative survey of official intervention in the forward market since the restoration of convertibility.

For purposes of this paper, swap operations between monetary authorities, including the Bank for International Settlements, will be excluded from consideration, mainly on the ground that they do not constitute official intervention in the forward market. They do of course provide resources which have to some extent been used as a basis for, or in conjunction with, such intervention.

II

The essential details regarding the foreign exchange operations undertaken by the United States Treasury and Federal Reserve System since their re-entry into the market early in 1961 have been reported authoritatively elsewhere (4), and the treatment here may be relatively brief. Attention will be focused only on those operations, mainly in marks and Swiss francs, that have involved intervention in the forward exchange market proper.

Official United States forward exchange operations during the past three years have been part, and for most of the time only a relatively small part, of a much broader strategy in the foreign exchange market designed to limit foreign demands on the American gold stock and to protect and defend the dollar against actual or threatened speculative attack. This strategy, which itself has been

(3) Exception should be made for a recent article by Einzig which confines itself, however, mainly to the forward operations of the U.S. Treasury in 1961-62 and some broader policy issues arising from them. See P. EINZIG, "Some Recent Developments in Official Forward Exchange Operations", *Economic Journal*, June 1963, pp. 241-53.

(4) C. A. COOMBS, "Treasury and Federal Reserve Foreign Exchange Operations", *Monthly Review*, Federal Reserve Bank of New York, October 1962, March 1963, October 1963, and March 1964.

superimposed upon a broad program of action to bring the United States basic international accounts into equilibrium, has involved operations in the spot and forward markets to reduce the amount of dollars flowing into official foreign hands and to absorb dollars already accumulated by foreign monetary authorities that threaten to be converted into gold at the U.S. Treasury. More specifically, it has included purchases of spot dollars being offered on the market that might otherwise have to be taken up by foreign central banks to prevent their exchange rates from rising above the ceiling in terms of the dollar; sales of foreign currencies forward designed to keep forward margins at levels close to their interest parities so as to induce private foreign parties to stay invested in dollars or increase their dollar holdings, and to discourage other movements of dollars that would flow into foreign official hands; and, of greatest importance in practice, direct purchases of dollars already acquired by foreign monetary authorities in excess of the amounts that they would normally be prepared to keep.

Each of these kinds of operations has of course required a supply of foreign currencies at the disposal of the U.S. authorities. The necessary amounts have been obtained in a variety of ways: by direct swap transactions between the Federal Reserve System and the U.S. Treasury, on the one hand, and leading foreign monetary authorities, including the Bank for International Settlements, on the other; by U.S. Treasury borrowing from foreign monetary authorities through the issue of short-term and medium-term obligations denominated in the foreign currencies concerned and in other forms; by official purchases of foreign currencies in the market and at times directly from foreign central banks; by accepting payment partly in foreign currency, in at least one case, for foreign government dollar debt owed to the U.S. Government; and, most recently, by drawing on the \$500 million stand-by credit extended to the United States in July 1963 by the International Monetary Fund.

The United States strategy has been the key element in the program of cooperation among the leading monetary authorities that has developed in the past few years with the purpose of strengthening the foundations of the international gold-exchange standard during a period of persisting United States balance-of-payments deficits and periodic, large-scale, disequilibrating transfers of short-term capital. And this cooperation has included coordinated opera-

tions in the forward exchange market, which is the immediate subject-matter of this paper.

The most dramatic example of United States intervention in the forward market proper is provided by the forward sales of German marks by the U.S. Treasury in the spring of 1961. The revaluations of the mark and Dutch guilder early in March of that year had led to widespread expectations of further readjustments of European currencies and to massive international movements of short-term funds. Initially, pressure fell heaviest on the pound sterling, necessitating large-scale credits and other aid to the Bank of England by European central banks under the so-called Basle Agreement. Although the dollar was not itself suspect, expectations of a further revaluation of the mark and upward adjustments of certain other Continental currencies soon led to pressure on the dollar as well, and the forward dollar went to a substantial intrinsic discount in terms of these currencies. The mark, in which much of this activity was centered, rose to a forward premium of almost 4 per cent per annum in terms of the dollar, although short-term interest rates were higher in Frankfurt than in New York.

As the premium on the forward mark widened, it became increasingly expensive to hedge and to speculate in the forward market. As a result, German holders of dollar receivables began to hedge by borrowing dollars and selling them spot for marks; Americans and certain other non-Germans began to cover their contractual liabilities in marks by buying them spot against dollars; and speculators found it cheaper to go short on the dollar in the spot instead of the forward market. The abnormal premium on the forward mark also made profitable covered interest arbitrage movements of funds out of dollars into marks. Pressure thus tended to be shifted from the forward to the spot market, and in the process the dollar holdings of the German Bundesbank jumped sharply, with the threat of heavy conversions of these holdings into gold.

In the face of this situation, and in part as an alternative to undesirable increases in short-term interest rates at home, the U.S. Treasury on March 13, 1961 began to sell marks forward on a large scale in close cooperation with the German authorities. The object was to reduce the abnormal premium on forward marks and thus the resulting accumulation of dollars by the Bundesbank, and at the same time to calm market fears of an impending change in the

official dollar-mark parity. Forward sales continued through August 1961, though on a diminishing scale, and the Treasury's outstanding forward sale commitments reached a peak of the equivalent of \$340 million in mid-June. The Treasury took no exchange risk in these operations, for the Bundesbank had agreed to supply it with any marks needed, when the contracts matured, at the same rate as that at which the marks had been sold forward.

Under the impact of these sales, the premium on the forward mark was quickly brought down to between 1.5 and 1.75 per cent per annum (5), around which level it hovered until early August, except for a momentary increase to above 2 per cent in mid-year. Pressure on the spot dollar rate was reduced and further dollar accumulations by the Bundesbank restrained. The spot dollar, however, began to rise significantly above the floor only in June, in part because of the demand for dollars in the market generated by some of the holders of the Treasury's forward contracts as they began to mature. The Berlin crisis in August and September 1961 further strengthened the dollar against the mark and enabled the Treasury to discontinue its forward sales and to liquidate its outstanding commitments entirely by the end of the year, in small part with some of the marks it had obtained from a German Government debt payment in April 1961.

These operations unquestionably provide an example of successful defensive intervention in the forward market in the face of speculative attack, even if it is somewhat difficult to disentangle their precise influence from that of other factors at work, including independent action taken by the German authorities to deflect short-term funds from Frankfurt (to be described later). It is also significant that, despite the cheapened cost of speculation in the forward market because of the reduction in the premium on the forward mark, there appears to be no evidence of significantly increased speculative purchases of forward marks that had to be met by the U.S. Treasury sales. On the contrary, the reduction in the forward premium as such may, along with other factors, have helped to allay the speculative fever. On the other hand, as one

(5) No attempt was made to eliminate the premium completely, least of all to drive the forward mark to such a discount as to reverse the flow of funds. The object was simply to bring the premium on the forward mark down to a more normal level.

writer has noted (6), the United States experience does not give unqualified confirmation to a widely-held view as to the desirability of unlimited support to the forward market in case of speculative attack; and it may be that under other circumstances, in the event of a sweeping flight from the dollar, a policy of supporting the forward rate might lead to less satisfactory results.

The basic objective of U.S. Treasury operations in forward Swiss francs, undertaken mainly in the last half of 1961 but also intermittently thereafter, have, as in the German case, been to reduce potential demands on the gold stock, but they have occurred under somewhat different sets of circumstances. Moreover, the operations in Swiss francs have been technically more complicated, involving not merely sales in the forward market, but also a broader complex of official swap operations with the Swiss National Bank and the Bank for International Settlements, sales of U.S. Treasury obligations in Swiss francs and other borrowings, roll-overs of maturing swap drawings and forward contracts, liquidation of forward contracts in part by sales of Swiss franc obligations to the Swiss Confederation, and other involved deals (7). As before, attention will be centered only on United States operations in the forward market proper.

The immediate occasion for the initiation of U.S. Treasury operations in forward Swiss francs in July 1961 was the prospect of an early repayment to the Swiss National Bank of the \$200 million loan that it had extended to the Bank of England at the time of the sterling crisis in March 1961, and the consequent likelihood that the great bulk of those dollars would, in keeping with the traditional policy of the Swiss authorities, be converted into gold. It seemed desirable, therefore, to encourage outflows of funds by Swiss banks and other parties into short-term dollar assets so as to mop up the excess dollars that the Swiss National Bank would be getting. But since early in 1961 the premium on the forward Swiss franc in relation to the dollar had somewhat more than offset the higher

(6) See EINZIG, *Economic Journal*, June 1963, pp. 247-49. A detailed survey of the pros and cons of unlimited support to the forward market in case of speculative attack, with detailed references to the literature, is to be found in EINZIG, *A Dynamic Theory*, Chapters 44-45.

(7) Full details are given in the articles by Coombs and in the annual reports and weekly statements of the Swiss National Bank.

yields on short-term dollar assets than on comparable interest rates in the Swiss market — in part because of anticipations of a revaluation of the franc — with the result that covered arbitrage movements into dollars were unprofitable.

Beginning in July, therefore, the U.S. Treasury, acting through the Swiss National Bank, began to sell Swiss francs forward in order to make the forward dollar rate sufficiently attractive to induce outflows of covered interest arbitrage. These operations were stepped up after the Berlin crisis when a new wave of foreign funds entered Switzerland. Under the pressure of the forward sales, the premium on the forward franc declined from almost 2 per cent per annum in July 1961 to about $\frac{1}{2}$ per cent in November 1961, when the Treasury's forward sale commitments reached a peak of the equivalent of \$152.5 million.

From February through May 1962 the Swiss balance of payments weakened under the impact of its commercial deficit and the Treasury was able to reduce its outstanding forward contracts to \$90 million. The renewed movement of speculative and other funds to Switzerland in mid-year made it necessary again to encourage an export of Swiss funds, and the Treasury's forward contracts rose again to \$139 million by early August. Another \$30 million of forward Swiss francs was sold in October at the time of the Cuban crisis. Thereafter the Treasury progressively liquidated its contracts, a substantial portion of which had come to be held by the Swiss Confederation as cover against its short-term dollar placements, in part by the sale to the Confederation of Swiss-franc obligations. By June 20, 1963 the Treasury's position in forward francs had been completely liquidated. In July, September, and October 1963, however, the Treasury had once again to sell Swiss francs forward in the face of renewed heavy inflows of foreign funds into Switzerland, and its outstanding forward contracts rose to \$120 million by year-end.

While the circumstances of the Treasury's forward operations in Swiss francs have differed somewhat from case to case, they have had in common the object of inducing Swiss investors to increase their short-term dollar placements or to remain invested in dollars by keeping the forward Swiss franc at an appropriate level against the dollar at the appropriate times. In this respect they appear to have been successful. These, and the other official operations referred to above, have had the effect of reducing Swiss demands on the United

States gold stock and of helping to mop up excessive bank liquidity in Switzerland during periods of sudden and sharp movements of short-term funds to that country (8).

III

The swap operations carried out by the Deutsche Bundesbank with German banks from the end of 1958 to the spring of 1963 represent a different form of official intervention. These operations involved the sale of dollars spot to the German banks for marks against the simultaneous repurchase of the dollars forward by the Bundesbank at varying premiums or discounts in relation to the going spot rate or at times at a parity with it. By fixing appropriate swap rates and other terms for its facilities at different times, the Bundesbank was enabled to some extent to exert a desired influence upon the amount of short-term balances held abroad by the banks — and at times upon other categories of short-term capital movements — in keeping with the requirements of its domestic and international monetary policy, the state of the German balance of payments, and other relevant considerations. At their peak in January 1962 these operations had resulted in outstanding forward dollar purchase commitments by the Bundesbank of somewhat over DM 4 billion (roughly \$1 billion). By May 1963 they had been completely liquidated.

The Bundesbank's swap policy had a variety of objectives, not always explicitly stated, and the focus of which varied over time. Both external and internal objectives played a part. The German authorities, faced with large and persisting payments surpluses in their private basic accounts and with heavy inflows of foreign short-term funds, were anxious to restrain their embarrassingly large reserve accumulations and to reduce or offset the excessive increases in domestic bank liquidity in large part associated with those surpluses. The swap policy appeared as one convenient method of

(8) The U.S. Treasury also sold a total of \$110.5 million of forward Dutch guilders, mostly through the Netherlands Bank acting as its agent, in January-February and July-August 1962 and in September-October 1963, with the object of making it attractive for Dutch funds to stay invested in dollars and to increase the size of those investments. For other U.S. Treasury forward operations, see below.

contributing to the achievement of these objectives by encouraging outflows and at times discouraging inflows of German bank funds. So far as their effect on domestic liquidity was concerned, official swap operations proved a useful supplement to the Bundesbank's rather rudimentary open-market operations and its other tools of credit control. In 1962, when the balance of payments was no longer in surplus, the authorities became increasingly concerned about the tendency of the banks to use their balances abroad as their first means of adjusting to changes in their liquidity positions at home, thereby leading to frequent outflows and inflows of bank funds that had a disturbing effect on exchange and foreign money markets. The swap policy in that year was used mainly as a means of reducing such abrupt fluctuations in the volume of bank funds abroad.

The Bundesbank's swaps with the banks were effected exclusively in dollars, the most important foreign currency in which the banks' short-term assets abroad were denominated. These dollars were held or invested in the United States and, from 1960 on, mainly in the Euro-dollar market. The banks could and did of course swap some of the dollars so acquired into other foreign currencies whenever short-term interest rates and forward rates made it advantageous for them to do so.

Since these swaps were conducted only with banks in Germany — outside the market as it were — a dual system of dollar-mark forward rates prevailed throughout the period, one representing the rate at which the Bundesbank was prepared to buy dollars forward from the banks, and the other, or open-market rate, representing the rate at which all other forward transactions in dollars could be effected. For most of the period, with the exception of several months in 1959, in early 1960, and the period after November 1962, the rates quoted by the Bundesbank were more favorable to the banks than the open-market rate.

Dollars were sold to the banks under official swap arrangements only on the understanding that the dollars so acquired would be held abroad in the form of deposits or money-market investments. The only exception to this rule was from August 24 to November 11, 1960, when the banks were permitted to use the dollars for financing the import and merchanting trade transactions of German residents.

Another feature of the swap policy which added to its flexibility was the change from time to time in the length of the period

for which the Bundesbank would conclude swap deals with the banks. These periods ranged from between one to three months, on the one hand, and between two weeks to six months, on the other. On certain occasions the Bundesbank was prepared to conclude swaps only for a period of exactly one month. Beginning in March 1962 it began simultaneously to quote two minimum-maximum periods for which it would enter into swaps — between one to two months and between two to six months — with the swap rate for the longer period being invariably more favorable to the banks. On a few occasions the Bundesbank may have even refused to operate on the basis of quoted rates. In the last few months of 1962, for example, it refused to conclude any forward deals maturing in December of that year so as to prevent the banks from temporarily placing abroad, on the relatively favorable terms that it was then offering, money that they would want to have available at home in that month for window-dressing purposes.

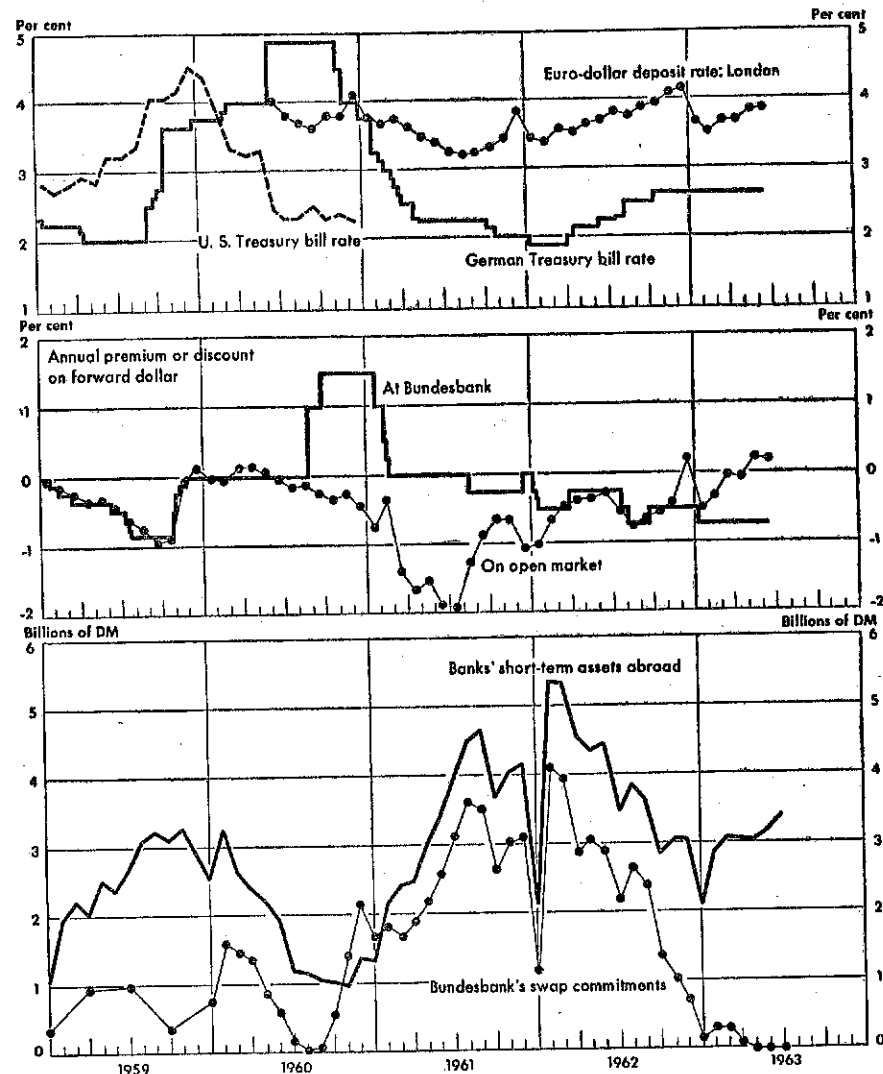
Some key statistics relating to the Bundesbank's swap policy and operations in 1959-63 are shown in Chart 1. The upper panel plots three series: the yield on 3-months' German Treasury bills (9); the monthly averages of daily yields on 3-months' U.S. Treasury bills in 1959-60; and monthly averages of weekly quotations of interest rates offered for 3-months' Euro-dollar deposits in London from June 1960 on. During 1959 and early 1960 short-term interest rates in New York appear to have been the more relevant ones for purposes of covered interest arbitrage in dollar assets by German banks, but from mid-1960 the Euro-dollar rate dominated (10). The rate for 3-months' interbank loans in Frankfurt could also have been plotted, for it was often the key rate in international comparisons by German banks. References to that rate will occasionally be made in the discussion that follows. It was invariably higher than, but usually moved closely with, the German Treasury bill rate, but, in 1961-63, it was almost always somewhat lower than the Euro-dollar rate. In any case, a comparison of the U.S. Treasury bill rate and the Euro-dollar rate, on the one hand, and the Germany Treasury

(9) Actually this is the discount quoted by the Bundesbank on its sales of 60 to 90 day Treasury bills in the open market.

(10) This is suggested by the statistics for selected dates in 1959-63 of the German banks' short-term dollar assets in the United States and the Euro-dollar market, respectively. See "The External Position of the Banks", *Monthly Report of the Deutsche Bundesbank*, August 1963, especially pp. 14-24.

bill rate (or the interbank loan rate in Frankfurt), on the other, can at best give only an imperfect picture of the short-term interest-rate

CHART I: GERMANY



differentials which the German banks took into account at different times in their decisions as to the profitability of covered arbitrage in short-term dollar assets.

The middle panel of the chart plots, on the same scale as that for short-term interest rates, monthly averages of the daily quotations of the forward dollar against marks on the open market and the rate for the forward dollar quoted by the Bundesbank for swap operations. Both are expressed in terms of annual percentage premiums or discounts on the ruling spot rates so as to make them directly comparable to the interest-rate differentials derivable from the upper panel. From March 1962 on, when the Bundesbank was simultaneously quoting two different swap rates, the chart shows only the rate for contracts running from two to six months.

Two series are also plotted in the lower panel of the chart. One shows the outstanding amounts of the Bundesbank's swap commitments — its commitments to repurchase dollars forward from the banks — for quarterly dates in 1959 and on a monthly basis thereafter. The other series gives monthly figures of the total deposits and short-term investments abroad of the banks, excluding the banks' short-term credits to foreigners which were overwhelmingly denominated in marks (11). Included here is a relatively small amount of deposits and other money-market assets abroad denominated in marks that could not be separated out from the series on a monthly basis. Broadly speaking, this series represents those short-term foreign assets of the German banks which would tend to be kept covered against the exchange risk, and the fluctuations which would be influenced, among other factors, by prevailing relations between forward exchange margins and short-term interest rates in Germany and abroad.

It is evident from the lower panel of Chart 1 that throughout most of the period 1960-62 a high proportion of the short-term assets of the German banks held abroad was covered through forward sales of dollars to the Bundesbank, and that the Bundesbank's outstanding swap commitments tended in general to move closely with changes in the volume of those assets. During these three years, as is also evident from the chart, the official swap rate was almost consistently more favorable to the banks than the open-market forward rate. Consequently it was to their advantage for most of the time to use the official swap facilities, to the extent that forward

(11) Excluded also in the relatively small amount of special holdings of U.S. Treasury bills during 1961-63 by the German Reconstruction Loan Corporation.

cover was needed (12), in preference to covering foreign assets through the open market. When covered interest arbitrage was profitable and the state of their liquidity permitted, the banks tended to build up their assets abroad by undertaking swap operations with the Bundesbank. When the holding of covered funds abroad was not profitable, or the need for liquidity at home was strong, the banks tended to let their swaps run off, thereby reducing the size of these assets and also the Bundesbank's swap commitments. The parallelism of movement between the two series in these three years was noticeably broken only between August and November 1960, when the Bundesbank's swap commitments rose sharply and even for a while exceeded the banks' foreign short-term assets, at a time when the latter were falling or rising only modestly. During these months, as noted earlier, the banks were allowed to use dollars acquired under official swap facilities to finance the foreign-currency needs of German importers, and they apparently did so on a substantial scale. Thus the Bundesbank's swap commitments could rise sharply without any noticeable effect upon the bank's holdings of short-term claims on foreigners.

During 1959, on the other hand, the Bundesbank's swap commitments constituted only a relatively small fraction of the banks' foreign assets, although only quarterly data for the former are available to substantiate this. Moreover, during the two middle quarters of that year these commitments declined markedly, whereas the banks' foreign assets rose sharply. These developments undoubtedly reflected in large part the fact that during these months the Bundesbank's swap rates were generally less favorable to the banks than forward dollar rates in the open market. Similarly, after September 1962 the ratio of the Bundesbank's swap commitments to the banks' foreign assets declined precipitously and by May 1963 those commitments had been completely liquidated, even though in 1963 the banks' foreign assets began to rise again. These developments were related to the fact that after October 1962 the rate in the open market was consistently more favorable to the banks than the rate offered by the Bundesbank.

(12) To some degree the banks' foreign-currency assets were covered by corresponding foreign-currency liabilities. As already noted, moreover, a relatively small part of the banks' foreign assets included in the series was denominated in marks.

We may now examine briefly, against the broad background of trends in the German balance of payments, the extent to which changes in the short-term foreign assets of the banks were influenced by the Bundesbank's swap and other policies.

Early in 1959 the banks' assets abroad rose sharply under the stimulus of the cost-free forward cover being offered by the Bundesbank under its newly-initiated swap policy (13), at a time when money-market rates in Frankfurt, including the interbank loan rate, were well below those prevailing in New York. As the differential widened, the Bundesbank began to charge a small discount on its swap operations. With the continued rapid expansion in the banks' assets abroad, the discount was gradually increased in relation to the open-market rate so as to direct the banks by degrees back into the market, the more so since bank liquidity had become subject to some strain from domestic influences. Indeed, from May to October the Bundesbank appears to have withdrawn from the market completely, and outstanding swaps were run off. The banks' foreign assets, however, continued to rise sharply, since covered arbitrage was still profitable on the basis of the open-market forward rate.

Beginning in September 1959 the Bundesbank, despite the large and persisting balance-of-payments surplus, shifted abruptly to a policy of credit restraint in view of the rapid business upswing and growing inflationary threat. In successive steps it raised its discount rate and selling rates for open-market paper, increased the banks' reserve requirements, and took other credit-tightening measures. As the excess of short-term interest rates in New York over Frankfurt rapidly narrowed, the Bundesbank quickly brought its swap rate back to parity with the going spot rate by mid-November in order to encourage the banks to continue building up their assets abroad and to discourage the repatriation of any such balances for which swaps with the Bundesbank were still outstanding. In the last few months of the year and in January 1960 the Bundesbank's swap commitments rose sharply, although during these months the banks' foreign assets did not, on balance, increase.

(13) The policy was actually initiated in October 1958. Although full convertibility of the mark was formally adopted only at the end of 1958, for some years the banks had already had complete freedom to hold all forms of short-term foreign assets. But they apparently needed initially some official prodding or stimulus to begin to build up their holdings of deposits and money-market investments abroad.

After January 1960 the banks' foreign assets were drawn down sharply and their swaps with the Bundesbank were gradually run off and almost completely liquidated by July of that year. The repatriation of these balances was due predominantly to the banks' increased liquidity needs at home. Early in 1960 short-term interest rates in Frankfurt had risen above the yields on short-term dollar assets, and in March, April, and May the forward dollar had gone to a small premium as foreigners moved increasing amounts of covered interest arbitrage funds to Germany. But the Bundesbank continued to keep its swap rate at par, until late in August 1960, presumably because even the offer of a substantial swap premium, in excess of interest-rate differentials, would hardly have discouraged the banks from running off their swaps in view of the pressure on their liquidity positions at home. In any case the Bundesbank was less concerned about the repatriation of German bank funds, which was an almost inevitable result of its domestic monetary policy and which involved a "using up" of bank liquidity cushions, than with the inflow of foreign funds, which was adding to liquidity and threatening to counteract the tight money policy.

By early June 1960, when the excess of German money-market rates over the Euro-dollar rate widened sharply, the forward dollar on the open market, instead of moving to a larger premium as might have been anticipated, had actually moved to a discount, which increased thereafter. This development mainly reflected growing expectations of an upward revaluation of the mark. To some degree it may have also been the result of a series of measures announced by the Bundesbank in June which had the effect of making covered interest arbitrage into Germany (and other inflows of foreign short-term funds) more difficult or somewhat less attractive (14).

On August 24, 1960 the Bundesbank went a step further by announcing that in its swap dealings with the banks it would re-

(14) These measures included prohibition of interest payments on non-residents' sight deposits at German banks and on time deposits when the original term had expired, and in effect a prohibition on the sale to non-residents of German money-market paper, and of securities under repurchase agreements. In addition, the foreign-currency deposits of non-residents in German banks, previously subject to minimum reserve requirements only to the extent that they exceeded the banks' short-term assets abroad, were now made subject in full to such requirements. Finally, the liabilities which the banks assumed as a result of guaranteeing their customers' borrowings abroad were likewise made subject to reserve requirements.

purchase dollars forward at a premium of 1 per cent per annum. This move could hardly have been designed to encourage the banks to rebuild their short-term assets abroad or to discourage further repatriations. The underlying purpose was different. This was evident from the simultaneous announcement that any dollars purchased under the swap arrangements could be used by the banks to finance German import and transit trade. It was hoped that, given the swap premium, the banks would be enabled to grant their customers foreign-currency loans on more attractive terms and thus discourage German importers from borrowing abroad on the same scale as before. In this respect the Bundesbank, aided by its increase in the swap premium to 1.5 per cent in late September, had some substantial measure of success, as is indicated by the sharp increase in its forward commitments at a time when the banks' short-term assets abroad continued to decline.

Despite the Bundesbank's efforts, foreign funds continued to pour in, in part through increased purchases by foreigners of German securities and through loopholes not covered by the June regulations. A huge inflow of funds also occurred through the operation of leads and lags as anticipations of a revaluation of the mark gathered force. Rising foreign capital imports, plus an increased payments surplus generally, largely offset the efforts of the German authorities to make their tight money policy effective.

In November 1960, therefore, the Bundesbank decided to abandon its restrictive credit policy, despite the continued overheating of the domestic economy, in an effort to reduce the attraction of the German market for foreign funds. Short-term interest rates were brought down sharply in a series of steps and, beginning early in 1961, the minimum reserve requirements of the banks were successively lowered. When the German Treasury bill rate and inter-bank loan rate fell below the Euro-dollar rate early in the year, the Bundesbank quickly reduced its swap rate to a par with the going spot rate, since on interest-rate grounds a swap premium was no longer needed to induce the banks to build up their short-term assets abroad through swaps with the Bundesbank (15). By keeping the swap rate at par, however, the Bundesbank stimulated the build-up, for on the open market the forward dollar was at such a discount

(15) After November 11, 1960 the Bundesbank's swap operations were again limited to sales of dollars for short-term investment abroad.

as to more than offset the excess of the Euro-dollar rate over short-term interest rates in Germany. The banks, aided by the Bundesbank's swap policy and their greatly improved liquidity position, increased their short-term assets abroad strikingly in the first eight months of 1961, and the Bundesbank's swap commitments rose correspondingly. These outflows were further stimulated by a ruling in May 1961 whereby the banks, in calculating the amount of their foreign liabilities to be subject to reserve requirements, were allowed to deduct the amount of their short-term foreign assets.

Meantime, in the open market, the discount on the forward dollar widened precipitously in March 1961 under the impact of the revaluation of the mark and expectations of further upward adjustments. It was at this point, as was discussed in some detail earlier, that the U.S. Treasury began its forward market operations in support of the dollar (16). It is interesting to observe that, in the months that followed, the outflow of German bank funds made possible by the Bundesbank's swap policy helped to offset in part the continuing inflow of foreign funds.

With the Berlin crisis in August 1961, the Bundesbank moved its swap rate to a small discount. This step, coupled with some strain on bank liquidity at home and a narrowing of the excess of the Euro-dollar rate over Frankfurt rates, may have contributed to the sharp decline in the banks' foreign assets that took place in September. Under the impact of year-end window-dressing and liquidity needs, a much more drastic decline occurred in December which the Bundesbank tried to stem in part by bringing its swap rate back to par. This was followed by an even greater build-up of these assets in January 1962, and the Bundesbank again moved its swap rate to a discount. During these months the Bundesbank's swap commitments moved closely with changes in the banks' assets abroad.

After the peak reached in January 1962, the trend of these assets was unmistakably downward during the balance of the year. On the basis of strict covered interest arbitrage calculations, however, an outflow of German bank funds should have occurred until mid-year; and after June an outflow of funds was still favored on the basis of the German bill rate, but an inflow on the basis of the

(16) While no official confirmation has been forthcoming, it is possible that some of the outright sales of forward marks in the open market by the U.S. Treasury may have been effected by the Bundesbank acting as agent for it.

interbank loan rate. In any case, the decisive factor inducing repatriations of German bank funds was the strain on bank liquidity under the influence of the great change that had occurred in the German balance of payments and the "neutral" monetary policy pursued by the Bundesbank. In view of the change in the balance of payments, moreover, it was no longer necessary to encourage outflows of German bank funds, and the Bundesbank's swap rate tended to be tightened during the course of the year. On the open market, however, the discount on the forward dollar tended to narrow. By November 1962, when the Bundesbank's swap commitments had been largely closed out, the open-market rate had actually become more favorable to the banks than the Bundesbank's swap rate. By May 1963 those commitments had been completely liquidated, although by that time the banks' foreign assets had begun to rise again. During 1963 the banks found it more advantageous to cover in the market than through the Bundesbank. In March 1964, however, the swap policy was reactivated (see Addendum).

While the Bundesbank did not attempt to resist the downward trend in the foreign assets of the banks during 1962, it did try to moderate abrupt fluctuations around that trend. Its swap policy in that year was primarily designed to discourage the banks from putting abroad for short periods funds that they would soon have to bring home, i.e., from building up and drawing down their foreign assets as the major means of adjusting to short-term changes in their domestic liquidity positions. Such to-and-fro movements of funds were disturbing to foreign money markets and to the exchange market, and the Bundesbank through its swap and other policies tried to induce the banks to make any needed short-term liquidity adjustments through variations in their holdings of domestic money-market assets.

Over the period 1959-63 as a whole, the Bundesbank's forward exchange operations were directly aimed at influencing only that component of the aggregate flow of short-term capital that was associated with changes in the short-term (foreign-currency) assets abroad of the German banks (17). They were predominantly con-

(17) The only exception was in August-November 1960 when the swap policy was mainly designed to restrain inflows of foreign funds associated with short-term borrowings abroad by German firms.

Indirectly, however, the Bundesbank's forward operations might have had some relatively minor effect on other categories of short-term capital movements. For, to the extent

cerned with stimulating outflows of German bank funds, notably in 1961 and early 1959, and only to a much lesser degree with discouraging their inflow. Indeed, at times of squeezes on bank liquidity at home, notably in 1960 and 1962, the Bundesbank made little or no effort to counteract the effect of such squeezes upon the repatriation of German bank funds. At such times, in fact, attractive swap rates would doubtless have proved of little avail. On the other hand, when the banks' liquidity position was easy, the Bundesbank's swap policy undeniably played a key role in assisting the banks to place part of their excess liquidity abroad, to that extent contributing to domestic monetary-policy objectives. For even if forward margins on the open market were on those occasions such as to encourage unassisted outward arbitrage by the banks, the resulting adjustment of those margins might have brought the movement to an abrupt end.

German swap policy — its other objectives apart — was a significant component in a broader program of action to restrain excessive official reserve accumulations under the impact of huge balance-of-payments surpluses. But its relative importance in this respect might be exaggerated. The net outflows of funds attributable to this policy in the three years ending January 1962 were considerably exceeded in size by German Government debt prepayments and other official transactions. And whether or not a more aggressive forward exchange policy, involving not merely swaps with the banks but outright forward operations and swaps in the open market, would have been advisable or have proved more effective than the narrower policy actually followed is a question the many ramifications of which cannot be explored here.

IV

The forward exchange operations of the Italian Exchange Office from late in 1959 to late in 1962 (18) had some broad similarities

that swap operations with the Bundesbank diverted potential sales of forward dollars by the banks from the open market, the forward dollar on the open market was kept at a smaller discount than would otherwise have been the case. This in turn might have made possible some covered outward arbitrage, that would not otherwise have been profitable, by parties other than the German banks.

(18) Since November 1962 these operations have apparently been in the process of being gradually closed out. The last published figures at my disposal are in any case for March 31, 1963.

to those undertaken by the Bundesbank in 1959-63, but also some marked differences. These operations consisted of sales of dollars spot to the Italian banks against their simultaneous repurchase forward. But the dollars were always repurchased forward at the same rate as which they had been sold spot, and never at a premium or discount; the dollars could be used, not only to build up short-term assets abroad, but also to make foreign-currency loans to Italian residents and to liquidate foreign-currency liabilities to non-residents; and these operations were carried out within a framework of exchange regulations and of instructions to the banks — that did not exist in the German case — as to the relation they could or should maintain between their foreign-currency assets and liabilities vis-a-vis non-residents. After July 1961 the Italian authorities supplemented their operations by the outright deposit of dollars in the banks by the Italian Exchange Office, in part to replace dollars under swaps that were being closed out.

Both the Italian and German swap schemes of 1959-62 were carried out against a background of heavy balance-of-payments surpluses (19); and a major objective in each case was to restrain official reserve accumulations by inducing the banks to export short-term funds. But in providing foreign exchange under swaps the Italian authorities also hoped to discourage the banks from short-term borrowings abroad and to increase the latter's role in foreign-trade financing and international banking operations generally. A desire to mop up or restrain excessive domestic liquidity was never a significant aim of Italian forward operations, as it was in the German case. Indeed, the Italian authorities were more concerned throughout the period with avoiding undue strains on domestic bank liquidity.

From 1957 onwards, the Italian banks had borrowed heavily in the Euro-dollar market, in large part to make foreign-currency loans to Italian importers at rates of interest below the cost of acceptance financing or direct loans in New York or loans in lire at home. The banks were anxious to attract new business and were under

(19) Except for a brief flurry in December 1961, however, the lira was never subject to speculative anticipations of an upward revaluation. It might also be noted that the local-currency claims and liabilities of the Italian banks vis-a-vis foreigners, as compared with foreign-currency claims and liabilities, were relatively much smaller than in the case of the German banks. In late 1962 and in 1963 the Italian payments balance went into deficit.

growing pressure from Italian firms to provide foreign-trade financing at rates more comparable to those prevailing in the Euro-dollar market. By the end of October 1959 the banks' foreign-currency liabilities to non-residents had risen to \$791 million and their net debit position in foreign currencies to non-residents, after allowance for the smaller increase in their foreign-currency assets abroad, had increased to \$345 million (20). The net inflow of funds associated with this growing net debit position had come at a time when, persisting surpluses in Italy's basic balance of payments were causing embarrassingly large increases in official reserves. Short-term borrowing from abroad was also contributing to the sharply improved liquidity position of the banks after mid-1957; indeed, with the slowing up of economic activity in Italy in 1958-59, the banks were hard put to employ their resources remuneratively at home.

It was considerations such as these that prompted the Italian authorities in November 1959 to announce that they were prepared to sell dollars to the banks spot under arrangements to repurchase them forward at the same rate. It was stated that the dollars could be used by the banks to build up balances abroad for their own account, to make foreign-currency loans to residents, or to repay short-term foreign liabilities. In this way it was hoped to reduce the banks' unnecessarily large net debit position in foreign currencies with non-residents by stimulating a net outflow of short-term funds; to reduce official reserves or to restrain their further increase; and to assist the banks in placing their excess liquidity more remuneratively abroad than at home (not to mop it up on anti-inflationary grounds). The provision of official forward cover was a necessary part of the scheme, for had the banks been left to cover their dollar acquisitions in the market (21), the forward margin might have moved to a level where further purchases of dollars would have been rendered unprofitable.

(20) All statistics in this section relating to the foreign position of the Italian banks include that of the Bank of Italy. In its foreign exchange transactions the Bank of Italy is treated, from the viewpoint of the exchange regulations, in the same way as other Italian banks. It is the Italian Exchange Office that carries out all official operations in foreign exchange. The statistics also refer to *convertible* foreign-currency assets and liabilities. Assets and liabilities in non-convertible foreign currencies are negligible.

(21) There is no active forward market for dollars in Italy and no regular quotations are published. When dollars are involved in the Italian banks' operations, any necessary cover — other than what is provided through swap operations with the Italian Exchange Office — is usually obtained indirectly through London or Zurich.

The banks were quick to avail themselves of the swap facilities offered. Their net foreign position in foreign currencies improved markedly as they increased their assets abroad, mainly in the Euro-dollar market, and reduced outstanding foreign indebtedness. To give the process an added push, the authorities in August 1960 required the individual banks to eliminate any remaining debit positions in foreign currencies with non-residents (22) by the end of that year (23), and to avoid any such positions in the future. By the end of January 1961, when the net foreign position in foreign currencies of the Italian banks as a group began to level off, they had actually achieved a net credit position of \$194 million, involving a total change-over of \$539 million since the end of October 1959. During the same period the amount of dollars obtained from the Italian Exchange Office under swaps totaled \$491 million.

The substantial amounts of dollars so purchased by the banks had the effect, along with a variety of other factors, of gradually eroding the banks' liquidity position. From June 1959 to June 1961 the ratio of the banks' excess liquidity to their deposits declined drastically from 14.3 per cent to 5.7 per cent. Whereas swaps had previously been renewed when they fell due — indeed, the outstanding total continued to rise through August 1961 — by mid-1961 there was a growing tendency for many of the banks to allow their swaps to run off as a means of getting needed lire. The Italian authorities were anxious to prevent a decline in the banks' foreign-currency assets, with a corresponding addition to official reserves.

In July 1961, therefore, the Italian Exchange Office began, as swaps ran off, to *redeposit* the dollars with the banks, thereby enabling them to get needed lire without any net reduction in the amount of foreign exchange at their disposal (24). Indeed, between

(22) At first the order specified that the banks had to eliminate their net debit positions in foreign currencies with non-residents both spot and forward combined, but in February 1961 they were allowed to deduct forward commitments in the computation of the net debit balances to be liquidated. That is, from then on the banks were obliged to avoid having spot liabilities in foreign currencies to non-residents in excess of their corresponding spot assets.

(23) In September 1960 the banks were also authorized to finance trade in foreign currencies between non-residents.

(24) Had the Italian Exchange Office not deposited dollars in place of maturing swaps, an incidental by-product might have been that the foreign-currency assets of certain individual banks with non-residents might have fallen below their corresponding liabilities, in violation of the August 1960 ruling.

July and the end of December 1961 the amount of dollars so deposited (\$302 million) exceeded the reduction in the volume of outstanding swaps (\$123 million). This indicates that the system of dollar deposits was used as a means, not only of enabling the banks to get lire without a loss of dollars, but also of adding to the banks' dollars without a loss of lire (as would have been involved under the swap arrangements). The dollars so deposited bore interest at 3.5 per cent per annum and were subject to recall on demand by the Italian Exchange Office.

Despite the new system, there was only a temporary improvement in the banks' liquidity position. In January 1962 the banks' compulsory reserve requirements were lowered — the first change since their imposition in 1947 — in an effort to improve the liquidity of the banking system at a whole and not, as in the case of the dollar deposit system, solely for the benefit of those banks most actively engaged in foreign exchange operations. At the same time the Italian Exchange Office recalled a substantial amount of its dollar deposits, which the banks with part of their increased liquidity repurchased with lire under the swap arrangements. Thereafter, outstanding swaps rose sharply to a peak of almost \$800 million at the end of September 1962, while dollar deposits remained relatively stable.

In January 1962, when outstanding swaps were in the neighborhood of \$500 million, the U.S. Treasury took over from the Italian Exchange Office a substantial but undisclosed amount of the latter's contracts to buy dollars forward from the banks. By relieving it to that degree of the exchange risk involved in these contracts, this action encouraged it to continue and expand its swap operations. From the United States point of view, this in turn had the desirable effect of helping to restrain the dollar accumulations of the Italian authorities and thus the amount of gold that they might want to take from the U.S. Treasury. During 1962 and early 1963 the share of the outstanding forward contracts held by the U.S. Treasury varied considerably (25), but by undisclosed amounts.

During the latter part of 1962 bank liquidity was again under growing strain, despite official measures to relieve it, in view of the

(25) Late in 1963 and early in 1964, when the Italian balance of payments had already drastically changed, the U.S. Treasury and the Federal Reserve bought a combined total of \$167 million of lire from the Bank of Italy to help support the lira. The Federal Reserve sold its lira purchases forward to the U.S. Treasury.

strong demands for bank credit. By that time, moreover, official Italian monetary reserves had ceased to rise. The decision was made, therefore, in October 1962 to permit the banks once again to run net debit positions if need be in foreign currencies with non-residents, thereby adding to their overall liquidity. A net inflow of short-term funds through the re-emergence of net debit positions would no longer be added to a surplus in Italy's basic international accounts; and the need to restrain official reserve accumulations and "to restore international liquidity to the rest of the world" was no longer necessary. Besides, the extensive reorganization of the Italian money market late in 1962 had provided the authorities with more diversified instruments to control domestic bank liquidity and, by adding to the flexibility of interest rates on the Italian market, promised to impose automatic limitations to excessive short-term borrowing abroad by the Italian banks.

Under the impact of the new ruling, which in effect restored the pre-August 1960 situation, the banks greatly increased their foreign-currency liabilities to non-residents by almost \$500 million in the last two months of 1962. By the end of November 1962 the banks as a group had completely eliminated their net credit position in foreign currencies with foreigners, and thereafter a large and growing net debit position developed, predominantly because of increased borrowing in the Euro-dollar market. In the last two months of 1962, as might be expected, the swap commitments of the Italian Exchange Office declined sharply as swaps were run off. Although those commitments leveled off in the first quarter of 1963, it may be presumed that since that time they, as well as outstanding dollar deposits placed with the banks by the Italian Exchange Office, have undergone further declines.

The evolution of official Italian forward exchange operations from the end of 1959 through March 1963 is shown graphically in Chart 2. The upper panel plots the banks' convertible foreign-currency assets and liabilities vis-a-vis non-residents; the banks' foreign-currency loans to Italian residents; and the outstanding amounts of dollars sold by the Italian Exchange Office to the banks under swap arrangements (26) and deposited with them by it. In

(26) Through November 1960 the figures for the Exchange Office's swaps of dollars with the banks contain very small amounts of dollars sold to the banks for their own account without forward cover. These amounts could not be separated out from the total.

the lower panel are shown the net foreign-currency position of the banks with non-residents (the difference between their foreign-currency assets and liabilities vis-a-vis non-residents, as shown in the upper panel), and the combined total of the Italian Exchange Office's swaps and deposits of dollars (27). Broadly speaking, the sum of the banks' foreign-currency claims on non-residents and residents tend to be equal at any time to the sum of the banks' foreign-currency liabilities to non-residents and the Italian Exchange Office's swaps and dollar deposits with the banks (28).

The lower panel of Chart 2 indicates the striking change that occurred in the net foreign position of the banks following the initiation of official swap operations. Observe also that between November 1959 and January 1961, when the banks' net credit position began to level off, the improvement in the banks' net foreign position moved closely with, and by roughly the same amount as, the dollars made available under swaps. The upper panel indicates that during that period the improvement in the banks' foreign position was due much more to an increase in their foreign-currency claims on non-residents than to a decrease in their corresponding liabilities, and that their foreign-currency loans to Italian residents rose only moderately. Thus in these months the dollars provided by the Italian Exchange Office under swaps went mainly to swell the banks' foreign-currency assets abroad.

From the end of January 1961 through March 1962 the banks' net foreign position in foreign currencies remained relatively stable, with foreign-currency claims and liabilities vis-a-vis non-residents each rising by about the same amount. During this period the dollars provided by the Italian Exchange Office under swaps and deposits, amounting on balance to \$292 million, in effect went primarily to increase the banks' foreign-currency loans to domestic residents, which rose by \$353 million. In short, the dollars so

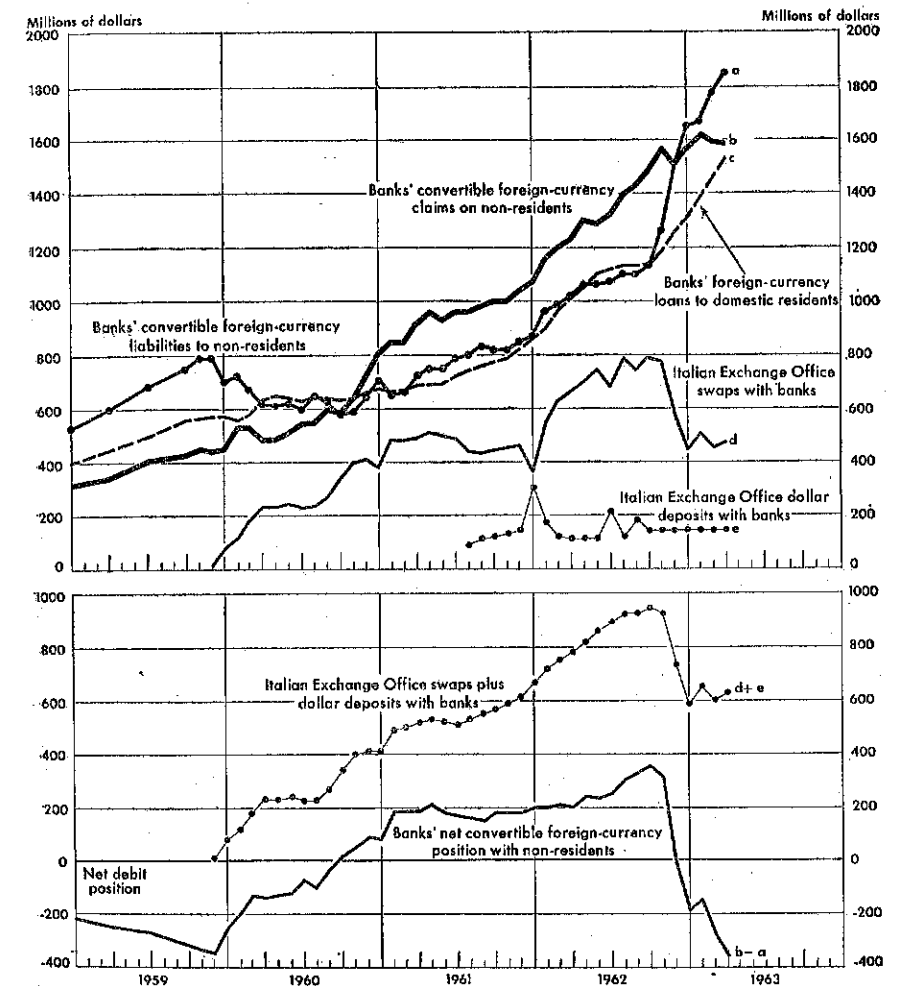
(27) After November 1960 this total somewhat exceeds the sum of its two components because we have included the small amount of dollars sold to the banks for their own account without forward cover.

The statistics underlying this chart are drawn from the quarterly publication, *Movimento Valutario* (Istituto Nazionale per il Commercio Estero) and from the *Annual Report* of the Bank of Italy, 1960-62.

(28) For complete equality to be achieved between the two totals, account would also have to be taken of the foreign-currency deposits in the banks of domestic residents, the banks' swaps of lire into foreign currencies on the open market, and other items. But these tended to be offsetting.

provided did not involve a net export of short-term funds by the banks. Rather they helped to satisfy the increased needs of residents for foreign-currency loans that, in the absence of these dollars and

CHART 2: ITALY



the August 1960 ruling, would surely have involved a net inflow of short-term funds from abroad.

Following a modest improvement in their net foreign position in April through September 1962, the banks rapidly moved into a

net debit position in view of their heavy borrowings abroad following the lifting of the August 1960 ruling in October 1962. From the end of September through March 1963 the net inflow of short-term funds through the banks, amounting to \$712 million, in effect went to expand foreign-currency loans to residents (by \$396 million) and to reduce outstanding swap commitments of the Italian Exchange Office (by \$301 million).

The upper panel of Chart 2 indicates an inverse relationship between the changes in the swaps and dollar deposits of the Italian Exchange Office in December 1961 and in January-February and June-September 1962. The reason for this seems to be as follows. When the banks, pressed for liquidity, on balance let swaps run off, the Italian Exchange Office replaced the dollars so ceded to it with dollar deposits. When, on the other hand, the banks' liquidity position eased, the Italian Exchange Office recalled some of its dollar deposits and encouraged the banks to repurchase the dollars with lire under swap arrangements.

V

For many years the National Bank of Belgium has been selling forward exchange to the Belgian Treasury in order to provide the latter with cover against foreign-currency payments falling due in the near future. The volume of the Bank's over-all forward commitments has been regularly published on its balance sheet. It was not until August 1962, however, that the Bank's forward operations began to assume the character of official intervention in a more significant sense of the term (29). In that month the Bank began to engage in swap transactions with the Belgian banks designed to encourage covered inward arbitrage on their part. These operations must be sketched against the background of the special fiscal problems of the Belgian Government.

Throughout the postwar period the Belgian Government has been faced with continuing budget deficits which have had to be

(29) It has been stated that in the autumn of 1957 the National Bank had induced a German banking group to buy DM 200 million of Belgian Treasury bills by providing it with forward cover on terms which made the deal profitable. See A. E. JASAY, "Forward Exchange: The Case for Intervention", *Lloyds Bank Review*, October 1958, p. 42. But this is an error, for the transaction was denominated in marks, not in Belgian francs.

financed in part by borrowing in terms of foreign currencies because of the limitations of the domestic capital market and the ceiling of BFr. 10 billion placed upon the amount of borrowing that the Treasury can have outstanding at the National Bank at any time. The Treasury's foreign-currency borrowings have been used to obtain needed francs from the National Bank and have not, at least in more recent years, been motivated by balance-of-payments considerations as such.

During 1960 and the first half of 1961, in large part as a result of the Congo crisis, the Treasury's foreign-currency debt approximately doubled. The increase took the form almost entirely of sales of short-term certificates, most frequently at three or six months. During 1960 most of these certificates were sold directly abroad. But in the first half of 1961 they were taken up by the Belgian banks, which financed their purchase by short-term borrowing abroad, mainly in the various Euro-currency markets, and to a lesser degree with foreign-currency deposits placed with the banks by Belgian residents. The Government sold the foreign currencies it borrowed to the National Bank and simultaneously covered its exchange risk by repurchasing them forward, at the same rate at which they had been sold spot. The Bank in turn held the foreign exchange until the maturity of the forward contracts, although it would swap some of these holdings into other foreign currencies when it was profitable to do so.

In May 1961, when its short-term foreign-currency debt had reached a peak of BFr. 31.6 billion, the Treasury announced its intention to reduce the size of that debt. To that end it placed several longer-term issues in Holland, Germany, and the United States in the last half of 1961 into which part of its short-term debt was in effect converted (30). As a result of these and other operations, the Treasury's short-term foreign-currency debt declined to BFr. 21.9 billion by the end of 1961 and to BFr. 12.8 billion by the end of 1962. This reduction was accompanied by a roughly proportionate decline in the banks' holdings of foreign-currency debt and, at least until the end of March 1962, by a substantial decline in the banks' foreign-currency liabilities to foreign countries.

(30) The Government's medium- and long-term foreign-currency debt rose from BFr. 18.5 billion to BFr. 25.1 billion in the last six months of 1961. It remained relatively unchanged during 1962.

As part of the process of reducing its short-term foreign-currency debt, the Treasury began in August 1962, for reasons never explicitly stated, to repay part of that debt out of the proceeds of sales to the banks of special certificates denominated in *Belgian francs*. The banks financed the purchase of these certificates by short-term borrowings from abroad, the proceeds of which were sold to the National Bank for francs. In order to be induced to take up franc certificates against foreign-currency liabilities, the banks of course had to get forward cover on terms which made such transactions worthwhile. This was provided through swap facilities offered by the National Bank, which bought the foreign currencies from the banks and simultaneously resold them for future delivery. Although no information is publicly available as to the swap rates at which these operations were effected, it is evident that the National Bank sold the exchange forward on terms which, given the yield on the certificates and the cost of short-term borrowing abroad, made covered inward arbitrage profitable to the banks. Had the National Bank not provided these facilities, the cost of covering in the open market, if not already prohibitive, might have become so if the banks had attempted to cover without the intermediation of the National Bank. Alternatively, the Treasury might have had to pay higher interest rates on these special franc certificates than it actually did.

As a result of these operations, the Treasury was able, for a while at least, to substitute short-term debt in Belgian francs for short-term debt in foreign currencies. To the extent that the short-term debt repaid had been held by the Belgian banks, the latter acquired short-term franc claims on the Treasury in place of foreign-currency claims, and the National Bank assumed forward sale commitments to the banks in place of a corresponding amount of commitments to the Government.

Although the process of reducing the Treasury's short-term foreign-currency debt came to an end in December 1962, sales of special franc certificates to the banks, financed by the latter through short-term borrowing abroad, continued during 1963, with a corresponding increase in the National Bank's forward commitments to the banks. The Treasury was now employing this device, no longer as a means of reducing its short-term foreign-currency debt, but simply as another expedient for financing its budget deficit. Beginning in 1963 the Treasury also began to resume its sales of short-term foreign-currency certificates because of the difficulties ex-

perienced, following the fiscal reform in 1962, in financing its deficit in the Belgian capital market; and part of these securities were also taken up by the banks on the basis of short-term borrowings abroad. In the spring of 1963 the Treasury also began to increase its medium-term foreign-currency debt by direct placements abroad.

Table 1 brings together some statistics outlining the evolution of the short-term foreign-currency borrowings of the Belgian Government and the banks in 1959 to 1963, along with certain related series.

TABLE I

SHORT-TERM FOREIGN-CURRENCY BORROWINGS OF THE BELGIAN
GOVERNMENT AND BANKS, AND RELATED SERIES, 1959-63
(billions of Belgian Francs)

End of	Short-Term Foreign-Cur- rency Debt of Belgian Government	Belgian Banks' Holdings of Foreign- Currency Debt of Belgian Government	Belgian Banks' Liabilities to Foreigners in Convertible Foreign Currencies	National Bank's Forward Commitments to Deliver Foreign Exchange Against Francs	Foreign- Currency Deposits of Belgian Residents in Belgian Banks
	[1]	[2]	[3]	[4]	[5]
Dec. 1958 . . .	11.7	0.5	1.8	0.1	2.6
Dec. 1959 . . .	15.2	2.9	4.8	1.2	4.3
March 1960 . . .	14.2	3.4	5.6	2.1	4.8
June 1960 . . .	17.7	4.5	6.9	3.5	5.8
Sept. 1960 . . .	19.0	7.0	9.1	5.6	8.0
Dec. 1960 . . .	25.5	6.3	9.2	11.8	7.2
March 1961 . . .	30.3	9.5	12.4	15.2	7.9
June 1961 . . .	31.3	16.8	22.4	19.0	7.9
Sept. 1961 . . .	25.3	17.6	23.0	18.7	8.4
Dec. 1961 . . .	21.9	14.7	21.3	18.4	8.0
March 1962 . . .	20.1	8.9	15.5	16.1	8.2
June 1962 . . .	15.3	9.2	16.4	13.4	7.9
Sept. 1962 . . .	13.6	8.6	17.2	13.9	8.0
Dec. 1962 . . .	12.8	6.3	20.4	12.3	7.4
March 1963 . . .	16.4	...	21.7	17.1	7.4
June 1963 . . .	17.0	9.0	28.1	20.0	8.3

Sources: *Bulletin de Statistique*; *Bulletin d'Information et de Documentation*; *Rapports de la Commission Bancaire*; and *Annual Reports of the National Bank of Belgium*.

While Column [2] in Table 1 predominantly consists of the banks' holdings of the Treasury's short-term foreign-currency debt,

it also includes a small amount of medium-term foreign-currency debt of the Treasury and other public bodies that cannot be separated out. To some extent, moreover, changes in the banks' holdings from quarter to quarter reflected transactions in outstanding short-term foreign-currency debt with non-residents as contrasted with purchases from or repayments by the Treasury.

Even after allowance for these qualifications, a comparison of the changes in Column [2] with those in Column [1] clearly suggests that in 1960, and especially in the last half of that year, the increase in the Government's short-term foreign-currency debt was primarily accounted for by direct sales abroad. In the first half of 1961, however, all of the increased debt was apparently sold to the banks which, in addition, must have repurchased some of the outstanding debt held by non-residents. During the 18 months' period ending June 30, 1961 as a whole, when the Government's short-term foreign-currency borrowing was at its peak, nearly all of the increase in the debt (BFr. 16.1 billion) found its way into the banks, whose total holdings rose by BFr. 13.9 billion. This, in turn, accounts largely for the increase during the same period in the banks' short-term liabilities to non-residents in convertible foreign currencies (Column [3]) by BFr. 17.6 billion.

Between June 1961 and December 1962, when the Treasury was sharply reducing its short-term foreign-currency debt, the banks' holdings also declined markedly, but by a smaller amount. This was accompanied, until March 30, 1962, by a corresponding decline in the banks' foreign-currency liabilities to non-residents. After that date, however, those liabilities began to increase again. Part of the increase reflected the banks' borrowings abroad to finance the purchase of the Treasury's special franc certificates under swap arrangements and, after the end of 1962, of its foreign-currency certificates.

The quarterly changes in the National Bank's forward exchange commitments (31), shown in Column [4], were usually in the same direction as those in the Government's short-term foreign-currency debt, but the absolute changes often differed significantly, especially after March 1961. This reflects the fact that at times changes in

(31) The figures in Column [4] do not include the Bank's commitments to deliver foreign exchange against other foreign currencies. These are shown separately on the Bank's balance sheet.

the National Bank's forward commitments were substantially influenced by the Treasury's covering of its *longer-term* foreign-currency debt as it closely approached maturity and, from August 1962 onwards, by the swaps which the National Bank made with the Belgian banks.

VI

In this section are brought together a few examples of recent official forward operations of a more sporadic character or regarding which available information is rather scanty.

The Swiss National Bank, in addition to the outright operations in the forward market that it has carried out on behalf of the United States authorities, has from time to time engaged in swap operations with the Swiss commercial banks on its own account, mainly in connection with their year-end window-dressing operations. With virtually no money market at home, the Swiss banks keep the bulk of their secondary reserves abroad — in recent years chiefly in the Euro-dollar market — appropriately covered against the exchange risk. At the end of each year, in order to build up their balances at the Swiss National Bank for window-dressing purposes and to meet year-end liquidity needs, they repatriate considerable amounts of short-term funds. These funds are re-exported soon after the turn of the year.

To the extent that the needed francs are not automatically provided at year-end by the maturing of outstanding forward contracts, an attempt by the banks to sell large quantities of dollars for francs in the market, while simultaneously buying dollars forward in the market for early delivery to keep their positions covered, would make the swap an expensive and perhaps difficult one, and involve sharp fluctuations in the dollar-franc spot rate. In order to assist the banks with their year-end window-dressing with a minimum of disturbance to the foreign exchange market, the Swiss National Bank for some years has arranged temporary swap deals with the banks beforehand, under which it has bought substantial amounts of dollars for francs just before the year-end and simultaneously resold the dollars for delivery early in January. The terms of these deals have never been announced. Similar swap deals were conducted by the Swiss National Bank in mid-1963 in connection

with the repatriation of bank funds to meet liquidity requirements at the end of that half-year (32).

A swap operation of a different sort was carried out by the Swiss authorities at the time of the sterling crisis in March 1961. In addition to advancing \$200 million to the Bank of England, the Swiss National Bank swapped gold against 40 million pounds sterling. The National Bank in turn swapped this sterling against francs with the Swiss banks and the Swiss Confederation at rates which made it profitable for them to move funds into short-term sterling assets with the exchange risk covered. The discount on the forward pound on the open market at that time was such as to have prohibited such outward covered arbitrage. By this operation the Swiss National Bank was enabled to mop up some of the excessive liquidity in Switzerland caused by the flight from sterling, besides providing the British authorities with needed gold. The two sets of swaps were unwound during the course of the year.

The Canadian authorities are known to have intervened in the forward exchange market in May and June 1962 during the massive run on the Canadian dollar, but the nature of their operations has never been officially disclosed. Evidence tabled in the House of Commons later in the year revealed only that the Bank of Canada, acting as agent for the Exchange Fund, entered into forward transactions, in late April, in May, and especially in June, which resulted in net outstanding forward sale commitments of 239 million U.S. dollars by June 22, 1962. It is possible that these sales of forward U.S. dollars were outright transactions designed to restrain the widening premium on the forward U.S. dollar and thus the outflow of spot funds associated with it (33), much as the U.S. Treasury had operated in forward marks in 1961. On the other hand, as some com-

(32) Since the end of 1961 the Swiss National Bank, in connection with these various swap operations, has simultaneously swapped for the same short period the dollars purchased from the banks against gold with the Bank for International Settlements in order to maintain the usual minimum gold proportion in its reserves without having to draw the gold from the U.S. Treasury. The B. I. S. in turn has at once put the dollars back into the foreign money markets from which they have temporarily been withdrawn by the Swiss banks, thereby minimizing the disturbances that would have otherwise been caused by such withdrawals. These associated swap operations were even more complicated at the end of 1962 and 1963, and involved the United States authorities as well. As noted earlier, swaps between monetary authorities are not part of the subject-matter of this paper.

(33) Although the forward U.S. dollar rose sharply to a premium of somewhat over 2 per cent per annum by late June, the simultaneous rise in the Canadian Treasury bill rate kept the forward dollar at only a moderate *intrinsic* premium during that month.

mentators have intimated (34), these sales could have represented special swap transactions, with the Bank of Canada selling U.S. dollars forward against spot purchases at rates which made the transactions profitable to those swapping the U.S. funds into Canadian dollars.

A brief entry into the forward exchange market was made by the National Bank of Denmark early in 1963. In January of that year, rumors that the krone might be devalued led to a substantial discount on the forward krone in the London market, and the National Bank began to sell sterling forward in order to bring the forward market back to normal. Since the rumors were soon recognized as unfounded, the situation came quickly under control. The Governor of the National Bank, in reporting these few details in a speech in May 1963 (35), noted that the Bank had by then for some time retired from the market.

It is no secret that the British Exchange Equalization Account in recent years has from time to time intervened in the forward market on its own account, quite apart from its earlier interventions. This was admitted in official testimony before the Radcliffe Committee, but it was evident from that testimony that the British authorities had no enthusiasm for unlimited support of forward sterling against speculative attack. No concrete information is available as to the nature or extent of official British intervention. One informed source (36) has stated that such intervention is "limited, spasmodic, and discreet", and that the Exchange Equalization Account is traditionally wary of operating too far against the market trend and would consider it dangerous to let its aims, and thus its position in the market, become known.

The Dutch authorities, apart from their sales of forward guilders in 1962-63 on behalf of the U.S. Treasury to which reference was made earlier, are not believed to have been active in the forward market in recent years (37). In April 1959, however, the Nether-

(34) See *Montreal Gazette*, October 10, 1962, p. 14; *Financial Post* (Toronto), June 9, 1962; and D. GRENIER, "Critical Year in Canadian Monetary Policy", *Investors Chronicle*, Supplement, February 15, 1963, p. xxiii.

(35) *International Financial News Survey*, June 21, 1963, p. 215.

(36) *Economist* (London), February 10, 1962, p. 541.

(37) In the third quarter of 1957, however, the Netherlands Bank had sold forward dollars and forward marks at a time of heavy pressure on the guilder induced largely by

lands Bank engaged in a forward transaction of a special kind with the Dutch commercial banks. In order to encourage the latter to take over the debt certificates still held by the World Bank as the result of a loan granted to the Dutch Government in 1947, the Netherlands Bank declared its readiness to supply the required dollars and to conclude forward exchange contracts with the participants with respect to the interest and principal to be received by them on the securities taken over so as to remove any exchange risk (38).

A final example of recent official forward exchange operations is provided by the swap transactions of the South African Reserve Bank with the commercial banks from June 1962 onwards (39). These transactions, undertaken within the framework of the South African exchange control system, consisted of sales of spot sterling to the banks for temporary investment abroad, against forward sterling repurchases by the Reserve Bank. Between mid-1961 and October 1962 the reserves of the Reserve Bank had approximately tripled and domestic bank liquidity was high. The swap operations were initiated as one of the measures taken to help counteract the effects of excessive liquidity, and to reduce official reserve accumulations, by enabling the banks to place limited amounts of covered funds, over and above their normal foreign exchange holdings, in the London market where short-term interest rates were on the average higher. By the middle of December 1962 the banks' overseas assets under these swap arrangements had risen to a peak of R 43 million, but some repatriation occurred in 1963, as money market conditions tightened, and on July 26, 1963 the outstanding total had declined to R 24 million.

expectations of a revaluation of the mark. In selling forward marks, the Netherlands Bank, according to its *Annual Report for 1957*, p. 12, was "greatly assisted by an arrangement with the Deutsche Bundesbank". EINZIG (*A Dynamic Theory*, p. 478), has interpreted this to mean that the Netherlands Bank sold forward marks with the Bundesbank's guarantee against losses in the event of a revaluation of the mark. It is my understanding, however, that the Bundesbank simply extended a mark credit line to the Netherlands Bank and that no exchange guarantee against an appreciation of the mark was involved.

(38) The securities in question amounted to about \$55 million and had a remaining life of from two to seven years. The transaction enabled the Dutch banks to convert part of their non-interest-bearing reserves, which were unlocked by a simultaneous lowering of reserve requirements, into dollar securities. See *Annual Report of the Netherlands Bank*, 1959, p. 117, and *Nederlandsche Handel-Maatschappij, Quarterly Review*, First Quarter 1959, pp. 11-12.

(39) See *Annual Economic Report of the South African Reserve Bank*, 1963, pp. 21, 31.

VII

Official forward exchange operations in the past five years have been of a diversified sort, undertaken in a variety of circumstances and for a variety of reasons. Yet parallels for many of them can be found in the past. For example, the swap operations of the Bundesbank and the Italian Exchange Office bear a similarity to those conducted by the Bank of France in 1927-28; the outright forward operations of the U.S. Treasury in marks in 1961 had their counterpart in the defensive interventions of various central banks in the thirties and of the Bank of England and the Netherlands Bank in 1957; and the swap transactions of the Belgian authorities with the purpose of encouraging covered inward arbitrage have similarities, despite differing underlying circumstances, to the *Kost-devisen* operations of the Austrian National Bank in the 'twenties.

What distinguishes recent official forward operations, rather, have been the following. First, they have been undertaken against the background, or as an integral part, of a broader strategy of international monetary cooperation for which there is no parallel in the past. Second, monetary authorities have shown a preference, with the notable exception of the United States, for swap arrangements with the commercial banks outside the market as contrasted with outright (or swap) operations in the market proper. In the past, official intervention in the forward market appears to have assumed the form of outright operations much more frequently than that of swap operations (40). Third, official forward operations in recent years have been much less inhibited than in the past by the traditional reluctance of the authorities to intervene in such operations except under more extreme conditions. Finally, many of the more recent operations have been closely related to, or assisted by, the emergence of Euro-currency markets, to the development of which they have in turn contributed (41).

Recent experience gives no unequivocal answer to the question that has been debated in the theoretical literature, though of late with diminished intensity, as to the merits of a policy of unlimited

(40) Cf. EINZIG, *A Dynamic Theory*, p. 539.

(41) This matter is touched upon in the two notable articles on Euro-currency markets by O. ALTMAN in *IMF Staff Papers*, December 1961 and March 1963.

support to forward rates at times of major and prolonged speculative pressure (42). It is seldom possible in any given case to determine unambiguously whether the cessation of a speculative attack is attributable to official forward operations as such, to the subsidence or cessation for other reasons of the causes underlying that attack, or to a combination of both. Yet United States experience with official operations in forward marks in 1961 should give some comfort to the proponents of the view that the forward rate should be supported at time of speculative pressure, even if the support given in that case was not unlimited or unduly prolonged. Nevertheless, the question is left unanswered as to what would have happened if the Berlin crisis and the turn-around in the German balance of payments had not intervened, if other action had not been taken to divert short-term funds from Germany, and if, as a result of the persistence of the speculative pressure, the United States authorities had had to give, or chosen to give, continued support on a large scale to the forward dollar.

As for the swap operations conducted with the commercial banks by the Bundesbank, the Italian Exchange Office, the National Bank of Belgium, and the South African Reserve Bank, the evidence is quite clear. Monetary authorities, by quoting appropriate swap rates, can under appropriate circumstances influence the amount of funds that domestic banks find it profitable to place and hold abroad, or to borrow abroad, on a covered basis (43). U.S. Treasury outright operations in forward Swiss francs (and guilders) similarly indicate that by nudging the forward margin to the required extent when it is out of line with interest-rate differentials the authorities can

(42) In addition to the literature of this controversy cited in EINZIG, see also the more recent articles by R. Z. ALJBER and H. GOLDSTEIN, in *Journal of Political Economy*, December 1962 and October and December 1963, and by J. L. STEIN in *Quarterly Journal of Economics*, May 1963.

(43) At various points in this paper the argument has been made that, in the absence of favorable official swap rates, covered interest arbitrage movements, if profitable at all on the basis of open-market forward rates, might soon have come to an end as the forward margins adjusted themselves to their interest parities. The speed and degree to which such adjustment would in actual practice take place would depend, among other things, on the elasticity of supply and demand for forward (and spot) exchange. Even under conditions where exchange rate parities are not in question and arbitrage funds are available freely, however, spreads between forward rates and interest-rate differentials inducing continuing covered arbitrage might persist for lengthy periods of time. For some recent discussions of these and related matters, see the papers of W. H. WHITE in *IMF Staff Papers*, November 1963, and J. H. AUTEN in *Journal of Finance*, March 1963.

induce movements of covered funds in desired directions and/or encourage holders of covered funds to stay invested (44). If forward rate policy is to be used, however, as an instrument for systematically offsetting the effect of interest-rate differentials upon open-market flows of covered interest arbitrage funds, its full potentialities — in the absence of conditions of speculative attack — might require a somewhat wider spread between the support limits for spot exchanges than now exists.

In the German and Italian cases the fact emerges rather clearly that the state of domestic bank liquidity also plays an important and at times overriding influence on covered movements of bank funds. When liquidity was ample, swap arrangements could exert their desired influence in encouraging outflows (or restraining inflows) of domestic bank funds. But when liquidity positions at home were strained, the banks tended to draw down their balances abroad no matter how profitable it might have been on the basis of official swap rates to keep them abroad or add to them. Of course, just as liquidity conditions at home exerted an influence on the flow of bank funds under the official swap arrangements, so did the reverse hold true. Indeed, one of the important objectives of the swap policy of the German and Italian authorities was to help in the control of domestic liquidity; and their swap operations, and in the Italian case the associated system of dollar deposits in the banks, were significant elements in supporting and reinforcing domestic monetary policy.

Recent official operations in the forward exchange market have been essentially experimental and exploratory in character and they are still continuing. New potentialities for forward exchange policy,

(44) The United States authorities have on at least one occasion engaged in swap operations in the market as well. In September 1963 the Federal Reserve Bank of New York, acting for U.S. Treasury account, bought Canadian dollars spot and sold them forward as part of a coordinated operation with the Bank of Canada designed to eliminate a premium on the forward Canadian dollar which, in conjunction with the existing interest-rate differential in favor of Canada, might have generated a sizable flow of covered arbitrage funds from the United States to Canada. See COOMBS, *op. cit.*, March 1964, p. 52.

It now appears that the Federal Reserve System may also be beginning to operate in the forward market for its own account instead of, as previously, only for the account of the U.S. Treasury. In October 1963 the Federal Open-Market Committee specifically authorized forward (and spot) operations in the market "for the purpose of restraining short-term outflows of funds induced by arbitrage considerations". Its earlier directive in February 1962 had, in relation to the forward market, spoken only of moderating "forward premiums and discounts judged to be disequilibrating".

not envisaged by Keynes in his path-breaking theoretical contributions in the early 'twenties, are still being discovered. Official intervention in the forward market is increasingly being accepted as an important if not integral part of a much larger arsenal of tools of foreign exchange and monetary policy generally. It is to be hoped that as time goes on more details of official forward operations and the lessons of experience with them will be released by the monetary authorities concerned. There is no reason to believe, however, that forward exchange policy will ever become more than one instrument among others, to be used when expedient, in exerting a desired influence on the flow of short-term capital movements, a substantial part of which is not in any case sensitive to changes in forward exchange rates.

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ADDENDUM

As this article goes to print, details were received regarding the reactivation by the Bundesbank of its swap policy on March 10, 1964. Under the new arrangements, however, the Bundesbank, in order to avoid feeding the Euro-dollar market, will conclude swap transactions with the German banks only if the dollars are invested in U.S. Treasury bills. The minimum investment period is three months and the maximum period six months. The periods are to coincide as far as possible with the maturities of the U.S. Treasury bills. The swap rate announced by the Bundesbank is to be at a discount in terms of the dollar of 0.5 per cent per annum, but it may of course be changed in the future as it was in the past.

This action has been taken against the background of surpluses in the German balance of payments, accentuated during the past month by heavy speculative inflows of foreign funds, mainly from other European countries, which have had the effect of increasing German official reserves and adding to domestic liquidity.

A. I. B.