

ESSAYS IN INTERNATIONAL FINANCE

No. 79, February 1970

SOME THEORETICAL PROBLEMS
RELATING TO THE
EURO-DOLLAR MARKET

HELMUT W. MAYER



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

This is the seventy-ninth in the series ESSAYS IN INTERNATIONAL FINANCE *published from time to time by the International Finance Section of the Department of Economics of Princeton University.*

The author, Dr. Helmut W. Mayer, is an economist at the Bank for International Settlements in Basle.

The Section sponsors the essays in this series but takes no further responsibility for the opinions expressed in them. The writers are free to develop their topics as they wish. Their ideas may or may not be shared by the editorial committee of the Section or the members of the Department.

FRITZ MACHLUP, *Director*
International Finance Section

ESSAYS IN INTERNATIONAL FINANCE

No. 79, February 1970

SOME THEORETICAL PROBLEMS
RELATING TO THE
EURO-DOLLAR MARKET

HELMUT W. MAYER



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

Copyright © 1970, by International Finance Section
Department of Economics
Princeton University
L.C. Card No. 70-114625

Printed in the United States of America by Princeton University Press
at Princeton, New Jersey

SOME THEORETICAL PROBLEMS RELATING TO THE EURO-DOLLAR MARKET

The extremely rapid growth of the Euro-dollar market and its increasing impact on the effectiveness of national economic policies have greatly heightened interest in this new branch of international finance. Yet, despite ample literature on the subject, it is a phenomenon that is still surrounded by much doubt and disagreement.

Although part of the difficulty in understanding the market may lie in its intrinsic abstractness, there also seems to have been excessive preoccupation in the past with the currency denomination of transactions and with institutional features. This has tended to divert attention away from some basic principles which would be typical of any international money or credit market and which have to be borne in mind if the general economic implications of the Euro-dollar market are to be properly appreciated. It may be useful, therefore, to set out at the start some of these principles.

In the first place, any flow of Euro-dollar credit, provided it does not take place between residents of one and the same country, represents an international capital movement. And the size of the Euro-dollar market tends to be governed by pretty much the same set of forces as governs the scale of international short-term capital movements in general, that is to say by differences in interest rates between different countries and exchange speculation.

Secondly, as far as the effects on official reserves, bank liquidity, the supply of credit, and aggregate demand are concerned, it is immaterial whether a given international capital flow is denominated in dollars or in any other currency.

Thirdly, some of the liquidity-creating or liquidity-destroying effects of the Euro-dollar market (which are quite often regarded as peculiar to this market) are simply a result of the role of the dollar as a reserve currency; such effects may arise whenever there is a flow of payments between the United States and the rest of the world, irrespective of whether the flow is on current or capital account or whether it is in dollars or some other currency.

Fourthly, from a balance-of-payments point of view the Euro-dollar market cannot be considered as a self-contained entity but always re-

mains part of the national markets. Thus, apart from official participation in this market (pages 12-13), a Euro-dollar flow cannot lead to an improvement (or deterioration) in one country's payments balance on an official-settlements basis without entailing a corresponding deterioration (or improvement) in another country's balance.

Disregard of these considerations would seem to lie at the root of much of the confusion which still surrounds the Euro-dollar market. Though they will not be explicitly spelt out again, they underlie much of the following analysis. The reader should perhaps be warned that this paper does not attempt to give a systematic account of the institutional features, logic, operation, or all the possible economic implications of the Euro-dollar market. It confines itself to some of the main questions that have been at the center of recent discussion. Some familiarity with the techniques and institutional setup of the market is assumed.

I. THE GROWTH OF THE EURO-DOLLAR MARKET AND THE SIZE OF THE EXTERNAL PAYMENTS DEFICIT OF THE UNITED STATES

One of the most interesting features of the growth of the Euro-dollar market in 1968 was that it occurred in a period when the balance of payments of the United States was statistically in surplus. To be sure, the surplus on an official-settlements basis was partly the result of the large pull-in of funds through the Euro-dollar market itself and the modest surplus on a liquidity basis owed much to special official financing operations; at the least, however, it can be said that the growth of the market accelerated sharply at a time when the balance-of-payments deficit of the United States was greatly reduced.

This is not to deny that certain links between the size of the American payments deficit and the growth of the Euro-dollar market do exist. Some central banks have found it convenient to place part of their reserve accruals in the Euro-dollar market, either in the shape of outright deposits or by using special swap arrangements. Furthermore, in historical perspective, it is probably true that, but for the reserve build-up made possible by the payments deficit of the United States, European countries would not have seen their way clear to go ahead in 1958 with the dismantling of exchange restrictions that has been an important condition for the development of the market. However, such controls would very likely also have been removed if the recovery of European official reserves had been based not on a payments deficit of the United States but on larger supplies of new gold or on other forms of reserve creation. It is quite conceivable, in fact, that in that case the stronger confidence in the dollar would have led countries to take a

larger part of their reserve accruals in the form of dollars. (This implies that the United States would have behaved as a reserve-currency country and would have been willing to accumulate gold or reserves beyond its own payments surplus.) Official placements in the Euro-dollar market would also, in this case, consequently have been greater. The essential thing was a sufficiently high degree of international liquidity, and in the event this happened to be provided mainly by the payments deficit of the United States.

Although official funds have played an important part, the bulk of the growth of the Euro-dollar market in recent years has resulted from the supply of private funds for deposit in the market. These can derive from only three sources: (1) placement on the Euro-dollar market of dollar balances otherwise held in the United States; (2) a worldwide increase in the proportion of liquidity or wealth held in the form of dollars; (3) a general increase, both inside and outside the United States, in this liquidity or wealth itself. Part of this latter increase may of course itself be due to the expansionary impact, if any, of the Euro-dollar market on the overall supply of credit, although the extent to which the market can pull itself up by its own bootstraps in this way seems quite often to have been exaggerated in the literature. (See Section II.)

The interrelationship between the growth of the Euro-dollar market and the external payments deficit of the United States will largely depend on how and to what extent these three sources are influenced by the deficit. As regards the first of the three sources, the payments deficit of the United States has probably tended to retard the growth of the market, since, by being responsible for the restraint program and possibly also to some extent for the tighter money-market conditions in the United States, it has held down transfers of funds by American residents from the United States to the Euro-dollar market. As far as residents of other countries are concerned, transfers between the United States and the Euro-dollar market will be influenced mainly by relative yields, but the ability of the Euro-dollar banks to offer higher deposit rates than banks in the United States is due rather to the interest-rate ceilings imposed under Regulation Q and certainly not to the payments deficit of the United States.

With regard to the second source of private funds, the decisions of individuals and firms as to what proportion of their liquidity and wealth to hold in dollars will be guided primarily by considerations of yield. Now it may be true that the American balance-of-payments deficit, by making for easier credit policies abroad, while, if anything, contributing to the credit tightness in the United States, has tended to keep interest

rates on domestic currency deposits low relative to those on Euro-dollar deposits. On the other hand, however, willingness and ability to take advantage of the higher interest rates on Euro-dollars will depend on the state of confidence in the dollar (or distrust of other currencies), as reflected in conditions in the forward markets. But confidence in the dollar and its strength in the forward market, which are of course closely related, will if anything be negatively affected by a payments deficit on the part of the United States. In this limited respect it could even be contended that it is not because of the American payments deficit that the Euro-dollar market has expanded, but in spite of it. Although in 1968, for example, the flow of funds out of other currencies into dollars was not so much a question of confidence in the dollar as of doubts about sterling and the French franc, without the payments deficit of the United States (and with no other form of liquidity creation) other currencies would have been even more crisis-prone and the movement into dollars would no doubt have been even greater.

Finally, as far as the third source is concerned, it can probably be said that the payments deficit of the United States has tended to increase the liquidity and wealth (expressed in current dollars) of residents of other countries by making for easier credit conditions and policies, and by stimulating, at least in money terms, the growth of gross national products. The deficit may thus in this way have made an indirect contribution to the growth of the Euro-dollar market. Here again, however, an increase in international reserves through some other form of reserve creation would have had a similar effect.

To sum up, it can be said that an important condition for the growth of the Euro-dollar market has been a sufficient supply of international reserves. In the past few years this has been provided chiefly by the balance-of-payments deficit of the main reserve-currency country, that is, the United States. In this sense the American deficit has undoubtedly contributed to most of the official funds and, in an indirect way, for instance by making the monetary authorities' attitude with respect to short-term capital outflows more lenient, or even encouraging, probably also to a sizable part of the private funds in the market. At the same time it is important to note that a similar influence would have been exerted if the reserve creation had not been based on a balance-of-payments deficit of the United States but, for example, on larger supplies of new gold, except that in that case the Euro-dollar market might have expanded even faster. The reason for this is, first, that there would probably have been no official measures curtailing the flow of funds from American residents to the Euro-dollar market and, second, that confi-

dence in the dollar and thus the willingness to hold dollars without forward cover in terms of national currency would have been greater.

Attention has so far been focused on the supply side of the market, because it is on this that recent discussion has centered. It might be argued, however, that by dint of the tighter credit in the United States and the effects of the program of balance-of-payments restraint on the foreign subsidiaries of American firms the country's external deficit has also contributed to the growth of the market by strengthening the demand for Euro-dollar loans. But by the same token it could be said that, if the United States had been running a payments surplus, credit conditions would have been tighter in other countries and there would consequently have been a greater demand for Euro-dollars from residents of countries outside the United States and non-American-controlled corporations. Instead of a credit flow from the rest of the world through the Euro-dollar market to the United States, there might then have been a credit flow from the United States through the Euro-dollar market to other countries.

The point that needs to be brought out is that one factor stimulating the growth of the Euro-dollar market, and international flows of short-term capital in general, is international differences in the degree of credit tightness; the direction in which these differences run is in itself not of prime importance. (This is not to belittle, however, the important role played by Regulation Q in the development of the Euro-dollar market.)

II. THE EURO-DOLLAR MARKET AND CREDIT CREATION

One of the most intriguing questions regarding the Euro-dollar market concerns its impact on the world supply of credit. How, and how far, has the Euro-dollar market tended on a global basis to affect the rate of credit creation?

In answering this question, it is convenient to distinguish between the banks' credit base or total lending potential (as essentially determined at any point of time by the amount of central-bank money in the system, by the currency/deposit ratio, and by reserve requirements) and its actual degree of utilization for the granting of credit.

Moreover, to simplify matters it is initially assumed that there is an internationally consistent system of reserve requirements in the sense that reserve requirements are the same in all countries and that the flow of credit through the banks, whatever its source or direction, is subject once, and once only, to such reserve requirements. This means that all interbank liabilities, whether vis-à-vis foreign or domestic banks, are free from reserve requirements, whereas bank liabilities to non-

banks, irrespective of whether they are towards domestic residents or foreigners or are in domestic or foreign currencies, are subject to a uniform reserve requirement. These unrealistic assumptions will be dropped later in this section (page 14).

Finally, it is assumed throughout this section that the monetary authorities do not intervene to offset the effects of international payments flows on their countries' monetary base. The policy implications of the Euro-dollar market will be discussed in the concluding section of this essay.

(a) *The Impact of the Euro-Dollar Market
on the Overall Credit Base*

Euro-dollar credit flows may occur either within the same country or between different countries. In the first case the monetary liabilities of the central bank are not affected and the credit base remains unchanged. Expressing their domestic liabilities and assets in dollars instead of in domestic currency does not increase the overall lending potential of the banks. In the second case the flow of Euro-dollar credit represents an international capital movement and, like international capital movements in general, will reduce the credit base of the capital-exporting country and increase that of the capital-importing country. From a global standpoint, therefore, there is here again no net change in the banks' credit base. Before drawing the conclusion, however, that the Euro-dollar market consequently cannot affect the overall lending potential of the banks, it is important to note three major exceptions.

The first of these concerns capital flows between reserve-currency countries and the rest of the world. Let us assume that a private holder of dollars transfers his balances from the United States to a Euro-dollar bank in London. If the Euro-dollar bank now re-lends these funds outside the United States to a resident of, say, country *B*, the official reserves and the credit base will go up in that country. But to the extent that the monetary authorities of *B* take this reserve increase in dollars and not in gold there will be no corresponding reduction in the credit base of the United States, private holdings of dollar assets simply being replaced by foreign official holdings. From an overall point of view, therefore, the banks' aggregate credit-granting potential has been increased. The only exception is an increase in dollars held with the Federal Reserve, which in its effect on the credit base of American banks would be equivalent to a foreign gold purchase. On the other hand, the same effect as in the case of an outright increase in foreign official holdings of dollars would occur: if the foreign central banks purchased nonmarketable U.S. Government paper and the U.S. Treas-

ury did not sterilize the proceeds of the sale but used them to finance the American budget; or if the foreign monetary authorities used their dollar accruals for making repayments to the International Monetary Fund, and the U.S. Treasury used the proceeds from its concomitant sale of special paper to the IMF for financing the budget of the United States; or, of course, if the foreign monetary authorities converted their dollar accruals into gold, provided that, contrary to our assumptions, the Federal Reserve offset the impact of this gold purchase on the credit base of the United States.

It may well be, of course, that the monetary authorities of *B* would wish to hold their dollars in a different form from that in which they were originally kept by the private holder in the United States, which might amount to some shift in liquidity preference. Although this may have some impact on the overall lending potential of American banks, the impact could be expansionary as well as contractionary and is, moreover, likely to remain relatively small. (See pages 27-28.)

The example of the expansionary effects of a capital outflow from the United States through the Euro-dollar market to the rest of the world is sometimes taken as evidence that the Euro-dollar market tends to increase the world supply of credit. It should be noted, however, that this effect is not peculiar to the Euro-dollar market. It simply arises out of the reserve-currency role of the dollar and may occur whenever there is a payments outflow, whether for goods and services or on capital account and no matter in what currency, from the United States to the rest of the world.

Moreover, exactly the reverse effect—a reduction in the credit base of the banks outside the United States without a corresponding increase in that of the banks within the country—will occur, to the extent that there is a flow of payments to the United States which is financed by the central bank concerned out of the reserves which were held or would otherwise have been held in the form of dollars. The question is, therefore, whether the existence of the Euro-dollar market has been inclined to cause, on balance, a net flow of payments to or from the United States. Now there can be little doubt that, by facilitating the foreign borrowing of American banks, the Euro-dollar market has, at least in 1968 and 1969, given rise to a net flow of payments to the United States. (See Section IV.) Since part of this flow was certainly at the cost of foreign official holdings of dollars, the net impact of the Euro-dollar market on the supply of credit has on this score been a contractionary one. In fact, in view of the huge volume of Euro-dollar borrowing by banks in the United States, one of the main effects of the Euro-dollar market in those two years has been its tendency to re-absorb the bank

liquidity created abroad by the payments deficit of the United States, without bringing about a correspondingly large increase in the credit potential available to the American economy. This point is illustrated perhaps by the complaints voiced by some European countries about the unduly restrictive effects the pull of the Euro-dollar market has been exerting on their domestic monetary conditions, while at the same time the American monetary authorities do not seem to have felt that, apart from the evasion of reserve requirements, the Euro-dollar borrowing of American banks has to any large extent enabled them to escape the consequences of the domestic credit squeeze.

Somewhat similar effects may occur in the case of capital flows between third countries if the capital-exporting country finances the outflow of capital from its dollar reserves while the capital-importing country converts its dollar accruals into gold. In that event there will be a reduction in the credit base of the banks both in the capital-exporting country and in the United States. If, on the other hand, the capital-exporting country draws on its gold reserves while the capital-importing country accumulates dollars, there will be an expansion in the credit base of the banks both in the capital-importing country and in the United States. Here again it makes no difference whether the capital flows go through the Euro-dollar market or not. Such repercussions of payments flows outside the United States on the domestic credit base are undoubtedly one of the reasons why, contrary to our assumption, the American authorities usually automatically neutralize the domestic monetary impact of changes in the official gold stock.

Let us now return to the example of a transfer of private dollar balances from New York to London. If these funds are re-lent by the Euro-dollar banks to American residents, the original capital outflow from the United States is offset by a capital inflow and, under our assumption of an internationally consistent system of reserve requirements, there will have been no change in the credit potential available to the American economy. Since it is essential to an understanding of the working of the Euro-dollar market, it may be useful to go into this point in a little more detail.

Two alternatives are possible. The first is for the funds to be lent by the Euro-dollar banks to banks in the United States. In that case, instead of their original liability of 100, subject to a 10 per cent reserve requirement, towards a nonbank, the banks in the United States will now have a liability of 90, free from reserve requirements, to a Euro-dollar bank (the 10 per cent reserve requirement being met by the Euro-dollar bank itself). Apart from a possible change in the maturity

structure of their liabilities, the liquidity and, more particularly, the free reserves of the banks in the United States will not be affected.

The second possibility is for the Euro-dollar banks to lend the 90 direct to American nonbank residents. Assuming a marginal currency/deposit ratio of 1 : 4, this would mean that, instead of having a liability of 90 to the Euro-dollar banks, the banks in the United States now have a liability of 72 to nonbanks, 18 being withdrawn into the currency circulation. Compared with the situation prevailing before the flow of funds through the Euro-dollar market, the banks in the United States have lost 28 in cash reserves but at the same time their required reserves have fallen by 2.8 (that is, by $[100 - 72] \times 0.1$). The consequent decline of 25.2 in free reserves would also have occurred if the credit of 90 had been extended by the banks in the United States themselves instead of through the Euro-dollar market, except that in that case it would have consisted of a decline of 18 in cash reserves and an increase of 7.2 in required reserves. Here again the diversion of the credit flow through the Euro-dollar market has no effect on the credit potential available to the economy of the United States.

The contention that the Euro-dollar market has an expansionary effect is often based on the fact that in the case of a transfer of dollar balances from the United States to the Euro-dollar market the credit offer by the Euro-dollar banks will increase, while, as long as these funds are not re-lent by the Euro-dollar banks, there will be no reduction in the resources available to the banks in the United States. It is doubtful, however, whether this effect (which is usually lumped together with the reserve-currency effect of the dollar) is of any practical significance. For one thing, it takes only a few hours, or often even less, for the funds to be re-lent by the Euro-dollar banks. Secondly, the banks in the United States are fully aware of the difference between, say, a certificate-of-deposit liability and a current-account liability to a bank. Once the funds have in fact been re-lent by the Euro-dollar banks to, say, an American nonbank resident, there will, as shown in the numerical example given above, be a reduction in the free reserves of the banks in the United States; or if the latter are fully loaned up, they will have to reduce their own loans by the full amount of the loan made by the Euro-dollar bank.

Moreover, from the numerical example given above it can be seen that it makes no difference for the credit potential available to a country whether the Euro-dollar bank lends to the banks or directly to nonbank residents of that country. In fact, to the extent that they lend to nonbanks they can be regarded for analytical purposes as part of the country's banking system, since transfers from that country to the Euro-

dollar market are in that case no different in their effect on the credit base from interbank transfers within the country itself. A further point is that this example applies not only to the United States but to capital flows from, say, country *B* to the Euro-dollar market and back again to country *B*. It also applies to the overall effect of a capital flow from country *B* through the Euro-dollar market to country *C* on the combined credit base of those two countries (as long as neither of them is the United States), since for this purpose they can be conceived of as a single country.

The second major exception to the rule that the Euro-dollar market will not affect the overall credit base of the banks concerns the participation of central banks in the market. Basically, this is simply a special case of capital flows between the United States and the rest of the world. It is important in this context to distinguish between outright deposits by central banks in the Euro-dollar market and swaps of dollars against domestic currency with the domestic banks. Another relevant consideration is whether the alternative to the Euro-dollar deposits or the swaps was holding the reserves in the form of dollars in the United States or holding them in the form of gold.

Let us assume first of all that the central bank of country *C* transfers its dollar reserves from New York to London. While this transfer will have no effect on the banks of country *C*, its impact on the rest of the world will otherwise be exactly the same as that of an outflow of private capital from the United States. To the extent that the Euro-dollar banks lend these funds to residents of country *B*, which takes the resultant increase in its reserves in the form of dollars, the credit base of the economy of the United States will not be affected, but in *B* the credit base will go up. Outright deposits by central banks of their reserves in the Euro-dollar market will therefore tend to have an expansionary impact on the supply of credit. Insofar as the central banks of the countries whose residents borrow these funds in the Euro-dollar market redeposit their resultant reserve accruals in this market, there will even be a certain multiplier effect. The likelihood of this happening would be particularly great if the funds were to flow back to country *C* (in effect, if countries *B* and *C* were only one country).

If, on the other hand, the funds deposited in the Euro-dollar market by the central bank of country *C* were re-lent to residents of the United States or of country *D*, whose central bank converts its dollar accruals into gold, no net expansion in the banks' lending potential will ensue. In the first case there will be no change anywhere, and in the second case an increase in *D* will be offset by a decline in the United States.

To the extent that the central bank of *C*, in making its deposit in the

Euro-dollar market, does not draw on already existing dollar balances but acquires the dollars through a gold sale to the Federal Reserve, the expansionary impact might even be twofold. Insofar as the Euro-dollar banks re-lend these funds to residents of country *B*, there will be both an increase in the official gold stock of the United States, together with the resultant increase in the American economy's credit base, and a rise in the credit base of the rest of the world.

A further point brought out by these examples is that, when outright official deposits are made, the Euro-dollar market tends to inflate official reserves. Thus in the last example there is an increase both in the official gold stock of the United States and in the dollar reserves of country *B*, while, except for their composition, the reserves of *C* are not affected. What has happened, in fact, is a twofold increase in the reserve-currency role of the dollar, both countries *B* and *C* having increased their dollar holdings. But it is not only gross reserves that have been boosted but even overall official net reserve positions, since, although there has been no change in the net official reserve positions of the United States and country *C*, that of country *B* has gone up. (The explanation is that dollar deposits by foreign central banks with the Euro-dollar banks of a given country [not the United States] are not regarded as part of that country's official liabilities or of its net official reserve position even if they should be statistically reported. This is really quite logical, particularly in the case of a country like the United Kingdom, whose banks act mainly as intermediaries in the Euro-dollar market and re-lend most of the proceeds from these deposits abroad.) In this respect official deposits in the Euro-dollar market have the same effect on the international monetary system as the supply of new gold: they make it possible for some countries to have an official-settlements surplus without others having a corresponding deficit.

In the case of the central bank of country *C* swapping dollars against domestic currency with the commercial banks, the situation is somewhat different again, because central bank *C*'s spot sale to the commercial banks under this swap of foreign exchange against domestic currency will tend to reduce both the credit base and the reserves of that country. If such dollar swaps represent for the central bank a substitute for the holding of dollars in the United States, the net effect on the supply of credit will tend to be contractionary. To the extent that the funds are lent to residents of the United States or of country *D*, the decline in the credit base of country *C* will not be offset by a net increase elsewhere. Only when the dollar swaps constitute an alternative to holding gold will their overall impact tend to be expansionary.

Outright official deposits in the Euro-dollar market are probably

larger than the total volume of official dollar swaps outstanding with the commercial banks. Furthermore, part of these swaps seem to be an alternative to gold reserves. There can therefore be little doubt that the role of central banks as suppliers of Euro-dollar funds has on balance had an expansionary influence on the world supply of credit.

A third way in which flows of Euro-dollar credit may influence the credit base arises out of international differences in reserve requirements. It is now necessary, therefore, to drop the assumption made at the start of this section of an internationally consistent system of reserve requirements. Let us first move only one step closer to reality by allowing for the fact that the Euro-dollar banks in London are free from reserve requirements not only on their interbank liabilities but also on their liabilities to nonbanks. (This does not exclude the possibility of the banks' observing certain self-imposed liquidity ratios. But to the extent that such liquid reserves are themselves held in the form of Euro-dollar assets they may be neglected for the purposes of this analysis.)

This means that a shift by nonbanks of their deposits from other banks to the Euro-dollar banks in London will now be a way of circumventing reserve requirements and will amount on an international basis to an increase in the overall credit-granting potential. As illustration we may take a situation in which the banks of a given country (country *A*) are fully loaned up. If there is now a shift of deposits from the banks of country *A* to the Euro-dollar banks in London, the re-lending of these funds by the Euro-dollar banks to bank or nonbank residents of country *A* will increase the potential amount of credit available to country *A* without any actual net capital inflow taking place. Apart from increasing interbank competition, it is mainly in this very limited sense that the Euro-dollar market acts like a nonbank financial intermediary in a national system. With an internationally consistent system of reserve requirements such an "intermediation" effect, which figures quite prominently in the literature on the Euro-dollar market, would not exist.

This was to some extent the situation that prevailed between the Euro-dollar market and the United States before the introduction of the new measures announced by the monetary authorities in July 1969. It is important to realize that, as far as credit availability to the economy of the United States was concerned, it made no difference whether the Euro-dollar banks in London lent directly to nonbank residents of the United States or only to banks in that country. Let us arbitrarily assume that the marginal currency/deposit ratio was 1 : 4 and that the reserve requirements on liabilities to nonbanks stood at 10 per cent. In the case of a transfer by nonbanks of, say, 100 of their dollar holdings

from New York to London and of the Euro-dollar banks' re-lending these funds directly to nonbank residents of the United States, the American banks' liabilities to nonbanks would on balance decline by 20 and their required reserves by 2, so that their reserve shortfall would amount to 18. If the American banks borrowed the 100 themselves in the Euro-dollar market and re-lent them to residents, the increase of 100 in their interbank liabilities would be reserve-free and, as in the preceding case, their liabilities to nonbanks would on balance decline by 20 and their reserve shortfall would amount to 18. (The credit contraction necessary to meet this shortfall would have to be about 64; thus the detour through the Euro-dollar market would have increased credit availability by about 36, that is, by $\frac{0.1 \times 100}{0.1 + 0.2(x - 0.1)}$.)

If, of course, reserve requirements are now imposed on the banks' foreign borrowings, then only direct Euro-dollar lending to the nonbank residents of this country will still be a way of getting around reserve requirements. However, as of October 1969 the American monetary authorities have imposed reserve requirements not only on borrowings by American banks from their foreign branches but also on branch loans to nonbank residents of the United States. Nevertheless, the extension of credit to nonbank residents of the United States by Euro-dollar banks other than foreign branches of American banks is still a way of circumventing reserve requirements. (Another loophole that was closed in July 1969 was the practice resorted to by American banks of taking up overnight loans in the Euro-dollar market and rolling them on indefinitely. Since cash items in the process of collection can be deducted under Regulation *D* from deposit liabilities subject to reserve requirements, the American banks were able in this way to reduce their reserve obligations on domestic deposits.)

To summarize, the fact that the most important group of banks active in the Euro-dollar market are free from reserve requirements on their liabilities to nonbanks as well as towards banks constitutes a departure from an internationally consistent system of reserve requirements. And this cannot easily be corrected by individual countries' imposing reserve requirements on their residents' takings in the Euro-dollar market, because reserve requirements on nonbank borrowings are very difficult to administer. Moreover, for purposes of reserve requirements a number of countries do not distinguish between their banks' domestic and external liabilities, but between liabilities in domestic and foreign currency, the latter usually being exempt. Thus, by facilitating the borrowing on the part of nonbank residents from foreign banks and by facilitating the foreign-currency borrowing of domestic banks, the Euro-dollar market has undoubtedly made it easier for credit to flow through

channels which circumvent reserve requirements; in that sense it has tended to increase the aggregate credit potential. (These international differences and inconsistencies in reserve requirements have been a factor of considerable importance in contributing to the development and shaping the geographical structure of the market. To discuss their influence in detail, however, would be outside the scope of this paper.)

(b) *The Effects of the Euro-Dollar Market on the Degree of Utilization of a Given Credit Base*

As already indicated, the Euro-dollar market may affect the supply of credit not only by changing the size of the overall credit base but also by influencing its actual degree of utilization for credit creation. Thus, by increasing the international mobility of short-term capital, the Euro-dollar market has tended to augment the flow of capital from countries with relatively easy credit conditions to countries with relatively tight conditions. The most important example of this is probably the placement by commercial banks of their surplus liquidity in the Euro-dollar market. And, whereas in the capital-exporting countries the banks may have sufficient excess reserves to start with, so that the decline in their domestic credit base has little effect on credit creation, it is likely that the increase in the credit base of the banks in the capital-importing countries will be fairly fully utilized for credit creation. The Euro-dollar market thus does at an international level what national money markets do at the national level: by leading to a more "efficient" distribution of bank resources, it increases the amount of credit that can be obtained from a given credit base.

It is doubtful, however, whether this effect has been of any great significance over the past two years (1968 and 1969) of exceptionally high Euro-dollar rates. Monetary conditions were also quite tight in several of the capital-exporting countries, while the credit base of the United States, the main importer of Euro-dollar funds, was, apart from evasion of reserve requirements, affected only insofar as the foreign countries financed the outflow out of reserves held in forms other than dollars.

In addition to this, the Euro-dollar market may increase the degree of utilization of a given credit base even without necessarily bringing about a change in its international distribution, simply by increasing interbank competition. Thus, the Euro-dollar banks might attract deposits away from other banks and tend to increase the rate of credit expansion by offering higher interest rates on deposits and new types of deposits, by offering loans at lower interest rates than the conven-

tional banking sectors, by providing new types of loans, and by offering loans to new types of borrowers.

It is also in this context of a fuller utilization of a given credit base that the question of the potential credit-multiplier effect of the market enters the picture. To what extent are the Euro-dollar banks able, by acting simultaneously as a single entity, to expand their credits by more than their own free reserves, that is to say, by creating their own deposits? For purposes of exposition, the London Euro-dollar banks may be compared to an individual bank within a closed economy. The ability of such a bank to expand its credits by a multiple of its free reserves will depend on its share in the country's banking business. If it is the only bank in the economy, then its ability to create credit will be limited only by the leakage of funds into the currency circulation and by its need to maintain cash reserves. If, on the other hand, the bank constitutes only a small part of its country's banking network, the leakage of funds to the other banks will tend to be rather large, while the other leaks mentioned above will be of relatively less importance. This leakage to the other banks will be even greater if the liabilities of the bank are on the whole not used as a payments medium, that is, if no current-account deposits are held at that bank.

This, in fact, is virtually the situation of the banks in the Euro-dollar market. Despite the size of the market, the Euro-dollar banks in London are still only a relatively small and specialized section of the world banking community. Moreover, the proceeds of Euro-dollar credits granted to nonbank borrowers do not, when used to make payments, normally become Euro-dollar deposits of the organization or individual to whom the payment is made, since it appears that, except in the case of some large multinational corporations, Euro-dollar accounts are not used to any large extent as current accounts. The redepositing of funds in the Euro-dollar market will thus principally be confined to the investment of temporary idle balances and to the gross profits arising out of the transactions financed. On balance, it would thus seem that the leakages out of the Euro-dollar market are very large and that correspondingly the Euro-dollar credit multiplier will be small.

There are a few further considerations that may be worth mentioning in this context. (1) The only funds that should be included under the multiplier are those flowing back into the Euro-dollar market from the income circulation. Mere redeposits of unused funds, whether they are made by banks or nonbanks, do not increase the supply of credit available for the financing of economic activity. Interbank deposits, though possibly leading to a more efficient allocation of credit, should thus not be counted as part of the multiplier process. (2) For the reasons out-

lined above (pages 8-9), if as a result of Euro-dollar finance there is a flow of credit or payments to the United States, the multiplier process will tend to be cut short, while, and this is much less likely, if there is a flow from the United States to the rest of the world it will tend to be prolonged. In fact, there can be little doubt that the large amount of Euro-dollar lending to the United States must have substantially kept down the actual size of the Euro-dollar credit multiplier in recent years (pages 21-22). (3) There is a special kind of multiplier effect which has no parallel in national markets. This may come into play when central banks deposit with Euro-dollar banks reserves that accrue to them as a result of Euro-dollar credit flows. (4) As in a closed economy, a multiplier effect can occur only to the extent that there was initially some slack in the system or that the Euro-dollar market itself causes an increase in the overall credit base of the banks. (5) If it is wished to know what total multiplier effect an autonomous increase in Euro-dollar credit may conceivably have both inside and outside the Euro-dollar market, the leakage out of the Euro-dollar market no longer applies and only the currency leak and the reserve leak remain. The total potential multiplier effect of an autonomous increase in Euro-dollar credits will thus be conceptually the same as the potential domestic plus international multiplier effects of a conventional credit in domestic currency. This means that the Euro-dollar market will influence the supply of credit mainly to the extent that credit extension in that market is additional to and not simply a substitute for domestic currency credits.

We have now reached the point at which the various strands of the argument can be brought together. The Euro-dollar market will influence the rate of credit creation essentially in two ways: (a) by influencing the aggregate credit base; and (b) by leading to a fuller utilization of a given credit base. It may influence the credit base: (i) through the reserve-currency role of the dollar by affecting the flow of payments between the United States and the rest of the world; (ii) through its role as an outlet for official reserves; and (iii) through facilitating the opening-up of credit channels which escape existing national reserve requirements. It may lead to a fuller utilization of a given aggregate credit base: (i) by increasing the international mobility of capital and by thus facilitating the flow of funds from easy-credit to tight-credit areas; and (ii) by increasing interbank competition and giving rise to new types of financial instruments.

This list is not exhaustive. Thus the Euro-dollar market may, for example, increase the banks' credit base in some other ways. By offering very attractive yields and a broad spectrum of convenient maturities it will act as a strong incentive for firms to keep their current-account

balances with banks down to a strict minimum and to maintain a larger part of their liquidity in the form of time (that is, Euro-dollar) deposits. This will tend to increase the supply of credit insofar as the banks keep lower reserves against their Euro-dollar deposits than against their current-account liabilities. Similarly, the attractive yields and convenient maturities of Euro-dollar deposits might have the effect that banks keep part of their liquidity in Euro-dollars instead of in domestic sterilization paper of the central bank and that they observe a smaller liquidity ratio in general. While the sale of the sterilization paper would not affect the domestic credit base, the shift of the funds into the Euro-dollar market will increase the credit base of other countries. It is doubtful, however, whether these effects can be of any major quantitative importance for any specific period of time.

Items (a)(iii), (b)(i) and (b)(ii) are necessarily expansionary factors, and (a)(ii) has also almost certainly exerted on balance a stimulating impact on credit creation. On the other hand, there can be little doubt that in view of the large-scale Euro-dollar borrowing by American banks (a)(i) must have exerted a major contractive influence in 1968 and 1969, which may to a considerable extent have offset the expansionary effect of the other factors. This, however, also implies that in the case of a reduction in Euro-dollar indebtedness of the United States the Euro-dollar market may have quite a strong stimulative impact on credit creation in the future.

III. THE EURO-DOLLAR MARKET AND THE SIZE OF THE EXTERNAL LIABILITIES OF AMERICAN BANKS

For the purposes of this section, the external liabilities of American banks have to be understood as excluding custody items, such as Treasury bills held on behalf of foreign official institutions. It is sometimes said that the growth of the Euro-dollar market may be limited by the willingness or ability of American banks to incur indebtedness abroad; or that the ratio of the Euro-dollar banks' total dollar assets to their claims on banks in the United States may serve as an indicator of the size of the credit-multiplier effects of the Euro-dollar market. In considering these questions it is important to bear in mind that from an analytical point of view flows of credit through the Euro-dollar market are equivalent to any other form of international short-term capital movement, irrespective of the currency in which they occur.

Taking the example of a credit flow from country *B* through the Euro-dollar market to country *C* (neither being the United States), the external liabilities of American banks will be affected only to the extent that one of the two countries holds a larger part of its international

reserves in the form of deposits at American banks than the other. (A major part of the dollar balances of foreign official holders is of course held in the form of U.S. Treasury bills and not deposits at American banks.) If this is country *B*, the external liabilities of American banks would even decline as a result of the growth of the market. The position is different, of course, if the American banks themselves borrow in the market. But even then their external liabilities will go up only insofar as these funds do not come directly or indirectly out of other foreign private or official holdings of deposits at American banks. Conversely, if nonbanks in the United States borrow directly in the Euro-dollar market for domestic purposes, the external liabilities of American banks will tend to decline. These examples may suffice to show that apart from the Euro-dollar borrowing of American banks, there is really no systematic relationship between the growth of the Euro-dollar market and the external liabilities of American banks, and that there is virtually no limit to the size of the market except the willingness of individual countries to permit capital outflows or inflows and their readiness to accept the resultant losses or gains in their reserves. (It is assumed throughout this paper that countries maintain fixed exchange rates.)

This is not to deny that certain transactions balances in dollars are held with banks in the United States and that the scale of these balances will be related to the size of the market. Thus, to take the example given in the preceding paragraph, even if both countries *B* and *C* keep their reserves entirely in gold, funds transferred from country *B* to country *C* will temporarily take the form of a dollar deposit with a bank in the United States. However, in relation to the total size of the market such balances will be fairly small. Assuming, for instance, that the transfer takes, on average, half a day while the average duration of credits outstanding in the market is 100 days, this type of asset would account for only one-half of one per cent of the market volume.

A similar kind of working balance arises out of the fact that banks dealing in the Euro-dollar market may keep some very liquid balances with banks in the United States in order to be able to meet unforeseen differences in timing between dollar funds coming in and dollar funds withdrawn. But for several reasons these precautionary balances are also likely to be of only minor importance: (1) Very attractive rates for call money can be obtained in the Euro-dollar market itself. (2) The banks can and quite often do have standby credit lines with banks in the United States. (3) As long as a bank is sufficiently liquid in its overall position, there is, apart from exchange-rate considerations, no special reason for keeping separate liquidity in dollars. (4) The margins on

which banks operate in the Euro-dollar market are usually too small to allow special cash reserves of any size to be maintained in dollars. Last but not least, the Euro-dollar market is now to a large extent made up of the foreign branches of American banks for which this problem of precautionary balances does not really arise, since in an emergency they can draw upon the resources of their head office (though they may as a matter of policy keep some part of their dollar assets with the head office).

To sum up, it would be surprising if the two types of working or precautionary balances could together account for more than 5 per cent of the total volume of credit outstanding through the Euro-dollar market. Although their growth will be linked to that of the market, they are thus so small that their influence on the total claims of the Euro-dollar banks on banks in the United States is likely to be swamped by other factors. The extremely rapid rise in claims on American banks in 1968 and the first half of 1969 was of course of a very different character, reflecting as it did the Euro-dollar borrowing of American banks in response to the domestic credit squeeze. And in the event of an easing of monetary conditions in the United States it is quite possible that some of these debts would be repaid. If there were a sufficiently strong demand for Euro-dollar credits from other sources, the market could then conceivably continue to grow even with the Euro-dollar banks' claims on banks in the United States declining.

The contention that the ratio of total Euro-dollar assets to claims on banks in the United States could be used as an indicator of the size of the Euro-dollar credit multiplier seems to be based on the analogy of a closed national banking system. In such a system the ratio of the banks' total assets to their reserve assets would show the size of the potential credit multiplier, provided that the banks were fully loaned up and that there was no currency circulation. Likening the role of the American banks in the Euro-dollar market to that of a central bank in a closed national system suggests that the same kind of relationship prevails in the Euro-dollar market. For this conclusion to be valid, however, two conditions would have to be fulfilled.

Firstly, the lending of Euro-dollar banks to banks in the United States would have to represent a leakage in the sense that none of these funds would flow back into the Euro-dollar market. This condition may in fact be largely met, but not because the claims on banks in the United States could serve for reserve purposes in the Euro-dollar market (the question whether they actually do so or not is completely irrelevant as far as multiplier effects are concerned) but because of the reserve-currency function of the dollar. Thus, to the extent that the

dollars held by the Euro-dollar banks with banks in the United States derive from funds which before that were already held in the form of official reserves or private dollar balances in the United States, there will be no increase in the credit base of American banks (see pages 26 to 28) and consequently no induced credit and income expansion and no reflux of funds into the Euro-dollar market.

Secondly, the claims of Euro-dollar banks on American residents would have to be the only possible leakage out of the market. But this is certainly not the case. Some central banks, for example, require the banks to hold reserves against their foreign-currency liabilities as well as against their domestic ones and, what is even more important, a very large leakage will in general occur when, as is customary, the Euro-dollar funds are converted by the borrowing banks or by the ultimate borrowers themselves into domestic currency (though of course some of these funds may at some stage in the subsequent process of credit and income expansion flow back into the Euro-dollar market).

In short, lending to residents of the United States by no means constitutes the only leakage out of the Euro-dollar market. In consequence, the ratio of the total dollar assets of Euro-dollar banks to their claims on the United States will tend to overstate the multiplier effects of the Euro-dollar market. Moreover, the banks' "total dollar" assets would for this purpose have to be counted net of the duplication that will result if the funds, before being lent to their ultimate user, are re-deposited between banks—a figure that is far from easy to arrive at. The only practical conclusion that could perhaps be drawn is that, in view of the fact that in 1968 and 1969 most of the net Euro-dollar lending was to American residents, the Euro-dollar credit multiplier in those two years must have been very small indeed.

Finally, to mention quite a different matter, it should be stressed that the banks' dollar claims against residents of countries other than the United States do not add to the potential drain on American official reserves. To use once again the above example, if the residents of country *B* were to call in their Euro-dollar credits from country *C*, the gold stock of the U.S. Treasury could decline only to the extent that the monetary authorities of country *B* are less willing to hold dollars in their reserves than those of country *C*, and there can be no "a priori" assumption that this will be the case. In fact, dollar claims between third countries have as little effect on the external financial position of the United States as claims in other currencies between third countries.

A potential threat to the official gold stock of the United States is posed only insofar as the Euro-dollar market has given rise in the past to flows of short-term capital to the United States, which might be re-

versed in the future. This potential threat is fully measured, however, by the claims of Euro-dollar banks on American residents. More generally, of course, the availability of a large pool of highly liquid funds will always increase the means available for speculation, but such speculation might similarly be directed against any other currency and is simply a corollary of greater international mobility of capital in general.

IV. THE EURO-DOLLAR MARKET AND THE FINANCING OF THE PAYMENTS DEFICIT OF THE UNITED STATES

Another topic that has come in for wide attention concerns the effects of the Euro-dollar market on the external strength of the dollar. Here the interesting question is not how the different types of Euro-dollar credit flows will show up statistically under the various balance-of-payments definitions, but what the actual impact of the market will be on the external financial position of the United States.

For practical purposes it can be said that the Euro-dollar market will have a favorable impact to the extent that it reduces dollar accruals to foreign central banks and thus diminishes the danger of gold losses from the U.S. Treasury or actually leads to an increase in the official gold stock of the United States. To estimate this effect it is not enough simply to take the total of the dollar claims of Euro-dollar banks on the United States and subtract their dollar liabilities towards that country, since the net flow of Euro-dollars to the United States in some respects overstates and in others understates the contribution of the Euro-dollar market to the financing of the payments deficit. It overstates it insofar as in the absence of the Euro-dollar market a substantial part of the funds at present supplied to the market by residents or central banks of other countries might have been held in the United States and insofar as American residents would have been borrowing abroad in any case. It understates it insofar as some of the funds borrowed in the market by residents of other countries would otherwise have been raised in the United States and insofar as American residents might in any event have deposited funds abroad. In view of the program of balance-of-payments restraint in the United States it would appear, however, that the factors making for understatement are quantitatively the less important and that the statistics tend to exaggerate the contribution of the Euro-dollar market to the strength of the dollar.

In fact, if we confine ourselves for the moment to the capital account, a positive influence on the external payments position of the United States will be exerted only to the extent that funds which in any event would not have been held in the United States (let us call this type of source "A") are shifted into the Euro-dollar market and used for

additional lending to residents of the United States or as a substitute for American credits to nonresidents (let us call this type of use "X"). "A" thus includes funds which are held in dollars only because of the conveniences and the attractive interest rates offered by the Euro-dollar market. It further includes funds created as a result of the net contribution, if any, of the Euro-dollar market to the rate of credit expansion outside the United States insofar as such funds are redeposited in the Euro-dollar market. And it also includes the depositing in the Euro-dollar market by central banks of reserves which they would otherwise have held in gold. "X" includes, for example, funds taken up by American banks in the Euro-dollar market, but only insofar as in the absence of the market they would not have borrowed these funds abroad. It also comprises the Euro-dollar borrowings of the foreign branches of American firms or of foreign importers to the extent that in the absence of the market they would have otherwise financed themselves in the United States.

If it is arbitrarily assumed that "A" accounted in 1968 and the first half of 1969 for 40 per cent of total sources and "X" for 80 per cent of total uses, this would mean that 32 per cent (that is, $A \times X = 0.4 \times 0.8$) of the flow of credit through the Euro-dollar market in that period had a beneficial effect on the external payments position of the United States. (This type of calculation is based on the assumption—probably a fairly realistic one—that there is no correlation between specific types of source and specific types of use of Euro-dollar funds.)

Similarly, a negative impact will occur to the extent that funds which would not otherwise have been held outside the United States are deposited in the Euro-dollar market ("B") and are used either as a substitute for other foreign credits to residents of the United States or for additional lending to residents of other countries ("Y"). "B" includes private or official funds which would in any event have been held in dollars but owing to the incentives offered by the Euro-dollar market are now placed outside the United States. It also includes funds created as a result of the net contribution of the Euro-dollar market to the rate of credit expansion in the United States insofar as such funds are deposited in the Euro-dollar market. "Y" includes the Euro-dollar borrowings of residents of both the United States and other countries to the extent that even in the absence of the Euro-dollar market these funds would have been raised outside the United States. Since $A + B$ and $X + Y$ must each add up to 100 per cent, the numerical assumptions made in the preceding paragraph would imply that in the period considered 12 per cent ($B \times Y = 0.6 \times 0.2$) of the credit flows through the market had a detrimental effect on the external payments

position of the United States, 56 per cent ($100 - 32 - 12$) or ($B \times X + A \times Y = 0.6 \times 0.8 + 0.4 \times 0.2$) were neutral, and the overall net impact amounted to 20 per cent ($A \times X - B \times Y = 32 - 12 = 20 = X - B$). If, for example, credit outstanding through the market is estimated to have increased by \$16 billion in 1968 and the first half of 1969, the positive effect of the market on the external position of the United States would have amounted to \$3.2 billion (16×0.2).

This is by no means to be interpreted as an actual attempt to compute the payments impact of the Euro-dollar market. It is not easy to tell what would have happened without the market and it is thus virtually impossible to give a meaningful estimate of these various ratios for any specific period of time. It should also be stressed that the size of these ratios will vary over time, and it is quite likely that in certain periods, such as the first half of 1967, the impact of the Euro-dollar market on the external financial position of the United States was an unfavorable one.

Moreover, the formula given, though perhaps useful as a first approximation, still leaves certain factors out of account. It excludes, for example, the net flow to or from the United States of funds that are created at some secondary stage as a result of the net contribution of the Euro-dollar market to the overall rate of credit expansion but which do not go through the Euro-dollar market. More serious is the fact that no allowance has so far been made for the possible effects of the Euro-dollar market on the current-account balance of the United States. This balance may be affected in four chief ways:

(1) The Euro-dollar market may have led to an international redistribution of credit. Consequently it might be argued that in 1968 and 1969 it has tended to accelerate credit expansion and thus also the growth of aggregate demand in the United States and to slow it down in the rest of the world. At least in the short run it would therefore have tended to hold back the growth of American exports and accelerate that of American imports. To the extent that the expansionary impact of the Euro-dollar market on the economy of the United States and its retarding effects elsewhere have been neutralized, however, by economic policy, this trade effect cannot have been very important.

(2) The Euro-dollar market, by accelerating conceivably the overall rate of growth of credit and world economic activity, might have some impact on the current-account balance if the marginal propensity of the United States to import from the rest of the world is relatively higher or lower than the marginal propensity of the rest of the world to import from the United States. But it is doubtful if this effect can have been of any appreciable importance.

(3) Reasoning in terms of average marginal propensities may not be fully satisfactory, since the Euro-dollar market seems to have a bias towards the financing of international trade. What, therefore, has to be asked is whether it has facilitated more the financing of exports to, or of imports from, the United States. Here too a conclusive answer is not easy to give.

(4) American Euro-dollar borrowing has undoubtedly tended to increase American interest payments to other countries. However, the importance of this effect should not be overstated. For example, to the extent that in the absence of the Euro-dollar market some of these funds would in any event have been held either privately or in the form of official reserves in the United States, some interest payments would have been due in any case.

To sum up, by virtue of factors (1) and (4) the Euro-dollar market has probably on balance made for some decline in the current-account surplus of the United States. In 1968 and 1969, however, the positive effect that the Euro-dollar market has had on the external position of the dollar through its impact on short-term capital flows has undoubtedly been greater.

V. SOME POLICY IMPLICATIONS

One question that has figured prominently in recent discussion on the Euro-dollar market is how far banks in the United States can escape the domestic credit squeeze by borrowing in the Euro-dollar market.

This question has already been answered implicitly in Section II. Funds taken up by American banks in the Euro-dollar market can ultimately derive from only two sources. They can come out of private or official holdings of dollars. In that event the deposit liabilities of American banks will remain fundamentally unchanged and (possible alterations in reserve requirements apart) there will in general be no major increase in their overall credit base, though there may of course be a redistribution among banks. (An exception is, of course, official dollars held with the Federal Reserve, but these holdings are very small and consist purely of working balances.) Or, secondly, they can come out of foreign official reserves held in forms other than dollars. In that case there will be an increase in the credit base of banks in the United States. (Here again it is assumed that the Federal Reserve takes no offsetting action.)

By way of illustration, let us assume that funds borrowed by the banks in the United States come from residents of country *B* and, to finance the capital outflow, the central bank of *B* reduces its holdings of American bank deposits. The increase in the Euro-dollar liabilities

of American banks will thus be offset by a decline in their deposit liabilities to official foreign holders. Their overall liabilities and, apart from differences in maturity structure and reserve requirements, their lending power will remain unchanged.

The situation is slightly more complicated if the foreign authorities sell American securities, say U.S. Treasury bills, to finance the capital outflow to the United States. If we assume that the U.S. Treasury does not intervene, this means that somebody else will have to acquire these Treasury bills in exchange for some other financial assets. In general the other assets concerned will ultimately be bank deposits (in the main, time deposits) and the situation is essentially the same as if the foreign authorities themselves draw down their holdings of American bank deposits. Theoretically, however, it is also conceivable (with some strain on our imagination) that the resultant upward pressure on the yield of Treasury bills increases the income velocity of money and that a dishoarding of notes and coin would ensue. Insofar as that occurred, the expansion in the banks' Euro-dollar liabilities would not be offset by a decline in their deposit liabilities, and their credit base would be enlarged. But it is unlikely that such a sequence of events could be of any major quantitative importance.

Of somewhat greater practical relevance perhaps is the possibility that the shift into Treasury bills might not be out of American bank deposits but out of other American securities, such as commercial paper. This would imply that the individual or firm on behalf of which this paper had been issued would (under the assumption that he had no time deposits to draw upon) either have to increase his borrowing from the commercial banks or reduce his consumption or investment expenditure. The impact of the restrictive monetary policy would consequently remain unimpaired, but it would now fall not on the banks but directly on the rest of the economy. The Euro-dollar borrowing of American banks would in this case increase their lending potential (or prevent its decline) and thus protect them from the disintermediation threatened by the run-off of their certificate-of-deposit liabilities as a result of Regulation Q. Apart from the former freedom of Euro-dollar liabilities from reserve requirements and apart from interbank competition for funds, this would help explain the important role of American banks as borrowers in the Euro-dollar market. However, here again the quantitative importance of this effect is questionable. Finally, the American banks themselves might buy the Treasury bills sold by the foreign monetary authorities; this, of course, would increase their balance sheets but not their loanable funds.

The foreign central bank may, on the other hand, finance the capital

outflow by selling gold. If so, there will be a transfer from the books of the Federal Reserve to the commercial banks, with a consequent increase in the latter's credit base. The situation will be exactly the same if the foreign central bank draws on its swap facility with the Federal Reserve, except that instead of an increase in gold reserves the American authorities will now show an increase in foreign-exchange holdings. If the foreign central bank sells nonmarketable U.S. Government debt or draws dollars from the International Monetary Fund so that the latter makes redemptions of special U.S. Treasury paper, the effect will depend on the reaction of the U.S. Treasury. It may decide to finance its repurchases by issuing Treasury bills, in which case the effect will be the same as if the foreign central bank had itself directly sold Treasury bills on the market. But if the Treasury should be accommodated by the Federal Reserve, the effect would be the same as that of foreign gold sales—the overall credit potential of American banks would increase.

Since, in the absence of the Euro-dollar borrowing of American banks the official reserves of other countries would have gone up considerably more, or declined less, and since it can be assumed that not all of this increase would have been taken in the form of dollars but part of it in gold or in the form of a reduction of outstanding drawings on the Federal Reserve under the bilateral swap network, such borrowing has probably tended to increase the lending potential of American banks not only through its effects on reserve requirements. And in order to achieve the intended degree of credit tightness, the restraining action taken by the American authorities would have to be correspondingly stronger—that is, instead of, say, selling gold at the request of foreign monetary authorities they would, for example, have to sell Treasury bills on the open market. But even if this should have seriously complicated the task of maintaining monetary restraint, it eased by the same token the much more difficult problem of financing the deficit in the American balance of payments.

This, of course, is only one example of the general rule that the Euro-dollar market, by increasing the international interdependence of national credit markets, reduces the leverage of monetary policy for domestic purposes but at the same time enhances its effectiveness for external balance. In countries where, as in the United States, the external payments problem looms particularly large and where, as in 1968-69, domestic and external requirements were in harmony this tendency may be a welcome one. On the other hand, it may at times have caused difficulties for countries that have not wished to have a higher level of domestic interest rates but at the same time have not felt able to afford

the reserve losses which a monetary policy shielding them from the rise in Euro-dollar rates would have entailed. It is safe to say that without the Euro-dollar market the reserve cost of isolating a country from the upward movement of interest rates in the United States would have been smaller. And even countries with abundant reserves may not always view reserve outflows with equanimity, since, if at some later date the need for domestic restraint should arise, the sudden reflux of these funds might confront the monetary authorities with major problems.

The increased international interdependence of national credit markets and the considerably reduced scope for international interest-rate differences brought about by the Euro-dollar market would, if they went to their extreme, imply that the management of aggregate demand would have to become mainly the responsibility of fiscal policy and that interest-rate policy would have to confine itself essentially to adjusting domestic monetary conditions to external requirements. Quite apart from the more general economic consequences that might follow from such a shift of the economic controls from the monetary authorities to the government, it would also raise major practical difficulties. Thus, fiscal policy would not only have to take full care of the business cycle but would also have to neutralize the effects of the variations in interest rates that are dictated by external developments—under present circumstances an almost impossible task.

Such a situation would be hard to accept for countries whose domestic credit markets are too small to exert any major influence on conditions in the Euro-dollar market while they themselves are very heavily subject to its influences. And it would be especially hard at times when, as in 1969, the level of Euro-dollar interest rates cannot be explained in terms of world economic welfare or efficiency but mainly reflects speculative forces, Regulation Q, and the inflationary pressures in one or two of the bigger countries. It is not altogether surprising, therefore, that the monetary authorities of several countries have tried to mitigate the policy implications of the Euro-dollar market and to preserve some autonomy over domestic interest-rate levels. To do this, they have used three main methods.

The first is increased intervention in the forward-exchange markets. Depending on the direction in which it is applied, this has essentially the same effect as an interest-rate subsidy or penalty on short-term capital imports or exports. There is little to be said against such a policy except that it might not always work effectively. It may not be very expedient, for instance, at times of exchange-rate pressures when it tends to turn into a subsidy for speculators. Nor is it necessarily to be

recommended when the central bank itself is contemplating an exchange-rate adjustment.

The second method consists of a diversification of the tools of monetary policy, such as an interest ban or special reserve requirements on the banks' deposit liabilities to nonresidents, or changes in rediscount quotas geared to the banks' foreign borrowing. But these policies may not always work if the banks hold large net assets abroad which they can hardly be prevented from repatriating. As a result there has been a tendency to adopt direct quantitative control of the growth of bank credit. However, by facilitating the recourse of domestic nonbank firms to credit from foreign banks, the Euro-dollar market has also tended to impair the effectiveness of this type of policy.

The third method that has been applied is a return to a mild form of exchange control, which partly undoes the increased international mobility of capital that has resulted from the development of the Euro-dollar market. The instrument most frequently used is the setting of guidelines for the banks' foreign positions. But, here again, the effectiveness of this policy tends to be impaired by the direct foreign borrowing or lending of domestic nonbank residents. The only thing that might work would be a water-tight system of exchange controls, which would, however, probably be worse than the illness it is supposed to cure.

In exchange for their reduced autonomy over the domestic interest-rate level the Euro-dollar market has tended to give the monetary authorities increased leverage over the balance of payments, since at times of exchange-rate confidence even small divergences from the level of Euro-dollar rates will induce the desired capital flows. In this sense the Euro-dollar market may be said to have acted as a substitute for official reserves, though, of course, it represents a way of financing imbalances of payments rather than of eliminating them and thus carries the danger of delaying the more fundamental adjustment that is necessary. Moreover, at times of exchange-rate fears this large pool of liquid funds will, on the contrary, tend to add to the need for official reserves and for international credit arrangements.

In short, from the point of view of economic policy, the Euro-dollar market is not without its disadvantages, but they should not be overdramatized. Although none of the above-mentioned techniques used by the central banks to mitigate its more undesirable consequences is perfect, they have in general yielded satisfactory results, particularly when used in combination. Moreover, as has already been pointed out, in the case of several countries the market has on occasion been positively helpful. As in other spheres, it is not possible to have the advantages without the disadvantages. Reduced autonomy in domestic monetary policy and

the danger of larger movements of speculative funds would probably be a corollary of any form of international money market. It would not be rational to be in favor of greater international mobility of capital in the abstract and at the same time to blame the Euro-dollar market for bringing it about.

PUBLICATIONS OF THE INTERNATIONAL FINANCE SECTION

The International Finance Section publishes at irregular intervals papers in four series: *ESSAYS IN INTERNATIONAL FINANCE*, *PRINCETON STUDIES IN INTERNATIONAL FINANCE*, *SPECIAL PAPERS IN INTERNATIONAL ECONOMICS*, and *REPRINTS IN INTERNATIONAL FINANCE*. All four of these should be ordered directly from the Section (P.O. Box 644, Princeton, New Jersey 08540).

A mailing list is maintained for free distribution of *ESSAYS* and *REPRINTS* as they are issued and of announcements of new issues in the series of *STUDIES* and *SPECIAL PAPERS*. Requests for inclusion in this list will be honored, except that students will not be placed on the permanent mailing list, because waste results from frequent changes of address.

For the *STUDIES* and *SPECIAL PAPERS* there will be a charge of \$1.00 a copy, payable in advance. This charge will be waived on copies distributed to college and university libraries here and abroad. In addition the charge is sometimes waived on single copies requested by persons residing abroad who find it difficult to make remittance.

For noneducational institutions there is a simplified procedure whereby all issues of all four series will be sent to them automatically in return for an annual contribution of \$25 to the publication program of the International Finance Section. Any company finding it irksome to order individual *SPECIAL PAPERS* and *STUDIES* is welcome to take advantage of this plan.

Orders for single copies of the *ESSAYS* and *REPRINTS* will be filled against a handling charge of \$1.00, payable in advance. The charge for more than one copy of these two series will be \$0.50 a copy. These charges may be waived to foreign institutions of education and research. Charges may also be waived on single copies requested by persons residing abroad who find it difficult to make remittance.

For the convenience of our British customers, arrangements have been made for retail distribution of the *STUDIES* and *SPECIAL PAPERS* through the Economists' Bookshop, Portugal Street, London, W.C. 2, and Blackwells, Broad Street, Oxford. These booksellers will usually have our publications in stock.

The following is a complete list of the publications of the International Finance Section. The issues of the four series that are still available from the Section are marked by asterisks. Those marked by daggers are out of stock at the International Finance Section but may be obtained in xerographic reproductions (that is, looking like the originals) from University Microfilm, Inc., 300 N. Zeeb Road, Ann Arbor, Michigan 48106. (Most of the issues are priced at \$3.00.)

- †No. 1. Friedrich A. Lutz, *International Monetary Mechanisms: The Keynes and White Proposals*. (July 1943)
- † 2. Frank D. Graham, *Fundamentals of International Monetary Policy*. (Autumn 1943)
- † 3. Richard A. Lester, *International Aspects of Wartime Monetary Experience*. (Aug. 1944)
- † 4. Ragnar Nurkse, *Conditions of International Monetary Equilibrium*. (Spring 1945)
- † 5. Howard S. Ellis, *Bilateralism and the Future of International Trade*. (Summer 1945)
- † 6. Arthur I. Bloomfield, *The British Balance-of-Payments Problem*. (Autumn 1945)
- † 7. Frank A. Southard, Jr., *Some European Currency and Exchange Experiences: 1943-1946*. (Summer 1946)
- † 8. Miroslav A. Kriz, *Postwar International Lending*. (Spring 1947)
- † 9. Friedrich A. Lutz, *The Marshall Plan and European Economic Policy*. (Spring 1948)
- † 10. Frank D. Graham, *The Cause and Cure of "Dollar Shortage."* (Jan. 1949)
- † 11. Horst Mendershausen, *Dollar Shortage and Oil Surplus in 1949-1950*. (Nov. 1950)
- † 12. Sir Arthur Salter, *Foreign Investment*. (Feb. 1951)
- † 13. Sir Roy Harrod, *The Pound Sterling*. (Feb. 1952)
- † 14. S. Herbert Frankel, *Some Conceptual Aspects of International Economic Development of Underdeveloped Territories*. (May 1952)
- † 15. Miroslav A. Kriz, *The Price of Gold*. (July 1952)
- † 16. William Diebold, Jr., *The End of the I.T.O.* (Oct. 1952)
- † 17. Sir Douglas Copland, *Problems of the Sterling Area: With Special Reference to Australia*. (Sept. 1953)
- † 18. Raymond F. Mikesell, *The Emerging Pattern of International Payments*. (April 1954)
- † 19. D. Gale Johnson, *Agricultural Price Policy and International Trade*. (June 1954)
- † 20. Ida Greaves, "The Colonial Sterling Balances." (Sept. 1954)
- † 21. Raymond Vernon, *America's Foreign Trade Policy and the GATT*. (Oct. 1954)
- † 22. Roger Auboin, *The Bank for International Settlements, 1930-1955*. (May 1955)
- † 23. Wytze Gorter, *United States Merchant Marine Policies: Some International Implications*. (June 1955)
- † 24. Thomas C. Schelling, *International Cost-Sharing Arrangements*. (Sept. 1955)
- † 25. James E. Meade, *The Belgium-Luxembourg Economic Union, 1921-1939*. (March 1956)
- † 26. Samuel I. Katz, *Two Approaches to the Exchange-Rate Problem: The United Kingdom and Canada*. (Aug. 1956)
- † 27. A. R. Conan, *The Changing Pattern of International Investment in Selected Sterling Countries*. (Dec. 1956)
- † 28. Fred H. Klopstock, *The International Status of the Dollar*. (May 1957)
- † 29. Raymond Vernon, *Trade Policy in Crisis*. (March 1958)
- † 30. Sir Roy Harrod, *The Pound Sterling, 1951-1958*. (Aug. 1958)
- † 31. Randall Hinshaw, *Toward European Convertibility*. (Nov. 1958)
- † 32. Francis H. Schott, *The Evolution of Latin American Exchange-Rate Policies since World War II*. (Jan. 1959)
- † 33. Alec Cairncross, *The International Bank for Reconstruction and Development*. (March 1959)

- † 34. Miroslav A. Kriz, *Gold in World Monetary Affairs Today*. (June 1959)
- † 35. Sir Donald MacDougall, *The Dollar Problem: A Reappraisal*. (Nov. 1960)
- † 36. Brian Tew, *The International Monetary Fund: Its Present Role and Future Prospect*. (March 1961)
- † 37. Samuel I. Katz, *Sterling Speculation and European Convertibility: 1955-1958*. (Oct. 1961)
- † 38. Boris C. Swerling, *Current Issues in International Commodity Policy*. (June 1962)
- † 39. Pieter Liefstinck, *Recent Trends in International Monetary Policies*. (Sept. 1962)
- † 40. Jerome L. Stein, *The Nature and Efficiency of the Foreign Exchange Market*. (Oct. 1962)
- † 41. Friedrich A. Lutz, *The Problem of International Liquidity and the Multiple-Currency Standard*. (March 1963)
- † 42. Sir Dennis Robertson, *A Memorandum Submitted to the Canadian Royal Commission on Banking and Finance*. (May 1963)
- † 43. Marius W. Holtrop, *Monetary Policy in an Open Economy: Its Objectives, Instruments, Limitations, and Dilemmas*. (Sept. 1963)
- † 44. Harry G. Johnson, *Alternative Guiding Principles for the Use of Monetary Policy*. (Nov. 1963)
- † 45. Jacob Viner, *Problems of Monetary Control*. (May 1964)
- † 46. Charles P. Kindleberger, *Balance-of-Payments Deficits and the International Market for Liquidity*. (May 1965)
- † 47. Jacques Rueff and Fred Hirsch, *The Role and the Rule of Gold: An Argument*. (June 1965)
- † 48. Sidney Weintraub, *The Foreign-Exchange Gap of the Developing Countries*. (Sept. 1965)
- † 49. Tibor Scitovsky, *Requirements of an International Reserve System*. (Nov. 1965)
- † 50. John H. Williamson, *The Crawling Peg*. (Dec. 1965)
- † 51. Pieter Liefstinck, *External Debt and Debt-Bearing Capacity of Developing Countries*. (March 1966)
- † 52. Raymond F. Mikesell, *Public Foreign Capital for Private Enterprise in Developing Countries*. (April 1966)
- † 53. Milton Gilbert, *Problems of the International Monetary System*. (April 1966)
- † 54. Robert V. Roosa and Fred Hirsch, *Reserves, Reserve Currencies, and Vehicle Currencies: An Argument*. (May 1966)
- † 55. Robert Triffin, *The Balance of Payments and the Foreign Investment Position of the United States*. (Sept. 1966)
- † 56. John Parke Young, *United States Gold Policy: The Case for Change*. (Oct. 1966)
- * 57. Gunther Ruff, *A Dollar-Reserve System as a Transitional Solution*. (Jan. 1967)
- * 58. J. Marcus Fleming, *Toward Assessing the Need for International Reserves*. (Feb. 1967)
- * 59. N. T. Wang, *New Proposals for the International Finance of Development*. (April 1967)
- † 60. Miroslav A. Kriz, *Gold: Barbarous Relic or Useful Instrument?* (June 1967)
- * 61. Charles P. Kindleberger, *The Politics of International Money and World Language*. (Aug. 1967)
- * 62. Delbert A. Snider, *Optimum Adjustment Processes and Currency Areas*. (Oct. 1967)
- † 63. Eugene A. Birnbaum, *Changing the United States Commitment to Gold*. (Nov. 1967)
- * 64. Alexander K. Swoboda, *The Euro-Dollar Market: An Interpretation*. (Feb. 1968)

- * 65. Fred H. Klopstock, *The Euro-Dollar Market: Some Unresolved Issues*. (March 1968)
- * 66. Eugene A. Birnbaum, *Gold and the International Monetary System: An Orderly Reform*. (April 1968)
- * 67. J. Marcus Fleming, *Guidelines for Balance-of-Payments Adjustment under the Par-Value System*. (May 1968)
- * 68. George N. Halm, *International Financial Intermediation: Deficits Benign and Malignant*. (June 1968)
- * 69. Albert O. Hirschman and Richard M. Bird, *Foreign Aid—A Critique and a Proposal*. (July 1968)
- * 70. Milton Gilbert, *The Gold-Dollar System: Conditions of Equilibrium and the Price of Gold*. (Nov. 1968)
- * 71. Henry G. Aubrey, *Behind the Veil of International Money*. (Jan. 1969)
- * 72. Anthony Lanyi, *The Case for Floating Exchange Rates Reconsidered*. (Feb. 1969)
- * 73. George N. Halm, *Toward Limited Exchange-Rate Flexibility*. (March 1969)
- * 74. Ronald I. McKinnon, *Private and Official International Money: The Case for the Dollar*. (April 1969)
- * 75. Jack L. Davies, *Gold: A Forward Strategy*. (May 1969)
- * 76. Albert O. Hirschman, *How to Divest in Latin America, and Why*. (Nov. 1969)
- * 77. Benjamin J. Cohen, *The Reform of Sterling*. (Dec. 1969)
- * 78. Thomas D. Willett, Samuel I. Katz, and William H. Branson, *Exchange-Rate Systems, Interest Rates, and Capital Flows*. (Jan. 1970)
- * 79. Helmut W. Mayer, *Some Theoretical Problems Relating to the Euro-Dollar Market*. (Feb. 1970)

PRINCETON STUDIES IN INTERNATIONAL FINANCE

- †No. 1. Friedrich A. and Vera C. Lutz, *Monetary and Foreign Exchange Policy in Italy*. (Jan. 1950)
- † 2. Eugene R. Schlesinger, *Multiple Exchange Rates and Economic Development*. (May 1952)
- † 3. Arthur I. Bloomfield, *Speculative and Flight Movements of Capital in Postwar International Finance*. (Feb. 1954)
- † 4. Merlyn N. Trued and Raymond F. Mikesell, *Postwar Bilateral Payments Agreements*. (April 1955)
- † 5. Derek Curtis Bok, *The First Three Years of the Schuman Plan*. (Dec. 1955)
- † 6. James E. Meade, *Negotiations for Benelux: An Annotated Chronicle, 1943-1956*. (March 1957)
- † 7. H. H. Liesner, *The Import Dependence of Britain and Western Germany: A Comparative Study*. (Dec. 1957)
- † 8. Raymond F. Mikesell and Jack N. Behrman, *Financing Free World Trade with the Sino-Soviet Bloc*. (Sept. 1958)
- † 9. Marina von Neumann Whitman, *The United States Investment Guaranty Program and Private Foreign Investment*. (Dec. 1959)
- † 10. Peter B. Kenen, *Reserve-Asset Preferences of Central Banks and Stability of the Gold-Exchange Standard*. (June 1963)
- † 11. Arthur I. Bloomfield, *Short-Term Capital Movements under the Pre-1914 Gold Standard*. (July 1963)
- * 12. Robert Triffin, *The Evolution of the International Monetary System: Historical Reappraisal and Future Perspectives*. (June 1964)
- * 13. Robert Z. Aliber, *The Management of the Dollar in International Finance*. (June 1964)
- * 14. Weir M. Brown, *The External Liquidity of an Advanced Country*. (Oct. 1964)
- † 15. E. Ray Canterbery, *Foreign Exchange, Capital Flows, and Monetary Policy*. (June 1965)

- * 16. Ronald I. McKinnon and Wallace E. Oates, *The Implications of International Economic Integration for Monetary, Fiscal, and Exchange-Rate Policy*. (March 1966)
- * 17. Egon Sohmen, *The Theory of Forward Exchange*. (Aug. 1966)
- * 18. Benjamin J. Cohen, *Adjustment Costs and the Distribution of New Reserves*. (Oct. 1966)
- * 19. Marina von Neumann Whitman, *International and Interregional Payments Adjustment: A Synthetic View*. (Feb. 1967)
- * 20. Fred R. Glahe, *An Empirical Study of the Foreign-Exchange Market: Test of A Theory*. (June 1967)
- * 21. Arthur I. Bloomfield, *Patterns of Fluctuation in International Investment Before 1914*. (Dec. 1968)
- * 22. Samuel I. Katz, *External Surpluses, Capital Flows, and Credit Policy in the European Economic Community*. (Feb. 1969)
- * 23. Hans Aufricht, *The Fund Agreement: Living Law and Emerging Practice*. (June 1969)
- * 24. Peter H. Lindert, *Key Currencies and Gold, 1900-1913*. (Aug. 1969)

SPECIAL PAPERS IN INTERNATIONAL ECONOMICS

- *No. 1. Gottfried Haberler, *A Survey of International Trade Theory*. (Sept. 1955; Revised edition, July 1961)
- † 2. Oskar Morgenstern, *The Validity of International Gold Movement Statistics*. (Nov. 1955)
- * 3. Fritz Machlup, *Plans for Reform of the International Monetary System*. (Aug. 1962; Revised edition, March 1964)
- † 4. Egon Sohmen, *International Monetary Problems and the Foreign Exchanges*. (April 1963)
- † 5. Walther Lederer, *The Balance on Foreign Transactions: Problems of Definition and Measurement*. (Sept. 1963)
- * 6. George N. Halm, *The "Band" Proposal: The Limits of Permissible Exchange Rate Variations*. (Jan. 1965)
- * 7. W. M. Corden, *Recent Developments in the Theory of International Trade*. (March 1965)
- * 8. Jagdish Bhagwati, *The Theory and Practice of Commercial Policy: Departures from Unified Exchange Rates*. (Jan. 1968)

REPRINTS IN INTERNATIONAL FINANCE

- †No. 1. Fritz Machlup, *The Cloakroom Rule of International Reserves: Reserve Creation and Resources Transfer*. [Reprinted from *Quarterly Journal of Economics*, Vol. LXXIX (Aug. 1965)]
- † 2. Fritz Machlup, *Real Adjustment, Compensatory Corrections, and Foreign Financing of Imbalances in International Payments*. [Reprinted from Robert E. Baldwin *et al.*, *Trade, Growth, and the Balance of Payments* (Chicago: Rand McNally and Amsterdam: North-Holland Publishing Co., 1965)]
- † 3. Fritz Machlup, *International Monetary Systems and the Free Market Economy*. [Reprinted from *International Payments Problems: A Symposium* (Washington, D.C.: American Enterprise Institute, 1966)]
- * 4. Fritz Machlup, *World Monetary Debate—Bases for Agreement*. [Reprinted from *The Banker*, Vol. 116 (Sept. 1966)]
- * 5. Fritz Machlup, *The Need for Monetary Reserves*. [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, Vol. 77 (Sept. 1966)]
- * 6. Benjamin J. Cohen, *Voluntary Foreign Investment Curbs: A Plan that Really Works*. [Reprinted from *Challenge: The Magazine of Economic Affairs* (March/April 1967)]

- * 7. Fritz Machlup, *Credit Facilities or Reserve Allotments?* [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, No. 81 (June 1967)]
- * 8. Fritz Machlup, *From Dormant Liabilities to Dormant Assets*. [Reprinted from *The Banker*, Vol. 117 (Sept. 1967)]
- * 9. Benjamin J. Cohen, *Reparations in the Postwar Period: A Survey*. [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, No. 82 (Sept. 1967)]
- * 10. Fritz Machlup, *The Price of Gold*. [Reprinted from *The Banker*, Vol. 118 (Sept. 1968)]
- * 11. Fritz Machlup, *The Transfer Gap of the United States*. [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, No. 86 (Sept. 1968)]
- * 12. Fritz Machlup, *Speculations on Gold Speculation*. [Reprinted from *American Economic Review, Papers and Proceedings*, Vol. LVI (May 1969)]

SEPARATE PUBLICATIONS

- † (1) Klaus Knorr and Gardner Patterson (editors), *A Critique of the Randall Commission Report*. (1954)
- † (2) Gardner Patterson and Edgar S. Furniss Jr. (editors), *NATO: A Critical Appraisal*. (1957)
- * (3) Fritz Machlup and Burton G. Malkiel (editors), *International Monetary Arrangements: The Problem of Choice*. Report on the Deliberations of an International Study Group of 32 Economists. (Aug. 1964) [\$1.00]

AVAILABLE FROM OTHER SOURCES

William Fellner, Fritz Machlup, Robert Triffin, and Eleven Others, *Maintaining and Restoring Balance in International Payments* (1966). [This volume may be ordered from Princeton University Press, Princeton, New Jersey 08540, at a price of \$6.50.]

Fritz Machlup, *Remaking the International Monetary System: The Rio Agreement and Beyond* (1968). [This volume may be ordered from the Johns Hopkins Press, Baltimore, Maryland 21218, at \$6.95 in cloth cover and \$2.45 in paperback.]









