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THE EURO-DOLLAR MARKET: SOME UNRESOLVED ISSUES

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In recent years, a few books as well as a fairly large number of articles and essays have dealt with the international markets for foreign-currency deposits, notably the Euro-dollar market. The subject has proved to have considerable fascination for students of international finance. This is not surprising, since the market's ramifications encompass virtually every facet of international financial relations. On its origins, functioning, and characteristics, little can be added to what has been said before. But, to judge from recurrent questions raised by economists in informal discussions, not all the analytical issues associated with the market have received the attention they deserve. It is the purpose of this paper to examine some of these issues in the hope of stimulating further discussions of the market's problem areas. The answers are sought against the background of the institutional realities of the market.

One issue that has aroused a fair amount of interest among economic analysts concerned with international finance is how the utilization of Euro-dollars affects the volume of dollar credit and dollar deposits outside the United States. Do foreign banks that employ Euro-dollar balances for loan and investment operations have the capacity to increase their dollar deposit liabilities to the public, and simultaneously their dollar loans, by some multiple of the increase in U.S. dollar deposits originally placed with them? Is there, as a result of Euro-dollar transactions, a monetary expansion process abroad analogous to the creation of dollar credit and deposits by banks in the United States as they acquire excess reserves?

Another problem has to do with a rather recent phenomenon, which is just beginning to excite the curiosity of students of the money market: the surge, during the last year or two, in the use of the market by major American banks for the purpose of expanding their credit base. The question is the significance of these sharply increased takings of Euro-dollars and their implications for domestic and international monetary policy.

Consideration of this issue raises the question of the market's relation to our balance of payments. On the one hand, has the market produced significant changes in any of our major payment accounts? And on the other hand, have the deficits in our international transactions been a necessary condition for the growth of the market, with the consequence that the market is likely to shrink if our balance of payments moves into surplus?

Finally, an issue calling for comment is the response of central banks to market operations that have effects counter to their policy objectives. In this connection, we shall discuss briefly the whys and hows of the instruments that central banks have employed to maintain a measure of control over investor and user access to the market.

SUPPLY-AND-DEMAND STRUCTURE OF THE MARKET

A few words on the supply-and-demand structure of the Euro-dollar market may be a useful prelude to the discussions that follow. This market—which approaches $15 billion in net size—is made up of foreign banking institutions that accept and invest balances on deposit in American banks. Institutions that are heavily engaged in Euro-dollar transactions and are therefore referred to as Euro-banks are located for the most part in Western Europe and Canada, but the term is applicable also to certain banks in other parts of the world, notably in Lebanon and Nassau.

As to the sources of the dollar balances that enter the market, there are first of all those placed by corporations and individuals, both resident and nonresident. These balances, in turn, derive from existing deposits held in the United States, from conversions of local and other foreign-currency holdings into dollars, or from dollar proceeds from sales of goods, services, and capital assets. Virtually all Euro-dollar balances represent deposits placed with a view to earning a return, but some—notably in Switzerland and Canada—are held in current accounts maintained by corporations for transactions purposes.

These dollar balances from nonbank sources reach the market, of course, through the commercial banks in which they have been deposited. But commercial banks themselves are also a source of supply, as they use the market on a large scale for the placement of excess cash reserves, converted into dollars for that purpose.

Central banks and other official institutions are another important source of Euro-dollars. A large number of central banks in developing countries and a few in Europe have for several years been depositing dollar balances in foreign banks. Some have done so only when their own commercial banks were withdrawing dollars from the market, notably during periods of seasonal or window-dressing pressures. A few, for a variety of reasons, have even offered substantial amounts of dollars, at attractive rates, to the commercial banks of their own countries under repurchase agreements; for the most part the commercial banks have employed such balances in the Euro-dollar market.

Finally, the Bank for International Settlements has continuously been a major supplier of funds to the Euro-dollar market, employing dollars from various sources. Substantial amounts represent funds deposited with it by some central banks. At times, in order to stabilize the market, the BIS has employed dollars obtained under swaps with the Federal Reserve System; thus, for brief periods, the available supply in the Euro-dollar market has been augmented by Federal Reserve credit.

Turning now to the major uses of the dollar deposits accepted by foreign banks, the balances may be put to immediate end-use by the accepting bank, but often they are passed on for redeposit in other banks —a process that may be repeated several times, perhaps even within the span of a few hours. When the funds are finally employed, a major portion goes into loans to nonbanks for financing commercial transactions. Among these, loans for foreign-trade financing are the most important, partly because of governmental restrictions on other uses. If the borrower does not need dollars for payment purposes, he has his bank sell the loaned dollars for another currency; or the loan itself may be denominated in a third currency that the bank has bought with Euro-dollars in order to meet the needs of its customers for low-cost loans. In fact, a substantial portion of the dollars deposited in foreign banks is sold for third currencies, either by the recipient banks or by the ultimate borrowers. Such sales are invariably made when dollar balances are employed by Euro-banks in money markets outside the United States.

At present another major use of Euro-dollar balances is their placement in head offices by overseas branches of American banks, for the express purpose of improving the parent bank's liquidity position and credit base. Also, sizable amounts of Euro-dollars are employed in loans to American companies for financing the needs of overseas affiliates. And further amounts are utilized by the New York agencies and branches of foreign banks for commercial loans and loans to securities dealers and brokers. Thus, in appraising the effects of the Euro-dollar market, adequate allowance must be made for the fact that a substantial portion of dollar deposits placed with Euro-banks is actually employed for deposit and credit operations in the United States, rather than for loan and investment transactions abroad.

THE PROCESS OF MULTIPLE EXPANSION

The question whether Euro-banks as a group can engage in a multiple expansion of dollar credit and deposits abroad has important implications for international financial mechanism.[1] No attempt is made here to handle this problem by means of a formal multiplier model. The pur-

[1] The question has received some attention in the literature. See, for instance, Leland Yeager, *International Monetary Relations: Theory, History and Policy* (New York 1966) p. 468; also Geoffrey L. Bell, "Credit Creation Through Euro-Dollars?" in *The Banker* (August 1964).

pose of the following observations is rather to point up some of those institutional characteristics of the market that have a bearing on what might be called the Euro-bank multiplier.

Pyramiding of Interbank Dollar Deposits

Needless to say, the problem has no direct relevance to interbank redeposits of dollars—that is, balances that are redeposited by one Euro-bank in another rather than employed for loans to nonbanks. But since such redeposits are an important feature of the Euro-dollar system it may be in the interest of analytical clarity to discuss them briefly.

Euro-banks redeposit dollar balances in other Euro-banks primarily in order to take advantage of interest-arbitrage opportunities. Such deposits also permit more intensive use of surplus funds and assist both suppliers and takers of dollar balances in making short-term adjustments in their liquidity positions. But dollar deposits by Euro-banks also serve the specific purpose of providing correspondent banks in and outside the Euro-dollar area with funds for financing commercial transactions.

Virtually every interbank Euro-dollar deposit involves a transfer in the books of a bank in the United States whereby the funds are credited to the account of the bank accepting the balance. The Euro-dollar market may thus give rise to a pyramiding of interbank deposits abroad on the basis of a given dollar deposit in an American bank. But the economic significance of these successive redeposits is confined to the fact that they make for a rapid and efficient transmission of short-dated funds to banks that are in a position to employ dollar balances for end-use purposes. The redeposits tend to improve the allocational efficiency of international banking, but successive interbank time-deposit liabilities do not add to the means of payment available for commercial transactions. Economic activity is not increased except to the extent that ready access to additional resources adds to the ability of banks to supply credit to borrowers in need of funds.

The banks that participate in deposit trading need to hold only minimal transaction balances in American banks as long as they see to it that the deposits they accept and place carry the same maturities. Some of the banks that are heavily engaged in deposit trading also carry commensurate balances with their American bank correspondents, but the size of these balances is typically quite modest and is not tied to their outstanding dollar liabilities. In view of the very narrow interest-rate margin earned in each successive deposit transaction, any sizable retention of balances in American deposit accounts would render the redeposits unprofitable.

In the absence of any required or desired relationship between balances in American banks and interbank dollar-deposit liabilities of foreign banks, the expansion potential of such deposits is virtually infinite: on the basis of a single dollar deposit, Euro-banks could generate a very large multiple of deposit liabilities and claims. In actual practice, however, the successive redeposit of balances cannot go on indefinitely. At each stage of redeposit, an accepting bank may find it more profitable to put the balance to an end-use than to redeposit it, especially because dollar balances tend to flow to countries with relatively high loan rates. Moreover, some banks make it a practice to accept balances only if they need funds for end-use purposes. The leakage of deposits into end-uses becomes increasingly likely if, as may well occur, the interest-rate margin earned by the deposit-placing bank includes a risk premium, arising either from the smaller size of the accepting bank's aggregate resources or from the vulnerability of its local currency. This risk may grow at each successive stage of redeposit and finally absorb the margin altogether. At that point, the pyramiding of interbank deposits comes to an end.

Even when Euro-dollar balances are put to end-uses, this by no means signals the beginning of a process of dollar-deposit creation abroad. Foreign banks often obtain or accept dollar balances because they wish to buy third currencies needed for loan and investment operations; such dollars do not even begin to circulate in foreign dollar-loan markets. Moreover, very large amounts of Euro-dollar deposits—possibly as much as $5.5 billion—are employed by foreign banks, and especially by the overseas branches of American banks, for deposit and loan transactions in the United States. Only a part of dollar deposits in Euro-banks is employed in dollar loans to foreign nonbanks—the use that could initiate a process of multiple credit creation in Euro-dollars. The outstanding amounts of such loans extended by Euro-banks themselves may be roughly estimated at $5 billion. In addition, banks outside the Euro-dollar area probably utilize for dollar loans to residents in their own countries approximately $2 billion of the estimated $4 billion that they obtain from Euro-banks.

Deposit Creation through Dollar Loans to Nonbanks

Euro-banks, as a rule, extend dollar loans either by crediting the entire amount of the loan to the borrower's account in their books or by authorizing him to make overdrafts on his account. The borrower then instructs the bank either to use the dollars for the purchase of specified currencies or to transfer given amounts of the loan to dollar accounts in given banks, and the lending bank makes these payments out of balances it holds in the United States. The process is essentially the same if the lending bank provides its customers with dollar checking facilities, as a few banks do in continental Europe; the banks in which the checks are eventually deposited are paid by the lending bank through credit transfers to their accounts in the United States. Not infrequently, the lending bank follows the procedure that is customary in the foreign interbank dollar-deposit market: rather than have the borrower draw on his account abroad, the bank transfers the loaned amount to an account in an American bank designated by the borrower, who can then dispose of the funds according to his needs.

The Euro-dollar expansion process is in theory similar to the one that is familiar in the creation of credit in the United States on the basis of a given amount of excess reserves. Assume that a Euro-bank acquires or accepts balances in American banks not hitherto circulating in the Euro-market, and then substitutes dollar loans to nonbank borrowers abroad for its new bank balances in the United States. As the borrowers disburse the amounts borrowed, some of the recipients redeposit the dollars in Euro-banks, which use them in granting additional loans to foreigners. The cycle continues if these borrowers make payments that result in additional dollar deposits in Euro-banks. Each borrower's disbursement leads to an equivalent diminution of the lending bank's cash reserves in American banks.

In theory, this process would give rise to a series of dollar loans and deposits abroad based on one dollar deposit in the United States. Moreover, it could have a much larger multiplier than the analogous process in the United States, where the multiplier is limited by legal reserve requirements. Foreign banks that accept dollar deposits from nonbanks are not required to immobilize part of their dollar assets in nonearning balances with their central bank (though a few countries require that domestic-currency deposits be held in the central bank against net dollar liabilities to foreigners). Nor do they need more than minimal contingency reserves in American banks to meet unexpected withdrawals. For those of their dollar liabilities that are payable at stated maturity dates or after advance notice, rather than on demand, the need for contingency reserves held in the United States is virtually nil. For deposits payable at call and current-account deposits, the function of such reserves can be served by various alternatives. One is the Euro-bank's cash reserves in local currency, if convertible into dollars (though their actual use could entail unanticipated interest and forward-rate costs). Another is standby credit lines in American banks. And a commonly used alternative is call deposits of dollars in other Euro-banks, as such deposits can be made available in the United States within a day or two, if need be.

It may be noted, incidentally, that banks that accept call deposits—particularly some of the overseas branches of American banks and the Canadian and other foreign banks that have agencies and branches in the United States—are typically in a position to employ such balances profitably in this country, either by using them as a substitute for purchasing liquidity in the United States or by placing them here as call loans to securities dealers and brokers. As a result, the function of protecting Euro-banks against cash drains and maintaining their ultimate cash reserves is to a considerable extent performed by those banks abroad that operate in both the Euro-dollar market and money markets in the United States, and, thus, are in a position to act as arbitrageurs between the two.

But, despite the fact that dollar loans extended by Euro-banks can theoretically lead to a very substantial multiple expansion, the expansion that actually occurs is quite limited. The reason is that leakages of dollars from the system are very large. In the United States, dollar deposits as they are disbursed remain in the banking system until they are extinguished through a contraction of bank credit or withdrawals of currency or specie; and, as long as they remain in the system, a loss of deposits by an individual bank is offset by a corresponding gain by another bank. In the Euro-dollar system, this does not hold true. The dollar liabilities of Euro-banks, consisting almost entirely of call and time deposits, serve only to a limited extent as a medium of payment, and one Euro-bank's loss of dollars is not likely to be offset by another's gain.

To be sure, the dollar is universally acceptable for international payments and a substantial portion of world trade is settled through payments over bank accounts in the United States. Nevertheless, the dollar is not a fully effective circulating medium of payments abroad: foreign firms and individuals cannot always employ their dollar receipts to meet their own payment needs without conversion into other currencies. In Western Europe, the core of the Euro-bank area, interregional transactions are typically billed and settled in local currencies. Frequently, commercial firms in need of financing, notably importers, find it convenient and less expensive, in the light of prevailing interest-rate constellations, to borrow dollars rather than the currency immediately required, but, more often than not, they direct the lender immediately to sell the loan proceeds for their account in order to acquire the currency needed for their payments. And, when loan proceeds are indeed used to make dollar payments to suppliers in various areas of the world, the recipient may well be a United States resident who deposits the dollars in his account with a bank in the United States rather than in a Euro-bank. If he is a foreigner, he is likely to need his own or third currencies for making disbursements and, therefore, to sell his dollar receipts; there is no reason for assuming that more than a small part of such dollar accruals to foreign accounts will be redeposited with a Euro-bank.

These general observations may be qualified to some extent. A number of multinational companies, including affiliates of American corporations, maintain dollar accounts in Euro-banks, over which they receive payments from the United States and other parts of the world, primarily the dollar area, and from which they make disbursements, sometimes by check; many financial institutions and business firms that have continuous inflows and outflows of dollar payments maintain such accounts rather than incurring the costs of selling dollars at bid and repurchasing them at asked prices. At least some of the payments to such accounts probably originate in dollar loans from Euro-banks: thus the proceeds of a Canadian bank's loan in U.S. dollars may be paid by the borrower into his supplier's dollar account in a European bank, and that bank may then relend the dollars. In still another return-flow type of transaction, a company in the United States that receives a medium-term loan from a Euro-bank may keep the borrowed amount on deposit with the lender, pending disbursement for investment projects abroad. It is also quite possible that some of the dollars deposited with Euro-banks by central banks derived originally from Euro-dollar loans. And some recipients of these funds, notably in the oil-producing areas of the Persian Gulf, make it a practice to hold a proportion of their continuously growing wealth in the form of Euro-dollar deposits (residents of the Middle East held at the end of 1966 approximately $1 billion in dollar deposits with European banks). There may well be a relationship, however tenuous, between the loan extensions of Euro-banks and their recapture of balances from such sources.

But these are modifications, not contradictions, of the general rule that Euro-banks in the aggregate cannot anticipate any sizable recapture of dollar deposits they have used for loan extensions. Nor can a particular Euro-bank expect—as can very large banks in the United States—that some of the disbursements by firms to which it extends credit will be paid into accounts of its own customers. The weight of the evidence indicates that the process of multiple expansion terminates at a very early phase of the circuit and, hence, that any increase in Euro-bank loans results in a relatively modest rise in dollar deposits in Euro-banks. Moreover, part of the deposit increase that does occur—how large a part depends on international interest-rate constellations—may be employed in the United States. And a further part—its size dependent not only on interest-rate but also on forward-rate constellations—may be swapped into third currencies. On the whole, therefore, it appears that the Euro-bank multiplier is very low, lying probably in the approximate range of 0.50 and 0.90.

The obvious ability of these banks to expand their dollar liabilities at a rapid rate—by as much as $3.5 billion in 1966 alone—rests primarily on their ability to offer holders of liquid balances throughout the world investment facilities superior to those available in other markets. They enjoy several competitive advantages over banks in the United States: they are able to pay interest on deposits with a maturity of less than 30 days; in their borrowing and lending transactions they are willing to operate within very narrow interest ranges; they are not subject to regulatory restrictions on time-deposit rates; and they benefit from the ease and convenience with which Euro-dollar deposits can be made. Other major elements in their competitive strength are their proximity to important depositors of dollars, their continuous contact with major market participants through their foreign-exchange dealings, and old-established account relationships with potential depositors. And a further factor contributing to growth is the market participation of those central banks that either directly place dollar balances with Euro-banks or sell them dollars at advantageous swap rates for reasons of domestic or international monetary policy.

In brief, in their dollar-loan operations Euro-banks pass on funds created almost entirely in the United States rather than by their own loans. They are well able to replenish their supply of dollars and thus to return to use in the Euro-dollar system the dollars that disappear from the system as a result of their loans and investments.

USE OF EURO-DOLLARS BY MONEY-MARKET BANKS IN THE UNITED STATES

Euro-dollar deposits have been used in money and loan markets in the United States to some extent since the Euro-dollar market first developed. In 1966, however, American banks through their branches in London and other major international financial centers sharply increased their use of the market in order to improve their ability to meet their loan commitments. By early December of that year, their takings (including balances of a rather different nature obtained from their Tokyo branches) had risen by $2.3 billion to substantially more than $4 billion. Toward the year-end and during the early months of 1967, the use of Euro-dollars by these banks fell off, but by November 1967 it had exceeded even its earlier peaks, reaching a total of more than $4.5 billion. The surge in overseas branches' placements of Euro-dollar balances in their head offices is one of the most significant developments in the history of the market. As a result, a relatively small number of banks in the United States have become the most important factor on the demand side for Euro-dollars. The conditions that determine their demand for funds now have immediate reverberations abroad.

The use of the Euro-dollar market by banks in the United States has been facilitated by the fact that deposits accepted by the branches are not subject to any of the interest-rate limitations that apply to deposits at the head offices under Federal Reserve regulations. Nor do the interest-rate ceilings apply to whatever payments banks make under internal account-