

Euro-Dollars, Once Again

There are several types of bore; notorious is the one who always talks about the same things. I would hate to become tagged as a specialist in Eurodollar banking. If I nevertheless accept the editor's invitation to respond to two articles¹ on Euro-dollar problems, I do so chiefly because my failure to respond might be wrongly interpreted as a lack of respect for the writers who have taken the trouble to discuss the first of my efforts at Euro-dollar analysis. Another excuse for my repetitiveness is that of the seven papers² in which I have dealt with Euro-dollars, or with Xeno-currencies in general, at least five will be found in publications not easily accessible to readers of this *Quarterly Review*.

Although I am writing in response to the articles by Fratianni and Savona and by Mayer, it is neither my intention to deal with all the points and issues which they raised nor to confine myself to them. My selection of issues may be judged to be rather arbitrary, but so are all selections.

¹ MICHELE FRATIANNI and PAOLO SAVONA, "Eurodollar Creation: Comments on Prof. Machlup's Propositions and Developments", in this Review, No. 97, June 1971; HELMUT MAYER, "Multiplier Effects and Credit Creation in the Eurodollar Market", in this Review, No. 98, September 1971.

² "Euro-Dollar Creation: A Mystery Story", in this Review, No. 94, September 1970; "World Inflation: The Present Situation", a paper delivered at a Conference at the Bologna Center of the Johns Hopkins University, April 1971 (Proceedings to be published); "Changes in the International Monetary System and Their Effects on Banks", a paper delivered to the International Banking Summer School in Chianciano, May 1971, published in *Banking in a Changing World* (Rome: Associazione Bancaria Italiana, 1971); "The Magicians and Their Rabbits", *Morgan Guaranty Survey*, May 1971; "The Eurodollar System and Its Control", a paper delivered at the Monetary Conference of the American Enterprise Institute, Washington, September 1971, (Proceedings to be published under the title *International Monetary Problems*); "Stateless Money", an essay in the Festschrift for Professor George N. Halm (to be published); "Five Errors about Euro-Dollars", (to be published in *Euromoney*, July 1972).

Xeno-Currencies, Euro-Dollars, Credit Creation, Deposit Creation

I begin, as I usually do, with terminological matters, especially because I have to defend a new coinage of mine, "Xeno-currencies". I could not accept the semantic sloppiness of many writers in financial journals who included dollar deposits with banks in Asia and other faraway places under the heading of Euro-dollars. A term was needed that would cover dollar deposits with banks in Singapore and German mark deposits with banks in Rio de Janeiro as well as Swiss franc deposits with banks in London. All these are Xeno-currencies, that is, bank deposit liabilities denominated in currencies other than that of the country in which the bank (or bank branch) is located. If the bank is located in Europe, its deposit liabilities are Euro-currencies; and if the currency is the dollar, they are Euro-dollars.

Creation of Euro-dollars is a case of deposit creation, which may be, but need not be, associated with credit creation. Bank *credit* refers to assets (claims) acquired by banks; bank *deposits* are liabilities owed by banks. It is not idle pedantry to insist on the distinction; Euro-banking operations may result in increases in the supply of credit without increasing the stock of deposits, and *vice versa*.

Deposit creation is a term with several meanings. John Maynard Keynes used the term in an unusually wide sense: "There can be no doubt that, in the most convenient use of language, all deposits are 'created' by the bank holding them".³ In this wide sense, deposit creation occurs when a bank credits a customer's account regardless for what reason, hence also for cash received. However, Keynes distinguishes the bank's "actively" creating deposits "by lending and investing" and its "passively creating them against the receipt of liquid resources from its depositors".⁴ Most writers mean by deposit creation what Keynes meant by *active* creation of deposits, but they prefer to refer to a system or group of banks rather than to an individual bank. The reason is that a small bank increasing its loans and investments will, in all probability, have to pay for these

³ JOHN MAYNARD KEYNES, *A Treatise on Money* (London: Macmillan, 1930), Vol. 1, p. 30. — We usually say that the *customers* are "holding" bank deposits; Keynes' statement should have spoken of the bank "owing" the deposits.

⁴ KEYNES, *op. cit.*, p. 25.

new portfolio assets nearly the full value out of its cash reserves; thus it will be creating additional deposits in other banks rather than an increase in its own deposit liabilities. Only if all banks expand their asset portfolios at approximately the same pace (relative to a variety of conditions) will they create deposit claims against themselves without losing cash reserves.

This process is what most writers have in mind when they discuss the expansion of Euro-banking operations and try to attribute it to (active) deposit creation. However, strong reasons favor a less confining conception of "creation of Euro-dollars". *Lending and investing by Euro-banks could increase the total volume of dollar deposits in the world even if they, as a group, were to lose a whole dollar in cash for each dollar lent or invested.* If creation of dollar deposits is defined as an increase in the total volume of dollar deposits beyond what it would be if no dollar loans and investments had been made by Euro-banks, then one can diagnose dollar-deposit creation even in the absence of any "redepositing" of dollars by (old or new) customers of any of the Euro-banks. This different kind of deposit creation is based, not on the institution of "fractional reserve requirements", but on the institution of a two-level system of banking where deposit liabilities of banks on one level can serve as cash reserves of banks on the other level. The prototype of this arrangement is the system of non-member banks and savings banks in the United States, which use their deposit claims against member banks as their own cash reserve.

Euro-banks are in the role of nonmember banks. Switches of nonbank deposit balances from American to European banks leave the total of dollar deposits of nonbanks in banks of both levels unchanged. Subsequent loans by European banks, even if they result in a loss of their dollar reserves equal to the amounts lent — because the borrowers pay all the borrowed funds to firms and individuals who keep their balances with American banks — will then create dollar deposits of nonbank depositors in the United States without reducing the dollar deposits in the Euro-banks. The net increase in total dollar deposits (on both continents together) would not have come about in the absence of Euro-dollar lending and thus qualifies as deposit creation through Euro-banking operations.

Measuring the Creation of Deposits

Creation of deposits through the banks' lending and investment activities is measured by the excess of the *actual* volume of deposits over the *hypothetical* volume that would exist if the banks had not made the loans and investments in question. Since hypothetical magnitudes cannot be observed but at best be inferred from theoretical arguments, the comparison between the two magnitudes will always be a speculative procedure, and "measurement" will presuppose agreement about the most plausible assumptions and the most acceptable theoretical relationships. Moreover, the measurements will be very different depending on the length of the period considered and on the inclusion or exclusion of certain types of bank, of various regions in which the banks are located, of different types of deposit and types of depositors, and so forth. It will make a great difference, for example, if we focus only on deposits denominated in dollars or include also deposits in several other currencies; if we focus only on balances of nonbank depositors or include balances held by banks of certain types or in certain regions; if we focus only on dollar deposit liabilities of banks in certain countries of Europe or include the deposit liabilities of banks in the United States, or, to go further, the dollar deposit liabilities of banks anywhere in the world; or, still more comprehensive, if we include deposits in any currency in banks anywhere.

An illustration of some of these differences may be helpful. Assume that an amount of \$100 million is transferred by their owners from their accounts with American banks to their dollar accounts with banks in Europe. In the hypothetical (though practically impossible) case that the European banks, having acquired dollar deposit claims against American banks and dollar deposit liabilities to nonbank customers, were to abstain from lending or investing their dollars, we would find that Euro-dollar deposits have increased by \$100 million, while dollar deposits of nonbanks with American banks have decreased by the same amount. In a more realistic case, in which the European banks make dollar loans in almost the entire amount of their liquid dollar holdings, say, in an amount of \$97 million, the nonbank borrowers will within a very short period make payments of almost the full amount, say \$95 million, to residents of various countries. Let us assume that the

recipients deposit \$80 million with American banks, \$5 million on dollar accounts with European banks (with whom the borrowers themselves had left \$2 million), and \$3 million on dollar accounts with banks in countries neither in Europe nor in the United States; and that they convert the remaining \$7 million into other currencies and deposit them on nondollar accounts, \$4 million (equivalent) in Europe and \$3 million (equivalent) elsewhere. Now, if there are no feedbacks, within the chosen period, from the concomitant changes in reserves and excess reserves in the various banks, how large was the deposit creation attributable to the Euro-banks loans?

(a) Counting only the dollar deposit liabilities of only the European banks, we find that to the original \$100 million there were added \$2 million on the accounts of the borrowers and \$5 million on the accounts of customers to whom the borrowers made payments, together \$7 million.

(b) Counting both the dollar and nondollar deposit liabilities of only the European banks, the increase is \$11 million — \$7 million in dollars and \$4 million in other currencies (including the local currency of the country in which the bank is located).

(c) Counting the dollar deposit liabilities of both European and American banks, the \$80 million that returned to the United States as deposits with American banks must be added to the \$7 million in European banks, which makes \$87 million.

(d) Counting the dollar deposit liabilities of banks anywhere, we must add another \$3 million, bringing the increase to \$90 million.

(e) Finally, counting both the dollar and nondollar deposit liabilities of banks anywhere in the world, the increase will be \$97 million, which is precisely the amount of the Euro-dollar loans.

These are the magnitudes of deposit creation *before* any feedbacks occur from movements or non-movements of reserves due to "redepositing" by customers who receive payments out of funds lent by the Euro-banks. Such feedbacks must be expected, because the European banks will at this juncture have excess cash reserves in an amount of almost \$7 million in dollars and almost \$4 million in other currencies (including their own), and the banks in non-European countries other than the United States will have acquired

excess reserves in dollars and other currencies amounting to almost \$6 million.

We have recorded the results from different ways of counting the "additional" deposits — additional to those merely switched from American to European banks — as (a) \$7 million, (b) \$11 million, (c) \$87 million, (d) \$90 million, and (e) \$97 million. But all these results refer to deposit creation before the process of "second-round lending" (or what some call "active credit creation") — that is, additional loans made possible by "customer redepositing"⁵ of funds received in payment from borrowers of previous bank loans — got underway. Second-round credit and deposit creation cannot be large if payments derived from additional loans go chiefly to individuals and firms who keep their deposits with American banks (so that the cash drain from Euro-banks is substantial). The second round of lending by banks outside the United States will, on the basis of the excess liquidity of \$17 million [7+4+6] with which we left them in the preceding paragraph, produce additional loans of almost \$17 million and hence additional deposits amounting to anything between \$1 million and \$17 million, depending on which way of counting we use. If we want to count only dollar deposit liabilities of only European banks, measurement (a) is the appropriate one. That, by this measurement, deposit creation appears so modest is due to the assumption, in the numerical example chosen, that out of Euro-dollar borrowing of \$97 million as much as \$80 million was paid to customers of American banks and only \$7 million [\$2 million held by the borrowers and \$5 million redeposited by their payees] stayed as dollar balances with European banks.

We may want to see the effects of a smaller "leakage", that is, of a larger percentage of payments going to individuals and firms who keep dollar accounts with European banks. Let us assume that of the \$97 million lent by Euro-banks (which had received \$100 million of deposit balances switched from American banks) the nonbank borrowers' payments of \$95 million go to (direct or indirect) recipients who deposit \$35 million with American banks, \$15 million on dollar accounts and \$5 million on nondollar accounts with non-European, non-American banks, and \$30 million on dollar

⁵ Usually, the word "redepositing" is confusingly used in two meanings, which I try to keep apart by speaking of "interbank redepositing" and "customer redepositing". Only the accounts of nonbanks are referred to when I speak of customer redepositing.

accounts and \$10 million on nondollar accounts with European banks. Before any feedbacks from abroad and any second-round lendings by Euro-banks occur, the various measurements of deposit creation show the following results:

(a) \$32 million additional dollar deposit liabilities of European banks;

(b) \$42 million additional dollar and nondollar deposit liabilities of European banks;

(c) \$67 million additional dollar deposit liabilities of American and European banks;

(d) \$82 million additional dollar deposit liabilities of banks anywhere, and

(e) \$97 million additional dollar and nondollar deposits liabilities of banks anywhere.

The smallest of these amounts, the dollar deposit balances held in European banks in addition to the \$100 million originally transferred from the United States, is \$32 million. (Hence, at this early phase of the process, Euro-dollar deposits are \$132 million, of which about 25 per cent were "made in Europe"). There will surely be subsequent feedbacks and extensions of credit, since the European and other non-American banks will have excessive cash reserves, which they will quickly use for a second round of lending. The European banks have \$35 million in liquid dollars (but will hardly want to keep more than the previously held \$3 million, and perhaps less, uninvested) and an additional \$10 million in other currencies (including their own); and the other non-American banks have \$15 million in liquid dollars and \$5 million in other currencies ready for additional loans. The second round of lending may easily — if the proportions in the use of borrowed funds remain approximately the same as in the first round — add another \$10 million to the additional Euro-dollar deposit liabilities attributable to the dollar loans of Euro-banks. The figure will be greater if parts of the induced loans extended by non-European banks lead to dollar deposits in Europe. And, of course, there will again be feedbacks from the second round of lending, resulting in further deposit creation in subsequent rounds.

But even before feedbacks — that is, before any additional lending occurs that is induced or made possible by cash reserves recovered or retained thanks to customer redepositing — the magni-

tude of Euro-dollar creation is a function of the proportions in the uses made of the borrowed funds. (Compare the \$7 million Euro-dollars in the first illustration with the \$32 million in the second). These proportions, however, need not remain the same over time. Indeed, we have strong reasons to expect the distribution of customer redepositing to change as to region as well as denomination. Among the important factors determining that distribution are relative interest rates paid on the deposits.

Time Deposits as Cash Balances

The fact that relative interest rates are important in determining whether recipients of payments (derived from dollar loans by Euro-banks) will deposit in Euro-banks large or only small parts of their receipts raises several questions regarding the character and function of these dollar deposits. Among other things various writers question whether deposits carrying interest at rates significantly above those obtainable elsewhere are used as "transactions balances" and whether the creation of these deposits may be regarded as adding to the international supply of "money".

Euro-dollar deposits are largely time deposits. To be sure, a portion of the deposits are over night, at call, and on seven-day notice, but the bulk of them is for longer periods, the largest part for one, two, or three months, and a very small part extending for periods longer than a year.⁶ Some analysts of the system believe that the character of most Euro-dollars as time deposits makes a fundamental difference in that they are not "money", that they cannot be used directly for making payments, that they are not "transactions balances", that they are, instead, investments, that they increase only as saving increases as a function of increases in incomes, and that they are most unlikely to increase as a function of increases in Euro-dollar lending by banks.⁷ To explain why all these beliefs are either unwarranted or irrelevant is my immediate task.

⁶ Interest rates are, as a rule, higher for longer periods. For example, in March 1972, London banks paid 4 per cent for deposits at call and on 7-day notice, almost 6 per cent p.a. for 6-months deposits, and 6.4 per cent for 12 months. In the tight market in 1969, the rates paid on short-term deposits were higher than those for longer periods, all above 10 per cent p.a.

⁷ See, for example, the following statements in Mayer's article:

"... in contrast to the deposit liabilities of U.S. commercial banks, Euro-dollar deposits are not generally used as a payments medium. Some minor exceptions apart, no cheques

1. Whether time deposits in commercial banks are regarded as money, near-money, quasi-money, or money substitutes is a matter of terminological taste. Modern monetary economics tries to satisfy different tastes by distinguishing M_1 and M_2 (the latter including time deposits) and calling for the publication of statistical reports on both.

2. That time deposits are usually not transferable by check and, hence, are not means of payment is irrelevant for economic analysis if it is an established fact that individuals and firms treat their time deposits as part of their liquid balances. Thus, whether time deposits are or are not included in the supply of money (M_1) matters little as long as one realizes that they are part of the supply of money plus near-money (M_2) and can satisfy the demand of individuals and firms for liquid balances.

3. Whether time deposits are held because of the transactions motive, the precautionary motive, or the speculative motive for liquidity preference is for the problem of explaining the holding of Euro-dollar deposits less relevant than are the implications of the theory of portfolio selection, according to which changes in yields, risks, wealth, and preferences determine the proportions in which alternative assets are held.

4. That saving out of increased incomes will increase total assets is true, but it is surely not true that the portion of wealth held in the form of time deposits will depend only on saving; instead, it depends on all the factors that operate in portfolio selection in general and determine in particular the ratio of time deposits to

can be drawn on Euro-dollar deposits; before such deposits can be used for payments purposes, they first have to be converted into a deposit with a bank located in the United States. This point is a vital one for a proper understanding of the working of the Euro-dollar system, since it implies that acquiring a Euro-dollar deposit is in many ways much more like investing in Treasury bills, commercial paper, or certificates of deposit than holding an interest-free demand deposit with a bank in the United States" (p. 241).

"The fact that Euro-dollar deposits meet an investment rather than a payments need and form part of the financial rather than the income circulation has important implications for the Euro-dollar banks' credit-creating power" (p. 242).

"... in their relations with non-banks the Euro-banks, on their liabilities side, have rather the character of savings banks" (p. 260).

"There may, of course, also be an induced increase in deposits with the 'savings banks' to the extent that the expansion in money incomes resulting from the increased income circulation gives rise to a growth of savings that partly takes the form of larger deposits with the 'savings banks'" (pp. 242-43).

demand deposits — no matter whether incomes and saving have increased.

5. That time deposits may be regarded by their owners as investment is not relevant as long as they are regarded as sufficiently liquid to be acceptable substitutes for "perfectly liquid" cash balances.

Feedbacks of Various Orders of Remoteness

The fact that most Euro-dollar deposits are time deposits, not demand deposits, does not present any obstacle to the redepositing of sizable parts of the funds received in payment directly or indirectly from borrowers of Euro-dollar loans. Practically all holders of large cash balances hold parts of them in the form of time deposits; and holders with large international transactions may prefer to hold time deposits denominated in dollars with banks that pay relatively high rates of interest, hence with Euro-banks. Among the recipients of payments made in dollars derived from loans by Euro-banks probably many are inclined to hold parts of their balances in Euro-banks.

What about "leakages" into other currencies and other regions? There will surely be borrowers, or (direct or indirect) recipients of funds paid out by borrowers, who convert the dollars into other currencies. However, the European or other non-American banks with which the proceeds are deposited will almost certainly use their increased reserves to expand their loans, and some of the borrowers of these loans, or some of their subsequent payees, may find it attractive to hold parts of their balances in dollars with European banks. This sort of feedback from Euro-dollar loans, although very roundabout and practically impossible to trace, must also be taken into account in the process of Euro-dollar creation.

I have used the concept of feedback to cover much more than redepositing by borrowers, by recipients of borrowers' payments, and by recipients of recipients' payments any number of steps removed; the concept should cover also the depositing (not redepositing) of funds that owe their existence to new loans granted by banks that are not members of the Euro-system and extend these loans only because their lending capacity has been increased through an inflow of reserves from Euro-banks. I shall distinguish feedbacks of various orders of remoteness, the first comprising the ordinary redepositing

of dollars, that is, the case of dollars derived from first-round loans by Euro-banks being redeposited in the same or other Euro-banks by the nonbank borrowers or the recipients of their payments one or more steps removed. Feedbacks of higher orders of remoteness occur in the form of dollar deposits with Euro-banks that are derived from "induced" nondollar loans by European banks or from "induced" loans by non-European banks. Let me try my hand at formulating definitions of these different types of feedback.

Feedbacks of the first order of remoteness include not only redeposits by borrowers and by recipients of the dollars paid out by borrowers of *Euro-dollar loans*, but include also redeposits by subsequent payees, as long as the funds can be regarded as descendants in straight lineage of the funds lent by the Euro-banks.

Feedbacks of the second order of remoteness include deposits of dollars by borrowers of *nondollar loans from European banks*, or by recipients of payments made by these borrowers or by subsequent payees, provided the nondollar loans were induced or made possible by increases in cash reserves which the banks had obtained through deposits of funds that were converted from dollars derived from antecedent Euro-dollar loans.

Feedbacks of the third order of remoteness are those that come through countries outside Europe. They include deposits of dollars with European banks by borrowers of *loans taken from banks in other regions* either in dollars or in other currencies subsequently converted into dollars, or by recipients of payments made by these borrowers, or by any subsequent payees, provided the loans by the banks in these "outside regions" were induced or made possible by increases in cash reserves obtained through deposits (of dollars or other currencies) that were derived from antecedent Euro-dollar loans.

Some readers may wonder why the feedbacks of the third order of remoteness — the depositing with European banks of dollars derived from loans by non-European banks which in turn were induced by leakages from "inside Europe" — seem to point mainly or only to non-American banks. The reason is that American banks are unlikely to be backfeeders: for, taken as a group, their liquidity (reserve position) is not affected either by outflows of dollars or by backflows of dollars as long as the banks have the same reserve requirements for deposit liabilities to foreign banks and to domestic or foreign nonbanks and as long as the Federal Reserve banks are

not getting into the act. A backflow of dollars through payments from Europe to the United States leaves total deposit liabilities of American banks (taken together) unchanged, as European banks are being debited and American recipients of payments credited on their accounts.⁸ Thus, the feedbacks of the third order of remoteness come chiefly from "third countries".

The magnitudes of all feedbacks are apt to change with conditions in various countries. There may be times when most payments go to the United States and feedbacks are small. At other times feedbacks of the first order may be especially large; for example, when interest rates on Euro-dollar deposits are much higher than what depositors are paid elsewhere, the incentive to redeposit is great. Special circumstances — particularly in situations of monetary ease or tightness in countries in ambitious pursuit of independent credit policies — may account for large feedbacks of the second or third order of remoteness. Alas, we know little about these matters. The firm conviction of some experts that customer redepositing is "exceedingly rare" and the opposite conviction of some theorists that a "large multiplier" must be at work have not led to any in-depth research on these questions. Available statistical data are inadequate for such research. It would probably take extensive survey research, with the active co-operation of large numbers of large depositors, to produce any usable answers, which in any case would be valid only for particular historical situations.

The Reserve-Deposit Multiplier

If the various feedbacks depend on changeable conditions and, therefore, change their relative magnitudes over time; and if no statistical data are available to determine the size of the feedbacks at any period, what point is there in expressing the creation of Euro-dollar deposits by a single number such as the ratio of reserves to deposits or the "multiplier" by which an increment in reserves has to be multiplied in order to predict the resulting increment in

⁸ While total deposit liabilities and total reserves of the American banks (taken as a group) remain unchanged — and hence, with undifferentiated reserve requirements, their lending capacity remains also unchanged — the American-owned money supply is increased by the payments from Europe. This may result in some feedbacks to Euro-banks, though only in negligible amounts. (I am indebted to Professor Lester V. Chandler for this qualification).

deposits? The device of a multiplier in the analysis of Euro-dollar-deposit creation appears even more questionable if we realize, first, that we are not sure how we might measure the multiplicand and, secondly, that there are several different ways to measure the product.

In the commercial-banking system of the United States, both the required "reserves" and the measurement of deposits are carefully specified by law. The amount of "legal" reserves and of deposits "subject to reserve requirements" are unambiguously established and reported in statistical series. As we know the required ratio of reserves to deposits and can estimate the reserve drain (or its complement, the redeposit ratio), we know the highest potential multiplier; as we know also the actual reserves, we know the largest permissible volume of deposits; and as we know the actual deposits, we may compare increases in reserves and increases in deposits, and calculate the actual multiplier.

None of these magnitudes is known in the Euro-banking system. There are no legal reserve requirements and no uniform self-imposed reserve targets. There exists no specification of what assets ought to constitute reserves and no information on what assets the banks actually regard as reserves, or even what assets, which some analyst may judge to qualify as cash reserves, the banks actually possess. Moreover, we cannot estimate the "normal" reserve drain or leakage that is liable to occur as a result of loans and investments made by Euro-banks, because, as we have seen, no stable ratios exist among the uses made of Euro-dollar loans and, therefore, feedbacks (or the redeposit ratio) may vary greatly with changing conditions. Finally, as we have seen before, there are many possible ways to measure an increase in deposits; the five measurements which we compared in an earlier section are only a sample of the many theoretically possible variants; but as a matter of fact, no reliable statistical series exist that would permit actual measurement. Hence, we know neither the multiplicand nor the highest potential multiplier nor the actual product.

I have great respect for the brave attempts by Fratianni and Savona to measure the multiplier in Euro-dollar banking. Their proposal to solve the problem of ascertaining the multiplicand by refining a concept of "international monetary base" (IMB) is interesting but, in my opinion, not functional. The idea to reconstruct the balance of payments of the United States in such a way that the deficit becomes the equivalent of the increase in liquid dollar reserves

of banks outside the United States is, if I correctly understand the suggestion, conceptually unsound. In any year (or other period) the increase in IMB held by Euro-banks is, as I see it, unrelated to any aggregate magnitude in the balance of payments of the United States; neither a deficit on capital account nor a deficit on any basis can be shown to be a necessary or a sufficient condition for an increase in the dollar reserves of Euro-banks; indeed, an increase of such dollar reserves can take place with a surplus on capital account or on any other basis. I recommend testing the Fratianni-Savona hypothesis by the growth of other Euro-currencies. The growth of the Euro-mark was accompanied by large surpluses in the German balance of payments, though, I must confess, I have not tried to reconstruct the balance on an IMB basis.⁹

If I deny the usefulness of estimating a multiplier for the creation of deposits by loans and investments of Euro-banks, this does not mean that I deny the "multiplicative" effects of the acquisition of liquid dollar reserves by European banks. To question the numerical results distilled by manipulations of inadequate statistical data is not to deny the existence of the phenomenon or process of deposit creation by the lending activities of European banks. But apart from all difficulties of empirical research, even for purely theoretical explanations, I find it better to do without the concept of a multiplier in a framework in which unambiguous measurements of multiplicand and product are even conceptually excluded.

Euro-Banking Transactions and the Balance of Payments

My propositions about the effects of certain Euro-banking transactions upon the balance of payments of the United States were challenged by Helmut Mayer. He finds that "taken literally, all these propositions are, in a trivial sense, correct" but, in some deeper sense, misleading in that they fail to show some essential "causal

⁹ For a discussion of various parts of the balance of payments in relation to the growth of the Euro-dollar system I refer to a section entitled "The Balance of Payments of the United States" in my paper prepared for the American Enterprise Institute, to be published soon in a volume entitled *International Monetary Problems*; and to my article "Five Errors about Euro-dollars" to be published in *Euromoney*. In both these pieces I try to show that the net balance of payments of the United States is as unrelated to the growth of Euro-dollar deposits as the net balance of payments of Western Germany to the growth of Euro-mark deposits.

relationships" (p. 258). The challenge requires me to offer explanations of a methodological nature which may be lost on some of my readers. I hope they will bear with me and try to make the best of a few somewhat subtle distinctions.

Most of us know the difference between supply and demand, on the one hand, and sales and purchases, on the other. Sales and purchases must by definition be equal since they are the same transactions. Supply and demand are hypothetical quantities, which at various prices may be different. An increase in demand may cause an increase in price and at the higher price the quantity supplied may be increased. An increase in supply may cause a decline in price and at the lower price the quantity demanded may be increased. Both these changes will be associated with increases in sales, and of course, purchases, but the actual selling and buying do not "cause" any further changes in either price or quantities. In the analysis of supply and demand in the market there are price-effects on quantities and quantity-effects on prices, all by way of incentives and disincentives producing reactions of the persons involved; the resulting transactions, however, "cause" only the record keepers to make entries in their books and statistical columns. Let us call the latter type of causation "transactions mechanics" and the former set of actions and reactions "market processes".

When we analyse the effects of certain transactions upon the balance of payments, we want to find how these transactions are reflected in the records of international payments. Lending and borrowing are the transactions that take place *after* the forces of supply and demand have played their roles in determining interest rates and volumes of funds transferred. An increase in the demand for credit, on the Euro-dollar market as on any other money market, is likely to raise the interest rate and to increase the amount of credit supplied. The "borrowing", however, comes at the end of this interplay; borrowing does not cause higher interest rates or larger amounts of credit supplied; nor does it cause lending, since the two are the same thing seen from different sides.

Mayer is perfectly correct if he writes that the increase in the American banks' demand for Euro-dollars in 1969 pushed up the interest rate in the Euro-market, that the higher interest rate attracted funds from the United States, and that the induced outflow of short-term capital swelled the American payments deficit on liquidity basis (in so far as the funds were owned by residents of the United

States). This flow of American funds from American to European banks — induced by interest rates pushed up by an urgent *demand* — was surely recorded as a liquidity deficit, but the American banks' *borrowing* in Europe did not add to that deficit. The outflow from the United States made European banks creditors of American banks and they remained creditors when the deposit claims they had received from their new depositors were transformed into Euro-dollar loans to American banks. The liquidity deficit of the United States was "caused" (that is, recorded) when the outflow of funds (to be lent to Euro-banks) increased the liquid liabilities of the United States, but not when the American banks borrowed from the Euro-banks. As I wrote in December 1970, the loans of the European to the American banks "do *not* change the balance of payments of the United States either on liquidity basis or on official-settlements basis" (p. 254).

If this is so well understood by everybody that it appears as self-evident (and trivial) to many readers, then the public has indeed been well instructed. I suspect that this is not so. In any case, let us be dedicated to clear thinking and writing. This requires that we always distinguish the mechanics of transactions from forces operating in the market. In the analysis of market forces we ask what changes in relative prices and what reactions by parties in the market are likely to induce certain transactions; in the analysis of transactions mechanics we ask what changes in accounts and balances are associated with these or other specified transactions. Both types of analysis are required for an understanding of what goes on, especially because most of what goes on becomes visible only in the form of accounts and balances furnished by record keepers and accountants preparing the statistical data for further economic analysis.

In the case before us, we are enjoined not to confuse "loans" or "borrowing" (that is, the making and taking of loans) with increased "demand for loans" (that is, the bidding for loans and its effect on interest rates and credit availability).

The System and the Market

Several analysts of Euro-dollar banking were unhappy about my underemphasis of the market aspects of Euro-banking, and especially about my proposal that we speak of a Euro-dollar system, not just

of a Euro-dollar market. The issue is not very important, but it may be helpful to understand that one should look at things from different points of view and that to break a complicated system into sub-systems for separate study often illuminates matters. Let me quote from my paper for the American Enterprise Institute:

"The Euro-dollar system can theoretically be subdivided into three subsystems: a money market in which banks are transactors on both sides, lending and borrowing liquid balances which they regard as cash reserves; a credit market in which nonbanks (individuals, partnerships, and corporations, but chiefly corporations) are lending to banks and borrowing from banks; and a deposit system in which nonbanks hold liquid balances which they regard as part of their cash position. The three subsystems interact in the unintended provision of additional liquidity".

Two of the subsystems are best studied and described as markets, but it is the third that matters when we study "Euro-Dollar Creation", as I did in my first article. It is not the marketing of existing funds but the manufacturing of additional deposits with which I was concerned. The border line between intermediation and creation of funds is blurred and not visible to the naked eye. It is just for this reason that analysis — "breaking apart" — is needed.

Dollar Creation by Central Banks

In my first article on "Euro-Dollar Creation" I missed the most notorious case of creating U.S. dollars outside the United States: the production of additional dollar reserves in the hands of monetary authorities. But all articles and books published on the subject also had missed this story, and the first discussion in public print was in my article on "The Magicians and their Rabbits", which appeared in May 1971. The failure of earlier writers to discover this astonishing phenomenon is explainable by the fact that the phenomenal increase in official holdings of dollars not owed by the United States occurred only in 1970. It was revealed by a quantum jump of the difference between the foreign-exchange holdings reported by monetary authorities and the dollar and sterling liabilities to official foreigners reported by the United States and United Kingdom. (Earlier increases in this difference had been attributed to increased

official holdings of other currencies such as French francs and German marks).

I shall not repeat here my earlier disquisitions on this subject, except to say that the practice of some central banks of placing dollars held in their official reserves on the Euro-dollar market, either directly or through the Bank for International Settlements, expanded both private holdings of Euro-dollars and official holdings of dollar reserves. To be sure, the conversion of Euro-dollars into local currencies on the foreign-exchange markets — the step in the process by which the dollars were resold to the central banks and thus swelled the “dollar flood” — worked as a reserve drain or leakage from the Euro-banking system. Yet, this conversion did probably not occur all at once immediately following the first round of lending by Euro-banks. Hence, substantial amounts of Euro-dollar deposits may have been created before the dollars were converted by some recipients and added to the stream that flooded official reserves. In addition, some of the central banks, seeing their reserves swamped with more and more dollars but not understanding that this was in part a consequence of their own doings, may have been induced to increase their placements of dollars in the Euro-market. This feedback into the Euro-dollar system, coming from reactions by the official controllers of the money supply, is perhaps the most remarkable part of the story, — unless one finds it still more remarkable that the responsible money managers did not more quickly recognize the effects of their actions.

The leading central banks agreed in June 1971 to stop playing the Euro-dollar market, but the statistical reports convey a strong suggestion that substantial amounts of dollars from monetary reserves, probably only of less important countries, are still in the market.

Official assistance to the growth of the Euro-dollar system has come also by another route: central banks swapping dollars with commercial banks in their own country. The responsible money managers had, as a rule, not intended such assistance; their swaps were supposed to serve quite different purposes. Yet, neither the side-effects nor the nonachievement of the intended effects in many instances had been foreseen.

For detailed expositions of both these processes — central banks lending dollars in the Euro-market and their swapping dollars with domestic commercial banks — I beg to refer the reader to my paper

in the proceedings of the Monetary Conference of the American Enterprise Institute.¹⁰ That paper, incidentally, contains also more detailed arguments than I have presented here to examine the view that “endogenous credit creation of the more conventional type... is certainly only a fairly minor aspect of the Euro-dollar market”.¹¹ I weighed the arguments in support of this view and found them wanting.

FRITZ MACHLUP

Princeton and New York

¹⁰ *International Monetary Problems*, Washington, D.C., 1972.

¹¹ MAYER, *loc. cit.*, p. 256.