

812

95th Congress }
1st Session }

JOINT COMMITTEE PRINT

SOME QUESTIONS AND BRIEF ANSWERS
ABOUT THE EURODOLLAR MARKET

A STAFF STUDY

PREPARED FOR THE USE OF THE
JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES



FEBRUARY 7, 1977

Printed for the use of the Joint Economic Committee

U.S. GOVERNMENT PRINTING OFFICE

79-359 O

WASHINGTON : 1977

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 40 cents

There is a minimum charge of \$1.00 for each mail order.

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LETTER OF TRANSMITTAL

JANUARY 31, 1977.

To the Members of the Joint Economic Committee:

Transmitted herewith for the use of the members of the Joint Economic Committee and other Members of Congress is a staff study titled "Some Questions and Brief Answers About the Eurodollar Market." This study was prepared by Dr. John R. Karlik of the committee staff and seeks to provide some brief and straightforward answers to the questions most frequently asked by persons unfamiliar with the arcane workings of the Eurodollar market. I believe this study will be extremely useful to Members of Congress and to the general public.

The views expressed in this document do not necessarily represent the views of members of the committee or of persons on the committee staff other than the author.

RICHARD BOLLING,
Chairman, Joint Economic Committee.

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SOME QUESTIONS AND BRIEF ANSWERS ABOUT THE EURODOLLAR MARKET

*By John R. Karlik **

The Eurodollar market is perhaps well understood only by the practitioners, employed by banks and other financial institutions, who deal in it as their chosen way of making a living. Academic economists disagree about how the market functions and what is its real economic impact. To the uninitiated, the Eurodollar market seems to be a financial black box into which goes American money and from which comes credit for foreigners. Persons attempting to understand this phenomenon frequently pose a set of fundamental and important questions about what the market is and how it operates. Since these questions arise repeatedly, it seems appropriate to attempt to provide some brief answers for interested Members of Congress and other readers. The questions discussed are the following:

1. What is a Eurodollar deposit?
2. How did the Eurodollar market originate, what factors have been responsible for its growth, and what is its current size?
3. How does the Eurodollar market operate?
4. Does the Eurodollar market create money?
5. What is the impact of the Eurodollar market on the U.S. balance of payments?
6. What is the impact of the Eurodollar market on the foreign exchange value of the dollar?
7. Is the Eurodollar market an engine of inflation?
8. Is a cumulative credit collapse likely?
9. Does the operation of the Eurodollar market undermine the implementation of monetary policy in the United States?
10. Can the Eurodollar market be regulated? Is regulation desirable?

1. What Is a Eurodollar Deposit?

A Eurodollar deposit is a dollar deposit in a bank outside the United States. The depositors may be, for example, foreign manufacturers who have exported goods to the United States and obtained payment in dollars. Or they may be American residents who have withdrawn funds from their own accounts in the United States and placed them in a foreign bank, generally but not always to obtain a higher interest return than is available in the United States on savings account deposits, the purchase of certificates of deposit, Treasury bills, commercial paper, or the like.

Except for an insignificant amount, dollar deposits in foreign banks are not demand deposit liabilities of those banks. They are deposits

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for a specified time period and bearing a stated yield. The period of deposit may be for as short a time as overnight. But Eurodollars are typically not an immediate payments medium; one cannot generally write a check against a Eurodollar account. To be used to make payments a Eurodollar account must usually first be converted into a deposit with a bank located in the United States; it must become a normal dollar demand deposit. Investing in a Eurodollar account is therefore more like placing funds in a savings account or buying a certificate of deposit than like opening a checking account.

Occasionally reference is made to foreign currency deposits with European banks in currencies other than dollars. Such Eurocurrency deposits are placed with banks outside the nation issuing the currency. For example, an account in a German bank denominated in Swiss francs is a Eurocurrency deposit.

2. How Did the Eurodollar Market Originate, What Factors Have Been Responsible for Its Growth, and What Is Its Current Size?

The amount of credits extended through banks operating in the expanded Eurocurrency market, which now includes not only dollars but also sterling, German marks, Swiss francs, and other currencies and which encompasses Canada, Japan, Hong Kong, Singapore, and the Caribbean, as well as Europe, has grown from about \$7 billion in 1963 to approximately \$250 billion at the end of 1975. A deposit denominated in other than the domestic currency in a bank anywhere in the world is now loosely referred to as a Eurocurrency deposit.

The motivation underlying the inception of the Eurodollar market was the desire to avoid regulation, either regulations already in effect or additional restrictions that depositors feared might be imposed.

Among the first depositors of dollars in European banks were the Russians. Soviet enterprises were earning dollars both by selling gold and by exporting to the United States and to other countries. They feared that accounts opened in U.S. banks might be attached by Americans who had claims against the Soviet Government. The preferred alternative, therefore, was to place their dollar earnings in European banks. The 1958 abolition of most exchange controls in Europe permitted the growth of the Eurodollar market to accelerate. By the mid-1960's this market was a recognized force in European credit markets.

During the credit crunch of 1968 and 1969, U.S. commercial banks relied on the Eurodollar market to escape the effects of the interest rate ceiling imposed by the Federal Reserve under Regulation Q. The larger American banks directed their foreign branches to bid for dollars by offering yields above the level permitted in the United States. The head offices then borrowed heavily from their overseas branches. A portion of the new deposits attracted by overseas branches during this period apparently represented funds transferred out of the United States by Americans. Additional deposits were also attracted from foreigners, including foreign central banks. In October 1969 the Federal Reserve imposed a stiff reserve requirement on head office borrowings from abroad. The incentive for American banks to obtain funds overseas was further reduced in June 1973

when large denomination certificates of deposit were exempted from Regulation Q limitations on maximum interest yields.

Obviously a credit market does not grow to the present size of the Eurocurrency market purely on the basis of avoiding government regulations and reserve requirements. Indeed, the tacit approval and even the assistance of governments in the main Eurocurrency centers is required. Some central banks—both European and others—have deposited a portion of their dollar reserves in European commercial banks rather than investing in, say, U.S. Treasury bills. Banks in London and other financial centers have found accepting deposits in dollars and other foreign currencies and extending loans in these currencies to be profitable because no reserves are required against such deposit liabilities and because this business could be added to their normal functions at modest cost. The extra expense is small because these banks were already engaged in a large volume of international transactions and had well-established relationships with customers in a variety of countries. Most Eurocurrency transactions are for large amounts and can be handled at wholesale rates. European banks can for all these reasons offer somewhat higher deposit yields and lower loan charges than American banks and still make an acceptable profit. Depositors and borrowers appreciate this configuration, for obvious reasons.

The Eurocurrency markets, the largest of which is the Eurodollar market, have also had an important positive impact on economic activity in the countries where they have evolved. These markets constitute a highly efficient system for allocating credit among lenders and borrowers. They have facilitated higher levels of domestic and international commerce than would have been likely in their absence. The removal in 1958 of most European restrictions on the conversion of foreign exchange and the rapid growth of international trade in the 1960's, a large proportion of which was financed in dollars, created a need for dollar loan and deposit services in European during normal working hours. Banks understandably strove to satisfy this demand and finance additional commerce. The resulting gain in output and employment is the chief real economic benefit produced by the banks and other institutions that have jointly constructed the Eurocurrency financial network.

3. How Does the Eurodollar Market Operate?

The Eurodollar and other Eurocurrency markets are largely inter-bank markets. When a European bank accepts a dollar deposit, it naturally attempts to lend the funds at a higher interest rate than the yield it is paying to the depositor. In some cases the borrower will be the ultimate user of the funds, such as a European importer purchasing merchandise in the United States. In many instances, however, an individual or corporate borrower will not be immediately on tap as an acceptable investment opportunity for the bank. In this event, the bank will place the dollars, most likely for a short period, with another bank that is seeking funds. Similarly, if a worthy ultimate borrower appears when a European bank does not have surplus dollars to invest, it may temporarily borrow in the interbank market in preference to rejecting the customer.

Because of the volume of interbank transactions and the consequent double counting of available dollar credits that can easily result, estimates of the size of the Eurodollar market must be used cautiously. The chief source of data on Eurocurrency markets is the Bank for International Settlements (BIS) located in Basle, Switzerland. The BIS is the one surviving institutional remnant of the League of Nations. Eight European central banks, those of Belgium, France, Germany, Italy, The Netherlands, Sweden, Switzerland and, the United Kingdom, are the majority stockholders. In publishing Eurocurrency market data, the BIS attempts to eliminate double counting among the eight member countries of available Eurocurrency credit. The totals cited above have been deflated in an effort to eliminate the effects of redepositing within the eight BIS-reporting countries. However, since substantial Eurocurrency markets have now been established in Canada, the Caribbean, Japan, Hong Kong, Singapore, and the Middle East, the totals may still be inflated.

Of the approximately \$250 billion of Eurocurrency credits granted during 1975, \$205 billion were extended by banks in the eight BIS-reporting countries.¹ The bulk of these Eurocurrency loans in the eight countries were to banks; only \$61 billion were to nonbank residents and foreigners. The great difference between total credits extended and the portion granted to nonbank users illustrates the extent to which the Eurocurrency market is in fact an interbank market.

4. Does the Eurodollar Market Create Money?

Eurodollar deposits, as noted above, are not money in a strictly defined sense; they are time rather than demand deposits and cannot be drawn upon to make payments. However, if the definition of money is expanded from cash and demand deposits to include time deposits (i.e., from M_1 to M_2), should Eurodollar and other Eurocurrency accounts be included in this expanded measure of liquidity? Yes. Furthermore, if one adopts this expanded definition of the money supply, creation of a Eurodollar deposit will lead under certain circumstances to an equivalent increase in the global stock of liquidity. How does this consequence come about?

Suppose an American individual or corporation has a quantity of funds invested in a certificate of deposit or time deposit with a New York bank and decides to invest these funds in the Eurodollar market instead.² The certificate of deposit or time deposit must first be transformed into a demand deposit.³ The individual or corporate

¹ The data cited here are from the "Forty-Sixth Annual Report of the Bank for International Settlements," published June 14, 1976.

² Since most Eurocurrency transactions are interbank transactions, the series of events recounted in the following paragraphs is not intended to be typical. A more typical Eurocurrency transaction might be between two commercial banks, or among a central bank and several commercial banks. Such alternative transactions would have effects on the supply of available credit in various countries different from the sequence discussed in the text. The example presented in the text illustrates in a simple way the diverse impacts on the global availability of credit that may result from the transfer of a dollar balance from a U.S. bank to a European bank. Variations on this theme would include, for example, a decision by a foreign exporter to place his dollar earnings in a bank in London rather than in New York, or a decision by the central bank of, say, a Latin American country to deposit dollars in Frankfurt rather than buy U.S. Treasury bills.

³ This action will increase the total amount of reserves the U.S. banking system is required to hold, since demand deposits carry a higher reserve requirement than time deposits. But suppose the Federal Reserve through open market operations increases the total stock of reserves by the incremental amount required to permit this marginal increase in the U.S. money supply (narrowly defined).

treasurer then writes a check on his demand deposit in the New York bank and makes it payable to a European bank. At that point, the European bank has a demand deposit claim on a New York bank, and the individual or corporation has a time deposit with a European rather than an American bank.

The outcome of this series of transactions is that M_2 in the United States is unchanged but is increased in Europe by the amount of the Eurodollar deposit. The broadly defined global money supply has increased by this amount, since deposits by foreigners, including banks, are considered part of the U.S. money supply. But at this stage, the supply of credit to nonbanks has not changed.

If the European bank initially accepting the deposit relends it to another European bank, use of credit by the nonbanking sector is still not increased. This statement remains valid regardless of how many times the funds are redeposited among banks. Only when the funds are finally loaned to an ultimate nonbank user is the total quantity of credit available to support economic activity increased.

If the user is either a foreigner making payments to Americans or an American other than a bank, the story ends with the conclusion that the total amount of liquidity available globally is expanded by the amount of the Eurodollar deposit. If the user is an American bank, there is no increase in the total volume of credit available to the nonbanking sector of any other economy.

As another possibility, if the user is a foreigner who converts the dollars into his own currency, and if his central bank buys the dollars and redeposits them in a European commercial bank, another round of dollar credit expansion may occur. Similarly, if the foreign user pays the dollars to another foreigner and the recipient—depending on the yields available in New York and Europe—redeposits the dollars in a foreign bank, a second real economic transaction may then be financed.

Thus, an initial dollar deposit in a European bank can lead to a variety of outcomes. The amount of additional liquidity provided to nonbanks may be zero, equivalent to the deposit, or some multiple of the deposit.

This uncertainty about who may be the borrower of dollars from a European commercial bank and how these funds will be employed raises the question of the size of the "Eurocurrency multiplier." In other words, if a dollar sum is deposited in a European bank, will a multiple credit expansion occur? If so, what is the average amount of the multiple? Most importantly, what is the ultimate economic significance of the initial transfer?

Economists studying the Eurodollar market generally fall into either of two groups in responding to these questions. One group views the Eurodollar market as the product of a fractional reserve banking system that creates dollar credits. The reserves of Eurobanks, according to this conception, are checking account deposits in commercial banks located in the United States. Since Eurobanks are not required to hold minimal reserves as a fixed proportion of their dollar liabilities, one might expect that, by comparison with the ratio of reserves held in the United States against time deposits, Eurobanks would maintain a lower fraction of reserves. Most attempts to measure the ratio of "reserves" that Eurobanks hold voluntarily to liabilities indeed show a low proportion. The change in total Eurodollar balances implied

by an initial change in "reserves"—if the fractional reserve banking analogy is accepted—is therefore quite high.

The other school of economists views the Eurobanks as financial intermediaries that do not create money but shunt available credit from lenders with excess liquidity to borrowers short of funds. These analysts emphasize the "leakages" to which Eurobanks are exposed. There is little reason, they say, to expect that the dollars a borrower has obtained from a European bank and subsequently paid to a third party will necessarily be put back into the Eurodollar market. Therefore, each Eurobank must, according to this view, maintain a more-or-less balanced term structure of dollar claims and liabilities. Furthermore, they maintain, Eurobanks may prefer to safeguard their ability to meet withdrawals by arranging standby lines of credit with U.S. banks, rather than by maintaining checking account balances, which earn no interest. Thus, according to this second school of thought, the low apparent reserve ratios of Eurobanks do not necessarily indicate that the market is a powerful machine for generating additional liquidity.

An indication of the extent to which the Eurodollar market creates money is the size of loans to nonbank borrowers as compared with all loans. At the end of 1975, banks in the eight countries reporting to the BIS indicated that out of dollar loans totaling \$190 billion, only \$41 billion were to nonbank borrowers. Of loans denominated in other currencies totaling the equivalent of \$68 billion, \$20 billion were to nonbanks. These totals do not include the activities of the Eurocurrency markets located in the Caribbean and the Far East, but they do encompass the bulk of Eurocurrency credit creation.

5. What Is the Impact of the Eurodollar Market on the U.S. Balance of Payments?

It is sometimes maintained that growth of the Eurodollar market is dependent upon net capital outflows from the United States or upon U.S. payments deficits. In the example discussed above, an American resident transferred a sum of dollars from an account with a New York bank to an account with a European bank. This action produces a capital outflow from the United States. But as is also evident in the above example, the full story extends far beyond the initial transaction. Particularly if the European bank receiving the funds is the branch of an American institution, the head office may borrow the dollars back from its branch. In this case, a subsequent capital inflow offsets the initial outflow, and there is no net transfer of funds internationally.

On the other hand, if the foreign bank receiving the dollars sells them to the central bank in exchange for the domestic currency, U.S. liabilities to foreign official institutions increase, and a U.S. official settlements deficit will be expanded (or a surplus diminished) by the amount of the transaction. If the foreign central bank then invests the dollars in U.S. Treasury bills, the impact on the U.S. official settlements balance is not further changed. Thus, while an initial transfer of dollars out of the United States arising from a trade, services or capital transaction, or the purchase of dollars in the exchange market with foreign currency is a requisite for the establish-

ment or enlargement of a Eurodollar balance, the ultimate consequences of this action on the U.S. balance of payments are by no means clear.

Brief examination of Table 1 demonstrates no relationship between growth of the Eurodollar market and the U.S. balance of payments. The market has grown every year since its inception, and some years of greatest growth have been when a U.S. deficit has been declining or a surplus growing. For example, from 1967 to 1968, the official reserve transactions balance reversed from a deficit to a surplus; the net change being in the amount of \$5 billion. Yet in the same year, the Eurodollar market within the boundaries of the eight BIS member countries expanded by \$7.5 billion. In the following year the official reserve transactions surplus grew by over a billion, but the Eurodollar market in 1969 expanded by \$12 billion. In 1971, by contrast, the official settlements deficit grew by \$20 billion to a level three times the previous year's, but the Eurodollar market expanded by only \$8 billion or 17 percent.

TABLE 1.—U.S. BALANCE OF PAYMENTS AND THE GROWTH OF THE EURODOLLAR MARKET

(In billions of dollars)

Year	Official reserve transactions balance	Net liquidity balance	Estimated net Eurodollar credits outstanding in the 8 BIS members	Estimated gross Eurodollar credits outstanding globally
1965.....	-1.3	-2.5	11.5	16.3
1966.....	.2	-2.2	14.5	19.4
1967.....	-3.4	-4.7	17.5	24.0
1968.....	1.6	-1.6	25.0	33.5
1969.....	2.7	-6.2	37.5	54.2
1970.....	-9.8	-3.9	46.0	68.8
1971.....	-29.8	-22.0	54.0	83.1
1972.....	-10.3	-13.8	71.0	111.7
1973.....	-5.3	-7.7	97.0	181.2
1974.....	-8.4	-19.0	133.0	216.3
1975.....	-2.5	3.1	(¹)	264.3

¹ Not available.

Sources: "Survey of Current Business" and "Annual Report of the Bank for International Settlements" (BIS), various issues.

Financial markets in New York and Europe are competitors. The rate of growth of the Eurodollar market has been determined, more than anything else, by the relative attractiveness of investing short-term either in New York or in Europe and by the relative availability and cost of funds in the two areas. The particularly rapid growth of the Eurodollar market in 1968 and 1969 resulted from a credit crunch in the United States and Regulation Q ceilings on the interest rates that American banks could offer. The reaction of American banks to this combination of factors was to bid for deposits through their European branches. Although the widespread adoption of floating exchange rates brought about a sharp decrease in the U.S. payments deficit during 1973, this development did not inhibit the market's growth. In 1974, when the market expanded by one-third, the chief motivating factors were apparently the desires of oil producing countries to invest their expanded earnings in highly liquid bank deposits and the needs of both industrial and developing countries to finance high-cost oil imports. The same factors remained important in 1975.

To conclude, a transfer of dollars from the United States and into a European or other foreign bank cannot be presumed to produce a U.S. payments deficit of even approximately the same magnitude. The growth of the Eurodollar market is not linked with U.S. payments deficits in any readily identifiable way.

6. What Is the Impact of the Eurodollar Market on the Foreign Exchange Value of the Dollar?

The foreign exchange value of the dollar tends to fall when Americans need to make increased payments to foreigners or when individuals desire to hold additional assets valued in other currencies. Conversely, the external value of the dollar tends to rise when foreigners' payments to Americans increase or when individuals desire to hold more dollar assets. The Eurodollar market has established convenient mechanisms for the temporary investment of excess dollar balances. It also offers another source of dollar loans for periods ranging from overnight to several years. In general, the market has made the dollar more useful and desirable relative to other currencies. Therefore, its net effect has probably been to increase the value of the dollar somewhat in comparison with other currencies.

From time to time, however, transactions have occurred in the Eurodollar market that have had a depressing impact on the external value of the dollar. Speculators believing that a particular foreign currency was likely to increase in value have occasionally drawn on Eurodollar credit lines and sold borrowed dollars to buy another currency. They hoped to realize profits by repaying the dollar loans after the expected upward revaluation of other currency.

If the anticipated exchange rate change indeed occurred, repaying the loan with interest consumed most but not all of the dollars obtained from converting the foreign currency balance at its new higher value. A margin constituting the profit remained. If the expected exchange rate change did not occur, speculators losses were limited to the cost of interest on the loan and the cost of two currency conversions. The shift in 1973 from fixed to flexible exchange rates eliminated many of the opportunities for speculative gain that had previously existed. The large international transfers of liquid capital that had resulted from this incentive have also largely disappeared.

Because the Eurodollar market has grown to constitute a major international financial market, the transfer of a dollar balance out of the United States can no longer be presumed to have an impact on the exchange value of the dollar. An international capital flow will produce exchange rate repercussions only if there is an exchange market transaction. But because of the Eurodollar market, dollars can be transferred out of the United States and easily be invested abroad as dollars; they need not be converted into any other currency. Similarly, dollars moved into the United States need not have been acquired through a previous sale of foreign currencies. The growth of the Eurodollar market in the last decade has considerably enhanced the usefulness of the dollar as an international transaction or vehicle currency and has therefore probably increased foreigners' desired dollar holdings. The foreign exchange value of the dollar is most likely a bit higher than it would have been in the absence of a Eurodollar market.

7. Is the Eurodollar Market an Engine of Inflation?

Would inflation rates experienced during recent years have been substantially lower if there had been no Eurodollar market? Of course, some inflation would have occurred anyway as a result of (a) increased prices for oil, food, and raw materials, as a consequence of (b) generally overstimulative monetary and fiscal policies in 1973 and 1974, and as an aftereffect of (c) dollar purchases by foreign central banks during the last throes of the fixed exchange rate system in 1971 and 1972. Central bank dollar purchases had the effect of increasing commercial bank reserves and money supplies in some countries.

If all these other factors are taken into consideration, has there been an additional increment of inflation that can be attributed to the operation of the Eurodollar and other Eurocurrency markets? (When considering the impact of these financial markets on prices and total economic activity, focusing on only the dollar component would omit an important segment). An answer to this question can be inferred from the data presented in Table 2. The first column in this table gives the level of M_2 in the eight European countries reporting to the Bank for International Settlements at the end of each calendar year from 1970 through 1975. It is appropriate to use M_2 , the domestic money supply in these countries defined to include not only currency and demand deposits but also time deposits and certificates of deposit, as a basis for comparison because Eurocurrency deposits are also made for a specified time period. The second column gives for the same years the amount of Eurocurrency claims against nonbank residents of the eight BIS-reporting countries. The third and last column lists all Eurocurrency claims against nonbanks throughout the world, whether or not these firms and individuals reside in the eight-country reporting area.

TABLE 2.—DATA PROVIDED BY BANKS IN THE 8 BIS-REPORTING COUNTRIES

[In billions of dollars]

	M_2 , nonbank residents	Eurocurrency claims against nonbank residents	Eurocurrency claims against domestic and foreign nonbanks
Level at the end of:			
1970.....	348.7	(1)	16.5
1971.....	428.1	7.6	21.1
1972.....	511.2	8.6	26.3
1973.....	640.3	14.0	38.7
1974.....	773.5	23.7	53.0
1975.....	831.8	24.0	61.3
Change during:			
1971.....	79.4	(1)	4.6
1972.....	83.1	1.0	5.2
1973.....	129.1	5.4	12.4
1974.....	133.2	9.7	14.3
1975.....	58.3	.3	8.3

¹ Not available.

Sources: "International Financial Statistics" and the "Forty-Sixth Annual Report of the Bank for International Settlements."

If the Eurocurrency market is an engine of inflation, it must create money in excessive amounts in addition to the volume of credit created by domestic banking systems. But examination of the data presented

in Table 2 shows that in most recent years the Eurocurrency market has usually contributed only marginally, and at most modestly, to the supply of credit available in Europe.

In 1971, M_2 grew in the eight BIS-reporting countries by nearly \$80 billion, and in 1972 by a slightly greater amount. Yet in 1972 Eurocurrency claims against nonbank residents of the eight countries grew merely \$1 billion, and on December 31, 1972, the total amount of these claims was only \$8.6 billion, as contrasted with an M_2 of over \$500 billion. M_2 expanded during the next 3 years by \$129 billion, by \$133 billion, and by \$58 billion respectively. In comparison, from 1973 through 1975 Eurocurrency claims against residents expanded by \$5 billion, by \$10 billion, and by less than \$1 billion respectively. In 1974 the Eurocurrency market made its largest percentage contribution to the supply of credit in Europe; that year the expansion of Eurocurrency claims against nonbank residents was the equivalent of 7.3 percent of the growth of M_2 .

Did the Eurocurrency market generate an excessive amount of credit worldwide? A conclusive answer to this question would be provided by comparing the growth of Eurocurrency loans to nonbank borrowers throughout the world with the expansion of M_2 globally. Table 2 does not attempt to offer this comparison, and presents instead only claims against all (domestic and foreign) nonbanks reported by banks in the eight BIS-member countries. These data understate Eurocurrency credits to ultimate users to the extent that Eurocurrency loans to nonbanks by banks outside the eight BIS-reporting countries are omitted.

Eurocurrency claims against (i.e., loans to) all nonbanks are two to three times the amount of claims on nonbank residents of the eight European countries only. At the end of 1970, M_2 in the United States totaled \$430 billion and grew to \$669 billion by the close of 1975. From data for the U.S. and the eight, it seems reasonable to infer that M_2 in the industrial world is also at least two or three times M_2 in the eight European countries reporting to the Bank for International Settlements. Given an M_2 in the industrial world growing from about \$1,000 to \$2,000 billion during the period under consideration, Eurocurrency loans to all nonbank borrowers, which the BIS reported as expanding \$14 billion in the largest recent annual increase, contributed less than an additional percentage point to the growth of the global money stock (including time deposits). Therefore, even if one were to accept the thesis that excessive monetary expansion were an important cause of inflation, Eurocurrency markets hardly appear to be a major source of that expansion.

When appraising the inflationary impact of Eurocurrency markets, one should keep two additional considerations in mind.

First, not all credit generated by the Eurocurrency market is necessarily additional credit. In at least some years, central banks in Europe would probably have induced commercial banks to create more liquidity than they actually did had the Eurocurrency market never come into being.

Second, on the other side of the ledger, the Eurocurrency market should be recognized as having helped combat recession during periods when demands for credit were unusually strong. Such a period was 1974, the year following the quadrupling of oil prices.

The Eurocurrency market provided a vital service in accepting large deposits from oil producing countries and lending the funds to hard pressed oil importing nations. Developing countries contending with increased energy and food costs and, subsequently, with a drop in earnings for their own commodity exports, have been especially aided by credits obtained in the Eurodollar market. Although the problems of these nations are by no means solved and may become more serious, their transitional pains following the abrupt international price changes of recent years would have been far more severe without the financial cushion provided through the Eurocurrency market.

No authoritative summary measure can be offered of the inflationary costs versus the real benefits of credit creation in the Eurocurrency market. Part of the reason that costs and benefits cannot be simply set off against one another is that they have been experienced by different individuals in widely separated countries and with vastly divergent incomes. But in the record of the Eurocurrency market over the past five years, there is scant evidence to support an assertion that it has served as an engine of inflation.

Indeed, if there is a monetary engine of inflation in Europe, it is more likely to be discovered in the operation of domestic banking systems than in the Eurocurrency markets. From 1971 through 1974, M_2 in the eight BIS-reporting countries grew each year by nearly 20 percent or more.

8. Is a Cumulative Credit Collapse Likely?

The Eurodollar market, as explained above, operates efficiently because the banks and other financial institutions participating in it can invest or obtain funds easily via the market for periods of from one day to over a year. Interbank transactions constitute the bulk of the volume in the market, although it is the initial depositors and final borrowers who experience its real economic consequences. Because this market, like the foreign exchange market, operates on verbal commitments backed by mutual trust, and because fluid interbank operations are essential to efficient operation, the Eurodollar market would appear to be particularly vulnerable to the failure of even a modest-sized institution.

During the 6 or 9 months following the quadrupling of oil prices in the fall of 1973, many observers feared that the Eurodollar market would not be able to invest profitably the volume of liquid assets that would most likely be deposited by oil producing countries. The worriers went on to speculate that even if the institutions in the market somehow managed to accept and disburse the funds, an economic collapse in a European country or a major default by a developing nation that had borrowed heavily would provoke a financial crisis that gathered strength like an avalanche.

These worst fears have not been borne out for at least two reasons. First, when banks operating in the Eurodollar market began to run out of profitable opportunities for short-term investment of deposits subject to quick withdrawal, they lowered their deposit rates and announced their reluctance to accept additional large deposits. Second, as a consequence of both self-discipline and chiding by various central banks—notably the Bank of England—Eurodollar banks have

tightened their lending requirements. At present there seems to be no imminent danger of a crisis, but numerous substantial loans to developing country borrowers remain to be repaid or refinanced.

Officials have taken two steps to help bolster the stability of the Eurodollar market and to curb excessive credit creation and the risk of a crisis.

First, the central banks of the major industrial countries agreed in the Spring of 1971 to limit the extent to which additions to their own dollar reserves are redeposited in the market. If redepositing became standard procedure, the increase in the money supplies of the nations encompassing the market could theoretically be limitless. Therefore, controlling the extent of redepositing is a step toward governing the credit-creating impact of the market.

Second, the central banks of the major industrial countries agreed in 1974 that in the event of a crisis, each will stand behind its own banks and the overseas branches of domestic banks to keep the crisis from spreading. The precise terms of this mutual acceptance of responsibilities have not been spelled out, but the principle seems clear. For example, Federal Reserve Board member Henry C. Wallich said in testimony before the Senate Permanent Investigations Subcommittee in October 1974:

The Federal Reserve is prepared, as a lender of last resort, to advance sufficient funds, suitably collateralized, to assure the continued operation of any solvent and soundly managed member bank which may be experiencing temporary liquidity difficulties associated with the abrupt withdrawal of petrodollar—or any other—deposits.

This commitment to back “any solvent and soundly managed member bank” extends to overseas branches as well.

Central bankers of the major industrial nations meeting in Basle, Switzerland, issued the following statement on September 9, 1974:

The Governors also had an exchange of views on the problem of the lender of last resort in the Euromarkets. They recognized that it would not be practical to lay down in advance detailed rules and procedures for the provision of temporary liquidity. But they were satisfied that means are available for that purpose and will be used if and when necessary.

9. Does the Operation of the Eurodollar Market Undermine the Implementation of Monetary Policy in the United States?

In considering the impact of the Eurodollar market on the implementation of monetary policy in the United States, one must distinguish between recent developments in international financial institutions that merely make life more complicated for Federal Reserve authorities and other changes that could prevent or counteract the working of monetary policy in the United States. Some observers might conclude that the Eurodollar market has made life only a little more complex for American money managers, while others, at the opposite end of the spectrum, would argue that the existence of the Eurodollar market as an alternative source of credit can at critical times totally vitiate the intent of Federal Reserve policy.

Concerns of this type have been expressed by at least two Federal Reserve governors. On March 24, 1975, Governor Philip E. Coldwell, in a speech entitled “Have We Learned From Our Mistakes?” criticized those who “fail to recognize the impact of the large volatile foreign balances which move in and out of our banking system. Since

such balances count toward the money supply, their extreme shifts necessarily complicate any attempt to meet a particular target." In a speech entitled "Public Policy Issues in U.S. Banking Abroad," delivered on April 8, 1975, Governor Robert C. Holland said, "A policy of monetary expansion might have less predictable effects on expanding credit in the United States and might be rendered less effective if U.S. banks utilized available resources to expand their overseas Eurodollar activities than for loans which might expand business activity in the United States."

While these two governors seemed disturbed by the consequences, the record of policy actions taken by the Federal Reserve over recent years suggests that these concerns were either not shared by other officials, or if shared, did not prevent a steady relaxation of constraints inhibiting international capital flows. As mentioned above, in October 1969, the Federal Reserve imposed a reserve requirement on the borrowings of domestic offices of U.S. banks from their foreign branches and from foreign banks. The requirement was 10 percent originally and increased to 20 percent in January 1971. It was reduced to 8 percent in June 1973. The Federal Reserve, Treasury, and Commerce Department jointly announced in January 1974 the lifting of controls limiting lending to foreigners. The reserve requirement on domestic bank borrowing from foreign branches and banks was lowered again in May 1975 to 4 percent. The purpose of the reserve requirement is to equalize the cost to American banks of obtaining funds domestically and abroad. Reserve requirements on domestic time deposits placed by U.S. residents range from 3 to 6 percent. The requirement imposed upon bank borrowing from abroad is clearly not prohibitive.

A serious analytical problem impedes any effort to estimate the impact of the Eurodollar market on availability of credit in the United States. The problem is that it is impossible to distinguish between dollar claims on and liabilities to foreigners that raise from international transfers of dollars and, alternatively, from exchange market transactions. For example, a U.S. corporation maintaining a dollar account in a foreign bank may deposit funds in that account that have been transferred from the United States or that have been earned as foreign currency by overseas manufacturing operations and exchanged into dollars. Typically the overseas account of a U.S. corporation would include funds from both sources.

Similarly, the overseas branch of an American bank may make loans to the head office of sums that were deposited as dollars or that were deposited in the local currency and exchanged for dollars. Foreigners' deposits in New York banks or purchases of U.S. Treasury securities may be made with dollars earned by exporting to the United States or with dollars acquired through the sale of foreign currency. Interest rates in the United States and abroad and the outlook for the foreign exchange value of the dollar have a major impact on transfers of dollars in and out of the United States and on the current value of the dollar relative to other currencies. Money and exchange markets are integrated. Consequently, there is no way to distinguish the impact of the Eurodollar market on credit conditions in the United States from the impact of transactions through the exchange market on credit conditions.

Given this puzzle, the record of policy actions by U.S. monetary authorities is an important indication of whether they perceive that

international capital flows frustrate the implementation of domestic monetary policy. Such flows are certainly a complicating factor. But the progressive reduction of reserve requirements and the elimination of constraints on capital outflows suggests that in the minds of the authorities, the benefits of open money and exchange markets outweigh the disadvantages of the resulting complications. In any event, if serious problems did arise at some time, nothing prevents the authorities from introducing controls over international capital flows and exchange transactions.

10. Can the Eurodollar Market Be Regulated? Is Regulation Desirable?

Numerous individuals have from time to time urged that the Eurodollar market be regulated to limit credit creation or to reduce the risk of a credit collapse. Regulation can be discussed from two perspectives—feasibility and desirability. While somewhat greater regulation might be desirable, to date the inflationary consequences of excess credit creation have not been sufficiently demonstrable and the risk of an avalanching credit collapse has not been sufficiently evident to prompt monetary authorities to achieve the high degree of cooperation that would be necessary to regulate the Eurodollar market effectively. Even the eight central bank members of the Bank for International Settlements have not been able to agree on mechanisms for controlling the growth of the Eurodollar market or on standards of credit worthiness to be applied to lenders. At the present time, therefore, only the most modest degree of regulation seems possible.

Another factor severely limits the feasibility of any efforts that might be undertaken to regulate the Eurodollar market. In recent years the market has spread rapidly from its origins in the City of London and the financial centers of continental Europe to the Caribbean, the Mideast, Singapore, Hong Kong, and Tokyo. If burdensome regulations were imposed in the existing centers of Eurocurrency activity, most of the market's functions might well be transferred to some other area, particularly to a bastion of free enterprise. In the event of such a relocation, the profits and the jobs derived from the market's activities would move also. Reluctance to forgo these benefits, particularly in London, have deterred authorities from imposing as comprehensive regulations as they otherwise might have.

Should the evident difficulty of regulating the Eurodollar market be a source of concern? How much concern, since the possibility of a serious crisis can never be entirely excluded? Following the 1973 increase in oil prices, the Eurodollar market has gone through at least two distinct periods of stress. First, there was the danger—discussed above—that Eurocurrency banks would not be able to accommodate the huge volume of deposits from oil producing countries and lend these funds out at profitable rates of return. The banks did accept a major increase in deposit liabilities. But they eventually lowered their interest rates to discourage further acquisitions of massive short-term deposits and gradually tightened their lending criteria. Second, a few banks—most notably Franklin National and Herstatt—speculating in the foreign exchange market, not in the Eurocurrency markets, suffered severe losses. These events brought into question the quality of bank management and their ability to control the exposure of their institutions. For a subsequent period all new deposits were

placed only with the largest and most respected institutions, and some funds were withdrawn from smaller banks. The announcement of central banks' commitment to stand behind their own national banks and these banks' overseas branches helped reassure depositors.

A third time of stress is presently foreseen. Developing countries have borrowed heavily in the Eurodollar market to finance oil imports and to compensate for the loss of earnings resulting from the subsequent drop in export prices for many of their commodities. Some of these nations are approaching the limits of their borrowing and loan servicing capabilities. How well Eurocurrency banks would be able to withstand defaults on outstanding loans to some developing countries or the rescheduling under duress of loan repayments is the subject of present concerns.

The real economic adjustments to the increased prices of oil, bauxite, and perhaps other commodities will continue. Some industrial and developing countries will be able to continue borrowing in the Eurocurrency markets to help lengthen the period during which real adjustment will occur and so mitigate the pain of that transition. In others, the bite has begun to take hold, and the need to curtail some incomes and transfer resources is imperative. However, the adjustments need not and will not occur everywhere simultaneously. Exporters in industrial countries are benefiting from growing sales to oil producing nations. Some of these industrial exporting countries will have excess funds to deposit in U.S. and Euro banks. Oil producers will also continue to make deposits. Banks operating in the Eurocurrency markets will most likely be able to adjust to strains of future demands as flexibly and as successfully as they have in the recent past.

All participating financial institutions recognize that the maintenance of stability in the Eurocurrency markets is in their own best interest. The issue is whether competitive instincts among institutions can be sufficiently curbed through self-discipline to preserve the soundness of the entire structure.

Conclusion

The Eurodollar market, like virtually all modern economic institutions, is a mixed blessing. It has produced important benefits in terms of helping to expand international trade, to stimulate economic growth, and most recently to distribute the excess earnings of oil producers among consumers needing credit to finance their imports. On the other hand, it may have raised rates of inflation somewhat. It has generated substantial business for the countries in which it is located—most of all for banks in the City of London. The financial institutions and individuals operating in the market can and will elude extensive regulation, if attempted. Unwillingness to forgo profits generated by the market and inability among central banks to agree on appropriate operating guidelines and on joint monetary policies have enabled the Eurodollar market to continue enjoying virtually no formal regulation. At the same time, the banks operating in the market know that the maintenance of stability is in their own best interest. Given the record of what is now a tested and mature market, there is reason to hope that—under the surveillance of concerned officials—the sometimes uneasy balance in the Eurocurrency markets is maintained so that lenders and borrowers can continue to enjoy its benefits.

Bibliography

The literature on the Eurodollar market is extensive and difficult. Much of the difficulty results from conceptual muddiness and confusion about how the market operates. The following is a selected list, with brief comments, of readings that may be useful to individuals desiring to pursue further the issues raised in the preceding discussion.

Books

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