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**INTERACTION BETWEEN THE
EURO-CURRENCY MARKETS AND
THE EXCHANGE MARKETS**

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Introductory note

This is an essay on a fairly *technical* subject: the interaction between the Euro-markets and the exchange markets. The possible justification for producing such a lengthy paper on this topic is twofold. Firstly, the important rôle international banking flows seem to have played recently in the rather exceptional exchange-market performance of the US dollar. And, secondly, the circumstance that, like its autonomous money and credit-creating potential, the exchange-market implications of the Euro-market appear still to be a highly controversial and much misunderstood subject. While in no way claiming to provide the ultimate answers, this essay seeks to present a broad analytical framework for approaching the question from various angles.

The paper is divided into three parts. The first explores the exchange-market implications of Euro-market transactions, starting from the assumption of a given pattern of international capital flows. The method used is that of partial equilibrium analysis, although in the concluding section an attempt is made to evaluate some of the broader implications of the existence of the Euro-currency market for the theory of exchange rate determination.

The second part, by contrast, discusses the influence the Euro-market may exert on exchange rate developments through its impact on the volume and geographical pattern of international capital flows. Apart from some general considerations, it examines in greater detail three specific issues: (a) the impact of the Euro-market on the exchange rates of the currencies which are used as the principal denominations in the Euro-currency market; (b) the exchange-market implications of the Euro-currency market in its rôle as an official reserve outlet; and (c) the potential rôle of the Euro-market in times of pronounced currency unrest.

The third part, which is rather more empirical in nature, briefly surveys the influence bank-related capital flows between the United States and the rest of the world may have had on the performance of the US dollar over the past ten years or so. It highlights, in

particular, the important rôle bank-related capital flows have played in recent years in conjunction with the dramatic deterioration in the US current-account balance.

I

The exchange rate implications of given Euro-market transactions

(i)

In somewhat simplified terms the exchange-market implications of Euro-market transactions may be summarised as follows:

(1) the existence of the Euro-currency market, and the currency denominations used in this market, have an impact on exchange rates only to the extent that they affect the volume and geographical pattern of international capital flows;

(2) conversely, once the volume and the geographical pattern of these capital flows are established, their currency denomination and their intermediation by the Euro-market have no exchange rate consequences.

A failure to grasp these two simple, but fairly fundamental points lies at the root of a good deal of the misunderstanding that has prevailed regarding the macro-economic dimensions of the Euro-market and much of the belief in its wellnigh supernatural powers. Contrary to what seems to be sometimes surmised, the Euro-market has not changed the basic laws of economics. Exchange rate determination and balances of payments still have to be discussed in terms of precisely the same criteria as before the Euro-market existed. Countries' balances of payments are still defined solely on the basis of the distinction between residents and non-residents and not the currency in which transactions are denominated. Nowhere in balance-of-payments statistics is there a distinction between Euro-market transactions and other credit flows; nor does the Euro-market figure as a separate "country" or "area" in the geographical breakdown of countries' external payments balances.

Of course, all this does not imply that the currency

denominations used by the Euro-market are irrelevant from a macro-economic point of view. On the contrary, a connection is likely to exist between the currency denomination and the geographical pattern of international capital flows. For example, the fact that a substantial part of the depositing and lending activity in the Euro-market takes place in a given currency is bound to have important implications for the capital balance of the currency's home country. Thus, a Euro-banking market predominantly denominated in dollars is likely to have a larger impact on the volume of capital flows between the United States and the rest of the world than a Euro-market which was primarily based on the Deutsche Mark. And it is this link between currency denomination and the volume of capital outflows or inflows experienced by the country of issue of the currency concerned that is the main reason why some countries have not looked favourably upon, or have actively discouraged, the development of a Euro-market in their own currency.

(ii)

It may be helpful to illustrate these points with the aid of a few examples. Let us begin with the assumption that, in a situation in which at the prevailing exchange rate the demand for and supply of dollars are initially in equilibrium, some non-bank entity, owing to a shift in preferences in favour of Euro-dollar assets and away from US-held dollar assets, transfers its dollar balances from the United States to banks in the Euro-dollar market. It may be tempting to conclude that since there has been no shift in asset preferences away from the dollar as such and the funds remain invested in the same currency, the demand for and supply of dollars in the exchange markets will not be affected and there will therefore be no exchange rate consequences. However, this conclusion rests on the fallacy that the Euro-market can be likened to a country forming part of the dollar area and serving as an ultimate capital outlet. The Euro-market or, more correctly, the banks in the Euro-market act merely as a transit point. Capital cannot flow into the Euro-market, but only through the Euro-market. For a given increase in the Euro-

banks' liabilities, there must be a corresponding increase in their assets. And in our example here it is the geographical structure of this asset growth which will determine the ultimate exchange-market impact of the original shift of funds from the United States to the Euro-market.

In the first instance, of course, the assumption of no exchange-market impact is correct in a trivial sense, since all that happens is a change in the ownership of US-held balances; instead of the original owner, who now keeps his funds deposited with the Euro-bank, it is the Euro-bank that is the holder of the dollar balances in the United States. In balance-of-payments terms the original transfer of non-bank funds out of the United States has thus been automatically offset by a reflux of banking funds to the United States.

However, this is not the end of the story. What has also changed is the Euro-bank's balance sheet; on the sources side it will show an increase in liabilities to non-banks; on the uses side it will record a demand deposit with a bank in the United States. This will in general not be an equilibrium position. So the exchange-market impact of the original transfer of funds to the Euro-market will depend on the steps the bank takes to restore what it considers to be an optimal portfolio structure.

From the point of view of exchange rate analysis, the bank has basically two options. It can employ the additional funds within the United States or outside the United States. In the case of a spontaneous inflow of new funds to the Euro-market, which will tend to put downward pressure on Euro-dollar interest rates, the use of these new funds will usually tend to be split between these two outlets. For the present purpose, however, it will be assumed that the bank opts for either one or the other. In the first case, where the bank re-lends the funds within the United States* (or uses them for redeeming liabilities to US residents), the above conclusion of no

* The likelihood, in the case of an autonomous shift of funds from the United States to the Euro-market, of their redeployment within the United States as opposed to investment outside the United States will be discussed in detail in Part II.

exchange rate effects still holds. There will be no net capital outflow from the United States and no increase in the supply of dollars in the exchange markets.

In the second case, where the Euro-bank uses the proceeds of the original deposit for lending (or redeeming liabilities) outside the United States, the exchange-market consequences will be quite different. There is now a capital flow from the United States to the rest of the world intermediated by the Euro-market, which, like any other capital outflow from the United States, will increase the supply of dollars in the exchange market, thereby exerting downward pressure on the dollar's exchange rate. Let us assume, for example, that the borrower is a German firm which uses the dollar proceeds to buy capital equipment in the United States or converts them into Deutsche Mark to purchase domestic goods. In the first case, in which the German firm would otherwise have had to buy the necessary dollars in the exchange market, the capital flow via the Euro-market to Germany will reduce the demand for dollars; in the second case it will increase the exchange-market supply of dollars, which essentially amounts to the same thing. It should, moreover, be noted that the weakening of the dollar has been brought about without a shift in asset preferences away from the US currency. However, this exchange rate effect will come about only if the German borrower is willing to incur a short position in dollars. If, on the other hand, the borrower covers itself by buying dollars in the forward exchange market, there will, as explained in more detail in the following section, tend to be no major exchange rate effects.

Assuming no forward covering, the ultimate exchange rate effects will, of course, depend on the central bank's exchange rate policy. If, in our example, the Bundesbank does not intervene in the exchange market, the capital flow through the Euro-market will depress the dollar against the Deutsche Mark until its depreciation induces offsetting payments outflows from Germany to the United States. Since the current-account balance does not usually respond to exchange rate changes in a stabilising way in the short run, these offsetting payments flows will usually have to take the form of a

capital reflux from Germany to the United States, which could take place either directly or via the Euro-market or via a third country. To the extent that, on the other hand, the Bundesbank prevents or limits the exchange rate movement by intervening with dollar purchases, while leaving and investing the dollar proceeds in the United States, the Euro-market-intermediated capital outflow from the United States will be accommodated by an offsetting inflow of foreign official funds to the United States.

In all these cases the dollars in question will have at no point left the United States. All that has occurred from this point of view is a change of ownership of US-held dollar balances. If the Bundesbank has intervened, the transfer of ownership will have been from the original non-bank holder of the dollar balances to the Euro-bank with which he made his deposit, and from there directly, or via one or more other Euro-banks, to the German borrowing firm and ultimately to the Bundesbank. This change of ownership may of course involve a shift in the structure of demand for US assets. The original owner of dollars may, for example, have held his dollars in the form of bank certificates of deposit, whereas the Bundesbank will normally hold its dollar balances in the form of Treasury bills. While the overall US interest rate level or overall credit availability in the United States will not be very much affected, there may be changes in relative interest rates within the United States; in our example, the yield on Treasury bills would tend to decline, while CD rates would tend to rise.

It remains to be said that quite typically – though perhaps not in the case of Germany – Euro-credit flows, instead of creating external payments imbalances, tend to offset disequilibria in the other items of the balance of payments, such as in the current account (this point will be discussed in more detail in Part II of this paper). In this case, rather than causing exchange rate movements, the capital flows via the Euro-market will tend to obviate them. However, reworded in appropriate terms the above conclusions about the exchange rate implications of capital flows intermediated by the Euro-market still apply.

The essential point to be made in this context is that the effects of the capital flows on exchange rates and US financial transactions would still be essentially the same as in the above analysis if the capital outflow from the United States to Germany were channelled through the Euro-DM market instead of the Euro-dollar market, or even if it bypassed the Euro-markets altogether. In the first case, the transfer of funds out of the United States would be associated immediately with their conversion into Deutsche Mark. The only difference from the Euro-dollar case would be that it was the original owner of the funds rather than the German borrowing entity that sold the dollars in the exchange market. This would have a minimal impact on the pattern of international capital flows, to the extent that the dollars would be sold perhaps a few minutes or a few hours earlier than in the Euro-dollar case; in other words, the transaction balances would be held in Deutsche Mark rather than dollars. If the capital flow bypassed the Euro-market and was in the form of, say, a direct credit from the original holder of the dollar balances to the German firm, it could, depending on the currency denomination of the credit, be either the lender or the borrower that sold the dollars in the exchange markets.

In short, all that really matters in the case of a shift of funds from the United States to banks in the Euro-market or some national market abroad is the use that is made of these additional funds, and not the currency in which the transfer takes place. If the banks leave or re-lend the funds in the United States there will be no exchange rate consequences. But if the funds are redeployed outside the United States the dollar will tend to be weakened, just as in the case of any other capital outflow from the United States. The Euro-market, therefore, makes a difference only to the extent that in its absence the capital flow would not have come about.

(iii)

These conclusions, of course, apply to shifts of funds resulting not only from changes in geographical asset preferences, but also from changes in credit demand that at first have an impact on the

uses side of the Euro-market. Let us briefly consider the topical example of a strengthening of US credit demand that results in an increase in Euro-dollar borrowing by banks in the United States. Here again, it might be tempting to conclude that there will be no exchange rate effects, since, the US borrowing being conducted in dollars, the supply of dollars in the exchange markets does not seem to be affected. However, as in the previous example, this reasoning overlooks the point that the increase in the Euro-banks' claims on the United States must have as a counterpart some other change in their balance sheets: a reduction in their claims on residents of other countries and/or an increase in their liabilities, whereby these adjustments will tend to be achieved by higher interest rates or, in the case of reduced lending elsewhere, some informal kind of rationing policy by the banks.

Unless the increase in liabilities stems from a transfer of funds out of the United States, the increased Euro-dollar lending to the United States will necessarily be financed with funds drawn from outside the United States. It will therefore amount to a capital flow from the rest of the world via the Euro-banks to the United States, which, like any other capital flow to the United States whatever its currency denomination, will add to the demand for dollars in the exchange markets. For example, where the Euro-dollar borrowing by banks in the United States is funded by a transfer of deposits from some third country's (let us call it country B) national market to the Euro-market, it is the currency of this country B which will be sold against dollars in the exchange market by the owner or holder of the funds.

Of course, for this Euro-dollar borrowing by US banks to be financed with funds from outside the United States and for the dollar to strengthen accordingly, it will be necessary for someone to take a long, or reduce a short, position in dollars. If instead the entity which, enticed by the higher Euro-dollar interest rates, shifts the funds from country B to the banks in the Euro-market avoids incurring a long position in dollars by selling a corresponding amount of dollars in the forward market, the resultant downward

pressure on the dollar's forward quotations will tend to give rise to covered interest arbitrage flows out of dollars into currency B. Provided no one else were willing to take a long position or reduce a short position in dollars, these covered interest arbitrage flows out of dollars would have to be financed with funds coming out of the United States. They would, therefore, add to the supply of spot dollars, thereby offsetting the increase in demand for dollars associated with the shift of funds from country B to the Euro-dollar market, and there would be no exchange-market effects.

For example, if the covered interest arbitrage is carried out, as would typically be the case, via the Euro-market in the form of Euro-dollar borrowing, the new credits to the arbitrageurs would form the counterpart in the Euro-banks' balance sheets to the new dollar deposits from country B. These deposits would thus not be available for financing the increased Euro-dollar borrowing by US entities. There would, therefore, have to be some other change in the Euro-banks' balance sheets. This would typically be a flow of dollar funds from the United States to the Euro-market induced by the upward pressure on dollar interest rates. In the case of such a transfer of funds from the United States the problem of forward cover would not arise, the funds being denominated in dollars to start with. Moreover, since the Euro-lending to the United States would now be financed with funds from the United States, the supply of dollars in the exchange market would, on balance, not be affected.

If no one were willing to build up an open net asset position in dollars, a strengthening of the dollar would result, in our example, only if the increased demand for Euro-currency funds on the part of US borrowers were associated with reduced Euro-dollar lending elsewhere – provided these other borrowers had not covered their dollar liabilities in the forward market (as is undoubtedly the case for a large portion of sovereign debt). Instead of the original dollar depositors from country B taking a long position in dollars, it would be the borrowers reducing a short position in dollars which would render possible the net capital flow to the United States.

(iv)

Another Euro-market phenomenon which has recently become of great topical interest is changes in the currency denomination of international bank credits. Some of the recent large rescheduling agreements with Latin American debtor countries gave the non-US banks the option of transforming part of their outstanding dollar credits into credits denominated in their own domestic currencies. Here again, to the extent that this shift in currency denomination does not affect the geographical pattern of international capital flows, it will have no exchange rate consequences; however, such an unchanged pattern of international capital flows is rather unlikely.

As a result of the shift in the currency denomination of their assets, the creditor banks will have a short position in dollars, their funding still being in dollars. The debtor countries, by contrast, tend to have a short position in currencies other than dollars. To the extent that both creditors and borrowers covered their open positions, the net demand for dollars in the exchange market would not be affected. In practice, however, the behaviour of these two groups of agents is likely to be asymmetric. While the debtor countries will not usually cover their short positions in other currencies by buying these currencies forward against dollars, or by shifting their official reserve holdings out of dollars, the banks normally cannot afford to maintain open positions of that order of magnitude. They can square their positions in three different ways: (1) by buying dollars forward; (2) by acquiring other spot dollar assets against domestic currency; and (3) by shifting their funding out of dollars into domestic currency. The exchange-market outcome of these three types of transaction will be essentially similar. All will tend to boost the demand for dollars, although not usually in a one-to-one relationship. Since in the longer run it is likely to be the most important one, only the third line of action will be illustrated here in more detail, namely a shift by the banks to funding their loan portfolio in domestic currency rather than in the Euro-dollar market.

Let us first consider the case of a currency (B) without a major

Euro-market, which means that the banks of country B will have to refinance their credits in the domestic market. Taken in isolation, this shift of funding from the Euro-dollar market to the domestic market amounts to a capital outflow from country B since the banks will have to acquire dollars to repay their dollar liabilities. This will tend to lead to a strengthening of the dollar against currency B, namely when the banks acquire dollars in order to repay their Euro-dollar debt. But, here again, the ultimate exchange-market impact on the dollar will depend on the other Euro-banks' response to the change in their balance sheets. The reduction in the Euro-banks' claims on the banks of country B will tend to create an excess supply of funds in the Euro-dollar market, thereby exerting downward pressure on Euro-dollar interest rates. An appreciation of the dollar will result only to the extent to which these lower Euro-dollar interest rates lead to a reflux of funds from the Euro-market to the United States, in the form either of a shift of deposits or of increased Euro-lending to that country.

If, by contrast, the easier Euro-dollar market conditions result in increased Euro-lending outside the United States or a shift of deposits from the Euro-market to other national markets, the dollar's weighted exchange rate will on balance not be very much affected. For example, if there is increased Euro-lending to country C, currency C will tend to strengthen against the dollar, thereby offsetting the dollar's strength against currency B. What has really happened is a capital flow from country B to country C, which will in the first instance tend to result in an appreciation of currency C against currency B and in opposite changes in the two currencies' cross rates against the dollar. In the event that countries B and C are identical, namely if the interest-induced new Euro-lending was to country B itself, there would of course be no exchange rate effects, as capital inflows and outflows would balance.

The result will, moreover, be essentially the same if there is a Euro-market in currency B and the shift in funding of the international loan portfolios was mainly from the Euro-dollar to the Euro-B market. However, in view of the closer links between the

various currency segments of the Euro-market, the net upward impact on the dollar would in all likelihood be somewhat smaller.

(v)

The preceding section has already touched upon the case of capital flows outside the United States. In fact, in quantitative terms the rôle of the Euro-market as a channel for capital flows between countries other than the United States has been much more important than its rôle as a channel for capital flows between the United States and the rest of the world. It may therefore be appropriate to consider rather more closely a situation in which neither the suppliers nor the borrowers of the Euro-currency funds are US residents. Let us assume that a Swiss firm converts domestic currency funds into dollars for depositing in the Euro-market, from where they are on-lent to a German firm. In this case, in addition to the increased supply of dollars vis-à-vis Deutsche Mark, there will be an increased demand for dollars vis-à-vis Swiss francs. The net impact on the dollar's effective exchange rate will depend on the weight of these two currencies in the currency basket used to compute this effective rate, on the relative size of the various demand and supply elasticities for these two currencies in the exchange market and on the exchange-market policies of the monetary authorities concerned. A clear strengthening of the dollar would, for example, result if the Bundesbank intervened to prevent a strengthening of the Deutsche Mark against the dollar while the Swiss National Bank did not support the Swiss franc. Here again, the results would be the same if the capital flow from Switzerland were via the Euro-Deutsche Mark or Euro-Swiss franc market and not via the Euro-dollar market. Even if the Swiss francs were in this case sold directly against the Deutsche Mark without going through the dollar, the dollar cross rates would necessarily be realigned in the same way through three-way exchange rate arbitrage.

The analysis could be complicated further by allowing for the use of the Deutsche Mark or the Swiss franc as secondary reserve currencies. However, the conclusions remain essentially unchanged.

The Euro-currency market acts simply as a pass-through. What really matters is the geographical direction of international capital flows – the country of origin and the country of destination. Whether, or in what currency, these capital flows are intermediated by the Euro-currency market or whether they bypass the Euro-market makes little difference. There is only one significant, but in quantitative terms minor, qualification to this conclusion: to the extent that the capital flows are channelled through the Euro-market there will have to be some working balances in the currencies used for these intermediation purposes, which in aggregate terms amount to a small capital inflow into the countries of issue of the currencies concerned. This already brings us to the subject of Part II of this paper, viz. the impact of the Euro-market on the pattern of international capital flows. However, before going on to this question it might be appropriate to discuss briefly some of the broader implications of the findings so far about the exchange-market rôle of the Euro-market for the theory of exchange rate determination.

(vi)

An exchange rate specifies the ratio at which two payment media can be exchanged against one another. It determines the strength of one currency for the purpose of purchasing goods, services and real or financial assets (for brevity's sake referred to here simply as "goods and assets") in the domestic market of the other currency, and vice versa. Correspondingly, the economic function of movements in the rate of exchange between a country's currency and other currencies is to maintain a balance between residents' demand for foreign goods and assets and foreign demand for that country's domestic goods and assets.

In this regard it makes no difference in which currency the goods are priced or, perhaps less obviously, in which currency the assets are denominated. For example, there would be hardly any consequences for the exchange rate performance of the dollar if,

instead of buying US Treasury paper denominated in dollars, foreign investors were to buy US Treasury paper denominated in Deutsche Mark, the only difference being that in the first case it would be the foreign investor and in the second case the US Treasury that sold the Deutsche Mark against dollars. This rather trivial point has far-reaching consequences for the theory of exchange rate determination. Contrary to what is implied by some currently fashionable theories of exchange rate behaviour, the prime determinant of exchange rate movements is not currency preferences but geographical preferences.

Let us, for example, take the assumption of given geographical preferences but a shift in currency preferences away from dollar to DM assets. If this shift in currency preferences is accommodated by the US Treasury issuing DM debt instead of dollar debt, there will be no exchange-market consequences. If, by contrast, with given currency preferences there were a shift in geographical preferences, with investors selling dollar debt of US residents and buying dollar debt of the rest of the world, this would, as explained in the preceding sections, weaken the dollar. It is true that before the advent of the Euro-markets currency and geographical asset preferences largely overlapped and that confusing the two was not only understandable but also not too serious; however, as a result of the growing importance of the Euro-market, currency and geographical asset preferences have become two quite different parameters.

One could, admittedly, rescue the currency preference approach by extending it to encompass liabilities as well as assets. It could then be said that in the above example a shift in investors' asset preferences in favour of the Deutsche Mark has no exchange-market implications because it is offset by a parallel shift in the US Treasury's liability preferences towards the Deutsche Mark. However, as will be argued below, particularly in connection with the operations of the Euro-market, such a way of looking at exchange rate determination might be misleading rather than helpful.

One important consequence of the overriding influence of geographical preferences is that analytically it is not very useful to view exchange rate determination, as the asset-market and monetary approaches do, in terms of the supply of and demand for money balances. The supply of and demand for dollar balances is, with one important exception to be explained shortly, only the by-product of a much broader foreign demand for US goods and assets and US residents' demand for the rest of the world's goods and assets. It is, of course, true that with the help of exchange rate movements this exchange-market supply of and demand for dollars as a payment medium will, in an *ex post* sense, always be in balance, but then this is equally true of any market, such as the US wheat market, where the dollars supplied and demanded in exchange for wheat will always be equal. However, this does not mean that it will be very helpful to view US wheat price formation in terms of asset-market equilibrium for the dollars which are used to buy and sell the wheat. The only useful approach is to look at the factors that determine the supply of and demand for wheat. Similarly, the only meaningful way of viewing exchange rate determination is to look at the factors that govern the foreign demand for US goods and assets (denominated both in dollars and in foreign currency) and US residents' demand for foreign goods and assets (whatever their currency denomination). This approach is, moreover, fully consistent with the presentation of the balance of payments which, as has already been emphasised, is based solely on the resident/non-resident distinction without regard to the currencies in which the transactions are carried out.

This is not, of course, to deny that the currency in which a good is priced or an asset is denominated is in itself an important property affecting its attractiveness. If, for example, the dollar is expected to appreciate, this means that for non-US residents the price, in terms of their domestic currency, of such dollar goods and assets will be expected to rise and that it will therefore seem advantageous to bring forward purchases of such goods and assets. It should, however, be noted that as a result of the Euro-market, expectations

of a dollar appreciation could also benefit balances of payments and exchange rates of countries other than the United States, namely when they lead to a strong build-up of dollar deposits in the Euro-market, with the Euro-banks using the funds for additional lending outside the United States.

Moreover, the currency denomination is in general only one of several properties of an asset. Others are its interest yield, its safety, prospects of capital gains (other than from exchange rate movements) and so on. There is, however, one type of asset whose currency denomination is for non-residents its only relevant property, apart from the need for transaction balances, namely interest-free money balances. In the longer-run changes in non-resident holdings of such pure foreign exchange balances will tend to account for only a small proportion of overall movements in non-residents' asset holdings denominated in that currency and their impact on longer-term exchange rate trends will tend to be fairly negligible. Of course, at times of currency unrest fluctuations in the demand for such money balances may be very large in relation to other factors influencing the supply of and demand for foreign exchange and may therefore be a dominant factor in exchange rate movements. However, this does not mean that exchange rate determination can be meaningfully discussed only in terms of asset-market equilibrium with regard to such money balances.

More often this "speculative" supply of and demand for such foreign exchange money balances will be a stabilising influence rather than a cause of exchange rate movements. Even if over somewhat longer periods such as a quarter or a year foreign demand for a country's goods and assets and domestic residents' demand for foreign goods and assets are in balance, there will tend to be temporary stochastic disequilibria between this supply and demand in the very short run, such as over a month, a week, a day or an hour. At least at times of confidence in the existing exchange rate structure, it is this "speculative" supply of and demand for foreign exchange induced by even minor exchange rate movements that will smoothly offset the very short-term and reversible stochastic

balance-of-payments disequilibria and that will at any given moment maintain equilibrium between the supply of and demand for foreign exchange without unnecessarily large exchange rate fluctuations.

To sum up, foreign demand for a country's goods and assets will also encompass the demand for its currency as such. In the short run this demand for money (foreign exchange) balances "per se", which is motivated by exchange rate expectations or the need to maintain trading positions in the currency concerned, will be of crucial importance for the smooth functioning of the exchange markets, although at times of exchange-market upheavals it might be a key element in exchange rate instability. In the longer run, however, it will in general not be a major influence and exchange rate developments will have to be analysed much more broadly in terms of the factors influencing foreign demand for a country's goods and assets and residents' demand for foreign goods and assets.

With the growing internationalisation of banking, an increasing proportion of this demand for foreign assets is no longer exerted by non-banks but by financial intermediaries. For example, a non-bank entity making a deposit with a bank in the United States will not usually know or care whether the bank uses the funds for additional lending at home or abroad. If they are used for domestic lending the dollar will in general not be affected, but if they are re-lent abroad it will tend to be weakened (provided the foreign borrower does not cover his dollar liabilities in the forward market). The decline of the dollar in this case will clearly not have resulted from a shift in non-banks' asset preferences, nor even from a shift in the financial intermediaries' currency preferences away from the dollar. Even to speak of an increase in liability preferences for the dollar might not be very relevant, since the fact that the foreign borrowers cover their financing requirements in dollars might be due simply to the breadth of, and facilities offered by, the international dollar credit market rather than to a preference for dollar liabilities as such. Nor is it meaningful to speak of an increase in the foreign borrowers' asset preference for the dollar, since the purpose of the borrowing will not normally be to build up dollar balances but to finance a current-

account deficit (in the case of sovereign borrowers) or to finance inputs (in the case of firms).

On the other hand, if non-US residents switch from domestic currency into Euro-dollar deposits this might be called an increase in the preference for dollar assets, but whether it will strengthen the dollar will depend on the use the Euro-banks make of the new funds. If they re-lend them outside the United States the impact on the dollar's weighted exchange rate may be either up or down, but in general it will be rather small. Or if, without any change on the sources side of their balance sheets, the international banks shift their dollar lending for prudential considerations from, say, Latin America to the United States, this will tend to strengthen the dollar without a shift in currency preferences in favour of the dollar; and to call the inability of Latin America debtor countries to raise funds in international markets "a shift in liability preferences away from the dollar" would at best be a bad joke. On the other hand, if in debt renegotiations some banks insist that their claims be redenominated in their domestic currency, this could be termed a shift in the banks' asset preferences away from the dollar, but it would, as explained on page 13 above, strengthen the dollar rather than weaken it. And, here again, it might be quite misleading to call such a change in the currency denomination of the debt a "shift in borrowers' liability preferences away from the dollar", since the debtor countries might have preferred to leave their debts denominated in dollars.

While the exchange-market consequences of international banking flows can thus not be meaningfully explained in terms of shifts in currency preferences, the increased international interdependence of national markets brought about by the Euro-market and the internationalisation of banking in general has undoubtedly enhanced the rôle of international capital movements in exchange rate determination; and the same observation applies to the Euro-bond market. It is quite obvious that in such an environment of worldwide credit and capital markets international capital movements caused by interest rate differentials, reassessment of credit risks, exchange rate expectations, anticipated

interest rate movements and so on, may at times — and even over longer periods — outweigh the exchange-market impact of autonomous fluctuations in current-account balances. In the absence of official intervention in the exchange market, current-account balances and net capital flows will of course always offset each other *ex post*. However, it is probably true that, owing partly to the enhanced international capital mobility brought about by the Euro-markets, the chain of causation may more often run from shifts in capital flows via exchange rate movements to changes in current-account balances than the other way round.

Nevertheless, despite the greater international integration of the capital and credit markets brought about by the Euro-market the dominance of capital flows as an exchange rate determinant should not be overstated. Experience in the past twenty-five years has shown that, even in the absence of major external shocks, differences in countries' economic performances and policy orientations may produce large and sustained changes in current-account balances which, through their direct influence on the supply of and demand for foreign exchange, do have a considerable impact on exchange-market developments. And even when such large and persistent current-account imbalances are, with the help of the Euro-markets, financed fairly smoothly through accommodating capital flows, they will thereby entail a gradual change in portfolio structures that will sooner or later inevitably have considerable exchange rate consequences. Moreover, through their impact on exchange rate expectations, large changes in current-account balances may affect exchange rate developments by influencing the volume and pattern of international capital flows. And, finally, even to the extent that changes in current balances are not autonomous but the result of exchange rate movements produced by shifts in international capital flows, the current-account imbalances may in the event of lagged responses, such as J-curve effects, ultimately "overshoot" the capital flows, thereby eventually reversing the exchange rate trend.

To sum up, it can be said that the Euro-market has made possible

a far-reaching split between geographical asset and currency asset preferences. Since it is, however, geographical asset preferences that are of significance in exchange rate determination, this means that the growing importance of the Euro-market has very much reduced the relevance of exchange rate theories inspired by concepts of asset-market equilibrium for money balances in a given currency. Moreover, owing to the Euro-market these geographical asset preferences are to a large extent exercised not by the ultimate economic agents but by financial intermediaries. And, finally, despite the greater international integration of financial markets brought about by the internationalisation of banking, and despite the resultant increase in the scale of international capital movements, one certainly cannot dismiss (changes in) current-account imbalances as being irrelevant from the point of view of exchange rate determination.

II

The impact of the Euro-currency market on international capital flows

(i)

Given that the Euro-market affects exchange rates through its impact on the volume and geographical pattern of international capital flows, what can be said about the nature of this impact?

Very generally speaking, it may be assumed that, by providing a genuine worldwide market for bank deposits and bank credits, the Euro-market has increased the international mobility of capital. Such increased capital mobility may affect exchange rate behaviour on various levels.

In the area of short-term capital movements a sufficiently high degree of international capital mobility will be a necessary, although by no means sufficient, condition for the efficient functioning of a floating rate system. This will be so in particular when the authorities are reluctant to intervene in the exchange markets and

when trade flows are slow to respond to exchange rate movements in an equilibrating way, thereby giving rise to J-curve effects. Against such a background, without equilibrating capital flows readily brought about by the divergence of exchange rates from their supposed equilibrium levels or by interest rate differentials, the exchange rate fluctuations or policy disturbances caused by even temporary balance-of-payments disequilibria would tend to be very substantial.

On the other hand, the ease with which balance-of-payments disequilibria can be financed with the aid of the Euro-market without major policy adjustments may also carry certain risks. This is particularly true when the external borrowing is carried out by the official sector without regard to international interest rate differentials and market conditions. If, instead of serving as bridging finance, such borrowing is used to avoid the necessary policy adjustments, it will ultimately tend to increase rather than reduce exchange rate disturbances. In this sense the rôle of the Euro-market as a source of finance may be likened to a highly efficient tool which in expert hands produces better results, but may do a lot of damage if used incompetently. Moreover, once confidence is lost, the capital flows generated via the Euro-currency market may add to external payments disequilibria rather than offsetting them, thereby increasing exchange rate instability.

Finally, the high degree of international capital mobility brought about by the Euro-market will tend to reduce national autonomy in the field of interest rates. If, in their policy mix, the national authorities do not take external requirements sufficiently into account, the resultant international interest rate differentials may lead to an excessive volume of international capital flows, causing undesirably large exchange rate movements. Such problems may also arise in a business cycle context, when a country which is in a more advanced stage of the cyclical upswing than the rest of the world experiences a rise in interest rates which attracts a larger volume of capital inflows than is necessary to offset the cyclical deterioration in its current-account balance.

Turning to long-term capital flows, the new financing opportunities and facilities provided by the Euro-market have also meant that this market has played a very important rôle in development finance, channelling capital from countries with a relatively rich capital endowment to countries with a capital shortage. Such flows will permit developing countries to enjoy a higher and more stable exchange rate level, though only as long as the foreign capital is put to good use and the proceeds are invested efficiently in domestic economic growth. Here, too, as recent experience has shown, abuse of this instrument will mean disruption and stagnation rather than stability and growth.

For the industrial countries, which are the main suppliers of the capital flowing via the Euro-market to the developing countries, there may be exchange rate effects associated with changes in the funding pattern. As illustrated in Part I, when banks based outside the United States switch their LDC lending from dollars to domestic currency, it is likely that a larger part of the loans will be funded in their home country, which will tend to weaken the domestic currency's exchange rate while strengthening the dollar. Here again, it is not the change in currency denomination as such that produces the exchange rate effect but its influence on the geographical pattern of international capital flows.

One specific case in which the Euro-market's contribution to international capital flows was of decisive importance was that of the oil price increases with their international financial consequences. Without the intermediary services provided by the Euro-market the investment of the OPEC countries' savings surpluses would probably have been focused on a limited number of industrial countries with well-developed capital markets and/or strong currencies, with most other oil-importing countries possibly experiencing considerable difficulties in financing their vastly increased current-account deficits. The outcome might therefore have been upward exchange rate pressures on a limited number of key currencies and excessive downward pressures on the currencies of most other oil-importing countries.

Because of the size of the oil-price-induced current-account imbalances, and of J-curve effects, it is, however, doubtful whether even very large exchange rate movements would have been sufficient to restore a better pattern of international payments. In terms of inflation and growth performances, they might even have strengthened the centrifugal tendencies in the world economy. By helping to share out the financial surpluses of the OPEC countries, the Euro-market therefore made an important contribution towards minimising exchange rate instability. On the other hand, the problem with Euro-market financing of the oil-price-induced current-account deficits was that in the borrowing countries this net import of external resources did not have a domestic investment counterpart, but predominantly served to cover the increased cost of oil imports. It therefore unavoidably led to a deterioration in borrower countries' external payments positions and was one of the main factors responsible for the outbreak of the international debt crisis in the second half of 1982, which (as will be argued in Part III below) subsequently contributed to the extraordinary strength of the dollar.

(ii)

Aside from these rather general remarks about the exchange rate impact of the Euro-market via its influence on international capital flows, it is possible to make some observations about the market's exchange rate implications in three specific areas. One concerns the development of the exchange rates of the currencies which serve as the main units of account in the Euro-market; another concerns the rôle of the Euro-market as a deposit outlet for official reserves; and the third refers to the potential rôle of the Euro-market at times of currency unrest.

To begin with the first point, it is quite obvious that the impact of the Euro-market on international capital mobility will be particularly great in the case of countries such as the United States and Germany, whose currencies are used as the principal denominations in the market. The main reason for this is that in

their case the funds can be shifted between the domestic market and the Euro-market without going through the exchange market and without incurring any exchange risk. The question which arises in this context is whether the influence of a currency's rôle as a Euro-currency will in the longer run be to strengthen or weaken its exchange value.

While it is not possible to give a general answer to this question, it may be of some interest to summarise the main parameters that will determine the outcome. Here, as in several other areas of Euro-market analysis, it is essential to take into account both the sources and the uses sides of the market. In the exchange rate context this means that it is necessary to consider the impact of the market on both asset and liability preferences.

To begin with asset preferences and using the dollar as an example, the emergence of the Euro-dollar market has meant essentially two things:

(A) by offering new types of deposit and investment outlets in dollars it tends to increase the share of the dollar denomination in asset portfolios;

(B) by providing attractive deposit outlets in the international markets it has made it easier and more attractive to hold dollar assets outside the United States.

In case A Euro-dollar holdings substitute for asset holdings in other currencies, which, taken in isolation, will be a positive influence on the dollar's exchange rate. In case B Euro-dollar holdings represent a substitute for dollar holdings in the United States, which will tend to be a negative influence on the dollar, since it is tantamount to a capital outflow from the United States. All Euro-dollar holdings fall into either category A or category B.

Similarly, as regards financing, the advent of the Euro-market has widened the available options in two ways:

(X) it has made it easier to borrow in dollars;

(Y) it has made it easier to obtain dollar credits from banks outside the United States.

In case X Euro-dollar borrowing represents an alternative to

borrowing in other currencies, which, taken in isolation, will have a weakening effect on the dollar. In case Y Euro-dollar borrowing serves as a substitute for borrowing in the United States, which, by holding down capital outflows from the United States, would be a factor of dollar strength. Here again, all Euro-currency credits can be classified under one of the two headings.

As already stressed, a meaningful judgement about the exchange rate impact of Euro-market transactions can only be made if the sources and uses sides of the market are considered jointly. Let us assume, for illustrative purposes, that on the sources side A and B account for 70 and 30 per cent. respectively of the funds held in the Euro-dollar market and that on the uses side the shares of X and Y in total Euro-dollar credits amount to 60 and 40 per cent. respectively. Let us, moreover, make the fairly realistic assumption that there is no systematic bias between sources and uses of Euro-dollar funds and that for the distribution of the uses between X and Y it makes no difference whether the sources are of type A or B.

In our example, the credit outstanding through the Euro-market will be the result of four different types of capital flow: one (namely $A \rightarrow Y$) will tend to have a positive effect on the exchange rate of the dollar, another ($B \rightarrow X$) will tend to have a negative impact and two ($A \rightarrow X$ and $B \rightarrow Y$) will tend to be neutral as regards their exchange rate impact.

On the basis of the above assumptions, $A \rightarrow Y$, which is tantamount to a capital flow from the rest of the world to the United States, would account for 28 per cent. ($0.7 \times 0.4 = 0.28$) of the volume of Euro-dollar credit outstanding. One example of such a flow would be a Swiss resident shifting his assets from Switzerland to the Euro-dollar market, with the Euro-banks re-lending the funds to a firm, such as a US corporation or its foreign affiliate, which in the absence of the Euro-market would have borrowed in the United States.

$B \rightarrow X$, by contrast, is equivalent to a capital outflow from the United States via the Euro-dollar market to the rest of the world, which will tend to weaken the dollar. It could take the form of a shift

of balances from the United States to the Euro-dollar market, with the funds being on-lent to a firm outside the United States that would otherwise have borrowed on its domestic market. On the above assumptions, such capital outflows from the United States would account for 18 per cent. ($0.3 \times 0.6 = 0.18$) of the cumulative total of credit flows intermediated by the Euro-dollar market.

The other two types of credit flows would tend to be neutral as regards their exchange rate impact on the dollar. This is true in particular of $B \rightarrow Y$, which essentially represents a circular flow of funds from the United States to the Euro-market and back to the United States, an example of which might be a US resident transferring his bank deposits to the Euro-market and the Euro-bank re-lending the funds to a US firm which would otherwise have borrowed in the United States. On the above assumptions, such circular flows of funds would account for 12 per cent. ($0.3 \times 0.4 = 0.12$) of Euro-dollar credits outstanding.

A flow of funds $A \rightarrow X$, which is equivalent to capital flows intermediated by the Euro-market between countries other than the United States, will, as already discussed in Part I, tend to affect the respective bilateral exchange rates vis-à-vis the dollar in offsetting ways and the net impact, if any, on the effective exchange rate of the dollar cannot be predicted a priori. An example of such a dollar credit flow outside the United States might be a German resident switching from domestic DM deposits to Euro-dollar deposits and the dollar funds being re-lent to a UK firm which would otherwise have borrowed on its domestic market. On the above assumptions (and probably also in the real world) this type of Euro-credit flow would be quantitatively the most important, accounting for 42 per cent. ($0.7 \times 0.6 = 0.42$) of the total stock of Euro-dollar credit.

To sum up, it can be said that all credits outstanding through the Euro-dollar market have resulted from transactions which, from the point of view of their exchange-market impact on the dollar, are equivalent to one of the following four types of international capital flow: (1) capital inflows to the United States ($A \rightarrow Y$); (2) capital outflows from the United States ($B \rightarrow X$); (3) circular flows of funds

from the United States through the Euro-dollar market back to the United States ($B \rightarrow Y$); and (4) capital flows between countries other than the United States ($A \rightarrow X$).

Flows of type (3), which in the above example account for 12 per cent. of the total amount of Euro-dollar credit outstanding, would obviously have no exchange rate consequences. The net impact of flows of type (4), accounting for 42 per cent. of total Euro-dollar credits, on the weighted exchange rate of the dollar would be largely neutral, since the bilateral exchange rates would tend to be affected in offsetting ways. The overall exchange-market impact of the Euro-market on the dollar would therefore depend essentially on the relative sizes of flows of types (1) and (2). In our example these account for 28 and 18 per cent. respectively of the total volume of Euro-dollar credit; in other words, 28 per cent. of the cumulative Euro-dollar credit total would have resulted from transactions which strengthened the dollar, whereas 18 per cent. would have resulted from transactions which weakened it. The net impact on the exchange rate of the dollar would therefore have been positive in that 10 per cent. (28-18 per cent.) of the volume of Euro-dollar credit could be considered as the result of transactions equivalent to net capital flows from the rest of the world to the United States.

The problem with this kind of analysis is, of course, that in practice the size of these parameters, namely the relative importance of A and B or X and Y , is very difficult to estimate. This is particularly true in the case of the cumulative credit total outstanding through the Euro-market, since it is virtually impossible to tell what kind of institutional arrangements would have evolved in the absence of this market. The "ceteris paribus" assumption is obviously meaningful only if it is applied in a relatively short-run context. But even for reasonably short periods of Euro-market growth it might not be easy to measure these parameters, particularly as they will not be stable over time but will be influenced by a large number of economic and political factors. Nevertheless, the country of residence of the depositors and borrowers of Euro-dollar funds might provide some rough guidance. For example, if the

borrower were a US entity, it is likely that in the absence of the Euro-market the alternative would have been borrowing on the US domestic market; in the case of a US-based multinational firm, however, such an assumption would be much more questionable.

Despite these practical difficulties, the analytical framework outlined above may be of some use as a conceptual aid, if only as an indication of how complex the situation really is, how many factors have to be considered and how important it is to guard against rash or oversimplified conclusions. One set of factors likely to have an important influence on the A/B and X/Y parameters is regulatory arrangements and constraints, such as exchange controls, domestic interest rate ceilings, reserve requirements and credit ceilings, and it is particularly for the evaluation of the Euro-market and exchange rate effects of changes in such regulations that the above analytical framework may be of some help. Needless to say, this analysis is valid not only for the dollar sector of the Euro-market but also for the Euro-markets in other currencies, such as the Deutsche Mark and the Japanese yen, although the size of the A/B and X/Y parameters may differ substantially from currency to currency.

(iii)

One special type of capital flow which has acquired considerable quantitative importance over the past twenty years or so and which in the absence of the Euro-market would probably have remained relatively modest, is the shift in the placement of official reserve holdings between the United States and the rest of the world. Without the Euro-market, central banks would, on the whole, have had little choice but to invest their exchange reserve accruals in the United States. Since the 1950s, as a result of the recurrent UK balance-of-payments crises, sterling had lost most of its attraction as a reserve currency, while Germany, Switzerland and Japan did not, in general, look favourably on the use of their domestic markets as an investment outlet for foreign official exchange reserves. Against this background, the emergence of the Euro-market with its various

currency compartments substantially broadened the investment alternatives and arbitrage possibilities available to central banks.

For one thing, it offered the possibility of investing official reserves in dollars without holding them in the United States. This was not only convenient for countries which were reluctant, for political reasons, to keep all their reserves in the United States but also had the attraction of providing a higher interest yield. Since banking offices in the Euro-market are not subject to reserve requirements, they were able to offer depositors higher interest rates than banks in the United States. Secondly, the Euro-market made it possible for monetary authorities to hold their reserves in the form of Deutsche Mark, Swiss francs or yen without having to obtain the permission of the country of issue. It is hardly surprising that monetary authorities have tended to make use of the investment opportunities available in the Euro-market, particularly at times when the interest advantages were significant and when the weakness of the dollar made other currencies more attractive.

To the extent that such official reserve holdings in the Euro-market are an alternative to reserve holdings in the United States, as is overwhelmingly the case, they constitute a form of capital outflow from the United States and will tend to exert the same downward pressure on the dollar in the exchange markets as any other autonomous shift of funds from the United States to the Euro-market. Moreover, the fact that such official reserve placements in the Euro-market will tend to be significant when the US official settlements balance is in substantial deficit and when, therefore, foreign official reserve holdings are expanding means that this downward pressure will usually occur when the dollar is already weak. Similarly, the drawing down of official Euro-market deposits at times of a US official settlements surplus may reinforce the underlying exchange-market strength of the dollar. In other words, by attracting or releasing official reserves, the Euro-currency market may amplify the exchange rate fluctuations resulting from given US external payments disequilibria.

It may be useful to illustrate this point with the aid of an

example. Let us assume that payments outflows from the United States are putting downward pressure on the dollar in the exchange markets, and that other countries' central banks intervene to mitigate the appreciation of their currencies. Let us further assume that, instead of leaving their resultant dollar accruals in the United States, these central banks redeposit them with the banks in the Euro-market. If the Euro-banks now re-lend these funds outside the United States, this will be equivalent to an additional round of capital outflows from the United States, with the same dollars being sold a second time, leading to further downward pressure on the dollar in the exchange markets. In the event of continued official intervention there will be a further round of reserve accruals, which may be moved to the Euro-market once again, and so on. This whole process of repeated dollar sales and multiple reserve creation will continue until such time as the downward impact on Euro-dollar interest rates and the lower dollar exchange rates induce offsetting private capital flows to the United States and/or until the dollars end up in the hands of central banks willing to leave their reserve accruals in the United States. As a result of this multiplier process, a US official settlements deficit of, say, US\$ 1 billion could in theory increase the net supply of dollars in the exchange market and official reserve accruals by several times this amount; similarly, in the case of a US balance-of-payments surplus of US\$ 1 billion the withdrawal of official deposits from the Euro-market could conceivably raise the demand for dollars and official reserve losses by a multiple of this figure.

In practice, however, the quantitative importance of this kind of multiplier effect is open to doubt, particularly when the shift of reserves to the Euro-market is not associated with their conversion into other currencies. A shift of funds from the United States to the banks in the Euro-market will tend to exert downward pressure on Euro-dollar interest rates, which in turn will tend to induce an offsetting reflux of capital to the United States. In this case, the result will simply be a circular flow of funds from the United States to the Euro-market and back to the United States which will have no

exchange rate effects and will therefore not give rise to foreign official reserve accruals. As regards the US balance of payments, liabilities to foreign official holders will simply be replaced by liabilities to private holders, which will tend to make the size of the US official settlements deficit appear smaller than it actually is.

Some students of the market would even argue that, in view of the smooth functioning of the Euro-dollar interbank market and its close links with the US domestic market, this offsetting reflux of funds to the United States will amount to virtually 100 per cent. and that there will therefore be hardly any exchange rate effects of international reserve creation. And, indeed, this reflux will tend to be particularly large when the growth of the Euro-market is predominantly demand-determined or when the Euro-banks' willingness to provide additional intermediation services is limited by capital constraints or risk considerations. Especially when the transfer of official reserves from, say, New York to London is between offices of the same bank, it is doubtful whether the shift in the geographical location of the deposits will have very much influence on the total amount of the banks' lending to borrowers outside the United States.

On the other hand, the offsetting reflux of funds to the United States will tend to be smaller and the multiplier effects more significant when the transfer of official deposits from the United States to the Euro-market is connected with their conversion into other currencies such as Deutsche Mark or yen, or when the transfer is not between offices of the same bank but between different banks and particularly between banks of different nationalities. Particularly when the transfer is associated with currency diversification, it is probable that a substantial part of the funds will not find its way back to the United States but will be re-lent elsewhere, thereby setting into motion the kind of multiplier effects described above.

But even when the official funds remain denominated in dollars, the assumption that the whole will automatically flow back to the United States presupposes rather odd behaviour on the part of the

Euro-banks. It is, of course, true that when a Euro-bank experiences an autonomous inflow of non-bank or central-bank deposits its first reaction will tend to be to place the funds in the interbank market (or use them for replacing interbank liabilities), and that in view of the close links with the US market a large part will at first be retained in the United States. In the longer run, however, the growth of a bank's credit portfolio will tend to be, and indeed should be, linked in some way to the growth of its more stable deposit base (the problems of Continental Illinois Bank have dramatically demonstrated the possible consequences of not observing this principle). It is likely, therefore, that an autonomous shift of official deposits from the United States to the Euro-dollar market, even if the funds remain denominated in dollars, will gradually give rise to more rapid growth in the Euro-banks' loan portfolio, including a larger amount of lending outside the United States.

Moreover, the interest effects of a transfer of funds from the United States to the Euro-market will be asymmetric in that, while Euro-market interest rates will tend to be reduced, there will, as already indicated in Part I, be no corresponding upward pressure on interest rates in the United States. This reflects the rôle of the dollar as an international reserve currency and ultimate money for the world economy, which means that the dollars at no point leave the United States, but are simply shifted around. In the case of an outward transfer of official reserves, which are traditionally held in the form of US Treasury paper, the demand for US Treasury bills will tend to decrease, while the demand for US bank deposits will rise, which will certainly not increase the banks' need for foreign funds.

In short, while substitution effects may be very important, it cannot be ruled out that, at times, a shift of official reserves out of the United States to the banks in the Euro-market may lead to a sizable increase in Euro-lending to countries other than the United States, thereby setting into motion the kind of exchange-market reactions and multiplier processes described above.

As already mentioned, when such a shift of funds is connected

with currency conversion, these effects can be more or less taken for granted. There is, however, an ambiguity relating to the official holdings of non-dollars assets in the Euro-market. In view of a number of liberalisation measures taken by several countries over recent years, it can no longer be automatically assumed that such Euro-market holdings of currencies other than the dollar are exclusively a substitute for official dollar holdings in the United States — the alternative may in fact have been placements in the currencies' domestic markets. In this case the findings of the above analysis will not apply. On the contrary, since the Euro-currency markets' links with the US domestic market are likely to be closer than those of the same currencies' domestic markets, such a substitution of Euro-market holdings for domestic-market holdings of currencies other than the dollar would, if anything, tend to strengthen the dollar and to reduce international liquidity by leading to increased capital flows from the rest of the world to the United States.

As regards the potential destabilising impact of official deposits in the Euro-market, in the early 1970s, when the central banks of the Group of Ten countries began to monitor the macro-economic consequences of the Euro-market, they agreed to limit their own deposits of official reserves in that market. Since this agreement did not, however, extend to countries outside the Group of Ten, it did not go very far in curtailing the rôle of the Euro-market as an official reserve outlet. As can be seen from Table 1, the volume of official reserves held in the Euro-market went up very considerably between 1973 (the first year for which figures are available) and 1980. In 1974–76, the three years following the first oil price explosion, the sharp increase in official Euro-dollar holdings largely reflected the reserve gains of the OPEC member countries. As already suggested on page 25 above, rather than contributing to excessive dollar weakness and undesirable liquidity creation, these deposits tended to have stabilising and counter-deflationary effects.

However, the situation changed dramatically in the years 1976–79, when the dollar came under heavy pressure in the exchange

Table 1
 Official holdings of foreign exchange in the
 Euro-currency market and in national markets, 1973-84

Item	1973	1976	1978	1979	1980	1982	1984 September
	in billions of US dollars						
Total exchange reserves as reported by the IMF	124.2	187.9	291.9	329.0	373.6	317.0	334.3
of which:							
1. Official deposits with BIS reporting banks in the Euro-currency market	26.4	65.0	85.7	122.2	128.9	84.5	87.7
a) in dollars	16.5	51.6	58.2	79.8	85.3	62.2	60.3
b) in other foreign currencies at current exchange rates	9.9	13.4	27.5	42.4	43.6	22.3	27.4
2. Official assets held in national markets	(71.6)	100.4	171.6	158.3	182.0	185.2	180.3
a) in the United States	66.8	95.6	162.6	149.7	164.6	172.7	173.2
b) with banks in other national markets at current exchange rates ^a	(4.8)	4.8	9.0	8.6	17.4	12.6	13.1
Memorandum items:							
Deposits by OPEC countries with BIS reporting banks in the Euro-currency market	11.5	51.0	64.1	95.5	128.7	104.3	126.3
a) in dollars		43.8	48.5	71.1	97.6	86.9	108.3
b) in other currencies at current exchange rates	11.5	7.2	15.6	24.4	31.1	17.4	18.0

^a With banks in Europe, Canada and Japan.

markets and official Euro-deposit holdings in currencies other than the dollar showed a particularly sharp increase. It would be difficult to deny that these transfers of official funds out of the United States to the Euro-market added to the recurrent downward pressure on the dollar during this period. On the other hand, in the period from late 1980 to mid-1983 official reserve holdings in the Euro-market were drawn down quite sharply, a development which contrasted with the continued upward movement of official dollar balances held in the United States. While confidence factors relating to the international debt situation and shrinking OPEC reserves were important influences behind this decline in official reserve holdings in the Euro-market, the strength of the dollar was undoubtedly an additional force and may, in turn, have been enhanced by the exchange-market implications of the shift of reserves to the United States.

It should, however, be noted that the steep decline in official deposits held in non-dollar form came to a halt at the end of 1982 and has since been partially reversed. Similarly, after reaching a low point in mid-1983, official Euro-dollar deposits have since shown an increase on balance. This suggests that while they at first contributed to the recovery of the dollar from its excessively depressed level at the end of the 1970s, official reserve policies with respect to Euro-market placements have more recently helped towards containing the excessive strength of the dollar in the exchange markets.

(iv)

One area in which, from the point of view of exchange rate effects, the contribution of the Euro-market to international capital flows may be suspected of being of particular significance is the financing of currency speculation or of hedging activities. While at times of confidence in the existing exchange rate structure the rôle of the Euro-market in financing temporary balance-of-payments disequilibria will in general tend to have a smoothing effect on the exchange markets, it may be assumed that in periods of currency

unrest the arbitrage and financing possibilities afforded by the Euro-market will tend to add to destabilising capital flows.

For example, if the dollar is expected to depreciate, it will tend to become more attractive for firms to cover part of their external financing requirements in dollars rather than in domestic or other currencies. For firms located outside the United States dollar credits can be raised most conveniently in the Euro-market. The resultant increase in the demand for Euro-dollar loans will tend to push up Euro-dollar interest rates until equilibrium between the supply of and demand for Euro-dollar funds is restored through the attraction of new funds to the market. In view of the close links between the Euro-dollar market and the US domestic market, and of the fact that transferring funds to the Euro-dollar market does not generally entail any exchange risks for US residents, in such a situation these new funds will come largely from the United States. This interest-rate-induced flow of funds from the United States to the Euro-market will add to the total supply of dollars in the exchange markets, thereby strengthening the downward pressures on the dollar.

There is an even simpler way in which the Euro-market might facilitate speculation against the dollar, namely by permitting the switching of existing Euro-dollar deposits into other Euro-currency deposits. By reducing the supply of Euro-dollar funds this also would tend to push up Euro-dollar interest rates, giving rise to the same pattern of capital flows and exchange-market repercussions as described in the previous paragraph. Alternatively, the banks could cover the long positions in dollars resulting from customers' dollar borrowing or withdrawals of dollar deposits through forward sales of dollars, which — via covered interest arbitrage flows — would also push up Euro-dollar interest rates, thereby attracting capital outflows from the United States and weakening the dollar in the spot market.

From what has been said so far it would appear that when the dollar's exchange rate is expected to decline, the Euro-market's rôle in financing hedging or outright speculative activities against the

dollar will, if anything, result in an increase in the Euro-banks' net creditor position in that currency, particularly vis-à-vis non-US residents, a development which will, of course, be the mirror image of their customers' currency preferences.

However, there are other types of speculative or hedging activity that will have the opposite effect on the Euro-banks' balance sheets, i.e. will result in a shortening of their spot positions in dollars. Firstly, the banks themselves may engage in such activities and seek to reduce their net asset position (or increase their net liability position) in dollars, for example by selling the proceeds of dollar deposits and re-lending the funds in other currencies. However, despite the banks' rôle as market-makers, this would, in general, be considered a highly dangerous kind of activity, frowned upon by the supervisory authorities. In most cases, therefore, movements in the banks' exchange rate exposure will be limited to very short-term position-taking connected with their normal trading activities in the foreign exchange market.

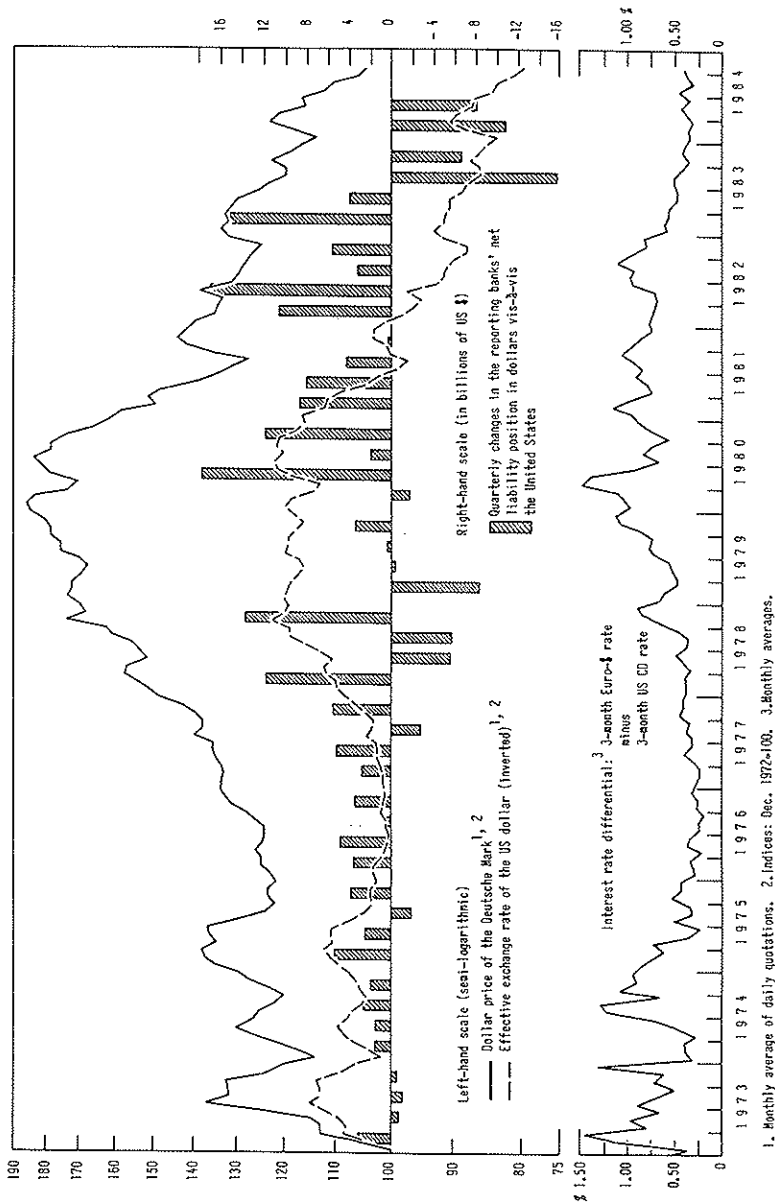
A more important way in which the Euro-banks, without incurring an exchange rate risk themselves, could reinforce exchange rate movements by building up a short spot position in dollars is by accommodating the hedging or speculative activities of their customers. When it is feared that the dollar will weaken, the Euro-banks will usually be faced with an excess supply of forward dollars from customers who are trying to hedge future dollar receipts or are simply speculating against the dollar. At the same time, importers will be hesitant to cover their future payment obligations by buying forward dollars. The result will be an excess supply of forward dollars which the banks can absorb from their customers without exposing themselves by borrowing a corresponding amount of spot dollars of equivalent maturity in the Euro-market for spot selling. Since in such a situation all the Euro-banks will simultaneously seek to borrow dollars in the interbank Euro-market, the consequence will be excess demand for Euro-dollar funds which, again, will tend to be met, via an increase in Euro-dollar interest rates, largely by capital outflows from the United States.

Needless to say, the same kind of analysis applies to periods of expected dollar appreciation. In this case the various types of operation described in the preceding paragraphs will tend to give rise to an excess supply of dollar funds in the Euro-currency market. This will tend to depress Euro-dollar interest rates in relation to interest rates in the United States, inducing a capital reflux via the Euro-market to the United States, which will boost the demand for dollars in the exchange market.

The essential point to make in this context is that, in line with the principles set out at the beginning of this paper, it is only by causing capital flows into or out of the United States that the speculative or hedging activities vis-à-vis the dollar will have a clear impact on its overall exchange-market performance. For example, if the excess demand for dollar funds in the Euro-market were covered not by a transfer of funds out of the United States but by inflows from another group of countries, the dollar's weakening against other currencies would tend to be offset by its strength against these countries' currencies, and the net impact on its effective exchange rate would be uncertain.

Because of these various influences impinging on Euro-banks' balance sheets in offsetting ways, it is not possible to obtain any reliable evidence of the Euro-market's rôle in financing speculative or hedging activities in favour of or against the dollar simply by looking at changes in the Euro-banks' overall net asset or liability position in dollars or other currencies. Rather, it is necessary to focus more selectively on the structure of their dollar liabilities and assets: for example, shifts of private or official balances out of Euro-dollar into other Euro-currency deposits, a widening premium on Euro-dollar deposits over comparable US interest rates, abrupt increases in the Euro-banks' net dollar liabilities vis-à-vis the US domestic banking sector and in their net dollar claims on non-bank entities outside the United States might suggest a contribution on the part of the Euro-market to financing hedging activities or outright speculation against the dollar.

Exchange-market performance of the dollar
and changes in the Euro-banks' net dollar position vis-à-vis the United States



If this yardstick is applied, there is some very patchy evidence that the Euro-market has occasionally contributed to the financing of speculative or hedging activities, although in comparison with other sources of exchange rate pressure the contribution appears to have been relatively modest. For example, even during the spells of extreme dollar weakness in the second half of the 1970s, non-bank depositors do not, on balance, seem to have reduced their Euro-dollar deposits. What could be observed, at most, was a somewhat slower growth of Euro-dollar deposits to the benefit of a faster expansion of other Euro-currency deposits. Similarly, there were no shifts in the Euro-banks' overall net dollar position that could be systematically related to the currency's exchange-market performance. All that could be discerned on two occasions, when the dollar was under heavy pressure, was some dollar withdrawals by official depositors and, as is shown in the graph, substantial net takings of new funds by the reporting banks from the United States. (A more detailed account of the rôle of international banking in the exchange-market performance of the dollar will be given in the following section.)

Unfortunately, for a number of reasons the statistical evidence does not allow definite conclusions to be drawn about the contribution of the Euro-market to currency unrest. For one thing, the Euro-currency statistics are available only quarterly, which means that very short-term speculative and hedging activities will probably be by no means fully reflected in the data. Secondly, taking the example of an abrupt increase in the Euro-banks' net liabilities vis-à-vis the United States and an increase in their net claims on non-bank entities outside the United States, this would not necessarily reflect speculative or hedging activities directed against the dollar but could equally well be due to a number of influences unrelated to exchange rate considerations, such as seasonal factors or a strengthening of international credit demand outside the United States. And even if it is accepted that the Euro-market has indeed contributed to the financing of hedging or speculative activities for or against the dollar, one must assume that in its absence a

substantial part of these activities would have been financed by direct capital flows to or from the United States.

III

The influence of Euro-banking flows on the dollar's exchange-market performance: recent history

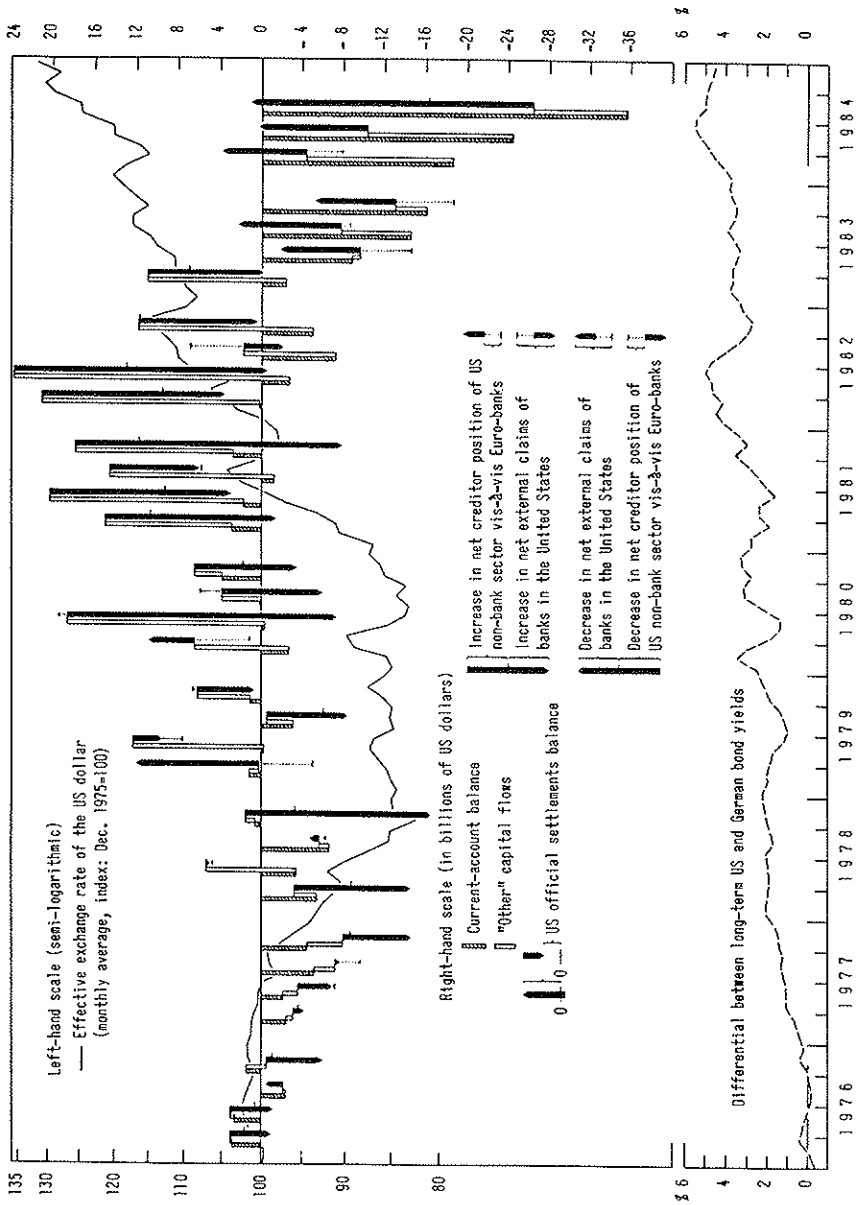
It might be useful to conclude this paper with a short survey of the influence that international banking flows, mostly through the Euro-dollar market, may have exerted in recent years on the US balance of payments and on the dollar's performance in the exchange markets. The graph on the following page attempts to summarise these effects. The black arrows in this graph represent two types of flow:

firstly, net deposits (i.e. new deposits minus new borrowing) by US non-bank entities with those banks outside the United States that contribute to the BIS quarterly reporting system on international banking activities; the volume of these new net deposits is shown as the distance from the bottom of the arrow to the marker on its side;

secondly, changes in the overall net external position of banks in the United States, shown as the distance from the marker to the tip of the arrow. These flows, of course, comprise not only the links with the Euro-market (which were discussed in the preceding section), but also banks' direct foreign lending from the United States, either in traditional form or via the IBFs. If the marker lies beyond the black arrow, this means that the two types of capital flow were in opposite directions and partly offset one another, such as in the case of an increase in the net external creditor position of banks in the United States being partly offset by a net withdrawal of US non-bank deposits from the Euro-market.

The direction of the arrow shows the balance-of-payments impact of these two types of capital flow. If the arrow points

International banking flows
between the United States and the rest of the world



downwards, they produced a balance-of-payments outflow tending, *ceteris paribus*, to exert downward pressure on the dollar; if it points upwards, they represent an inflow, tending to strengthen the exchange-market performance of the dollar. Moreover, when the arrow points towards the zero line (or its tip lies only slightly beyond it), this suggests that the Euro-market flows offset imbalances in the other items of the US balance of payments and, at least in the short term, tended to exert a stabilising impact on the dollar's exchange rate performance. Conversely, if the tip of the arrow is not close to the zero line and points further away from it, this suggests that the exchange-market impact of the banking flows was a destabilising one.

Of course, such an interpretation must be considered highly tentative. Under a floating exchange rate system and in the absence of official intervention all items of a country's balance of payments are determined simultaneously and it is, strictly speaking, impossible to distinguish between autonomous balance-of-payments flows and accommodating flows induced by exchange rate movements. Moreover, there may be a more direct kind of inverse relationship between Euro-banking flows and other capital flows. For example, in the early 1980s the capital flight from Latin American countries to the United States was rendered possible, to a considerable extent, by US bank lending to these countries. Similarly, some of the funds transferred abroad to the Euro-market by banks or non-bank entities in the United States may have found their way back to the United States via intra-company accounts, or may have been used for the acquisition of US capital-market assets. Furthermore, it is necessary to bear in mind the reserve currency rôle of the dollar. Since, in the longer run, there will be an international demand for exchange reserve growth, the equilibrium points for the US balance of payments will not usually coincide with the zero line but will be located below it. Or, in other words, a zero official settlements balance does not necessarily mean exchange-market equilibrium for the dollar but may be a sign of considerable dollar strength. Nevertheless, bearing in mind these various qualifications, the graph

can give a very rough idea of the combined balance-of-payments impact and exchange-market rôle of net external lending by US banks and net flows of US non-bank funds to the Euro-market.

Turning to the other balance-of-payments items shown in the graph, the distance between the tip of the arrow and the zero line shows the size of the US official settlements balance, i.e. the change in US reserve assets minus the change in US liabilities to foreign official holders. For example, if the tip of the arrow is above the zero line, this means that the official settlements balance was in surplus. The other two balance-of-payments items given are the current-account balance and, tagged onto it, "other capital flows". Since these "other capital flows" were obtained as a residual, they include the errors and omissions item of the balance of payments.

The most prominent feature of the graph is the size of bank-related flows, particularly of the external net lending or borrowing by US banks, which suggests that they must have been a major, and at times even dominant, influence in the dollar's exchange-market performance.

A second salient feature is that, with the exception of the last year and a half, these bank-related transactions mainly produced net balance-of-payments outflows from the United States. There are essentially two explanations for this. The first relates to international borrowing needs for balance-of-payments and development purposes, notably in the non-oil developing countries. If these borrowing needs become high in relation to non-US sources of banking funds, this will tend to push up Euro-dollar interest rates relative to US domestic interest rates, thereby attracting dollar funds from the United States, and in particular from the US domestic banking sector, to the Euro-market. The second reason lies in the Euro-market's freedom from reserve requirements and other regulatory constraints, which means that, even after allowance for a risk premium, Euro-dollar deposits in general offer higher yields than are obtainable on comparable investments in the United States. Because of these yield advantages a fairly steady outflow of US non-bank funds to the Euro-market has taken place, even during parts of

1983-84, when banks in the United States acted as heavy net takers of funds from abroad.

Whether the large and fairly steady bank-related outflows from the United States up to early 1983 had a stabilising or destabilising impact on the exchange markets depended, of course, on the state of the rest of the US balance of payments and on the overall exchange-market climate. They could probably be viewed as having been stabilising and helpful in the period from 1981 to early 1983, when a large interest rate differential in favour of the United States, exchange rate expectations and political and other risk considerations produced, as the graph shows, huge capital flows of other types to the United States. In the absence of these large offsetting capital outflows from the United States via the banks and the Euro-market, which took place despite an unusually wide interest rate differential in favour of the US markets, the upward pressures on the dollar during this period would have been even more pronounced, as would have been the resultant negative effects on the rest of the world economy and the international debt situation.

By contrast, in the fourth quarter of 1977, the first and fourth quarters of 1978 and the third quarter of 1979, when the US current balance was in substantial deficit, the bank-related outflows from the United States materially aggravated, or were even the major factor in, the excessive downward exchange rate pressures on the dollar which were experienced during these periods.

In the last nine months of 1983 and the first nine months of 1984 (the most recent period for which data are available) the situation was different again. In that period the international banking sector's reluctance to play a major intermediary rôle in Third World financing, in conjunction with sagging demand for international bank credit in the major industrial countries other than the United States, meant that there were more funds available in the Euro-market than there were attractive lending outlets outside the United States. This exerted downward pressure on Euro-dollar interest rates and led to a large reflux of funds from the Euro-market via the

US banking sector to the United States, where credit demand was strengthening as a result of the domestic upswing and the large US Federal budget deficit. This massive turn in the flow of bank-related funds helped to offset the simultaneous sharp deterioration in the US current-account balance and a slowdown in “other capital flows” to the United States. As a result, the dollar continued to appreciate despite the severe deterioration in the underlying US balance-of-payments position.

In other words, the behaviour of banking flows during 1983 and the first nine months of 1984 was a key element in the unusual strength of the dollar. Contrary to widely held beliefs, the main offset to (and partly even cause of) the deterioration in the US current-account balance was not a shift in non-bank investors’ asset preferences in favour of the dollar and the United States – this preference was already very marked before 1983 when the US current account was still in surplus or in near-balance – but a shift in the banks’ international lending away from new credits to developing countries to credits to the US economy. This shift was related largely to the debt problems in the developing world and the credit situation in the United States, but had little to do with the safe-haven rôle of the United States or with strengthening confidence in the dollar.

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