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8 The International Role of the Dollar: Theory and Prospect

Paul Krugman

8.1 Introduction

What do people use as money? In studying national economies we usually do not worry about this question very much, assuming that governments are able to create fiat monies and enforce their acceptance. There are some problems, such as the role of inside monies and near monies, and the cases of "dollarization" (as in Israel) where the national currency is partly supplanted by some other currency. But these problems are the exception rather than the rule, and theorists are generally comfortable with the idea of assuming a demand for M/P without having to explain why it is these pieces of paper, rather than something else, which appear in the numerator.

When we study the international economy, however, we can no longer avoid the question. International economic activity, like domestic activity, requires the use of money, and the same forces which lead to convergence on a single domestic money lead the world to converge on a limited number of international monies. Before World War I, the pound sterling was the international currency; in the interwar period the dollar and the pound shared the role; in the Bretton Woods era the dollar was dominant. But there is no world government to enforce the role of international monies. The preeminence of sterling and its displacement by the dollar were largely the result of "invisible hand" processes, ratified more than guided by international agreements. The future of the United States monetary system is largely a political question; the future international role of the dollar is largely an economic one.

Yet it is a question which, though central to international monetary discussion in the 1960s and still a major policy issue, has virtually disappeared from the research agenda. The reason for this neglect lies in the change in the field of international monetary economics. Traditionally dominated by a

I would like to thank Peter Kenen for helpful suggestions.

historical and institutional approach, international monetary economics in the 1970s essentially became a branch of macroeconomics. This meant a drastic change in style. Formal models replaced well-written essays; brief journal articles replaced books. Adjustment, Confidence, Liquidity became $\dot{p}/p = \lambda(y - \bar{y})$, $i = i^* + \pi$, $\Delta R = \Delta M - \Delta D$. And the change in style meant a change in substance. What we know how to model formally are frictionless markets, where transactions are costless and agents make full use of the information available. The microeconomics of money, however, whether domestic or international, is fundamentally about frictions. Thus the explosion of theory in international economics in the 1970s was concerned with macroeconomic issues and ignored the traditional issues regarding the role of the dollar.

The problem is that the fact that an issue is hard to model rigorously is no guarantee that the issue is unimportant. Fortunately, even a less than fully worked out model can be useful, if one does not demand too much of it. Over the years, a number of economists, especially Swoboda (1969), Cohen (1971), McKinnon (1979), and Kindleberger (1981), have developed what amounts to a theory of international money. This theory is not embedded in formal models in the way that, say, the monetary approach to the balance of payments is; but it is tight enough to be informative. The purpose of this paper is to provide a unified exposition of this theory and to apply it to the history and the future of the role of the dollar.

The basic concepts of this theory are drawn from the (equally informal) theory of money in a closed economy. Frictions—costs of transacting, costs of calculation—cause agents to use national monies as international media of exchange, units of account, stores of value; economies of scale lead them to concentrate on only a few—often only one—currency for these purposes. The differences between the theory of international money and the ordinary theory of money arise from two facts. First, we are not dealing with a choice among commodities but with a choice among monies, demanded not for their intrinsic usefulness but because of their privileged role in domestic transactions. Second, part of the international role of the dollar reflects choices made by official bodies, the central banks, rather than private agents. A crucial question is, How closely linked are the official and private roles? Would replacing the dollar with some other reserve asset reduce its role in private transactions? Conversely, can central banks be induced to hold a reserve asset which is not a "live" international money?

This paper is in five sections. Section 8.2 reviews the basic roles of international money and provides an overview of the argument. Section 8.3 examines the role of the dollar as a medium of exchange; it presents a simple model of convergence on a limited number of international media of exchange and discusses the ways in which transitions from one vehicle currency to another might happen. Section 8.4 turns to the unit-of-account role. It tries to combine arguments by several authors to provide a stylized ac-

count of the choice of invoice currency in private transactions. Section 8.5 then reviews the store-of-value role, presenting evidence on and an interpretation of recent trends toward diversification in the currency denominations of reserve holdings, Euro-currency holdings, and international lending.

The final section of the paper takes a tentative look forward. It reviews the forces leading to a reduction in the dominance of the dollar; a comparison is made between the position of the dollar today and the position of sterling in the 1910s and 1920s. I argue that a "collapse" of the dollar's role is possible, though it is by no means necessary, and I discuss briefly what such a collapse might involve.

8.2 The Six Roles of the Dollar

Money, the classical economists argued, serves three functions: it is a medium of exchange, a unit of account, and a store of value. International money does the same: it is used to settle international payments, it is used to fix prices, it is held as a liquid asset for international transactions. An added dimension is provided by the distinction between private behavior and the decisions of central banks (although the central banks of small countries may behave more like private agents than like Group of Ten monetary authorities). Thus there are six roles of the dollar, presented schematically in table 8.1 (closely based on Cohen 1971). The dollar is used as a medium of exchange in private transactions, or "vehicle," and is also bought and sold by central banks, thus making it an "intervention" currency. Trade contracts are sometimes denominated in dollars, making it an "invoice" currency, and the par values for exchange rates are sometimes stated in terms of the dollar, which makes it serve as a "peg." Finally, private agents hold liquid dollar-denominated assets—the "banking" role—and central banks hold the dollar as a reserve.[1]

In principle and to some extent in practice these roles are separable. The separation of roles can be either horizontal or vertical. Thus under the gold standard the official roles were filled by gold, yet sterling played the private roles. In the European snake in the mid-1970s the currencies were pegged

Table 8.1 **Roles of an International Currency**

	Private	Official
Medium of exchange	Vehicle	Intervention
Unit of account	Invoice	Peg
Store of value	Banking	Reserve

1. Kindleberger (1981) treats the denomination of loans in dollars as a seventh role, that of "standard of deferred repayment." I prefer to regard this as a particular case of the "invoice" role.

to one another, yet the dollar was used as a reserve and intervention currency. One can even separate medium of exchange and unit of account—the famous example is those small Persian Gulf nations which until 1974 set their oil prices in dollars but required payment in sterling. But the roles are not independent. In ways which I hope will become clearer, the more the dollar is used in one role, the more incentive there is to use it in the others.

Let us briefly review the actual extent to which the dollar plays the different roles:

1. *Vehicle*. It is important to distinguish three types of transaction here. First is settlement between nonbank firms, which is closely tied to invoicing; as discussed below, the dollar plays a special but not exclusive role here. Second is the "retail" foreign exchange market in which firms deal with banks; here the dollar plays no special role; a Swedish bank will sell, say, kronor for pesetas and vice versa. Finally there is the interbank market: here the dollar is *the* medium of exchange. "Virtually all interbank transactions, by market participants here and abroad, involve a purchase or sale of dollars for a foreign currency. This is true even if a bank's aim is to buy German marks for sterling" (Kubarych 1978, p. 18).

2. *Intervention*. Central banks usually intervene in the existing private interbank market; thus the dollar is the intervention currency. This is true even for some of the interventions which maintain parities within the European Monetary System.

3. *Invoice*. Data on this are not as good as we might like, but a few generalizations seem possible. In manufactured goods trade between any two countries, there is a preference for invoicing in exporter's currency, but also a preference for invoicing in the currency of the larger country. This in itself gives the United States, as the world's largest economy, a disproportionate share of the invoicing. In addition, much raw materials trade, even if it does not involve the United States, is also invoiced in dollars. In financial transactions, the dollar is the dominant currency for international borrowing and lending, though this dominance is not complete.

4. *Peg*. This is the best-known aspect of the story. In 1970 most of the world was pegged to the dollar; now only a limited number of smaller countries still are. This does not, however, represent the rise of a rival currency, but the abandonment of fixed rates altogether.

5. *Banking*. Dollars in New York and Eurodollars in London constitute the main liquid international asset, although there has been some diversification into other currencies, especially Deutsche marks.

6. *Reserve*. The dollar accounts for the bulk of nongold reserves, with some accounting complications introduced recently by the EMS. As will be discussed further below, there is again some trend toward diversification.

It is clear from this brief description that the dollar *is* an international money, though its moneyness is less than it might be, less than it was eleven years ago, and less than that of sterling in 1913. The natural questions are

how this position is likely to change and what difference it makes. To answer these—as best we can, for the answers will be based on loose theory and casual empirics—we need to examine the forces which make the dollar an international money.

8.3 The Dollar as an International Medium of Exchange

8.3.1 Economies of Scale and Indirect Exchange

The role of the dollar as a vehicle currency can be attributed to economies of scale in foreign exchange markets, which in turn arise from the lumpiness of transactions. "Since the dollar is the main currency for international trade and investment the dollar market for each currency is much more active than between any pair of foreign currencies. By going through the dollar, large amounts can be traded more easily" (Kubarych 1978, p. 18).

The nature of the economies of scale can be illustrated if we ignore the distinction between retail and interbank markets and simply think of firms offering to buy and sell foreign exchange. Suppose that at the going exchange rate the total demand and supply for foreign exchange in some market are equal over the course of a year, but that offers to exchange currencies in either direction are of finite size and arrive at random times. Then a firm offering to exchange currencies may find a complementary offer waiting for it in the marketplace, but it may have to wait for one to arrive, and may have to wait until earlier offers are consummated. Thus there will on average be some delay before a transaction can be completed. Now suppose the flow through the market were to double. It is obvious that the average waiting time would fall. It is easier to find a match in a thick market than a thin one.[2]

Adding market-making banks, who hold currency stocks, will not much alter this picture. Firms may no longer have to wait, but the law of large numbers will imply that the trade-off between the size of currency stocks and the probability of a stockout will improve as the market gets larger. So bid-ask spreads will be lower in larger markets.

To go from economies of scale in the exchange markets to the emergence of a vehicle currency, it is useful to make a distinction between what I have called (Krugman 1980) the *structure of payments* and the *structure of exchange*. By the structure of payments we will mean the matrix of final demands for foreign exchange for the purposes of trade and investment. By the structure of exchange we will mean the matrix of actual foreign exchange transactions. The distinction between these may be illustrated by considering, say, trade and investment flows between Ecuador and the Neth-

2. An ingenious and suggestive model along these lines of the emergence of a domestic medium of exchange is Jones (1976).

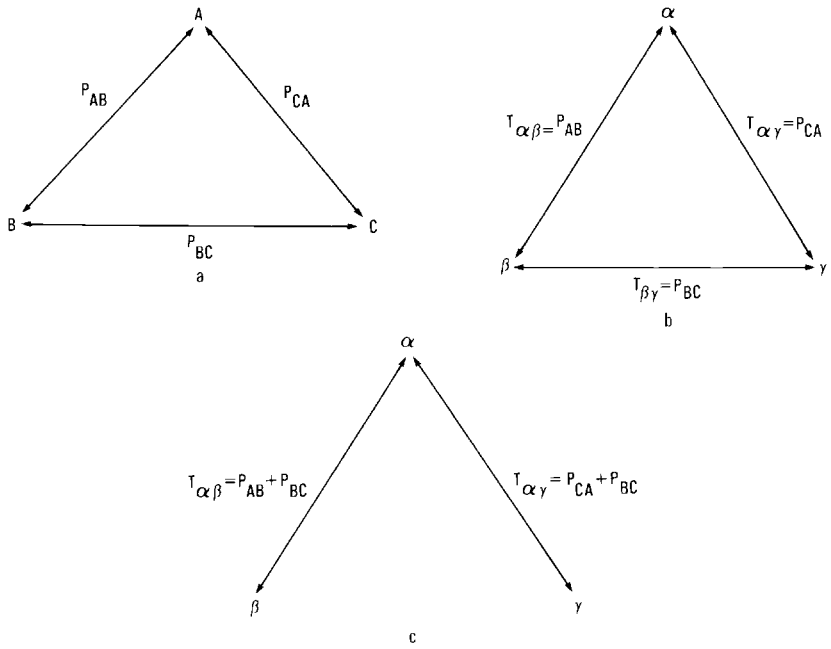

Fig. 8.1 The structure of payments *(a)*; the structure of exchange: direct exchange *(b)*; the structure of exchange: indirect exchange *(c)*.

erlands. These will appear as positive entries in the Ecuador-Netherlands and Netherland-Ecuador boxes of the structure of payments; but there will be a zero in the guilder-sucre box of the structure of exchange, because the actual transactions will take place in the dollar-guilder and dollar-sucre markets. To a first approximation, we can regard the structure of payments as independent of the choice of medium of exchange, determined by "fundamental" trade and investment motives. The question then becomes one of determining the structure of exchange given these fundamentals.

Consider first a world of three countries, A, B, and C. They have national currencies, the α, the β, and the γ. In figure 8.1*a* is illustrated the structure of payments in this world: P_{AB}, P_{BC}, P_{CA} are the final demands for foreign exchange flows, measured in the same (arbitrary) units; they are assumed to be bilaterally balanced.[3]

How will these payments be carried out? One possibility, illustrated in figure 8.1*b*, is that payments will take place directly, with all three pairs of

3. If the structure of payments is not bilaterally balanced, the model becomes much more complicated. It becomes possible that some but not all payments are made indirectly through the vehicle currency; this "partial indirect exchange" will be associated with a systematic difference between the direct exchange rate and the cross rate. For an unfortunately unreadable analysis, see Krugman (1980).

currencies actively traded. If so, the volume of exchange transactions in each market will equal the final payments. But suppose that A is much more important a trading and investment partner of B and C than either is of the other; that is, P_{AB}, $P_{CA} >> P_{BC}$. Then it will be cheaper to trade β's and γ's indirectly, through the vehicle of the α, and the structure of exchange will collapse to that illustrated in figure 8.1*c*, where there is no active $\beta\gamma$ market. An important point to note is that this channeling of transactions between B and C through A's currency itself swells the markets in that currency, reinforcing its advantage.[4]

8.3.2 *N*-Country Complications

When we go beyond three countries, the picture becomes somewhat more complicated, though the principles don't change. Two new possibilities emerge: First, that the currency of a country which is not very dominant in world payments will emerge as vehicle through a process of "snowballing"; second, that there may emerge a multipolar world with several vehicle currencies.

Snowballing may be illustrated by the following example. Suppose that the world consists of several large countries, one only slightly larger than the others, and a number of small countries. Simple trilateral comparisons would lead us to expect payments between large countries to take place through direct exchange; yet the presence of the smaller countries can lead to a complete "super-monetization" of world payments. The process would work as follows: payments between small countries will take place indirectly, through the medium of the largest country's currency; this will swell these markets, creating an incentive for other large countries to carry out their exchanges with the small countries via the same medium; this will swell all of the markets in the largest country's currency, perhaps enough to eliminate all direct bilateral markets. It may not be too far-fetched to suggest that this process explains the rise of sterling to an extraordinary position of dominance at a time when Britain, though the economic leader, was far from having the sort of preeminence that, say, the United States had in 1950.

On the other hand, a many-country world can support several vehicle currencies. Figure 8.2 illustrates a possible structure of exchange among five countries—A, B, C, D, E—whose currencies are the α, β, γ, δ, ϵ, respectively. Payments between the countries are P_{AB}, P_{BC}, etc.; transactions on the markets are $T_{\alpha\beta}$, $T_{\beta\gamma}$, etc. The illustrated pattern is one in which A and B are both vehicle currency countries. There is an "alpha area" (A and C)

4. Cohen (1971 p. 60) quotes A. C. L. Day: "In general the more connexions a country has and the stronger they are, the more connexions she is likely to attract. This meant that because Britain had very extensive trading . . . connexions, sterling would be all the more useful to a country which chose to use it; and as more people came to use it, sterling would be all the more attractive as a means of international payment to everyone."

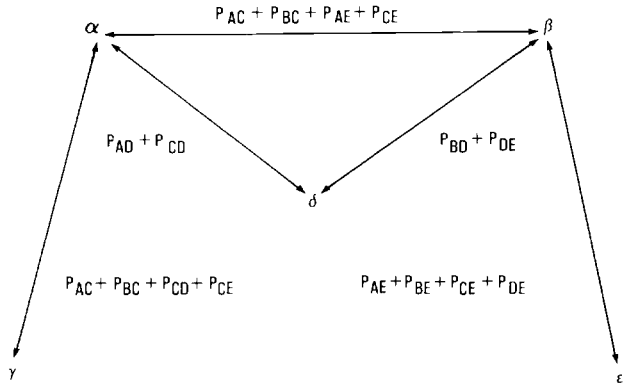

Fig. 8.2 A bipolar structure of exchange

in which all payments go through α's, and a "beta area" (B and E) in which payments go through the β. One country, D, is a part of neither area, so that there is both an active αδ and an active βδ market. A bipolar structure of exchange of this type existed in the dollar-sterling system of the interwar period, and is a possible future.

8.3.3 Multiple Equilibria and Changes in the Vehicle

The model of vehicle currencies we have sketched out contains an obvious possibility for multiple equilibria. If the choice of a currency as a vehicle is a response to the relative size of the markets in it, and if a currency's becoming a vehicle itself swells those markets, then the choice of vehicle may be self-justifying. This in turn suggests that once a country's currency gets established as the international medium of exchange it will continue in that role, even if the country loses the position in the structure of payments which originally gave it that position. Thus sterling remained a vehicle currency long after Britain had ceased to be number 1.

It might be objected that a structure of exchange which does not minimize worldwide transaction costs offers a profit opportunity. A bank could act as market maker and reap the gains. I would offer a guess here: market making probably involves a one-time fixed cost in getting market participants informed and inducing them to change their behavior. In existing markets this is a sunk cost, which need not be expended again; to change the structure of exchange requires a new expenditure. The result is that the structure of exchange will change only if it is very far from what the structure of payments would suggest, so that the choice of a medium of exchange exhibits a good deal of inertia. On the other hand, a temporary disruption of the foreign exchange markets can shift the structure of exchange from one equilibrium to another and thus have lasting effects. The choice of a vehicle currency reflects both history and hysteresis.

The actual decline of sterling as a medium of exchange, and its replacement by the dollar, appears to have taken place in a sharp slump, a long slow slide, and a final crash. World War I exchange restrictions disrupted the sterling system and led to the emergence of the dollar, and also the French franc, as rivals; and the dollar slowly gained ground for fifty years. (Remarkably, sterling remained the more important medium of exchange during the interwar period, and may even still have been more important than the dollar in the late 1940s). Finally, sterling vanished from the map in the late 1960s and the early 1970s. The impressive fact here is surely the inertia; sterling remained the first-ranked currency for half a century after Britain had ceased to be the first-ranked economic power.[5]

8.3.4 Relationships to Other Roles of Money

The discussion in this section has concentrated on the medium-of-exchange role of international money in isolation. In fact, there is some interdependence among roles. The links which seem clear are these: if the dollar is a good store of value, the costs of making markets against the dollar are lower, thus encouraging the vehicle role. Conversely, the medium-of-exchange role encourages both invoicing in dollars and holding dollars, we will discuss below.

8.4 The Dollar as an International Unit of Account

Most of the analytical work on the use of currencies as international units of account has focused on the official role: on the decision on whether to peg to another currency, and on the choice of peg. I will not attempt to add to this extensive literature; in any case, hardly anyone still pegs to the dollar. Instead, this section will focus on the private use of currencies as units of account. A good place to start, because there are relatively abundant data, is the invoicing decision.

Even in the 1960s, trade contracts were by no means exclusively written in dollars. In influential work, Grassman (1973) showed that most Swedish trade was invoiced in exporting country currency. It seems to be generally true that trade between industrial countries is invoiced in either the exporter's or the importer's currency, with no major role for the dollar in trade between third parties.

Table 8.2 presents some comparative numbers on the share of exports and imports invoiced in a country's currency and on the share of exports to the United States invoiced in dollars. The countries are ranked in order of the value of their 1978 exports. An impressionistic look at this table suggests that much of the variation can be explained by three rules. First, other things equal the exporter's currency is preferred. For every country for which data

5. This account is drawn from Yeager (1976) and Cohen (1971).

Table 8.2 **Invoicing of Merchandise Trade**

	Share of Domestic Currency Used to Invoice:		Share of Exports to United States Invoiced in Dollars
	Exports	Imports	
Germany	86.9	42.0	36
Japan	—	—	94
France	68.3	31.5	52
United Kingdom	73.0	—	44
Italy	—	—	68
The Netherlands	50.2	31.4	81
Canada	—	—	87
Belgium	47.7	25.4	78
Sweden	66.1	25.8	27
Austria	54.7	24.7	—
Denmark	54.0	24.0	—
Finland	15.5	—	—

Source: Page (1977), Rao and Magee (1980).

on both are available, a higher share of exports than imports is invoiced in domestic currency. Second, other things equal the currencies of large are used more than those of small countries. Thus Germany has the highest proportion of exports in domestic currency and a sizable fraction of imports in marks as well; the fraction of exports to the United States invoiced in dollars is noticeably high, even for countries which mostly invoice in home currency.

The third rule is that the yen is hardly used. As shown in the table, virtually all Japanese exports are invoiced in dollars; it is also true where data are available that the yen is much less used as an invoice currency in exports to Japan than Japan's size would lead one to expect. This may in part reflect a political decision on the part of Japan not to allow the yen to become an international currency.

In additional to these generalizations, we have one more observation: raw materials trade, and with it most of LDC exports, is generally invoiced in dollars. McKinnon has proposed the terms "tradables I" and "tradables II" to describe the relevant distinction. Tradables I are differentiated manufactured products, typically produced by oligopolists, and normally invoiced in exporting country currency—except, we might add, when the importer is large relative to the exporter, in which case the importer's currency is used. Tradables II are primary products, sold in a world market, and normally invoiced in dollars.

Figure 8.3 shows a stylized version of the facts about choice of invoice currency. Four types of countries are distinguished: the United States, large advanced countries, small advanced countries, and LDCs. An arrow indi-

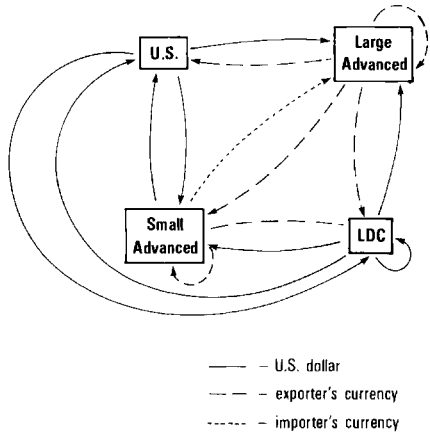

Fig. 8.3 Choice of currency in world trade

cates the direction of exports.[6]

These, then, are our stylized facts about invoicing. What explains them? I would argue that they reflect essentially the cost of calculation.

Note that risk sharing by itself cannot explain the pattern of invoicing. The reason is that firms can always avoid exchange risk by entering the forward market, and that the choice between invoicing in exporter and importer currency is simply a question of deciding who does the forward contract. (Even if no forward market exists, firms can "roll their own" forward contracts by international borrowing and lending.) Admittedly, forward contracting does involve some costs, but then it is on the "frictions" rather than on risk per se that we should focus.

The simplest explanation seems to be this. To deal with contracts denominated in foreign currency, one must be sophisticated about foreign exchange—and acquiring this sophistication has a real if hard-to-measure fixed cost. In the case of tradables I, the exporter is typically a firm selling a differentiated product; its costs are mostly fixed in domestic currency, so its normal pricing strategy will be to keep the domestic currency price fixed. This being the case, it is natural that the firm should leave worrying about the exchange rate to the importer, who has to deal with exchange markets as a matter of course in any case. The special case where a small country exports to a large country then falls into place—in small countries, everyone is obliged to be sophisticated about foreign exchange; in large countries nobody wants to worry about it.

Exporters of tradables II, by contrast, sell products whose prices depend

6. This scheme is essentially that offered by Magee and Rao (1980).

very little on domestic factors. For them the easiest procedure—in the sense that each contract does not involve a simultaneous speculation on future exchange rates—is to have all contracts anywhere in the world written in the same currency, for which the international medium of exchange is the most natural.

Kindleberger has used the analogy between money and language to explain the role of the dollar; in this situation it fits very well. If I want to communicate with someone of a different nationality, one or both of us must invest in learning a second language. If she is from a large country and I from a small one, we will probably use her language; if we are both from small countries, we will both use some international language. If a Dutch businessman and a German businessman make an agreement, they will probably converse in German and quote prices in marks; if the Dutch businessman then deals with a Brazilian, the conversation will more likely be in English and the price in dollars.

This is a very loose argument, and we would not want to lean too hard on it. Nevertheless, we will push it just a bit further, to suggest that international capital markets—especially under fixed rates—resemble tradables II in that bond prices are very much internationalized. LIBOR and the Chicago wheat price both are watched around the world, and in both cases this makes it convenient to denominate international contracts in dollars.

Is there anything in the unit-of-account role of the dollar which corresponds to the possibility of multiple equilibria in its medium of exchange role? In trade among the advanced countries, the choice of a unit of amount seems to be determined by fundamentals; the use of the dollar is comparable to the use of the mark, that is, the dollar plays no more of a role than the size of the United States entitles it to. Where there is an arbitrariness in the use of the dollar is in LDC/tradables II trade and, perhaps, in international lending. Here there is again a situation where the dollar is used because it is used, and its place could be taken by the mark or the yen.

8.5 The Dollar as an International Store of Value

8.5.1 Sterling and the Dollar as Banking Currencies

In 1913 working balances in sterling were held by banks and firms all around the world, reflecting in part the demand for sterling created by its other monetary roles, in part the economies of scale which made London the most efficient financial center. Thus settlement of trade contracts in sterling, servicing of sterling-denominated debt, and interbank transactions in sterling all required holding of sterling balances; the vehicle role of sterling made it more liquid than other currencies; and the scale of the London market made Lombard Street sterling balances an attractive proposition.

The dollar today holds a similar, but less striking, position. As we have seen, the dollar is dominant in interbank markets, still acounts for most international lending, and plays a disproportionate though not dominant role in trade invoicing. Economies of scale also play a role—but in a more confusing way. Dollar balances can be held not only in New York but also in London, so that the advantages of the dollar are not so much tied to the scale of activities in a particular geographical center as they are to the scale of activities in that currency. Nonetheless, these economies are real—imagine asking a London bank to offer a Euro-drachma account or a Euro-escudo account, and the importance of having at least some minimum scale becomes apparent.

As a store of value, however, the dollar has one disadvantage prewar sterling did not have. This is the uncertainty caused by floating exchange rates. Uncertain exchange rates push wealth holders toward diversification, opposing the forces encouraging convergence on a single currency. The result has apparently been a gradual diversification away from the dollar since 1973. The first line of table 8.3 presents some evidence from the Eurocurrency markets, where a slow drift away from the dollar seems to have occurred.

8.5.2 The Dollar as a Reserve Currency

Probably the most important reason for holding reserves in dollars is that the dollar is an intervention currency. This means that reserves initially accrue to central banks in dollars and must be converted to other currencies if the central banks want to diversify. It also means that reserves must be converted back to dollars to be used for intervention. For large countries such operations carry more than a transaction cost: movements into and out of nondollar currencies amount to intervention in other countries' foreign exchange markets which are likely to be resented (the United States is used to it). Because of this political aspect, jointly floating European countries (in the snake and later in the EMS) have continued to hold reserves in dol-

Table 8.3 **The Dollar as a Store of Value**

	1970	1973	1980
Share of dollars in "offshore" holdings of European banks[a]	77.1	70.4	69.0
Share of dollars in world foreign exchange reserves[b]	75.6	84.5	73.1
Share of pounds in world foreign exchange reserves[b]	12.6	5.9	3.0
"International currency" share in foreign exchange reserves[c]	88.2	84.5	73.1

[a]BIS *Annual Report*.

[b]This number includes dollars exchanged by members of the EMS for ECUs. See IMF, *Annual Report* 1981, p. 69.

[c]See text for explanation.

lars, not in each others' currencies; and they have often maintained cross-parities by simultaneous buying and selling of dollars, not by direct swaps of European currencies.

Opposing these advantages of the dollar is the desire of central banks to diversify agains exchange risk. As table 8.3 shows, the dollar's share of world foreign exchange reserves actually rose in the early 1970s, then declined. But in a sense this is misleading as a measure of "demonetization" of reserves, because sterling was still a partial international money in 1970. The last line of the table adds the dollar and pound shares in 1970, but not afterward, to give a rough measure of the share of international money in reserves. It suggests a continual and substantial shift on the part of central banks toward less liquid but less risky portfolios.

8.6 Prospects for the Dollar's Role

8.6.1 Determinants of the Dollar's Role

The theory of international money sketched out in the preceding section emphasized two kinds of influence on the choice of currency as international money and on the importance of its role. First, the currency of a country which is important in world markets will be a better candidate for an international money than that of a smaller country. Second, the use of a currency as an international money itself reinforces that currency's usefulness, so that there is an element of circular causation. This circularity was clearest in the case of choice of a medium of exchange, where a given structure of payments—a type of market fundamentals—might be consistent with several different structures of exchange, because of the self-justifying effect of making a currency serve as vehicle.

It is this circularity which raises the most worries about the future prospects of the dollar. The troublesome possibilities are either that the dollar's fundamental advantages will drop to some critical point, leading to an abrupt unraveling of its international role, or that a temporary disruption of world financial markets will permanently impair the dollar's usefulness. These are not purely academic speculations, since they have precedent in the history of sterling's decline. The disruption of World War I led to a permanent reduction in sterling's role, while the gradual relative decline of Britain's importance in the world was reflected not in a smooth decline in sterling's role but in surprising persistence followed by abrupt collapse.

These possibilities are illustrated in figure 8.4. We assume that it is possible to define some index of the use of the dollar as international money (though we have emphasized that the different roles are at least partly separable). The *desired* use of the dollar as international money will then be an increasing function of the actual use, as illustrated by the curve *UU*. The position of this schedule depends on fundamentals, such as the relative size

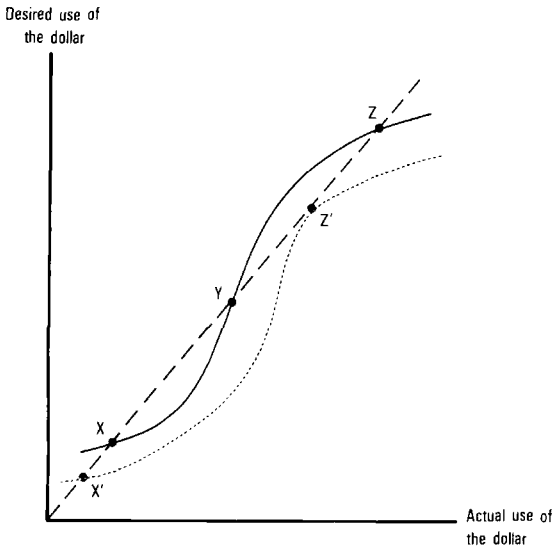

Fig. 8.4 Possibilities for a collapse of the dollar's role

of the United States economy and the openness and efficiency of its capital markets, as well as the stability of exchange rates and thus the strength of the incentives for diversification. Given these fundamentals, however, there may be several equilibria, as illustrated. Even without a formal specification of dynamics, it seems clear that X and Z will be the locally stable equilibria here; Z might correspond to the current state of dollar standard with diversification, X to a multipolar world where the mark and yen serve as regional international currencies.

Suppose that the fundamental strength of the dollar were gradually to weaken (as it surely has). Then UU would shift downward. Initially the role of the dollar would also gradually decline, from Z to Z'. At that point, however, a critical level would have been reached; a small further decline in the fundamentals would produce an unraveling of the dollar's role. As it was used less, the desired use would fall, and the role of the dollar would decline to X' even without any further weakening in the fundamentals.

Alternatively, a temporary disruption of the system could shift the world from one equilibrium to another. It is depressingly easy to imagine scenarios; for example, a war scare in Europe. This could lead to capital flight and the imposition of exchange controls. If the controls lasted long enough they could break the habit of doing business in dollars, so that when they were lifted the world would end up at X instead of Z.

This may seem to be an extremely casual and oversimplified way to think about the future of the dollar. Oversimplified it certainly is; we would very much like to be able to treat the subject rigorously. But this analysis seems

to be if anything more formal and less casual than most discussion of the international monetary system and monetary reform. And this analysis points to a useful way of framing the question of the future role of the dollar: namely, is the fundamental position of the dollar strong enough to sustain its world role?

8.6.2 Is America Big Enough?

The question of whether the role of the dollar in sustainable should, in principle, be answered with a quantitative model. Unfortunately, this is not feasible. What we *can* do is to compare the position of the United States with that of the United Kingdom before the First World War, when sterling was the international currency to a much greater extent than the dollar has ever been. To the extent that the United States position is as strong or stronger, the continuation of a dollar-based international monetary system looks possible.

Table 8.4 presents some comparisons between the position of the United States in recent years and that of the United Kingdom at the peak of sterling's preeminence. The United Kingdom was the largest trading nation in 1913, by a small margin which was however bigger than the United States margin in the late 1970s. The United Kingdom domestic economy was, however, proportionately far smaller. Also, the relatively large share of Germany in trade reflects its geographical position in Europe; outside Europe the United States still has a pronounced lead.

On the basis of these comparisons, then, there does not seem to be any reason why the dollar cannot continue to be the basic international money; indeed, why it could not expand its role to something like that of sterling at its peak. There are, however, two features of the world which have changed—a less important one and a crucial one.

The less important aspect of the world which has changed is the increased

Table 8.4 **Pax Brittanica vs. Pax Americana**

	United Kingdom 1913	United States Late 1970s
(a) Share of world trade	16[a]	12.1[c]
(b) Share of world output	14[b]	24.3[d]
(c) Trade share of largest rival	12[a] (Germany)	11.5[c] (Germany)
(d) Output share of largest rival	36[b] (US)	10.1[d] (Japan)

[a]Exports plus imports, from Rostow (1978).

[b]Industrial production, from Rostow (1978).

[c]1979 export figures, from *Report of the President on US Competitiveness*, 1980.

[d]1978 GNP figures, from *World Bank Atlas*.

relative importance of trade in manufactures as opposed to primary products. In McKinnon's terms, world trade has shifted from tradables II to tradables I. This in itself reduces the role of the center country's currency, since that currency is more likely to be used for the denomination and settlement of trade contracts in tradables II than tradables I.

The crucial difference is, of course, the advent of generalized floating with no end in sight. This creates incentives for diversification which reduce the usefulness of the dollar as a store of value. Perhaps this will be enough to tip the balance. If so, the dollar's role will unravel, not because of the relative decline of the United States, but essentially because of the general problem of controlling inflation.

8.6.3 After the Fall

What would happen if the dollar's role were to decline sharply? There are really two questions here. The first is one of the transition; would a decline in the dollar's role as a store of value, in particular, amount to a devastating run on the bank? Second, once the transition is accomplished, how much harm would the dethroning of the dollar do the world economy?

The important point to notice in discussing the transition is that the problem is *not* one of the United States having given the world paper in exchange for real goods and services. Very little of the "dollar" holding of the world is backed up by high-powered money; essentially it consists of short-term securities and bank deposits, many of the latter outside the United States. In principle, then, a change in the desired currency composition of liquid assets could be accommodated without any redistribution of wealth. Banks could convert their depositors' Eurodollar deposits into Euromark or European deposits at the current exchange rate; the Federal Reserve could buy up Treasury bills while selling mark-denominated securities. The currency transformation need not involve capital gains and losses to anyone.

Where the problem would arise is in the increased exposure of financial intermediaries to exchange risk. International banks borrow short and lend long, both at present mostly in dollars. A shift away from dollars would force a transition period during which the short borrowing and long lending are not in the same currency, posing obvious risks to the stability of the financial system. The example of Britain shows that the transition can be made—indeed, the unraveling of the pound as an international money went along with continuing growth of London as a financial center. But it would not be a good idea to be too complacent.

What about the long-run costs? Replacing the dollar in all its roles, with, say, the mark would not seem to make much difference. A more likely outcome, however, is a multipolar system with the dollar, mark, and yen all playing some role as international money. The cost would be a loss of economies of scale. Transactions costs in the interbank market would be higher, as would the operating costs of international banks—but these costs are so

low at present than even a huge proportionate increase would still be a small number. More important, perhaps, would be the increased difficulty of calculation in a world without a single international unit of account. But surely the use of three currencies to quote raw materials prices would be a far less important cost than what we have already experienced from inflation and floating exchange rates.

The moral, then, seems to be that it is not a collapsed but a collapsing role of the dollar that we should worry about.

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