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INTERNATIONAL MONETARY FUND

Research Department

Balance of Payments Financing and Reserve Creation 1/

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I. Introduction

The conventions, rules, and procedures under which payments imbalances are financed and international reserves created form the core of an international monetary system. They set the conditions under which one country may use the resources of another without explicit agreement, as well as the limits up to which such transfers may be carried. Moreover, they are important determinants of the other central features of an international monetary system, namely, the process of balance of payments adjustment and the role played in this process by exchange rate policy. Balance of payments adjustment is always burdensome for deficit countries, involving interference with existing economic trends, revision of established policies, and often a reduction in the real resources available to the economy in need of adjustment. What compels the authorities of a country with a balance of payments deficit to take effective adjustment measures are the mounting costs of continued financing of external deficits and the prospect of the means of financing coming to an end. The choice of exchange rate regime and the conduct of exchange rate policy, too, depend on the availability and cost of means of financing balance of payments deficits. The less ample are these means and the more costly is their use, the more weight is likely to be placed on rapid balance of payments adjustment, in part through exchange rate movements.

The purpose of this paper is to demonstrate the far-reaching consequences of the choice of assets that may be used for the accumulation of international purchasing power in the form of official reserves. An international reserve system could be based, inter alia, on a commodity money (e.g., gold), on one or several national currencies, on an international financial asset that is not a national currency (e.g., the SDR), or on a combination of these assets. Alternative systems could be discussed in historical sequence, starting with the gold standard, but for reasons of exposition a logical sequence is instead adopted in this paper, proceeding from simple to more complex systems. In Section II, the first system, which is one based on an international fiat money, is discussed at

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1/ This paper was prepared for a seminar on "Monetary Stability and Economic Growth" organized by the International Monetary Fund in cooperation with the Austrian National Bank in Baden, Austria, on October 11-14, 1983.

greater length so as to illustrate some general themes and issues pursued in the rest of the paper. The implications of other choices of reserve assets--gold and currencies--for the overall functioning of the international monetary system are discussed in Section III. Concluding remarks on the present system and its evolution are contained in Section IV.

In describing the strengths and weaknesses of different reserve systems, it is taken for granted that countries by and large arrange their policies with a view to providing themselves, in the long run, with a sufficient amount of reserves to be able to finance temporary payments deficits of a magnitude they consider reasonable in the light of the exchange rate regime they have chosen, the flexibility of their price and wage structure, and the adaptability of their economies in general. As a number of studies have shown, the advent of widespread floating of exchange rates does not seem to have noticeably reduced the demand for reserves. <sup>1/</sup> To be sure, actual reserve holdings do not satisfy the long-run demand for reserves at every moment--for instance, when a temporary weakness of a currency has prompted the authorities to make substantial use of reserves for supporting it, or when a speculative capital inflow has led to large reserve acquisitions. Deviations of actual from desired reserve holdings are likely, however, to induce policy reactions that tend, over time, to reduce their magnitudes or to eliminate them completely. This adjustment process works more promptly and more fully in some of the reserve systems discussed below than in others. Moreover, the effects of these adjustments depend very much on the degree of flexibility of domestic wages and prices, and on the manner in which exchange rates are determined. The relevance of these conditions will be illustrated in the discussion of the pure SDR standard.

## II. A Pure SDR Standard

The simplest reserve system would be one in which a single reserve asset is supplied to the world economy independently of its trading and financing activities--so to speak, from "outside." Although there has never been such a system, it is possible to imagine one based on a reserve asset, which may be called the SDR, created by the international community in amounts determined from time to time in accordance with agreed rules designed to foster world economic growth and stability. <sup>2/</sup>

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<sup>1/</sup> For example, Jacob Frenkel, "International Liquidity and Monetary Control," in International Money and Credit: The Policy Roles (George M. von Furstenberg, ed.), International Monetary Fund, Washington, D.C., 1983.

<sup>2/</sup> The SDR envisaged in this section is not identical in all of its characteristics with the SDR actually issued by the International Monetary Fund in accordance with its present Articles of Agreement.

Main characteristics

In a pure SDR system, the monetary authorities of countries would hold no foreign assets other than SDRs, except for working balances of foreign currencies needed to assist in the conduct of international transactions. Settlement of all payments imbalances would ultimately be effected by transfer of SDRs between the central banks involved. Each central bank would be obliged to buy back with SDRs any balances of its own currency accumulated by other central banks. SDRs would be issued by an international agency (say, the Fund) to member countries. 1/ There may or may not be provision for private holding and use of officially issued SDRs, but there could in any case be private dealings in SDR-related assets. If exchange rates were fixed in terms of SDRs, however, private holding of SDRs would have to be permitted so as to provide a basis for intervention by the authorities designed to maintain the par values of their currencies.

In such a system, the national reserve demands would tend to adjust so that their sum equaled the total amount of SDRs issued. If domestic prices and wages, or exchange rates, or both, were flexible, this adjustment would be rapidly accomplished without substantially affecting the real economies of participating countries. A country holding less than the desired amount of SDRs would, in the course of replenishing its holdings, experience (or bring about) depreciation of its currency against the SDR, or deflation, or both, until its balance of payments showed a surplus reflecting the desired rate of reserve accumulation; and vice versa for a country initially holding more SDRs than desired. 2/ Although there could be some reallocation of resources between the sectors producing tradable and nontradable goods, effects on overall employment and capacity utilization would be minimal if prices and wages responded in a flexible manner. In these circumstances, the amount of SDRs issued would not matter very much, since exchange rates of currencies against the SDR, or domestic prices and wages, would adjust quickly until the purchasing power of the global amount of SDRs in terms of goods and services equaled the real value of reserves desired by the world community, given the real amount of economic activity and trade in the world economy.

When prices, wages, and exchange rates are all more or less inflexible, however, the amount of SDRs supplied in such a system would tend to affect the real economy more strongly. A global shortage of reserves could then not be eliminated by depreciation of many or most currencies

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1/ The question of how SDRs could be injected into the world economy, by allocation or in other ways, will be taken up later in this paper.

2/ In the system envisaged in the text, all exchange rates could be devalued, or could depreciate, simultaneously against the SDR. This would not be possible under current rules for the valuation of the SDR on the basis of a basket of currencies.

against the SDR or by a decline in national price levels. It would instead result in attempts to acquire larger shares of the limited total of world reserves, or to prevent the erosion of already scanty holdings, through restrictive demand policies producing unemployment and excess capacity or through protectionism and restrictions on trade and payments; and it would induce retaliation against such measures taken by trading partners. A global surfeit of reserves could have the opposite effects: it could lead to unduly expansionary domestic policies resulting first in rapid growth and full utilization of capacity, as well as relaxation of protectionist and other restrictive measures, but it would then also tend to spread inflation through the world economy. <sup>1/</sup> For these reasons, it would be important, in the absence of sufficiently flexible prices and exchange rates, to regulate the supply of SDRs so as to satisfy the global demand for reserves at given price and exchange rate levels and at satisfactory overall growth rates of world output and trade.

#### Valuation and interest rates

The SDRs actually allocated in recent years by the Fund are given a conventional value, calculated daily as the market value of a basket of currencies, and a corresponding conventional interest rate. No such conventional valuation and interest rate determination would be necessary or appropriate in the notional pure SDR system described here. Both the value of the SDR and the interest rates on SDR loans of various maturities would be determined as a result of market processes. Here again, two cases must be distinguished, as follows.

With flexible exchange rates, the price of the SDR in terms of currencies would fluctuate and tend toward a level at which the value of the supply of SDRs is equal to the demand for reserves in the world economy. For instance, if the world demand for reserves were the equivalent of \$100 billion and the circulation of SDRs were SDR 50 billion, the market price of the SDR in terms of the dollar would tend to move until SDR 50 billion was worth \$100 billion, i.e., until one SDR was worth \$2 (and the equivalent in other currencies at the prevailing exchange rates). If the demand for reserves rose by 5 percent, say, as a result of world economic growth, while the supply of SDRs remained unchanged, the price of the SDR in terms of different currencies would also tend to rise by 5 percent, so that one SDR would then be worth, for instance, \$2.10. If, by contrast, the supply of SDRs were increased faster than the demand for reserves, the price of the SDR in terms of currencies would decline.

Financial contracts extending over time could be made in SDRs as well as in other assets. Apart from any risk or liquidity premia, the interest rates on SDR loans, deposits, etc., would tend to differ from those on similar contracts denominated in currencies by the expected annual rate of appreciation or depreciation of the currency in question against the SDR.

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<sup>1/</sup> Adjustment to a shortage of reserves would be more compelling, however, than adjustment to a surfeit.

If exchange rates between major currencies and the SDR were fixed, discrepancies between the world demand for reserves and the supply of SDRs could not be eliminated by changes in the price of the SDR in terms of major currencies and would, therefore, tend to affect national price levels or interest rates, or both. If, for example, the real demand for reserves rose by 5 percent per year as a result of economic growth while the amount of SDRs and their value in terms of currencies were kept constant, national price levels, if they were flexible in a downward direction, could on average decline by 5 percent per annum so that the real value of world reserves in terms of purchasing power over goods and services would rise by 5 percent every year, thereby satisfying the rising real demand. This world deflation could result from the attempt of countries to secure higher shares in the given nominal amount of global reserves through improvement in the balance of payments, without being able (by assumption) to resort to exchange rate depreciation. Holders of SDRs and other nominal assets would obtain a real return of 5 percent per annum as a result of the increase in the purchasing power of their holdings, in addition to any nominal returns that these assets may yield.

It is more realistic to assume that prices are not flexible in a downward direction and that they could not continue to decline without accompanying adverse consequences for economic activity and the employment of resources that would, in fact, prevent the postulated economic growth, and the consequent increase in the demand for reserves, from taking place. National monetary policies would be tight as countries attempt to conserve their SDR holdings. Interest rates generally, and those on SDR loans in particular, would tend to rise. If the volume of SDRs did not increase in these circumstances, the world economy would stagnate. This outcome could be prevented by provision for an increase in the volume of SDRs at the rate at which the demand for reserves rises. The simplest way to accomplish this result is through the payment of interest to SDR holders at the rate at which that demand increases (say, 5 percent per annum), which is in turn related to the rate of growth of the world economy.

If it were not possible to earn a suitable return on SDRs either through price deflation in the world economy, or through their appreciation against currencies in general, or as a result of interest being earned on SDR holdings, the incentive to use other reserve assets in addition to, or instead of, SDRs would become overwhelming, and the pure SDR standard could not be maintained.

Even though prices and wages may not be flexible in a downward direction, they may well be flexible upward. If, in a pure SDR system, the rate at which SDRs were issued exceeded the rate of growth of demand for reserves in a noninflationary world economy, the adjustment process could result in inflation of prices and wages at a rate that would eventually approach the difference between the rate of increase in SDR balances and the rate of growth of the demand for reserves in the absence

of inflation. Whether or not the excessive issuance of SDRs would in fact have inflationary consequences would depend in part on the manner in which SDRs are introduced into the system. If newly issued SDRs accrued directly to governments--e.g., through allocation--there would be the option, which would surely be taken by at least some of the recipients, to forego the expansionary policies permitted by the reserve increase in the interest of preventing the inflationary consequences that would otherwise ensue.

#### Payments financing

In the pure SDR system, balance of payments financing does not affect reserve creation, because reserves are supplied to the system from outside in a manner that does not depend on the existence or the financing of external deficits. Conversely, however, reserve creation may permit the permanent financing of external deficits, depending on the manner in which SDRs are being infused into the world economy. Three methods of creating SDRs may be illustrated: payment of interest on SDR holdings, allocation in accordance with quotas, and extension of credit.

The payment of interest on SDR holdings, in a system in which SDRs are the only reserves, amounts to allocation of SDRs in proportion to existing reserve holdings. Presumably the appropriate amount of SDRs to be issued periodically would correspond to the growth of the demand for reserves in the absence of inflation, which would be related to (although it need not be identical with) the medium-term rate of growth of world production and thus, in turn, to the average real rate of interest prevailing, and expected to prevail, in the world economy. For this reason, such an allocation in proportion to SDR holdings could be represented as a payment of interest, and this aspect of it would also provide guidance to the annual amount of SDRs to be created. Since newly created SDRs would be distributed in proportion to existing reserve holdings, and thus by and large in proportion to national reserve demands, they would tend to be held, rather than used, by recipients. As a result, there would be little permanent balance of payments financing induced by SDR creation.

If SDRs were allocated in accordance with quotas that differed substantially from the distribution of existing SDR holdings, the annual allocations would make possible the financing of balance of payments deficits by countries whose quota shares exceed their shares in total reserves. To that extent, SDR allocation would give permanent balance of payments assistance to these countries and cause a transfer of resources to them from the countries whose quota shares fall short of their reserve shares. <sup>1/</sup> Such an allocation pattern would thus introduce a redistributive element--a "link"--into the pure SDR system.

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<sup>1/</sup> Such a transfer would be in the nature of foreign aid since in the pure SDR system, in contrast to the present SDR system, no charges would be paid on the amount of allocations received.



A third way of increasing the volume of SDRs in existence is through purchase of claims on official entities (governments or central banks) by the issuer of the SDRs. Various arrangements could accompany these exchanges of SDRs for claims on countries, provided that there is a mechanism through which the amount of SDRs to be issued can be kept under the control of the issuing agency. Since it would not be fair to deny SDRs to a country offering its obligations simply on the grounds that other countries had already acquired the full amount allotted for the current period, it would be necessary to employ an equitable procedure for rationing the SDRs to be issued among countries wishing to receive them. Rationing could be based on interest charges or conditionality, or on a combination of these two devices. Countries could obtain SDRs by borrowing them from the issuer or from other countries, or by accepting them in settlement of balance of payments claims. The flow of newly created SDRs would afford recipient countries the means of financing deficits or the accumulation of reserves. These resources could be made available by the issuing agency either at interest rates related to those paid by countries borrowing SDRs from other countries or at concessional interest rates combined with policy conditions designed to improve the adjustment process.

The incidence of any seignorage--the income accruing to the issuer of money to the extent that its purchasing power exceeds the cost of producing and issuing it--would also depend on the manner in which SDRs are generated. If they were allocated, whether in proportion to quotas or to SDR holdings, the recipients of allocations could be considered as benefiting from seignorage. If SDRs were made available directly to the Fund for lending at interest to members, seignorage would accrue in the first instance to the Fund, but the Fund would presumably redistribute it over time to members through concessional interest rates on loans. 1/

This completes the description of the pure SDR reserve system, which is used in this paper as a prototype to facilitate a brief schematic description of other reserve systems.

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1/ In the SDR system in actual operation at present, little or no seignorage accrues. Recipients of allocations pay interest on them (so-called "charges") to the Fund, while the Fund pays interest at the same rate to holders of SDRs. Under these rules, SDR allocation has the character of an exchange of assets. In the terminology of monetary theory, it is "inside money." When the SDR system came into existence, rates of interest and charges were low (1.5 percent per annum) relative to market rates. SDRs were considered more nearly an "outside money"--paper gold, as the press called it at the time--and seignorage at a level depending on the excess of market rates over the SDR interest rate of 1.5 percent accrued to the recipients of allocations.



### III. Other Reserve Systems

In this section, brief descriptions will be given of three reserve systems that have historical or current relevance, the pure gold standard, a pure dollar standard, and a multiple-currency reserve system. As in the preceding section, the relation between the reserve standard, on the one hand, and the financing of payments imbalances and aggregative economic behavior, on the other, will be stressed.

#### International gold standard

The international gold standard, as it was in effect in the last decades of the nineteenth century and until the first world war, is in many respects similar to the pure SDR standard. There are several important differences, however, stemming chiefly from the commodity value of gold and from its general availability to the public. First, whatever role gold may play as an official reserve asset, it is generally an important asset for holding private wealth. <sup>1/</sup> Second, the international public and private acceptability of gold, at a price related to its market value, is ensured by its commodity character. Third, while gold can--and does--play some role in a reserve system accompanied by floating exchange rates, the international gold standard was, of course, based on an exchange rate regime of fixed par values in terms of gold, and thus of fixed exchange rates among participating countries. Fourth, under the international gold standard the volume of reserves is not determined from outside the economic system but is the result of decisions on the production, sale, and use of gold by businesses and households in accordance with economic considerations.

This last feature of the gold standard provided one of its chief attractions, at least in principle, since it promised the automatic adjustment of the global supply of reserves to levels that would satisfy the world demand at conditions of stable growth of the world economy. If gold production were to add to world reserves at such a rapid pace as to induce excessive monetary expansion and inflation, the rise in the cost of gold mining, relative to the fixed price of gold, would lead to the curtailment of new production until balance was restored; and vice versa for a shortfall of gold production, which would cause deflation, a fall in the cost of gold mining, and consequently an increase in the amount of gold mined and added to reserves.

In practice, the process of determining the supply of reserves under the gold standard did not work quite so smoothly. Stability of prices and of economic growth would require that gold production, as well as the nonmonetary use of gold, increased steadily, so that the ratio of the world's monetary gold stock to the global output of goods and services

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<sup>1/</sup> This is so even when private gold holdings are in some countries restricted by law, as they were in the United States from 1933 to 1974.



remained constant over time. This condition was violated not only by the uneven pace of gold discoveries and of technical improvements in mining, but also by the fact that the production of gold, an exhaustible resource of limited occurrence, is subject to diminishing returns. This means that in the absence of new gold discoveries, the cost of gold mining would tend to rise over time and, as long as the price of gold in terms of currencies remained fixed, gold production would not keep pace with output in general but would tend to diminish relative to world output, or even absolutely. The progressively greater scarcity of gold would result in a decline in national price levels or depressed economic conditions, or both—giving rise to the oft-cited deflationary bias of the gold standard.

Another important feature of the gold standard--an attraction or a flaw depending on the viewpoint--was the effectiveness of the adjustment process to which it gave rise. As long as monetary policy was conducted in accordance with its rules, the gold standard did not permit lasting payments imbalances. In fact, balance of payments adjustment was effected with relatively small transfers of reserves. This was presumably the result of the credibility and predictability of countries' monetary policies, which induced an adequate amount of stabilizing speculation to obviate large reserve movements. Nor did the generation of gold reserves depend on the existence of payments deficits: gold producing countries would, of course, finance an import surplus in their non-gold transactions, but they would do so with what they would properly consider the export of a domestic product in which they happened to have a comparative advantage. 1/

#### A pure dollar standard

A system in which a single national currency--here exemplified by the U.S. dollar--is chosen as the sole reserve asset is consistent either with the maintenance of par values fixed in terms of the reserve currency or with managed floating rates. The adjustment process and the mechanism by which reserves are provided will be somewhat different in the two cases and will also depend on the presence or absence of "offshore," or "Eurocurrency," markets. 2/

It has been observed that in a pure dollar system the supply of reserves would, in the absence of a Eurodollar market, equal the cumulative deficit in the balance of payments of the United States. This condition is, however, less revealing than it sounds. Indeed, it is tautological in the sense that the U.S. balance of payments deficit would by

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1/ For this reason, additions to gold reserves, produced at a marginal cost equal to their value, did not involve seignorage.

2/ The more elegant combining form "xeno" suggested by Fritz Machlup, as in xenomarkets and xenocurrencies, has unfortunately not succeeded in driving out the awkward customary forms used in the text.



definition equal the net increase in official holdings of U.S. dollars in the rest of the world. 1/ It is true that a country can increase its reserves only if it has a surplus in its current and capital transactions, including any borrowing abroad that the authorities may undertake in order to augment their reserves. It is also true that the conditions in, and policies of, the reserve center influence the balance of payments position of the rest of the world and perhaps the willingness of the authorities to borrow in the center for the purpose of increasing reserve holdings. It is not correct, however, to imply that there is a limited amount of foreign exchange reserves made available through balance of payments deficits of the reserve center, which may or may not be sufficient to satisfy the global demand for reserves. Since a reserve center cannot exercise strict exchange control without jeopardizing its status, it has little direct control over the level of reserves it helps to generate. The evolution of the Eurodollar market has further diluted that control.

Foreign exchange reserves are typically held in the form of liquid short-term investments, e.g., U.S. Treasury bills or certificates of deposit (CDs), whose yields are determined in the money market of the reserve center. The cost to a country of increasing its reserves through borrowing is measured by the difference between these yields and the interest rate at which the country, or its central bank, can borrow in that market. For creditworthy countries, this difference is ordinarily quite modest. 2/ Because countries supply as much liquidity to the money market of the reserve center, by making short-term investments, as they absorb in borrowing from it, their operations to provide themselves with borrowed reserves do not materially affect the overall liquidity of this market. Nor can the reserve center effectively discourage foreign official borrowers by tightening credit conditions, which would raise deposit rates and Treasury bill rates along with borrowing rates of interest. When capital is mobile, as it has been in the last decade or two, foreign exchange reserves can be adjusted, at the initiative of holders, so as to satisfy the demand for reserves. Little influence on reserve holdings can be exercised by the reserve center. In this sense, the volume of reserves is determined primarily by demand, rather than by supply conditions. This is so even in the absence of Euromarkets and regardless of whether exchange rates are fixed or variable.

If exchange rates were fixed in terms of the U.S. dollar, the pursuit of stable, noninflationary growth policies in the United States would be of widespread benefit by inducing adjustment policies in other

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1/ This concept was called "official settlements balance." It included changes in official U.S. reserve holdings, which would, however, be zero in a pure dollar standard.

2/ Consequently, very little if any seignorage would accrue to the United States; any excess of U.S. lending rates above deposit or Treasury bill rates would largely reflect risk elements.



countries that would also tend to result in stable growth and price levels. Countries that followed inflationary policies could not for long maintain a fixed par value against the U.S. dollar and would have to devalue periodically or move to a floating exchange rate regime. Inflationary policies in the United States would also be inconsistent with stable par values, as countries with stable policies would run external surpluses and appreciate their currencies or let them float upward. Countries with floating currencies would have the option of adjusting their reserves through intervention purchases and sales in the foreign exchange market, in addition to the possibility of making such adjustments through the New York credit market.

The United States itself would not hold any reserves under a pure dollar standard. The U.S. authorities would not have an exchange rate policy, and the effective exchange rate for the U.S. dollar would be the result of exchange rate policies and behavior of the other countries combined. The situation with respect to exchange rates was similar under the historical dollar-gold standard of the 1950s and 1960s, at any rate in a short-run context. That system, however, was predicted, and turned out, to be unstable in the long run. The growing global demand for U.S. dollar reserves eventually dwarfed the value of U.S. gold holdings at the historical fixed gold price. The system could then have turned into a pure dollar standard or, as actually happened, evolved into a floating multiple-currency reserve system.

The existence of a Eurodollar market adds little to this account, except to remove some small obstacles to capital mobility that may in practice exist in linked national banking systems as a result of the regulation of national banking in general and cross-border banking in particular. As a result of the increased capital mobility brought about by the growth of the Eurodollar market, the dollar-gold standard may have broken down earlier than without the development of this market; but this development is likely only to have hastened, not caused, that demise. It is sometimes contended that the Eurodollar market generates reserves that cannot be ascribed to balance of payments deficits of the United States. This is true; but, as has been argued above, the reserves created in a pure dollar reserve system without a Eurodollar market are also independent of autonomous U.S. external deficits. Without employing foreign exchange restrictions, the United States could not control the amount of reserve creation any more closely in the absence of a Eurodollar market than it could in the presence of such a market.

#### A multiple-currency reserve system

In the normal course of conducting its business, a central bank is likely to hold, in addition to its main intervention currency, working balances in the currencies of several other countries--important trading partners, creditors, or neighboring countries. From this starting point, it is only a small step to more substantial diversification of



foreign exchange holdings. Such diversification could be motivated by the desire to avoid risks associated with holding official reserves in a single currency, particularly the exchange risk and the risk of loss of convertibility through the imposition of exchange control measures. 1/

In the period following World War II, official reserves often contained several currencies at the same time, even though exchange rates were fixed. Foreign exchange reserves in currencies other than the U.S. dollar (chiefly sterling and the French franc) reflected historical, political, or economic ties between the country holding the currency and the issuing country. These ties still exist and play a role in determining the currency distribution of countries' foreign exchange reserves. Nevertheless, the multicurrency system gained importance as a result of the move to floating exchange rates among major currencies, which increased the exchange risk of holding balances of any one of them.

From the end of the first quarter of 1973 to the end of 1982, official reserve holdings of U.S. dollars declined from 78 percent of total foreign exchange reserves to 60 percent. 2/ Holdings of sterling have also declined, while those of deutsche mark, Swiss francs, and Japanese yen have increased. Moreover, holdings of European currency units (ECUs), which in the Fund's reserve statistics are counted as part of foreign exchange reserves, have grown to one seventh of these holdings at the end of 1982. If SDRs and SDR-denominated claims on the Fund are included in total holdings, the share of reported U.S. dollar holdings in these non-gold reserves has fallen to 47 percent at the end of 1982. At that time, composite reserve assets (ECUs, SDRs, and SDR claims on the Fund) accounted for 24 percent of non-gold reserves, identified major currencies for 16 percent, and unidentified foreign exchange holdings for the remainder (13 percent). At the same time, 61 percent of the official currency holdings that can be classified by debtor were direct claims on residents of other countries denominated in the debtor's currency, while 39 percent were Eurocurrency claims. The central part of the present reserve system is thus clearly formed by official holdings of major currencies that are connected by floating exchange rates, with non-dollar assets having come to play an increasingly important role since the advent of widespread floating.

Just as in the single-currency reserve system, there is no necessary connection between reserve creation and balance of payments financing in the multiple-currency system. Under this regime, too, countries can acquire foreign exchange reserves through intervention purchases in the foreign exchange markets. These purchases may reflect a surplus on

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1/ The first of these risks combines moderate potential losses with relatively high probabilities of occurrence, while the second attaches relatively low probabilities to large potential losses.

2/ International Monetary Fund, Annual Report, 1982 and 1983.



current or private capital account either at a given exchange rate (that is to say, a surplus existing before the foreign exchange purchase) or at a depreciating exchange rate (with the purchase causing the depreciation and inducing the surplus that is being invested in the reserve acquisition). Moreover, reserve currency countries have the additional option of simply exchanging their currencies. In this way, they could increase their currency reserves without any effect on market exchange rates or on their balance of payments positions. Such an exchange of currencies has actually been provided for under the swap arrangements maintained among several (mostly industrial) countries since the early 1960s. At present, these swap arrangements amount to US\$30 billion. Reserve currency countries could also make broadly simultaneous mutual purchases of reserve currencies in order to augment their reserves without imparting a depreciating tendency to their exchange rates or affecting their net external positions.

Although this avenue of increasing currency reserves is not open to most countries, all countries that maintain their credit rating intact can ordinarily borrow funds to increase their reserves at a small net cost. <sup>1/</sup> Funds may be borrowed from lenders in the reserve centers or in other countries, which may lend their own or third currencies.

The currency composition of foreign exchange holdings in a multiple-currency reserve system is the resultant of a complex interaction of a number of factors. These include not only the geographic pattern of trade and capital transactions of countries holding foreign exchange, but also rates of interest on loans and deposits in various currencies and expectations with respect to exchange rate changes over various time periods. Although supply conditions do affect interest rates and exchange rates and thus influence portfolio choices, no absolute constraints are provided by existing supplies of various currencies available in the foreign exchange markets or in the domestic markets of the issuing countries. If dollars or marks are sought in the international markets, they could of course be provided by U.S. or German banks, but they could also be created by a wide variety of financial institutions elsewhere in the world with no more trouble than a rearrangement of their own portfolios to cover their exchange risk.

While the monetary authorities of countries adjust their reserve portfolios over time in accordance with considerations of yield and risk, as well as liquidity, they cannot, and would not wish to, keep up with the fast pace of adaptation in the private markets. Indeed, their stabilizing function often requires countering market tendencies that

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<sup>1/</sup> The present period of stringency in international capital markets marks an exception to the general statement in the text. The credit rating of some basically creditworthy countries may be temporarily impaired through "contagion," that is to say through association--geographic or otherwise--with countries whose credit standing has been damaged.



must be expected ultimately to dominate their own restraining efforts. As a result, the currency composition of countries' foreign exchange holdings tends to lag behind, and at times even moves opposite to, the composition that would be chosen by a private investor with otherwise similar characteristics. Nevertheless, in the longer run official and private currency portfolios are generally subject to similar influences.

In any event, there is, in general, no obstacle in arrangements of this kind to the attainment by most or all countries of the level, growth, and (subject to the qualification discussed above) currency composition of reserves they desire. The net cost of holding and acquiring foreign exchange reserves is generally modest, at any rate at the margin, and is, therefore, not an important element in preventing reserves from reaching a level that would be appropriate apart from cost considerations. In particular, countries do not have to have balance of payments surpluses in order to accumulate reserves, except in the trivial sense that an increase in reserves may by definition constitute a balance of payments surplus. In any case, they do not have to show surpluses on account of current and autonomous private capital transactions in order to add to their reserve holdings. Nor do some other countries have to have balance of payments deficits in order to supply the claims that are held as foreign exchange reserves.

These conditions do not imply that the global volume of reserves is always exactly equal to the reserves demanded under existing circumstances. Some countries' reserves may temporarily be smaller than their normal holdings because of momentary financial problems or a loss of creditworthiness. In generally depressed economic conditions, the incidence of unsatisfied excess demands for reserves may increase and the periods over which they are observed may lengthen. Under inflationary conditions, by contrast, it would be typical to observe some countries holding larger than normally desired reserves, perhaps for lengthy periods. They would refrain from adjusting them downward through expansionary demand policies for fear of adding thereby to domestic inflationary pressures; and they may not wish to induce exchange rate appreciation by selling excess reserves in the market because of political pressure from certain domestic industries. A situation of excess reserve holdings can thus on occasion be more widespread and longer lasting than one of a shortage of holdings. This asymmetry has also to do with the circumstance that, while a country can ordinarily borrow funds in order to increase its reserves, it cannot lend its reserves to another country at short term without still holding corresponding liquid claims, which themselves constitute reserves. Since reserves can, in general, be increased by borrowing but not reduced by lending, it is to be expected that in a multiple-currency reserve system there is a tendency for global reserves to be rarely below but not infrequently above the amount that would satisfy the global demand.



#### IV. The Present Reserve System and Its Evolution

This section begins with a summary of salient features of different reserve systems, continues with a brief description of the mixed reserve system that has evolved to date, and ends with a discussion of the lines along which improvement of the system could be sought.

##### Characteristics of different systems

Provision of an adequate supply of reserves does not depend on the existence of balance of payments deficits in one or several countries in any of the systems. In the currency reserve systems, deficits of the reserve currency country, or countries, could ease the conditions, and possibly lower the cost, at which other countries can add to their reserves. Even in these systems, however, world reserves can increase in the absence of autonomous external deficits on the part of reserve currency countries.

Except in the pure SDR system, in which reserves are injected into the world economy from "outside," countries wishing to add to their reserve holdings would have to have a balance of payments surplus, or have recourse to international borrowing, or be in a position to exchange reserve currencies amongst each other. A payments surplus devoted to reserve accumulation could be autonomous, at a given exchange rate, or it could be generated by currency depreciation, achieved through the purchase of reserve currency balances in the foreign exchange market. Under the gold standard, and in the absence of international borrowing facilities, reserve growth required a current account surplus (which could be represented by a country's own gold production). Significant amounts of seignorage could accrue only under the pure SDR standard; there is no seignorage under the present SDR system, however, which, in its provisions with respect to the payment of interest, resembles an exchange of claims.

Since it can be taken for granted that prices and wages are inflexible in a downward direction, though flexible upward, a gold standard with fixed par values would be likely to have a deflationary bias and result in generally stagnant economic conditions, which may be interrupted occasionally by inflationary spurts in the wake of new gold discoveries. Other systems could be managed so as to be consistent with stable economic conditions, but such management would not guarantee a favorable outcome. In the pure SDR standard, it would be important to adjust the rate of SDR creation to the growth of reserve demand under noninflationary conditions. This would, as a rule, prevent individual countries from finding themselves for extended periods with excessive reserve holdings and would thus preclude unduly expansionary policies on their part. Under the pure dollar standard with fully developed capital markets, excessive reserve holdings could not be prevented, but the pursuit of stable policies in the United States would go far in



imparting derivative stability to the world economy as a whole, especially if it were customary to maintain fixed par values against the dollar. The multiple-currency system with floating exchange rates is the one most accommodative of inflationary developments. However, none of the features of the system actually causes inflation, and individual countries could, and many of them do, maintain or restore economic stability even without the compelling element of a reserve constraint. Stabilization in individual countries is made more difficult, of course, in an environment of world economic instability. Isolated stabilization in an unstable environment is, nonetheless, not impossible, provided exchange rates are floating.

#### The present mixed reserve system

The present reserve system is a mixed one, containing elements of all the systems discussed earlier in the paper, though some of these elements are merely vestigial. This applies in particular to the gold reserves in the system, which have little influence on economic or financial behavior, although the price of gold has increased so as to preserve the share of gold in the total value of reserves. The U.S. dollar is the dominant international reserve asset, but the role of the United States is not as prominent as it would be under a pure dollar standard or as it was in the dollar-gold system of the 1950s and 1960s. SDRs and SDR-denominated claims on the Fund are part of the present system, but the SDR has some way to go to become the "principal reserve asset in the international monetary system," as envisaged in the Fund's Articles of Agreement. There is, at present, no attempt on the part of the international community to provide for orderly and measured growth in international liquidity and to use the SDR mechanism as the structural support of a system permitting surveillance over international liquidity.

As a result of the mixture of reserve elements, rational guidance of the international financial system is at present particularly difficult to achieve. Even though balance of payments financing and reserve creation in some forms and through some mechanisms are kept, or brought, under national or international control, other forms and mechanisms escape any regulatory or surveillance efforts. As a result, the international community finds a restrictive stance in those few areas of reserve creation that are more or less under its control the only defensible option whenever a question with respect to international reserve policy arises.

#### Possible improvements

A full discussion of how to move from the present reserve system to one that provides a better framework for stable economic growth in the world economy goes beyond the scope of this paper. A few topics for discussion may, nevertheless, be suggested.



The reserve system that may be best suited to serve the world economy depends on other important features of the evolving international monetary system, particularly on the exchange rate regime. It is reasonable to expect that a serviceable reserve system would have to be one that could function for some time to come in the presence of a considerable degree of exchange rate flexibility. This requirement eliminates the possibility of a strong admixture of gold standard features, even if there were no other grounds for disqualifying that system.

It is also clear, however, that exchange rates are not generally going to be freely floating and, moreover, that wage and price rigidity downward, and flexibility upward, are fundamental features of the economic system. This suggests that the amount of reserve creation is an important concern and should be regulated either through appropriate automatic mechanisms or through a conscious international decision-making process.

Currency reserves have attained a considerable prominence in the international reserve system, and international banking in resident currencies and Eurocurrencies is an established feature of the international monetary scene. Any recasting of the international reserve mechanism would have to fit into this financial environment. This means, in particular, that attempts at close control of international financial processes via control over reserve generation are unlikely to be successful. All that can be hoped for, and should be aimed at, is a system that does not of itself contribute to instability and would permit a stable development of the world economy, provided other elements of the system also support such a stable evolution.

One question in this context concerns the integration or separation of private and official holdings of, and transactions in, reserve assets. In all past and present systems, private use of reserve assets was an important element in making the system work. The present SDR system is an exception in this respect. This raises the question of whether there can be an important role for the SDR in a future reserve system if opportunities for evolving procedures for private holding and use of this asset remained undeveloped. Nevertheless, while the development of an effective role for the SDR as a reserve asset would be aided by the evolution of a base for the SDR in private transactions and portfolios, it may not be unreasonable to place certain limits on the scope and speed of that evolution. After all, the purpose of fostering private SDR markets is not to add a fully articulated Euro-SDR to the existing Eurocurrencies but rather to fashion an effective instrument for influencing developments in international liquidity.

