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Interest Rates and Foreign Dollar Balances

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Introduction and conclusions

Large United States balance-of-payments deficits in 1958 and 1959 have led to substantial increases in foreign liquid dollar holdings and to a decline of about one-seventh in the United States gold stock. These developments have stimulated discussion of the extent to which financial policy, and especially monetary policy, in this country might be influenced by the international reserve position of the dollar. Obviously, a country that acts as an international reserve center, and in this role accumulates a large volume of outstanding short-term liabilities to foreigners, must take care to insure that doubts do not arise concerning the stability of its currency. Even though a country maintains a high degree of financial stability, however, questions can, and have, been raised regarding the effect on its reserve position of counter-cyclical financial policies. Specifically, concern has been expressed that anti-recessionary policies involving low interest rates might put pressure on the reserve position of the United States by bringing about a conversion of foreign-held dollar balances into gold. ^{1/} In this paper, we shall examine the extent to which past behavior of foreign-held dollar balances affords a basis for such concern.

The actual U. S. balance of payments deficits since 1957, which have stimulated discussion of the reserve position of the United States, have reflected major developments in U. S. international transactions on both current and capital account. The proportion of these deficits that has taken the form of net foreign gold purchases has reflected the over-all payments surplus of major foreign countries, the proportions of their payments surpluses in the form of additions to official reserves, and the extent to which they hold reserves in gold. ^{2/} The general conclusion of this paper is that those movements in foreign holdings between gold and dollar assets in recent years which could be attributed to interest rate changes account for only a very small fraction of total foreign dollar holdings,

^{1/} See, for example, Robert Triffin, Gold and the Dollar Crisis, New Haven, Yale University Press, 1960, p. 9: "Our huge gold losses of last year 1958 were due in part to such a repatriation of foreign capital at a time when interest rates had fallen here well below the rates available in Europe. They have been slowed down this year 1959 by an extremely sharp rise of interest rates in this country, prompted by our domestic concern about creeping inflation. In this case, external and internal interest rate policy criteria happily coincided, but they may diverge tomorrow. If and when we feel reassured about our internal price and cost trends we may wish to ease credit and lower interest rates in order to spur our laggard rate of economic growth in comparison not only with Russia, but with Europe as well. We may then be caught, however, exactly as the British were in the 1920's, between these legitimate and essential policy objectives and the need to retain short-term funds here in order to avoid excessive gold losses."

^{2/} See: "Gold and Dollar Flows in 1958," Federal Reserve Bulletin, March 1959, p. 247.

and that there is little or no support for the thesis that movements of much greater size could be expected in the future. The main findings upon which this conclusion is based are as follows:

(1) There is no basis either on theoretical grounds or in available statistical materials for believing that foreign official institutions adjust their reserve holdings between gold and liquid dollar assets in response to short-term or cyclical movements in interest rates. This finding is not inconsistent with evidence that such institutions do alter to some extent the composition of their holdings of liquid dollar assets as changes occur in yields on these assets.

(2) There is reason to believe that some foreign private liquid dollar holdings may be drawn down when yields on liquid dollar assets are substantially lower than yields obtainable in other international money markets, and may rise when the yield advantages on short-term investments in other money markets disappears.

(3) Foreign private dollar holdings (excluding those of Canada) rose about \$0.8 billion between mid-1958 and the end of 1959; during this period U. S. interest rates moved from a cyclical trough to a peak and the covered interest differential in favor of London was eliminated. This rise in foreign private holdings is probably the single best measure of the extent of recent movements of funds to the U. S. in response to interest-rate movements.

(4) It is estimated that not more than \$1.5 billion of total foreign private dollar holdings at the end of 1959 had been moved into dollar earning assets (all short-term dollar holdings except demand deposits) since September 1957. This sum appears to represent an outside limit of the volume of foreign funds that has shown sensitivity to interest-rate differentials. This amount is almost certainly considerably larger than the volume of foreign funds that might be shifted to other international money markets as a result of interest rate movements, since part of the funds that have moved into dollar earning assets undoubtedly serve as working balances in the U. S. market.

(5) Although a transfer of foreign private holdings from U. S. to European money markets would result in some increased foreign purchases of gold from the United States, it does not seem likely that such purchases would approach the total volume of private funds that moved abroad in response to interest rates.

The problem

A country's financial policies affect its reserves (however defined) primarily through impact on its balance-of-payments position. Monetary and fiscal measures can influence payments on current account

through their effect on over-all levels of economic activity, and on prices and competitive behavior. Moreover, they can influence payments on capital account through changes in the terms of payment in international transactions (so-called leads and lags), in other movements of domestic short-term capital, and in flows of domestic and foreign long-term capital.

However, financial policies can also affect the reserve position of a country acting as an international reserve center if they lead to shifts between foreign short-term claims and gold. The reserve (or liquidity) position of such a country is most conveniently measured by the ratio of its holdings of international means of payment (gold, in the case of the United States) to its short-term liabilities to foreigners.^{3/} Shifts in foreign holdings between short-term claims and gold affect that ratio, whether or not there is any change in the aggregate of foreign short-term claims and gold, and hence any surplus or deficit (as customarily defined) in the balance of payments of the reserve currency country.

This paper is concerned with the effect which movements of foreign short-term capital might be expected to have on the reserve position of the United States, given a specific over-all balance-of-payments surplus or deficit. If shifts of foreign short-term capital were likely to be large, the international aspects of U. S. financial policies could not be judged solely on the basis of existing and prospective balance-of-payments developments. Instead any proposed changes in these policies would have to take into account the additional consequences that such potential shifts would be likely to have on the U. S. reserve position.

If cyclical changes in interest rates are likely to produce significant fluctuations in the gold stock of a reserve-currency country, over and above those fluctuations resulting from balance-of-payments developments, that country may be more restricted in the extent to which it can permit fluctuations in its balance of payments. It may thus be more restricted in the extent to which it employs flexible financial policies as counter-cyclical measures.

If possible shifts of foreign-short-term funds were felt to be a substantial constraint on the financial policies of a reserve currency country, the country might find that the resulting disadvantages outweighed the advantages of being a reserve center. In fact, this argument has already been applied to the position of the United States. Triffin, for example, in making a case for the establishment of the International Monetary Fund as the principal international reserve center, maintains that by this change:

^{3/} R. Gemmill, "Notes on the Measurement of International Liquidity," Journal of Finance, March 1960, pp. 53-61.

"We would . . . have consolidated in the hands of the Fund a large portion of highly volatile foreign funds, whose sudden and unpredictable outflow might otherwise unleash, at any time, an unbearable drain on our gold reserves. Most of all, we should have shed thereby the straightjacket which the need to prevent such an outflow would impose upon monetary management and interest rates in this country." ^{4/}

Empirical evidence on the extent to which foreign short-term dollar assets may have been shifted in response to interest rate movements can best be examined separately for foreign official and foreign private holdings.

Foreign official dollar holdings

There is no evidence that any major foreign country has changed the relative proportion of gold in its official reserves in response to short-term or cyclical changes in interest rates. After comparing changes in the composition of reserves of foreign countries with changes in U. S. interest rates, we shall indicate why on theoretical grounds there is no basis for expecting changes in the holdings of foreign official institutions to correspond to interest rate movements.

It would be most appropriate for our purpose to examine shifts in a country's reserve holdings between gold and liquid dollar assets. However, most countries do not publish data on dollar holdings separately, and in such cases data on foreign exchange holdings will be substituted. Since holdings of foreign exchange other than dollars have been extremely small, the conclusions would not differ significantly if official dollar holdings had been used. ^{5/}

The relative proportions of gold and foreign exchange assets can, of course, vary as a result of changes in either form of reserve holding; many countries have kept gold reserves constant over long periods of time and permitted changes in payments positions to be reflected in variations in exchange reserves. We shall examine only those instances where gold holdings were changed between the end of 1956 and the end of 1959. In this period,

^{4/} Triffin, op. cit., page 12.

^{5/} Official foreign exchange holdings of the European countries for which exchange holdings were used consist mainly of dollar assets, but include some sterling holdings. These latter holdings are relatively small, however. Official sterling holdings of all OEEC countries at the end of 1957 were \$360 million (see International Financial Statistics, June 1960, p. 260), while official dollar holdings were in excess of ten times this amount (see Federal Reserve Bulletin, March 1959, Chart on p. 247).

there were wide fluctuations in U. S. interest rates (both absolutely and in relation to foreign rates), and a country that regularly shifted even a part of its reserves between gold and dollars in response to interest rate movements would presumably have made changes in gold holdings.

Nineteen foreign countries changed their gold reserves by \$20 million or more between 1956 and 1959, apart from two major gold-producing countries (Canada and South Africa). Thirteen of these foreign countries experienced gains in gold reserves since the end of 1956:

(a) Four countries (Belgium, the Netherlands, Switzerland and the United Kingdom) have traditionally kept practically all reserves in gold, and the gains in gold reserves of these five countries have thus paralleled over-all reserve gains, aside from some lags in periods of rapid increases in reserves.

(b) Three countries (Australia, Iraq and Lebanon) hold reserves in both gold and foreign exchange, but do not maintain significant reserves in dollars.

(c) The six other countries (Austria, France, Germany, Italy, Portugal and Japan) have added both to gold and to dollar reserves at times in the period.

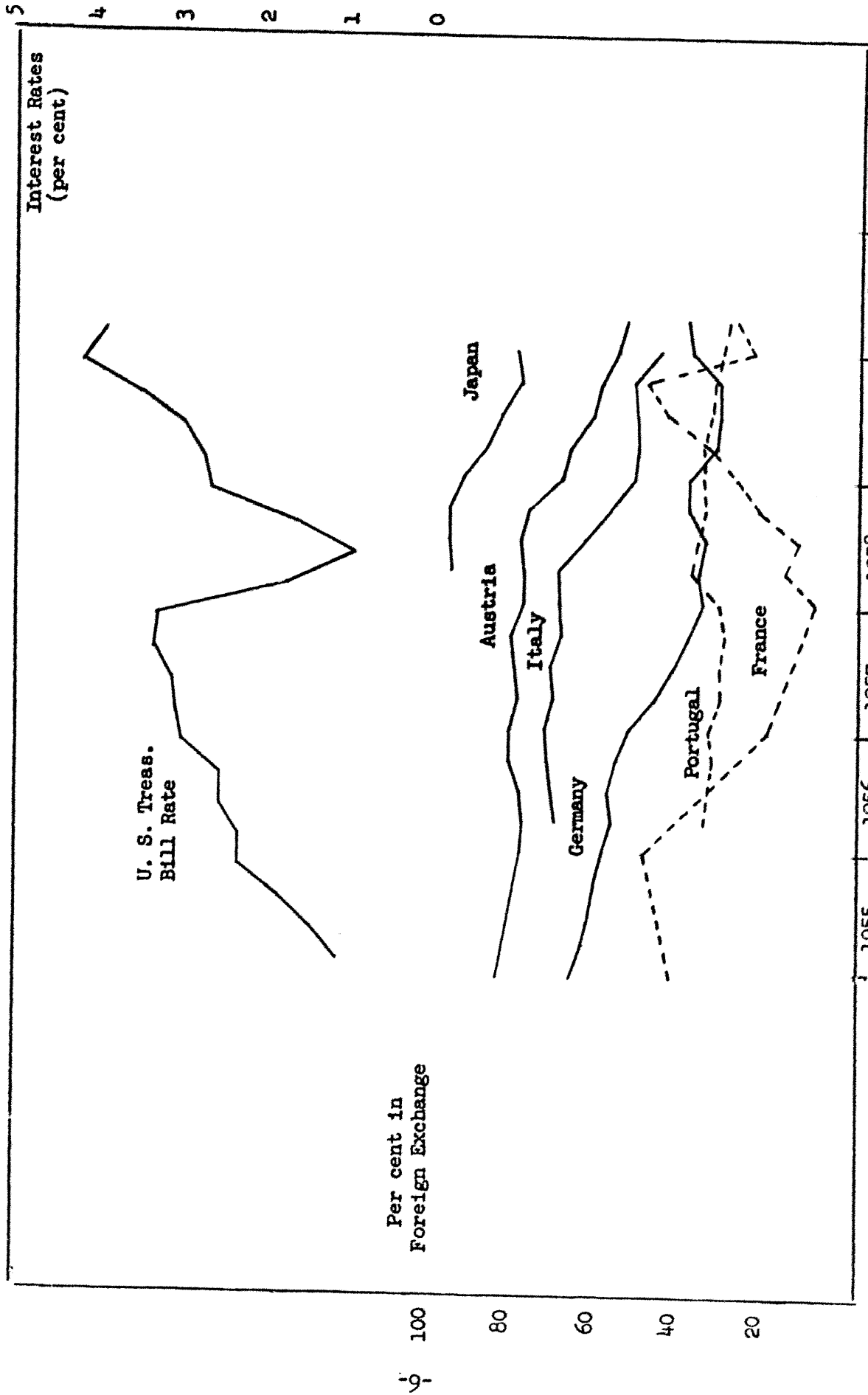
As shown in the chart, Austria, Italy and Japan have increased the gold content of their reserves steadily in recent years. The proportion of gold in German reserves increased steadily through 1957; thereafter, it fluctuated primarily as a result of variations in official German dollar holdings. These fluctuations show no influence of changes in U. S. interest rates. In 1959, when German reserves declined, the reduction was largely in dollar holdings, although rates on Treasury bills were close to their postwar peak. The rise in official dollar holdings in late 1959 could thus be regarded as a return to a previous situation. The slight fluctuations in composition of reserves for Portugal have been largely the direct opposite of what would be expected on the basis of yield considerations.

Finally, variations in the gold proportion of French reserves reflect mainly the impact of the French balance of payments on the total reserve position. The rapid rise in holdings of convertible currencies that began in mid-1958 reflected the sharp improvement in total reserves, and represented a return to the 1955 position in total reserves and in the foreign exchange component. The marked drop in holdings of convertible currencies at the end of 1959, at a time when U. S. interest rates were at a peak, resulted partly from large gold purchases and partly from slower additions to total reserves in consequence of special debt repayments.

On the basis of the recent experience of these six countries, therefore, there is no evidence that the choice between gold and foreign exchange (or dollar) assets in their reserves has been affected by short-term U. S. interest rates. No country has shown a consistent relationship

Chart 1

Proportion of Foreign Exchange Assets in Official Reserves of Selected Countries and Rates on U. S. Treasury Bills



Note: Bill rate is quarterly average of market yield on 3-month Treasury bills. Data on reserves are from International Financial Statistics, except for Germany, where data for gold and dollar (U. S. and Canadian) holdings are from reports of the Bundesbank. French reserves consist of gold and convertible currencies; for all other countries gold and gross foreign exchange holdings were used.

(in either direction) between the composition of its reserves and yields. Moreover, in most countries the proportion of gold in total reserves has risen more often than not in times of high yields.

Six countries experienced declines in gold reserves. In four of these countries (Argentina, Cuba, Mexico and Venezuela), the reduction was accompanied by a large decline in total reserves (resulting from a balance of payments drain) and thus it did not result from a shift from gold to dollar holdings. Gold reserves of the other two countries, Norway and Sweden, fell in mid-1959 by amounts that can be accounted for by gold subscription payments to the IMF, but in addition, Swedish gold reserves declined by one-fourth in 1957 and early 1958. This decline, which is not explained in the annual reports of the Riksbank, could represent an increased long-term preference for dollar assets.

In conclusion, the evidence cited above provides no instance of changes in the composition of a country's reserves (between gold and dollars) in response to short-term or cyclical fluctuations in yields. If movements in Swedish reserves reflect interest-rates movements at all, they are long-term or secular movements, and are thus outside the scope of the present inquiry.

In fact, there is no reason to expect central banks and other official institutions that hold international reserves to base such major policy decisions as those affecting composition of reserves on considerations of short-run profitability. Short-run fluctuations in the composition of reserve holdings, which resulted from weighing the return on investments against the potential gain through holding gold, would be recognized as constituting speculation on a change in the price of gold, and as such would be highly disruptive of international financial transactions. ^{6/} Shifts in reserve holdings between gold and dollars on the basis of short-run profitability could thus contribute directly to instability in international financial relations, and make increasingly difficult the achievement of basic domestic objectives of the central banks.

6/ In determining a long-run policy with respect to the composition of reserves, a central bank will, of course, have to consider both yields on foreign exchange assets and the possibility of a change in the price of gold, along with a wide range of other factors. A long-run policy on amounts or relative proportions of gold and foreign exchange in reserves carries no presumption as to timing of a possible change in the price of gold (whether or not such a consideration is given appreciable weight in the formulation of the policy), and such a policy, therefore, does not imply an open element of speculation.

Shifts of funds among various types of dollar assets do not involve the dangers associated with implied speculation, and such shifts frequently occur with changes in the relative yields on these assets; however, as shown in Table 2, (page 16), even movements of this type are small relative to the total volume of official dollar holdings.

Foreign private dollar holdings

While there is no evidence that foreign official institutions adjust their gold holdings in accordance with changes in yields, shifts of funds among international money markets by banks and other private investors could lead to changes in foreign gold holdings, over and above the changes that might be associated with a particular payments surplus in deficit on the part of a reserve currency country. For example, a shift of funds might cause a substitution of gold holdings (by official institutions) for liquid dollar holdings (by banks and other private investors). This result would occur if private investors sold dollar exchange for another currency, and if neither the commercial banking system nor the central bank of that country added correspondingly to its dollar holdings; 7/ under these conditions, initial acquisition of the dollar exchange by the central bank would be followed by a purchase of gold, and (assuming that this transaction added to net foreign purchases from the United States) to a corresponding reduction in the U. S. gold stock.

Since some European central banks traditionally hold their reserves in gold, and most others take part of their reserve gains in gold, any large net movement of private funds from the United States to other major financial markets (except Canada) would probably lead to a reduction in the U. S. gold stock, although the extent of the reduction would be strongly influenced by the particular markets to which funds moved. Shifts of funds to or from Canada would be reflected primarily in pressure on the Canadian exchange rate, since the Bank of Canada changes its reserves little and permits transfers of funds to affect the exchange rate.

There are two types of data that may be examined to aid in determining the extent to which foreign private dollar holdings have been affected by interest rates. First, movements in aggregate holdings may be compared with changes in U. S. interest rates for possible evidence of a consistent relationship. Second, the composition of holdings may be examined to obtain an indication of the extent to which these holdings have been in the form of earning assets rather than non-interest-bearing deposits, and have been shifted among assets as yields change.

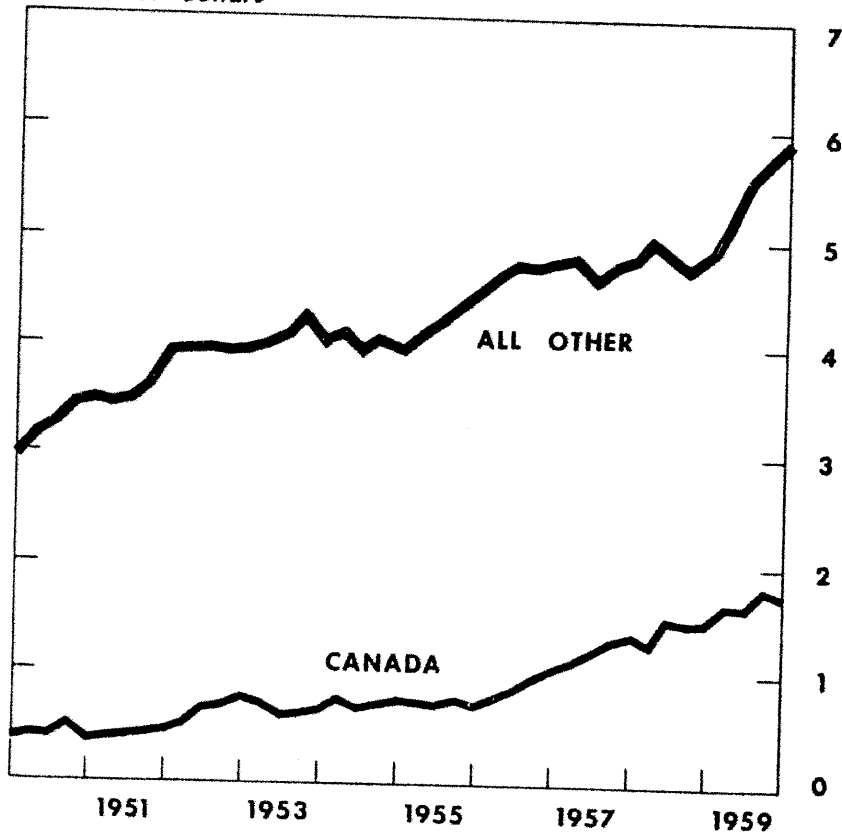
Examination of fluctuations in private dollar holdings of different geographical areas would assist in separating movements that might have been associated with the transfer of funds between the U. S.

7/ Or to holdings of the currency of another country, where the banking system was willing to increase its dollar holdings.

Chart 2

FOREIGN PRIVATE DOLLAR HOLDINGS

Billions of dollars



NOTE.—Represents short-term dollar holdings and estimated holdings of U. S. Government bonds and notes. Data for Canada derived by subtracting official holdings of U. S. dollars (as reported by Bank of Canada) from total Canadian holdings.

and European money markets. However, data are available separately only for Canada, and series for Canadian holdings and for aggregate holdings of all other foreign countries are presented in Chart 2.

Data on foreign private dollar holdings have been subject to only relatively small fluctuations of an apparent cyclical character over the past ten years. The steady growth in foreign private holdings reflects the fact that a large part of the holdings constitute working balances, which have been increased (where not prohibited by foreign exchange regulations) as world trade has expanded.

Foreign private dollar holdings (excluding Canada) have exhibited more pronounced fluctuations than have private Canadian holdings, and we shall examine the series for non-Canadian holdings in more detail to determine the extent to which these fluctuations could have reflected interest rate movements. There are reasons for concentrating our study on fluctuations in non-Canadian holdings apart from the differences in appearance of the two series, however. Private dollar holdings of European countries probably account for three-fifths of total private holdings (excluding Canada), and these European funds are generally thought to be more likely to be shifted to European money markets than are Canadian funds.

Furthermore, the influence of balance of payments developments is likely to be much greater in the case of Canada, and thus the changes attributable to interest rate changes much less discernible, than for other countries. While developments in the U. S. balance of payments may have an influence on the volume of private, as well as official, dollar holdings of foreign countries, private Canadian dollar holdings appear likely to reflect changes in the Canadian balance of payments much more directly. The Bank of Canada's policy of maintaining its reserves relatively stable has the result that a Canadian payments surplus or deficit leads immediately to a change in Canadian holdings of foreign exchange (almost exclusively U. S. dollars) or in foreign short-term claims on Canada.

To facilitate examination of the fluctuations in non-Canadian holdings, we have computed deviations of the holdings, from a straight-line trend, fitted to the data by the method of least squares. The results are compared in Chart 3 both with yields on U. S. Treasury bills and with the yield differential between U. S. and U. K. Treasury bills, after allowing for the cost of covering the foreign exchange risk.

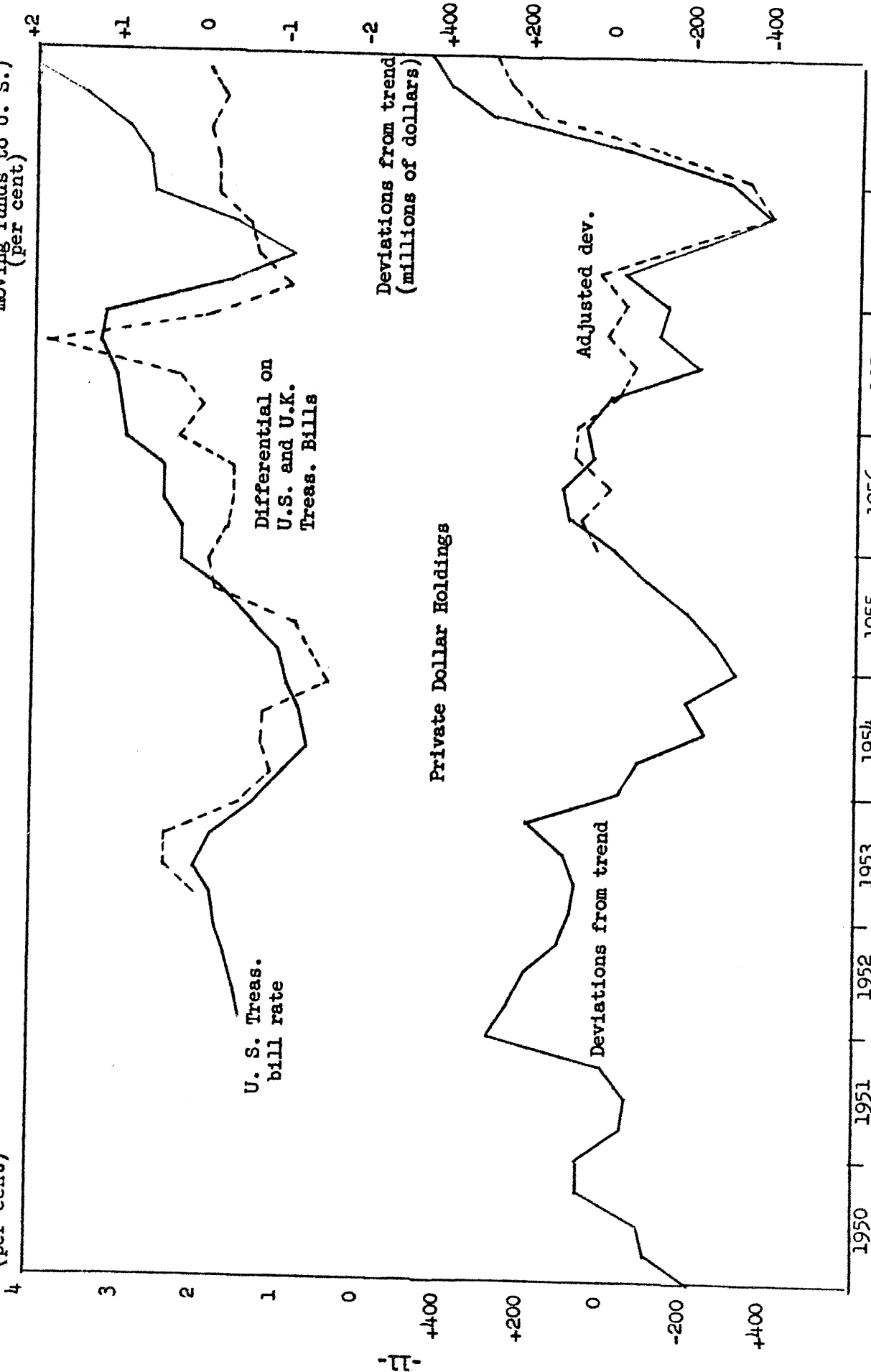
The correspondence between the deviations from trend and interest-rate movements appear somewhat closer if we employ deviations from a trend line adjusted to minimize variations resulting from purely statistical

Chart 3

Interest Rates and Private Dollar Holdings
(Excluding Canada)

Yield differential on U.S. and U.K. Treasury bills (+ indicates advantage in moving funds to U. S.)

U. S. Treasury Bill Rate (per cent)



Note: Interest rates are quarterly averages; private dollar holdings are end of quarter data. The trend line for the period 1950-59 has the formula $Y = \$4,290 \text{ million} X$, where X is measured in quarterly intervals from the end of 1954. The adjusted trend line for the period 1955-59 has the formula $Y = \$4,850 \text{ million} X$, with X measured from the end of 1957.

factors. These deviations appear as the dotted line in the chart. 8/

As shown in Chart 3, movements in private dollar holdings (measured as deviations) broadly paralleled those of both series of interest rates during 1953-55, although there is evidence of a slight lag in fluctuations in private holdings. For later years, movements in private dollar holdings have corresponded more closely to changes in the absolute yield on U. S. Treasury bills than to changes in the covered interest rate differential between U. S. and U. K. Treasury bills. In 1956-57, payments strains which affected sterling obscured any correspondence between movements in the covered interest-rate differential and those in private holdings that might have appeared under more normal circumstances. The cyclical movement in the covered interest-rate differential, which occurs from late 1957 to the end of 1958, appears to precede the cyclical fluctuation in private holdings by about a half year. However, the sharp rise in private holdings which continued into the first quarter of 1960 (not shown) has no parallel in a steady rise in the covered interest-rate differential, which remained relatively stable throughout 1959 and the first quarter of 1960.

Thus, while Chart 3 shows some broad correspondence between movements in private holdings and interest rates, the relationship does not at times appear to be a very close one. On the basis of the cyclical movement in private holdings in 1958-59, one might judge the amplitude of fluctuation to be about \$0.4 billion.

If one assumed an institutional preference on the part of foreign private holders of U. S. dollars for keeping their funds in this currency (unless higher yields were available on investments in other money markets), one might thus estimate that about \$0.8 billion of the total of \$6 billion of foreign (non-Canadian) private dollar holdings at the end of 1959 were kept in the U. S. market by the lack of an incentive to shift them abroad. Going one step further, one might use this figure of \$0.8 billion as an estimate of foreign private funds that might be expected to move to European money markets when rates there became sufficiently attractive.

8/ In the third quarter of 1956, and again in the second quarter of 1957, certain dollar holdings previously reported as privately-owned were included with official holdings. (See Federal Reserve Bulletin, September 1957, p. 1,096). The overstatement of private holdings in published Federal Reserve figures from the end of 1955 to mid-1957 has been corrected by using estimates of the International Monetary Fund. These estimates may be derived from data on U. S. short-term liabilities to foreign official institutions published in International Financial Statistics, June 1958, p. 242.

Further information on the extent to which foreign private short-term dollar holdings have been shifted in response to interest rate changes can be obtained from an examination of data on the types of assets that make up foreign short-term dollar holdings. Published figures on types of dollar assets held by foreigners do not separate official and private holdings completely, but some separation is possible, and can be helpful in obtaining an estimate of the extent to which private short-term dollar holdings have been affected by interest-rate movements.

We consider first foreign private short-term holdings other than those held by banks. As shown in Table 1, total private non-bank holdings of foreign countries (except Canada) show no evidence of having been increased significantly from 1957 to 1959 as a result of high yields in the latter year. Foreign non-bank holdings of bills and "other" short-term assets in 1959 were only \$0.1 billion above the 1957 level, although U. S. short-term rates at the end of 1959 were about one percentage point higher than in the fall of 1957, and although European currency restrictions had been removed to a very considerable extent and European money markets had only recently begun to tighten.

Furthermore, private non-bank holdings of specific types of short-term dollar assets were apparently shifted by only relatively small amounts in response to marked changes in relative yields on these assets. From September 1957 to mid-1958, deposits (including both demand and time) rose \$170 million, while holdings of bills and "other" assets fell by a slightly smaller amount. This apparent shift in form of dollar holdings is consistent with yield changes between these dates; bill rates were at a cyclical peak in September 1957, well in excess of the rate paid on time deposits, and reached a trough in June 1958, substantially under the rate on time deposits.

From mid-1958 to the end of 1959, holdings of bills and other assets rose \$160 million, and about half of this increase might be construed as representing a shift of funds from deposits; after mid-1959 bill yields were above rates payable on time deposits, and by the end of the year the yields exceeded this rate by well over 1 per cent.

Thus, the amount of private non-bank funds which has shown evidence of having been shifted among various types of dollar assets, plus net additions to holdings of bills and other earning assets, together account for only about one-tenth of total private non-bank holdings.

It would appear a reasonable presumption that funds which were not sensitive to interest rate differentials on various dollar assets would be relatively unlikely to be shifted to European money markets in response to international interest rate differentials, so long as the latter

Table 1Private Non-Bank Short-term Dollar Holdings
(Excluding Canada)

(Millions of dollars)

	<u>December 31, 1959</u>	<u>June 30, 1958</u>	<u>September 30, 1957</u>
Total	2,062	1,989	1,945
Deposits	1,626	1,712	1,539
Bills & certificates	204	156	237
Other ^{1/}	233	121	170

^{1/} Represents principally bankers' acceptances and commercial paper.

Source: Federal Reserve Bulletin, Treasury Bulletin

were not of substantially greater magnitude. ^{9/} Moreover, one would not be justified in assuming that all funds shifted from one type of dollar asset to another would be shifted abroad equally readily; at least part of the funds kept in dollar earning assets would probably be required as working balances.

Short-term dollar holdings of banks and official institutions for the same three dates are shown in Table 2; totals are included for all foreign countries, as well as for all foreign countries excluding Canada, since a breakdown between holdings at Federal Reserve Banks and those in the market can only be obtained for the aggregate of all foreign countries.

Referring first to the data on total holdings of banks and official institutions of all countries except Canada (line 1), we find that the increase of \$2.1 billion between September 1957 and the end of 1959 represents almost exclusively a rise in foreign holdings of Treasury bills; deposits were unchanged and "other" assets rose only slightly.

An examination of lines (2a) and (2b) indicates that this increase was almost equally divided between a rise in holdings at Federal Reserve Banks (exclusively those of official institutions) and holdings in the market (either official or bank holdings). Thus, two-thirds of the \$1.5 billion rise in foreign official holdings shown in line 3 is accounted for by increased bill holdings at Federal Reserve Banks; the remaining one-third occurred either in official holdings with commercial banks or in "other" dollar holdings (for which no breakdown is available).

Different assumptions on the form taken by this increment to official holdings with commercial banks will lead to different estimates of the extent to which the increase in dollar holdings of foreign banks was in the form of bills; these estimates could range from \$0.8 billion to the entire \$1.1 billion rise in bill holdings in the market. ^{10/}

^{9/} We consider below, p. 17, a possible movement of funds (into so-called "Euro-dollars") that would not show up in this type of analysis; however, the volume of non-bank funds involved in this type of transaction could be expected to be sufficiently small so as to leave our general conclusion undisturbed.

^{10/} If the entire increase in foreign official holdings was in earning assets, it could account for the rise in bill holdings at Federal Reserve Banks, the rise in total foreign holdings of "other" assets, and a rise of \$0.3 billion in official holdings of bills in the market. Under this assumption the remaining increase in bill holdings in the market (\$0.8 billion) would be by foreign banks.

Table 2

Short-term Dollar Holdings of Foreign Banks and Official Institutions
(Millions of dollars)

	December 31, 1959			June 30, 1958			September 30, 1957		
	Total	Deposits	Bills and cert.	Total	Deposits	Bills and cert.	Total	Deposits	Bills and cert.
(1) Total Foreign Countries (excluding Canada)	11,859	4,900	5,729	9,756	5,653	2,989	9,655	4,890	3,676
(2) Total Foreign Countries	13,699	6,203	6,226	11,506	6,821	3,549	11,007	5,780	4,098
(a) Held at Federal Reserve Banks	--	345	4,477	--	269	2,974	--	337	3,421
(b) Held in market (commercial banks in U. S.)	--	5,858	1,749	--	6,552	575	--	5,443	677
<u>Addenda:</u>									
(3) Total official holdings	9,139	--	--	7,927	--	--	7,644	--	--
(4) Total private holdings	4,560	--	--	3,578	--	--	3,384	--	--
(5) Interbank time deposits (in weekly reporting member banks, NYC)	974	--	--	1,762	--	--	907	--	--

Source: Federal Reserve Bulletin, Treasury Bulletin

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In addition, on the basis of the changes in interbank time deposits of weekly reporting member banks in New York City, we might assume that bank holdings of time deposits rose \$0.1 billion between 1957 and 1959. 11/

The ranges which result from combining these two sets of figures represent those movements of foreign funds into earning assets for which there is some evidence in the data. However, there were probably some foreign funds held in deposits with U. S. banks (either demand or time) at the beginning of the period that by the end of the period had been transferred to European banks, where they were held in the form of deposits denominated in U. S. dollars. The European bank receiving this so-called "Euro-dollar" deposit would have a deposit in a U. S. bank as the counterpart (on the asset side of its balance sheet) to its U. S. dollar liability. European bank attracted such "Euro-dollar" deposits by paying some interest (often in excess of rates payable on time deposits in U. S. banks) and have used the deposit claims on U. S. banks which were thus acquired for various types of financing activities.

For our purposes, the significance of this type of transaction is that it makes it possible for funds to have been shifted in response to yield differentials without there appearing evidence of such a shift in the figures for foreign holdings of deposits. Unfortunately, there is no satisfactory basis for estimating the volume of funds involved. Since the phenomenon is a recent one, we might make some allowance for it by assuming that the total rise in deposits of European countries in commercial banks in the U. S. above the level of 1957 (\$0.3 billion, as may be derived from data in Table 3) represented the counterpart of "Euro-dollar" deposits. 12/

The movement of foreign banks' funds into U. S. dollar earning assets between 1957 and 1959 may thus be estimated at \$1.2 - \$1.5 billion. As shown in Table 2, the rise in bank holdings of earning assets occurred after mid-1958, and it undoubtedly reflected both the rise in yields on dollar investments and the relaxation of exchange restrictions by European countries. A part of the increase should therefore almost certainly be regarded as resulting from transfers of funds intended primarily to serve

11/ These interbank time deposits largely represent foreign-held time deposits; changes in interbank deposits may be treated as an index of movements in foreign time deposits, though not necessarily as a precise indication of the absolute amount of the movement.

12/ These deposits may have increased considerably since the end of 1959. The allowance made here is admittedly quite rough; it should not be taken as representing an improvement over estimates that may have appeared elsewhere. However, as a general order of magnitude, an allowance of \$0.3 billion does not seem absurd. Reportedly, one of the principal uses of "Euro-dollar" deposits was in the financing of Italian trade. During 1959, the foreign exchange deposits of non-residents in Italian banks rose \$134 million, and it is probable that a large part of this increment was denominated in dollars. See: European Monetary Agreement, First Annual Report of the Board of Management, O.E.E.C., Paris, May 1960, p. 33.

Table 3Changes in Short-term Dollar Holdings of Foreign
Banks and Official Institutions, Selected Countries

(Millions of dollars)

Country	June 30, 1958 to December 31, 1959			September 30, 1957 to June 30, 1958		
	Deposits	U. S. Treas. bills and certificates	Other	Deposits	U. S. Treas. bills and certificates	Other
Total all countries (excl. Canada)	-753	+1,740	+113	+763	-687	+25
Total Europe	-524	+1,930	+87	+838	-432	+20
Selected countries:						
Austria	-164	129	3	116	--	-91
Denmark	-61	89	-3	48	-45	10
France	38	313	22	-4	-84	-31
Germany	-53	625	-34	93	-354	49
Greece	-92	155	--	79	-93	--
Italy	7	432	-142	12	-136	171
Netherlands	44	81	54	16	115	-7
Sweden	--	-25	-12	10	-57	25
Switzerland	-86	31	151	104	30	-71
United Kingdom	-29	-78	19	159	111	-5
Japan	65	375	23	75	148	7

Source: Federal Reserve Bulletin, Treasury BulletinNOT FOR PUBLICATION

as working balance. The judgment that funds held in earning assets may represent working balances gains support from the fact that only a relatively small proportion of all funds held in the form of earning assets have been involved in net shifting from one type of asset to another in response to changes in relative yields.

Additional evidence on the possible extent of shifts of funds among different types of dollar assets is given in Table 3, where changes in official and bank holdings combined are presented for major countries. Movements of funds that could represent net shifts into deposits from 1957 to 1958 (and out of deposits from 1958 to 1959) amounted to about \$0.4 billion, and shifts of funds into acceptances from 1957 to 1958 (and out of acceptances from 1958 to 1959) were about \$0.2 billion. While various offsetting movements could have masked other direct shifts of funds, the mere fact of offsetting movements could itself indicate that considerations other than yield advantages were also operating.

Furthermore, in many of the countries where it appears most likely that direct shifts of funds occurred, it seems probable that the shift was in officially-held funds. ^{13/} Perhaps as much as two-thirds of the volume of apparent shifting can be attributed to movements in official funds.

In summary, the movement of foreign funds into earning assets since late 1957 may be estimated at about \$1.5 billion. This figure is a rounded one; it primarily reflects changes in foreign bank funds, although foreign non-bank funds account for about \$0.2 billion of the total. The rise in foreign holdings of dollar earning assets has occurred entirely since mid-1958, and at least a part of the increase must probably be viewed as an increase in the dollar working balances of foreign banks following the relaxation of exchange restrictions. The increase of \$1.5 billion must therefore be regarded as an outside limit of funds that might be sensitive to international interest rate differentials; in view of the very small amount of shifting of foreign private funds among dollar assets in recent years, this figure can in fact be taken as the total volume of foreign private funds that has shown sensitivity to any interest rate differentials. Thus, the \$0.8 billion movement of aggregate foreign private (non-Canadian)

^{13/} A comparison of reported official holdings of foreign exchange and of holdings of U. S. dollars by official institutions and banks tends to support the conclusion that at least the data for Austria, Denmark, Greece and Italy represent primarily official holdings; in each case, the reported dollar holdings are less than official foreign exchange holdings, while for other major countries, dollar holdings are at least slightly larger. See: International Financial Statistics.

dollar holdings for the period 1958-59 appears to reflect more closely the volume of inflow of private funds in response to relatively attractive interest rates in the United States. ^{14/}

However, even taking the outside limit, it is quite unlikely that a transfer of \$1.5 billion in foreign funds from the U. S. to European money markets would be of critical importance for the U. S. reserve position. An outside limit of this order of magnitude would clearly be small in comparison with the limits that one would have to set in assessing the potential effects on the U. S. reserve position of changes in the U. S. balance of payments on current account or of changes in other capital movements (assuming that any such calculation were feasible).

Conclusion

Our examination of the practices of foreign countries has shown no evidence that official reserves are shifted from dollar assets to gold (or vice versa) in response to short-term variations in interest rates. Some commercial bank holdings of dollar assets and some private non-bank holdings would very likely be shifted to official holdings as the owners of these funds transferred them to other international money markets in response to variations in interest rates. While no precise estimate can be made of the extent to which the foreign bank and private non-bank short-term dollar holdings as of December 1959 were a reflection of funds moved in response to high interest rates in the United States, the rise of \$0.8 billion in private holdings from mid-1958 appears to represent the best estimate of such a movement; from the evidence, it appears that \$1.5 billion would be an outside limit. For our purposes, these estimates need not be taken as more than general orders of magnitude, and efforts to refine these figures would not be justifiable -- or likely to succeed.

As institutions change, the functions performed by foreign private dollar holdings may also change, and the fact that a given volume of foreign funds was at one time attracted to the United States by high interest rates does not mean that at some other time a larger volume of foreign funds would not be attracted abroad by high rates. ^{15/} Before this happened, however, we might expect at least to see evidence that an increasing portion of foreign private funds was shifted from one form of dollar asset to another in accordance with the (hypothesized) increased emphasis on yield considerations.

^{14/} Arithmetically, the difference between the two figures is accounted for mainly by the estimates for funds shifted into time deposits and "Euro-dollar" deposits; the exclusion of Canadian figures and the allowance for trend in the data in Chart 3 account for the remainder.

^{15/} Economics has in recent years become sufficiently infused with propositions based on the emergence of a "new era," to make it unnecessary to argue here the dangers of basing conclusions about the future solely on the past. And, in fact, the relaxation of exchange restrictions in major trading countries and greater interest in international capital movements which has developed in the past several years may prove to be a basis for anticipating much more substantial shifts of funds internationally than has thus far occurred.

Whatever the magnitude, a net shift in foreign private funds from the United States will result in official gold purchases of lesser amounts, depending on the practices of the central banks in countries gaining reserves. If the movement of funds is clearly recognized as the result of cyclical changes in interest rates, and is thought likely to be reversed in a short time, there may even be no conversion of newly accruing dollars into gold.

On the basis of the evidence examined above, there is no reason to assume that the drain on the U. S. gold stock as a result of shifts of foreign funds in response to interest rate differentials would be in excess of, say, \$1 billion, and it could well be much less. So long as confidence in the U. S. dollar as a reserve currency remained undisturbed, major changes in the international reserve position of the United States would thus be likely to result only from shifts in the balance of payments on current account or in capital movements that are reflected in changes in the U. S. payments surplus or deficit. The U. S. payments position therefore would appear to represent an adequate guide to the external or international consequences of domestic financial policies. Moreover, the role of the United States as an international reserve center does not, at least at present, appear to impose significant restrictions on the range of domestic financial policies which this country is able to pursue without substantial effect on its reserve position. Effective arguments may exist for some of the recently proposed reforms to the international financial system, but the sensitivity of foreign-held dollar assets to international interest rate movements does not appear to be among them.