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A Note on Leads and Lags in Sterling Payments
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A NOTE ON LEADS AND LAGS IN STERLING PAYMENTS

Samuel I. Katz

Pressure against sterling resulting from merchants delaying payments has been recognized as a significant factor contributing to the 1949 devaluation and to the loss of reserves incurred during the past year. Recent trade and payments data available from OEEC sources indicate that a substantial volume of short-term speculation in sterling has taken place since the end of 1948 and that inward as well as outward movements of speculative money have occurred. These short-term capital movements have been carried out by merchants in their trade operations and consequently are effected within the framework of exchange control regulations in Britain and in other countries. Usually referred to as "leads and lags," these movements have had an important influence in aggravating the recent deterioration in the external economic position of the sterling area. The termination of the gold and dollar drain, which was announced in Parliament on April 3, can be attributed directly to the capital inflow which got underway in the latter part of March. Britain's external position during the second quarter will be affected materially by the direction and volume of the short-term capital flow.

Shifts in credit terms in sterling trade

While short-term money movements of the pre-1939 character have been blocked by British import and exchange controls, short-term flows of funds into and out of sterling have taken place continuously during the post-war period and have been of a speculative and disequilibrating character. These movements have been induced principally by the expectation of changes in exchange rates. The extensive use of sterling to finance non-British as well as British foreign trade means that pressure either in favor of or against the pound comes from merchants all over the world.

To a great extent, these speculative money movements have taken the form of shifts in credit terms. Such movements involve payments for transactions which in all instances are reported to the customs officials; this paper is not concerned with illegal transactions which occur outside the framework of import and exchange regulations. The alteration of credit terms enables merchants to accelerate or delay payments and/or receipts in accordance with fears or expectations as to prospective changes in exchange rates. Operations of this sort have subjected sterling to substantial pressure on occasion and, during 1949, contributed in an important way to the September 18 devaluation.

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Where merchants do not use the banking system to finance the private movement of goods in foreign trade, changes in credit terms can easily be arranged within the regulations by mutual consent between the contracting parties. The exchange regulations of Britain and other sterling countries merely require exporters to turn in to the authorities the foreign currency proceeds of their sales within a six-month period. ^{1/} Hence, payments on British exports can be delayed for the full period authorized in the regulations. On the import side, British merchants accelerate foreign payments to the maximum extent possible if they fear a depreciation of the pound. Where banking resources are used to finance the movement of goods, such shifting occurs by lengthening the term of the documentary credit, by refinancing the goods where sight terms were in effect, by shifting the market in which finance is obtained and by covering (or failing to cover) with forward exchange a short-term credit negotiated in sterling by the foreign purchaser. These operations, therefore, are not evasions or violations of the foreign exchange or foreign trade regulations.

The ways in which such credit shifts operate can be illustrated by considering how such credit shifts had been taking place in U. S.-sterling area trade, at least until the end of last month. Speculation against sterling might come from several sources: U. S. importers can delay payments for sterling area produce or sterling area exporters can delay collections from sales to this country; similarly, sterling area importers can accelerate payments for U. S. merchandise or U. S. exporters can insist on sight terms of payment from his sterling area customer.

Let us consider how the U. S. importer can carry out a speculative shift in financing. Regardless of the prior practice in the trade, the American importer tends to extend the terms of sterling credits which he opens through his American bank with a bank in Britain to the full limit authorized by British exchange regulations. Previously, the regulations of the Bank of England authorized credits "for usances

^{1/} See, for example, former Chancellor Gaitskell's recent Parliamentary statement: "When they think the pound is to be devalued again they are not going to pay their dollars in. Is it reasonable, when we have no gold reserves, that British citizens and British companies should hold on to dollars in the hope of a speculative rise? I suggest, as I said in November, that the Chancellor should now consider cutting down that six months' period to three months; that if he were to do that I believe he would get a very rapid inflow of dollars". (Hansard, 30 January 1952, columns 217-218).

not exceeding 120 days against sight or date of drawing;" 1/ as a result of the practice of using London financing as a means of speculating against sterling, however, the Bank of England on February 23 notified British banks that drafts under letters of credit subject to exchange control must be for no more than 90 days. 2/ When either the sterling area exporter or the custom of the trade made sight payment necessary, the U. S. importer could still postpone his sterling payment by arranging with his American bank for refinancing in London against shipping documents; 3/ for this reason, refinancing facilities were restricted in London at the same time that the term of the acceptance credits was reduced.

1/ British Exchange Regulation, F.E. 226, "Credits and Guarantees."

2/ New York Journal of Commerce, February 29, 1952, page 2. The news report adds: "In the future, exports covered by bills of exchange will have to receive payment in not more than 90 days so that the foreign currency comes to Britain a month earlier than would be the case if the bills ran for 120 days. Exporters in the sterling areas, as distinct from banks, are still allowed to grant long credit, but this is curbed by their own difficulty in obtaining credit internally."

3/ The refinance arrangements previously in effect in London were described on page 4 of the April 9, 1952 issue of the Financial Times in these words:

"The negotiation rates (for acceptances) in other countries were often higher than the discount rates in London. Under the refinance system, advantage was taken of the relatively low rates which had been ruling in London, while the exporter still received cash immediately. The procedure was that a sight, rather than an acceptance, credit was opened so giving the exporter cash immediately he had shipped his goods.

"At the same time, however, as the sight draft and documents were presented to the London bank for payment, a draft was also presented to it drawn by the foreign importer of the goods -- particularly in America -- and endorsed by his own bank -- that is, the bank to whom the London bank would have given the refinance facilities. The London bank accepted the importer's draft and it was discounted at the London rate for bills.

"The proceeds of this discounting operation provided the immediate funds to pay the sight draft drawn under the credit, and the bank abroad to whom the refinance facilities had been granted was under obligation to put the London bank in funds at, or just before, the maturity of the relative acceptances."

When sterling is under pressure, extended sterling credits are particularly advantageous to the U. S. importer. Postponement of the sterling payment enables the importer to benefit from any devaluation occurring during the life of the credit. If, on the other hand, he desires a firm exchange rate for pricing purposes, he can cover by purchasing forward sterling which, when sterling is under pressure, tends to be at a discount equivalent to a large part of the cost of London credit. In early March, sterling futures were at a discount of around one-half cent per month or six U. S. cents a year, equal to something over 2 per cent per annum; acceptance financing in London at that time was around 3-1/2 per cent per annum.

Additional benefits accrue to the importer where the merchandise reaches this country before the credit expires since he has additional financing for his inventory during the interim period. Late in February, these resources were particularly helpful in that the prices of certain sterling area products happened to be under pressure at that moment and the additional financing at least temporarily postponed inventory disposal on a weak market. The sterling financing is even more advantageous where the importer is able to sell the imports in the U. S. for dollars before the credit expires.

While sterling financing is particularly attractive to U. S. importers of sterling area goods at a time when the pound is under pressure, it is equally true that the British authorities have an interest in encouraging the use of sterling as a trading currency and in the invisible earnings accruing to Britain's current account from such use. But such devices postpone the receipt of dollars into Britain's central reserves, perhaps for a considerable period after actual shipment from the sterling area exporting country has occurred.

The importance of "leads and lags"

Shifts in credit terms by merchants dealing in or through sterling, which are known more generally as "leads and lags," have been disequilibrating in their effect; even minor adverse movements in Britain's trade and payments position have been enough to set off speculation which led to severe external difficulties, as occurred in 1949. These movements have contributed to, and in large measure accounted for, the wide post-war swings in the sterling area's external position. While the importance of speculation against sterling has been widely acknowledged, perhaps because the short-term capital flow was a major cause of the 1949 devaluation, less attention has been paid to the influence of favorable movements of the short-term credit factor upon Britain's external position, particularly after the outbreak of hostilities in Korea.

Admittedly, appraisal of the importance of these shifts in short-term credits is particularly difficult where quantitative measurement is impossible. Only limited analytical data have been available

in published form for estimating the magnitude of the flows. An estimate of the "bear" and "bull" movements with respect to sterling, which was published in an unsigned article in the British quarterly magazine The Roundtable in September 1950, is a considered attempt to measure the short-term capital flows before and after the 1949 devaluation.^{1/}

The Roundtable estimated a "bear" movement against sterling of at least \$105 million for the second quarter and of \$80 million for the third quarter of 1949. These estimates were made by subtracting the sterling area's current position with respect to dollar trade and invisibles from the actual gold and dollar deficit of the area for the particular quarter.

Table A
Sterling Area - Net Gold and Dollar Position and
Visible Trade Balance with Dollar Area
(In millions of U. S. dollars)

	1949		1950	
	July-Sept.	Oct.-Dec.	Jan.-March	April-June
1. Visible trade balance	-285 to -335	-140 to -175	-20 to -70	-10 to -15
2. Net gold and dollar position	a/ -635	a/ +64	+40	+180
3. Balance to be accounted for	-300 to -350	+204 to +239	+60 to +110	+190 to +195

Source: The Roundtable, September 1950, p. 316.

a/ Adjusted for the inflow of \$100 million between September 18 and September 30, 1949.

^{1/} "Report on Sterling", The Roundtable, London, September 1950, pp. 308-319.

The calculations in the article for the four quarters between July 1949 and June 1950 are shown in Table A. Of the total unexplained balance shown for each quarter, not all was attributed in The Roundtable article to speculation. Compared to a "bear" movement of between \$185 million as a lower and \$380 million as an upper limit for the second and third quarters of 1949, the post-devaluation inflow was estimated at from \$100 to \$130 million for the fourth quarter, from \$30 to \$40 million for the first quarter of 1950 and an accelerated inflow of perhaps \$100 million for the second quarter, a total of between \$230 and \$270 million up to June 1950.

The article concludes that "a 'bear' movement restricted by every conceivable kind of administrative control nevertheless increased our net dollar payments (before Sep. 18, 1949) by not less than \$100 million a quarter (and it was probably a good deal more than this)." 1/ Statistics recently available from OEEC sources and parallel calculations on our part -- which will be presented in the remainder of this note -- corroborate The Roundtable's suggestion that its own estimates are too low. In retrospect, events seem to confirm the inadequacy of this estimate of short-term money movements. For the author pronounced the judgment that "Sterling can hardly be considered safe and capable of withstanding the shock of even minor recessions in world trade until the reserves of the sterling area exceed \$3,500 million."2/ Britain's reserves on June 30, 1951 stood at \$3,867 million, well above the minimum figure; in the eight months ending with last February, the reserves had fallen by \$2100 million, suggesting that The Roundtable author had seriously underestimated the possible short-term pressure on sterling.

Sterling speculation in Western European and North American trade

Data recently released by the OEEC covering the sterling area's trade and payments position with Western Europe and parallel figures independently constructed for this study of the trade and payments position with North America enable us to get some idea of the sterling speculation which has occurred since 1949.3/ Using

1/ Ibid, page 317.

2/ Ibid, page 317.

3/ For Western Europe, monthly changes in the sterling area's net payments position (as reported to the Agent for the European Payments Union) are compared with the sterling area's foreign trade balance with Western Europe. Detailed monthly figures are found in Table II in the Appendix. For North America, comparable data have been constructed by us; the figures are to be found in Table III of the Appendix. Technical information about the statistics is also appended.

these trade and payments statistics, a series has been constructed called the "calculated non-trade residual" in Britain's current payments, which represents the difference between the monthly trade and the monthly payments series. 1/

It will be well at this point to consider what movements in the residual series mean. The residual figure is positive (i.e. suggesting a capital inflow) where the payments balance for any month is more favorable to the sterling area than is the trade balance. Thus, a positive residual can arise where: (a) the improvement in the payments position is greater than that in the trade balance; (b) the deterioration in the payments position is less than that in the trade balance; and (c) an improvement in the payments position occurs in spite of a deteriorating trade balance.2/

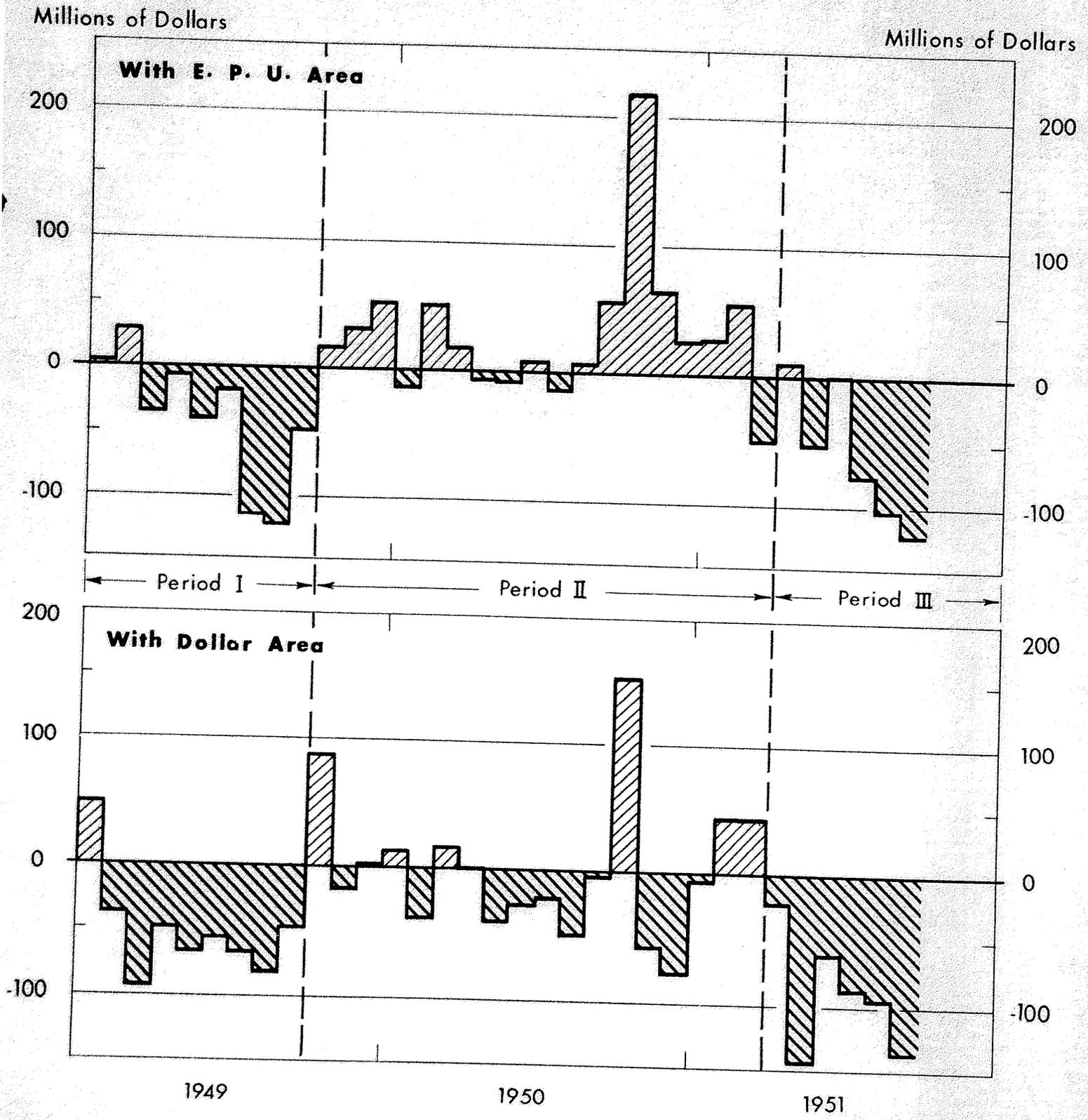
The monthly residual series calculated separately for the EPU countries and for the dollar area, are shown in the chart for the 33 months from January 1949 to September 1951. The residual series have passed through three distinct phases together, two unfavorable and one favorable.

Period I, a time of crisis for sterling, ran from January 1949 to the devaluation on September 18. During this period, the residual was sharply negative, indicating speculative pressure against

1/ The calculated non-trade residual figures are found in column 3 in Tables II and III in the Appendix.

2/ To illustrate how the residual has actually moved, it is suggested that Table II of the Appendix be consulted to obtain actual monthly figures for trade with the EPU area. During February 1949, for example, Britain's payments surplus amounted to \$56 million but its trade surplus was only \$27 million; hence, there is a residual of (plus) \$29 million. A deterioration in the payments balance greater than can be explained by the trade balance leads to a negative residual (i.e. suggesting a capital inflow). Thus, in March 1949, for example, a non-trade residual of (minus) \$38 million resulted from the fact that Britain's EPU balances decline in spite of a surplus on trade account. The reader may note from an examination of the monthly data in appended Tables II and III that the payments accounts, the trade balance, and the calculated non-trade residual for both the EPU and the dollar areas have moved together during the period under study. A trade surplus has been accompanied by an even larger payments surplus and, hence, by a positive residual; a trade deficit, on the other hand, has generally been accompanied by a negative residual.

MONTHLY FLUCTUATIONS IN CALCULATED NON-TRADE RESIDUAL IN BRITAIN'S CURRENT PAYMENTS



sterling. Period II was relatively quiescent, with a moderate post-devaluation inflow of funds, until September 1950. Rumors of sterling appreciation which developed in the wake of the post-Korean boom in primary product prices led to a general and exceptionally strong movement into sterling during the fall and winter, with October the peak month for both series. By the spring of 1951, however, the tide began to turn against sterling; although the residual fluctuates uncertainly for several months, by April or May clear evidence is found that sterling had entered another period of crisis.

Differences between the European and North American results

Certain differences between the fluctuations in the residuals for the EPU area and for the dollar area, shown in the chart, are noteworthy. During Period I, for example, it appears that the speculative drain against sterling in favor of the dollar commenced months earlier than the Western European pressure. Provided the hypothesis is in fact accurate and not the product of a technical deficiency in the statistics, two supporting arguments can be advanced. First, by the last half of 1948, the volume of U. S. imports presumed to be financed by cheap sterling trade had become heavy. Secondly, perhaps as a direct consequence, during the spring of 1949 discussion about sterling devaluation had greater currency in North America than in Europe.^{1/} By July, Britain's external crisis had become general knowledge.

For Period II, one difference between the two series is the concentration of capital inflow from the dollar area in the month of October; this suggests a heavy volume of speculation originating in the dollar area, especially when one recalls that sterling liabilities undertaken at a \$4.03 pound were settled at a \$2.80 exchange rate. The Western European series shows no such isolated October peak.

During Period II, there is a contrast between the distinctly positive residual for Western Europe and the balanced or slightly negative residual for North America. Perhaps this difference can be partially explained by the available data on current non-trade items in Britain's balance of payments. Britain records a large invisible surplus with Europe, while both British and American estimates show for the United Kingdom a deficit on invisible account with the dollar area up to the end of 1949 and thereafter a virtual balance.

A large negative residual for the dollar area appeared much earlier in Period III than did a deficit figure for Western Europe.

^{1/} In assessing responsibility for the September devaluation, it is often overlooked that the prevalence of cheap sterling trading in financing U. S. imports prepared the ground for the general acceptance of the overvaluation thesis, particularly by U. S. commercial interests.

After June, however, the continuing drop in the dollar residual overstates the extent of speculation since heavier dollar payments are known to have been made on invisible and on capital accounts, particularly for dollar oil.

Usefulness of the data and conclusions

The monthly statistics obtained from a payments/trade analysis are particularly useful in that British balance-of-payments data are published only half-yearly and American estimates quarterly. Monthly details are helpful in puzzling over speculative capital movements, since these movements tend to have sharp monthly peaks and to undergo almost instantaneous reversals.

The behavior of the residual series during the 33 months under study clearly reflects the influence of sterling speculation. How, otherwise, can the reversals in direction and the peak-month inflows and outflows be explained? The distinctive monthly pattern shown in the chart indicates that the impact of speculation on the series has been sufficient to blanket the more lethargic (or even contrary) movement of non-speculative factors.

If the residual figures clearly reflect the influence of a short-term capital factor, however, it is equally clear that the series does not measure the money flow with any degree of accuracy, because the non-speculative factors cannot be eliminated from published data nor (probably) from such unpublished data as may be available to the authorities of any one country.

Nonetheless, this study leads to the suggestion that the postwar influence of short-term speculation in sterling has been underestimated. The rapidity with which Britain's reserves have declined from the June 1951 peak indicates a short-term money movement larger than the \$100 million a quarter suggested in The Roundtable analysis and larger even, during peak periods and for the world as a whole, than \$100 million a month. Estimates of sterling speculation within a range of, say, \$400 to \$600 million for North America and perhaps the same for Western Europe during a period of pressure extending over several months would be consistent with the fluctuations shown in the residual data in appended Tables II and III. While this speculation has been taking place, Britain's gold and dollar position has tended in reality to be either better or worse than the reserve statistics at the moment were indicating. Looking back, for example, Britain's position was not as good as it looked during the latter part of 1950 and in early 1951. It seems equally likely that Britain's true reserves were substantially understated at the end of February.

A substantial sterling speculation can take place within the framework of exchange control and licensing regulations, and the volume might not compare unfavorably with the short-term capital movements before World War II. It might of course be argued that this speculation has been successful only because Britain's reserves have been too small. There ought to be practical limits to these delays in payments; if speculators were confronted with adequate reserves, would they not recognize the futility of their enterprise?

As a practical matter, of course, Britain's reserves are not likely to become large enough to withstand severe external pressures in the near future; the level of such reserves would probably have to exceed the \$3,500 million figure recommended in The Roundtable article. It must also be emphasized that speculation against sterling does not arise in a vacuum. During 1949, the prevalence of cheap sterling trading and the price/delivery difficulties of British exporters encouraged speculators to take positions against sterling; in 1951, the major source of difficulty was the excessive importation by Britain and other sterling countries. During 1949 and 1951, speculation grew out of a basic imbalance which could not be maintained indefinitely regardless of the volume of reserves.

The vulnerability of the British economy to outside pressure and to outside opinion is underlined by the volume of sterling speculation. There do not appear to be the practical limits to the leads and lags pressure which one might have expected. In addition to delays in payment on goods moving in foreign trade, the fact that sterling speculation takes the form of shifting financing to London helps to account for the pyramiding which seems to occur. The process may begin with the trader attempting to obtain additional credit and to shift his financing into sterling, but the limit for the individual should be exhausted at some point; it seems, however, that the building up process develops as new individuals are attracted into the speculation by Britain's loss of reserves, the discount on forwards, market opinion, or even by a spectacular rumor.

Britain's present situation illustrates the significance of this short-term capital factor. The continued delay in the reversal of last fall's speculation against sterling was a surprising factor in the situation throughout the winter months. The announcement on April 3 that the drain in reserves has come to a halt suggests that, at long last, the inflow into sterling finally got underway during March. The sharp rise in the spot sterling rate after March 11 indicates that the hard-money policy and the stiff budget for 1952-53 produced a reverse flow of funds even though external balance on current account might not be achieved until the second half of 1952. In this way, the strategic influence played by sterling speculation upon Britain's balance of payments is being confirmed once again.

TECHNICAL APPENDIX

The data on the sterling area's trade and payments position with Western Europe were first made available in a special OEEC report late in 1951 and subsequently have appeared in the monthly OEEC statistical bulletin on Foreign Trade. The actual monthly trade, payments and non-trade residual series are to be found in Table II at the end of the Appendix. The non-trade residual passes through two periods of crisis (January-September 1949 and from March 1951 onwards) and one favorable period (October 1949 to February 1951).

Being the difference between payments and trade statistics, the non-trade residual is made up of invisible items and various types of capital movements. Official balance-of-payments data show for Britain a persistent surplus on invisible account with Western Europe, as shown in Table I, chiefly because the large receipt surplus in the "other" category 1/ has greatly exceeded Britain's deficit on travel account. As a result, one might expect the residual series to have a positive bias.2/ Thus, the substantial deficit in the residual during Periods I and III suggests the influence of contrary factors upon the series. In addition, the stability of Britain's invisibles surplus during both 1950 and early 1951 (periods of current account surplus and deficit) suggests that the invisibles factor would not explain the distinctive pattern of fluctuation shown in the residual series in the Chart I-A and that this pattern is rather to be explained by capital movements.

1/ United Kingdom Balance of Payments 1948-1951, Cmd. 8379, (p. 30) defines this item to cover "all other current transactions, e.g., the overseas transactions of oil companies (other than capital expenditure), insurance, civil aviation, royalties, commissions, banking and other services. It also includes sales of gold at home for industrial use, miscellaneous disbursements in the United Kingdom by international organizations, net current transactions of the United Kingdom-Dominion Wool Disposals Ltd. (Joint Organization), and an allowance for profits accruing from abroad to UK merchants. Net remittances in respect of films are also included."

2/ An additional source of positive bias results from the fact that Britain's trade statistics overstate the trade deficit by between 10 and 15 per cent of the value of imports since imports are shown on a cif basis while exports are recorded fob. Bias follows from the fact that this overstatement makes the payments position more favorable than the trade position since the cif charges were not paid to foreigners.

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Table I
 UK - Current Account with
 OEEC Countries, 1950 and first half of 1951
 (In millions of US dollars)

	Calendar Year, 1950			January - June 1951		
	Debit	Credit	Balance	Debit	Credit	Balance
1. Trade account	<u>572</u>	<u>594</u>	<u>+22</u>	<u>429</u>	<u>360</u>	<u>-69</u>
2. Invisibles:						
Shipping	58	68	+10	40	38	- 2
Interest, etc.	20	13	- 7	16	8	- 8
Travel	41	12	-29	21	5	-16
Other (net)	<u>14</u>	<u>140</u>	<u>+126</u>	<u>5</u>	<u>74</u>	<u>+69</u>
Total	<u>133</u>	<u>233</u>	<u>+100</u>	<u>82</u>	<u>125</u>	<u>+43</u>
3. Balance on current transactions	<u>705</u>	<u>827</u>	<u>+122</u>	<u>511</u>	<u>485</u>	<u>-26</u>

Source: United Kingdom Balance of Payments, 1948 to 1951, Cmd. 8379.

Unfortunately little is known about the volume of capital movements between the sterling area and Western Europe. Official British data, published on a semi-annual basis, lump together capital flows and errors and omissions in an omnibus category for balance-of-payments accounting. Perhaps the hypothesis that long-term capital flows between these two areas have been limited in the post-war period can be supported by the mere existence of British exchange regulations. These same regulations would tend to check movements of short-term capital unconnected with the movement of trade (i.e. not of the lead-and-lags variety).

Comparable figures which are shown in Table III have been independently constructed covering the sterling area's trade and payments position with the United States and Canada. The payments statistics, showing changes in UK dollar balances, are based on the series, "Short-term Liabilities to Foreigners", shown regularly in the Federal Reserve Bulletin, adjusted for gold transactions with the United States which are released by the Treasury Department in the Treasury Bulletin on a quarterly

basis. To approximate from published sources Britain's monthly receipts of American aid, "paid shipment" statistics published by the Economic Cooperation Administration have been subtracted from the figures. The trade statistics are the Canadian trade returns with the entire sterling area and United States trade returns with the sterling area excluding South Africa and Hong Kong. 1/ Rough allowance for invisibles was made by taking monthly averages from the quarterly estimates of the United States balance of payments prepared by the Department of Commerce. The lack of statistics on non-speculative capital movements, on Britain's dollar transactions with other dollar countries and with third areas and the absence of data on Britain's holdings of Canadian dollars are the major omissions in the estimates.

1/ Trade with South Africa is excluded because the Union's gold sales to the U. S. are also excluded; our trade surplus with Hong Kong is overstated because U. S. imports are reported by country of origin rather than by country of shipment or of sale.

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Table III
Sterling Area: Selected statistics on
trade and payments with the US and Canada
(In millions of US dollars)

	Adjusted Monthly Change in US dollar balances	Net Trade Balance	Calculated Non-trade Residual	Adjusted Monthly Change in US Dollar Balances	Net Trade Balance	Calculated Non-trade Residual
<u>1949:</u>						
J	- 36	- 85	+ 49	J	+ 40	+ 62
F	- 99	- 62	- 37	A	+ 3	+ 53
M	-114	- 51	- 93	S	+ 28	+ 32
A	-141	- 92	- 49	O	+202	+ 51
M	-195	-162	- 69	N	+ 17	+ 76
J	-177	-119	- 58	D	- 25	+ 53
J	-176	-107	- 69	<u>1951:</u>		
A	-168	- 84	- 84	J	+ 69	+ 75
S	-126	- 77	- 49	F	+ 70	+ 27
O	+ 6	- 80	+ 86	M	+106	+ 63
N	- 40	- 22	- 18	A	+ 46	+ 68
D	- 53	- 52	+ 1	M	- 61	+ 84
<u>1950:</u>						
J	+ 11	- 3	+ 14	J	- 2	+ 60
F	- 42	- 5	- 39	J	- 60	+ 27
M	- 4	- 22	+ 18	A	- 69	+ 26
A	+ 25	+ 25	0	S	-193	- 58
M	- 13	+ 27	- 40	O	-176	
J	+ 27	+ 54	- 27	N		
				D		