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RFD 582

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Division of International Finance

REVIEW OF FOREIGN DEVELOPMENTS

May 17, 1966

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Double Use Transactions,
the Foreign Exchange Market,
and U. S. Payments Data

32 pages

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The delay in the clearing, or debiting and crediting, of financial transactions which is characteristic of many developed financial centers, together with the existence in such centers of an active market for money of maturities less than the clearing delay, has given rise in recent years to a phenomenon which may be termed a double use of funds. That is, a participant in the financial market may pay out funds in connection with one transaction; but, until the clearing of the transaction is accomplished by the institutional arrangements of the market, he continues to have use of the funds and may invest them in the market for very short-term money. The same funds have, therefore, served two uses in the market.

The distinction between Clearing House Funds and Federal Funds in the New York money market can provide an investor with the opportunity for such double use of funds. In recent years, the profitability of such transactions, with the additional encouragement provided by the convertibility of major currencies into one another and the central position of the dollar in international exchange, has attracted foreign investors.

The activities of foreign investors have become an important influence on intra-week foreign exchange rate movements vis à vis the dollar. Moreover, through the effects of such transactions on bank statistics, particularly when quarterly or year-end data are affected, the picture of international capital flows to and from the U.S. may be

distorted. This may, in turn, distort the data on the U.S. balance of payments for the period involved.

The purpose of this paper is to examine the general nature of the double use of funds and to outline in some detail the more important variations of the basic principle. In particular, attention will be directed to the effects of these latter activities on foreign exchange rates. Finally, the effects of these activities by foreign investors on the U.S. balance of payments estimates and statistics will be examined.

Basic Principle of the Double Use of Funds.

For the double use of funds to be feasible in a financial market, two conditions must obtain in the market:

- (1) There must exist a delay in the clearing, or debiting and crediting, of payment in certain types of transactions.
- (2) There must exist, and be a market for, money on loan for maturities no greater than the clearing delay.

These conditions are both necessary and sufficient for there to be a double use of funds by one or more market participants. A simple example will illustrate the basic transactions:

Assume:

- (a) There is a financial market with three participants, A, B, and C.
- (b) Participants A and B both have accounts at the same bank, and C has an account at a second bank.
- (c) There is a one day delay in clearing checks between banks, but transactions between customers of the same bank are recorded immediately with no clearing delay.

Under these conditions, A enters into a transaction with C, in which A pays C by check the amount of \$100. Since the known inter-bank clearing delay is one day, A's account will not be debited until the next day.

At the same time, A agrees to lend B the sum of \$100 for one day. The transfer of funds from A to B -- both customers of the same bank -- will be effected without delay. Most important, B's repayment of the loan will also result in an immediate transfer of funds to A's account. Consequently, while B has the use of \$100 for one day, A's account is restored to its original level by the time the check written to C's order is presented for payment. The profit on the transactions for A is, therefore, the one day's interest earned on the loan to B.^{1/}

Purely Domestic Double Use of Funds - Variation 1

The foregoing example may be modified with very little difficulty to present a picture more like the actual situation in the New York money market. Consider that the participants in the market are banks and that they are dealing in Federal Funds, Clearing House Funds and, say, Treasury bills. Under these conditions the transactions might take the following form:

- (1) Bank A buys \$1,000,000 of Treasury bills from Bank C, against payment with a Clearing House check.
- (2) At the same time Bank A lends \$1,000,000 in Federal Funds to Bank B for one day, repayment to be made in Federal Funds.
- (3) On the following day Bank A receives \$1,000,000 in Federal Funds from Bank B, plus one day's interest, and at the same time A's check for \$1,000,000 to Bank C for the purchase of Treasury bills on the previous day is cleared.

^{1/} The element of risk in computing the real profit is ignored at this point.

Again, A's profit is the one day's interest on the Federal Funds lent to B.

Additional market considerations.

In fact, actual market transactions may be somewhat more complex than the above example suggests. In particular, A's Federal Funds may have arisen from a transaction with C which was undertaken for the express purpose of entering into a double use transaction. Secondly, if the Federal Funds have been acquired by A in such a manner, the earnings on the loan to B must be sufficient to compensate A for the cost of the original loan. Because of the differential which typically exists between one-day (Clearing House) money and Federal Funds, the loan to B must be made over a period longer than the customary clearing delay for A's repayment to C, thus extending the earning period of the loan to B. Commonly, this means that the transaction must extend over a weekend or a holiday.

The following outline illustrates how these conditions would alter the foregoing examples:

- (1) On Thursday, Bank A borrows \$1,000,000 in Clearing House Funds from Bank C for one day at, say, 9 per cent per annum interest for one day. These funds will become "good" funds, or Federal Funds, on Friday.
- (2) On Friday, Bank A repays the one-day loan from Bank C with a Clearing House check which will not be debited against his account until Monday.
- (3) On Friday, Bank A lends \$1,000,000 in Federal Funds -- which have arisen from the funds borrowed from Bank C -- to Bank B at, say, 3.5 per cent per annum (equivalent to 10.5 per cent per annum for one day), against a Clearing House check drawn by Bank B in favor of Bank A.

- (4) On Monday, Bank A is credited with Bank B's Clearing House check for \$1,000,000 plus the 10.5 per cent interest on Federal Funds in that amount for three days (Friday, Saturday and Sunday). Also on Monday, Bank A is debited with \$1,000,000 plus interest (9 per cent per annum for one day) for the use of Clearing House Funds for one day. The difference between the two interest payments is A's profit on the transactions.

Additional complications of risk and speculation.

The effect of risk and speculation was largely ignored in the simpler examples which have been described. In the last example, however, both of these elements play a much more important role.

First, in the ex ante profit calculations of Banks A and C, there must be a speculative decision about the movement of the Federal Funds rate over the last days of the week and the eventual relative levels of the rates for one-day Clearing House Funds and for Federal Funds. Clearly, Bank A expects there to be a positive earning differential between the two rates; whereas, Bank C does not.

Second, as the length of the period is increased, the risk to A of default by B -- however small it may be -- is increased by the longer transaction period. Moreover, A's own exposure is increased by the longer period: That is, completely independent forces, say, unexpected cash demands, may put his position under pressure, not only on a single day as in the initial examples, but on two days. Should A find it necessary to cover an unexpected deficiency on either of these days, expected profits from the double use transactions would certainly be reduced or even be outweighed by losses on the covering activities.

Finally, as the period of the transactions increases, the opportunity cost of A's remaining uninvested in other alternative

instruments may increase. This risk, however, is common to all financial investment decision, and careful consideration of its many facets would lead this discussion away from its primary concern. Therefore, to simplify the discussion, it is assumed that this risk element is a constant factor among investors and that their differing attitudes toward the profitability of entering into the type of transactions described is more directly dependent on the other risk and speculative factors enumerated above.

Rate differentials and risk evaluation.

It is difficult to estimate the exact value assigned by the investor to the above risk and speculative factors. However, the incomplete equalization of the rates on the two instruments involved in the transactions -- the rate for one-day Clearing House Funds and the rate for three-day Federal Funds -- indicates that an actual basis-point valuation is assigned to them by the prospective investor.

To illustrate this: the theoretical opportunity for profit would always exist in the example given above, for a market in which one-day Clearing House Funds bought on Thursday commanded 9 per cent, if the Federal Funds rate were to remain marginally above 3 per cent. Because of the risk and speculative forces present in the example, however, it is very unlikely that there would be a demand for Clearing House Funds for double use transactions if the expected rate on Federal Funds were to fall below, say, 3.05 per cent. In this illustration the value assignable to these elements of uncertainty would be 5 basis points for 3 days, the minimal margin over the theoretical breakeven

point required to induce market participation in these transactions.

The margin over the breakeven point required by the prospective investors cannot be expected to remain constant, but will vary with the particular set of risk elements at any given time.

Absolute intra-week rate movements.

The introduction of borrowed Clearing House Funds into the picture, may produce an intra-week pattern in rates, since profitable double use of funds may take place only when the earning period on a loan of Federal Funds can be extended to cover the cost of borrowed Clearing House Funds.

Under normal circumstances, the demands for one-day Clearing House Funds for double use transactions will be felt in the market only on Thursday; and, other things equal, such demands would push up the rate for such funds. In a similar fashion, again ignoring other forces, the rate on Federal Funds would tend to ease slightly on Friday as the offers of such funds, arising from the Thursday transactions increased.^{1/}

Arbitrage. Since the availability of Clearing House Funds on Thursday is a function of money market factors largely independent of the opportunities for double use transactions, there is little reason to expect the predictable rate changes arising from double use influences always to be entirely arbitrated out. There are too many forces at work on the overall position of the potential Thursday lender

^{1/} There are, of course, a variety of other, independent, factors influencing the weekly demands and supplies of Federal and Clearing House Funds. For an analysis of a number of these, see The Federal Funds Market - A Study by a Federal Reserve System Committee, Washington, 1959.

of Clearing House Funds to allow him to systematically shift funds to meet the Thursday demands, thereby mitigating any rise in the rate on that day.

Double Use of Funds Utilizing the Foreign Exchange Market - Variation 2.

Since early 1962, a number of foreign banks have found it profitable to engage in double use transactions in the New York money market. These transactions follow much the same pattern used by domestic participants in such transactions, except that the necessary Clearing House Funds are obtained through the foreign exchange market.

General description

A number of variations on the basic transactions used by the foreign banks may be described. In outline, however, the general form of the transaction in the foreign exchange market with two-day value periods (i.e., where payment is made two days later) would be as follows:^{1/}

- (1) On Tuesday, the foreign bank sells foreign exchange, say, sterling, for value Thursday, payment to be made in Clearing House Funds to be deposited to his account with an American bank, Bank A.
- (2) On Wednesday, the foreign bank contracts to repurchase the foreign exchange, value Friday, payment to be made to the purchaser in Clearing House Funds drawn by the foreign bank on his American bank, Bank A.
- (3) On Thursday, the foreign bank contracts -- through an American correspondent -- to "sell" Federal Funds, i.e., debit its account at Bank A, value Friday, to Bank B,

^{1/} Most foreign exchange market trading in the New York market is on a two-day value basis; however, the reader may, if he wishes, also postulate a one-day value period. In such a case, all transactions would occur on Wednesday and Thursday.

against which payment is to be made in Clearing House Funds on Friday by Bank B to the foreign bank's account at Bank A.

- (4) On Monday, the foreign bank's account at Bank A is debited by the amount paid in Clearing House Funds for the foreign exchange on Friday, an amount which is covered by the crediting of the Clearing House Funds paid by Bank B for the Federal Funds.

At the completion of these transactions, the foreign bank has reacquired the foreign exchange originally sold in step (1) above plus whatever profits (or losses) resulted from the transactions.

The actual profits on these transactions will depend on the earnings on the Federal Funds on loan for the three days over the weekend; the losses which may have occurred through a variation in the sterling/dollar rate between the two days, Wednesday and Thursday; the loss of not being invested in sterling assets for one day; and the charges, if any, by Bank A for its services in the "sale" of the Federal Funds for the foreign bank.

Complications of risk and mitigating factors.

Risk. The increased complexities of double use transactions utilizing the foreign exchange market over purely domestic transactions introduce additional risk complications for the prospective investor. As indicated in the foregoing, there are more factors to consider in the actual profit calculation than in the purely domestic transactions.

Whereas in this case the cost element of the bank's borrowing Clearing House Funds to enter the market is eliminated from the calculation, the cost of two exchange transactions, both involving uncertainty, is introduced. In addition there is the more broadly based, complex

opportunity cost of other investment in two markets -- in sterling instruments as well as in other dollar instruments. To these are added the continuing risk of unforeseen cash pressure on the bank's own position, the risk of unfavorable changes in the Federal Funds rate and the lesser risks of default by one of the other parties.

Furthermore, in the above illustration, the time period of the total of the transactions is increased by an additional day over that required for the basic illustration used in domestic transactions. There can be little doubt that the increase of the period required for the transactions will increase the investor's estimate of the risk involved in the transactions. In point of fact, the typical period over which the foreign bank undertakes these weekend transactions begins on Tuesday. This is because of the two-day trading period which is customary in the exchange markets when dealing in the major European currencies.

The general effects of these risk factors on the investor's decision viewed in the light of existing rate differentials are likely to be similar to those described above with regard to domestic double use transactions. Nevertheless, assuming that other factors in the domestic and foreign market were equivalent, it is likely that the increased time period and additional uncertainties in the profit calculation by themselves could increase the investor's minimal required rate spread by more than a simple additive amount equivalent to one-day's differential in the market as a whole.

Mitigating factors. Although the risk element in ex ante profit calculation and in ex post profit realization is considerably

increased in double use transactions utilizing the foreign exchange market, one portion of this risk, and the cost involved, may be limited and specifically known through the simultaneous sale and repurchase of the foreign exchange involved in the transactions, i.e., a market "swap" transaction. By use of such swaps the foreign bank may hedge the risk of unfavorable exchange rate movements at a known cost to its gross profit.

Furthermore, the foreign investor utilizing the foreign exchange market for double use transactions has his original foreign funds available for weekend investment in the relevant foreign money market. Earnings on those assets are, therefore, an additional profit and further offset to any known or unforeseen costs incurred in the primary double use transactions.

Double Use of Funds Utilizing the Euro-dollar Market - Variation 3.

The growth of a market for dollars in financial centers other than New York, the Euro-dollar market, has given rise to the third variation on the double use principle by which funds obtained by banks or other investors in the Euro-dollar market on a one-day loan basis are relent in the market for Federal Funds over the weekend. In essence, therefore, the transactions proceed in a manner nearly identical to that of purely domestic double use transactions. Since such transactions involving the Euro-dollar market are entirely conducted in dollars, there is no exchange risk.^{1/}

^{1/} This variation, however, may be important for its affect on U.S. balance of payments data. See Appendix A.

Double Use Transactions and Rate Behavior in the Foreign Exchange Market.

In the foreign exchange market double use transactions, which have come to be known as mid-week swaps or "Thursday-Friday" business, have a definite and discernible effect on intra-week spot exchange rate fluctuations and at times on forward rates when the value dates coincide with a date particularly favorable for double use activities. These fluctuations may, of course, may be affected by other factors in the market; however, insofar as domestic money market rates, and the Federal Funds rate in particular, are independent of foreign exchange market conditions, it is more proper to consider rate changes in the foreign exchange market arising from double use transactions as independent destabilizing or equilibrating factors in the foreign exchange market. That is, while they themselves are, of course, endogenous variables and are affected by, and dependent on, the complexity of factors operating in the domestic money market and in the exchange market, rate fluctuations arising from double use transactions are probably more important as exogeneous forces in the context of the foreign exchange market.

Observed rate movements -- the example of sterling.

The foreign currency used most frequently for mid-week swaps, or double use, is the pound sterling. The relative size of the market for sterling and the variety and marketability of short-term sterling money market instruments in London are perhaps the major reasons for sterling's primacy in these transactions.

The effects of double use transactions on the sterling exchange rate can be seen in two places: in the intra-week movement of the spot

exchange rate (for either on- or two-day value) and in the relative movement on any given day of the "spot" rate for two-day delivery vis à vis the "spot" rate for one-day delivery.

Intra-week rate movements. By virtue of the usual two-day trading period for sterling, double use transactions are generally initiated on Tuesday. That is, on Tuesday spot sterling is sold against dollars for two-day delivery on Thursday. The dollars than received on Thursday form the basis on Friday for Federal Funds loans by the sterling seller or his agent over the weekend.^{1/}

Other effects aside, the increased supplies of spot sterling for delivery Thursday will depress the sterling/dollar two-day rate on Tuesday, and the one-day rate on Wednesday. As seen in Table 1, however, the effect on the one-day rate on Wednesday is less than the movement of the two-day rate on Tuesday reflecting the relative importance of the two-day value period in the market for sterling.

On Wednesday of each week the two-day spot sterling rate rebounds as a result of the reversal of Tuesday sterling sales. That is, the Tuesday sellers of pounds repurchase them on Wednesday for Friday delivery, thus completing the exchange market transactions of Variation 3. Alternatively, as indicated earlier, both the sale and purchase may take place on Tuesday--the first for two-day value, the second for three-day value--in which case the Wednesday price increases as a result of the reduced supply of Friday sterling (see the following

^{1/} The original seller of sterling in these transactions will in most cases be a foreign bank; however, an American bank holding sterling (or other foreign exchange) balances could also initiate the transactions. Unfortunately, there is little information on the extent to which American banks undertake these transactions.

section). If the transactions in the exchange market were conducted entirely on a one-day value basis, a similar effect could be seen on Thursday's one-day rate.

One-day/two-day rate movements. Double use transactions involving the foreign exchange market generally conducted on a swap basis. That is, in order to minimize the added risk elements in such transactions, the mid-week spot sale of foreign exchange for Thursday delivery is coupled with a simultaneous forward purchase of the foreign currency for Friday delivery. These transactions may all be effected on Tuesday, through a two-day value sale and a simultaneous three-day value purchase, for Friday delivery. In most currencies, this is the form taken by the transactions.

In contrast there is a significant portion of the market for sterling which trades for one-day value. Therefore, it is possible for the swap transactions described above to take place entirely in the "spot" market: the "spot" sale of sterling takes place on Wednesday for one-day value; whereas the purchase portion of the swap also done on Tuesday is made through a "spot" purchase for two-day delivery.

The relative movements in the one- and two-day "spot" sterling rates reflect these transactions. Under normal circumstances, with a higher interest rate spectrum in London than in New York and no other influencing factors at work, the "spot" rate for two-day delivery would be at a discount vis à vis the one-day spot rate; this relationship reflects the "normal" spot/forward rate behavior with interest arbitrage movements under such relative money market conditions.

In the New York market the actual discount between the two-day and one-day spot sterling quotations normally ranges between zero and about three points.

In contrast to this normal pattern, the two-day quotation quite regularly rises to a premium over the one-day rate on Wednesdays. This movement is clearly apparent in Chart 1, in which the differences between the two quotations are plotted.

The relative strength of the two-day sterling "spot" rate on Wednesday appears to be directly the result of double use, or mid-week swaps, transactions. The forces causing the movement appear to be as follows:

- (1) the demands for Friday sterling on the part of Tuesday spot sterling sellers who did not engage in two-day/three-day swaps;
- (2) the demands for Friday sterling on the part of Wednesday sellers of sterling engaging in one-day/two-day swaps;
- (3) the reduced supply of Friday sterling arising from three day sales on Tuesday;
- (4) the supply of Thursday sterling on the part of Wednesday sellers, pushing the one-day rate down;
- (5) the reduced demands for Thursday sterling and the larger supply arising from sales for two-day value on Tuesday.

In short, there tends to be an outward shift in the demand curve for Friday (two-day) sterling with some inward shift of the supply function. For Thursday sterling (one-day) the opposite movements of the supply and demand function tend to prevail. As a

result, the two-day "spot" rate strengthens on Wednesday while the one-day quotation tends to ease, producing a reversal of the normal two-day/one-day rate relationship.^{1/}

Observed rate movements--other currencies.

Dealings in currencies other than sterling in the New York market generally follow the European custom of two-day value periods. The notable exception is the Canadian dollar, for which trading is normally on a one-day basis with some activity undertaken for "cash" or same-day value.

As Table 2 shows, movements in the spot quotations for the Canadian dollar and the Continental currencies are less regular in their intra-week patterns than for spot sterling. Nonetheless, for several currencies -- the Deutsche-mark and the French franc -- there is a discernable pattern of ease on Tuesday followed by relative strength on Wednesday: exactly the pattern which would be expected from double use transactions involving the exchange markets once other influences have been netted out. Similarly, although the pattern is even less pronounced, the spot quotation for the Canadian

^{1/} This phenomenon is not surprising if considered from the viewpoint of interest equalizing arbitrage movements. That is, when consideration is taken of the interest earning possibilities available through double use transactions, the uncovered interest advantage on short-term investments switches in favor of New York. The premium of the two-day rate over the one-day quotation is, consequently, the expected theoretical result of the arbitrage demands. Therefore, although not completely accurate measure, the resultant equilibrium premium of the "forward," two-day, rate on Wednesday may be said to represent the expected average real net yield of the double use transactions to the foreign investors as a whole.

dollar shows a pattern of decline on Wednesday and recovery on Thursday, again in line with what would be the expected movement under the influence of double use transactions.

Double Use Transactions and the U.S. Balance of Payments Statistics^{1/}

The fact that foreign participation in double use transactions through use of the foreign exchange market involves changes in the reported short-term liabilities of U.S. banks to foreigners means that such transactions may influence reported statistics of the deficit or surplus in the U.S. international payments accounts, measured on the liquidity basis.

In the foreign participant's initial object in the foreign exchange portion of the double use transactions is to have a dollar account on Thursday and to return to the foreign currency on Friday by drawing on the dollar account, U.S. liabilities to that foreigner will increase on Thursday and decrease on Friday.^{2/} Whether or not these transactions will have an overall net effect on the total of short-term U.S. liabilities reported by banks depends on with whom the surrounding exchange transactions are made. Two general transactions may be identified:

^{1/} This section deals only with the effects of these transactions on the balance of payments when the transactions involve the foreign exchange market. Double use transactions utilizing funds obtained in the Euro-dollar market are briefly discussed in Appendix A.

^{2/} For a detailed discussion of the recording and accounting procedures surrounding these and other transactions, see Appendix A.

1. If the purchase and sale of dollars by the foreigners were both made with U.S. residents, U.S. liabilities to all foreigners would increase on Thursday, decrease on Friday, and--if the period is considered as a whole-- show no net change over the two days.^{1/}
2. If the purchase and sale of dollars by the foreigner were both made with foreigners, no change in total U.S. liabilities to foreigners would be recorded, although the composition or individual bank reports might change.

Of the two possibilities, the second may be disregarded from the view point of the overall effect on the U.S. payments position. The first, however, can produce significant effects on the U.S. statistics.^{2/}

If the two day period under the first type of transaction can be considered as a whole, there is no net effect on the foreigners' purchases and sale on U.S. short-term liability statistics. The interposition of a month-end, however, can result in a distorted picture of these short-term liabilities reported for the two months. This can happen when the last business day of the month falls on Thursday and the Friday following is also a business day.^{3/} Under

^{1/} In fact, a small change will take place over the two day period, reflecting the discount or premium for the forward exchange and any service, or commission, charges. These are assumed to be zero for this part of the exposition.

^{2/} There are, of course, two other possibilities: (1) the original purchase of dollars by the foreigner is made from a U.S. resident, but the subsequent sale is made to another foreigner; and (2) the original dollar purchase by the foreigner is made from another foreigner, but the subsequent sale of dollars is to a U.S. resident. Both of these cases, however, imply a fundamental change in foreigners' willingness to hold dollars, and analysis of such changes is more properly the subject of another paper.

^{3/} Should the Thursday, the Friday, or both be holidays, the situation will, of course, be modified.

this circumstance, banks reporting their short-term liabilities to foreigners will show a substantial, although in fact very temporary, increase in such liabilities as of month-end. In the succeeding month, indeed on the first day, this increase will be reversed and, if there were no other transactions, would appear as a net monthly decrease in U.S. banks' short-term liabilities to foreigners.

When such months fall at quarter- or year-end, the effect is not only on the single month, but also on estimates of the annual payments and on the actual annual statistics themselves. In 1965, for example, the third quarter ended on a Thursday; and in 1966, both the first and second quarters will end on Thursday. It is likely, therefore, that statistics on the U.S. balance of payments for each of these periods will prove to have been distorted by double use transactions.

Therefore, unlike their relatively straightforward influence on the foreign exchange market, the effects of double use transactions by foreigners on the U.S. balance of payments statistics may be complex-- particularly in view of the strong interest of policy-makers in the attainment of specific goals for the balance of payments. But aside from these essentially political aspects, the distortions pose problems for the economic analyst charged with the task of interpreting payments developments. For example, since 1962 when the use of the foreign exchange market by foreigners for double use transactions became more than a minor factor in the market, there have been only seven months which have ended on Thursday. With such a small population of data from which to draw deductions on the effects of

double use transactions on the size of the deficit, it is clear that any conclusions reached about the effects of these transactions on balance of payments data on the basis of such a sample would be of extremely dubious reliability.

Concluding Remarks.

Double use transactions in the developed money markets have been shown to be the result of certain insitutuional arrangements usually found in such a market. Because of these arrangements, which are in a sense a form of accounting conventions, the opporutnity for added profit through the double use of a given sum of money arises.

While these transactions may occur in a purely domestic context, the size of the New York money market is so large that such activities among entirely domestic participants in the market are swamped by other transactions, making it very difficult to discern any influence of double use activities on rates or the volume of trading in the relevant markets. In contrast, one variation of the basic double use transaction, that in which foreigners utilize the foreign exchange market to allow their participation in double use activities in the U.S. Federal Funds market, can be analyzed in some detail from the viewpoint of effects on rates, the exchange market in general, and on other economic variables, in particular on the statistics of U.S. short-term liabilities to foreigners and the balance of payments.

The discussion of this particular set of transactions has shown that they may have a variety of effects on exchange rates.

Moreover, under crisis conditions with heavy selling pressure on the foreign currency, the risk and profit calculations involved in these double use activities may well be such that they will exert even greater downward pressure of a very temporary sort on the foreign rate. In such cases, central bank activities, particularly by foreign central banks, may be required to resort or further a movement to more "normal" market conditions.

The effects of these transactions on the data of U.S. short-term liquid liabilities are more varied even than the influences on the exchange market. Moreover, barring a case by case study, there is no way by which reliable data may be used to examine the amount and extent of these effects: in general, data are not available; and when available, the aggregate data are not entirely amenable to the type of analysis required. Nevertheless, a careful consideration of the possible major factors at work in these activities, at the times when such effects would come to bear on the balance of payments data, does yield some conclusions of the direction, if not the magnitude, of these effects.

There is little question that the U.S. data are distorted by the exchange transactions surrounding double use activities. Some of these distortions may be of a very temporary nature, depending largely on their timing; others may be more lasting. Some may affect only one month; others may produce distortions in two or more months. Some may act to favor the U.S. position; others may work against it; still others may have no apparent effect at all.

Appendix A

Double use activities in the U.S. money market which are effected in part through the facilities of the foreign exchange or the Euro-dollar market may distort bank-reported data on U.S. short-term liabilities to foreigners and, hence, result in distortion of estimates of the U.S. balance of payments. In order to facilitate understanding of the mechanics of recording double use transactions in the New York market in the more important of these situations, this appendix sets out, in outline form, three sample transactions showing the day-by-day recording of the relevant accounts by the participating banks.

Double Use Transactions Utilizing the Foreign Exchange Market.

Assume that there are four banks involved in the transaction:

(1) a foreign bank, Bank F; (2) the foreign bank's American correspondent, Bank A; (3) an American bank, Bank B, seeking to borrow Federal Funds over the weekend; and (4) another American bank, Bank C, with which F conducts its foreign exchange business.

In an exchange market transaction Bank F has purchased from Bank C \$50,000 in Clearing House Funds against sterling for value Thursday and has brought back the sterling with Clearing House Funds from C, for value Friday.

On Thursday, Bank F's American bank, Bank A, will receive from Bank C a check against Clearing House Funds for F's account. On Friday, C's check will be collected, and C's account at the Federal Reserve Bank will be debited by \$50,000 and Bank A's account will be credited by \$50,000.

On Friday, (1) the foreign bank, F, instructs Bank A to "sell" \$50,000 in Federal Funds to Bank B. Bank A then telephones the Federal Reserve Bank and instructs the Bank to debit A's account by \$50,000 and to credit B's account by that amount. Letters are exchanged later confirming this transaction.

On Friday, (2) in payment for the Federal Funds, Bank B delivers to Bank A by messenger an officer's check for \$50,000 against Clearing House Funds drawn in Bank F's favor.

Finally, also on Friday, (3) the foreign bank, Bank F, pays \$50,000 in Clearing House Funds to Bank C by an officer's check on Bank A which is delivered by messenger to Bank C and receives an equivalent amount of sterling from Bank C or its correspondent in London.^{1/}

On Monday, Bank F's payment to Bank C and Bank B's payment to Bank F are both cleared.

In outline, the banks' accounts would look as follows:

Thursday

Bank C

Foreign Exchange	+ 50,000	Officers' Checks Outstanding	+ 50,000
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Bank A

Cash Items in Collection	+ 50,000	Bank F a/c	+ 50,000
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^{1/} Since same day clearing is usual in London and other foreign centers, Bank F has the sterling available for weekend investment.

Friday

(1)

Bank A

Federal Funds (Sold)	- 50,000	Bank F a/c	- 50,000
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(2)

Bank B

Federal Funds (Bought)	+ 50,000	Officers' Checks Outstanding	+ 50,000
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Bank A

Cash Items in Collection	+ 50,000	Bank F a/c	+ 50,000
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(3)

Bank A

		Officers' Checks Outstanding	+ 50,000
		Bank F a/c	- 50,000

Bank C

Foreign Exchange	- 50,000		
Cash Items in Collection	+ 50,000		

Double Use Transactions Utilizing Borrowed Euro-dollars.

Foreign bank participation in double use transactions may also be effected through their borrowing dollars on Thursday for one day from other foreigners, i.e., in the Euro-dollar market. These transactions appear to have little effect on the foreign exchange market, but they may result in distortions in the U.S. balance of payments data under some circumstances through a double counting of U.S. banks' short-term liabilities to foreigners.

Two examples of double use transactions utilizing borrowed Euro-dollars will illustrate these problems:

- (1) The Euro-dollars are borrowed by the foreign branch of an American bank, and on Friday the resultant Federal Funds are lent to the American home office.
- (2) The Euro-dollar are borrowed by a foreign bank that is not a branch of an American bank.

Assume that three banks participate in the first type of transactions: Bank F, the foreign branch of the American bank; Bank A, the American home office of the foreign branch bank; and Bank B, the foreign bank from which Bank F originally borrows the Euro-dollars.

On Thursday, Bank F borrows dollars for one day from the other foreign bank, Bank B. Bank B instructs its New York branch or correspondent to deliver a check drawn in F's favor against Clearing House Funds to F's home office in New York, Bank A.

On Friday, (1) the borrowed dollars have become Federal Funds and are credited to Bank A's account at the Federal Reserve Bank. These funds are, however, at the disposal of Bank F.

Then, on Friday (2) Bank A buys the Federal Funds from its branch against a check drawn against Clearing House Funds in the foreign branch's favor. However, since there is no need for delay in the presentation of this check for clearing, the account of Bank F is adjusted immediately by the home office and the additional liability to the foreigner is both acquired and discharged on Friday.

Also, on Friday, (3) on instructions from Bank F, the home office, Bank A draws a check against Clearing House Funds in favor of Bank B and delivers the check by messenger to Bank B's correspondent in New York.

On Monday, (4) the check to Bank B will clear.

In outline, these transactions would be recorded as follows:

Thursday

Bank B

Dollar account in N.Y.	- 50,000	
Loan to Bank F	+ 50,000	

Bank A

Cash Items in Collection + 50,000	Bank F a/c	+ 50,000
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Friday

(1)

Bank A

A/c at Federal Reserve	+ 50,000	
Cash Items in Collection	- 50,000	

(2)

Bank A

	Other liabilities to F	+ 50,000
	Bank F a/c	- 50,000

	Other liabilities to F	- 50,000
	Bank F a/c	+ 50,000

(3)

Bank A

	Officers' checks outstanding	+ 50,000
	Bank F a/c	- 50,000

Bank B (or its correspondent in N.Y.)

Cash Items in Collection + 50,000	
Loans to Bank F	- 50,000

Monday

Bank A

A/c at Federal Reserve	- 50,000		Officers' checks outstanding	- 50,000
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Bank B (or its correspondent in N.Y.)

A/c at Federal Reserve	+ 50,000			
Cash Items in Collection	- 50,000			

To illustrate the second example, wherein the foreign bank borrowing Euro-dollars is not a branch of a New York bank, assume that the following banks are involved in the transactions: Bank F, the foreign bank borrowing the Euro-dollars; Bank A, F's American correspondent; Bank B, an American bank seeking to borrow Federal Funds over the weekend; and Bank C (or its New York correspondent), the original lender of the Euro-dollars to Bank F.

On Thursday, the transactions between Bank F, its correspondent, Bank A, and the foreign lender of the Euro-dollars are identical with the corresponding transactions of the preceding example.

On Friday, Bank F instructs its correspondent, Bank A, to sell Federal Funds to Bank B against payment in Clearing House Funds. The procedure for the transfer of the Federal Funds is the same as described above when the transactions involved the foreign exchange market. B's check is delivered by messenger as in the earlier example.

Bank B's recording of the transactions in this case are often different from the practice followed in the previous examples. Instead of discharging the liability to Bank F (through Bank A) when the officer's check is delivered to Bank A, Bank B maintains the liability to Bank F (through A) on its books until the check is actually cleared on Monday.

However, Bank A records the Clearing House check from Bank B as an item in process of collection and correspondingly increases its liabilities to Bank F. Therefore, both Bank A and Bank B carry a liability to Bank F until the completion of the clearing process on Monday, and double-counting enters the bank-reported data on such liabilities to foreigners.

Also on Friday, Banks A, F, and C reverse the original Euro-dollar loan following the same procedures outlined in the preceding examples.

Since the other transactions are similar or identical to those described in previous examples, the following outline of the recording of these transactions is confined to the loan and repayment of the Federal Funds between Bank A (for Bank F) and Bank B.

Friday

Bank A

A/c at Federal Reserve	- 50,000		Bank F a/c	- 50,000
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Bank B

A/c at Federal Reserve	+ 50,000		Liability to Bank F	+ 50,000
			Officers' checks outstanding	+ 50,000

Bank A

Cash Items in Collection	+ 50,000		Bank F a/c	+ 50,000
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Table 1

Daily Sterling Spot Rate Quotations
in the New York Market July-September 1965

Date	Two-day Value	One-day Value	Date	Two-day Value	One-day Value
July 1	279.09	279.24	Aug. 16	279.07	279.10
2	279.09	n. a.	17	279.09	279.09
5	Holiday	Holiday	18	279.12	279.08
6	279.08	279.10	19	279.04	279.13
7	279.15	279.12	20	279.03	279.05
8	279.07	279.15	23	279.07	279.08
9	279.04	279.05	24	279.05	279.07
12	279.09	279.10	25	279.13	279.10
13	279.05	279.06	26	279.04	279.16
14	279.11	279.07	27	279.02	279.04
15	279.04	279.12	30	279.08	279.10
16	279.01	279.02	31	279.08	279.10
19	279.04	279.05	Sept. 1	279.19	279.13
20	279.03	279.04	2	279.10	279.25
21	279.09	279.07	3	279.18	n. a.
22	279.03	279.12	6	Holiday	Holiday
23	279.01	279.11	7	279.21	279.23
26	279.09	279.11	8	279.26	279.22
27	279.12	279.14	9	279.21	279.28
28	279.26	279.22	10	279.43	279.45
29	279.26	279.37	13	279.71	279.72
30	279.19	279.21	14	279.72	279.73
Aug. 2	279.10	279.13	15	279.85	279.81
3	279.15	279.16	16	279.86	279.92
4	279.17	279.14	17	279.84	279.85
5	279.04	279.17	20	279.92	279.93
6	279.02	279.04	21	279.85	279.86
9	279.08	279.12	22	279.96	279.93
10	279.10	279.12	23	279.93	279.99
11	279.16	279.13	24	279.95	279.96
12	279.05	279.13	27	279.95	279.96
13	279.03	279.10	28	279.94	279.95
			29	280.09	280.04
			30	280.21	280.28
			Oct. 1	280.27	280.28

Table 2

Foreign Exchange Rates
July-September, 1965

Date	Canada	Germany	Netherlands	France
July 1	92.31	24.980	27.756	20.410
2	92.30	24.980	27.755	20.410
5	Holiday	Holiday	Holiday	Holiday
6	92.33	24.998	27.753	20.408
7	92.31	24.998	27.763	20.410
8	92.25	24.983	27.771	20.410
9	92.20	24.978	27.763	20.410
12	92.21	24.979	27.765	20.409
13	92.25	24.973	27.768	20.410
14	92.22	24.976	27.775	20.410
15	92.19	24.970	27.768	20.410
16	92.20	24.968	27.773	20.410
19	92.25	24.970	27.770	20.410
20	92.26	24.965	27.770	20.408
21	92.26	24.963	27.775	20.410
22	92.30	24.946	27.773	20.410
23	92.33	24.945	27.775	20.410
26	92.39	24.943	27.768	20.410
27	92.40	24.943	27.763	20.410
28	92.46	24.943	27.770	20.410
29	92.51	24.934	27.763	20.410
30	92.50	24.938	27.764	20.410
Aug. 2	92.43	24.924	27.769	20.410
3	92.53	24.919	27.779	20.410
4	92.55	24.913	27.780	20.410
5	92.59	24.954	27.818	20.410
6	92.59	24.936	27.818	20.410
9	92.63	24.924	27.810	20.410
10	92.60	24.918	27.803	20.408
11	92.75	24.924	27.810	20.410
12	92.79	24.945	27.815	20.410
13	92.76	24.933	27.810	20.410

Table 2 (continued)

Foreign Exchange Rates
July-September, 1965

Date	Canada	Germany	Netherlands	France
Aug. 16	92.83	24.925	27.805	20.409
17	92.85	24.920	27.796	20.408
18	92.79	24.935	27.799	20.409
19	92.78	24.935	27.800	20.405
20	92.70	24.934	27.798	20.406
23	92.78	24.929	27.794	20.405
24	92.81	24.934	27.790	20.405
25	92.85	24.943	27.780	20.410
26	92.90	24.935	27.785	20.410
27	92.89	24.928	27.785	20.410
30	92.95	24.924	27.780	20.410
31	92.96	24.923	27.775	20.408
Sept. 1	93.00	24.934	27.783	20.410
2	92.94	24.919	27.783	20.408
3	92.85	24.919	27.778	20.409
6	Holiday	Holiday	Holiday	Holiday
7	92.90	24.923	27.795	20.408
8	92.93	24.925	27.800	20.410
9	92.96	24.925	27.788	20.408
10	92.89	24.934	27.783	20.409
13	92.90	24.928	27.780	20.408
14	92.89	24.940	27.780	20.405
15	92.87	24.945	27.784	20.410
16	92.87	24.946	27.778	20.404
17	92.87	24.944	27.774	20.405
20	92.90	24.939	27.773	20.404
21	92.90	24.949	27.774	20.405
22	92.94	24.955	27.790	20.410
23	92.90	24.958	27.976	20.405
24	92.92	24.956	27.798	20.405
27	92.92	24.950	27.789	20.403
28	92.95	24.945	27.791	20.400
29	92.95	24.949	27.795	20.399
30	92.93	24.934	27.804	20.393
Oct. 1	92.93	24.935	27.803	20.398

CHART 1

DIFFERENTIALS BETWEEN SPOT STERLING QUOTATIONS, JULY-SEPTEMBER, 1965.

TWO-DAY VALUE LESS ONE-DAY VALUE

