BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

January 31, 1969

CONFIDENTIAL (FR)

TO: Federal Open Market Committee

FROM: Mr. Holland

Enclosed for your information is a memorandum from Mr. MacLaury, dated January 30, 1969, and entitled "Discussion of questions raised by Governor Maisel concerning System foreign currency operations." This is the memorandum to which Mr. Coombs referred in the course of the meeting of the Committee on January 14, 1969.

Robert C. Holland, Secretary,
Federal Open Market Committee.

Enclosure

 SECTION

FEB 3 1969

January 30, 1969.

TO: Federal Open Market Committee

FROM: Bruce K. MacLaury

SUBJECT: Discussion of questions raised by Governor Maisel concerning System foreign currency operations.

At the December 17 meeting of the FOMC, Governor Maisel raised a number of questions concerning System operations in foreign currencies. He wondered whether there had been sufficient discussion of the logic of particular operations, and questioned whether potential conflicts between domestic and foreign operations had been adequately considered by the Committee. He was particularly concerned over a seeming conflict between domestic and foreign goals as reflected in BIS drawings of dollars for placement in the Euro-dollar market at a time when the System was trying to slow reserve expansion and to hold up short-term rates.

At the time the Committee first authorized foreign operations in 1962, much thought and discussion was devoted to the kinds of questions that now concern Governor Maisel. Since then, the Special Manager has sought to keep the Committee informed of foreign developments that have affected, or in his opinion have called for, System operations, as well as of more general policy questions and operational problems. The weekly, monthly, annual, and occasional special reports to the Federal Open Market Committee have tried to present, without burdening the Committee with excessive detail, an adequate discussion of market developments and of the reasons for System operations. If there are areas in which Committee members would like further information, the Trading Desk would welcome such guidance.

Although there have been several occasions when the pressure of exchange market events did not permit the Special Manager to give the Committee much if any advance notice of requests for policy action, such emergency requests have mainly been confined to proposals to enlarge previous authorizations rather than to approve new operational techniques. Proposals relating to new techniques have normally been discussed in an advance memorandum to the Committee, and when emergency action on a proposal has been needed, a written discussion has been provided for subsequent evaluation.

The two Committee managers--domestic and foreign--must necessarily operate within a different guidelines framework for their respective areas of responsibility. Whereas the Manager is normally expected to maintain a limited set of variables within certain ranges specified by the Committee, the Special Manager is expected to do what he can within the limits set by the Committee to defend the dollar in the exchange markets. The closest analogy between the two types of operations would be the Manager's instructions to prevent disorderly conditions in the domestic financial markets. The so-called "dynamic" aspects of money market operations have no direct counterpart on the foreign side. Given this fundamental difference in the responsibilities of the two managers, and the difficulties in foreseeing what may specifically be needed in "defense of the dollar," it would be impractical if not impossible to make the two directives comparable. The variety and size of operations that may suddenly be required in any four-week period--and the very defensive nature of these operations--

argues strongly against overly specific instructions to the Special Manager. Indeed, the very fact that important decisions on whether or not to intervene, or to permit the use of a swap line, must be taken without warning, has dictated the form of the authorizations under which the Special Manager operates on behalf of the Committee.

With reference to Governor Maisel's general concern whether the Committee had given adequate consideration to the question of potential conflicts between domestic and foreign operations, there is no doubt that System foreign exchange operations can have, and in some cases have had, an impact on bank reserves, the Treasury's cash position, and domestic short-term security markets. It is precisely this link that underlies the close coordination between the two trading desks at the New York Federal Reserve Bank. In practice, however, the number of occasions on which System foreign operations have posed a problem for the securities trading desk have been few, and in these few instances the Manager has been able to offset any domestic impact within a few days at the most.

In considering the question of possible conflict between domestic and foreign operations, it is essential to keep in mind two sorts of distinctions: first, between System exchange operations on the one hand, and on the other, dollar flows into and out of foreign central bank accounts at the New York Bank unrelated to System operations; second, between the differing effects on U.S. bank reserves of various System exchange operations. For example, sizable transfers of dollars between foreign central banks, or between a given foreign central bank and private commercial banks, can result in very large secu- urity transactions in this market for account of foreign central banks. But such transactions are an inevitable concomitant to the role of the dollar as a reserve and international transactions currency, and do not result from System foreign exchange operations as such. Thus, the huge flows of funds first into and then out of Germany in November and December resulted in equally large shifts of dollars between German commercial banks' dollar accounts in the Street and the Federal Bank's account at the New York Federal Reserve. These transactions, which on a number of days amounted to several hundred millions of dollars, posed problems for the securities desk in first investing and then disinvesting for the Federal Bank's account. Even in this case, where the transactions in themselves were not related to any operations by the Federal Reserve, arrangements were made with the Federal Bank for a very flexible conduct of their operations in order to avoid any undue influence on domestic markets. (While flows such as these have no effect on the reserves of the U.S. banking system, except as a result of the large within-the-day shifts of dollars between various U.S. banks, they can create difficulties for the securities trading desk. For this reason, the Foreign Department has been in touch with a number of foreign central banks, including the German Federal Bank, to arrange special handling of their investments, and to insure early advice of large movements of dollars in their accounts.)

With respect to the second distinction, it is the case that some types of foreign exchange operations by the Federal Reserve affect bank reserves and some do not. For example, any drawing by a foreign central bank on its swap arrangement with the Federal Reserve results in an injection of reserves into the banking system if the foreign central bank uses the dollars to meet its exchange commitments and the dollars are transferred to accounts in the Street. The same holds true if the foreign central bank draws dollars and places the proceeds in a Treasury certificate of indebtedness, since the Treasury's balances at this Bank are increased and its calls upon member banks correspondingly reduced. Banking reserves are also increased in the case of BIS drawings on its line with the Federal Reserve for placement in the Euro-dollar market.

On the other hand, when the Federal Reserve draws on its line with a foreign central bank, there is normally not any addition to reserves in the banking system. In most instances the Federal Reserve immediately uses the foreign exchange to buy back the same amount of dollars as were created in the process of drawing. Only in those rare cases of System drawings to hold or to sell in the exchange market at a later date, or to provide cover for outstanding forward contracts, is there reserve creation. In a recent instance, however, when the System drew marks to cover forward mark commitments, the Special Manager requested that the German Federal Bank hold the dollars in a non-interest-bearing deposit with the Federal Reserve, thus in effect sterilizing them at a time when it was undesirable to add to member bank reserves. This is but one example of the efforts made, and the generally cooperative response by foreign central banks, to avoid conflicts between foreign and domestic operations whenever possible. The Federal Reserve, in turn, makes every effort to minimize the impact of its operations on the money markets of its foreign partners, operating in all instances through the foreign central banks concerned.

Without discussing at length every type of exchange operation engaged in by the Federal Reserve, one can nevertheless say in general that System purchases of spot foreign exchange in the market result in net additions to bank reserves, while sales of spot exchange absorb reserves. On the other hand, forward market transactions have no immediate impact on domestic monetary policy variables. Of course, if exchange is sold forward and subsequently covered spot before the maturity date of the forward contract, the covering purchase adds to member bank reserves. These various relationships are indicated in the following table:

(Table on following page)

Table A

Classification of System Foreign Exchange Operations
and Effects on Member Bank Reserves

Transaction*	Effect on Bank Reserves: Directly through member bank's holdings at F.R.		Effect on Bank Reserves: Indirectly through Treasury cash position**
1. Spot market purchase	adds		
2. Forward market purchase	no effect (unless covered by spot sale) until delivery date; then effect like spot purchase		
3. Market swap involving spot purchase	adds during period outstanding		
4. System draws on swap line			
(a) holds foreign exchange**	adds	- or -	adds
(b) uses exchange to purchase dollars			
1. from other central banks***	subtracts		adds
2. from market	subtracts		adds
5. Other central banks or BIS drawing on swap			
(a) holds the dollars**	adds	- or -	adds
(b) puts dollars into exchange or Euro-dollar market	adds		

* Sales or reversals of the indicated transactions would have the opposite effects on bank reserves from those shown in table or noted in footnote reference **.

** Provided the central bank's dollar proceeds are <u>not</u> held in special sterilized accounts at FRBNY, but are invested either in special Treasury C's of I or Treasury bills; if the central bank's dollar proceeds are held in the form of Treasury bills, as in the case of System drawings on the Swiss National Bank and BIS, the impact falls directly on member bank reserves at the Federal Reserve rather than on the Treasury cash position.

*** Except in case of Swiss franc operations, where there are no effects.

The bulk of System foreign operations to date have taken the form of foreign central bank drawings on the System or Federal Reserve drawings on other central banks in the network, rather than in spot or forward exchange market transactions, here or abroad. Operationally, the area of greatest potential conflict between domestic and foreign operations lies in the scope and timing of drawings on the Federal Reserve by other central banks, since Federal Reserve drawings, though affecting the Treasury's cash position, do not normally affect bank reserves. The relevant question therefore is whether, at any given moment in time, the Federal Reserve would refuse the request of a foreign central bank to draw on its line by reason of the effect such a drawing would have on member bank reserves. It has been the long-standing view of the Committee that availability of the swap lines to a foreign central bank should be unconditional. As a practical matter, our swap partners must know whether they can rely on their line or not; there is little time for discussion once the foreign central bank is having to support its currency and is paying out dollars. In practice, the size of foreign drawings, large as they have been at times, has not been more than the domestic trading desk could offset--for the most part immediately--through open market operations.* So long as the availability of the swap line is unconditional, the reserve consequences of foreign drawings

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* The ability of the domestic trading desk to offset the reserve impact of foreign operations is increased by the fact that such operations normally take place for value two days after the transaction date.

are one of the operating factors that the Manager for domestic operations has to take into account in determining the size or direction of his own operations in any given day or week. They thus fall in the category of changes in Treasury cash balances, changes in float, and changes in currency in circulation. The offsetting transactions in government securities are of the so-called "defensive" variety with which the Manager must contend all the time.

Since foreign exchange operations involving the System occur within the framework of a policy directive by the FOMC, it may at first appear odd that these operations, so far as the reserve effects are concerned, fall in the same category as such items as float. It is easier to see this relationship, however, if one recalls the essentially short-term nature of System's foreign exchange operations and the fact that these operations are in response to developments in the exchange market, the reserve effect of which is an unavoidable byproduct.

Even within the context of essentially passive factors affecting reserves, there is the helpful fact that many foreign operations reinforce rather than conflict with transactions by the domestic Manager. For example, foreign operations tend to grow in size during periods of seasonal pressure, especially around year-end; thus, to the extent that these operations usually add to bank reserves during that period, the size of domestic security purchases, say, in December, to offset the increase in currency outside the banks is lessened.

With respect to Governor Maisel's specific question concerning Federal Reserve operations in the Euro-dollar market, it is true that drawings of dollars by the BIS for placement in the Euro-dollar market are in a somewhat different category from those of central banks and should be and have been considered against the background of domestic monetary considerations. For this reason, there has been particularly close coordination between the two managers with respect to such operations by the BIS. Drawings by the BIS are never undertaken without the specific approval of the Federal Reserve and are directed to the objective of minimizing disturbances in the Euro-dollar market at times of seasonal pressure and/or international crises.

The Federal Reserve first became involved in Euro-dollar placements through the BIS in December 1966. Previously, however, representatives of the System had urged a number of foreign central banks to rechannel dollars to that market at times of stress or seasonal pressure in order to minimize dislocations in that market and mitigate possible pressures on other currencies. The United States authorities in fact had provided forward cover in a number of currencies, including the Swiss Franc, Dutch guilder, and Italian lira, in order to facilitate just such operations. Helpful as this rechanneling by foreign monetary authorities has been--and it has increasingly become a routine operation--there were times when it was not sufficient to prevent a rapid run-up of rates at a moment of peak demand or sudden withdrawal of deposits. Under such circumstances, it seemed desirable to have available a supplementary source of dollars that could be placed temporarily in the market, particularly if it appeared that the stringency in the Euro-dollar market was creating special problems in the exchange market. The already existing swap facility between the Federal Reserve and the BIS in European currencies other than Swiss francs provided the means for such intervention.

In practice, the Federal Reserve has placed funds in the Euro-dollar market through the BIS on six occasions since December 1966 for a cumulative total of $891 million:

1. In December 1966 (approaching year-end) for a total of $200 million;

2. In June 1967 (at the time of the Arab-Israeli war), $143 million;

3. In October-November 1967 (before the sterling devaluation), $79 million;

4. In December 1967 (after the devaluation and prior to year-end), $278 million;

5. In June 1968 (approaching mid-year), $111 million;

6. In December 1968 (approaching year-end), $80 million.

In each instance the motivation for Federal Reserve operations hinged on the dual considerations of sharply rising rates in the Euro-dollar market and actual or potential pressure on sterling. In the appendix attached is a summary of the circumstances under which each series of operations was carried out, noting explicitly the movements in Euro-dollar rates, sterling exchange rates, and the British reserve position prior to, during, and after the Euro-dollar intervention through the BIS. The summary shows that Euro-dollar operations by the Federal Reserve have only been initiated when Euro-dollar rates were rising and the pound was under pressure, as reflected either in a weakening of spot and forward rates for sterling or in the magnitude of Bank of England support operations.

There is no precise way of measuring the effectiveness of System Euro-dollar intervention, but it is noteworthy that during each series of interventions, sometimes even on the first day of intervention, the rise in Euro-dollar rates halted. In the December 1966 and both of the June operations, there was a clear turnaround in the one-month rate shortly after the operations were initiated. In the other cases, the one-month Euro-dollar rate steadied during the period of operations, subsequently to rise or fall as other influences took precedence.

As to the effects on sterling, in all but the October-November predevaluation operations, the Bank of England was able to recoup some of its earlier dollar losses, with gains beginning during or shortly after the intervention period. Again, one cannot prove that Euro-dollar operations helped cause the reversal (which was often only temporary), but the effect of the intervention was probably to lessen the magnitudes of U.K. reserve losses at the time, and/or to hasten the recouping of previous losses. At least this is the view of market observers at the Bank of England as well as those on the New York trading desk.

With respect to the effects of System Euro-dollar operations on member banks' reserves, there is no unique relationship. For example, while any drawing by the BIS on its swap facility creates new dollars and new reserves in the United States banking system, the net effect is somewhat different (1) if the BIS places the funds with European banks whose deposits with their United States correspondents rise (increasing required reserves) or (2) if the BIS places the dollars with the European branch of a United States bank for use by head office (in which case there is no such rise in required reserves). Moreover, since System Euro-dollar placements have been initiated with a view to insulating sterling from pressures from that market, it is reasonable to argue that in the absence of such placements drawings by the Bank of England under its swap arrangement with the System might have been increased by an equal or larger amount.

The most important point with respect to the possible conflict between System Euro-dollar operations and domestic monetary policy goals, however, is that to date such operations have not interfered with System policy. This is so because:

1) the Euro-dollar operations have been of short duration and thus have had little impact on the sweep of policy over longer periods;

2) the size of the operations has been small in relation to other "market" factors (such as float, currency in circulation, and Treasury operations); and

3) more often than not such operations have occurred during the months of June and December when System open market operations are normally geared to supplying reserves in any case.

As indicated above, Euro-dollar placements through the BIS have been initiated only to meet short-term stringencies in that market. In point of fact, except for the $68 million placed (for two months) in November 1967, all of the Euro-dollar placements by the BIS under these arrangements have been for one-month maturity. None of the swap drawings was ever rolled over but instead was repaid either when the placement matured or, on a number of occasions, prior to maturity.

So far as the actual impact of Federal Reserve financed Euro-dollar operations on United States bank reserves is concerned, Table I indicates the relative importance of various factors during the most recent period of operations in December 1968. It is clear that the effect of the Euro-dollar operations was swamped by such other items as the increase in float and the running down of Treasury balances (reflected in "Treasury operations"). Thus, on this occasion, although open market operations were geared to the absorption of large amounts of reserves at a time when Euro-dollar placements were adding to reserves, the effect of the latter on the former was so small as to be insignificant. The relative unimportance of these operations is reflected in another way in Table II, which shows the effects of BIS swap drawings on reserve projections, as developed in the Securities Department, on the days when the drawings were first incorporated into the projections for the next two statement weeks.

Table III summarizes the relationships among Euro-dollar operations, other foreign currency operations, total market factors, and open market operations for all of the periods during which Euro-dollar operations were conducted. On two occasions (December 1967 and June 1968) the reserve effects of these operations were more than offset--as chance would have it--by repayments of drawings by foreign central banks. More significant is the fact that during the months of June and December, when the Euro-dollar operations have tended to be bunched, the System's open market operations are normally geared to supplying reserves. For example, in the past four years, open market operations have supplied reserves each June, with increases of \$145 million to \$729 million, and each December by from \$413 million to \$1,090 million.* The October-November 1967 operations also occurred when the System was supplying reserves. Thus, BIS drawings on the swap line for purposes of intervening in the Euro-dollar market have more often supported than interfered with System open market operations, though this relationship does not necessarily show up in any particular set of statement weeks.

* These figures related to full months and are not comparable to statement weeks shown in Table III.

The fact that BIS Euro-dollar operations have not caused any serious difficulties for open market operations to date does not, of course, preclude the possibility that such operations might pose potential problems in the future. The only insurance against such conflict lies in the close coordination between domestic and foreign operations of the New York Reserve Bank, and in the continued awareness by the Managers of the potential for such conflict.

Table I

MEMBER BANK RESERVES, RESERVE BANK CREDIT, AND RELATED ITEMS
(Millions of dollars)

	Changes in daily averages-- week ended on: Dec. 11 1968	Dec. 18 1968
"Market" factors		
Member bank required reserves	- 29	-311
Operating transactions (subtotal)	+385	+831
Federal Reserve float	+351	+657
Treasury operations*	+406	+121
Gold and foreign account	- 8	- 1
Currency outside banks	-306	-233
Other Federal Reserve accounts (net)-/-	- 58	+287
Memorandum items:		
BIS drawings for Euro-dollar Placement	+ 14	+ 13
Total Federal Reserve foreign currency operations	- 37	+ 79
Total "market" factors . . .	+356	+520
Direct Federal Reserve credit transactions		
Open market instruments		
Outright holdings:		
Government securities	-797	-722
Bankers' acceptances	-	- 1
Special certificates	+ 13	+326
Repurchase agreements:		
Government securities	- 28	-
Bankers' acceptances	-	-
Federal agency obligations	- 1	-
Member bank borrowings	- 97	+139
Other loans, discounts, and advances	-	-
Total	-909	-258
Excess reserves	-553	+262

*Includes changes in Treasury currency and cash.
-/-Includes assets denominated in foreign currencies.

Table II

CHANGES IN PROJECTIONS OF FACTORS AFFECTING RESERVES
(From new information on BIS swap drawings and
on other "market" factors)
(millions of dollars)

	Projections for statement week ended:	
December 9 Projections		
	Dec. 11	Dec. 18
Changes in reserve projection from December 6 due to:		
BIS swap drawing ($50 million)	+ 14	+ 50
Other "market" factors	+ 8	+146
	+ 22	+196
December 16 Projections		
	Dec. 18	Dec. 25
Changes in reserve projection from December 13 due to:		
BIS swap drawing ($30 million)	+ 13	+ 30
Other "market" factors	+153	-234
	+166	-204

Table III

Summary of factors tending to
increase (+) or decrease (-) member bank
reserves during periods (by statement weeks)
in which Euro-dollar placements were being made
by the BIS for the Federal Reserve
(millions of dollars; in daily averages, except
where otherwise noted)

	December 1966 Three wks. ending 12/7-12/21	June 1967 Two wks. ending 6/7-6/14	December 1967 Four wks. ending 12/6-12/27	June 1968 Two wks. ending 6/26-7/3	December 1968 Two wks. ending 12/11-12/18
Total "market" factors	- 90	+189	-744	-1,227	+ 876
Memorandum items:					
BIS drawings for Euro-dollar placement (amount outstanding at end of period)	+200	+143	+346**	+ 111	+ 80
Effect on average reserves in individual week of each drawing	(+ 85 (+ 8 (+ 5	(+ 15 (+ 63	(+ 33 (+ 49 (+ 51 (+ 4	(+ 1 (+ 94	(+ 14 (+ 13
Effect on reserves for the two or more weeks inclusive	+151	+ 78	+219*	+ 51	+ 39
Other Federal Reserve foreign currency operations	- 8	+112	-410	- 588	+ 3
Federal Reserve open market operations	+ 13	-134	+602	+1,272	-1,028
Total reserves	+666	+135	+1,029	+ 249	+ 248

* Includes $151 million from December operations and $68 million of two-month placements made in November, prior to sterling devaluation.

** Total December operations were $278 million. An intervention for $11 million on October 20 matured prior to December operations and is not shown in table. Otherwise table shows all operations to date.

APPENDIX

Summary Review of Euro-dollar Placements by BIS Out of Funds Drawn from Federal Reserve, and Circumstances Surrounding These Placements, Six Separate Occasions 1966-1968

1. December 1966 Operation - year-end squeeze

BIS Euro-dollar intervention, in millions, on

11/30	$ 50
12/1	45
12/2	55
12/5	10
12/9	20
12/12	20
	$200

Movements in one-month Euro-dollar rate at that time:

- sharp rise (4 1/2 to 6 3/4 %) in prior two weeks.
- rise halted, narrower fluctuations (6 1/8-3/4%) during operation.
- further fluctuation followed by decline after year-end.

Sterling rate movements:

- spot rate moving narrowly above $2.7910; three-month forward discount fluctuating in 0.50-0.75 per cent per annum range.
- spot rate dipped below $2.79 on November 29, and fluctuated narrowly around that figure throughout December, forward discount continued fluctuating narrowly.
- spot rate firmed late in January, and forward discount then widened marginally (keeping within one per cent per annum, however).

Bank of England exchange operations:

- took in some dollars on swap basis after mid-November.

- supported both spot and forward sterling (by about $90 million and $65 million, respectively, between November 29 and December 6) at time Euro-dollar operation initiated; in later phase of E$ operation (to December 13), Bank of England gained dollars ($165 million outright spot and $32 million on a swap basis).

- occasional activity on both sides through year-end, netting a modest gain after December 13.

2. June 1967 operations - Arab Israeli War

BIS Euro-dollar intervention, in millions, on

6/2	$ 29
6/5	49
6/7	65
	$143

Movements in one-month Euro-dollar rate:

- a distinct rise after May 24, from 4 1/2% to 5 5/16 on June 2.

- rate peaked at 5 3/4 on June 6 and fluctuated narrowly below 5 1/2% through the next ten days or so.

- one-month rate only 1/8 - 1/4 of a per cent below three-month rate throughout.

Sterling rate movements:

- spot rate dipped from $2.7950 level at end of May; forward discount moved narrowly in 0.50-0.70 range.

- spot rate troughed at about $2.79 on June 6; firmed to $2.7925 level by June 9; forward rate steady.

- spot rate declined again later in June, falling clearly below $2.79 in early July, with forward discount moving to 0.25-0.50 range.

Bank of England operations:

- gaining modest amounts of dollars in last ten days of May, through outright spot and market swap takings.

- loss of $136 million in spot and $104 in forwards during period June 1-5; recovery on June 6-7 of $200 million spot and $12 million in market swaps.

- heavy reserve drains eventually leading to devaluation soon developed.

3. October-November 1967 Operations - sterling in extremis

BIS Euro-dollar intervention, in millions, on

10/20	$ 11
11/10	68
	$ 79

Movements of one-month Euro-dollar rates:

- between 4 1/2 and 5% during October-early November period; operations took place at around 5%.

- rates rose strongly after devaluation (see next section).

Sterling rate movements:

- final days of $2.80 parity, with spot rate close to $2.7825 most of time and three-month forward discount held to less than 2% per annum by heavy Bank of England support.

Bank of England operations

- heavy losses in spot and forward market, particularly at the two points in which Euro-dollar intervention took place (both were Fridays).

4. December 1967 operations - post-devaluation and year-end.

BIS Euro-dollar intervention, in millions, on

11/30	$ 38
12/7	87
12/8	29
12/11	23
12/12	21
12/13	18
12/14	34
12/21	28
	$278

Movements in one-month Euro-dollar rate:

- rates fluctuating narrowly in 4 3/4-5% range in November up to sterling devaluation, then rose sharply after devaluation, reaching 6 3/4% on November 27.

- operations began on November 30 and continued through December 21, during which E$ rate held generally in 5 7/8-6 11/16 range.

- rate tapered off after Christmas.

Sterling rate movements:

- spot sterling at ceiling after devaluation but weakened to $2.4130 on December 4; three-month forward discount, around 1 1/4% after devaluation, widened in early December, passing 2% on December 6.

- spot sterling troughed at just above $2.40 on December 18 and then gradually rose into January; forward discount reached as much as 4.75% that same day and only after Christmas moved back below 3%.

Bank of England operations:

- large reserve gains after devaluation began to taper off quickly, so that by end-November the Bank of England had not even recovered the amount lost on the last day of $2.80 parity.

- no intake at all in first days of December; nearly $175 million lost between December 6 and December 11; and, after some small gains, another $180 million lost in December 15-18.

- reserve gains of $10-60 million almost daily after Christmas and into first half of January.

5. June 1968 - mid-year squeeze.

BIS Euro-dollar intervention, in millions, on

6/25	$ 36
6/26	75
	$ 111

Movements in one-month Euro-dollar rate:

- running 6 1/2-7% for most of June, with tendency for short end of Euro-dollar maturities to rise relative to longer term, so that one-month rate occasionally above three-month rate.

- one-month rate jumped to 7 3/16 on June 24 and E$ operations initiated next day, when rate backed to 7%.

- rate receded subsequently, particularly after July 1, reaching 6% by July 10.

Sterling rate movements.

- spot rate fell below $2.3850 on June 20 and fluctuated thereafter in $2.3825-40 range through month-end; forward discount widening from about 4 1/4% on June 21 to 5 1/4% on June 28.

- rate turnaround occurred on July 8, when Basle sterling balance package announced.

Bank of England operations.

- spot gains earlier in month, stopped by June 19; loss of $100 million on June 25 (when E$ operation initiated) and another $175 million on June 28; series of daily reserve gains started on July 8.

6. December 1968 - year-end squeeze

BIS Euro-dollar intervention, in millions, on

12/6	$ 50
12/12	30
	$ 80

Movements in one-month Euro-dollar rate:

- rose from about 6 1/4 to above 7% in last days of November.

- operation initiated on December 6 when rate reached 7 3/8.

- rate dropped somewhat below that level for following two weeks.

Sterling rate movements:

- spot rate ranging $2.3840-50 in first days of December, but dropped to $2.3829 on December 5; forward discount widened from about 3% to 4.67 in same period.

- spot rate recovered somewhat to fluctuate around $2.3850 level after initiation of E$ operation. Forward discount continued to widen strongly, to 6.90% on December 11, and then narrowed to around 4% by December 17.

Bank of England operations:

- a series of reserve losses early in December with $150 million lost on December 6 alone and some $365 million lost in period December 5-10. Recovery of much of this on December 11-12, when $270 million taken in (when good U.K. figures were announced for previous month).