# Treasury and Federal Reserve Foreign Exchange Operations*

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The shock effects on international financial markets of the cut in the sterling parity from $2.80 to $2.40 on November 18, 1967 dramatically illustrated some of the reasons why the British government, the Bank of England, and monetary authorities throughout the world had fought for the previous three years to stave off such a devaluation of the pound. Without the strenuous effort made by the Labor Government to defend the $2.80 parity by severe domestic restraint programs, reinforced by foreign financial support, sterling might have collapsed in disorder long before, with far more damaging repercussions on world trade and finance.

As it was, the decision of the British government last November to reinforce its program of shifting resources from domestic to export uses by a moderate devaluation of sterling was a deliberate, careful judgment based on prospective balance-of-payments trends. The very choice of the new $2.40 parity, a rate cut which provided a fully adequate stimulus to British overseas trade without simultaneously forcing any other major currency into a competitive depreciation, was in itself evidence of the remarkable development of international financial cooperation in recent years.

Much advance thinking had, of course, been done on the damage-control measures that would be required in the event of a devaluation of sterling, and there was an immediate closing of the ranks among the major industrial countries. By the end of the first week after the devaluation of sterling, a series of official announcements had made it clear that no other major currency would follow.

As expected, however, the sterling devaluation triggered heavy speculative buying on the London gold market and massive flows of funds across the exchanges. To deal with these problems, the governors of the central banks of Belgium, Germany, Italy, the Netherlands, Switzerland, the United Kingdom, and the United States convened in Frankfurt on November 26, 1967. As noted in their subsequent communiqué, they "took decisions on specific measures to ensure by coordinated action orderly conditions in the exchange markets and to support the present pattern of exchange rates based on the fixed price of $35 per ounce of gold".

In addition to continuing operations in the London gold market, the Frankfurt meeting approved a number of specific new measures designed to deal with the dangerously heavy flows of funds into central bank reserves that had been set off by the sterling devaluation. These included agreement on a massive expansion of the Federal Reserve swap network, from $5,030 million to $7,080 million. Most of the increases in individual swap lines were negotiated and announced within a few days' time. Thus strengthened, the Federal Reserve swap network readily accommodated sizable additional drawings by the Federal Reserve in order to absorb flows of "hot" money into the reserves of member central banks in the network. By late December 1967, such Federal Reserve drawings had risen to a record level of $1,791 million, of which $650 million was in Swiss francs drawn from the Swiss National Bank and the Bank for International Settlements (BIS), $500 million was in Italian lire, $350 million in German marks, $170 million in Dutch guilders, and $121 million in Belgian francs. These drawings were made in the expectation that much of the heavy flow of funds to continental European central banks would be reversed, as the shock effects of the British devaluation began to wear off and

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the United States took measures to protect the dollar. On January 1, President Johnson announced a drastic program to improve the United States payments balance. Reflows of funds out of continental European currencies subsequently developed in heavy volume, enabling the United States authorities to make very sizable paydowns on their short-term commitments. In addition to such reflows, the United States Treasury drew $200 million of continental European currencies from the International Monetary Fund (IMF) and issued $166 million of foreign currency securities. As a result, by early March the debt to foreign central banks incurred by the Federal Reserve had been reduced by $1,234 million to a currently outstanding level of $557 million. As noted in Table I, Federal Reserve swap commitments outstanding as of March 8 consisted of $325 million in Italian lire, $132 million in Swiss francs, $65 million in Dutch guilders, and $34.5 million in Belgian francs.

Among the increases in the Federal Reserve swap network announced shortly after the British devaluation was a rise in the swap line with the Bank of England from $1,350 million to $1,500 million. In addition to this $150 million increase in the Federal Reserve credit line, new facilities totaling over $1,350 million were also secured by the Bank of England from the United States Treasury and various foreign central banks. Such reinforcement of the defenses of the new sterling parity was deemed desirable in view of the heavy Bank of England recourse to the Federal Reserve and other credit lines (including temporary accommodation from time to time by the United States Treasury) to cope with reserve drains prior to devaluation. In the case of the Federal Reserve swap line, sizable Bank of England drawings had been necessary from the Middle East war until the final speculative onslaught on the Friday preceding devaluation. During this period, the entire $1,350 million then available was used, with a large drawing on the last day of the $2.80 parity. Since then, the Bank of England has repaid $300 million, thus leaving available $450 million under the Federal Reserve swap line. There were no other foreign central bank drawings on the Federal Reserve swap network during the period under review except for a $250 million drawing made by the Bank of Canada at the end of January in order to offset the effects of speculation primarily engendered by the announcement on January 1 of the United States balance-of-payments program.

Other major developments during the period under review included sizable operations in the forward markets by the German Federal Bank, the Swiss National Bank, the Netherlands Bank, and the National Bank of Belgium, in a number of instances acting on behalf of the Federal Reserve and United States Treasury. In fact, one of the major decisions at the Frankfurt meeting was a coordinated launching of central bank operations in the forward market, specifically designed to induce reflows into the Euro-dollar market of hot money which had gone into continental European financial markets in the wake of the sterling devaluation. During November and December, such forward operations by the German Federal Bank rose to a total of $850 million, while similar forward operations by the central banks of Switzerland, the Netherlands, and Belgium, on behalf of the Federal Reserve System and the United States Treasury, not only helped to arrest speculative inflows to these markets, but also provided cover for roughly $115 million of placements abroad.

Even as the rush of speculative capital flows was subsiding, however, the approach of the year-end window-dressing period produced new, heavy inflows of short-term funds to continental European markets. As in previous years, however, a joint central bank effort was undertaken to maintain orderly conditions in the Euro-dollar market by rechanneling such funds back to the market. Reinforcing

**Table I**

**FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENTS AND COMMITMENTS**

| Institution | Amount of facility March 8, 1968 | Federal Reserve commitments | | |
|---|---|---|---|---|
| | | September 1, 1967 | December 27, 1967 | March 8, 1968 |
| | Millions of dollars | Millions of dollars equivalent | | |
| Austrian National Bank | 100 | | | |
| National Bank of Belgium | 225 | 120.0 | 120.8* | 34.5 |
| Bank of Canada | 750 | | | |
| National Bank of Denmark | 100 | | | |
| Bank of England | 1,500 | | | |
| Bank of France | 100 | | | |
| German Federal Bank | 750 | | 350.0 | |
| Bank of Italy | 750 | | 500.0 | 325.0 |
| Bank of Japan | 750 | | | |
| Bank of Mexico | 130 | | | |
| Netherlands Bank | 225 | 20.0 | 170.0† | 65.0 |
| Bank of Norway | 100 | | | |
| Bank of Sweden | 200 | | | |
| Swiss National Bank | 400 | 173.0 | 250.0 | 77.0 |
| Bank for International Settlements: | | | | |
| Swiss francs/dollars | 400 | 200.0 | 400.0 | 55.0 |
| Authorized European currencies/dollars | 600 | | | |
| Total | 7,080 | 513.0 | 1,790.8 | 556.5 |

* Peak commitment of $150 million reached on November 13, 1967.
† Peak commitment of $185 million reached on January 4, 1968.

Table II

OUTSTANDING UNITED STATES TREASURY SECURITIES
FOREIGN CURRENCY SERIES

Millions of dollars equivalent

| Issued to | Amount outstanding on December 31, 1966 | Issues or redemptions (—) | | | | | Amount outstanding on March 8, 1968 |
|---|---|---|---|---|---|---|---|
| | | 1967 | | | | January 1-March 8, 1968 | |
| | | I | II | III | IV | | |
| Austrian National Bank | 50.3 | | | | | | 50.3 |
| National Bank of Belgium | 30.2 | | — 30.2 | | 60.4 | | 60.4 |
| German Federal Bank | 350.7 | | | 125.5 | 124.9 | 124.9 | 726.1 |
| Bank of Italy | 124.8 | | | | | | 124.8 |
| Netherlands Bank | -0- | | | | | 65.7 | 65.7 |
| Swiss National Bank | 210.9 | | | | | 100.1 | 310.7 |
| Bank for International Settlements* | 92.6 | | 60.2 | | | | 151.8 |
| Total | 859.5 | -0- | 30.0 | 125.5 | 185.3 | 290.7 | 1,489.8 |

Note: Discrepancies in amounts are due to valuation adjustments, refundings, and rounding.
* Denominated in Swiss francs.

these efforts by the European central banks to avoid undue year-end pressure in the Euro-dollar market, the BIS, at the suggestion of the Federal Reserve, drew dollars on its swap line with the System for placement in the market. By the year-end, BIS drawings stood at $346 million. In response to such smoothing operations, the Euro-dollar market continued to function efficiently, with no more than a normal seasonal rise in rates. In the aggregate, such central bank operations designed to avert potentially disruptive strains in the Euro-dollar market during the devaluation and pre-year-end period totaled approximately $1.4 billion. By March 8, the Federal Reserve and the Treasury had reduced their forward currency liabilities in connection with these various operations from $115 million to $60.4 million equivalent.

During the period under review, the Treasury increased its foreign-currency securities indebtedness by $476.0 million, to $1,489.8 million equivalent (see Table II). In order to fund some of the short-term Treasury and System commitments, the Treasury sold a two-year $60.4 million note to the National Bank of Belgium, a twelve-month $65.7 million certificate of indebtedness to the Netherlands Bank, and a fifteen-month $100 million note to the Swiss National Bank. The Treasury used most of the Dutch guilders to help meet special swap commitments with the Netherlands Bank, maturing in January, and sold the Belgian franc, Swiss franc, and the residual Dutch guilder proceeds to the System for System liquidations of swap commitments in those currencies between November and March. In addition, the Treasury issued to the German Federal Bank the second and third of four scheduled 4½-year $125 million notes denominated in German marks. These notes have been issued quarterly since last July to the German Federal Bank in conjunction with the agreement between the United States and German governments regarding the offsetting of $500 million of United States military expenditures in Germany.

Apart from the issuance of foreign currency securities, the United States acquired certain Continental currencies in connection with drawings on the IMF. When Canada drew $426 million equivalent of convertible currencies from the IMF in late February, arrangements were made among the respective Canadian, American, and European authorities so that the German marks, Italian lire, Belgian francs, and Dutch guilders (together the equivalent of $150 million) in the package could be employed to reduce United States official foreign currency commitments. On March 8, the United States Treasury itself drew $200 million of continental European currencies from the IMF, and the balances so acquired were used to make further liquidations of existing commitments.

## STERLING

During the first quarter of 1967, sterling staged a strong recovery from the speculative onslaught suffered during the summer of 1966. Unexpectedly good balance-of-payments figures for the fourth quarter of 1966 encouraged hopes

that the progressive curbing of inflationary pressure during the preceding two years might finally enable the Labor Government to close the payments deficit. The London money market regained a competitive edge in attracting international short-term funds as credit conditions in foreign financial centers eased considerably. Spurred by these favorable developments on both trade and capital account, a surge of short covering heavily swelled market demand for sterling, and the Bank of England made exceptional reserve gains. By the end of March, the exchange inflow had enabled the Bank of England to liquidate completely $1.3 billion of international credits previously received from the Federal Reserve and other foreign financial authorities, while remaining central bank credits linked specifically to changes in sterling overseas balances were paid off early in the second quarter.

After this auspicious beginning, unfortunately, the tide began to swing against sterling with gradually cumulative force. Shortly after the announcement on May 4 of the third cut in the bank rate since the beginning of the year, from 6 per cent to 5½ per cent, Euro-dollar rates began to firm and covered interest rate comparisons which had tended to favor London earlier in the year started to turn adverse. Even more disturbing were indications that Britain's foreign trade account was lapsing into new difficulties. The announcement on May 11 that the British trade deficit had jumped from $36 million in March to $115 million in April was followed a few days later by President de Gaulle's sharply negative comments at a press conference on Britain's application to join the Common Market. By mid-May these and other adverse developments had eroded the earlier recovery of confidence and brought the influx of exchange to a standstill.

In this vulnerable situation, new heavy burdens were suddenly thrust upon sterling by the Middle East war that flared up in the week of June 4. On June 1, market expectations of an imminent outbreak of hostilities in the Middle East sparked a burst of selling of sterling. Such apprehension of war affected sterling not only directly but also indirectly through the Euro-dollar market, where precautionary withdrawals of funds and the usual pressures associated with midyear window dressing combined to create a sudden squeeze and a sharp hike in rates. These dual pressures were immediately met by a coordinated central bank response in both the exchange and Euro-currency markets. On June 1 the United States authorities, in consultation with the Bank of England, purchased a total of $92.9 million of sterling in the New York market on a swap basis, buying spot against forward sales. That same day the BIS began placing in the Euro-dollar market new dollar funds drawn under its swap arrangement with the Federal Reserve. (See section on Euro-dollar market for details.) As war broke out, the United States authorities temporarily took another $20 million of sterling out of private hands through additional swap purchases in New York. With the cessation of actual hostilities, covering by the market of short positions in sterling boosted the spot rate from a low of $2.7900 on June 6 to $2.7932 on June 7 while permitting the Bank of England to recoup its losses of the preceding few days.

As the month progressed, however, market anxieties were aggravated by rumors of major withdrawals of sterling by Arab countries. In the latter part of June, reports of shifts of Arab-held sterling balances to Paris triggered heavy selling of sterling, and the Bank of England extended substantial support in holding the rate at just under $2.7900. The market had also become concerned over the probable adverse consequences for the British balance of payments of the Suez Canal closure, and the announcement at midmonth of disappointing trade figures for May created still more apprehension. Finally, the pull of foreign interest rates, particularly during a brief squeeze in the Euro-dollar market at the end of June, exerted further pressure. To cushion the reserve impact of these developments, the Bank of England drew $225 million during June under its $1,350 million swap arrangement with the Federal Reserve.

This swap drawing enabled the Bank of England to cut its June reserve loss to $120.4 million, but announcement of this figure early in July nevertheless confirmed to the market that sterling had once more come under pressure. During the month, outflows of short-term funds continued for reasons of confidence and for higher yields abroad. At midmonth, announcement of a further widening of the trade deficit in June touched off heavy sales of sterling, and by the end of July the spot rate had declined to $2.7858.

The mid-August announcement of a sharp swing in the United Kingdom trade balance in July—to a small surplus from a large deficit the month before—provided a brief respite from the continuing pressures on the pound. Moreover, market concern over the risk of a breakdown in intergovernmental discussions of international liquidity was relieved after it was announced on August 26 that an agreement along general lines had been reached by the Group of Ten, and that a plan to strengthen the international monetary system would be ready for submission to the IMF at its annual meeting in September. Nevertheless, short-term outflows persisted on balance, and the Bank of England drew a further $425 million on the Federal Reserve during the third quarter, bringing its commitments under the swap line to $650 million.

The rearguard action being fought by Bank of England

officials in the exchange markets became progressively more difficult and costly in October and November. In mid-October, it was reported that Britain's September trade balance had deteriorated sharply to a deficit of $146 million, the largest in fifteen months. As expected, the Suez Canal closing had raised the cost of fuel oil imports, but the trade figures also appeared to indicate a weakening trend in exports. The outbreak in late September of a strike on the Liverpool docks, which subsequently spread to London, raised justifiable fears that exports might show even sharper declines in October, and market confidence in sterling deteriorated sharply. Even more important, the unremitting selling pressure on sterling since the Middle East war had fanned into lively debate long-smoldering doubts held by many responsible publications and private individuals, both in the United Kingdom and abroad, as to whether the $2.80 parity was economically viable. In this debate, the basic government policy of seeking to shift domestic resources into exports by restraining domestic demand came increasingly under attack. In the eyes of the market, the lagging recovery of exports, the rise in unemployment, and the decision of the British government to ease instalment credit controls in late August increasingly suggested that a policy impasse had been reached.

These market fears were translated into a heavy wave of selling of sterling, in both the spot and forward markets, during the first two weeks in October. Despite heavy intervention by the Bank of England, the sterling rate by October 12 had dropped to $2.7824. In an effort to reassert official determination to hold the parity and to reduce the still-continuing covered incentive in favor of the Euro-dollar market, the Bank of England raised its discount rate by ½ percentage point to 6 per cent on October 19. The British rate action was immediately supported by the BIS which, in agreement with the Federal Reserve, made placements of funds in the Euro-dollar market by drawing on its swap facility with the System, in an effort to prevent a rise in Euro-dollar rates from offsetting rate increases on sterling money market instruments. But market reaction was one of disappointment that the British bank rate had not been raised a full percentage point, and heavy sales of sterling resumed, requiring very sizable intervention by the Bank of England in both the spot and forward markets that same day. In an effort to stabilize sterling quotations in New York, the United States Treasury initiated purchases of sterling at rates just under $2.7830. These operations, eventually involving total purchases of $47.1 million equivalent, continued through Monday, October 23, and seemed to help calm the market somewhat during the final week of October.

The announcement on November 2 of a $75.6 million reserve gain for October, after taking credit for a loan of $103 million equivalent from Swiss commercial banks, was brushed aside by a market which had become increasingly persuaded that a devaluation of sterling was imminent. Sales of sterling in pre-weekend trading were heavy, and on November 9 the Bank of England, for the second time in three weeks, raised its discount rate by another ½ percentage point to 6½ per cent. Once again the BIS backed up this move with operations in the Euro-dollar market by additional drawings on the Federal Reserve swap line.

The announcement on November 14 that the trade deficit in October had jumped to $300 million equivalent, the largest ever recorded, dramatized the disastrous effects of the dock strike and very nearly extinguished any remaining hopes in the market that the $2.80 parity could be held. At this critical juncture, however, rumors began to circulate that negotiations were in progress for sizable new international credits to tide the United Kingdom over its difficulties once more. If a new credit package had in fact materialized, the grossly oversold position of sterling might have led to massive short covering such as had occurred in late 1965 and again in early 1967. Accordingly, traders began to hedge their exposed positions in sterling, and on Thursday, November 16, short covering pushed the sterling rate to $2.7848. That afternoon in London, however, Chancellor Callaghan refused in Parliament to confirm or deny that such negotiations were in progress. Financial markets throughout the world immediately concluded that the last hope of a turnaround in the sterling situation had disappeared. On the next day, Friday, the market was inundated by offers of sterling in the expectation that a decision to devalue that weekend had already been taken. To help meet the avalanche of offerings of sterling, the Bank of England, which had already made further use of the Federal Reserve swap line, drew the remainder available under this arrangement, bringing the total amount outstanding to $1,350 million.

On Saturday, November 18, Chancellor Callaghan announced the British government's decision to devalue the pound by 14.3 per cent to $2.40. In order to stiffen the defense of the new parity, the Bank of England raised its discount rate to 8 per cent per annum (the highest level in fifty-three years) and redirected bank credit toward exports, while the government announced curbs on consumer instalment credit and programmed cuts in government spending and an increase in the corporation tax. The Prime Minister set as the target of his government's policy a major improvement in the country's balance of payments designed to bring the external accounts into substantial surplus by the second half of 1968. A $1.4 billion standby

agreement with the IMF was formally requested. In addition, the British government reported that negotiations for an additional $1.5 billion of central bank credits were in progress.

When markets in London reopened on Tuesday, November 21, after a special bank holiday on Monday, trading was hectic as banks and commercial interests scrambled to purchase or borrow sterling to meet immediate- and near-term requirements, including maturing forward sales undertaken earlier. The demand for pounds pushed sterling firmly against its new upper limit ($2.4200), and the Bank of England made large dollar gains. Such abnormally heavy demand for sterling to meet immediate cash commitments soon faded, but the Bank of England continued to buy dollars on a moderate scale.

As in earlier periods of recovery the Bank of England used its gains to reduce short-term debts, repaying $300 million to the Federal Reserve. Bank of England commitments under the $1,350 million credit line, which had been fully utilized to help meet pressures prior to devaluation, were thereby reduced by the end of November to $1,050 million. On November 30 the reciprocal currency arrangement with the Bank of England was increased to $1.5 billion, along with the other increases in the System's swap network.

Market atmosphere changed abruptly in early December—in view of a British railway labor dispute and higher United States interest rates—and the spot rate for sterling declined sharply. The market took no special notice of the announcement of a $127.2 million reserve gain during November, reflecting incorporation into the reserves of the $490 million remainder of the United Kingdom dollar portfolio. (In November, the authorities also announced that the $250 million debt repayment falling due on Britain's 1964 IMF drawing had been repaid, with the reserve impact offset by a new credit from central banks and the United States Treasury.)

Despite subsequent mediation of the railway difficulties, the market remained uneasy, and by December 7 the spot rate had moved below $2.4100. Prior to the Christmas holidays, however, the market quieted and sterling took on a firmer tone. After the long Christmas holiday, there were reports that the British government was planning sizable cuts in welfare and defense-spending programs to backstop its devaluation package, with details scheduled for release in mid-January 1968. These cuts were duly announced on January 16, and although their major impact was not to take effect until 1969-70, as Britain would phase out its military operations east of Suez, a significant reduction in programmed spending—by some £300 million—was scheduled for this year. The trade figures for both December and January showed major improvements over the pre-devaluation deficits while export orders were reported to be on an encouraging uptrend. Toward the end of January the sterling rate moved firmly above $2.4100, and during that month and February there was a steady demand for sterling that enabled the Bank of England to liquidate a large volume of maturing forward commitments.

Reviewing the sterling devaluation and its aftermath in an address to the Overseas Bankers Club in early February, Governor O'Brien of the Bank of England noted:

> Those who so readily advocated devaluation before we had made any attempt to apply other correctives had scant regard for our obligations abroad, for the risks entailed for ourselves and others, and for the harsh medicine which must be taken to make devaluation work. All these things are now being made abundantly clear. Those who thought devaluation was a soft alternative to strict internal policies have been disabused.

### SWISS FRANC

The Swiss National Bank's dollar holdings rose sharply in May and early June, as funds poured into Switzerland prior to and during the crisis in the Middle East. In order to absorb these heavy inflows, and further moderate gains by the National Bank near the end of June, the Federal Reserve took on commitments of $390 million under its Swiss franc swap facilities—$190 million from the Swiss National Bank and $200 million from the BIS—out of credit facilities then totaling $400 million.

The heavy inflows to Switzerland left Swiss commercial banks in a highly liquid position, and after midyear there was an easing in Swiss interest rates. To reinforce this trend, the National Bank reduced its discount rate from 3½ per cent to 3 per cent on July 10. Although there was some immediate outflow of funds from Switzerland, there were no sizable offerings of Swiss francs as the exchange market atmosphere remained highly uncertain. Under the circumstances, with the System's Swiss franc lines almost fully utilized, it was agreed in mid-July that these swap facilities with the National Bank and the BIS should each be expanded by $50 million to $250 million. By the end of July, the only repayment made on the System's Swiss franc swap drawings was $10 million equivalent acquired by the Federal Reserve as a result of Swiss official needs for dollars; thus, outstanding commitments stood at $380 million equivalent.

As the exchanges settled down in August, there was some further shifting of funds out of Switzerland into the

Euro-dollar market, and by late August the rate for the franc had eased considerably. Short-term outflows from Switzerland continued through early November and kept the spot Swiss franc close to the low for 1967 ($0.2301½) reached on September 12. Although the Swiss National Bank did not have to supply any dollars to the market during this period, the Federal Reserve was able to make some progress in liquidating its Swiss franc swap commitments, as a substantial amount of dollars was required by Swiss official agencies during the fall. In order to replenish dollar balances sold to the Swiss Government, the National Bank purchased a total of $57 million from the Federal Reserve. The System used the francs so acquired to reduce its outstanding swap commitments to the Swiss National Bank to $123 million by mid-November.

The growing pressures on sterling in early November were quickly reflected in an increase in the rate for spot francs. In addition, the Swiss money market was tightened by the payment of the $103 million equivalent Swiss franc loan granted to the United Kingdom government by three large Swiss commercial banks. With continuing international uncertainties and the approach of the year-end, the franc rate advanced further. Despite the turbulence in the exchanges in connection with the devaluation of the pound on November 18, the Swiss National Bank purchased only a small amount of dollars in market intervention during the rest of the month. As a consequence of unrest in the exchange market, however, the premium on the forward Swiss franc then widened, and following the Frankfurt meeting of Gold Pool members the Swiss National Bank, as part of the general cooperative effort, indicated to the market its willingness to sell forward francs on behalf of the United States authorities. This move helped restore a calmer atmosphere and the premium on three-month forward Swiss francs dropped substantially below 2 per cent per annum, the premium prevailing just before the Swiss National Bank's offer to sell forward francs.

In November, the System purchased from the Bank of England $80.1 million equivalent of the Swiss franc proceeds of the one-year loan by Swiss commercial banks. (The United States Treasury also purchased $14.3 million equivalent of the loan proceeds and used the francs to pay off the remainder of an earlier sterling-Swiss franc swap with the BIS.) The System used the francs, together with a small amount in balances and $4 million equivalent purchased from the National Bank in connection with Swiss government needs, to reduce swap drawings from the BIS to $115 million by November 30. By the end of that month, total Federal Reserve commitments under its Swiss franc swap lines were thus reduced to $238 million.

Heavy inflows to Switzerland resumed on December 1, and during the first half of the month the Swiss National Bank purchased about $350 million as the Swiss financial community prepared for its year-end liquidity needs. In past years these inflows had been accommodated on a swap basis by the National Bank, but in view of the tense international monetary situation the Swiss banks were reluctant to enter into such swap transactions. Indeed, not only was the spot franc in demand but the premium on the forward franc again widened, especially during the midmonth flare-up in the gold market. To deal with this pressure, on December 14 the Swiss National Bank initiated forward sales of Swiss francs jointly for Federal Reserve and United States Treasury accounts. A total of $65.5 million equivalent of forward francs was sold by December 19, before the market responded to this evidence of official reassurance and the demand for both spot and forward francs eased. Thereafter, a more normal trading pattern emerged, and Swiss commercial banks began to make use of the usual year-end swap facilities offered by the National Bank to obtain additional Swiss franc liquidity.

In order to increase its capacity to deal with the heavy inflows to the Swiss National Bank, the Federal Reserve, after discussions with the Swiss National Bank and the BIS, increased its Swiss franc swap facilities by $150 million equivalent each on December 15, bringing each credit line to $400 million. The Federal Reserve subsequently drew $127 million on the Swiss National Bank, raising Swiss franc commitments to that institution to $250 million equivalent. The System also drew $285 million on the BIS, thus fully utilizing that $400 million Swiss franc credit line.

After the turn of the year, and following the President's balance-of-payments message on New Year's Day, there was a sharp reversal in the market as Swiss commercial banks moved to rebuild their dollar investments. By mid-January outflows from Switzerland had become quite large. The spot rate dropped sharply, and the National Bank extended sizable support in the spot market. The bank covered its losses from exchange market intervention by purchasing dollars from the Federal Reserve, which used the Swiss francs, together with moderate amounts purchased in the market and obtained in special transactions, to reduce its swap obligations in Swiss francs by $343 million. Moreover, early in March the Federal Reserve was able to pay off an additional $175 million of its drawings on the BIS and the Swiss National Bank through Treasury issuance of a $100 million equivalent Swiss franc security and the purchase of $75 million equivalent of Swiss francs from the Swiss National Bank. The Swiss National Bank simultaneously purchased $25 million of gold from the United States Treasury. These transactions brought the System's outstanding

Swiss franc commitments to $132 million, a reduction of $518 million from the peak at the end of 1967.

In addition, the United States authorities were able to pay off at maturity the first $10 million of forward sales of Swiss francs concluded by the Swiss National Bank for the accounts of the System and the United States Treasury late in 1967, leaving $55.5 million still outstanding, divided evenly between System and Treasury accounts.

### GERMAN MARK

Germany's international position maintained in the second half of 1967 the strength that had characterized the first six months of the year. With relatively slack domestic demand continuing through most of the year, the trade account remained in surplus, and for the year as a whole the current-account surplus reached $2.4 billion. Had the foreign exchange earned as a result of this surplus flowed into official reserves rather than remaining in private hands, the stresses in the international credit markets and the exchanges during the summer and fall months would have been immeasurably greater. The huge surplus was not permitted to put pressure on international financial markets, however, as the German authorities acted throughout the year to avoid any massive increase in official reserves. By maintaining an easy monetary policy, the German Federal Bank not only stimulated the regeneration of domestic economic growth during the latter part of the year but also facilitated very large outflows of capital, both long- and short-term funds, into the Euro-dollar and other markets.

During the early fall months, Euro-dollar rates firmed up, and there was some refinancing in German marks of maturing Euro-dollar credits. But the principal result of easier monetary conditions in Germany continued to be further placements of funds abroad by commercial banks. As a result, the spot mark traded narrowly just below par through October. The Federal Reserve took advantage of occasional offers of spot marks in New York to build up balances, and between August and early November purchased $20.1 million equivalent of marks.

On November 3, the growing uneasiness in the sterling market and a tightening in the German money market were reflected in repatriation of funds by German interests and a consequent sharp strengthening in the spot quotation for marks. The demand for marks intensified on November 7, as growing speculation in the gold and exchange markets spawned wide-ranging rumors of imminent changes in currency arrangements, including an upward revaluation of the mark. In the ensuing heavy buying of marks the German Federal Bank purchased a total of $57 million as the spot rate advanced to $0.2512½. A flat denial by the German authorities of any intention to revalue led some speculators to cover their positions, and the spot mark eased slightly.

This burst of demand for marks had no sooner died down than another wave of buying developed, partly reflecting the massive selling of sterling on Friday, November 17. The heavy demand was repeated the following Friday, when the intense pressures in the London gold market led to further precautionary repatriations of German funds from abroad. During this period the German Federal Bank took in nearly $300 million. The market atmosphere changed abruptly, however, when on November 26 the active members of the Gold Pool met in Frankfurt and pledged concerted support of the existing exchange parities based on the $35 gold price. As part of the coordinated central bank effort to calm the exchange markets following the Frankfurt meeting, the German Federal Bank acted to return dollars to the market on a swap basis in transactions with German commercial banks, selling dollars spot against repurchase at a later date. These operations relieved the developing stringency in the Euro-dollar market resulting from the earlier heavy withdrawals of funds and helped cut the covered incentive to move additional funds out of dollars as a result of the wide premiums then being quoted on the forward mark (nearly 3 per cent per annum for three-month maturity, by November 24). Initially, the swap facilities were offered to the German commercial banks at rates representing a premium on the forward mark of 1¾ per cent per annum; this rate provided an incentive of close to 1 per cent per annum to switch funds into Euro-dollar investments. By November 30, about $600 million had been shifted from official reserves to private holders at premiums on the mark ranging up to 2¼ per cent. Euro-dollar rates responded immediately by moving sharply lower. The Federal Reserve participated in this operation by drawing $300 million equivalent of German marks on its swap line with the German Federal Bank, to this extent providing cover for part of the dollars purchased forward by that bank.

Apart from these operations, at the end of November the Federal Reserve drew $50 million equivalent of marks under the swap line and held the marks for possible direct market intervention related to prevailing uncertainties and expected year-end pressures. (On November 30, as part of a general strengthening of the swap network, the swap facility with the German Federal Bank was increased by $350 million to $750 million.) Demand for marks began to grow in mid-December, as heavy speculative pressures again struck the London gold market and there was a renewed heavy inflow of funds to the German Federal Bank.

When the backwash of these demands spilled over into the New York exchange market on December 15, the Federal Reserve sold some $7 million equivalent of the marks drawn for market operations.

The heavy inflows into Germany resulting from market uncertainties proved considerably larger than necessary to meet German commercial banks' usual year-end needs, in good part because the German Federal Bank had assisted the banks in arranging for such mark liquidity in advance by selling them a large amount of money market paper scheduled to mature in mid-December. Moreover, it also became apparent that the earlier heavy selling of dollars had depleted the German banks' investment portfolios. By December 21, with the German money market becoming quite liquid and the exchanges returning to a more normal atmosphere, funds began to flow back into Euro-dollar investments.

As German commercial banks bid strongly for dollars on a covered basis, the German authorities sold an additional $250 million on a swap basis, before raising the swap rates offered to the banks, and permitted the spot mark to move lower. By the end of the year, outflows from Germany had offset the German Federal Bank's dollar gains earlier in December. In the last few trading days of the year the spot mark moved still lower, and the Federal Reserve began buying to replace the small amount of marks sold from the earlier $50 million swap drawing. By January 5, 1968 the System's balances had been fully reconstituted and the swap was repaid in advance of maturity.

Demand for dollars in Germany continued through the first two months of 1968. Part of the outflow of funds reflected the usual seasonal pattern, but more significant was the fact that the German economy still was not absorbing all the liquidity available in the domestic market, and the German commercial banks again were investing very sizable excess funds in the Euro-currency and other markets. As a result, the supply of German marks in the exchange market increased substantially and the Federal Reserve purchased marks in New York almost continuously through January and February, using them to reduce its swap drawings on the German Federal Bank. By the end of February the System had purchased sufficient marks to repay fully its $300 million swap commitment, thereby restoring the full $750 million facility to a standby basis. In the currency packages put together by the IMF for the Canadian and United States drawings late in February and early March, Germany supplied a total of $100 million equivalent of marks. Under arrangements worked out with the various parties, the Federal Reserve purchased these marks and sold them to the Bank of Italy, against lire (using the lire to repay part of the System's swap obligations in that currency).

During the period under review, the German Federal Bank continued its purchases of special United States Treasury medium-term securities denominated in German marks, in conjunction with the German government's agreement to offset part of the cost of stationing United States troops in Germany. The first of four equal quarterly purchases of $125 million was made on July 3, the second on October 2, and the third on January 5, 1968, bringing the outstanding total of such special United States Treasury notes denominated in German marks to $375 million equivalent. As a result the total of all mark-denominated Treasury securities rose to $726.1 million equivalent.

### ITALIAN LIRA

In 1967, the Italian balance of payments was in surplus by some $325 million, representing a further reduction from surpluses of $700 million in 1966 and $1.6 billion in 1965. During the course of 1967, however, this trend was reversed, perhaps only temporarily, as the surplus widened significantly in the second half. Thus, for the first six months through June, the accounts were actually in deficit by $220 million (compared with a $280 million surplus for the first half of 1966). This deficit—which in part reflected unusually heavy Italian investments in the Euro-bond market—was financed largely by a running-down of Italian commercial bank net short-term assets abroad rather than by a reduction in official reserves. Over the course of the summer, when tourist receipts are a strong factor for Italy, there emerged an official reserve buildup well in excess of usual seasonal gains. Even after seasonal demands receded, Italian official reserves continued to increase in October and early November, and the gain for the second half of the year amounted to nearly $500 million.

This renewed surplus was largely unexpected, given the buoyant demand in Italy that had been swelling imports and the sluggish rate of expansion in northern European economies that had been exerting a drag on Italian exports. Indeed, the impressive trade performance may indicate that Italy's recent strong record of relative price stability is beginning to show through in increased competitiveness in European and other markets. In addition to a stronger than expected trade account, Italian long-term capital outflows tapered off in the second half of the year and, like other countries, Italy was affected by developments in the sterling market through a sizable repatriation of funds.

Under the circumstances, between September 19 and November 30, the Federal Reserve drew a total of $500

million equivalent of lire, using the lire to absorb dollars from the Italian official reserves. (With the $600 million swap facility almost fully utilized, the System and the Bank of Italy agreed in late November to increase their arrangement by $150 million to $750 million; this was part of the general move to strengthen the swap network.)

Late in the year, delayed seasonal outflows finally began to emerge. The lira rate declined somewhat in December and even further in early January 1968, when adverse seasonal influences were reinforced by market concern over possible reductions in United States tourist and other expenditures in Italy as a result of the United States payments program. Nevertheless, the spot rate remained above par, and outflows from Italy were insufficient to permit liquidation of United States commitments in lire. In late February-early March, the Federal Reserve purchased some $75 million equivalent of lire from the Bank of Canada and from the United States Treasury in connection with the Canadian and United States drawings from the IMF. From the same drawings, the Federal Reserve was able to acquire $100 million equivalent of German marks which it converted into lire. These transactions enabled the System to reduce its swap obligations to the Italian authorities by $175 million equivalent to $325 million equivalent.

Federal Reserve and Treasury commitments in forward lire, which had arisen in connection with dollar-lira swaps the Bank of Italy has extended to its commercial banks, were rolled over during the period in review; in addition, the Treasury added a moderate amount to its forward lira commitments.

#### DUTCH GUILDER

Relatively tight money market conditions in Amsterdam during the spring of 1967 induced Dutch commercial banks to repatriate funds from abroad in order to strengthen their liquidity in guilders. The Netherlands Bank dealt with this inflow by purchasing a substantial amount of dollars on a swap basis (i.e., against resale forward), thus avoiding a large buildup in its net dollar holdings. These operations built up rapidly in May and rose to a peak of $150 million in early June.

At that point, the Middle East crisis and related pressures on sterling generated further demand for guilders. As funds flowed into the Netherlands the spot rate rose sharply and the central bank took in dollars outright as well as on a swap basis. To cushion these pressures, the Federal Reserve reactivated its swap facility with the Netherlands Bank, drawing $10 million of guilders on July 26 and $10 million more before the end of the month.

Further inflows to the Netherlands continued intermittently through the fall months, reflecting firmness in the Amsterdam money market, an improvement in the Dutch balance of payments, and repatriations of Dutch money from London. The resulting increases in the dollar reserves of the Netherlands Bank were taken over by a series of Federal Reserve drawings on the swap facility until the full $150 million line had been utilized by November 13.

The exchange market turbulence arising out of the devaluation of sterling and subsequent speculation in the gold market was accompanied by further heavy inflows of funds into the Netherlands. These speculative influences also were reflected in the forward market, where the premium on the guilder reached nearly 2 per cent per annum for three-month maturities. Joining in a concerted central bank effort to restrain such speculation, on November 23 the Netherlands Bank initiated forward sales of guilders on behalf of the Federal Reserve and the United States Treasury. Most of these forward sales were part of swap transactions—i.e., spot purchases of guilders against resale at a later date—designed to return dollars to the international markets while at the same time curbing the risk that the wide forward premium on guilders might stimulate further inflows. By November 29, when $37.5 million equivalent of forward guilders had been sold, speculative pressures eased sufficiently for operations to be discontinued. Meanwhile, in order to absorb the heavy inflows to the Netherlands Bank during November, the Federal Reserve Bank of New York executed temporary swap drawings of guilders on behalf of the United States Treasury, and by the end of November Treasury commitments under these *ad hoc* arrangements were $126 million. Such swap drawings by the United States Treasury, combined with already outstanding Federal Reserve drawings of $150 million under the regular swap line, lifted the United States swap debt in guilders to $276 million equivalent.

Buying of guilders was small and sporadic during early December, but a tightening of the money market in Amsterdam in the latter part of the month produced more substantial inflows. Just before the year-end, commercial demand for guilders boosted the spot rate to $0.2782¼ and the Netherlands Bank purchased a further sizable amount of dollars. The Federal Reserve swap line with the Netherlands Bank meanwhile had been increased to $225 million, and by January 4 an additional $35 million equivalent had been drawn, raising the System's drawings to a peak of $185 million.

Shortly after the year-end, the money market in Amsterdam began to ease and the spot guilder softened as Dutch commercial banks started to move excess funds back into

the Euro-dollar market. In mid-January, outflows from Amsterdam were sufficiently large for the Netherlands Bank to provide support for the guilder. The Netherlands Bank then restored its dollar position through purchases from the Federal Reserve Bank of New York acting for account of the United States Treasury. Through these transactions the Treasury obtained $23 million equivalent of guilders, which were used to reduce Treasury commitments under its swap with the Netherlands Bank to $103 million.

These outflows from the Netherlands were short-lived, however, and the Federal Reserve was able to make only a modest start in repaying its commitments outstanding under the swap with the Netherlands Bank. Accordingly, on January 29 the United States Treasury issued to the Netherlands Bank a twelve-month certificate of indebtedness denominated in guilders equivalent to $65.7 million. The Treasury used $55.7 million equivalent plus a small amount in balances to reduce its swap commitments to $47 million. The Federal Reserve purchased the balance of the guilders and used them to reduce its swap indebtedness to the Netherlands Bank to $165 million.

On February 21 the Treasury repaid its remaining $47 million equivalent of swap commitments to the Netherlands Bank with guilders purchased from that bank. The Netherlands Bank in turn then purchased $23.5 million in gold from the Treasury. Shortly afterward, Canada made its drawing from the IMF; included was $30 million equivalent of guilders, which the Bank of Canada converted to United States dollars through the Netherlands Bank. This reduced the Dutch dollar position enough for the United States authorities to purchase sufficient guilders to liquidate the $37.5 million in forward contracts (entered into last November) maturing in late February and early March. Finally, the United States Treasury drawing from the IMF included $100 million equivalent of guilders, which were used by the Federal Reserve to make a further reduction on its swap obligation with the Netherlands Bank. As of March 8, the swap debt of the Federal Reserve to the Netherlands Bank was thus reduced to $65 million.

### BELGIAN FRANC

During the early part of 1967, the surplus in Belgium's current international payments kept the franc at or near its upper intervention point. To absorb these inflows, the Federal Reserve reactivated its swap line and by early June had drawn a total of $37.5 million. Shortly afterward, however, Belgian government dollar needs enabled the System to purchase francs and reduce its swap commitment to $27.5 million as of the end of June.

Demand for Belgian francs intensified in July and August, partly as a consequence of the continuing Middle East crisis and the growing pressure on sterling. In order to absorb dollars purchased by the National Bank of Belgium through early September, the Federal Reserve drew $97.5 million equivalent of francs under its swap facility, bringing commitments in Belgian francs to $125 million equivalent. Later in the month, Belgian government requirements for dollars again enabled the Federal Reserve to purchase francs from the National Bank and reduce its swap commitments in Belgian francs to $115 million equivalent by the end of September.

The Belgian balance of payments on current account strengthened in October. In addition, the money market tightened, following the flotation of a large government bond issue. The resulting demand for francs pushed the spot rate to the ceiling, and the National Bank acquired still more dollars. The surplus on current payments persisted as the Belgian economy remained sluggish. The Federal Reserve continued to use its swap facility to cover the National Bank's dollar gains, and by November 13 the full $150 million had been employed.

During the period immediately preceding the British devaluation, and in the days of heavy speculative activity afterward, the Belgian authorities took in further substantial amounts of dollars. With the Federal Reserve swap line fully utilized, on November 24 the United States Treasury issued a $60.4 million equivalent 24-month Belgian franc-denominated Treasury note in order to fund a portion of outstanding System commitments. The Federal Reserve purchased these francs and used them to repay outstanding swap drawings. Then, at the month end, the System absorbed a total of $41.2 million from the National Bank by drawing once again on the swap line. Thus Federal Reserve commitments in Belgian francs under the line with the National Bank stood at $130.8 million equivalent at the end of November. (On November 30, as part of the general strengthening in the swap network, the total Belgian swap line was raised by $75 million to $225 million equivalent.)

The National Bank of Belgium, in cooperation with United States authorities, also took action to keep the forward market calm in the aftermath of the sterling devaluation. On December 4, the National Bank initiated forward sales of Belgian francs on behalf of the United States authorities (divided equally between System and Treasury accounts) to reduce the large premium on forward francs and discourage further shifts of funds from dollars. Pressures subsided almost immediately, and few additional forward sales were necessary through the end of December. These were the first operations conducted in forward Belgian

francs and involved only a modest commitment of $11.8 million equivalent.

The spot Belgian franc eased somewhat below its ceiling during the month of December, and the National Bank of Belgium lost a moderate amount of dollars in market support operations as the Belgian economy showed signs of revived growth and import demand picked up. The Federal Reserve, therefore, was able to acquire Belgian francs as the Belgian authorities required dollar balances to meet market needs; the System also obtained some francs from conversion of part of the proceeds of an IMF member's drawing. These francs were used to reduce Federal Reserve commitments under the swap line with the National Bank of Belgium to $105.8 million equivalent by the year-end.

In late January, the National Bank purchased $25 million from the System to cover moderate losses in market support and to meet anticipated dollar requirements of the Belgian government. The Federal Reserve used the franc proceeds to reduce further its swap indebtedness to $80.8 million. In February, however, the tendency was briefly reversed, and the National Bank once again purchased dollars which the System covered by drawing $7.5 million equivalent of francs on the swap. Subsequently, the System was able to make further reductions in its Belgian franc commitments. Late in February, the Federal Reserve acquired $13.5 million of francs from the National Bank, when that bank needed dollars, and $30.2 million equivalent following Canada's IMF drawing. Moreover, the System acquired $10 million of Belgian francs in connection with the United States Treasury's Fund drawing. These francs were used to make swap repayments, and by March 8 such commitments had been reduced to $34.5 million equivalent. The remainder of the Treasury's $15 million Belgian franc drawing was used in the liquidation of System and Treasury forward contracts and, on March 8, $5 million equivalent remained outstanding.

### CANADIAN DOLLAR

Canada's balance of payments was in sizable surplus in 1967, with a strong export performance during the last quarter of the year contributing significantly to the year's overall results. In the exchange markets, there was substantial demand for Canadian dollars during most of the year.

During the summer months, the success of EXPO 67 attracted an exceptional number of visitors to Canada and stimulated an unusually large volume of tourist receipts which helped keep the spot Canadian dollar close to $0.9300. In late summer, the Canadian banks sought to relieve domestic liquidity pressures through conversion of United States dollar assets, and such conversions intensified with the approach of the end of their fiscal year on October 31. Demand from this quarter converged with buying of Canadian dollars during the last minute rush to EXPO and with the increased movement of shipping prior to the winter closing of the St. Lawrence Seaway. As a result, the spot rate rose to its effective ceiling of $0.9324 by October 11 and held at about that level through the end of the month. In the three months to the end of October, Canadian holdings of gold and United States dollars (including Canada's net creditor position with the IMF) increased by $121.5 million to $2,570 million. This gain more than offset the modest losses sustained during the first half of 1967.

The Canadian dollar remained strong until the devaluation of sterling on November 18, after which it began to decline. Some Canadian funds joined the general reflow into sterling, but there was also a sizable movement of short-term Canadian capital into Euro-dollars. These outflows might have been larger except for the 1 percentage point rise in the Bank of Canada's discount rate to 6 per cent, which followed discount rate increases by the Bank of England (by 1½ per cent to 8 per cent) and the Federal Reserve (by ½ per cent to 4½ per cent). The sterling devaluation came at a time when the market was in any case assessing the likely impact on the Canadian dollar of EXPO's closing and the sizable grain crops abroad that might limit Canadian wheat sales over the near term. Moreover, with winter coming on, the Canadian payments position was moving into its seasonally weak period.

Against this background, the announcement of the United States balance-of-payments program had a further disturbing effect on market operations. Despite the fact that the new program did not restrict Canada's access to the United States bond market, there was apprehension that the program might adversely affect United States direct investment in Canada and the balance of short-term capital flows between the two countries. With exchange markets still unsettled following sterling's devaluation and the subsequent rush into gold, the new uncertainties created by the United States program had a grossly exaggerated impact on Canadian dollar trading. By the third week of January, sales of Canadian dollars reached heavy proportions and the Bank of Canada was required to provide substantial support in the market. To counter these speculative pressures, which became particularly severe on Friday, January 19, the Bank of Canada announced on January 21 a 1 percentage point increase in its discount rate to 7 per cent. In addition, it obtained the agreement of Canadian banks to discourage the use of bank credit for

abnormal transfers of funds abroad. At the same time, the United States Treasury issued a statement emphasizing that: "The United States balance-of-payments program does not call for and is not intended to have the effect of causing abnormal transfers of earnings or withdrawals of capital by United States companies having investments in Canada." The selling diminished considerably following these measures, but the market remained uneasy and was put off stride by political developments in Canada during February.

The impact on Canadian reserves of the selling pressures of January and February was cushioned by the use of some of Canada's credit facilities. In January the Bank of Canada drew $250 million under its $750 million swap facility with the Federal Reserve, thereby reducing the January reserve loss to slightly less than $100 million. And, in February, the Canadian government made a $426 million drawing on the IMF. Of this drawing, some $241 million represented Canada's creditor position in the Fund and was already included in published reserve figures. Consequently, the drawing improved Canada's reported reserves by some $185 million. This increase was substantially greater than the amounts that had been used in support operations in the market in February with the result that, for the month, Canada reported a reserve gain of $71.6 million.

When market uncertainties continued in early March, the Canadian government responded by announcing a new series of fiscal measures designed to restrain domestic demand and reinforce the defense of the Canadian dollar. These steps were then backed up by a major bolstering of Canada's international credit lines, with $900 million of new facilities—over and above the $500 million still available under the Federal Reserve swap line—made available by the United States Export-Import Bank, the German Federal Bank, the Bank of Italy, and the BIS. At the same time the United States authorities made clear their wholehearted support for Canada's determination to defend the $0.9250 parity by announcing the complete exemption of Canada from the restraints on capital flows announced in the President's January 1 program.

### EURO-DOLLAR MARKET

During 1967 the Euro-dollar market was subjected to major strains, first during the spring and early summer as the Middle East crisis triggered heavy withdrawals of funds and again later in the year when speculation in the gold and exchange markets generated massive repatriations into Continental centers. These sudden shifts of funds out of the Euro-dollar market not only threatened to disrupt the normal continuity of credit and deposit transactions in that market, but—given the close links between the Euro-currency and foreign exchange markets—also had destabilizing effects on the exchange markets as well.

Whereas central banks are accustomed to dealing with periods of temporary stress in their own national money markets, there is no comparable international institution responsible for the smooth functioning of the Euro-currency market. Nevertheless, as the experience of the last year indicates, the Euro-currency market itself is surprisingly resilient in the face of fairly severe shocks and, so long as national central banks are prepared to cooperate in tempering the pressures to which the market is subjected, the risk of serious repercussions being transmitted by and through the market can be minimized.

As noted in the March 1967 article of this series,

> The Euro-dollar market, which has become a multibillion dollar operation, functions as a truly international money market and consequently cannot rely, as can a national money market, on the support of any single central bank to relieve temporary stringencies or knots in the market. There is a great deal which the central banks whose nationals use the Euro-dollar market can do in an *ad hoc*, informal way, however, to alleviate undesirable strains on the market.

Prospective developments in the Euro-dollar market are regularly discussed at the monthly meetings of central banks in Basle, with central banks increasingly prepared to undertake operations of various sorts to reduce the impact on the Euro-currency market of shifts of liquid funds by their own commercial banks. In fact, such operations have become more or less routine during periods of seasonal pressures, such as midyear and at the year-end when banks in some countries repatriate very sizable amounts to meet their own liquidity needs as well as those of their customers. The particular measures taken at any given time have been tailored to the prevailing circumstances and to the institutional requirements of the central banks involved. For example, the Swiss National Bank has normally rechanneled funds to the Euro-dollar market either directly or through the BIS. For its part, the Federal Reserve has also placed funds in the market, via the BIS, to mitigate year-end strains. Other central banks, such as the German Federal Bank, have sought to minimize seasonal pressures of this sort by providing special domestic paper timed to mature in December.

Similarly, during periods of speculative—as distinguished from seasonal—pressures, central banks have acted to rechannel funds to the international markets, frequently by providing forward cover to their banks

(either for their own account or in cooperation with the United States authorities) at rates that make profitable a covered outflow. In a somewhat different case, the Italian authorities have provided forward cover on a sustained basis to regulate domestic liquidity and at the same time provide funds to the Euro-dollar market during a period of payments surplus. Another important form of central bank intervention in the Euro-dollar market has been the Federal Reserve swap line with the BIS. Under this arrangement the BIS can draw dollars from the System for placement in the Euro-dollar market, and in a number of operations since late 1966 such short-term placements have amounted to $700 million. This facility was expanded to a total of $600 million during the past year, both because of the unprecedented stresses encountered during this period and because experience had demonstrated the usefulness of this facility in meeting such pressures.

The outbreak of hostilities in the Middle East early last June set off a sharp rise in Euro-dollar rates, as precautionary withdrawals of funds added to stresses associated with usual preparations for the midyear by continental European banks. These pressures were quickly countered, however, by BIS placements of dollars drawn on the swap line with the Federal Reserve or obtained from other central banks. As a result, the market calmed and, with the cessation of fighting, the rapid rise in rates was halted. Interest rates on three-month deposits eased from about 5¾ per cent per annum to about 5¼ per cent by June 9 and, with ample liquidity available in the Euro-dollar market by the end of June, the BIS began to withdraw the funds placed earlier in that market. By July 17, all outstanding drawings on the Federal Reserve by the BIS—which had reached a total of $143 million—had been repaid and the swap facility reverted fully to a standby basis.

Although the Euro-dollar market remained quite liquid during the summer months, covered interest arbitrage incentives continued to favor Euro-dollars over sterling. Some of the funds moving out of sterling were absorbed by United States banks' foreign branches along with additional dollars coming into the market from the Continent. In late September, however, Euro-dollar rates began to move up as interest rates in the United States rose and as Continental interests, faced with increasing uncertainties, began to anticipate requirements for the approaching year-end. Interest rates on three-month Euro-dollar deposits reached 5¾ per cent per annum at the end of September and remained at or above 5½ per cent during the early weeks of October. Confidence in sterling was steadily deteriorating and, when the Bank of England raised its discount rate by ½ percentage point to 6 per cent on October 19, the BIS, at the suggestion of the Federal Reserve, reactivated its swap line and placed a small amount of dollars in the Euro-dollar market to help forestall an offsetting rise in rates. Additional placements on a more substantial scale were made on November 9 to reinforce the second ½ point rise in the British bank rate in three weeks to 6½ per cent. Once again these operations—which raised BIS drawings on the System to $68 million—helped steady the market.

The November 18 devaluation of the pound and the accompanying increase in the Bank of England's discount rate by 1½ percentage points to 8 per cent, followed immediately by the ½ point rise in the Federal Reserve discount rate to 4½ per cent, caused a sharp jump in Euro-dollar rates. Speculation against the dollar and general uncertainties in the exchanges generated large withdrawals of funds from the Euro-dollar market, thus adding to the stringencies associated with normal year-end repatriations. It was clear that coordinated central bank action was imperative if the speculation erupting in the gold and exchange markets and the corresponding heavy pressures being generated in the Euro-dollar market were to be held in check.

Among the various measures agreed upon by the active members of the Gold Pool who met in Frankfurt on the weekend following sterling's devaluation, the central banks of Belgium, the Netherlands, and Switzerland agreed to sell their currencies forward in cooperation with United States authorities, with a sizable amount of the sales conducted on the basis of market swaps (forward purchase of United States dollars against spot sale) so that dollars simultaneously were pumped out into the Euro-dollar market by the central banks. Even more important in terms of size was the very large volume of swaps entered into by the German Federal Bank at the end of November (in which the Federal Reserve participated through a $300 million drawing on its reciprocal currency arrangement with the German Federal Bank). The $600 million channeled into the Euro-dollar market by these German operations was especially effective in bringing down Euro-dollar rates—from nearly 7 per cent per annum for three months to about 6¼ per cent by early December—and in cutting the forward premium on the German mark. In addition, at the end of November, the BIS placed $38 million in the market, using dollars drawn under its swap line with the System, to reinforce the effects of the outflow generated by the German Federal Bank. Such operations through the BIS continued during much of December, bringing the total amount of BIS drawings outstanding to $346 million at the year-end. Moreover, the German Federal Bank swapped out a further $250 million before the end of the year. As a result, interest rates

held in a narrow range, and the market generally remained steady despite the considerable stresses and uncertainties in the exchanges near the year-end.

After the turn of the year, Euro-dollar rates moved sharply lower, despite widespread expectations in the market that there would be a further rise following the announcement of the President's new balance-of-payments program. Yet the fall in rates should not have been surprising. Money markets in most of the major Continental centers remained highly liquid, and there were substantial outflows into the Euro-dollar market from Germany, France, and Switzerland as well as more modest flows from the Netherlands and Belgium. Much of this shift of funds was, of course, of a normal seasonal nature. Moreover, the spate of longer term Euro-bond issues undoubtedly resulted in the temporary accumulation of excess funds by some of the borrowers, who then placed the proceeds in short-term deposits. At the same time, the heavy pressures on the Canadian dollar during January undoubtedly resulted in a shift of short-term money from Canada into the Euro-dollar market. Thus, by the end of January, interest rates on three-month deposits had declined to about 5½ per cent, and they held at that level through February.

Under these circumstances the BIS was able to reverse its earlier placements in the Euro-dollar market made from the proceeds of drawings on the Federal Reserve swap line. By the end of January the $346 million outstanding at the end of 1967 was fully repaid.