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Class I - FOMC

TASK FORCE ON SYSTEM FOREIGN CURRENCY OPERATIONS

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TO: Federal Open Market Committee Subject: Task Force on System Foreign Currency Operations

FROM: Sam Y. Cross and Edwin M. Truman

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Introduction

At the August 22, 1989 meeting of the Federal Open Market Committee, the FOMC endorsed Chairman Greenspan's proposal to establish a task force under our joint direction to review System foreign currency operations from an historical and institutional perspective and to provide the Committee with a report in about six months.

To this end, we commissioned 11 papers that review essentially all aspects of System foreign currency operations: the legal basis for our operations and formal FOMC oversight procedures; U.S. intervention policy, strategy and tactics as they have evolved over the past 30 years; the institutional framework for decision making on these matters in this country and in major foreign countries; resources for financing U.S. intervention (principally balances of foreign currency and drawings on the swap network); and a number of analytical issues.[1] Near-final versions of these papers and the issues they raised were discussed at an all-day conference of Research Directors at the Board on February 23.

1. The 11 papers were prepared by members of the staffs of the Board of Governors and the Federal Reserve Bank of New York, with comments from others. Steven A. Meyer (Federal Reserve Bank of Philadelphia) and John P. Judd (Federal Reserve Bank of San Francisco) participated actively in the work of the Task Force, contributing to the design of the overall project, commenting on the papers at various stages of their preparation, and participating in the conference of Research Directors.

Section I of this overview memorandum provides a brief summary of the 11 papers in the order in which they are included in this binder. Section II offers some observations on some of the major topics considered. Section III suggests some issues that the FOMC may want to discuss at its meeting on March 27.

I. Summary of Task Force Papers

The Task Force's papers total about 350 pages, not including appendices. There is considerable overlap among some of the papers; it was our view that it was desirable for each paper to stand alone as part of a more or less consistent whole. The authors have endeavored to make their substance reasonably accessible by including detailed tables of contents and summaries. (Readers will find that the papers also include a wealth of statistical information about U.S. and System foreign currency operations over the past 30 years.) We provide in the following few pages a very brief reader's guide to the 11 papers.

The first group of two papers covers the legal bases of System foreign currency operations and the evolution of formal procedures for FOMC oversight of these operations.

Before the System resumed operations in foreign currencies in 1962 (at the request of the U.S. Treasury) after a hiatus of almost thirty years, an extended investigation of the legal authority to do so was undertaken. Questions arose because the Gold Reserve Act of 1934 established the Exchange Stabilization Fund (ESF) of the U.S. Treasury for the purpose of stabilizing the exchange value of the dollar. Although the Act did not state that the System could no longer engage in foreign exchange operations, the Federal Reserve did not conduct such operations for many years after the passage of the Act.

Paper #1 ("Legal Bases for System Foreign Currency Operations") reviews the analysis developed in a memorandum prepared by the FOMC's General Counsel, Howard Hackley, in 1961, which found the legal basis for System foreign currency operations in provisions of the Federal Reserve Act that authorize Federal Reserve Banks to purchase and sell cable transfers (foreign exchange), bankers' acceptances, and bills of exchange in the open market; to open and maintain accounts in foreign countries; and to appoint correspondents and agencies in foreign countries. The paper also reviews the legal reasoning that allowed the System to establish the swap network and to engage in warehousing operations with the ESF and the Treasury. Finally, the paper notes the System's authority has been strengthened by subsequent review and actions of Congress, including the amendment of the Federal Reserve Act in 1980 for the express purpose of permitting the System to invest its foreign exchange reserves in obligations of foreign governments.

Paper #2 ("Evolution of Formal Procedures for FOMC Oversight of System Foreign Currency Operations") reviews System operations prior to 1934, the Committee's deliberations in 1961 and early 1962 on the resumption of foreign currency operations, and the evolution of the FOMC's foreign currency instruments (Authorization, Directive, and Procedural Instructions), which provide direction and oversight to these operations. Appendices include a 1961 letter from the Secretary of the Treasury to the Chairman requesting that the System resume foreign currency operations, documentation of changes in the foreign currency instruments (including copies of the current instruments approved at the February 6, 1990, meeting of the Committee), and a comprehensive list of memoranda to the Committee on matters pertaining to System foreign currency operations.

After an initial trial period, the Authorization and Directive emerged in recognizable form in 1966 and have been subject to one major overhaul in 1976 after it was clear that there would not be a quick return to the par value system of exchange rates. At that time, the Procedural Instructions were also introduced to provide more systematic oversight of System operations.

The second group of three papers deals with U.S. exchange rate policy, intervention objectives, and intervention tactics.

Paper #3 ("The Evolution of U.S. Exchange Rate Policy") reviews U.S. policy over the period from 1958 to the present, with major emphasis on the evolution of policy during the floating rate period. The overriding objective of U.S. policy under the Bretton Woods system was to maintain the par value system of fixed exchange rates, based on a U.S. dollar convertible into gold at an unchanged par value. Direct U.S. exchange market intervention was minimal, but a wide variety of other policies were used to protect the U.S. gold stock and, thus, the credibility of dollar convertibility. U.S. exchange rate policy under floating rates is not so easily summarized. The basic statement of policy has been to counter "disorderly market conditions". However, the execution of that policy has included periods when that policy has been narrowly defined and intervention has been limited to small amounts on rare occasions as well as periods when that policy has been broadly defined and operations have been more extensive and frequent.

Paper #4 ("Historical Review of System Objectives and the Use of Intervention") presents a comprehensive description of U.S. and System intervention operations from the early 1960s to the present. It reviews intervention in specific episodes and with different exchange market

objectives: countering disorderly market conditions both narrowly and broadly understood, repayment of debt and building-up of owned reserves, and fostering exchange market stability. The paper includes extensive statistical information on intervention operations since March 1973.

Paper #5 ("Review of Approaches and Tactics of Intervention in the Context of Changing Market Conditions, Policy and Objectives") describes the techniques used by the Desk in its execution of intervention policy. It discusses the specific objectives and conditions, as well as the various approaches and constraints under which the Desk operates. It also comments on the structure of the foreign exchange market and its evolution. It describes how the operations of the Foreign Exchange Desk differ from those of the Open Market Desk and relates these differences to the nature of the markets in which the two Desks are operating and the nature of their respective objectives. The paper also presents an evaluation of the results of the Foreign Exchange Desk's operations during the period of floating exchange rates in the context of different specific objectives for those operations and a variety of conditions at the time they were undertaken.

The third group of papers deals with Federal Reserve-Treasury coordination of U.S. intervention policy and its formulation and with the organization of foreign currency operations in other major countries.

Paper #6 ("Federal Reserve-Treasury Coordination") reviews the extensive record of coordination of intervention operations between the Federal Reserve and the Treasury and the manifestation of that coordination in the form of letters between the Secretary of the Treasury and the Chairman of the Federal Reserve, testimony to Congress, and correspondence with the Congress. Copies of the relevant documents are appended to the

paper. The paper also describes how the process of Treasury-Federal Reserve consultation has worked in practice during the period of generalized floating where the Treasury has specified the basic U.S. policy, but the System has played an active role in policy formulation and implementation and has often acted as a kind of "balance wheel" to Treasury policy shifts.

Paper #7 ("Review of Organization of Foreign Currency Operations in other G-7 Countries and Switzerland") outlines exchange rate policy in each of the other G-7 countries and Switzerland. It also discusses the division of responsibilities between central banks and finance ministries in this area, coordination of foreign currency operations, and the relationship to monetary policy including the extent to which the effect of operations on the central bank's balance sheet are sterilized (the norm for most major countries). Finally, the paper describes the operational aspects of intervention activities in each of these countries today in terms of tactics and frequency of operations.

The fourth group of papers includes two papers on the financing of U.S. intervention: one reviews the history of U.S. holdings of foreign currency balances and the other reviews the history of the Federal Reserve's reciprocal currency arrangements ("Swap" Network).

Paper #8 ("Historical Review of U.S. Official Holdings of Foreign Currencies") traces the shifts in System and Treasury foreign exchange assets and liabilities from 1962 to the present. The U.S. monetary authorities "net open position" (that is, foreign currency assets minus liabilities) was negative until late 1980, at which time foreign currency balances were acquired in an amount which exceeded liabilities for the first time. The paper also discusses the investment facilities for U.S.

foreign exchange balances and contains a review of System warehousing operations for the Treasury. The paper contains a comprehensive set of charts and tables.

Paper #9 ("Historical Review of Reciprocal Currency Arrangements") reviews the provisions and mechanics of the swap arrangements, changes in the terms and conditions that have been made (mostly after floating exchange rates became the norm), and the history of the use of the swap network. In the 1960s and 1970s, the swap network was used extensively by both the Federal Reserve and other industrial countries. Since 1980, the System has not drawn on the network; since a drawing by Sweden in 1981 and by the BIS in 1982, the only drawings have been by the Bank of Mexico. The paper concludes with a brief assessment of the usefulness and limitations of the swap network as it has evolved along with the international monetary system. This paper also provides a comprehensive set of historical statistics.

The final set of papers covers some analytical aspects of foreign currency operations: one assesses the profitability of U.S. and System foreign currency operations and the other reviews the research literature, focusing primarily on the issue of the effectiveness of intervention.

Paper #10 ("Profits and Losses in U.S. and System Foreign Currency Operations") examines some of the conceptual and methodological issues in measuring the profitability of foreign currency intervention. The paper recognizes that profitability should not be the only nor even the major criterion for evaluating foreign exchange market intervention. It presents a qualitative overview of the profits and losses associated with U.S. pre-March 1973 operations. For U.S. operations since March 1973, the paper employs a specific analytical framework for estimating the

profitability of U.S. operations. The paper concludes that, on balance, over the whole period since 1973 U.S. foreign currency operations have been profitable. That conclusion is sensitive to the fact that at present our foreign currency balances are at record levels, and future changes in exchange rates can substantially alter the profitability.

Paper #11 ("Foreign Currency Operations: An Annotated Bibliography") primarily reviews the empirical research literature. Most of the paper is devoted to studies of the effectiveness of intervention; it covers work done for the 1982-83 Working Group on Exchange Market Intervention mandated by the Versailles economic summit as well as subsequent research. The paper describes the analytical framework within which most of this research has been conducted and the two principal channels through which economic theorists have suggested that sterilized intervention has its effects: the so-called portfolio balance channel operating through changes in supplies of domestic- and foreign-currency bonds that are imperfect substitutes and the so-called expectations or signalling channel through which such changes in supplies cause changes in expected future exchange rates. The great bulk of formal statistical tests of the effectiveness of sterilized intervention operating through the so-called portfolio balance channel (influencing the relative supplies of bonds denominated in different currencies) have not found a quantitatively significant effect for sterilized intervention. In all of the much smaller number of studies of the so-called expectations channel (influencing the expected future exchange rate), intervention has been found to have had at least some statistically significant effect; most of these studies did not assess the quantitative significance of the effects that the researchers found.

Other sections of the paper cover studies of the profitability of intervention, intervention reaction functions, and work related to the substitutability of assets denominated in different currencies. A final section of the paper presents some research done at the Board for the Task Force on the question of the effects of intervention on the volatility of interest rates; the statistical work shows that U.S. interest rates are no more volatile in periods of heavy or moderate U.S. intervention than in periods of little or no U.S. intervention.

II. Observations

1. U.S. Exchange Rate Policy

U.S. exchange rate policy is established by the Secretary of the Treasury (and, ultimately, the President) within the framework of (a) the Federal Reserve Act, the Gold Reserve Act of 1934, and the Bretton Woods Agreements Act as amended and (b) international understandings (for example within the Group of Seven (G-7)). That policy has evolved over time as the international monetary system and the world economy have changed. The current statement of U.S. policy, notified to the IMF as required by Article IV of the IMF Articles of Agreement, is:

> The U.S. authorities do not maintain margins in respect of exchange transactions, and spot and forward exchange rates are determined on the basis of demand and supply conditions in the exchange markets. However, the authorities intervene when necessary to counter disorderly market conditions in the exchange market or when otherwise deemed appropriate.

The Federal Reserve historically has been and continues to be an active and constructive participant in the process of formulating and implementing U.S. exchange rate policy, a traditional role of central banks. As U.S. Alternate Governor of the IMF and as a participant in G-7 meetings of finance ministers and central bank governors, the Chairman of

the Federal Reserve reflects the views and concerns of the System as appropriate.

2. Federal Reserve Relations with the U.S. Treasury

The Federal Reserve resumed foreign currency operations in 1962 at the request of the U.S. Treasury, in part, to supplement the resources available to the Treasury's Exchange Stabilization Fund (ESF) and, in part, because such operations were viewed as appropriate for the central bank. It has always been clear what the respective roles of the Treasury and the Federal Reserve are:

> [T]he Secretary of the Treasury . . . is primarily and directly responsible to the President and Congress for formulating and defending international financial and monetary policy, for assessing the position of the United States in the world economy, and for conducting negotiations on these matters. At the same time, since exchange markets are closely linked to money markets and questions of monetary policy, there is a distinct role and responsibility for the Federal Reserve to work in cooperation both with foreign central banks, which are operating in their own markets, and with the Treasury.[2]

It is also clear that under present arrangements the U.S. Treasury cannot commit Federal Reserve resources to intervention operations. The Federal Reserve, for its part, has agreed consistently that its operations will be carried out "in close and continuous consultation and cooperation with the United States Treasury".[3] The few conflicts that have arisen between the Treasury and the Federal Reserve on exchange rate policy, strategy and tactics generally have been worked out satisfactorily. In effect, the Federal Reserve has served as a kind of "balance wheel" to shifts in Treasury policy in the past 15 years, thus, lending a greater degree of consistency to overall U.S. policy in this area.

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2. Paul A. Volcker letter to Representative Sam Gibbons, May 7, 1976. See paper #6 ("Federal Reserve-Treasury Coordination".)
3. Foreign Currency Directive, Section 4.A.

3. Disorderly Market Conditions

The Task Force papers document extensively that the rubric under which U.S. foreign currency operations are currently conducted, "countering disorderly market conditions", has been interpreted in an elastic manner almost from the time it was first included in the U.S. notification of its exchange arrangements to the IMF and in the related foreign currency directive approved in 1976.[4]

That concept has been used to justify a minimalist approach to exchange market intervention from 1981 through 1984; it has also been used to justify heavy intervention operations in 1978-79, 1985, and 1987-89 directed at correcting what was viewed as an undervaluation or overvaluation of the dollar or at trying to stabilize the dollar in line with understandings reached at G-7 meetings. The elasticity of this concept may contribute to ambiguity at times. Some of the ambiguity may be unavoidable and even constructive since intervention can be at times part of a response to changing or uncertain conditions or to the emergence of trends that may become clear only in retrospect.

In any event, it is important that the Federal Reserve monitor closely the evolution and implementation of U.S. exchange rate policy and intervention operations; this would be true regardless of the Federal Reserve's direct financial role in such activities.

4. "System operations in foreign currencies shall generally be directed at countering disorderly market conditions, provided that market exchange rates of the U.S. dollar reflect actions and behavior consistent with the IMF Article IV, Section 1." (Section 1, Foreign Currency Directive; see Appendix C of paper #2 ("Evolution of Formal Procedures for FOMC Oversight of System Foreign Currency Operations".)) This language closely tracks the statement of U.S. policy quoted above; the world "generally", which was the subject of intense negotiations with the U.S. Treasury in 1976, can be viewed as providing the same elasticity as the phrase "or when otherwise deemed appropriate".

4. Role of Exchange Rates

Economists and policymakers have disagreed among themselves since at least the inter-war period about how exchange rates should be viewed in the context of overall economic policy. On the one hand are those that consider exchange rates as just another set of prices; on the other hand are those that consider them an important constraint on or a key indicator of economic policy. U.S. official thinking about exchange rates has evolved along with the world economy and the international monetary system. In the 1960s, it was accepted as an article of faith that our interest was in preserving the role of the gold-convertible dollar at the center of a par value system. In the 1970s, floating exchange rates were seen by many as smoothly equilibrating external imbalances and as imparting greater freedom to policymakers. Since the late-1970s, and especially since the mid-1980s, U.S. policymakers increasingly have felt that exchange rates, which respond to shifts in monetary and fiscal policies here and abroad as well as to other factors, are important economic variables that cannot be ignored because of their pervasive effects on the economy.

This evolution of U.S. official thinking has paralleled changes in the position of the U.S. economy and financial markets in the world economy and financial system. With a dominant and essentially closed economy in the 1950s and 1960s, U.S. policymakers could ignore exchange rates and let the finance ministers and central bankers of other countries worry about them. Today our economy is less dominant and more open, U.S. policymakers are more concerned about exchange rates, and they no longer can expect that exchange rates will take care of themselves or be taken care of by other countries in ways that U.S. policymakers would like or find acceptable with respect to conditions in the domestic economy. One manifestation of

this evolution has been the fact that the U.S. authorities in recent years have been as active as the authorities of other major countries in their foreign currency operations -- more active than some and less active than others.[5]

5. Exchange Rates and Monetary Policy

As a technical matter, Federal Reserve foreign exchange operations are routinely sterilized, as is generally the case in most other major industrial countries. Nevertheless, exchange market considerations have at times influenced the day-to-day implementation of Federal Reserve policy, and exchange-rate considerations at times have been prominent in the FOMC's deliberations -- in 1977-79, 1984-85, and 1987. In this broader sense, some would argue that the distinction between sterilized and unsterilized intervention is at best artificial and at times misleading. As noted above, U.S. monetary policy policy cannot and has not ignored the exchange value of the dollar; this would remain the case regardless of whether the Federal Reserve intervenes in the foreign exchange market for its own account. However, the evidence presented in the Task Force papers is that the Federal Reserve's active participation has been constructive both in terms of U.S. exchange rate policy and U.S. macroeconomic policy.

An important consideration for the Federal Reserve is whether our foreign currency operations interfere with our other open market operations; to date, there have been no problems in this regard. Another important question is whether U.S. intervention operations have added to the volatility of U.S. interest rates; we found no evidence to support this

5. One must be careful about such generalizations; however, see Table III in paper #7 ("Review of Organization of Foreign Currency Operations in the Other G-7 Countries and Switzerland") for data for 1989.

hypothesis.[6]

A related concern at times has been that U.S. intervention operations are insufficiently sensitive to conditions in markets for other financial instruments. In its operations, the Foreign Exchange Desk tries to be sensitive to these concerns, and the Federal Reserve's hand is strengthened in this regard by the fact that the Desk normally operates with System as well as with ESF resources.

A more complex question is whether Federal Reserve monetary policy might be subverted by inappropriate exchange rate considerations or by international (G-7) understandings on exchange rates. While interpretations of the past do differ, we do not believe that there is any strong evidence of this having happened in recent years. Could it happen in the future? Yes. What is the best way of avoiding its happening? We believe that the best way is to ensure that the Federal Reserve continues to play an active role in the formulation and execution of U.S. exchange rate policy, but others may differ.

6. Effectiveness of Intervention

Just because a quantitatively significant effect for sterilized intervention has not been found in most of the research studies to date does not mean that such an effect does not exist; it does mean that the research literature cannot be cited to justify the effectiveness of sterilized intervention.

It has proved difficult to discover stable and significant statistical relationships between exchange rates and postulated determinants, such as interest rates and other fundamentals as well as

6. See Section IX of paper #11 ("Foreign Currency Operations: An Annotated Bibliography").

sterilized intervention. It is, therefore, difficult to draw definite conclusions about the effectiveness of intervention on the basis of existing statistical evidence. Some analysts argue that finding reliable statistical relationships between exchange rates and sterilized intervention has been no more difficult than finding such relationships between exchange rates and other economic variables and that, therefore, the failure to find a quantitatively significant effect for sterilized intervention should not be taken very seriously. However, most analysts argue that finding reliable statistical relationships between exchange rates and sterilized intervention has been more difficult than finding such relationships between exchange rates and other economic variables and that, therefore, the failure to find a quantitatively significant effect for sterilized intervention should not be dismissed.

It is highly unlikely that research studies conducted over the next decade will affect significantly the positive propensity of the monetary authorities of the major countries to intervene in foreign exchange markets. Those authorities believe that foreign exchange market intervention can be a useful policy tool, at least on occasion, and they are likely to continue to use it.

Indeed, the consensus of the 1982-83 Working Group on Foreign Exchange Market Intervention was that intervention can be a useful and effective tool in influencing exchange rates in the short run especially when such operations are consistent with fundamental economic policies. The Task Force papers provide no basis upon which to disagree with this consensus. However, it is useful to note that the direction of fundamental economic policies is not always clear at the time intervention takes place. Thus, consistency cannot always be assumed.

7. Federal Reserve Procedures

The FOMC's foreign currency instruments[7] implicitly presume that sterilized foreign exchange market intervention is an effective and useful tool in pursuit of exchange market and broader policy objectives at least in the short run. They also presume that it is appropriate for the Federal Reserve to be involved with and guided by the Treasury in these operations.

The Authorization for Foreign Currency Operations provides the framework within which the Foreign Exchange Desk is to carry out operations for System Open Market Account, including importantly a limit on the System's overall open position (risk) in all foreign currencies;[8] the Foreign Currency Directive provides a very general set of instructions to the Foreign Exchange Desk; and the Procedural Instructions provide a mechanism through which the Chairman, the Foreign Currency Subcommittee, and the Committee conduct day-to-day and inter-meeting oversight of the Desk's operations. One might view this latter document as a substitute for the more detailed directive concerning "domestic" operations with the distinction necessitated by the institutional differences between the two types of operations as well as by the fact that under today's conditions it is inherently impossible to anticipate all the circumstances under which intervention might potentially be desirable.

Thus, the foreign currency instruments can be viewed as seeking a balance between FOMC direction, oversight, and monitoring of the Desk's

7. See paper #2 ("Evolution of Formal Procedures for FOMC Oversight of System Foreign Currency Operations").
8. The FOMC's Authorization in Section I.D defines the System's "overall open position in all foreign currencies" as "the sum (disregarding signs) of net positions in individual currencies. The net position in a single foreign currency is defined as holdings of balances in that currency, plus outstanding contracts for future receipt, minus outstanding contracts for future delivery of that currency, i.e., as the sum of these elements with due regard to sign."

operations (both with regard to the scale and risk of System operations and with regard to what those operations are trying to achieve) and the need for the Desk to be prepared to intervene and to change its tactics in response to changing circumstances. Of course, there can be differences in view in the striking of that balance, but in considering changes the presumptions noted above should be borne in mind.

8. System Risk and Foreign Exchange Balances

The Federal Reserve System now holds for its own account more than $20 billion in assets denominated in foreign currencies (valued at historical cost) plus $8 billion "warehoused" for the ESF (as of March 8, 1990). Total U.S. holdings of foreign currencies are about $40 billion, or $44 billion at current market rates. However, this amount is substantially less than what is held by other major countries, Germany and Japan in particular, both absolutely and relative to such traditional measures as imports of goods and services.[9] Moreover, U.S. holdings of foreign currencies increased substantially in 1989 (by more than $25 billion), and circumstances could develop in which balances could decline just as rapidly. Recall that it was only in 1988 that Treasury and Federal Reserve were almost devoid of yen balances and were seeking special arrangements to acquire them.

In case of need, the Federal Reserve could draw on the $30 billion swap network including lines of $6 billion with the Bundesbank and $5 billion with the Bank of Japan. However, at times in the past, the United

9. Paper #8 ("Historical Review of U.S. Official Holdings of Foreign Currencies") provides estimates that U.S. foreign currencies reserves cover 23 days of U.S. imports of goods and services, compared with 81 and 83 days for Germany and Japan respectively. Estimates based on total reserves less gold holdings (including SDR and claims on the IMF) would reduce the difference somewhat; the coverage of U.S. reserves rises to 33 days while that for Germany and Japan rises to 88 days.

States has not been comfortable with the conditionality on intervention operations and economic policies associated with swap drawings. More generally, as noted above, the international economy and the financial system have changed dramatically over the past several decades. The U.S. economy is less dominant, and at the same time its sensitivity to external influences has increased; the United States should expect to have to fend for itself in international financial relations to a greater degree than it has in the past.

The existing level of Federal Reserve balances of foreign exchange (as well as the level of overall of U.S. balances) involves a significant exchange rate risk (potential gain as well as potential loss). However, the existence of balances provides a cushion which can allow the United States to respond to exchange market developments without changes in U.S. monetary and other other policies when such changes are not deemed appropriate for domestic objectives.[10] If it were felt that on balance U.S. interests are well served by continuing to hold and accumulate (essentially passively through intervention) balances of foreign exchange, the Federal Reserve and the Treasury might want to consider whether it would be appropriate to make the case more systematically to the Congress and the public about how these balances have accumulated and why they are needed. If the Federal Reserve was not comfortable holding sizeable balances, consideration could be given to ways of limiting the balances, or to a

10. It is useful to distinguish between the risk associated with a given position and that associated with a change in that position because of intervention. The latter is present whether or not we hold balances of foreign exchange already; we either add to balances (or pay off debt) or reduce balances (or acquire debt). See paper #10 ("Profits and Losses in U.S. Foreign Currency Operations").

possible comfort letter from the Secretary of the Treasury that such Federal Reserve holdings are in the national interest.

9. Warehousing for the ESF and U.S. Treasury

As noted above, the Federal Reserve is now warehousing $8 billion in foreign currencies for the ESF; the FOMC has authorized warehousing up to $10 billion in foreign currencies for the ESF or the U.S. Treasury. The System is protected from exchange risk on the principal amount of those holdings; moreover, as far as the ESF is concerned, the action of warehousing foreign currencies is analogous to the purchase of gold and SDR certificates from the ESF to finance ESF foreign exchange operations. Nevertheless, questions reasonably can be raised about such operations especially if they persist for an extended period of time, which could well be the case.

In our view, the fundamental issue is whether the Federal Reserve System would want to deny the ESF the U.S. dollar resources it needs to purchase foreign currencies.[11] This is a complex issue that goes to the core of the Federal Reserve's relationship with the rest of the government. Although we cannot know all the circumstances at the time of consideration, we would advise against such a decision. It would run counter to the entire history of System foreign exchange operations since their resumption in 1962. The System has always been guided by the policy of the United States in this area as established by the Secretary of the Treasury. Moreover, from the start, a major argument for the System's participation in foreign exchange operations was that the System has resources at its

11. We assume that at the same time the System would decline to purchase foreign currencies for its own account.

disposal that can and should be used to supplement the resources of the ESF.

Of course, views can differ on this matter. However, we believe, and the experience of the past year demonstrates, that it is appropriate and desirable for the System to establish limits on warehousing in order to focus the attention of the Committee (and, through the Chairman, the Treasury) on the risks associated with large holdings of foreign exchange balances as well as on broader aspects of U.S. exchange rate policy.

III. Issues for Possible FOMC Discussion

At the FOMC meeting on March 27, members of the Committee may have some questions about the Task Force papers. Once those questions have been answered to the best of our abilities, the Committee might want to turn to a general discussion of some of the issues raised by the Task Force's review. Among the issues that the committee might want to discuss are the following:

1. Should the Federal Reserve continue to participate for its own account in U.S. foreign currency operations?

2. What are the implications for Federal Reserve monetary policy (objectives, effectiveness and implementation) resulting from the System's participation in U.S. foreign currency operations?

3. In light of the sometimes amorphous nature of U.S. exchange rate policies and objectives and G-7 understandings, should the Committee consider ways and means to keep itself more fully informed on such matters?

4. Is the Committee satisfied with its existing foreign currency instruments and the amount of information it receives about System foreign currency operations? NOTE: this is a question primarily about how the System conducts and monitors these operations not about whether it should undertake them; the latter question is addressed in question #1.

5. Should the Federal Reserve undertake a more exhaustive study of particular aspects of its foreign currency balances, including benefits, risks, and possible modifications in U.S. policy in this regard?

B. LEGAL AND PROCEDURAL FRAMEWORK

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LEGAL BASIS FOR SYSTEM FOREIGN CURRENCY OPERATIONS

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Legal Basis for System Foreign Currency Operations[1]

Summary

The legal basis for the Federal Reserve System's foreign currency operations is found in the provisions of the Federal Reserve Act ("Act") that authorize Federal Reserve Banks: to purchase and sell cable transfers (foreign exchange), bankers' acceptances, and bills of exchange in the open market; to open and maintain accounts in foreign countries; and to appoint correspondents and establish agencies in foreign countries. Read together, these provisions have been interpreted to authorize not only spot and forward purchases and sales of foreign exchange in the open market, but also swap and warehousing transactions.

The legal analysis underpinning the Federal Reserve's decision to resume foreign currency operations in 1962 was set forth in a memorandum prepared by Howard Hackley, the General Counsel of the Federal Open Market Committee ("FOMC") and the Board of Governors of the Federal Reserve System ("Board").[2] Most of the analysis in that memorandum (the "Hackley

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[1] Prepared by J. Virgil Mattingly, Jr., Ernest T. Patrikis, Ricki Rhodarmer Tigert, and N. Peter Knoll.

[2] See Memorandum, "Legal Aspects of Proposed Plan for Federal Reserve Operations in Foreign Currencies," to the FOMC from Mr. Hackley, General Counsel (Nov. 22, 1961). A copy of the Memorandum is attached as the Appendix to this Paper.

Memorandum") is equally relevant today. For that reason, this paper is drawn in large measure from the Hackley Memorandum. The Hackley Memorandum concludes that the Federal Reserve has the authority to engage in foreign currency operations, although this conclusion is not entirely free from doubt.

The Hackley Memorandum finds that, although as a general matter foreign currency operations are consistent with the purposes of the Act, not all kinds of foreign exchange transactions have explicit statutory authority. Specifically, it concludes that foreign currency operations conducted through open market purchases and sales of foreign exchange are expressly authorized by the Act. Although operations conducted through swap agreements are not expressly authorized, the Hackley Memorandum concludes -- and the Board has accepted -- that such operations are authorized through the statutory provision permitting Reserve Banks to establish foreign accounts.

Because of the incomplete express authority, the Hackley Memorandum states that its conclusions as to the Federal Reserve's authority to engage in foreign currency operations might be criticized. Two members of the FOMC dissented from the decision in early 1962 to authorize foreign currency operations,[3] and several members of the Congress raised questions about the

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[3] See notes 72-76 below and accompanying text.

Federal Reserve's authority in a hearing held two weeks after the FOMC's decision to engage in such operations.[4]

At that same hearing, Congressional committee members requested the Federal Reserve's legal opinion as to its authority to engage in foreign currency operations,[5] and Chairman Martin responded by giving the Hackley Memorandum to the committee. The Hackley Memorandum's conclusion that various provisions of the Act, when read together, authorize the Federal Reserve's foreign currency operations was concurred in by the General Counsel of the United States Department of the Treasury and the Attorney General of the United States.[6]

Since 1962 the Congress has reviewed the foreign currency operations of the Federal Reserve in hearings on related issues. More significantly, the Congress amended the Act in 1980 for the express purpose of permitting the Federal Reserve to invest its foreign exchange holdings in obligations of foreign governments.[7] The amendment suggests tacit Congressional acceptance of the Federal Reserve's foreign currency operations.

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[4] See note 59 below and accompanying text.

[5] See Bretton Woods Agreements Act Amendment: Hearings on H.R. 10162 Before the House Comm. on Banking and Currency, 87th Cong., 2d Sess. 128, 141-42 (1962)(hereinafter "Bretton Woods Hearings").

[6] Id. at 90-92, 157.

[7] See notes 63-65 below and accompanying text.

Therefore, while questions were raised at the outset about the authority of the Federal Reserve to engage in foreign currency operations, that authority has been strengthened by the subsequent review and actions of the Congress, as well as by the consistent interpretation and practice of the Federal Reserve over nearly three decades. This paper examines these issues in more detail.

This paper is divided into four parts. Part one provides a short history of the Federal Reserve's foreign currency operations. Part two sets forth the legal authority for the Federal Reserve's foreign currency operations. Part three discusses Congressional consideration of the Federal Reserve's foreign currency operations since 1962. Part four considers criticism of the Hackley Memorandum's conclusions regarding the Federal Reserve's authority to conduct foreign currency operations.

I. History of Foreign Currency Operations[8]

In the period between the First and Second World Wars, the Federal Reserve participated in various forms of loans and credits to foreign central banks. From 1924 through 1929, the

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[8] See also Task Force Paper entitled "Evolution of Formal Procedures for FOMC Oversight of System Foreign Exchange Operations," pp. 1-3.

Federal Reserve played a "significant part" internationally through the extension of stabilization credits.[9] Generally acting together with other central banks, the Federal Reserve extended stabilization credits at least seven times during this period to strengthen or add to the monetary reserves of the borrowing country and to establish confidence in that country's currency.[10] These credits took several forms, including short-term revolving credit on 100-percent gold collateral, credit through the purchase of commercial paper from the borrower, the sale of gold on credit, and agreements to purchase the borrower's currency, with provision for repurchase by the borrower at the same exchange rate.[11]

In 1929 and 1930, the Federal Reserve purchased foreign bills to support the British pound sterling. By the end of 1930, Federal Reserve holdings of foreign currency-denominated bills amounted to $36 million, more than twice as great as that figure had ever been previously.[12] In addition, the Federal Reserve,

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[9] "International Role of the Federal Reserve System," pp. 5-6, attached to Memorandum to Governor Szymczak from Frank M. Tamagna (Dec. 16, 1949)(hereinafter "International Role").

[10] "Loans and Credits to Foreign Central Banks and Governments in the Inter-War Period," pp. 1-5, attached to Memorandum to Governor Szymczak from Frank M. Tamagna (Dec. 16, 1949)(hereinafter "Loans and Credits").

[11] Id.

[12] International Role at 9.

employing some of the approaches used in the 1920s, extended emergency credit assistance in 1931 to four central banks to meet their immediate needs for foreign exchange or to replenish their monetary reserves.[13]

The Federal Reserve continued at least through the 1940s to extend credit to foreign central banks using loans secured by gold.[14] However, the Federal Reserve did not extend other forms of credit to foreign central banks after the enactment of the Gold Reserve Act of 1934.[15] This legislation transferred to the Treasury title to all gold held by the Federal Reserve and established the Exchange Stabilization Fund ("ESF") for the purpose of stabilizing the exchange value of the dollar.[16] How the Congress intended the establishment of the ESF to affect the Federal Reserve's foreign currency operations is not clear.[17] The Federal Reserve's involvement in stabilization

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[13] Loans and Credits at 2, 5-7.

[14] See note 44 below.

[15] Pub. L. No. 73-87, 48 Stat. 337.

[16] Id. §§ 2(a), 10(a).

[17] Compare 78 Cong. Rec. 989 (1934)("[W]e are turning over to the Secretary of the Treasury the right to buy and sell foreign exchange.")(statement of Rep. McFadden) with Gold Reserve Act of 1934: Hearings on S. 2366 Before the Senate Comm. on Banking and Currency, 73d Cong., 2d Sess. 328 (1934)("As I see it, this bill does not interfere with the ordinary functions of the Federal Reserve System except to the extent that the activities of the Treasury Department might impinge upon the activities of the Federal Reserve System with reference to the

(continued...)

credits between 1934 and 1962 seems to have been limited to the activity by the Federal Reserve Bank of New York ("FRBNY") in maintaining the ESF's accounts and conducting its operations.[18]

In 1962, the Federal Reserve resumed foreign currency operations on its own behalf. Specifically, the Board amended Regulation N to regulate the opening and maintenance of Reserve Bank accounts with foreign banks. The FOMC authorized the FRBNY to purchase and sell nine[19] foreign currencies. By the end of the year, reciprocal currency agreements ("swap lines") had been established with nine foreign central banks and the Bank for International Settlements.[20] In 1963, the FOMC authorized warehousing of foreign exchange held by the Department of the

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[17](...continued)
stabilization of foreign exchange.")(emphasis supplied)(comment of Sen. Barkley). See also Memorandum, "Foreign Currency Operations: Reasons for Federal Reserve Participation; Legislative History of Gold Reserve Act of 1934; System-Treasury Coordination," to Messrs. Mattingly and Truman from Ms. Tigert and Mr. Knoll (Jan. 26, 1990), pp. 3-5.

[18] International Role at 11-12.

[19] The original number was six. 49th Annual Report of the Board, 1962, p. 63. By the end of 1962, it had been increased to nine. Id. at 98.

[20] See Charles A. Coombs, "Treasury and Federal Reserve Foreign Exchange Operations," 48 Federal Reserve Bulletin 1138, 1146-47 (Sept. 1962)(hereinafter "Coombs Article"); 49th Annual Report of the Board, 1962, pp. 54-63, 78-79. See also Task Force Paper entitled "Evolution of Formal Procedures for FOMC Oversight of System Foreign Exchange Operations," pp. 8-9.

Treasury's ESF for the first time.[21] In 1978, the FOMC supplemented its prior authorization by authorizing warehousing of foreign exchange held directly by the Treasury, in addition to that held by the ESF.[22]

II. Statutory Authority for Foreign Currency Operations: The Federal Reserve Act

On the basis of several provisions of section 14 of the Federal Reserve Act, the Hackley Memorandum concludes that the Act permits Reserve Banks to acquire and hold foreign exchange obtained through swap lines with foreign central banks and through open market purchases, including purchases from the ESF. To the extent that the foreign exchange is obtained through, or used in, open market operations, section 12A of the Act is also applicable.

A. Section 14 (First Paragraph) -- Warehousing

The first paragraph of section 14 of the Federal Reserve Act authorizes any Federal Reserve Bank, subject to regulation by the Board, to "purchase and sell in the open market, at home or abroad, . . . cable transfers and bankers' acceptances and bills of exchange . . . eligible for

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[21] 50th Annual Report of the Board, 1963, pp. 117-18; 1963 FOMC Minutes, pp. 931-36 (Nov. 12, pp. 5-10).

[22] 65th Annual Report of the Board, 1978, pp. 252-53.

rediscount."[23] When the Act was passed in 1913, cable transfers were the medium through which holdings of foreign exchange could be acquired and disposed of, and the purchase of foreign exchange was frequently referred to as the purchase of a cable transfer.[24] The purchaser of the cable transfer, in effect, purchased a bank balance in a foreign country, typically denominated in a foreign currency.[25]

The Hackley Memorandum is unequivocal in its conclusion that the cable transfer provision of section 14 authorizes the Federal Reserve to purchase foreign exchange in the open market:

> To the extent that the proposed foreign exchange operations would be effected through purchases of cable transfers in the open market from domestic banks or dealers in foreign exchange or from foreign banks, there would, in my opinion, be no legal question of authority involved, whether the cable

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[23] 12 U.S.C. 353. The insertion of the word "and" and the lack of a comma after "cable transfers" demonstrate that the authority to purchase and sell cable transfers is not conditioned on a requirement that they be eligible for rediscount. 12 U.S.C. 343. See Hackley Memorandum at 26.

[24] See Memorandum, "Legal Authority for Federal Reserve Foreign Exchange Operations," initialed by Howard Hackley (Feb. 19, 1962)(hereinafter "1962 Legal Summary"), p. 1. See also Louis A. Rufener, Money and Banking in the United States 316-17, 346 (1934); Glenn G. Munn, Encyclopedia of Banking and Finance 90 (5th ed. 1949).

[25] See, e.g., Strohmeyer & Arpe Co. v. Guaranty Trust Co., 172 App. Div. 16, 157 N.Y.S. 955, 956 (Sup. Ct. 1916); In re Pacat Finance Corp., 295 F. 394, 410 (S.D.N.Y. 1923).

> transfers related to "spot" or "forward" transactions.[26]

The Hackley Memorandum also concludes that this provision authorizes the foreign currency operations that have since become known as "warehousing."[27]

Warehousing involves simultaneous spot purchases and forward sales of foreign exchange by the Federal Reserve from the ESF or from the Treasury's General Fund. The purpose of warehousing is to provide the ESF or the Treasury with liquid dollar resources for conducting its foreign currency operations. The forward resale to the ESF or the Treasury at the same exchange rate protects the Federal Reserve from market risk.[28]

The Hackley Memorandum reaches the conclusion that the cable transfer provision of section 14 authorizes the purchase of foreign exchange from the ESF because such a purchase is a purchase of foreign exchange ("cable transfer") in the "open

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[26] Hackley Memorandum at 16.

[27] At the 1963 meeting in which the FOMC first authorized purchases of foreign exchange from the ESF, Charles Coombs, the manager of System foreign currency operations, stated that "the System had an opportunity to help stabilize a situation by warehousing foreign currencies without capital risk until they were needed by the Treasury, whose resources for this kind of operation were limited." 1963 FOMC Minutes, p. 933 (Nov. 12, p. 7)(emphasis supplied). See also Appendix to Task Force Paper entitled "Historical Review: U.S. Official Holdings of Foreign Currencies"; Task Force Paper entitled "Evolution of Formal Procedures for FOMC Oversight of System Foreign Exchange Operations," pp. 18-20.

[28] 65th Annual Report of the Board, 1978, p. 252.

market" from a "domestic corporation." In order to reach this result, the Hackley Memorandum reasons that (1) the United States is a "domestic corporation" for purposes of this section; and (2) "an 'open market' in cable transfers may be regarded as embracing any person with whom a Reserve Bank may feel free to deal, including the United States Treasury, which is a part of that market."[29] In reaching the second conclusion, the Hackley Memorandum distinguishes the open market in foreign exchange from the open market in U.S. government securities. Purchases of U.S. government securities by the Federal Reserve directly from the Treasury, the issuer of those securities, would not be purchases in the open market because an issuer "is not a seller in the open-market sense."[30] In comparison, the purchase of foreign currencies from the Treasury (or its ESF) are purchases in the

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[29] Hackley Memorandum at 18. Thus, the "open market" for cable transfers referred to in the first paragraph of section 14 is different than the "open market" for U.S. government securities referred to in section 14(b)(1). See also Memorandum, "Federal Reserve Holdings of, and Operations in, Foreign Exchange," from John J. Clarke (Assistant General Counsel, Federal Reserve Bank of New York) to Legal Department Files (Nov. 10, 1961)(hereinafter "Clarke Memorandum"), pp. 7-17. Generally, the Clarke Memorandum and the Hackley Memorandum discuss the same issues and reach the same conclusions.

[30] Clarke Memorandum at 13; see Hackley Memorandum at 18. The Banking Act of 1935 amended section 14(b)(1) of the Federal Reserve Act to provide that the Federal Reserve may buy and sell U.S. government securities "without regard to maturities but only in the open market." 12 U.S.C. 355.

open market, as the Treasury is not the issuer of those currencies.[31]

B. Section 14(e) -- Swaps

Section 14(e) of the Act authorizes any Federal Reserve Bank, with the consent or upon the order and direction of the Board, "to open and maintain accounts in foreign countries, appoint correspondents, and establish agencies in such countries wheresoever it may be deemed best for the purpose of purchasing, selling, and collecting bills of exchange."[32]

In the early 1930s, the Board and the FRBNY debated the proper interpretation of this provision.[33] The FRBNY believed that the "wheresoever it may be deemed best for the purpose of purchasing, selling, and collecting bills of exchange" clause did not "limit the power to open and maintain accounts in foreign

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[31] See Hackley Memorandum at 18; Clarke Memorandum at 8-10, 13.

[32] 12 U.S.C. 358. The Board's Regulation N governs Reserve Bank relationships with foreign banks. See 12 C.F.R. 214.

[33] During this same time period, some members of the Congress expressed concern that the Reserve Banks were acting without sufficient supervision by the Board and beyond their statutory authority in the field of foreign currency operations. See, e.g., 75 Cong. Rec. 9884 (statement of Sen. Glass), 9973-74 (statement of Sen. Norbeck)(1932). Apparently to address this concern, section 14(g) was added to the Act in 1933 to require the Board to "exercise special supervision over all relationships and transactions of any kind entered into by any Federal [R]eserve [B]ank with any foreign bank or banker." 12 U.S.C. 348a.

countries or appoint correspondents because of the comma after the word correspondents.'"[34] The Board disagreed with the FRBNY's statutory construction and interpreted section 14(e) as permitting the establishment of foreign accounts only for the purpose of buying and selling bills of exchange in foreign countries, and not for other purposes such as holding foreign exchange.[35] The Board's interpretation appears to have reflected its view that the "wheresoever" clause modifies all three of its possible antecedents -- "open and maintain accounts," "appoint correspondents," and "establish agencies."[36] The Board's interpretation of section 14(e) remained in effect until 1962, when the Board implicitly adopted the Hackley Memorandum's contrary conclusion by amending Regulation N to permit Reserve

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[34] Office Correspondence, "Right of Federal Reserve Bank to Establish Six Months' Time Deposit with Bank for International Settlements," from Mr. Wyatt, General Counsel, to Files (July 28, 1931)(hereinafter "Wyatt"), p. 2 (summarizing the views of Mr. Logan, General Counsel of the FRBNY). See also Office Correspondence, "Right of Federal Reserve Bank of New York to Open an Account and Make a Deposit for Six Months with Bank for International Settlements," to Governor Harrison [of the FRBNY] from Walter S. Logan (July 27, 1931), p. 2.

[35] Letter to Governor George L. Harrison, Federal Reserve Bank of New York, from Chester Morrill, Secretary (Mar. 20, 1933), p. 2.

[36] See Wyatt at 1.

Banks to conduct open market operations using foreign accounts under the direction of the FOMC.[37]

In concluding that section 14(e) authorizes the opening of foreign accounts for purposes other than the purchase, sale, or collection of bills of exchange, the Hackley Memorandum adopts the statutory construction argument made by the FRBNY in the early 1930s.[38] In support of that view, the Hackley Memorandum also relies on two pieces of legislative history.

First, in its report accompanying the bill that was adopted as the Act, the House Banking and Currency Committee stated with respect to the provision that would become section 14(e) of the Act:

> The final power to open and maintain banking accounts in foreign countries <u>for the purpose of dealing in exchange</u> and of buying foreign bills is necessary in order to enable a reserve bank to exercise its full power <u>in controlling gold movements</u> and in facilitating payments and collections abroad.[39]

This language suggests that foreign accounts may properly be used to acquire foreign exchange.

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[37] 27 Federal Register 1719 (Feb. 22, 1962), adding 12 C.F.R. 214.5 ("Accounts with foreign banks").

[38] Hackley Memorandum at 13.

[39] H. Rep. No. 69, 63d Cong., 1st Sess. 52 (1913)(quoted in Hackley Memorandum at 11)(emphasis supplied).

Second, shortly after the Act was enacted, a Board member expressed the view that the Congress had intended no substantial difference between section 14(e) and the corresponding provision of the so-called Aldrich Bill, the antecedent of the Act.[40] The Hackley Memorandum notes that this corresponding provision "appeared to limit the establishment of agencies to the purpose of buying and selling bills of exchange but not to place such a limitation upon the opening of foreign accounts."[41] The corresponding provision states in relevant part: "to open and maintain banking accounts in foreign countries, and to establish agencies in foreign countries for the purpose of purchasing, selling, and collecting foreign bills of exchange."[42]

In addition, the Hackley Memorandum notes that the last sentence of section 14(e) provides that a Reserve Bank may, under rules and regulations provided by the Board, use an account opened by any other Reserve Bank to carry on or conduct any transaction authorized by section 14,[43] for example, to deal in

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[40] Clarke Memorandum at 20-21 (referring to memorandum from Paul M. Warburg to the Board dated Oct. 4, 1915).

[41] Hackley Memorandum at 9.

[42] Id.

[43] Id. at 10-11.

gold.[44] Given that this provision grants Reserve Banks other than the one opening the account the authority to use the account for purposes other than purchasing, selling, or collecting bills of exchange, it makes no sense to interpret the "to open and maintain accounts" provision of the same section so as not to permit the Reserve Bank that opened the account also to use it to carry on or conduct any transaction authorized by section 14.[45]

The Hackley Memorandum further concludes that one proper purpose of establishing foreign accounts (other than purchasing, selling, or collecting bills of exchange) is to establish foreign currency swap agreements ("swap lines") with

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[44] The Hackley Memorandum concludes that the establishment of foreign accounts through sales of gold is authorized by section 14(a) of the Act, 12 U.S.C. 354, which authorizes the Reserve Banks to deal in gold at home or abroad and to make loans on gold. Hackley Memorandum at 16. This provision was the authority for certain early stabilization credits. "Background Memorandum on the Problem of Currency Stabilization Credits," (Oct. 17, 1949), p. 14, attached to Memorandum to Board of Governors from Senior Staff (Oct. 17, 1949); Memorandum, "Authority to Extend International Credits," to Allen Raiken from A.F. Cole (Aug. 24, 1976), p. 2. In the 1920's, Reserve Banks engaged in several stabilization transactions with European countries involving gold or loans collateralized by gold. See notes 9-11 above and accompanying text. Reserve Banks also established accounts abroad to hold foreign exchange acquired in these transactions. For example, with respect to the first such credit, the FRBNY opened an account in 1925 with the Bank of England as part of an arrangement in which the FRBNY agreed to provide credit to the Bank of England through a transfer of $200 million in gold. Hackley Memorandum at 12. This credit was apparently never drawn upon. "Legal Aspects of International Stabilization Credits by Federal Reserve" (June 4, 1954), p. 14.

[45] Clarke Memorandum at 22.

foreign central banks and to obtain foreign exchange by drawing against those swap lines.[46] A foreign currency swap arrangement is "a reciprocal credit facility under which a central bank agrees to exchange on request [a deposit on its books denominated in] its own currency for [a deposit in] the currency of the other party up to a maximum amount over a limited period of time, such as 3 months or 6 months."[47] The foreign exchange acquired in a swap transaction may be disbursed to conduct spot transactions in foreign exchange or to meet forward exchange obligations, or it may be invested in a time deposit or other investment instrument.[48]

Obtaining foreign exchange through swaps with foreign central banks is authorized by section 14(e) because such foreign exchange is held in Reserve Bank accounts with those banks. For example, in a typical drawing against a swap line by the FRBNY, the foreign central bank credits the FRBNY's account at the foreign central bank with foreign currency, and the FRBNY credits the foreign central bank's account at the FRBNY with U.S. dollars.

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[46] Hackley Memorandum at 15.

[47] Coombs Article at 1147.

[48] Id. at 1147-48.

C. Section 12A -- Open Market Operations

Section 12A(b) of the Act specifies that no Reserve Bank may "engage or decline to engage in open-market operations under section 14 of the Act except in accordance with the direction of and regulations adopted by the [FOMC]."[49] Therefore, a Reserve Bank must obtain the authorization of the FOMC before engaging in open market operations in foreign currencies.

Under section 12A(c) of the Act, open market operations "shall be governed with a view to accommodating commerce and business and with regard to their bearing upon the general credit situation of the country."[50] Foreign currency operations are intended, among other things, to "preserve the strength of the dollar in the international payments system."[51] The Hackley

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[49] 12 U.S.C. 263(b). The FOMC's authorizations for open market operations in foreign currencies are discussed in the Task Force Paper entitled "Evolution of Formal Procedures for FOMC Oversight of System Foreign Exchange Operations."

[50] 12 U.S.C. 263(c).

[51] Bretton Woods Hearings at 89 (statement of Chairman Martin). Among the other purposes of foreign currency operations Chairman Martin identified in his testimony were "correct[ing] or avoid[ing] disorderly movements of exchange rates" and "improv[ing] the international payments system by cooperative arrangements with foreign reserve banks." Id. at 92. The basic purposes of foreign currency operations were discussed at length in a paper submitted to the FOMC entitled "Aims and Scope of System Foreign Exchange Operations" (three drafts: Nov. 2, Nov. 28, and Dec. 12, 1961).

(continued...)

Memorandum identifies the principal purposes of conducting foreign currency operations using accounts with foreign central banks as "promot[ing] international monetary cooperation among the central banks of countries maintaining convertible currencies, . . . foster[ing] orderly conditions in exchange markets for such currencies, . . . facilitat[ing] the expansion and balanced growth of international trade, and . . . supplement[ing] the activities of the International Monetary Fund."[52] The Hackley Memorandum assumes that the accomplishment of these purposes contributes to the accommodation of commerce and business and the maintenance of sound credit conditions in the United States, in accordance with the governing principles of section 12A of the Act.[53] The validity of the System's foreign currency operations depends in the final instance on the soundness of this assumption. This question is addressed in the

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[51](...continued)
Chairman Martin also noted in his testimony that "[i]f we want cooperation from others, we must be prepared to cooperate with them." Bretton Woods Hearings at 92. A month later, Governor Mills seemed to suggest that such cooperation includes the obligation to support currencies other than the U.S. dollar: "Where the Federal Reserve was obtaining support of the dollar through swap arrangements with other foreign central banks, there would seem to be an inescapable responsibility to reciprocate." 1962 FOMC Minutes, p. 340 (Mar. 27, p. 53). Board Vice Chairman Balderston and President Wayne of the Federal Reserve Bank of Richmond expressed the same sentiment as Governor Mills. Id. at 341 (Mar. 27, p. 54).

[52] Hackley Memorandum at 1.

[53] Id.

other Task Force papers accompanying this one. The conclusions in this paper, as in the Hackley Memorandum, are based on the assumption that the System's foreign currency operations satisfy the general requirements of section 12A.

III. Congressional Consideration of the Federal Reserve's Foreign Currency Operations

The Congress was informed almost immediately of the resumption of foreign currency operations by the Federal Reserve in early 1962. Chairman William McChesney Martin testified that "the Federal Reserve has recently decided to reenter the field of foreign-exchange transactions,"[54] an apparent reference to the participation of the Federal Reserve in economic stabilization and emergency credits during the interwar period. Chairman Martin stated that the Federal Reserve had "acquired small amounts of several convertible currencies widely used in international transactions from the [ESF] and ha[d] opened accounts with several European reserve banks."[55] He further said that the Federal Reserve "planned to acquire further amounts through open-market purchases of cable transfers or bills of

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[54] Bretton Woods Hearings at 90 (emphasis supplied).

[55] Id. at 91.

exchange at home or abroad . . . and also through reciprocal transactions with foreign reserve banks."[56]

At the request of members of the House Committee on Banking and Currency, more detailed information was provided to the Committee on the Federal Reserve's foreign currency operations for the Federal Reserve and the Treasury (ESF).[57] Included in those materials, which were printed in the hearing record, were the Hackley Memorandum and the opinion of the General Counsel of the Department of the Treasury, expressing his concurrence, and that of the Attorney General of the United States, in the view that the Federal Reserve has the authority to engage in foreign currency operations.[58] Two members of the House Committee -- Henry Reuss and Wright Patman -- expressed the contrary view in the 1962 hearings.[59]

The Congress has been apprised of the Federal Reserve's foreign currency operations periodically since 1962. The Hackley Memorandum was published a second time in a 1972 hearing record

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[56] Id. at 91-92.

[57] Id. at 128, 141-42 (requests by Representatives Patman and Reuss), 142-43 (letter from William McChesney Martin to Brent Spence, Chairman of the House Committee on Banking and Currency, Mar. 1, 1962).

[58] Id. at 143-57.

[59] Id. at 102, 127-29, 140.

of the House Banking Committee.[60] In addition, the Annual Reports of the Board have described and provided data on the Federal Reserve's foreign currency operations,[61] and the FRBNY has submitted quarterly reports to the Congress on Treasury and Federal Reserve foreign currency operations.[62] Although the Congress can properly be considered to have been fully aware of these published materials, it has not acted to restrict the authority of the Federal Reserve to engage in these operations.

In fact, the Congress has recognized and facilitated the Federal Reserve's foreign currency operations by amending a related provision of the Act to permit the investment of foreign exchange obtained through those operations.[63] In 1980, the

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[60] To Amend the Par Value Modification Act of 1972: Hearings on H.R. 4546 Before the Subcomm. on International Finance of the House Comm. on Banking and Currency, 93d Cong., 1st Sess. 353-65 (1973).

[61] See, e.g., 50th Annual Report of the Board, 1963, pp. 171-90.

[62] See, e.g., "Treasury and Federal Reserve Foreign Exchange Operations: August-October 1987," Federal Reserve Bank of New York Quarterly Review 48-53 (Winter 1987-88), reprinted in 74 Federal Reserve Bulletin 14-17 (1988).

[63] Unless inconsistent with the plain language of the statute, the validity of an agency interpretation has been recognized by the Supreme Court where (i) the interpretation has been long-standing and consistent; see Udall v. Tallman, 380 U.S. 1, 16-18 (1965); (ii) the Congress has failed to criticize or revise the statutory authority upon which the interpretation is based; see North Haven Board of Education v. Bell, 456 U.S. 512, 533-34 (1982); and (iii) substantial foreign and private interests have relied on a consistent interpretation of the agency's authority. See Zenith Radio Corp. v. United States, 437 (continued...)

Congress amended section 14(b)(1) of the Act to grant Reserve Banks the authority to invest foreign exchange in "short-term foreign government securities."[64] The provision was enacted as part of the Monetary Control Act of 1980 in response to a long-standing request from the Board.[65] Its enactment demonstrated Congressional awareness, and suggested tacit acceptance, of the Federal Reserve's foreign currency operations.

The amendment to the Act had only one purpose: providing a vehicle for investment of the foreign exchange holdings of the Federal Reserve. The Congress sought assurances that the amendment would not be used for any other purpose. After the onset of the international lending problems of developing countries in 1982, some members of the Congress became concerned that the Federal Reserve would use its new authority to invest in the obligations of foreign governments as an indirect

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[63](...continued)
U.S. 443, 457-58 (1978).

In Board of Governors v. First Lincolnwood Corp., 439 U.S. 234 (1978), the Court upheld the Board's long-standing construction of its statutory mandate under section 3(c) of the Bank Holding Company Act, noting that the Congress had been made aware of the Board's interpretation, "yet four times ha[d] 'revisited the Act and left it untouched.'" Id. at 248 (quoting Saxbe v. Bustos, 419 U.S. 65, 74 (1974)).

[64] Federal Reserve Membership: Hearings on Amendment No. 398 to S. 85, S. 353 and H.R. 7 Before the Senate Comm. on Banking, Housing, and Urban Affairs, 96th Cong., 1st Sess. 14 (1979); see 12 U.S.C. 355.

[65] See 59th Annual Report of the Board, 1972, pp. 200-01.

way of providing financial support for heavily indebted countries. In March 1983, Governor J. Charles Partee testified before the House Committee on Banking, Finance, and Urban Affairs that there were "ample safeguards" to prevent the provision from being used for that purpose.[66] In addition, Chairman Paul Volcker assured the Congress that "the Federal Reserve has not purchased and has no plans to purchase obligations of developing countries."[67]

There is no evidence that the concerns of members of the Congress about the use of the new authority to support heavily indebted countries derived in any way from questions about the Federal Reserve's authority to engage in foreign currency operations, including swap transactions. Moreover, direct and published information has been made available to the Congress on foreign exchange swap and warehousing transactions.[68]

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[66] Statement of Governor J. Charles Partee, 69 Federal Reserve Bulletin 193, 195 (1983).

[67] Letter from Chairman Paul A. Volcker to Senator David Durenberger (May 18, 1981), p. 2.

[68] See, e.g., 66th Annual Report of the Board, 1979, pp. 30-32; 64th Annual Report of the Board, 1977, pp. 174-75; 59th Annual Report of the Board, 1972, p. 189; Letter from Chairman Paul A. Volcker to Representative Ronald E. Paul (Dec. 3, 1982), p. 1; Letter from Chairman Paul A. Volcker to Representative Ronald E. Paul (July 10, 1981), pp. 1, 2, 5; Statement of Governor J. Charles Partee, 69 Federal Reserve Bulletin 193, 194 (1983).

Furthermore, although the Congress has considered legislation mandating coordination between the Federal Reserve and the Treasury with respect to foreign currency operations, the legislation has been abandoned following assurances of the close coordination between the two agencies.[69] Because there is substantial coordination between the Federal Reserve and the Treasury with regard to swap and warehousing transactions, these operations are fully consistent with the Federal Reserve's commitment to interagency coordination.[70]

IV. Past Criticism of the Authority Set Forth in the Hackley Memorandum

Although its analysis is reasonable, the Hackley Memorandum's conclusions as to the legal authority of the Federal Reserve to conduct foreign currency operations have been questioned. In addition to criticism by Representatives Reuss and Patman that the Federal Reserve was exceeding its authority,[71] Hackley's opinion did not enjoy the support of all of the members of the FOMC. Two members, Governors Robertson and Mitchell, dissented from the FOMC's decision to authorize foreign

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[69] See Letter from Chairman Arthur F. Burns to Representative Thomas J. Rees (June 15, 1976), pp. 1-2.

[70] See also Task Force Paper entitled "Federal Reserve-Treasury Coordination."

[71] See note 59 above and accompanying text.

currency operations in January 1962.[72] Governor Robertson argued that the incidental power to maintain foreign accounts contained in section 14 of the Act could not be "regarded as an authorization to exercise the broad policy functions contemplated by the instant proposal."[73] Governor Robertson emphasized that the Act nowhere authorized "the stabilization function that is the core of this proposal,"[74] and which was already being exercised by the ESF.[75] Governor Mitchell also sought "legislative clarification of the System's statutory authority to acquire, hold, and sell foreign currency assets."[76]

Moreover, Governor Robertson noted that the Board had determined in 1933 that foreign accounts could "be opened and maintained only for the purpose of facilitating the purchase, sale, and collection of bills of exchange and the conduct of open market transactions of the kinds specified in section 14 of the Federal Reserve Act."[77] In light of this long-standing

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[72] 1962 FOMC Minutes, pp. 113-14 (Jan. 23, pp. 41-42).

[73] 1961 FOMC Minutes, p. 1038 (Dec. 5, p. 58); 49th Annual Report of the Board, 1962, p. 56.

[74] 1961 FOMC Minutes, p. 1039 (Dec. 5, p. 59).

[75] 49th Annual Report of the Board, 1962, pp. 56-57.

[76] Id. at 56.

[77] 1961 FOMC Minutes, p. 1038 (Dec. 5, p. 58) (quoting Letter to George L. Harrison, Governor, Federal Reserve Bank of New York, from Chester Morrill, Secretary (Mar. 20, 1933), p. 2.).

administrative interpretation, Governor Robertson argued that departing from it after almost thirty years was unwarranted without specific legislative authorization.

Notwithstanding the Federal Reserve's extended absence from foreign currency operations, the FOMC concluded in 1962 that it was desirable to resume those operations. In reaching that conclusion, the FOMC considered the Federal Reserve's regular correspondent relationships with foreign central banks, its experience in conducting foreign currency operations for the ESF, and the inadequacy of the ESF's funds for the task of stabilizing international exchange rates.[78]

The Board and the FOMC also determined that the Federal Reserve had the statutory authority to engage in the proposed foreign currency operations. The Hackley Memorandum, upon which the FOMC relied in making this determination, has been conveyed to the Congress on at least two occasions. Moreover, although the Congress has never articulated the Federal Reserve's authority in straightforward, modern-day terminology, the Congress has effectively recognized that authority by amending the Act to allow the Federal Reserve to invest the foreign

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[78] See, e.g., Memorandum to the FOMC from Mr. Wayne, President of the Federal Reserve Bank of Richmond (Nov. 6, 1961), pp. 3-5; Letter to President Kennedy from Treasury Secretary Dillon (Dec. 22, 1961); Letter to Chairman Martin from Treasury Secretary Dillon (Dec. 19, 1961), reprinted in 1961 FOMC Minutes, pp. 1145-46 (Dec. 19, pp. 85-86).

exchange acquired through its operations in the obligations of foreign governments. Accordingly, Governor Robertson's argument that any uncertainties as to the construction of the Act should be resolved in favor of long-standing practice is now an argument supporting the authority of the Federal Reserve to engage in foreign currency operations on the basis of the legal opinion set forth in the Hackley Memorandum nearly thirty years ago.

Paper No. 6

CONFIDENTIAL (FR)

November 22, 1961.

Federal Open Market Committee

Mr. Hackley, General Counsel

Subject: Legal aspects of proposed plan for Federal Reserve operations in foreign currencies

At the September 12, 1961 meeting of the Federal Open Market Committee, legal questions were raised regarding a proposed plan under which the Federal Reserve Bank of New York would open and maintain accounts in certain foreign currencies with foreign central banks, acting pursuant to directions and regulations of the Committee and, to the extent legally necessary, in accordance with regulations of the Board of Governors.

It is understood that in general the principal purposes of operations in foreign currencies through such accounts would be to promote international monetary cooperation among the central banks of countries maintaining convertible currencies, to foster orderly conditions in exchange markets for such currencies, to facilitate the expansion and balanced growth of international trade, and to supplement the activities of the International Monetary Fund in this field. It is assumed that the underlying basic objective would be to accommodate commerce and business and maintain sound credit conditions in the United States, in accordance with the governing principles stated in section 12A of the Federal Reserve Act.

It is also understood that such accounts with foreign central banks would be opened and maintained principally through the

purchase of cable transfers by the Federal Reserve Bank of New York, although they might also be created through sales of gold to foreign central banks and the direct establishment of "cross-credits". It is further understood that, while such accounts would be established primarily for the purposes above indicated, any amounts in excess of minimum working balances might be invested in foreign bills of exchange.

As the plan has been described, it gives rise to a number of legal questions, some of basic importance and others that may be of only minor or secondary importance. In general, it appears that the questions may be regarded as falling within the six categories indicated below, and they will be discussed here in that order:

(1) authority of a Federal Reserve Bank to open and maintain accounts with foreign central banks (pp. 7-15);

(2) the legality of the proposed methods of acquiring foreign exchange (pp. 15-20);

(3) investments of foreign accounts (pp. 20-22);

(4) the respective jurisdictions of the Board of Governors and the Federal Open Market Committee (pp. 23-33);

(5) the possible effects of the Gold Reserve Act of 1934 and the Bretton Woods Agreements Act (pp. 33-36); and

(6) administration of the proposed plan, including delegations of authority with respect to "day-to-day" operations (pp. 36-38).

This memorandum does not consider policy questions that may be involved in the present proposal.

CONCLUSIONS

For the reasons hereafter presented, my conclusions are as follows:

1. General. - The opening of accounts with foreign central banks by the Federal Reserve Bank of New York for the purposes and through the methods contemplated by the proposed plan would be consistent with the law, provided appropriate actions are taken by the Board of Governors and the Federal Open Market Committee within their respective jurisdictions. However, this matter is admittedly subject to question; and, while it is unlikely that the plan would be challenged in court, there can be no assurance, in the absence of legislation, that it would not be criticized from some sources on legal grounds. Certain suggested features of the plan (e.g., purchases of foreign Treasury bills) would require specific legislation.

2. Opening of accounts with foreign banks. - Pursuant to section 14(e) of the Federal Reserve Act, a Federal Reserve Bank may open an account with a foreign central bank even though such account is not opened for the principal purpose of purchasing foreign bills of exchange and is not fully or extensively utilized for that purpose; but any questions as to such authority would be lessened if some portion of the account was used to purchase foreign bills (pp. 7-15).

3. Methods of acquiring foreign currency accounts. - A Federal Reserve Bank may lawfully open and maintain such an account through cross-credits, sales of gold to the foreign bank, or transfers of credit to the account through either spot or forward purchases of cable transfers in the open market (pp. 15-16).

4. Purchases from Stabilization Fund. - The purchase by a Federal Reserve Bank of cable transfers directly from the Stabilization Fund of the Treasury would constitute a purchase in the "open market" as authorized by the first paragraph of section 14 of the Federal Reserve Act. It is possible that such purchases from the Stabilization Fund might be criticized as being inconsistent with section 14(b) of the Act which indicates that direct purchases of Government obligations from the Treasury are not purchases in the "open market"; but in my opinion any such criticism would not have legal validity (pp. 16-19).

5. Dealings with International Monetary Fund. - Purchases of cable transfers by a Federal Reserve Bank for its own account directly from the International Monetary Fund could be regarded as "open market" transactions authorized by section 14 of the Act; but, unless otherwise interpreted by the Fund, it seems questionable whether the Fund would have authority to sell cable transfers to a Federal Reserve Bank except in the Reserve Bank's capacity as fiscal agent of the United States (pp. 19-20).

6. Investment of foreign accounts. - Such foreign accounts could be invested in foreign bills of exchange and acceptances that arise out of actual commercial transactions and have maturities of not more than 90 days. They could not, in the absence of further legislation, be invested in foreign Treasury bills or other obligations of foreign Governments or central banks. Some portion of any such account could lawfully be invested in a time deposit with a foreign central bank (pp. 20-22).

7. Jurisdictions of Board and FOMC. - All of the above actions would be subject to regulations of the Board of Governors or the Federal Open Market Committee, or both, as follows:

(a) Open market purchases of cable transfers, bills of exchange, and acceptances would be subject to direction and regulations of the Committee (pp. 24-27);

(b) The opening and maintenance of accounts with foreign banks, negotiations and arrangements with foreign banks for this purpose, and sales of gold to foreign banks would be subject to the consent and regulations of the Board pursuant to sections 14(e) and 14(g) of the Federal Reserve Act (pp. 28-31); and

(c) The Board could not lawfully delegate to the Committee the Board's statutory responsibilities with respect to supervision and regulation of such foreign accounts and incidental transactions with foreign banks.

However, the Board could, by regulation, consent to the maintenance of such accounts and to such negotiations and arrangements with foreign banks as may be authorized or directed by the FOMC in order to effectuate open market transactions, subject, however, to such limitations and reporting requirements as the Board may prescribe, and subject also to reservation in the Board of the right to modify or revoke such authorizations (pp. 31-33).

8. Effect of other laws. - The authorities of the Committee and the Board, as above described, would not be legally limited by the provisions of section 10 of the Gold Reserve Act with respect to the Stabilization Fund of the Treasury. (Dealings in gold would, of course, continue to be subject to the licensing authority of the Secretary of the Treasury.) Nor would such authorities be legally limited by provisions of the Bretton Woods Agreements Act, although it would be desirable, in view of the language and purposes of that Act, for any plan of the kind proposed to be brought to the attention of the National Advisory Council (pp. 33-36).

9. Administration. - If the Board should take appropriate actions along the lines indicated in paragraph 7(c) above, it is believed that the Committee could lawfully (a) direct the Federal Reserve Bank of New York to open accounts and execute transactions pursuant to the plan, subject to limitations prescribed by the Committee, and (b) delegate to a Subcommittee of the Committee authority for supervision

of day-to-day operations by the New York Bank, subject to general policies established by the Committee (pp. 36-38).

I. AUTHORITY TO OPEN FOREIGN ACCOUNTS

Section 14(e) of the Federal Reserve Act (12 U.S.C. 358) authorizes any Federal Reserve Bank

> ". . . with the consent or upon the order and direction of the Board of Governors of the Federal Reserve System and under regulations to be prescribed by said board, to open and maintain accounts in foreign countries, appoint correspondents, and establish agencies in such countries wheresoever it may be deemed best for the purpose of purchasing, selling, and collecting bills of exchange. . . ." (Underscoring supplied)

A basic legal question is whether the underscored "wheresoever" clause in this provision has the effect of permitting a Reserve Bank to open an account with a foreign bank only for the purpose of "purchasing, selling, and collecting bills of exchange" and as, therefore, forbidding the opening of such accounts for the purposes contemplated by the present proposal.

Previous position of Board. - In 1933, in a letter to the Federal Reserve Bank of New York, the Federal Reserve Board stated:

> ". . . Federal reserve banks are authorized to establish and maintain accounts in foreign countries only with the consent of the Federal Reserve Board and subject to such regulations as the Board may prescribe; and it is the Board's view that such accounts may be opened and maintained only for the purpose of facilitating the purchase, sale and collection of bills of exchange and the conduct of other open market transactions of the kind specified in section 14 of the Federal Reserve Act. . . ."

The same position was indicated by the Board in another letter to the New York Reserve Bank dated August 16, 1934:

> ". . . it is the Board's view that the deposit balance with the Bank for International Settlements should be reduced as soon as practicable to the minimum amount which is actually needed for the purpose of facilitating the purchase, sale and collection of bills of exchange and the conduct of other open market transactions of the kinds specified in section 14 of the Federal Reserve Act. . . ."

These letters have sometimes been referred to as reflecting the position of the Board that a foreign account may not legally be opened except for the purpose of buying, selling, and collecting bills of exchange. However, it is not clear that the Board in these letters intended to express such a legal conclusion; it may have been indicating only its view as to policy. Moreover, even if the Board's letters are considered as interpretations of the statute, it may be argued that the present proposal would be entirely consistent with those letters since they stated that one of the permissible purposes of a foreign account is to facilitate "the conduct of other open market transactions of the kinds specified in section 14" and since foreign accounts under the present proposal would be designed to facilitate purchases of cable transfers pursuant to that section.

Language of the statute. - Presumably, the Board's 1933-34 position was based on a construction of the language of the statute under which the "wheresoever" clause was regarded as limiting not only the authority of a Reserve Bank to appoint correspondents and establish agencies but also its authority to open foreign accounts. There is reasonable ground, however, for a contrary construction.

While commas appear after the authorities "to open and maintain accounts in foreign countries" and to "appoint correspondents", there is no comma after the authority to "establish agencies in such countries" and, consequently, it may be argued that, as a matter of grammatical construction, the "wheresoever" clause modifies only the nearest antecedent, that is, the authority to establish agencies. However, it seems unreasonable to suppose that Congress intended to make an arbitrary distinction in this respect between correspondents and agencies.

The so-called Aldrich Bill, upon which the Federal Reserve Act was based, contained a corresponding provision that appeared to limit the establishment of agencies to the purpose of buying and selling bills of exchange but not to place such a limitation upon the opening of foreign accounts. The Aldrich Bill would have authorized a Reserve Bank

> ". . . to open and maintain banking accounts in foreign countries, and to establish agencies in foreign countries for the purpose of purchasing, selling, and collecting foreign bills of exchange, and . . . to buy and sell, with or without its indorsement, through such correspondents or agencies. . . ."

The provision of section 14(e) that authorizes the opening of accounts, the appointment of correspondents, and the establishment of agencies is immediately followed by language authorizing a Reserve Bank to buy and sell bills of exchange or acceptances "through such

correspondents or agencies", again suggesting, although not conclusively, that the purchase and sale of bills of exchange was intended to be linked with correspondents and agencies but not with the maintenance of accounts with foreign banks.

A final, and perhaps the strongest, argument for the more liberal construction of the statute may be based upon the ambiguous nature of the phrase "wheresoever may be deemed best". Even if that phrase is interpreted as applying not only to the appointment of correspondents and agencies but also to the opening of foreign accounts, it does not expressly require such accounts, correspondents, or agencies to be utilized only for the purpose of buying and selling bills of exchange. It is susceptible of the construction that such accounts may be opened wherever geographically it may be reasonably contemplated that they might be used at some time for such purpose but that they need not be limited to that purpose.

Some support for this construction may be derived from the last sentence of section 14(e). That sentence provides in effect that whenever a Reserve Bank opens a foreign account or appoints or establishes a foreign correspondent or agency, any other Reserve Bank may carry on, through such Reserve Bank, "any transaction authorized by this section [section 14]" In other words, where one Reserve Bank opens foreign accounts or appoints foreign correspondents or agencies, other Reserve Banks may conduct through such accounts, correspondents, or agencies not only transactions in bills of exchange but any

transactions authorized by section 14 - even non-open market transactions, such as dealings in gold. From this, it may be argued that it would be illogical if not absurd to hold that the Reserve Bank opening such accounts or appointing such correspondents or agencies could use them only for the purpose of buying and selling bills of exchange. This argument, of course, points to the conclusion that the "wheresoever" clause, even if it modifies the authority to open foreign accounts, was not intended to limit the use of such accounts to the buying and selling of bills of exchange. The argument is also entirely consistent with the language of the Board's letters of 1933 and 1934, which stated that foreign accounts could be opened, not only to purchase and sell bills of exchange, but also in order to facilitate the conduct of any of the open market transactions authorized by section 14.

Intent of Congress. - The intent of Congress in the enactment of the provision in question is not crystal clear. However, legislative history tends in some degree to support the conclusion that Congress contemplated that foreign accounts opened by the Reserve Banks might be used to influence foreign exchange and to control international movements of gold as well as to purchase and sell bills of exchange. For example, the House Committee Report on the original Act contained the following statement with respect to this provision:

> "The final power to open and maintain banking accounts in foreign countries for the purpose of dealing in exchange and of buying foreign bills is necessary in order to enable a reserve bank to exercise its full power in controlling gold movements and in facilitating payments and collections abroad."

Since it refers to "dealing in exchange" as well as "buying foreign bills", this statement might be interpreted as contemplating that

foreign accounts could be broadly used as a means of dealing in foreign exchange, other than through purchases of bills, in order to control gold movements and facilitate payments and collections abroad. Admittedly, however, the statement is not entirely convincing, since the phrase "dealing in exchange" might have been used only as a loose phrase to cover dealings in foreign bills of exchange.

Administrative construction. - In 1925, the Federal Reserve Bank of New York opened an account with the Bank of England which was clearly not for the purpose of buying, selling, and collecting bills of exchange. Under that arrangement, the Reserve Bank agreed to place $200 million of gold at the disposal of the Bank of England, with the understanding that the proceeds of sales of such gold would be deposited in an account in pounds sterling with the Bank of England to the credit of the Reserve Bank to be available for investment for the account of the Reserve Bank in sterling commercial bills guaranteed by the Bank of England, and with the further understanding that, at the end of the standby period, any amount outstanding was to be payable at the Reserve Bank in gold or its dollar equivalent. This arrangement was described by the Board in its Annual Report to Congress for the year 1925, and as thus described it was made clear that the account with the Bank of England might be used from time to time for the purchase of commercial bills, but that this was not the principal purpose of the arrangement.

Although the Board subsequently (in 1933 and 1934) construed section 14(e) as limiting foreign accounts to the purchase of bills of exchange, the fact remains that the 1925 arrangement with the Bank of England did not conform to this construction and that Congress, with full knowledge of that arrangement, did not then or subsequently amend the statute in any manner designed to prevent such an arrangement.

Conclusion. - For all of the reasons above indicated, it is my opinion that a Federal Reserve Bank may lawfully open and maintain an account in foreign currency with a foreign central bank whether or not the account is maintained and utilized for the purpose of investing in foreign bills of exchange and that, therefore, the opening of such accounts for the purposes now contemplated would not be inconsistent with the statute. I do not believe that the "wheresoever" phrase was intended to limit the authority to open foreign accounts; but, even if it may be so regarded, I believe that it can be construed as meaning only that such accounts shall be established where it may reasonably be expected that they might be used for the purchase and sale of bills of exchange. The present proposal would comply with that requirement.

Consultation with Banking and Currency Committees. - Admittedly, the question is debatable, particularly in view of the 1933-1934 position of the Board. Moreover, it may be noted that in 1932, Senator Glass had criticized certain foreign operations of the Federal Reserve Bank of New York, which might be considered as similar to those now contemplated, as being contrary to the law.

When the bill that subsequently became the Banking Act of 1933 was under consideration by Congress, Senator Glass on the floor of the Senate referred to Federal Reserve "stabilization" operations under which credits had been extended to European banks, and suggested that such operations were inconsistent with the Federal Reserve Act. The pertinent portions of his statement were the following:

> "For a period of six years one of the Federal reserve banks has apparently given more attention to 'stabilizing' Europe and to making enormous loans to European institutions than it has given to stabilizing America. Accordingly, we have a provision in this bill asserting, in somewhat plainer terms, the restraint the Federal reserve supervisory authority here at Washington should exercise over the foreign and open market operations of banks which may assume to be a 'central bank of America.'
>
> "We did not think that we were having a central bank. We thought we were having 12 regional banks. The operations of the bank particularly referred to were so extensive in the European field that it found itself liable for hundreds of millions of dollars of foreign acceptances which could not be collected, which had to be renewed at maturity--just a sort of revolving fund--absolutely foreign to the intent, and, as I contend, to the text of the Federal reserve act." (75 Cong. Rec. 9884, May 10, 1932)

For the reasons heretofore indicated, it is believed that the legal validity of Senator Glass's statement may be questioned. In any event, he was obviously referring to instances in which the Federal Reserve had undertaken operations to bolster the credit of foreign countries; and some distinction may be drawn between those operations and the plan now proposed, which, in net effect, is designed to insure international monetary cooperation and convertibility of currencies, as well as to protect the American dollar.

Nevertheless, in view of the uncertainties as to the construction of the law and the history of this matter, it might be desirable, before instituting the plan now proposed, to inform the Banking and Currency Committees of Congress. Such action would not, of course, have any legal significance; but it could help to diminish the likelihood of adverse criticism. On the other hand, of course, such action might tend to generate criticism and controversy.

II. METHODS OF ACQUIRING FOREIGN EXCHANGE

A. Cross-Credits and Sales of Gold

As indicated at the outset of this memorandum, it is understood that the proposed foreign currency operations would be effected principally through purchases of cable transfers that would result in credits in accounts with foreign central banks. However, such credits could be established also through direct arrangements for cross-credits between the Federal Reserve Bank of New York and foreign banks or through sales of gold to foreign banks.

Opening of foreign accounts through straight cross-credit arrangements would be authorized by section 14(e) of the Federal Reserve Act, subject to the consent of the Board and under regulations of the Board as provided in section 14(e) and section 14(g). Unless such arrangements involved the purchase of cable transfers or bills of exchange, they would not constitute open market operations.

As to the establishment of foreign accounts through sales of gold, it seems clear that this would be authorized by section 14(a) of the Federal Reserve Act (12 U.S.C. 354) which empowers the Reserve Banks to "deal in gold coin and bullion at home or abroad." Again, such sales of gold would not be open market operations and, as hereafter discussed, would be subject only to such regulations as the Board might prescribe pursuant to sections 14(e) and 14(g).

B. Purchase of Cable Transfers Generally

The first paragraph of section 14 provides in part that

> "Any Federal Reserve Bank may, under rules and regulations prescribed by the Board of Governors of the Federal Reserve System, purchase and sell in the open market, at home or abroad, either from or to domestic or foreign banks, firms, corporations, or individuals, cable transfers. . . ." (12 U.S.C. 353)

To the extent that the proposed foreign exchange operations would be effected through purchases of cable transfers in the open market from domestic banks or dealers in foreign exchange or from foreign banks, there would, in my opinion, be no legal question of authority involved, whether the cable transfers related to "spot" or "forward" transactions.

C. Dealings with Stabilization Fund

A more difficult question would be presented if the Federal Reserve Bank of New York (or any other Federal Reserve Bank) should

purchase cable transfers from the Stabilization Fund administered by the Secretary of the Treasury under section 10 of the Gold Reserve Act (31 U.S.C. 822a).

First, it may be questioned whether such a purchase from the Treasury would be an "open market" purchase within the meaning of the first paragraph of section 14 of the Federal Reserve Act.

Doubt on this score might be engendered by the provisions of section 14(b) of the Act (12 U.S.C. 355), which clearly regard direct purchases of Government obligations from the Treasury as not constituting "open market" purchases. However, for the reasons hereafter indicated, it is believed that these provisions are not inconsistent with holding that direct purchases of cable transfers from the Treasury constitute "open market" purchases within the meaning of the first paragraph of section 14. The same term may sometimes be differently construed in the light of different statutory contexts and purposes.

From 1913 until 1935, the Reserve Banks under section 14(b) freely purchased Government obligations directly from the Treasury, even though section 14 was designated as relating to "open market operations". By the Banking Act of 1935, Congress prohibited such purchases of Government obligations except in the "open market". In 1942, Congress permitted the "direct" purchase of Government obligations from the Treasury for a temporary period and up to a limited amount;

and this authorization has been extended by subsequent amendments. It seems clear, however, that this limitation on direct purchases of Government obligations was intended to prevent the Federal Reserve System from lending its resources to the Treasury in a manner that might be inconsistent with the System's monetary and credit responsibilities. These considerations, of course, are not applicable to purchases of cable transfers from the Treasury. In other words, an "open market" in cable transfers may be regarded as embracing any person with whom a Reserve Bank may feel free to deal, including the United States Treasury, which is a part of that market; whereas an "open market" in Government obligations may be regarded as excluding the United States Treasury, which issues such obligations and consequently is not a part of that market.

A further question arises as to whether the United States is a "corporation" within the meaning of the first paragraph of section 14 from which a Reserve Bank may properly purchase cable transfers. Obviously, the United States is not a corporation in the usual sense of a business corporation with stock outstanding; and it is probable that, in the original Federal Reserve Act, Congress had in mind only such corporations. However, the courts have held that, depending upon the context, the United States may be regarded as a "corporation" in the sense envisaged by Chief Justice Marshall in the Dartmouth College case (4 Wheat. 636): "an artificial being, invisible, intangible and existing only in contemplation of law."

On balance, it is my opinion that a Reserve Bank's purchases of cable transfers from the Stabilization Fund may reasonably be regarded as "open market" purchases from a "domestic corporation" within the meaning of the first paragraph of section 14.

Admittedly, such purchases might be criticized on the ground that, like direct purchases of Government obligations under section 14(b), direct purchases of cable transfers from the Treasury should not be treated as "open market" transactions; but I would not regard any such criticism as having legal validity. If cable transfers purchased from the Treasury had previously been acquired by the Treasury from the International Monetary Fund solely for purpose of sale to the Federal Reserve Bank, such a transaction might be criticized as a device for accomplishing directly what could not be accomplished directly, i.e., direct acquisition of cable transfers by the Reserve Bank from the IMF; but, again, any such criticism would, in my opinion, relate to policy and not to legal validity.

D. Dealings with International Monetary Fund

Section 1 of Article V of the Articles of Agreement of the International Monetary Fund provides:

> "Each member shall deal with the Fund only through its Treasury, central bank, stabilization fund or other similar fiscal agency and the Fund shall deal only with or through the same agencies."

On the assumption that the Federal Reserve System may be considered the "central bank" of the United States, the United States could purchase cable transfers from the Fund through the Federal Reserve Bank of New York acting under directions of the Board of Governors and the Federal Open Market Committee; but obviously this would not constitute an "open market" transaction by the Reserve Bank.

Literally, the first part of the above-quoted provision of the Articles of Agreement of the Fund would not prohibit a Reserve Bank from dealing for its own account with the IMF, and it might be argued that the second part of the provision would permit the Fund to deal directly "with" the Reserve Bank as well as "through" the Reserve Bank. This is, of course, a question for determination by the Fund; but it is my opinion that the provision contemplates that the Fund will deal only with a member country or with or through its fiscal "agencies" and that, therefore, it is seriously questionable whether dealings between the Fund and the Reserve Bank in a capacity other than fiscal agent for the Treasury would be permissible.

III. INVESTMENT OF FOREIGN ACCOUNTS

Assuming that the proposed plan would not be impeded by lack of authority of the Federal Reserve Banks to open and maintain accounts with foreign central banks or to purchase cable transfers, questions arise as to the types of instruments in which such accounts may lawfully be invested.

Bankers' acceptances and bills of exchange. - The first paragraph of section 14 of the Federal Reserve Act authorizes any Reserve Bank, under rules and regulations prescribed by the Board, to purchase and sell in the open market, at home or abroad, "bankers' acceptances and bills of exchange of the kinds and maturities by this Act made eligible for rediscount, with or without the indorsement of a member bank." (12 U.S.C. 353) Putting aside for the moment the question whether such purchases are subject to regulations of the Board (to be discussed hereafter), it seems clear that under this provision a Reserve Bank could use accounts with foreign banks only for investment in acceptances and bills of exchange that would be eligible for rediscount under sections 13 and 13a of the Federal Reserve Act. In general, this would limit such investments to 90-day commercial paper, 9-months agricultural paper, and acceptances of the kinds and maturities described in section 13.

In addition, section 14(e) authorizes a Reserve Bank, with the consent or upon the order and direction of the Board of Governors and under regulations of the Board, to "buy and sell, with or without its indorsement", through foreign correspondents or agencies, "bills of exchange (or acceptances) arising out of actual commercial transactions which have not more than ninety days to run, exclusive of days of grace, and which bear the signature of two or more responsible parties." Unlike the authority conferred by the first paragraph of section 14, section 14(e) does not require that paper purchased through foreign

correspondents or agencies must comply with the eligibility requirements of the Federal Reserve Act; instead, section 14(e) sets its own requirements as to such purchases through foreign correspondents or agencies. However, these requirements, like those of section 13, limit purchases to paper arising out of "actual commercial transactions" with maturities not exceeding 90 days.

Foreign Treasury bills. - In view of the provisions of law just discussed, it seems clear that Federal Reserve Banks would have no authority to purchase through an account with a foreign central bank paper that does not arise from actual commercial or agricultural transactions. Consequently, such accounts could not be utilized for the purpose of investment in obligations of foreign Governments, such as foreign Treasury bills. If the investment of foreign accounts in such obligations is considered desirable, further legislation would be necessary.

Time accounts. - Question has been raised as to whether any part of an account with a foreign bank could be invested in a time account with a foreign bank. If, as heretofore concluded, the opening of accounts with foreign banks need not be conditioned upon investment of such accounts in bills of exchange, there appears to be no reason for which a Reserve Bank may not maintain a time deposit with such a foreign bank. The authority conferred by section 14(e) is not limited to the opening and maintenance of demand accounts with banks in foreign countries.

IV. RESPECTIVE JURISDICTIONS OF BOARD OF GOVERNORS AND FEDERAL OPEN MARKET COMMITTEE

A. General

So far in this memorandum, the powers of the Reserve Banks with respect to the opening of foreign accounts, the methods by which such accounts may be opened and maintained, and investments through such accounts, have been discussed without reference to the extent to which the exercise of those powers may be limited or regulated by the Board of Governors or the Federal Open Market Committee or both. Discussion of this aspect of the matter has been deferred because, while it directly affects the exercise of the powers of the Reserve Banks, it presents somewhat separate and distinct considerations.

In general, it is clear that the Committee has regulatory authority with respect to "open market" transactions of the Reserve Banks and that the Board has supervisory and regulatory authority with respect to other operations of the Reserve Banks. However, the exact boundaries between the jurisdictions of the Board and the Committee are difficult to determine when, as in the present matter, certain of the operations of the Reserve Banks appear to fall in both areas of jurisdiction.

All of the Reserve Bank powers heretofore discussed are based upon provisions of section 14 of the Federal Reserve Act which is entitled "Open-Market Operations", and which was a part of the original

Federal Reserve Act. As described in section 14, some of these powers, such as the powers to purchase cable transfers and bills of exchange and to open foreign accounts, are made subject to regulation by the Board. However, section 12A of the Act, as amended by the Banking Act of 1935, provides that

> "No Federal Reserve bank shall engage or decline to engage in open-market operations under section 14 of this Act except in accordance with the direction of and regulations adopted by the [Federal Open Market] Committee. . . ." (12 U.S.C. 263)

The jurisdictional question is complicated by the fact that the contemplated operations involve both open market transactions and non-open market transactions which are nevertheless closely interrelated.

B. Purchase of Cable Transfers, Bankers' Acceptances, and Bills of Exchange

The first paragraph of section 14 provides that a Federal Reserve Bank

> ". . . may, under rules and regulations prescribed by the Board of Governors of the Federal Reserve System, purchase and sell in the open market, at home or abroad . . . cable transfers and bankers' acceptances and bills of exchange of the kinds and maturities by this Act made eligible for rediscount, with or without the indorsement of a member bank." (12 U.S.C. 353)

Although this provision, which was a part of the original Federal Reserve Act, continues to refer to rules and regulations of the Board, it seems clear that, since the transactions described are "open market" operations, they are now subject to the direction and regulation of the FOMC pursuant to section 12A of the Act.

Cable transfers. - When section 12A was first enacted by the Banking Act of 1933, it vested the Board with regulatory authority over open market operations of the Reserve Banks; and, pursuant to that authority, the Board issued its Regulation M which, among other things, made purchases and sales of cable transfers subject to the Board's approval. However, when section 12A was amended in 1935 to vest regulation of open market operations in the FOMC, the Board withdrew that regulation.

The current Regulation of the FOMC clearly assumes that open market purchases and sales of cable transfers by the Reserve Banks are within the Committee's jurisdiction. Section 7 of that Regulation provides:

> "(4) No Federal Reserve Bank shall engage in the purchase or sale of cable transfers for its own account except in accordance with the directions of the Committee."

Apparently pursuant to this provision of its Regulation, the Committee adopted on November 20, 1936 a resolution which is still in effect authorizing the Reserve Banks to purchase and sell cable transfers "to the extent that they may be deemed necessary or advisable in connection with the establishment, maintenance, operation, increase, reduction, or discontinuance of accounts of Federal Reserve Banks in foreign countries." It may be noted that this resolution assumes that the FOMC has authority with respect to purchases and sales of cable transfers even though they relate to the opening and maintenance of foreign accounts.

Bills of exchange and acceptances. - It seems clear that the Committee, rather than the Board, now has regulatory authority with respect to the open market purchase and sale of bills of exchange and bankers' acceptances pursuant to the first paragraph of section 14.

There is, however, a distinction to be noted between cable transfers on the one hand and bills of exchange and acceptances on the other. The former are not eligible for discount under the Federal Reserve Act, whereas acceptances and bills of exchange are eligible for discount subject to certain requirements of the law and regulations of the Board. Consequently, even though the Committee has regulatory authority with respect to the open market purchase of acceptances and bills of exchange, they must still comply with statutory and regulatory requirements as to eligibility for discount. Moreover, the Board still has outstanding a regulation (Regulation B) regarding the eligibility of acceptances and bills of exchange for purchase by the Reserve Banks, despite the authority of the Committee to regulate such purchases in the open market. Any conflict of jurisdiction, however, is resolved by section 7(2) of the Committee's Regulation:

> "(2) Only acceptances and bills of exchange which are of the kinds made eligible for purchase under the provisions of Regulation B of the Board of Governors of the Federal Reserve System may be purchased: Provided, That no obligations payable in foreign currency shall be purchased and sold for the account of the Federal Reserve Bank except in accordance with directions of the Committee."

In addition to the authority contained in the first paragraph of section 14 for the open market purchase of bills of exchange and acceptances, authority for the purchase of such obligations is also contained in subsection (e) of that section. Subsection (e) of section 14 provides that "with the consent or upon the order and direction of the Board of Governors of the Federal Reserve System and under regulations to be prescribed by said board," a Federal Reserve Bank may buy and sell, through foreign correspondents or agencies, "bills of exchange (or acceptances) arising out of actual commercial transactions which have not more than ninety days to run, exclusive of days of grace. . . ." Even though here again the law continues to refer to regulations of the Board, it is my opinion that purchases of bills of exchange and acceptances through foreign correspondents and agencies under this provision are subject to regulation by the Committee rather than the Board, despite the failure of Congress to repeal the Board's regulatory authority in this respect when in 1935 it transferred to the FOMC authority over open market operations.

That such purchases through foreign correspondents and agencies, like other open market operations, are subject to the jurisdiction of the Committee, was indicated by the Board in a letter to the Federal Reserve Bank of Boston dated May 15, 1936 (F.R.L.S. #4276), wherein the Board stated:

> ". . . no Federal Reserve bank can open and maintain accounts in foreign countries, appoint correspondents or establish agencies in such countries except with the consent of the Board, nor can it engage in the purchase or sale of bills through such accounts, correspondents or agencies without the consent also of the Federal Open Market Committee. . . ."

C. Dealings in Gold

To the extent that the proposed plan may involve acquisitions of foreign exchange through sales of gold by a Reserve Bank it seems clear that such transactions would not constitute open market transactions subject to regulatory authority of the Committee. Section 14(a) of the Federal Reserve Act authorizes the Reserve Banks to "deal in gold coin and bullion at home or abroad." (12 U.S.C. 354) Any such transactions would seem to be subject to supervision by the Board of Governors, under both its general power of supervision conferred by section 11(j) of the Federal Reserve Act (12 U.S.C. 248(j)) and its special supervisory powers over relationships with foreign banks conferred by section 14(g) of the Act (12 U.S.C. 348a), to be discussed later in this memorandum.

D. Opening of Foreign Accounts

Section 14(e) authorizes a Federal Reserve Bank

> ". . . with the consent or upon the order and direction of the Board of Governors of the Federal Reserve System and under regulations to be prescribed by said board, to open and maintain accounts in foreign countries . . . ."
> (12 U.S.C. 358)

The question whether such foreign accounts may be opened and maintained only for the purpose of buying and selling bills of exchange has heretofore been discussed. At this point, we are concerned only with the question whether regulatory authority as to the opening of

such accounts is vested in the Board or in the FOMC. Clearly, the language of the statute seems to vest such authority in the Board. However, it may be argued that, if such accounts are established through the open market purchase of cable transfers, the opening and maintenance of such foreign accounts is merely an incident to open market operations and therefore subject to regulation by the Committee. (This argument might be considered implicit in the Committee's 1936 resolution previously mentioned.) Conversely, however, it might be argued that the purchase of cable transfers is merely a mechanical incident to the opening of foreign accounts and that, therefore, the authority of the Board is paramount.

It would not seem necessary, however, to determine whether the Board or the FOMC has paramount authority. The question seems to be resolved by the over-all intent of Congress that the Board and the Committee shall have separate but coordinate jurisdictions. This intent, I believe, is clearly reflected in the legislative history of the Banking Act of 1935 as hereafter discussed.

E. Authority with Respect to Foreign Relationships

Section 14(g) of the Federal Reserve Act (12 U.S.C. 346a) provides in effect that -

(1) the Board of Governors shall exercise "special supervision" over all relationships and transactions of any kind between any Federal Reserve Bank and any foreign banks;

(2) all such relationships and transactions shall be subject to "such regulations, conditions, and limitations as the Board may prescribe";

(3) no representative of a Reserve Bank shall conduct negotiations with representatives of a foreign bank without the Board's permission;

(4) the Board shall have the right to be represented in any such negotiations; and

(5) a full report of any such negotiations shall be filed with the Board.

When section 14(g) was added by the Banking Act of 1933, the same Act authorized the Board of Governors (in section 12A of the Federal Reserve Act) to regulate not only the open market operations of the Federal Reserve Banks but also "the relations of the Federal Reserve System with foreign central or other foreign banks."

Subsequently, the Banking Act of 1935 amended section 12A to vest authority over open market operations in the FOMC instead of the Board. Significantly, however, the 1935 amendment to section 12A eliminated the reference to relationships with foreign banks, thus indicating the intent of Congress that the Board should retain its authority with respect to this matter, despite the Open Market Committee's authority over open market transactions.

It is my conclusion, therefore, that, whether or not the opening of foreign accounts as the result of open market purchases of cable transfers would be subject to the "consent" and regulations of the Board under section 14(e) of the Federal Reserve Act, any such foreign accounts would be subject to supervision and regulation by the Board under section 14(g) of the Act, even though they may also be subject to regulation by the FOMC to the extent that they involve open market transactions.

F. Possible Actions by Board and Committee

On the basis of the foregoing discussion, it is my opinion that effectuation of the plan here proposed would require actions by both the Board and the Committee but that such actions may be coordinated without conflict. Such actions might be taken along the following lines:

1. The Board could authorize the New York Reserve Bank (a) to open accounts with foreign banks in such foreign currencies, through such methods, and in such amounts as may be determined by the FOMC to be necessary for effectuation of the proposed plan; and (b) to conduct such negotiations and enter into such arrangements with foreign central banks as, in the judgment of the FOMC may be necessary to effectuate or implement open market transactions under the plan.

Logically, any such action by the Board should be taken in the form of an appropriate amendment to the Board's Regulation N, "Relations with Foreign Banks and Bankers."

Such action would be based upon the Board's authority under both sections 14(e) and 14(g) and it should be in the form of an exercise, rather than a delegation to the Committee, of the Board's statutory responsibilities with respect to foreign transactions of the Reserve Banks. For this reason, it would be desirable for the action to include a requirement, in conformity with section 14(g), that reports of agreements with foreign banks and operations in such foreign accounts be made to the Board at periodic intervals.

The Board's action might also include consent to participation by other Reserve Banks in accounts opened by the New York Reserve Bank.

2. The Committee could issue appropriate regulations or directives, or both, regarding (a) the purchase and sale by the New York Reserve Bank of cable transfers in connection with the opening and maintenance of accounts with foreign banks and (b) the purchase and sale of bills of exchange and acceptances through such foreign accounts. Action as to these matters would be within the Committee's own authority over open market transactions; and logically such action might be taken through appropriate amendments to provisions relating to cable transfers and bills and acceptances now contained in section 7 of the Committee's Regulation.

3. The Committee could take action, in accordance with the action of the Board described in paragraph 1 above, regarding the foreign currencies to be acquired, limitations on aggregate amount and on the amounts of particular currencies, the foreign banks with which accounts could be opened, minimum balances in such accounts, etc

4. To the extent that the operations of the plan might involve purchases and sales of gold or borrowings or loans on gold by the New York Reserve Bank, such transactions should have the approval of the Board.

The above or similar actions would, in my opinion, be consistent with the law and would properly preserve the respective authorities of the Board and the Committee. It is necessary, however, to consider whether the authority to take such actions would in any way be affected by other statutes that may appear to give other Government agencies certain responsibilities in this field.

V. EFFECT OF OTHER LAWS

A. Gold Reserve Act of 1934

Section 10 of the Gold Reserve Act of 1934, as originally enacted (31 U.S.C. 822a) established a "Stabilization Fund" of $2 billion under the Secretary of the Treasury, for the purpose of "stabilizing the exchange value of the dollar." Since the purposes of this provision were so obviously similar to the purposes of the plan now proposed, question arises whether Congress by the Gold Reserve Act meant in any way to modify or supersede whatever powers the Federal Reserve System might have had in this field.

In my opinion, there is no evidence that Congress had any such intent.

In the first place, the Stabilization Fund was originally designed as a temporary measure to expire two years after the date of enactment. It is not reasonable to suppose, therefore, that it was intended as a substitute for whatever powers the Federal Reserve System might have in this respect.

Secondly, when the Fund was made permanent by the Bretton Woods Agreements Act of 1945, it was reduced to $200 million, since the rest of the Fund was allocated for investment in the International Monetary Fund. This action was hardly consistent with the exclusive use of the Fund as a means for stabilizing the exchange value of the dollar.

Finally, section 3 of the Gold Reserve Act of 1934 itself authorized the Federal Reserve Banks to hold gold for the purpose of settling international balances or of maintaining the equal purchasing power of United States currency. Such action, again, would be inconsistent with any intent by Congress to repeal any authority possessed by the Federal Reserve System to maintain the integrity of the dollar.

Even though the provisions of section 10 of the Gold Reserve Act do not affect Federal Reserve authority in this field, it would, of course, be desirable as a matter of policy for Federal Reserve activities under the proposed plan to be coordinated with the utilization of the Stabilization Fund for related purposes.

B. Bretton Woods Agreements Act of 1945

Section 4 of the Bretton Woods Agreements Act of 1945, relating to the National Advisory Council on International Monetary and Financial Problems (of which the Chairman of the Board of Governors is a member) provides in part as follows:

"SEC. 4. (a) . . .

" * * *

"(3) The Council shall coordinate, by consultation or otherwise, so far as is practicable, the policies and operations of the representatives of the United States on the Fund and the Bank, the Export-Import Bank of Washington and all other agencies of the Government to the extent that they make or participate in the making of foreign loans or engage in foreign financial, exchange or monetary transactions.

"* * *

"(c) The representatives of the United States on the Fund and the Bank, and the Export-Import Bank of Washington (and all other agencies of the Government to the extent that they make or participate in the making of foreign loans or engage in foreign financial, exchange or monetary transactions) shall keep the Council fully informed of their activities and shall provide the Council with such further information or data in their possession as the Council may deem necessary to the appropriate discharge of its responsibilities under this Act."

While the Federal Reserve Banks are quasi-governmental agencies exercising public functions, they are not "agencies of the Government" within the meaning of these provisions. However, to the extent that the Board and the FOMC would participate in the plan here

proposed, it seems clear that they would be "agencies of the Government" participating in "foreign financial, exchange or monetary transactions".

Nevertheless, the Bretton Woods Agreements Act refers only to coordination, "by consultation or otherwise, so far as is practicable." It does not endow the National Advisory Council with any enforceable authority. Consequently, there would appear to be no legal respect in which activities by the Board and the Committee would be subject to control by the Council. At the same time, it would seem desirable as a matter of policy for any Federal Reserve operations of the kind contemplated to be brought to the attention of the Council in advance, particularly in view of the related operations of the Stabilization Fund of the Treasury and of the International Monetary Fund.

VI. ADMINISTRATION

As the proposed plan has been described, it would contemplate that the Committee would designate the Federal Reserve Bank of New York to execute the transactions (opening of accounts with foreign banks, purchase of cable transfers, etc.) necessary to accomplish the purposes of the plan on behalf of the System Open Market Account, pursuant to directions of the Committee. The plan further contemplates that immediate direction and supervision of operations in foreign exchange would be vested by the Committee in a Subcommittee consisting of the Chairman and Vice Chairman of the Committee and the Vice Chairman of

the Board of Governors in his capacity as a member of the Committee; that the New York Reserve Bank would select an officer of that Bank satisfactory to the Committee who would act as "Special Manager of the System Open Market Account for Foreign Currency Operations" and would conduct day-to-day operations in this field; and that the Subcommittee would establish maximum amounts of currencies to be purchases, rates of exchange, and other guidelines for such day-to-day operations.

The proposed designation of the New York Reserve Bank and selection of the Special Manager would be consistent with section 5 of the present Regulations of the Committee and with section 3(b) of the Committee's Rules on Organization and Information.

There would appear to be no legal objection to the proposed delegation to a Subcommittee of authority to supervise and direct day-to-day operations in foreign currencies, provided, of course, that general policies are established by the full Committee. The Open Market Committee, unlike the Board of Governors, is not a "full-time" Government agency; and it is clear that Congress in section 12A did not expect that the Committee would meet daily or exercise day-to-day supervision over the implementation of policies formulated by the Committee. This is evidenced by the fact that the Committee was required to consist of the 7 members of the Board of Governors and 5 of the Federal Reserve Bank Presidents - individuals who are obviously already fully occupied as a daily matter. It is also significant that

the Committee is required to meet only at least four times each year, a requirement scarcely consistent with any intent that the Committee should directly supervise day-to-day implementation of its policies. In addition, the presently proposed delegation of authority to a Subcommittee is similar (and perhaps not even as extensive) to the delegation of authority to an "Executive Committee" that existed with the knowledge of Congress for many years prior to 1955.

EVOLUTION OF FORMAL PROCEDURES

FOR FOMC OVERSIGHT OF SYSTEM FOREIGN CURRENCY OPERATIONS*

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* Prepared by Gary Gillum, FOMC Secretariat, Division of Monetary Affairs, Board of Governors with the invaluable help of Normand Bernard. Helpful comments were received from many members of the task force.

This paper begins with a brief review of the Federal Reserve System's early experience with foreign currency operations and with subsequent Congressional actions in the 1930s to transfer the principal responsibility for such operations from the Federal Reserve to the Treasury. Next there is a recounting of the System's decision in early 1962 to resume foreign currency operations for System Account, in coordination with the Treasury, and the authorization, directive, and other instructions that were developed for oversight by the Federal Open Market Committee (FOMC) of System operations in foreign currencies. The rest of the paper examines the evolution of these instruments over time.

Background.[1]

The Federal Reserve Act, as enacted, authorized any Federal Reserve Bank, under rules and regulations prescribed by the Board of Governors, to conduct transactions in the foreign exchange markets.[2] The Federal Reserve Banks initiated their first, shortlived series of foreign currency operations in 1918 for the purposes of administering exchange controls established under the Trading with the Enemy Act of 1917 and the Executive Order of January 1918; dealing with sizable and apparently speculative movements of gold; and stabilizing the foreign exchange value of the dollar. No further operations were undertaken until the mid-1920s, and then primarily for the purpose of providing stabilization credits to a number of European central banks for the defense of their currencies. These operations were conducted largely by

1. A more detailed history of System operations in the foreign exchange markets from 1918 to the early 1930s is contained in Appendix A of a Board staff memorandum entitled "Federal Reserve Operations in Foreign Exchange, 1962-1965," prepared by Charles C. Baker. This memorandum was distributed to the FOMC on March 21, 1966.
2. The governing Board regulation is Regulation N.

the Federal Reserve Bank of New York, apparently with only cursory supervision by the Board of Governors.

As a result of Congressional concerns regarding these Reserve Bank activities (notably, strong criticism voiced by Senator Carter Glass regarding credits extended by the New York Reserve Bank in support of certain foreign currencies), the Federal Reserve Act was amended in 1933 to remove from the Banks the authority to conduct foreign currency operations without the special supervision and advance approval of the Board of Governors. The Gold Reserve Act was enacted the following year, and its Section 10 vested in the Treasury the responsibility for stabilizing the value of the dollar through dealings in gold and foreign exchange and established the Exchange Stabilization Fund (ESF) for the purpose of carrying out these responsibilities.[3]

For many years, the Treasury made little use of the broad authority it had been granted. By 1961, however, the post-WWII recovery of the European industrial economies and the formation of the European Common Market had altered the balance of the world economy and the international position of the dollar. In March of that year, against a backdrop of persisting official settlements deficits in the U. S. balance of payments, drains on the U.S. gold stock, and concerns regarding the exchange value of the dollar in world markets, the Treasury--through its ESF and with the Federal Reserve Bank of New York acting as its fiscal agent--began conducting foreign currency operations. These operations were undertaken within a framework of

3. In addition, the Federal Reserve's authority to control gold movements to and from the United States, as well as title to the gold held by the System, was transferred to the Treasury.

reciprocal credit ("swap") arrangements with foreign central banks in countries on both sides of the Atlantic and were seen as a "first line of defense" in countering short-term speculative capital flows in foreign exchange markets. Because most of the ESF's resources were tied up in currency stabilization agreements with Latin American governments, foreign currency holdings of the ESF in 1961 were relatively small in size, at no point exceeding $125 million.[4]

Resumption of System Foreign Currency Operations.

The Federal Reserve began to contemplate a resumption of foreign currency operations around the time that the Treasury reentered the foreign exchange markets. After nearly a year of study and discussion, the FOMC acted at its meeting on January 23, 1962, to approve in principle the initiation on an experimental basis of a program of System foreign currency operations.[5] In addition, representatives of the Committee were authorized to explore with the Treasury, on the Committee's behalf, the development of guidelines for such operations along with plans for effective working relationships

4. A more detailed history of Treasury activities in the foreign exchange market during 1961 is contained in a Treasury staff memorandum entitled "Treasury Experience in the Foreign Exchange Market" that was circulated to the FOMC on February 9, 1962.

5. Messrs. Mitchell and Robertson dissented from this action. Mr. Mitchell dissented on the grounds that the institution of such a program should be preceded by analysis by outside experts, public discussion, and legislative clarification of the System's statutory authority to acquire, hold, and sell foreign currency assets. Mr. Robertson dissented on both legal and economic grounds. In his view, the Federal Reserve Act provided no general and positive authorizations for such operations, and an incidental power like the power to maintain foreign accounts should not be relied upon as an authorization to exercise the broad policy functions involved in the proposed operations. Moreover, the operations would be inconsistent with the express intent of Congress to confer upon the Treasury's Exchange Stabilization Fund a limited authority for operations to stabilize the exchange value of the dollar.

between the Federal Reserve and the Treasury in foreign exchange matters. Consultations with key members of Congress also were quietly undertaken to review the purposes and authorities under which such operations would be carried out. Upon the successful completion of discussions with the Treasury, the FOMC acted at its meeting on February 13, 1962, to approve, effective immediately, an Authorization Regarding Open Market Transactions in Foreign Currencies, a statement of Guidelines for System Foreign Currency Operations, and a Continuing Authority Directive on System Foreign Currency Operations.[6,7] (These documents are included in Appendix A, beginning on page 27.) The approved instruments were more elaborate than those governing domestic operations, reflecting the experimental nature of this activity and the Committee's desire to move with caution.[8]

In deciding to move forward with a program of foreign currency operations, FOMC members generally felt that the importance to the United States and the rest of the world of an efficient and orderly world payments system made it imperative that the Federal Reserve take an active part along with other central banks in fostering relative

6. This action was approved by all members, including Messrs. Mitchell and Robertson who had dissented from the motion to approve in principle the initiation of a program of System foreign currency operations at the meeting on January 23. Their affirmative votes on this action reflected their view that the actions being taken involved the implementation of a basic decision that already had been made.

7. On February 28, the National Advisory Council on International Monetary and Financial Problems approved the System's decision to enter the foreign currency field.

8. At its meeting on December 19, 1961, the Committee had chosen to replace the single directive of the type it had previously issued to the Federal Reserve Bank of New York with a "current economic policy directive" and a "continuing authority directive." The current policy directive was a brief two paragraphs long and the continuing policy directive contained just five paragraphs.

stability in currency values. Members also saw a need to supplement the relatively small resources of the ESF so that the dollar might be adequately defended, in cooperation with the monetary authorities of other leading trading nations, from speculative attacks in foreign exchange markets. It was understood that official intervention could not substitute for fundamental policy measures in eliminating the persisting deficits in the U.S. balance of payments and maintaining the value of the dollar. However, it was thought that these ends could be achieved more readily in the absence of unsettled foreign exchange market conditions resulting from speculative pressures, and that timely foreign currency operations could serve to help moderate such pressures. These basic purposes along with specific aims for intervention operations were set forth in the approved Authorization Regarding Open Market Transactions in Foreign Currencies.

The action of Congress in 1934 to vest in the Treasury the responsibility for stabilizing the value of the dollar was a source of considerable concern to FOMC members regarding the legality of foreign exchange operations by the System and, even if not expressly prohibited by law, the advisability of resuming such operations. Members' concerns were largely resolved through an opinion of Committee counsel (with the concurrence of counsel from the Treasury and the Attorney General of the United States) and a strong expression of interest by then-Secretary of the Treasury Douglas Dillon in having the Federal Reserve join with the Treasury in its stabilization efforts (letter to Chairman William McChesney Martin, dated December 18, 1961, reproduced on page 24, Appendix A).

It was agreed by the Treasury and the Federal Reserve that their sharing of foreign currency operations called for close consultation and coordination between the two agencies. The Treasury, having primary responsibility for foreign currency operations under the law, would take the lead in such efforts but "the Treasury would . . . avoid impinging on the independence of the Federal Reserve System within the Government."[9] All intervention activities for both agencies would continue to be conducted at the Federal Reserve Bank of New York under the supervision of a senior officer of the Bank.

The Authorization approved by the FOMC on February 13, 1962, provided that Federal Reserve intervention operations would be under the continuing supervision of the FOMC.[10] Operations in foreign currencies would be conducted at the Federal Reserve Bank of New York, on behalf of all of the Reserve Banks, under a Special Manager of the System Open Market Account selected in accordance with the procedures already established for the selection of the Manager of the System Open Market Account.[11] For those cases where a decision was needed on operations

9. Letter to Chairman William McChesney Martin, dated December 18, 1961.
10. To enable the FOMC to carry out its supervision of foreign exchange operations, the Committee began, at the following meeting of the Committee on March 6, to receive written and oral reports of the same type as those given on open market operations in domestic markets.
11. To enable the Reserve Banks to undertake foreign exchange operations, the Board of Governors had acted on February 13, during a recess of the FOMC meeting on that date, to amend Regulation N to regulate the opening and maintenance by Federal Reserve Banks of accounts with foreign banks, and to provide that negotiations and agreements, contracts, or understandings entered into by a Federal Reserve Bank with foreign banks were to be subject to such authorizations, directions, regulations, and limitations as might be prescribed by the FOMC to the extent necessary to effectuate the conduct of open market transactions by the Federal Reserve Banks through such foreign accounts.

before the Committee could be consulted, the Authorization provided for a Subcommittee consisting of the Chairman and Vice Chairman of the Committee and the Vice Chairman of the Board of Governors to give instructions to the Special Manager, within the guidelines issued by the Committee. The Authorization also provided for alternate members in the absence of Subcommittee members.

The New York Bank was authorized to purchase and sell foreign currencies through spot and forward transactions on the open market at home and abroad in such currencies and within such limits as the FOMC might from time to time specify. The Continuing Authority Directive provided that such transactions could be carried out in British pounds, French francs, German marks, Italian lira, Netherlands guilders, and Swiss francs, but limited the total of foreign currencies held at any one time to no more than $500 million. The manner in which operations might be conducted in permitted currencies was spelled out in some detail in the Guidelines. Additional guidance as to the scope and character of initial System foreign currency operations was provided to the Special Manager in a document agreed upon by Treasury and FOMC representatives as a basis for coordinated Treasury and System operations and reviewed by the full Committee at its meeting on February 13.

Following the decision to undertake foreign currency operations, System officials began to attend monthly meetings of the Bank for International Settlements and to participate in U.S. delegations to meetings of committees and working parties of the OECD in Paris. The System also began to purchase modest amounts of German

marks, Swiss francs, Dutch guilders, and Italian lira from the ESF; in all, foreign currencies acquired in this manner amounted to the equivalent of $33.5 million. Most of the foreign currencies acquired in 1962 were obtained through drawings under swap arrangements negotiated by the Special Manager with central banks in those countries whose currencies were listed in the Continuing Authority Directive. Initially, six currencies were included in the Continuing Authority, but at subsequent meetings the FOMC added Belgian francs, Canadian dollars, and Austrian schillings, and raised the maximum amount of foreign currencies permitted to be held at one time to $1 billion. In addition, a swap agreement was negotiated with the Bank of International Settlements.[12]

At its meeting on November 13, 1962, the FOMC amended both the Authorization and the Guidelines to provide expressly for swap arrangements on a standby basis and for somewhat greater flexibility for operations in circumstances where disequilibrating movements of funds might not be reversed over the foreseeable future.

Swap agreements were seen as a convenient mechanism for gaining access on call to needed amounts of foreign currencies without having to build up holdings over a period of time through purchases in the exchange markets and also for expanding the total amount of

12. For further information on the foreign exchange activities of the Treasury and the Federal Reserve from March 1961 to August 1962, see Charles A. Coombs, "Treasury and Federal Reserve Foreign Exchange Operations," Federal Reserve Bulletin, September 1962, pp. 1138-1153.

international reserves available to the signatories.[13] There remained, however, an important question as to how and when debt incurred under these arrangements should be paid off. At its meeting of May 28, 1963, the FOMC adopted the recommendation of the Special Manager that swap debt should not be outstanding for more than a full year. Following this action, there developed an understanding with foreign central banks that a debtor central bank should begin exploring how its swap debt would be liquidated well before the one-year limit was reached. This one-year limit occasionally caused some problems for the Federal Reserve when its debts to foreign central banks proved difficult to reverse within a year without undertaking undesirable spot purchases of the needed currency. In such instances, the Treasury stepped into the breach and issued "Roosa" bonds in effect to provide repayment to the foreign central bank.[14]

In November 1963, the FOMC amended the Foreign Currency Directive to add a paragraph authorizing purchases from the ESF and concurrent forward sales to the Fund of any foreign currencies in which the Treasury had outstanding indebtedness. Purchases and sales were

13. Under a swap arrangement, the Federal Reserve could acquire a specified amount of a foreign currency in exchange for a corresponding dollar credit in favor of the other party. Each party was protected against loss if a revaluation of the other's currency were to occur while a drawing was outstanding. Both parties received the same rate of interest on invested balances; foreign-owned balances generally were invested in special U.S. Treasury certificates while Federal Reserve balances were placed in interest-earning deposits abroad. Swap drawings generally carried 3- or 6-month maturities but were renewable by consent of both parties.

14. Roosa bonds were special nonmarketable Treasury debt that were denominated in foreign currencies and issued to foreign treasuries or central banks as a means of sopping up excess dollar reserve balances that might otherwise have been used to purchase U.S. gold. In the latter part of the 1970s, obligations denominated in foreign currencies but issued in foreign private markets were called "Carter" bonds.

required to be at the same exchange rates, and the total amount of such transactions outstanding was limited to $100 million. This initial authority to "warehouse" foreign currency holdings for the Treasury was undertaken on an experimental basis to assist the Treasury in accumulating Italian lira, partly for the purpose of repaying Treasury debt denominated in lira. At the time, the Committee contemplated that similar warehousing operations might prove useful in other instances where the Treasury would need to accumulate currencies to repay outstanding debt. (Warehousing arrangments are discussed more fully in the section on warehousing that begins on page 19.)

Authorization and Directive, Revised June 7, 1966.

At its meeting on June 7, 1966, the FOMC consolidated the three instruments governing foreign currency operations into two: an Authorization for System Foreign Currency Operations and a Foreign Currency Directive. (These instruments as revised in 1966 may be found on pages 37 and 71 of Appendixes B and C, respectively, along with a chronology of subsequent amendments.) The Committee's purpose was to streamline and clarify its instructions by removing duplication of content, drawing together related instructions previously occurring at separate points, deleting language considered superfluous, and otherwise clarifying and simplifying the wording. In addition, the Authorization was expanded to include a listing of all of the reciprocal currency arrangements authorized by the Committee.

The one substantive change made in the new instruments related to the authority of the Special Manager for foreign currency operations to engage in market transactions when exchange market instability

threatened to produce disorderly conditions. At such times, under the terms of the original Guidelines for System Foreign Currency Operations (fourth paragraph of Section 3), the Special Manager was required to consult with the FOMC--or in an emergency with the members of the Subcommittee designated for that purpose--prior to engaging in transactions. However, experience at the time of the assassination of President Kennedy had demonstrated that in a sudden major crisis it might not be possible for the Special Manager to reach all of the designated members in time to obtain authorization for necessary operations. Accordingly, paragraph 2.C of the new Foreign Currency Directive provided leeway for the Special Manager to engage in operations on his own initiative to meet a threat of disorderly conditions, with the requirement that he consult as soon as practicable with the Committee or, in an emergency, with the members of a Subcommittee designated (in paragraph 6 of the new Authorization) for that purpose. The new instruction was intended to require advance consultation if practicable, but to permit operations if it were not.

Following this action to consolidate the foreign currency instruments, the Foreign Currency Directive remained essentially unchanged over the next ten years; by contrast, the Authorization for System Foreign Currency Operations was subject to frequent minor amendments. Most of the amendments to the Authorization took the form of increases or decreases in the authorized amount of individual swap agreements, but some were more substantive in nature. Initially, changes to the maximum maturity of individual swap agreements required amendments to the Authorization, but the FOMC remedied this at its

meeting on July 18, 1967, by amending the text of paragraph 2 to provide that the maximum period for all swap arrangements would be no more than twelve months.

At its meeting on March 5, 1968, the FOMC deleted the second sentence of paragraph 3, which had placed restrictions on spot sales of foreign currencies at prices below par and on spot purchases at prices above par. These restrictions were viewed as undesirable in circumstances where such sales might be useful in furthering the purposes specified in paragraph 2 of the Foreign Currency Directive and unncessary in light of limitations set out in that same paragraph on the purposes for which foreign currency operations could be undertaken.

At the FOMC meeting on March 9, 1971, paragraph 3 of the Authorization was amended to authorize the purchase of currencies needed for the liquidation of System commitments from the foreign central bank on which the swap was drawn at the same exchange rate at which the drawing took place. The previous wording, which had specified that unless otherwise expressly authorized by the Committee all transactions of this nature should be undertaken at prevailing market rates, exposed the two parties to a swap drawing to the risk of financial loss if the exchange rate at the time of repayment differed from the rate at the time of the drawing. To remove this risk, some European central banks had urged since the fall of 1970 that swap drawings be liquidated at the same rate as that at which the drawing had been made. As a partial accommodation to these central banks, the new wording gave the Special Manager leeway to enter into an understanding on terms of repayment at the time of a drawing, if the foreign bank were agreeable, but did not

preclude repayment of swap drawings by the Federal Reserve on or before maturity through purchase of the needed foreign currency at market rates in the exchange market or elsewhere (e.g., from the Bank for International Settlements).

At its meeting on February 19, 1975, the FOMC amended the Foreign Currency Directive to delete the word "Special" from the phrase Special Manager wherever the phrase appeared. This action was taken in light of the announced retirement of the incumbent Special Manager, Charles A. Coombs. In other action, the Committee approved the assignment of responsibility for the conduct of open market operations in foreign currencies, as well as in domestic securities, to the Manager of the System Open Market Account.

At its meeting on September 16, 1975, the FOMC began to set informal limits on the System's uncovered holdings of foreign currency balances within the broader limit authorized under the Committee's Authorization for Foreign Currency Operations. Thereafter, the Account Management consulted with the Committee from time to time as to whether a change in the informal limit would be appropriate.[15] (A chronology of these informal limits can be found on page 85, Appendix E.)

At its meeting on February 18, 1976, the FOMC amended paragraph 6 of the Authorization in order to create a new Foreign Currency Subcommittee. The new Subcommittee would have the same special duties in the foreign currency area as had been delegated to the previous Subcommittee, but its membership would be augmented by such other member

15. Beginning in May 1979, the Committee established limits on holdings of individual currencies, initially for Japanese yen and later for German marks. These limits were removed in March 1989.

of the Board as the Chairman might designate. It was contemplated that the Chairman would select for this purpose the member of the Board having particular responsibilities for international matters.

Foreign Currency Instruments, Revised December 20, 1976.

At its meeting on December 20, 1976, the Committee agreed on broad revisions of both the Authorization for Foreign Currency Operations and the Foreign Currency Directive. The main purpose of the revisions was to bring the documents up to date in light of changes under way in the international monetary system and its functioning, especially the evolving regime of floating exchange rates. Another purpose was to simplify and clarify the Committee's instructions to the Federal Reserve Bank of New York. The Committee also established a set of procedural instructions, which are discussed in the section that begins on page 17.

The main wording change to the Directive was to omit the detailed listing of basic purposes and specific objectives of System foreign currency operations, many of which no longer applied, and to indicate instead that System operations were generally to be directed at countering disorderly conditions in the exchange markets.

In the Authorization, the several separate limits in paragraphs 1.B and 1.C on various types of spot and forward transactions were replaced with a single limit of $1 billion on the System's "overall open position" as defined in a new paragraph 1.D. The previous separate limits, which had been developed under the Bretton Woods system, were judged to have lost relevance in a floating-rate environment. In paragraph 2, a sentence was added to reflect the prevailing practice

that changes in terms of existing swap arrangements and proposed terms of new swap arrangements must be referred for review and approval to the FOMC. Paragraph 6 was amended to require that all foreign exchange operations be reported daily to the Foreign Currency Subcommittee and to delete the requirement that all actions of the Subcommittee under the paragraph be reported promptly to the FOMC.[16] This paragraph was further amended to provide that meetings of the Subcommittee could be called by any member of the Subcommittee or by the Manager and to provide that any member of the Subcommittee could request referral of any questions arising from reviews and consultations to the FOMC for determination.

Since December 1976, the Foreign Currency Directive has remained essentially unchanged. The Authorization, on the other hand, has been amended numerous times, mostly to reflect changes in the permitted size of swap arrangements with foreign central banks and changes in the authorized overall open position in all foreign currencies (these changes are included in Appendix B.) In addition, the Authorization was amended in June 1978 to place in paragraph 1.D a new definition of the overall open position in all foreign currencies as the sum, disregarding signs, of net positions in individual currencies.[17] In December of that year, paragraph 1.A was amended to provide that

16. At its meeting on March 31, 1981, the Committee amended this paragraph further to provide that operations be reported promptly rather than daily to the Foreign Currency Subcommittee and to the Committee. This requirement is met by means of the "2:30 call" sent out by Board staff.

17. However, the net position in a single foreign currency was defined with due regard for sign as holdings of balances in that currency plus outstanding contracts for future receipt minus outstanding contracts for future delivery of that currency.

foreign exchange operations could be conducted directly with the Treasury as well as with its ESF. The purpose of the amendment was to provide for contemplated System purchases of proceeds from the sale in foreign private markets of U.S. Treasury securities denominated in foreign currencies (so-called "Carter" bonds). Finally, in May 1979 and then again in March 1981, the Authorization was amended to provide more flexibility in arranging investment facilities for System holdings of foreign currencies. The 1981 amendment incorporated new authority granted in the Monetary Control Act of 1980 to permit the System to invest in securities issued or fully guaranteed by foreign governments.

The Authorization and the Foreign Currency Directive, as reaffirmed on February 6, 1990, are included at the end of Appendixes B and C at pages 67 and 76, respectively.

Procedural Instructions.

At the same meeting (December 28, 1976) at which the FOMC extensively revised its Authorization for Foreign Currency Operations and its Foreign Currency Directive, it agreed upon certain procedural instructions with respect to consultations and clearance by the Manager with the Committee, the Foreign Currency Subcommittee, and the Chairman of the Committee. (These instructions are included in Appendix D, which begins on page 77, along with a chronology of amendments to the instructions.) These instructions were intended to clarify the respective roles of the Committee, the Foreign Currency Subcommittee, and the Chairman in providing guidance to the Manager of the System Open

Market Account with respect to proposed or ongoing foreign currency operations.[18]

At its meeting on June 20, 1978, the FOMC amended the procedural instructions to make less cumbersome the consultation procedures between the Manager and the Committee (or, as necessary, the Subcommittee) by removing the limit in paragraph 1.B on gross transactions in individual currencies and substituting a new limit on changes in net positions. In addition, language was added that called for clearance of any large-scale operations, and certain other clarifying changes also were made elsewhere in the instructions. Later that year, on November 1, in connection with the package of actions in support of the dollar announced by President Carter on that date, Chairman Miller approved a suspension until the next Committee meeting of the daily and intermeeting limits on the change in the System's overall open position and on the change in the System's net position in a single foreign currency. In mid-December, the Foreign Currency Subcommittee approved an indefinite suspension of these limits. These limits were reinstated by the FOMC at its meeting on March 20, 1979, but at higher levels than previously had been specified. In August 1979, to reflect changes in positions and titles relating to management of the System account, the procedural instructions and other Committee rules

18. Mr. Coldwell dissented from this action because he objected to the parenthetical statement in paragraph 2 that permitted, under particular circumstances relating to the availability of time, the Foreign Currency Subcommittee, or the Chairman if the Chairman believed that consultation with the subcommittee was not feasible, to approve market transactions by the System and swap drawings by foreign central banks exceeding specified amounts. Mr. Coldwell felt that such power, which extended to operations up to the limits permitted by the Authorization, should be reserved to the full Committee except under circumstances of extreme emergency.

were changed to include the new title of Manager of Foreign Operations, System Open Market Account. The procedural instructions have remained unchanged since August 1979; as reaffirmed on February 6, 1990, they are to be found at the end of Appendix D on pages 82-83.

Warehousing.

As noted previously, warehousing was first authorized in November 1963 when the FOMC amended its Foreign Currency Directive to permit concurrent spot purchases and forward sales of foreign currencies by the Federal Reserve with the ESF.[19] Such transactions were to take place on a "flat" basis--that is, at identical spot and forward exchange rates--so that neither party would be subject to a financial loss. The purpose of this warehousing arrangement was to supplement temporarily, on an as-needed basis, the liquidity of the ESF.

The initial use contemplated for the warehousing facility was to aid the Treasury in accumulating the amount of Italian lira needed to pay a maturing swap debt. A ceiling for the amount of lira acquired initially was set at $100 million equivalent but was raised in April 1966 to $200 million equivalent.

19. When the foreign currency instruments were extensively revised in June 1966, the warehousing provision was shifted to the Authorization for System Foreign Exchange Operations. In Section 1(A) of the current Authorization, the Federal Reserve Bank of New York is authorized "to purchase and sell the following foreign currencies . . . through spot or forward transactions on the open market at home and abroad, including transactions with the U.S. Exchange Stabilization Fund established by Section 10 of the Gold Reserve Act of 1934 . . ." Section 1(B) contains authorization "To hold balances of, and to have outstanding forward contracts to receive or to deliver, the foreign currencies listed in paragraph A above." In addition, paragraph 3.B of the Foreign Currency Directive provides that transactions may be undertaken "To provide means for meeting System and Treasury commitments in particular currencies, and to facilitate operations of the Exchange Stabilization Fund."

In November 1967, the U. S. participated in an international credit package for the United Kingdom. The U. S. pledged to purchase up to $500 million equivalent of "guaranteed" sterling (pounds sterling held under an exchange guarantee by the Bank of England). Direct participation by the Federal Reserve was set at $100 million equivalent with the remaining $400 million equivalent of guaranteed sterling proposed for the Treasury. Because a Treasury purchase of this magnitude would have strained the liquidity of its ESF, the FOMC agreed to warehouse up to $150 million of the guaranteed sterling and amended paragraph 1.C(1) of the Authorization for System Foreign Currency Operations to increase the limit on outstanding forward commitments to deliver foreign currencies to the Stabilization Fund (the overall warehousing limit) from $200 million to $350 million equivalent. In May 1968, the FOMC noted that warehousing operations--none of which had been undertaken to date--would involve forward transactions and thought it desirable to amend paragraph 4 of the Foreign Currency Directive to make a conforming change in the list of purposes for which forward transactions were authorized.

The warehousing facility was not used until June 1968 when $200 million of guaranteed sterling was warehoused. In September 1968, in connection with U.S. participation in the Second Sterling Balance Arrangement, the overall warehousing authorization was increased to $1 billion equivalent. The full authorized limit (consisting of guaranteed sterling, French francs, and Italian lira) was reached for a short period in January 1970, but by February System holdings of warehoused Treasury balances had returned to zero.

The warehousing arrangement was not reactivated until January 1977 when, in connection with U. S. participation in an official sterling balance facility put together that month, the FOMC agreed to a Treasury request that the Federal Reserve undertake to warehouse up to $1.5 billion equivalent for the ESF, $750 million of which would be available for periods of twelve months and the remainder for periods of six months. The Committee also decided that the warehousing arrangement should be reviewed periodically, with reconsideration normally taking place at the yearly organization meeting (beginning in 1990, the first regular Committee meeting in the new year, but previously the first regular meeting in March).

In December 1978, the Federal Reserve agreed to broaden the agreement to provide for warehousing of currencies held directly by the Treasury as well as by the ESF and to increase the warehousing limit to $5 billion equivalent, all of which would be available for periods of up to twelve months. These steps were taken to provide for the warehousing of foreign currencies acquired through issuance of foreign-currency denominated ("Carter") bonds.

At its meeting on March 18, 1980, the FOMC reaffirmed, subject to annual review, its agreement that the Federal Reserve would be prepared to warehouse up to $5 billion equivalent of eligible foreign currencies for the U. S. Treasury or the ESF. The Committee also agreed to eliminate the twelve-month limitation previously imposed on the period such currencies could be warehoused. The $5 billion limit on the amount of eligible foreign currencies that could be warehoused for the Treasury and the ESF remained in effect until September 19, 1989, when

the Committee approved an increase to $10 billion. The purpose of the increase was to enable the ESF to finance its continued participation with the System in foreign currency operations.

APPENDIX A

**LETTER FROM TREASURY SECRETARY DOUGLAS DILLON
TO CHAIRMAN WILLIAM McCHESNEY MARTIN
DECEMBER 18, 1961**

FOREIGN CURRENCY INSTRUMENTS, APPROVED FEBRUARY 13, 1962

THE SECRETARY OF THE TREASURY
WASHINGTON

December 18, 1961

Dear Bill:

As you know, I have been much interested in the work of the Open Market Committee and its staff in exploring the possibility of Federal Reserve operations in and holdings of selected convertible foreign currencies. The proposal which has been developed seems to me highly constructive.

The Treasury, relying upon the Federal Reserve Bank of New York as fiscal agent, has experimented with foreign currency operations and holdings over the past nine months, with very useful effects on the functioning of the foreign exchange markets and desirable effects in safeguarding the international value of the dollar. During this short period, our recently attained convertible international payments system has been going through its first real test. From time to time, we have had to deal with unusual payments flows of quite some size, occasioned in part by uncertainty about the relationship of currency values.

I share the view of many European financial leaders that we must not allow these volatile flows of funds to undermine the international financial mechanism we have all struggled so hard to rebuild during postwar years. As you are aware from last week's press announcement regarding the IMF, we have just negotiated an important supplement to the Fund's resources to help us deal with any developing disequilibrium in balance of payments relationships among the larger industrial countries that threatens an impairment of the monetary system.

While the IMF special resources arrangement will be a major reinforcement of the world's payments system, we must not overlook other means of keeping that system convertible, efficient and sustainable. Operations along lines in which the Treasury's Stabilization Fund has experimented are one of these means.

In view of its limited resources, the Fund's foreign currency operations have necessarily been on a pilot basis. In my opinion, these pilot activities justify the belief that operations carried out on a broader and more adequate scale will be beneficial to the functioning of exchange markets and to the pivotal role which the dollar plays in them.

At the same time, it is important to recognize that such operations can best be conducted by the central bank because only the central bank can make the prompt smooth adjustments that are called for domestically. In view of the established responsibility that central banks have for sound and stable monetary conditions, the world's financial community is naturally looking to them to play an active role in maintaining a sound payments system. It is surely a proper central banking function to engage in temporary operations that will help to buffer and moderate tendencies towards volatile flows of funds. Over the longer period, the very existence of a central banking capability for coping promptly and effectively with volatile flows can give confidence to international traders and investors, and further the orderly evolution of international market processes.

If the Federal Reserve decides to undertake foreign currency operations, the Treasury and the Federal Reserve will both need to recognize in advance, of course, that they will have to feel their way; that effective methods of operations and effective working relationships between them can only be worked out gradually; and that they need to learn together the best ways of carrying our mutual responsibilities for a sound dollar internationally. In such an effort, the Treasury on its part would naturally want to avoid impinging on the independence of the Federal Reserve System within the Government.

If the Open Market Committee decides to consider its current proposal further, we will need to consult together on the details of any division of responsibilities between the Treasury and the Federal Reserve.

I realize that the Committee might be hesitant to embark on operations in which it has not engaged since the establishment of the Stabilization Fund under the Gold Reserve Act of 1934. If the Committee should be interested in the opinion of the Treasury's General Counsel regarding the statutory provisions governing foreign exchange operations by Government agencies, or if the Committee desires to obtain some statutory clarification of these provisions, the Treasury's legal staff will be ready to cooperate with yours.

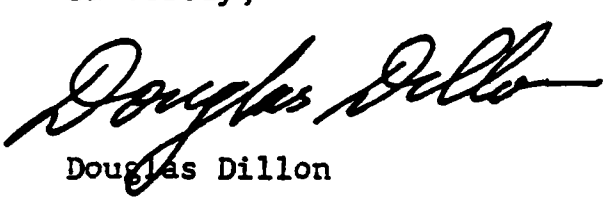
It would be helpful if questions about the Committee's plans in the foreign currency field could be resolved before our legislative program for the next session of the Congress has to be submitted. Before final activation, of course, any specific proposal will need to be reviewed and discussed with the National Advisory Council in accordance with the provisions of the Bretton Woods Agreements Act.

In view of the current sensitivity being shown by the foreign exchange markets to the balance of payments problem of the United States, it is desirable to make progress in this matter as rapidly as is feasible.

In closing, I might add that, according to my information, foreign currency operations by the Federal Reserve on a broader basis than those pioneered by the Stabilization Fund would be welcomed by other central banks.

With best wishes,

Sincerely,



Douglas Dillon

The Honorable William McChesney Martin
Chairman, Federal Reserve System
Washington 25, D. C.

AUTHORIZATION REGARDING OPEN MARKET TRANSACTIONS IN FOREIGN CURRENCIES

Pursuant to Section 12A of the Federal Reserve Act in accordance with Section 214.5 of Regulation N (as amended) of the Board of Governors of the Federal Reserve System, the Federal Open Market Committee takes the following action governing open market operations incident to the opening and maintenance by the Federal Reserve Bank of New York (hereafter sometimes referred to as the New York Bank) of accounts with foreign central banks.

I. Role of Federal Reserve Bank Of New York.

The New York Bank shall execute all transactions pursuant to this authorization (hereafter sometimes referred to as transactions in foreign currencies) for the System Open Market Account, as defined in the Regulation of the Federal Open Market Committee.

II. Basic Purposes of Operations.

The basic purposes of System operations in and holdings of foreign currencies are:

(1) To help safeguard the value of the dollar in international exchange markets;

(2) To aid in making the existing system of international payments more efficient and in avoiding disorderly conditions in exchange markets;

(3) To further monetary cooperation with central banks of other countries maintaining convertible currencies, with the International Monetary Fund, and with other international payments institutions;

(4) Together with these banks and institutions, to help moderate temporary imbalances in international payments that may adversely affect monetary reserve positions; and

(5) In the long run, to make possible growth in the liquid assets available to international money markets in accordance with the needs of an expanding world economy.

III. Specific Aims of Operations.

Within the basic purposes set forth in Section II, the transactions shall be conducted with a view to the following specific aims:

(1) To offset or compensate, when appropriate, the effects on U.S. gold reserves or dollar liabilities of those

fluctuations in the international flow of payments to or from the United States that are deemed to reflect temporary disequilibrating forces or transitional market unsettlement;

(2) To temper and smooth out abrupt changes in spot exchange rates and moderate forward premiums and discounts judged to be disequilibrating;

(3) To supplement international exchange arrangements such as those made through the International Monetary Fund; and

(4) In the long run, to provide a means whereby reciprocal holdings of foreign currencies may contribute to meeting needs for international liquidity as required in terms of an expanding world economy.

IV. Arrangements with Foreign Central Banks.

In making operating arrangements with foreign central banks on System holdings of foreign currencies, the New York Bank shall not commit itself to maintain any specific balance, unless authorized by the Federal Open Market Committee.

The Bank shall instruct foreign central banks regarding the investment of such holdings in excess of minimum working balances in accordance with Section 14(e) of the Federal Reserve Act.

The Bank shall consult with foreign central banks on coordination of exchange operations.

Any agreements or understandings concerning the administration of the accounts maintained by the New York Bank with the central banks designated by the Board of Governors under Section 214.5 of Regulation N (as amended) are to be referred for review and approval to the Committee, subject to the provision of Section VIII., paragraph 1, below.

V. Authorized Currencies.

The New York Bank is authorized to conduct transactions for System Account in the currencies and within the limits that the Federal Open Market Committee may from time to time specify.

VI. Methods of Acquiring and Selling Foreign Currencies.

The New York Bank is authorized to purchase and sell foreign currencies in the form of cable transfers through spot or forward transactions on the open market at home and abroad, including transactions with the Stabilization Fund of the Secretary of the Treasury established by Section 10 of the Gold Reserve Act of 1934 and with foreign monetary authorities.

Unless the Bank is otherwise authorized, all transactions shall be at prevailing market rates.

VII. Participation of Federal Reserve Banks.

All Federal Reserve Banks shall participate in the foreign currency operations for System Account in accordance with paragraph 3 G (1) of the Board of Governors' Statement of Procedure with Respect to Foreign Relationships of Federal Reserve Banks dated January 1, 1944.

VIII. Administrative Procedures.

The Federal Open Market Committee authorizes a Subcommittee consisting of the Chairman and the Vice Chairman of the Committee and the Vice Chairman of the Board of Governors (or in the absence of the Chairman or of the Vice Chairman of the Board of Governors the members of the Board designated by the Chairman as alternates, and in the absence of the Vice Chairman of the Committee his alternate) to give instructions to the Special Manager, within the guidelines issued by the Committee, in cases in which it is necessary to reach a decision on operations before the Committee can be consulted.

All actions authorized under the preceding paragraph shall be promptly reported to the Committee.

The Committee authorizes the Chairman, and in his absence the Vice Chairman of the Committee, and in the absence of both, the Vice Chairman of the Board of Governors:

(1) With the approval of the Committee, to enter into any needed agreement or understanding with the Secretary of the Treasury about the division of responsibility for foreign currency operations between the System and the Secretary;

(2) To keep the Secretary of the Treasury fully advised concerning System foreign currency operations, and to consult with the Secretary on such policy matters as may relate to the Secretary's responsibilities;

(3) From time to time, to transmit appropriate reports and information to the National Advisory Council on International Monetary and Financial Problems.

IX. Special Manager of System Open Market Account.

A Special Manager of the Open Market Account for foreign currency operations shall be selected in accordance with the established procedures of the Federal Open Market Committee for the selection of the Manager of the System Open Market Account.

The Special Manager shall direct that all transactions in foreign currencies and the amounts of all holdings in each authorized

foreign currency be reported daily to designated staff officials of the Committee, and shall regularly consult with the designated staff officials of the Committee on current tendencies in the flow of international payments and on current developments in foreign exchange markets.

The Special Manager and the designated staff officials of the Committee shall arrange for the prompt transmittal to the Committee of all statistical and other information relating to the transactions in and the amounts of holdings of foreign currencies for review by the Committee as to conformity with its instructions.

The Special Manager shall include in his reports to the Committee a statement of bank balances and investments payable in foreign currencies, a statement of net profit or loss on transactions to date, and a summary of outstanding unmatured contracts in foreign currencies.

X. Transmittal of Information to Treasury Department.

The staff officials of the Federal Open Market Committee shall transmit all pertinent information on System foreign currency transactions to designated officials of the Treasury Department.

XI. Amendment of Authorization.

The Federal Open Market Committee may at any time amend or rescind this authorization.

GUIDELINES FOR SYSTEM FOREIGN CURRENCY OPERATIONS

1. Holdings of Foreign Currencies

Until otherwise authorized, the System will limit its holdings of foreign currencies to that amount necessary to enable its operations to exert a market influence. Holdings of larger amounts will be authorized only when the U.S. balance of international payments attains a sufficient surplus to permit the ready accumulation of holdings of major convertible currencies.

Holdings of a currency shall generally be kept sufficient to meet forward contracts in that currency (exclusive of contracts made under parallel arrangements with foreign monetary authorities which provide their own cover) expected to mature in the following three-week period.

Foreign currency holdings above a certain minimum shall be invested as far as practicable in conformity with Section 14(e) of the Federal Reserve Act.

2. Exchange Transactions

System exchange transactions shall mainly be geared to pressures of payments flows so as to cushion or moderate disequilibrating movements of volatile funds and their destabilizing effects on U.S. and foreign official reserves and on exchange markets.

The New York Bank shall, as a usual practice, purchase and sell authorized currencies at prevailing market rates without trying to establish rates that appear to be out of line with underlying market forces.

If market offers to sell or buy intensify as System holdings increase or decline, this shall be regarded as a clear signal for a reviews of the System's evaluation of international payments flows. This review might suggest a temporary change in System holdings of a particular convertible currency and possibly direct exchange transactions with the foreign central bank involved to be able to accommodate a larger demand or supply.

Starting operations at a time when the United States is not experiencing a net inflow of any eligible foreign currency may require that initial System holdings (apart from sums that might be acquired from the Stabilization Fund) be purchased directly from foreign central banks.

It shall be the practice to arrange with foreign central banks for the coordination of foreign currency transactions in order that System transactions do not conflict with those being undertaken by foreign monetary authorities.

3. Transactions in Spot Exchange

The guiding principle for transactions in spot exchange shall be that, in general, market movements in exchange rates, within the limits established in the International Monetary Funds Agreement or by central bank practices, index affirmatively the interaction of underlying economic forces and thus serve as efficient guides to current financial decisions, private and public.

Temporary or transitional fluctuations in payments flows may be cushioned or moderated whenever they occasion market anxieties, or undesirable speculative activity in foreign exchange transactions, or excessive leads and lags in international payments.

Special factors making for exchange market instabilities include (i) responses to short-run increases in international political tension, (ii) differences in phasing of international economic activity that give rise to unusually large interest rate differentials between major markets, or (iii) market rumors of a character likely to stimulate speculative transactions.

Whenever exchange market instability threatens to produce disorderly conditions, System transactions are appropriate if the Special Manager, in consultation with the Federal Open Market Committee, or in an emergency the members of the Committee designated for that purpose, reaches a judgment that they may help to reestablish supply and demand balance at a level more consistent with the prevailing flow of underlying payments. Whenever supply or demand persists in influencing exchange rates in one direction, System transactions should be modified, curtailed, or eventually discontinued pending a reassessment by the Committee of supply and demand forces.

4. Transactions in Forward Exchange

Occasion to engage in forward transactions will arise mainly when forward premiums or discounts are inconsistent with interest rate differentials and are giving rise to a disequilibrating movement of short-term funds, or when it is deemed appropriate to supplement existing market facilities for forward cover as a means of encouraging the retention or accumulation of dollar holdings abroad.

Proposals of the Special Manager to initiate forward operations shall be submitted to the Committee for advance approval.

For such operations, the New York Bank may, where authorized, take over from the Stabilization Fund outstanding contracts for forward sales or purchases of authorized currencies.

5. Exchange Rates

Insofar as practicable, the New York Bank shall purchase a currency through spot transactions at or below its par value, and should lower the rate at which it is prepared to purchase a currency as its holdings of that currency approach the established maximum.

The Bank shall also, where practicable, sell a currency through spot transactions at rates at or above its par value, and should raise the rate at which it is prepared to sell a currency as its holdings of that currency approach zero.

Spot transactions at rates other than those set forth in the preceding paragraphs shall be specially authorized by the members of the Committee designated in Section VIII of the Authorization for Open Market Transactions in Foreign Currencies.

CONTINUING AUTHORITY DIRECTIVE ON SYSTEM FOREIGN CURRENCY OPERATIONS

The Federal Reserve Bank of New York is authorized and directed to purchase and sell through spot transactions any or all of the following currencies in accordance with the Guidelines on System Foreign Currency Operations issued by the Federal Open Market Committee on February 13, 1962:

Pounds sterling
French francs
German marks
Italian lira
Netherlands guilders
Swiss francs

Total foreign currencies held at any one time shall not exceed $500 million.

SCOPE AND CHARACTER OF INITIAL FOREIGN CURRENCY OPERATIONS OF THE SYSTEM

I. The System would acquire in the market or directly from foreign central banks small amounts of authorized foreign currencies whenever pressure on the dollar relaxes and the rate of one of these currencies falls from recent high levels. Holdings thus acquired would constitute a modest inventory to be used for sales in the market if market pressures or instability clearly warranted. Initially then, the System would enter the market only as an occasional buyer; barring unusual market conditions, the System would aim to defer any program of currency sales until minimum balances had been accumulated.

II. In order to facilitate the early stages of the Federal Reserve program, the Secretary of the Treasury would stand ready to sell to the Federal Reserve modest amounts of German marks (approximately $7 million equivalent), Swiss francs, Netherlands guilders, and Italian lira (approximately $1 million equivalent of each) at market rates of exchange on the day of the sale. The Federal Reserve already has accounts with the Bank of England and the Bank of France. These currency take-overs from the Treasury would permit the System to open accounts at once with four of the other central banks, to establish appropriate bookkeeping procedures for transactions through them, and to become familiar with procedures and techniques for administering and investing the accounts.

III. The Treasury would continue to conduct foreign currency operations under existing agreements with Germany, Switzerland, the Netherlands, and Italy. The System, however, would stand prepared to purchase currencies of these countries from the Treasury, either outright or under mutually satisfactory resale agreement, in the event that exchange market developments obliged the Fund to exhaust available resources. The Treasury and the System would consult before either entered into any agreements with foreign central banks or governments regarding possible foreign currency operations.

IV. With a view to being in immediate position to meet any unusual demands for foreign currencies, the System would stand ready, within agreed limits:

(a) to enter into reciprocal currency transactions with designated foreign central banks, especially the Bank of England and the Bank of France;

(b) to supplement any arrangement that the Swiss National Bank might make with the IMF or the Treasury;

(c) to purchase from the Treasury part or all of foreign currency amounts acquired under Treasury credit arrangements with major European central banks or governments already negotiated or, after consultation with the System, to be negotiated; and

(d) to purchase from the Treasury part or all of foreign currency amounts that may be drawn from the International Monetary Fund.

V. Since the System's foreign currency operations are to be on an experimental and trial basis, the Treasury and the Federal Reserve agree that a specific understanding as to a division of operations between them can be delayed until experience has made clear the way in which such a delineation can be most effectively achieved. Initially, there need only be arrangements for the exchange of information about currency operations, channels for regular communciation, and procedures for continuing consultations.

VI. The National Advisory Council will be informed of the general plan for System foreign currency operations on an experimental and trial basis.

APPENDIX B

AUTHORIZATION FOR SYSTEM FOREIGN CURRENCY OPERATIONS 1966 TO DATE

AUTHORIZATION FOR SYSTEM FOREIGN CURRENCY OPERATIONS
(Adopted June 7, 1966)

1. The Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York, for System Open Market Account, to the extent necessary to carry out the Committee's foreign currency directive:

   A. To purchase and sell the following foreign currencies in the form of cable transfers through spot or forward transactions on the open market at home and abroad, including transactions with the U. S. Stabilization Fund established by Section 10 of the Gold Reserve Act of 1934, with foreign monetary authorities, and with the Bank for International Settlements:

      Austrian schillings
      Belgian francs
      Canadian dollars
      Pounds sterling
      French francs
      German marks
      Italian lire
      Japanese yen
      Netherlands guilders
      Swedish kronor
      Swiss francs

   B. To hold foreign currencies listed in paragraph A above, up to the following limits:

      (1) Currencies held spot or purchased forward, up to the amounts necessary to fulfill outstanding forward commitments;

      (2) Additional currencies held spot or purchased forward, up to the amount necessary for System operations to exert a market influence but not exceeding $150 million equivalent; and

      (3) Sterling purchased on a covered or guaranteed basis in terms of the dollar, under agreement with the Bank of England, up to $200 million equivalent.

   C. To have outstanding forward commitments undertaken under paragraph A above to deliver foreign currencies, up to the following limits:

      (1) Commitments to deliver to the Stabilization Fund foreign currencies in which the United States

Treasury has outstanding indebtedness, up to $200 million equivalent;

(2) Commitments to deliver Italian lire, under special arrangements with the Bank of Italy, up to $500 million equivalent; and

(3) Other forward commitments to deliver foreign currencies, up to $275 million equivalent.

D. To draw foreign currencies and to permit foreign banks to draw dollars under the reciprocal currency arrangements listed in paragraph 2 below, provided that drawings by either party to any such arrangement shall be fully liquidated within 12 months after any amount outstanding at that time was first drawn, unless the Committee, because of exceptional circumstances, specifically authorizes a delay.

2. The Federal Open Market Committee directs the Federal Reserve Bank of New York to maintain reciprocal currency arrangements ("swap" arrangements) for System Open Market Account with the following foreign banks, which are among those designated by the Board of Governors of the Federal Reserve System under Section 214.5 of Regulation N, Relations with Foreign Banks and Bankers, and with the approval of the Committee to renew such arrangements on maturity:

Foreign bank	Amount of arrangement (millions of dollars equivalent)	Period of Arrangement (months)
Austrian National Bank	50	12
National Bank of Belgium	100	12
Bank of Canada	250	12
Bank of England	750	12
Bank of France	100	3
German Federal Bank	250	6
Bank of Italy	450	12
Bank of Japan	250	12
Netherlands Bank	100	3
Bank of Sweden	50	12
Swiss National Bank	150	6
Bank for International Settlements: (System drawings in Swiss francs)	150	6
Bank for International Settlements: (System drawings in authorized European currencies other than Swiss francs)	150	6

3. All transactions in foreign currencies undertaken under paragraph 1.A above shall be at prevailing market rates and no attempt shall be made to establish rates that appear to be out of line with underlying market forces. Insofar as is practicable, foreign currencies shall be purchased through spot transactions when rates for those currencies are at or below par and sold through spot transactions when such rates are at or above par, except when transactions at other rates (i) are specifically authorized by the Committee, (ii) are necessary to acquire currencies to meet System commitments, or (iii) are necessary to acquire currencies for the Stabilization Fund, provided that these currencies are resold forward to the Stabilization Fund at the same rate.

4. It shall be the practice to arrange with foreign central banks for the coordination of foreign currency transactions. In making operating arrangements with foreign central banks on System holdings of foreign currencies, the Federal Reserve Bank of New York shall not commit itself to maintain any specific balance, unless authorized by the Federal Open Market Committee. Any agreements or understandings concerning the administration of the accounts maintained by the Federal Reserve Bank of New York with the foreign banks designated by the Board of Governors under Section 214.5 of Regulation N shall be referred for review and approval to the Committee.

5. Foreign currency holdings shall be invested insofar as practicable, considering needs for minimum working balances. Such investments shall be in accordance with Section 14(e) of the Federal Reserve Act.

6. A Subcommittee consisting of the Chairman and the Vice Chairman of the Committee and the Vice Chairman of the Board of Governors (or in the absence of the Chairman or of the Vice Chairman of the Board of Governors the members of the Board designated by the Chairman as alternates, and in the absence of the Vice Chairman of the Committee his alternate) is authorized to act on behalf of the Committee when it is necessary to enable the Federal Reserve Bank of New York to engage in foreign currency operations before the Committee can be consulted. All actions taken by the Subcommittee under this paragraph shall be reported promptly to the Committee.

7. The Chairman (and in his absence the Vice Chairman of the Committee, and in the absence of both, the Vice Chairman of the Board of Governors) is authorized:

   A. With the approval of the Committee, to enter into any needed agreement or understanding with the Secretary of the Treasury about the division of responsibility for foreign currency operations between the System and the Secretary;

   B. To keep the Secretary of the Treasury fully advised concerning System foreign currency operations, and to

consult with the Secretary on such policy matters as may relate to the Secretary's responsibilities; and

C. From time to time, to transmit appropriate reports and information to the National Advisory Council on International Monetary and Financial Policies.

8. Staff officers of the Committee are authorized to transmit pertinent information on System foreign currency operations to appropriate officials of the Treasury Department.

9. All Federal Reserve Banks shall participate in the foreign currency operations for System Account in accordance with paragraph 3.G(1) of the Board of Governors' Statement of Procedure with Respect to Foreign Relationships of Federal Reserve Banks, dated January 1, 1944.

10. The special Manager of the System Open Market Account for foreign currency operations shall keep the Committee informed on conditions in foreign exchange markets and on transactions he has made and shall render such reports as the Committee may specify.

AMENDMENTS TO AUTHORIZATION FOR SYSTEM FOREIGN CURRENCY OPERATIONS

Action taken: September 9, 1966
Effective date: September 9, 1966
Action ratified: September 13, 1966

The table in paragraph 2 was amended to increase the authorized amounts of most swap arrangements (the new amounts are underlined below) and to add the word "maximum" to the caption of the second column of the table.

Foreign bank	Amount of arrangement (millions of dollars equivalent)	Maximum period of arrangement (months)
Austrian National Bank	100	12
National Bank of Belgium	150	12
Bank of Canada	500	12
Bank of England	1,350	12
Bank of France	100	3
German Federal Bank	400	6
Bank of Italy	600	12
Bank of Japan	450	12
Netherlands Bank	150	3
Bank of Sweden	100	12
Swiss National Bank	200	6
Bank for International Settlements (System drawings in Swiss francs)	200	6
Bank for International Settlements (System drawings in authorized European currencies other than Swiss francs)	200	6

Actions taken: May 12, 1967
Effective date: May 17, 1967
Actions ratified: May 23, 1967

The list of authorized currencies in paragraph 1.A was amended to read as follows:

Austrian schillings	Italian lire
Belgian francs	Japanese yen
Canadian dollars	MEXICAN PESOS
DANISH KRONER	Netherlands guilders
Pounds sterling	NORWEGIAN KRONER
French francs	Swedish kronor
German marks	Swiss francs

The table in paragraph 2 was amended to read as follows:

Foreign bank	Amount of arrangement (millions of dollars equivalent)	Maximum period of arrangement (months)
Austrian National Bank	100	12
National Bank of Belgium	150	12
Bank of Canada	500	12
NATIONAL BANK OF DENMARK	100	12
Bank of England	1,350	12
Bank of France	100	3
German Federal Bank	400	6
Bank of Italy	600	12
Bank of Japan	450	12
BANK OF MEXICO	130	12
Netherlands Bank	150	3
BANK OF NORWAY	100	12
Bank of Sweden	100	12
Swiss National Bank	200	6
Bank for International Settlements		
System drawings in Swiss francs	200	6
System drawings in authorized European currencies other than Swiss francs	200	6

Action taken: June 29, 1967
Effective date: June 30, 1967
Action ratified: July 18, 1967

The table in paragraph 2 was amended to change the maximum period of the arrangement with the Netherlands Bank from 3 to 6 months.

Action taken: July 18, 1967
Effective date: July 18, 1967

Paragraph 2 was amended to replace the columns setting maximum periods of swap arrangements for each currency with wording in the preceding text that set the maximum period at 12 months for all lines. In addition, the sizes of three swap arrangements were increased. The amended paragraph read as follows:

2. The Federal Open Market Committee directs the Federal Reserve Bank of New York to maintain reciprocal currency arrangements ("swap" arrangements) for System Open Market Account FOR PERIODS UP TO A MAXIMUM OF 12 MONTHS with the following foreign banks, which are among those designated by the Board of Governors of the Federal Reserve System under Section 214.5 of Regulation N, Relations with Foreign Banks and Bankers, and with the approval of the Committee to renew such arrangements on maturity:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	100
National Bank of Belgium	150
Bank of Canada	500
National Bank of Denmark	100
Bank of England	1,350
Bank of France	100
German Federal Bank	400
Bank of Italy	600
Bank of Japan	450
Bank of Mexico	130
Netherlands Bank	150
Bank of Norway	100
Bank of Sweden	100
Swiss National Bank	250
Bank for International Settlements	
System drawings in Swiss francs	250
System drawings in authorized European currencies other than Swiss francs	300

Action taken: November 14, 1967
Effective date: November 21, 1967

Paragraph 1.B(3) was amended to increase from $200 to $300 million equivalent the limit on System Account holdings of sterling on a covered or guaranteed basis in terms of the dollar.

Action taken: November 14, 1967
Effective date: November 22, 1967

Paragraph 1.C(1) was revised to increase from $200 million to $350 million equivalent the limit on System Account forward commitments to deliver foreign currencies to the Stabilization Fund, and to change the language as follows:

1.C(1) Commitments to deliver to the ~~Stabilization Fund~~ foreign currencies TO THE STABILIZATION FUND ~~in which the United States Treasury has outstanding indebtedness~~, up to ~~$200~~ $350 million equivalent.

Action taken: November 27, 1967
Effective date: November 27, 1967

Paragraph 1.B(3) was amended to decrease from $300 million to $200 million equivalent the limit on System Account holdings of sterling on a covered or guaranteed basis in terms of the dollar.

Paragraph 1.C(3) was amended to increase from $275 million to $550 million equivalent the limit on outstanding forward commitments to deliver foreign currencies.

The table in paragraph 2 was amended to increase the authorized amount of swap arrangements with five foreign banks. The amended table read as follows:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	100
National Bank of Belgium	225
Bank of Canada	500
National Bank of Denmark	100
Bank of England	1,350
Bank of France	100
German Federal Bank	400
Bank of Italy	750
Bank of Japan	450
Bank of Mexico	130
Netherlands Bank	225
Bank of Norway	100
Bank of Sweden	200
Swiss National Bank	250
Bank for International Settlements:	
System drawings in Swiss francs	250
System drawings in authorized European currencies other than Swiss francs	600

Action taken: November 27, 1967
Effective date: November 28, 1967

The table in paragraph 2 was amended to increase the authorized amount of swap arrangements with the Bank of England from $1,350 million to $1,500 million equivalent, and with the Bank of Japan from $450 million to $750 million equivalent.

Action taken: November 27, 1967
Effective date: November 30, 1967

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the German Federal Bank from $400 million to $750 million equivalent.

Action taken: November 30, 1967
Effective date: November 30, 1967

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Canada from $500 million equivalent to $750 million equivalent.

Action taken: December 14, 1967
Effective date: December 14, 1967

The table in paragraph 2 was amended to increase the authorized amount of swap arrangements with the Swiss National Bank and with the BIS provision for System drawings in Swiss francs, each from $250 million equivalent to $400 million equivalent. As of December 14, 1967, the table read as follows:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	100
National Bank of Belgium	225
Bank of Canada	750
National Bank of Denmark	100
Bank of England	1,500
Bank of France	100
German Federal Bank	750
Bank of Italy	750
Bank of Japan	750
Bank of Mexico	130
Netherlands Bank	225
Bank of Norway	100
Bank of Sweden	200
Swiss National Bank	400
Bank for International Settlements:	
System drawings in Swiss francs	400
System drawings in authorized European currencies other than Swiss francs	600

Action taken: March 5, 1968
Effective date: March 5, 1968

Paragraph 3 was amended to read as follows:

3. UNLESS OTHERWISE EXPRESSLY AUTHORIZED BY THE COMMITTEE, all transactions in foreign currencies undertaken under paragraph 1.A above shall be at prevailing market rates and no attempt shall be made to establish rates that appear to be out of line with underlying market forces. ~~Insofar as is practicable, foreign currencies shall be purchased through spot transactions when rates for those currencies are at or below par and sold through spot transactions when such rates are at or above par, except when transactions at other rates (i) are specifically authorized by the~~

~~Committee, (ii) are necessary to acquire currencies to meet System commitments, or (iii) are necessary to acquire currencies for the Stabilization Fund, provided that these currencies are resold forward to the Stabilization Fund at the same rate.~~

Actions taken: March 14, 1968
Effective date: March 17, 1968

The table in paragraph 2 was amended to increase the following swap arrangements, as indicated:

Foreign bank	Amount of arrangement (millions of dollars equivalent)	
	From	To
Bank of Canada	750	1,000
Bank of Japan	750	1,000
Netherlands Bank	225	400
Bank of Sweden	200	250
Swiss National Bank	400	600
Bank for International Settlements:		
System drawings in Swiss francs	400	600
System drawings in authorized European currencies other than Swiss francs	600	1,000

Action taken: March 16, 1968
Effective date: March 17, 1968

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the German Federal Bank from $750 million to $1,000 million equivalent.

Action taken: March 17, 1968
Effective date: March 17, 1968

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of England from $1,500 million to $2,000 million equivalent. The table then read as follows:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	100
National Bank of Belgium	225
Bank of Canada	1,000
National Bank of Denmark	100
Bank of England	2,000
Bank of France	100
German Federal Bank	1,000
Bank of Italy	750
Bank of Japan	1,000
Bank of Mexico	130
Netherlands Bank	400
Bank of Norway	100
Bank of Sweden	250
Swiss National Bank	600
Bank for International Settlements:	
System drawings in Swiss francs	600
System drawings in authorized European currencies other than Swiss francs	1,000

Action taken: April 30, 1968
Effective date: April 30, 1968

Paragraph 1.B(3) was amended to increase from $200 million to $250 million equivalent the limit on System Account holdings of sterling on a covered or guaranteed basis in terms of the dollar.

Action taken: May 28, 1968
Effective date: May 28, 1968

Paragraph 1.B(3) was amended to increase from $250 million to $300 million equivalent the limit on System Account holdings of sterling on a covered or guaranteed basis in terms of the dollar.

Action taken: July 2, 1968
Effective date: July 2, 1968
Action ratified: July 16, 1968

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of France from $100 million to $700 million equivalent.

Action taken: July 16, 1968
Effective date: September 24, 1968

Paragraph 1.C(1) was amended to increase, from $350 million to $1 billion equivalent, the limit on commitments to deliver foreign currencies to the Stabilization Fund. The July 16 action authorized an increase in this limit up to an amount not to exceed $1,050 million, with the precise amount and the effective date subject to determinations by Chairman Martin.)

Action taken: March 14, 1968
Effective date: October 8, 1968

Reflecting the recent successful completion of negotiations with the Bank of Italy, the table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Italy from $750 million to $1 billion equivalent.

Action taken: November 22, 1968
Effective date: November 22, 1968
Action ratified: November 26, 1968

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of France from $700 million to $1 billion equivalent.

Action taken: March 4, 1969
Effective date: March 4, 1969

Paragraph 1 was amended to read as follows:

1. The Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York, for System Open Market Account, to the extent necessary to carry out the Committee's foreign currency directive AND EXPRESS AUTHORIZATIONS BY THE COMMITTEE PURSUANT THERETO:

Paragraphs 1.B and 1.C were amended to read as follows:

B. To hold foreign currencies listed in paragraph A above, up to the following limits:

(1) CURRENCIES PURCHASED SPOT, INCLUDING CURRENCIES PURCHASED FROM THE STABILIZATION FUND, AND SOLD FORWARD TO THE STABILIZATION FUND, UP TO $1 BILLION EQUIVALENT;

~~(1)~~ (2) Currencies ~~held~~ spot or purchased SPOT OR forward, up to the amounts necessary to fulfill OTHER ~~outstanding~~ forward commitments;

~~(2)~~ (3) Additional currencies ~~held spot or~~ purchased SPOT OR forward, up to the amount necessary for System operations to exert a market influence but not exceeding ~~$150~~ $250 million equivalent; and

~~(3)~~ (4) Sterling purchased on a covered or guaranteed basis in terms of the dollar, under agreement with the Bank of England, up to $300 million equivalent.

C. To have outstanding forward commitments undertaken under paragraph A above to deliver foreign currencies, up to the following limits:

(1) Commitments to deliver foreign currencies to the Stabilization Fund, up to ~~$1 billion equivalent~~ THE LIMIT SPECIFIED IN PARAGRAPH 1.B(1) ABOVE;

Action taken: May 14, 1969
Effective date: May 14, 1969
Action ratified: May 27, 1969

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the National Bank of Belgium from $225 million to $300 million equivalent and to reduce the arrangement with the Netherlands Bank from $400 million to $300 million equivalent.

Action taken: August 27, 1969
Effective date: September 2, 1969
Action ratified: September 9, 1969

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with National Bank of Belgium from $300 million to $500 million equivalent.

Action taken: October 7, 1969
Effective date: October 7, 1969

The table in paragraph 2 was amended to increase the authorized amounts of swap arrangements with the Austrian National Bank, the National Bank of Denmark, and the Bank of Norway, each from $100 million to $200 million equivalent. As of October 7, 1969, the table in paragraph 2 read as follows:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	200
National Bank of Belgium	500
Bank of Canada	1,000
National Bank of Denmark	200
Bank of England	2,000
Bank of France	1,000
German Federal Bank	1,000
Bank of Italy	1,000
Bank of Japan	1,000
Bank of Mexico	130
Netherlands Bank	300
Bank of Norway	200
Bank of Sweden	250
Swiss National Bank	600
Bank for International Settlements:	
System drawings in Swiss francs	600
System drawings in authorized European currencies other than Swiss francs	1,000

Action taken: March 10, 1970
Effective date: March 10, 1970

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Italy from $1 billion to $1,250 million equivalent.

Action taken: April 7, 1970
Effective date: April 7, 1970

Paragraph 1.B(4) was amended as follows:

(4) Sterling purchased on a covered or guaranteed basis in terms of the dollar, under agreement with the Bank of England, up to ~~$300~~ $200 million equivalent.

Paragraph 1.C was amended as follows:

C. To have outstanding forward commitments undertaken under paragraph A above to deliver foreign currencies, up to the following limits:

(1) Commitments to deliver foreign currencies to the Stabilization Fund, up to the limit specified in paragraph 1.B(1) above; AND

~~(2) Commitments to deliver Italian lire, under special arrangements with the Bank of Italy, up to $500 million equivalent, and~~

~~(3)~~ (2) Other forward commitments to deliver foreign currencies, up to $550 million equivalent.

Action taken: March 9, 1971
Effective date: March 9, 1971

Paragraph 3 was amended to read as follows:

3. CURRENCIES TO BE USED FOR LIQUIDATION OF SYSTEM SWAP COMMITMENTS MAY BE PURCHASED FROM THE FOREIGN CENTRAL BANK DRAWN ON, AT THE SAME EXCHANGE RATE AS THAT EMPLOYED IN THE DRAWING TO BE LIQUIDATED. APART FROM ANY SUCH PURCHASES AT THE RATE OF THE DRAWING Unless otherwise expressly authorized by the Committee, all transactions in foreign currencies undertaken under paragraph 1.A above shall, UNLESS OTHERWISE EXPRESSLY AUTHORIZED BY THE COMMITTEE, be at prevailing market rates and no attempt shall be made to establish rates that appear to be out of line with underlying market forces.

Action taken: August 9, 1971
Effective date: August 12, 1971
Action ratified: August 24, 1971

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the National Bank of Belgium from $500 million to $600 million.

Action taken: August 11, 1971
Effective date: August 12, 1971
Action ratified: August 24, 1971

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Swiss National Bank from $600 million to $1 billion.

Action taken: March 20, 1973
Effective date: March 20, 1973

The title of the "Authorization for System Foreign Currency Operations" was changed to "Authorization for Foreign Currency Operations."

Paragraph 10 in the Authorization was deleted.

Paragraph 6 in the Authorization was amended as follows:

6. THE A Subcommittee NAMED IN SECTION 272.4 (c) OF THE COMMITTEE'S RULES OF PROCEDURE ~~consisting of the Chairman and the Vice Chairman of the Board of Governors (or in the absence of the Chairman or of the Vice Chairman of the Board of Governors the members of the Board designated by the Chairman as alternates, and in the absence of the Vice Chairman of the Committee his alternate)~~ is authorized to act on behalf of the Committee when it is necessary to enable the Federal Reserve Bank of New York to engage in foreign currency operations before the Committee can be consulted. All actions taken by the Subcommittee under this paragraph shall be reported promptly to the Committee.

Actions taken: March 20, 1973 for increases in the swap arrangements with the Bank of International Settlements and the Central Banks of Belgium, Canada, France, Germany, Italy, Japan, the Netherlands and Switzerland.
June 19, 1973 for increases in swap arrangements with the Central Banks of Austria, Denmark, Mexico, Norway, and Sweden.
Effective date: July 10, 1973

Table in paragraph 2 was amended to increase swap arrangements as indicated on the next page:

Foreign bank	Amount of arrangement (millions of dollars equivalent) From	To	
Austrian National Bank	200	250	
National Bank of Belgium	600	1,000	
Bank of Canada	1,000	2,000	
National Bank of Denmark	200	250	
Bank of England	2,000	2,000	(no change)
Bank of France	1,000	2,000	
German Federal Bank	1,000	2,000	
Bank of Italy	1,250	2,000	
Bank of Japan	1,000	2,000	
Bank of Mexico	130	180	
Netherlands Bank	300	500	
Bank of Norway	200	250	
Bank of Sweden	250	300	
Swiss National Bank	1,000	1,400	
Bank for International Settlements:			
Dollars against Swiss francs	600	600	(no change)
Dollars against other European currencies	1,000	1,250	

Action taken: January 22, 1974
Effective date: February 1, 1974

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Italy from $2 billion to $3 billion. The increase was to become effective upon approval by the Subcommittee (consisting of the Chairman and Vice Chairman of the Committee and the Vice Chairman of the Board of Governors) designated in the Committee's Rules of Procedure, after consultation with the U. S. Treasury. Subcommittee approval was given on January 29, 1974.

Action taken: March 19, 1974
Effective date: March 26, 1974

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of England from $2 billion to $3 billion.

Action taken: August 19, 1975
Effective date: August 29, 1975

Subject to an understanding that the action would become effective upon approval by Chairman Burns after a final review of technical details, the table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Mexico from $180 million to $360 million.

Action taken: February 18, 1976
Effective date: February 18, 1976

Paragraph 6 was amended as follows in order to create a new Foreign Currency Subcommittee:

6. The FOREIGN CURRENCY Subcommittee ~~named in Section 272.4(c) of the Committee's rules of procedure~~ is authorized to act on behalf of the Committee when it is necessary to enable the Federal Reserve Bank of New York to engage in foreign currency operations before the Committee can be consulted. THE FOREIGN CURRENCY SUBCOMMITTEE CONSISTS OF THE CHAIRMAN AND VICE CHAIRMAN OF THE COMMITTEE, THE VICE CHAIRMAN OF THE BOARD OF GOVERNORS, AND SUCH OTHER MEMBER OF THE BOARD AS THE CHAIRMAN MAY DESIGNATE (OR IN THE ABSENCE OF MEMBERS OF THE BOARD SERVING ON THE SUBCOMMITTEE, OTHER BOARD MEMBERS DESIGNATED BY THE CHAIRMAN AS ALTERNATES, AND IN THE ABSENCE OF THE VICE CHAIRMAN OF THE COMMITTEE, HIS ALTERNATE). All actions taken by the FOREIGN CURRENCY Subcommittee under this paragraph shall be reported promptly to the Committee.

Action taken: December 20, 1976
Effective date: December 28, 1976

The Committee agreed upon broad revisions in its Authorization for Foreign Currency Operations in an effort to simplify and clarify its instructions to the Federal Reserve Bank of New York and to bring the document up to date in light of changes under way in the international monetary system and its functioning. There were revisions throughout the document, but the main change in the Authorization was to replace the several separate limits on various types of spot and forward transactions with a single limit on the System's "overall open position," as defined in paragraph 1.D. The document as amended is shown on the next page.

AUTHORIZATION FOR FOREIGN CURRENCY OPERATIONS
(As amended December 20, 1976)

1. The Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York, for System Open Market Account, to the extent necessary to carry out the Committee's foreign currency directive and express authorizations by the Committee pursuant thereto, AND IN CONFORMITY WITH SUCH PROCEDURAL INSTRUCTIONS AS THE COMMITTEE MAY ISSUE FROM TIME TO TIME:

   A. To purchase and sell the following foreign currencies in the form of cable transfers through spot or forward transactions on the open market at home and abroad, including transactions with the U.S. EXCHANGE Stabilization Fund established by Section 10 of the Gold Reserve Act of 1934, with foreign monetary authorities, and with the Bank for International Settlements, AND WITH OTHER INTERNATIONAL FINANCIAL INSTITUTIONS:

      Austrian schillings
      Belgian francs
      Canadian dollars
      Danish kroner
      Pounds sterling
      French francs
      German marks
      Italian lire
      Japanese yen
      Mexican pesos
      Netherlands guilders
      Norwegian kroner
      Swedish kronor
      Swiss francs

   B. To hold BALANCES OF, AND TO HAVE OUTSTANDING FORWARD CONTRACTS TO RECEIVE OR TO DELIVER, THE foreign currencies listed in paragraph A above~~, up to the following limits~~:

      ~~(1)~~ ~~Currencies purchased spot, including currencies purchased from the Stabilization Fund, and sold forward to the Stabilization Fund, up to $1 billion equivalent,~~

      ~~(2)~~ ~~Currencies purchased spot or forward, up to the amounts necessary to fulfill other forward commitments,~~

      ~~(3)~~ ~~Additional currencies purchased spot or forward, up to the amount necessary for System operations to exert a market influence but not exceeding $250 million equivalent, and~~

~~(4) Sterling purchased on a covered or guaranteed basis in terms of the dollar, under agreement with the Bank of England, up to $200 million equivalent.~~

~~C.~~ ~~To have outstanding forward commitments undertaken under paragraph A above to deliver foreign currencies, up to the following limits:~~

~~(1) Commitments to deliver foreign currencies to the Stabilization Fund, up to the limit specified in paragraph 1B(1) above, and~~

~~(2) Other forward commitments to deliver foreign currencies, up to $550 million equivalent.~~

~~B.~~ C. To draw foreign currencies and to permit foreign banks to draw dollars under the reciprocal currency arrangements listed in paragraph 2 below, provided that drawings by either party to any such arrangement shall be fully liquidated within 12 months after any amount outstanding at that time was first drawn, unless the Committee, because of exceptional circumstances, specifically authorizes a delay.

D. TO MAINTAIN AN OVERALL OPEN POSITION IN ALL FOREIGN CURRENCIES NOT EXCEEDING $1.0 BILLION, UNLESS A LARGER POSITION IS EXPRESSLY AUTHORIZED BY THE COMMITTEE. FOR THIS PURPOSE, THE OVERALL OPEN POSITION IN ALL FOREIGN CURRENCIES IS DEFINED AS THE SUM (DISREGARDING SIGNS) OF OPEN POSITIONS IN EACH CURRENCY. THE OPEN POSITION IN A SINGLE FOREIGN CURRENCY IS DEFINED AS HOLDINGS OF BALANCES IN THAT CURRENCY, PLUS OUTSTANDING CONTRACTS FOR FUTURE RECEIPT, MINUS OUTSTANDING CONTRACTS FOR FUTURE DELIVERY OF THAT CURRENCY, I.E., AS THE SUM OF THESE ELEMENTS WITH DUE REGARD TO SIGN.

2. The Federal Open Market Committee directs the Federal Reserve Bank of New York to maintain reciprocal currency arrangements ("swap" arrangements) for THE System Open Market Account for periods up to a maximum of 12 months with the following foreign banks, which are among those designated by the Board of Governors of the Federal Reserve System under Section 214.5 of Regulation N, Relations with Foreign Banks and Bankers, and with the approval of the Committee to renew such arrangements on maturity:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	2,000
Bank of Italy	3,000
Bank of Japan	2,000
Bank of Mexico	360
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	1,400
Bank for International Settlements:	
Dollars against Swiss francs	600
Dollars against authorized European currencies other than Swiss francs	1,250

ANY CHANGES IN THE TERMS OF EXISTING SWAP ARRANGEMENTS, AND THE PROPOSED TERMS OF ANY NEW ARRANGEMENTS THAT MAY BE AUTHORIZED, SHALL BE REFERRED FOR REVIEW AND APPROVAL TO THE COMMITTEE.

3. Currencies to be used for liquidation of System swap commitments may be purchased from the foreign central bank drawn on, at the same exchange rate as that employed in the drawing to be liquidated. Apart from any such purchases at the rate of the drawing, all transactions in foreign currencies undertaken under paragraph 1.A above shall, unless otherwise expressly authorized by the Committee, be at prevailing market rates and no attempt shall be made to establish rates that appear to be out of line with underlying market forces.

4. It shall be the NORMAL practice to arrange with foreign central banks for the coordination of foreign currency transactions. In making operating arrangements with foreign central banks on System holdings of foreign currencies, the Federal Reserve Bank of New York shall not commit itself to maintain any specific balance, unless authorized by the Federal Open Market Committee. Any agreements or understandings concerning the administration of the accounts maintained by the Federal Reserve Bank of New York with the foreign banks designated by the Board of Governors under Section 214.5 of Regulation N shall be referred for review and approval to the Committee.

5. Foreign currency holdings shall be invested insofar as practicable, considering needs for minimum working balances. Such investments shall be in accordance with Section 14(e) of the Federal Reserve Act.

6. ALL OPERATIONS UNDERTAKEN PURSUANT TO THE PRECEDING PARAGRAPHS SHALL BE REPORTED DAILY TO the Foreign Currency Subcommittee ~~is authorized to act on behalf of the Committee when it is necessary to enable the Federal Reserve Bank of New York to engage in foreign currency operations before the Committee can be consulted.~~ The Foreign Currency Subcommittee consists of the Chairman and Vice Chairman of the Committee, the Vice Chairman of the Board of Governors, and such other member of the Board as the Chairman may designate (or in the absence of members of the Board serving on the Subcommittee, other Board members designated by the Chairman as alternates, and in the absence of the Vice Chairman of the Committee, his alternate). ~~All actions taken by the Foreign Currency Subcommittee under this paragraph shall be reported promptly to the Committee.~~ MEETINGS OF THE SUBCOMMITTEE SHALL BE CALLED AT THE REQUEST OF ANY MEMBER, OR AT THE REQUEST OF THE MANAGER, FOR THE PURPOSES OF REVIEWING RECENT OR CONTEMPLATED OPERATIONS AND OF CONSULTING WITH THE MANAGER ON OTHER MATTERS RELATING TO HIS RESPONSIBILITIES. AT THE REQUEST OF ANY MEMBER OF THE SUBCOMMITTEE, QUESTIONS ARISING FROM SUCH REVIEWS AND CONSULTATIONS SHALL BE REFERRED FOR DETERMINATION TO THE FEDERAL OPEN MARKET COMMITTEE.

7. The Chairman ~~(and in his absence the Vice Chairman of the Committee, and in the absence of both, the Vice Chairman of the Board of Governors)~~ is authorized:

   A. With the approval of the Committee, to enter into any needed agreement or understanding with the Secretary of the Treasury about the division of responsibility for foreign currency operations between the System and the ~~Secretary~~ TREASURY;

   B. To keep the Secretary of the Treasury fully advised concerning System foreign currency operations, and to consult with the Secretary on ~~such~~ policy matters ~~as may relate to the Secretary's responsibility~~ RELATING TO FOREIGN CURRENCY OPERATIONS; ~~and~~

   C. From time to time, to transmit appropriate reports and information to the National Advisory Council on International Monetary and Financial Policies.

8. Staff officers of the Committee are authorized to transmit pertinent information on System foreign currency operations to appropriate officials of the Treasury Department.

9. All Federal Reserve Banks shall participate in the foreign currency operations for System Account in accordance with paragraph 3.G(1) of the Board of Governors' Statement of Procedure with Respect to Foreign Relationships of Federal Reserve Banks, dated January 1, 1944.

Action taken: January 6, 1978
Effective date: January 6, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $1.5 billion.

Action taken: January 17, 1978
Effective date: January 17, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $1.75 billion.

Action taken: February 28, 1978
Effective date: February 28, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $2.0 billion.

Action taken: March 10, 1978
Effective date: March 11, 1978

The Committee authorized Chairman Miller to negotiate an increase of up to $2 billion in the System's swap arrangement with the German Federal Bank and also voted to approve a corresponding amendment to the table in paragraph 2. On March 11, Chairman Miller approved a $2 billion increase in the swap arrangement with the German Federal Bank, from $2 billion to $4 billion, and the amendment of the table was effectuated.

Action taken: March 21, 1978
Effective date: March 21, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $2.25 billion.

Action taken: May 16, 1978
Effective date: May 16, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $2.0 billion.

Action taken: June 20, 1978
Effective date: June 20, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $1.5 billion.

In the interest of clarity and to make the language conform to new language concurrently introduced in the procedural instructions, paragraph 1.D was amended as follows:

> D. To maintain an overall open position in all foreign currencies not exceeding $1.0 billion, unless a larger position is expressly authorized by the Committee. For this purpose, the overall open position in all foreign currencies is defined as the sum (disregarding signs) of open NET positions in each currency INDIVIDUAL CURRENCIES. The open NET position in a single foreign currency is defined as holdings of balances in that currency, plus outstanding contracts for future receipt, minus outstanding contracts for future delivery of that currency, i.e., as the sum of these elements with due regard to sign.

Action taken: October 27, 1978
Effective date: October 27, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $2.0 billion.

Action taken: October 31, 1978
Effective date: November 1, 1978

On October 31, the Committee authorized Chairman Miller to take certain actions--including the negotiation of increases in the System's swap arrangements with the German Federal Bank, the Bank of Japan, and the Swiss National Bank--to implement a program to strengthen the dollar and to counter inflationary pressures, if he determined that arrangements with other authorities were substantially as contemplated in a consultation among members of the Committee on the preceding day. The Committee also voted to approve a corresponding amendment to the table in paragraph 2 and a delegation of authority to Chairman Miller to expressly authorize an open position of $5 billion under paragraph 1.D of the Authorization for Foreign Currency Operations.

On November 1, in accordance with the authority delegated to him, Chairman Miller approved increases of $2 billion, $3 billion, and $2.6 billion in the System's swap arrangements with the German Federal Bank, the Bank of Japan, and the Swiss National Bank, respectively. Chairman Miller also authorized an overall open position of $5 billion.

Effective immediately, the table in paragraph 2 was amended to read as follows:

> The Federal Open Market Committee directs the Federal Reserve Bank of New York to maintain reciprocal currency arrangements ("swap" arrangements) for the System Open Market Account for periods up to a maximum of 12 months with the following foreign banks, which are among those designated by the Board of Governors of the Federal Reserve System under Section 214.5 of Regulation N, Relations with Foreign Banks and Bankers, and with the approval of the Committee to renew such arrangements on maturity:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	6,000
Bank of Italy	3,000
Bank of Japan	5,000
Bank of Mexico	360
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	4,000
Bank for International Settlements:	
Dollars against Swiss francs	600
Dollars against authorized European currencies other than Swiss francs	1,250

Action taken: December 14, 1978
Effective date: December 14, 1978

Paragraph 1.A was amended to provide for transactions in foreign currencies directly with the U. S. Treasury as well as with the Exchange Stabilization Fund. As amended, part A of paragraph 1 read as follows:

> A. To purchase and sell the following foreign currencies in the form of cable transfers through spot or forward transactions on the open market at home and abroad, including transactions WITH THE U. S. TREASURY, with the U. S. Exchange Stabilization Fund established by Section 10 of the Gold Reserve Act of 1934, with foreign monetary authorities, with the Bank for International Settlements, and with other international financial institutions:

(The list of eligible currencies was unchanged in this action.)

Action taken: December 19, 1978
Effective date: December 19, 1978

Pursuant to paragraph 1.D of the Authorization for Foreign Currency Operations, the Committee expressly authorized an overall open position in all foreign currencies of $8 billion.

Action taken: May 9, 1979
Effective date: May 9, 1979

Paragraph 5 was amended to authorize certain transactions to provide investment facilities for System balances in foreign currencies. As amended, paragraph 5 read as follows:

5. Foreign currency holdings shall be invested insofar as practicable, considering needs for minimum working balances. ~~Such investments shall be in accordance with Section 14(c) of the Federal Reserve Act.~~ WHEN APPROPRIATE IN CONNECTION WITH ARRANGEMENTS TO PROVIDE INVESTMENT FACILITIES FOR FOREIGN CURRENCY HOLDINGS, U.S. GOVERNMENT SECURITIES MAY BE PURCHASED FROM FOREIGN CENTRAL BANKS UNDER AGREEMENTS FOR REPURCHASE OF SUCH SECURITIES WITHIN 30 CALENDAR DAYS.

Action taken: August 14, 1979
Effective date: August 17, 1979

The table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Mexico from $360 million to $700 million.

Action taken: March 18, 1980
Effective date: March 18, 1980

Paragraph 6 was amended by substituting the title "Manager for Foreign Operations" for "Manager" the first time the latter appeared, to reflect changes in positions and titles relating to management of the System Open Market Account that had taken place since the last annual review of the Authorization.

Pursuant to paragraph 3, the Committee expressly authorized the Federal Reserve Bank of New York to enter into contracts to purchase foreign exchange at specified rates that reflected market rates of late February and early March when contract discussions were initiated and simultaneously to transfer the foreign exchange so acquired directly to the ESF.

Action taken: May 20, 1980
Effective date: May 23, 1980

Table in paragraph 2 was amended to increase the authorized amount of the swap arrangement with the Bank of Sweden from $300 million to $500 million, for a period of one year, after which the amount would revert to $300 million.

Action taken: March 31, 1981
Effective date: March 31, 1981

The Committee adopted several amendments to simplify and clarify its instructions to the New York Bank and to bring the document up to date in light of recent developments. Paragraphs 1.D, 3, 5 and 6 were amended as follows:

1.D. To maintain an overall open position in all foreign currencies not exceeding ~~$1.0~~ $8.0 billion ~~unless a larger position is expressly authorized by the Committee.~~ For this purpose . . .

3. ~~Currencies to be used for liquidation of System swap commitments may be purchased from the foreign central bank drawn on, at the same exchange rate as that employed in the drawing to be liquidated. Apart from any such purchases at the rate of the drawing,~~ All transactions in foreign currencies undertaken under paragraph 1.A above shall, unless otherwise expressly authorized by the Committee, be at prevailing market rates. FOR THE PURPOSE OF PROVIDING AN INVESTMENT RETURN ON SYSTEM HOLDINGS OF FOREIGN CURRENCIES, OR FOR THE PURPOSE OF ADJUSTING INTEREST RATES PAID OR RECEIVED IN CONNECTION WITH SWAP DRAWINGS, TRANSACTIONS WITH FOREIGN CENTRAL BANKS MAY BE UNDERTAKEN AT NONMARKET EXCHANGE RATES.

5. Foreign currency holdings shall be invested insofar as practicable, considering needs for minimum working balances. SUCH INVESTMENTS SHALL BE IN LIQUID FORM, AND GENERALLY HAVE NO MORE THAN 12 MONTHS REMAINING TO MATURITY. When appropriate . . .

6. All operations undertaken pursuant to the preceding paragraphs shall be reported ~~daily~~ PROMPTLY to the Foreign Currency Subcommittee AND THE COMMITTEE . . .

Action taken: August 24, 1982
Effective date: August 28, 1982

Paragraph 2 was amended to include for the period through August 23, 1983, a special reciprocal currency arrangement with the Bank of Mexico of $325 million in addition to the regular $700 million arrangement. (On August 23, 1983, the special reciprocal currency arrangement with the Bank of Mexico expired as scheduled.)

Action taken: October 1, 1985
Effective date: October 1, 1985

Paragraph 1.D was amended to raise the limit on the overall open position in all foreign currencies from $8.0 billion to $10.0 billion.

Action taken: March 31, 1987
Effective date: March 31, 1987

Paragraph 1.D was amended to raise the limit on the overall open position in all foreign currencies from $10.0 billion to $12.0 billion.

Action taken: May 16, 1989
Effective date: May 16, 1989

Paragraph 1.D was amended to raise the limit on the overall open position in all foreign currencies from $12.0 billion to $15.0 billion.

Action taken: June 14, 1989
Effective date: June 14, 1989

Paragraph 1.D was amended to raise the limit on the overall open position in all foreign currencies from $15.0 billion to $18.0 billion.

Action taken: August 22, 1989
Effective date: September 14, 1989

Paragraph 2 was amended to reflect a special reciprocal currency arrangement of $125 million with the Bank of Mexico that was to supplement the regular $700 million arrangement. The special facility was part of a multilateral arrangement under which the Bank of Mexico could draw up to $2 billion in short-term financing in support of its Government's program for economic reform and growth. (Participants included the U. S. Treasury through its ESF, central banks from the other Group of Ten countries acting under the aegis of the Bank for International Settlements, and the Bank of Spain.) The facility became effective on September 14, and Chairman Greenspan, acting under a delegation of authority from the Committee, gave final clearance on September 22 for drawings by the Bank of Mexico on the reciprocal currency arrangements. The final maturity date of the special facility was set at February 15, 1990, and on that date the Bank of Mexico repaid in full outstanding drawings on both facilities.

Action taken: September 25, 1989
Effective date: September 25, 1989

Paragraph 1.D was amended to raise the limit on the overall open position in all foreign currencies from $18.0 billion to $20.0 billion.

Action taken: December 18, 1989
Effective date: December 18, 1989

Paragraph 1.D was amended to raise the limit on the overall open position in all foreign currencies from $20.0 billion to $21.0 billion.

AUTHORIZATION FOR FOREIGN CURRENCY OPERATIONS
(As reaffirmed February 6, 1990)

1. The Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York, for System Open Market Account, to the extent necessary to carry out the Committee's foreign currency directive and express authorizations by the Committee pursuant thereto, and in conformity with such procedural instructions as the Committee may issue from time to time:

   A. To purchase and sell the following foreign currencies in the form of cable transfers through spot or forward transactions on the open market at home and abroad, including transactions with the U.S. Treasury, with the U.S. Exchange Stabilization Fund established by Section 10 of the Gold Reserve Act of 1934, with foreign monetary authorities, with the Bank for International Settlements, and with other international financial institutions:

      Austrian schillings
      Belgian francs
      Canadian dollars
      Danish kroner
      Pounds sterling
      French francs
      German marks
      Italian lire
      Japanese yen
      Mexican pesos
      Netherlands guilders
      Norwegian kroner
      Swedish kronor
      Swiss francs

   B. To hold balances of, and to have outstanding forward contracts to receive or to deliver, the foreign currencies listed in paragraph A above.

   C. To draw foreign currencies and to permit foreign banks to draw dollars under the reciprocal currency arrangements listed in paragraph 2 below, provided that drawings by either party to any such arrangement shall be fully liquidated within 12 months after any amount outstanding at that time was first drawn, unless the Committee, because of exceptional circumstances, specifically authorizes a delay.

   D. To maintain an overall open position in all foreign currencies not exceeding $21.0 billion. For this purpose, the overall open position in all foreign currencies is defined as the sum (disregarding signs) of net positions in individual currencies. The net position in a single foreign currency is defined as holdings of balances in that currency, plus outstanding contracts for future receipt,

minus outstanding contracts for future delivery of that currency, i.e., as the sum of these elements with due regard to sign.

2. The Federal Open Market Committee directs the Federal Reserve Bank of New York to maintain reciprocal currency arrangements ("swap" arrangements) for the System Open Market Account for periods up to a maximum of 12 months with the following foreign banks, which are among those designated by the Board of Governors of the Federal Reserve System under Section 214.5 of Regulation N, Relations with Foreign Banks and Bankers, and with the approval of the Committee to renew such arrangements on maturity:

Foreign bank	Amount of arrangement (millions of dollars equivalent)
Austrian National Bank	250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	6,000
Bank of Italy	3,000
Bank of Japan	5,000
Bank of Mexico	
Regular	700
Special	125 *
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	4,000
Bank for International Settlements:	
Dollars against Swiss francs	600
Dollars against authorized European currencies other than Swiss francs	1,250

* Facility with maturity date of February 15, 1990.

Any changes in the terms of existing swap arrangements, and the proposed terms of any new arrangements that may be authorized, shall be referred for review and approval to the Committee.

3. All transactions in foreign currencies undertaken under paragraph 1.A above shall, unless otherwise expressly authorized by the Committee, be at prevailing market rates. For the purpose of providing an investment return on System holdings of foreign currencies, or for the purpose of adjusting interest rates paid or received in connection with swap drawings, transactions with foreign central banks may be undertaken at non-market exchange rates.

4. It shall be the normal practice to arrange with foreign central banks for the coordination of foreign currency transactions. In making operating arrangements with foreign central banks on System holdings of foreign currencies, the Federal Reserve Bank of New York shall not commit itself to maintain any specific balance, unless authorized by the Federal Open Market Committee. Any agreements or understandings concerning the administration of the accounts maintained by the Federal Reserve Bank of New York with the foreign banks designated by the Board of Governors under Section 214.5 of Regulation N shall be referred for review and approval to the Committee.

5. Foreign currency holdings shall be invested insofar as practicable, considering needs for minimum working balances. Such investments shall be in liquid form, and generally have no more than 12 months remaining to maturity. When appropriate in connection with arrangements to provide investment facilities for foreign currency holdings, U. S. Government securities may be purchased from foreign central banks under agreements for repurchase of such securities within 30 calendar days.

6. All operations undertaken pursuant to the preceding paragraphs shall be reported promptly to the Foreign Currency Subcommittee and the Committee. The Foreign Currency Subcommittee consists of the Chairman and Vice Chairman of the Committee, the Vice Chairman of the Board of Governors, and such other member of the Board as the Chairman may designate (or in the absence of members of the Board serving on the Subcommittee, other Board members designated by the Chairman as alternates, and in the absence of the Vice Chairman of the Committee, his alternate). Meetings of the Subcommittee shall be called at the request of any member, or at the request of the Manager for Foreign Operations, for the purposes of reviewing recent or contemplated operations and of consulting with the Manager on other matters relating to his responsibilities. At the request of any member of the Subcommittee, questions arising from such reviews and consultations shall be referred for determination to the Federal Open Market Committee.

7. The Chairman is authorized:

   A. With the approval of the Committee, to enter into any needed agreement or understanding with the Secretary of the Treasury about the division of responsibility for foreign currency operations between the System and the Treasury;

   B. To keep the Secretary of the Treasury fully advised concerning System foreign currency operations, and to consult with the Secretary on policy matters relating to foreign currency operations;

   C. From time to time, to transmit appropriate reports and information to the National Advisory Council on International Monetary and Financial Policies.

8. Staff officers of the Committee are authorized to transmit pertinent information on System foreign currency operations to appropriate officials of the Treasury Department.

9. All Federal Reserve Banks shall participate in the foreign currency operations for System Account in accordance with paragraph 3.G(1) of the Board of Governors' Statement of Procedure with Respect to Foreign Relationships of Federal Reserve Banks, dated January 1, 1944.

APPENDIX C

FOREIGN CURRENCY DIRECTIVE
1966 TO DATE

FOREIGN CURRENCY DIRECTIVE
(Adopted June 7, 1966)

1. The basic purposes of System operations in foreign currencies are:

   A. To help safeguard the value of the dollar in international exchange markets;

   B. To aid in making the system of international payments more efficient;

   C. To further monetary cooperation with central banks of other countries having convertible currencies, with the International Monetary Fund, and with other international payments institutions;

   D. To help insure that market movements in exchange rates, within the limits stated in the International Monetary Fund Agreement or established by central bank practices, reflect the interaction of underlying economic forces and thus serve as efficient guides to current financial decisions, private and public; and

   E. To facilitate growth in international liquidity in accordance with the needs of an expanding world economy.

2. Unless otherwise expressly authorized by the Federal Open Market Comittee, System operations in foreign currencies shall be undertaken only when necessary:

   A. To cushion or moderate fluctuations in the flows of international payments, if such fluctuations (1) are deemed to reflect transitional market unsettlement or other temporary forces and therefore are expected to be reversed in the foreseeable future; and (2) are deemed to be disequilibrating or otherwise to have potentially destabilizing effects on U. S. or foreign official reserves or on exchange markets, for example, by occasioning market anxieties, undesirable speculative activity, or excessive leads and lags in international payments;

   B. To temper and smooth out abrupt changes in spot exchange rates, and to moderate forward premiums and discounts judged to be disequilibrating. Whenever supply or demand persists in influencing exchange rates in one direction, System transactions should be modified or curtailed unless upon review and reassessment of the situation the Committee directs otherwise;

   C. To aid in avoiding disorderly conditions in exchange markets. Special factors that might make for exchange market instabilities include (1) responses to short-run

increases in international political tension, (2) differences in phasing of international economic activity that give rise to unusually large interest rate differentials between major markets, and (3) market rumors of a character likely to stimulate speculative transactions. Whenever exchange market instability threatens to produce disorderly conditions, System transactions may be undertaken if the Special Manager reaches a judgment that they may help to reestablish supply and demand balance at a level more consistent with the prevailing flow of underlying payments. In such cases, the Special Manager shall consult as soon as practicable with the Committee or, in an emergency, with the members of the Subcommittee designated for that purpose in paragraph 6 of the Authorization for System foreign currency operations; and

D. To adjust System balances within the limits established in the Authorization for System foreign currency operations in light of probable future needs for currencies.

3. System drawings under the swap arrangements are appropriate when necessary to obtain foreign currencies for the purposes stated in paragraph 2 above.

4. Unless otherwise expressly authorized by the Committee, transactions in forward exchange, either outright or in conjunction with spot transactions, may be undertaken only (i) to prevent forward premiums or discounts from giving rise to disequilibrating movements of short-term funds; (ii) to minimize speculative disturbances; (iii) to supplement existing market supplies of forward cover, directly or indirectly, as a means of encouraging the retention or accumulation of dollar holdings by private foreign holders; (iv) to allow greater flexibility in covering System or Treasury commitments, including commitments under swap arrangements; (v) to facilitate the use of one currency for the settlement of System or Treasury commitments denominated in other currencies; and (vi) to provide cover for System holdings of foreign currencies.

AMENDMENTS TO THE FOREIGN CURRENCY DIRECTIVE SINCE JUNE 1966

Action taken: May 28, 1968
Effective date: May 28, 1968

Paragraph 4 was amended as a conforming change to the earlier amendment, on November 14, 1967, of paragraph 1.C(1) of the Authorization for System Foreign Currency Operations. These amendments were required to authorize the Desk to warehouse foreign currencies for the Treasury (no warehousing operations had been conducted up to this time). As amended, paragraph 4 read as follows:

> 4. Unless otherwise expressly authorized by the Committee, transactions in forward exchange, either outright or in conjunction with spot transactions, may be undertaken only (i) to prevent forward premiums or discounts from giving rise to disequilibrating movements of short-term funds; (ii) to minimize speculative disturbances; (iii) to supplement existing market supplies of forward cover, directly or indirectly, as a means of encouraging the retention or accumulation of dollar holdings by private foreign holders; (iv) to allow greater flexibility in covering System or Treasury commitments, including commitments under swap arrangements, AND TO FACILITATE OPERATIONS OF THE STABILIZATION FUND; (v) to facilitate the use of one currency for the settlement of System or Treasury commitments denominated in other currencies; and (vi) to provide cover for System holdings of foreign currencies.

Action taken: March 20, 1973
Effective date: March 20, 1973

Paragraphs 2.C and 2.D were amended to reflect the retitling of the "Authorization for System Foreign Currency Operations" to "Authorization for Foreign Currency Operations."

Action taken: February 19, 1975
Effective date: February 19, 1975

Paragraph 2.C was amended to reflect the elimination of the position of Special Manager. Accordingly, in the two references to that position the word "Special" was deleted.

Action taken: December 20, 1976
Effective date: December 28, 1976

The Foreign Currency Directive was broadly revised and restructured to simplify and clarify the instructions to the Federal

Reserve Bank of New York and to bring the document up to date in light of changes under way in the international monetary system and its functioning. The main substantive change was to omit the detailed listing of basic purposes and specific objectives of System foreign currency operations--many of which were anachronistic in the prevailing circumstances--and to indicate instead that System operations were generally to be directed at countering disorderly conditions in the exchange markets. Other than a minor amendment made in 1979 and indicated below, the Directive approved by the Committee on this date is identical to the Directive as reaffirmed on February 6, 1990 (shown on the next page).

Action taken: March 20, 1979
Effective date: March 20, 1979

Paragraphs 1 and 4.C of the Foreign Currency Directive were amended to delete the word "proposed" preceding the references to IMF Article IV, to reflect the fact that Article IV had been put in place since the Committee had last conducted its annual review of its continuing authorizations.

FOREIGN CURRENCY DIRECTIVE
(Reaffirmed February 6, 1990)

1. System operations in foreign currencies shall generally be directed at countering disorderly market conditions, provided that market exchange rates for the U. S. dollar reflect actions and behavior consistent with IMF Article IV, Section 1.

2. To achieve this end the System shall:

   A. Undertake spot and forward purchases and sales of foreign exchange.

   B. Maintain reciprocal currency ("swap") arrangements with selected foreign central banks and with the Bank for International Settlements.

   C. Cooperate in other respects with central banks of other countries and with international monetary institutions.

3. Transactions may also be undertaken:

   A. To adjust System balances in light of probable future needs for currencies.

   B. To provide means for meeting System and Treasury commitments in particular currencies, and to facilitate operations of the Exchange Stabilization Fund.

   C. For such other purposes as may be expressly authorized by the Committee.

4. System foreign currency operations shall be conducted:

   A. In close and continuous consultation and cooperation with the United States Treasury;

   B. In cooperation, as appropriate, with foreign monetary authorities; and

   C. In a manner consistent with the obligations of the United States in the International Monetary Fund regarding exchange arrangements under IMF Article IV.

APPENDIX D

PROCEDURAL INSTRUCTIONS

PROCEDURAL INSTRUCTIONS
(Adopted December 28, 1976)

In conducting operations pursuant to the authorization and direction of the Federal Open Market Committee as set forth in the Authorization for Foreign Currency Operations and the Foreign Currency Directive, the Federal Reserve Bank of New York, through the Manager of the System Open Market Account, shall be guided by the following procedural understandings with respect to consultations and clearance with the Committee, the Foreign Currency Subcommittee, and the Chairman of the Committee. All operations undertaken pursuant to such clearances shall be reported promptly to the Committee.

1. The Manager shall clear with the Subcommittee (or with the Chairman, if the Chairman believes that consultation with the Subcommittee is not feasible in the time available):

    A. Any transaction which would result in a change in the System's overall open position in foreign currencies exceeding $100 million on any day or $300 million since the most recent regular meeting of the Committee.

    B. Any transaction which would result in gross transactions (excluding swap drawings and repayments) in a single foreign currency exceeding $100 million on any day or $300 million since the most recent regular meeting of the Committee.

    C. Any swap drawing proposed by a foreign bank not exceeding the larger of (i) $200 million or (ii) 15 per cent of the size of the swap arrangement.

2. The Manager shall clear with the Committee (or with the Subcommittee, if the Subcommittee believes that consultation with the full Committee is not feasible in the time available, or with the Chairman, if the Chairman believes that consultation with the Subcommittee is not feasible in the time available):

    A. Any transaction which would result in a change in the System's overall open position in foreign currencies exceeding $500 million since the most recent regular meeting of the Committee.

    B. Any swap drawing proposed by a foreign bank exceeding the larger of (i) $200 million or (ii) 15 per cent of the size of the swap arrangement.

3. The Manager shall also consult with the Subcommittee or the Chairman about proposed swap drawings by the System, and about any transactions that are not of a routine character.

Action taken: March 21, 1978
Effective date: March 21, 1978

Paragraph 1.B. was amended to read as follows:

B. Any transaction which would result in gross transactions (excluding swap drawings and repayments AND PURCHASES AND SALES OF ANY CURRENCIES INCIDENTAL TO SUCH REPAYMENTS), in a single foreign currency exceeding ~~$100~~ $200 million on any day or ~~$300~~ $500 million since the most recent regular meeting of the Committee.

Action taken: June 20, 1978
Effective date: June 20, 1978

In order to make less cumbersome the consultation procedures between the Desk and the Committee (or in some cases, the Foreign Currency Subcommittee) paragraph 1.B. was amended to replace the limit on gross transactions with a limit on changes in net positions in individual currencies. In addition, a new paragraph 1.C. was inserted, which called for clearance of any large-scale market operation in an individual currency, and minor clarifying changes in language were made to other paragraphs. The amended paragraphs read as follows:

1.A. Any OPERATION ~~transaction~~ which would result in a change in the System's overall open position in foreign currencies exceeding $100 million on any day or $300 million since the most recent regular meeting of the Committee.

1.B. Any OPERATION ~~transaction~~ which would result in A CHANGE IN THE SYSTEM'S NET POSITION ~~gross transactions (excluding swap drawings and repayments)~~ in a single foreign currency exceeding $100 million on any day or $300 million since the most recent regular meeting of the Committee.

1.C. ANY OPERATION WHICH MIGHT GENERATE A SUBSTANTIAL VOLUME OF TRADING IN A PARTICULAR CURRENCY BY THE SYSTEM, EVEN THOUGH THE CHANGE IN THE SYSTEM'S NET POSITION IN THAT CURRENCY MIGHT BE LESS THAN THE LIMITS SPECIFIED IN 1.B.

1.D. ~~C.~~ Any swap drawing proposed by a foreign bank not exceeding the larger of (i) $200 million or (ii) 15 per cent of the size of the swap arrangement.

2.A. Any OPERATION ~~transaction~~ which would result in a change in the System's overall open position in foreign currencies exceeding $500 million since the most recent regular meeting of the Committee.

3. The Manager shall also consult with the Subcommittee or the Chairman about proposed swap drawings by the System, and about any OPERATIONS transactions that are not of a routine character.

Action taken: November 1, 1978
Effective date: November 1, 1978

In connection with the broad Government program to support the dollar announced on November 1, Chairman Miller, in accordance with authority delegated to him by the Committee the previous day, approved the suspension of the intermeeting limit on changes in the System's overall open position in foreign currencies specified in paragraph 2.A.

At the same time, the Foreign Currency Subcommittee approved suspension--for the current intermeeting period--of the daily and intermeeting limits on the change in the System's overall open position and on the change in the System's net position in a single foreign currency, as specified in paragraphs 1.A. and 1.B. respectively.

Action taken: December 19, 1978
Effective date: December 19. 1978

The Foreign Currency Subcommittee approved an indefinite suspension of the daily and intermeeting limits specified in paragraphs 1.A. and 1.B.

Action taken: March 20, 1979
Effective date: March 20, 1979

The Committee decided to reinstate limits on paragraphs 1.A., 1.B., and 2.A. The limits approved differed from those that had been in effect prior to the suspension of the limits noted above. The amended paragraphs read as follows:

1.A. Any operation which would result in a change in the System's overall open position in foreign currencies exceeding ~~$100~~ $300 million on any day or ~~$300~~ $600 million since the most recent regular meeting of the Committee.

1.B. Any operation which would result in a change ON ANY DAY in the System's net position in a single foreign currency exceeding ~~$100 million on any day or $300 million since the most recent regular meeting of the Committee~~ $150 MILLION, OR $300 MILLION WHEN THE OPERATION IS ASSOCIATED WITH REPAYMENT OF SWAP DRAWINGS.

2.A. Any operation which would result in a change in the System's overall open position in foreign currencies exceeding ~~$500 million~~ $1.5 BILLION since the most recent regular meeting of the Committee.

Action taken: August 14, 1979
Effective date: August 14, 1979

To reflect changes in positions and titles relating to management of the System Account, the procedural instructions were amended as follows:

In the initial (unnumbered) paragraph, the reference to the Manager was changed to read: "The Manager of the FOR FOREIGN OPERATIONS, System Open Market Account."

In paragraphs 1, 2, and 3, the phrase FOR FOREIGN OPERATIONS was inserted after the word 'Manager'.

PROCEDURAL INSTRUCTIONS
(Reaffirmed February 6, 1990)

In conducting operations pursuant to the authorization and direction of the Federal Open Market Committee as set forth in the Authorization for Foreign Currency Operations and the Foreign Currency Directive, the Federal Reserve Bank of New York, through the Manager for Foreign Operations, System Open Market Account, shall be guided by the following procedural understandings with respect to consultations and clearance with the Committee, the Foreign Currency Subcommittee, and the Chairman of the Committee. All operations undertaken pursuant to such clearances shall be reported promptly to the Committee.

1. The Manager for Foreign Operations shall clear with the Subcommittee (or with the Chairman, if the Chairman believes that consultation with the Subcommittee is not feasible in the time available):

    A. Any operation that would result in a change in the System's overall open position in foreign currencies exceeding $300 million on any day or $600 million since the most recent regular meeting of the Committee.

    B. Any operation that would result in a change on any day in the System's net position in a single foreign currency exceeding $150 million, or $300 million when the operation is associated with repayment of swap drawings.

    C. Any operation that might generate a substantial volume of trading in a particular currency by the System, even though the change in the System's net position in that currency might be less than the limits specified in 1.B.

    D. Any swap drawing proposed by a foreign bank not exceeding the larger of (i) $200 million or (ii) 15 percent of the size of the swap arrangement.

2. The Manager for Foreign Operations shall clear with the Committee (or with the Subcommittee, if the Subcommittee believes that consultation with the full Committee is not feasible in the time available, or with the Chairman, if the Chairman believes that consultation with the Subcommittee is not feasible in the time available):

    A. Any operation that would result in a change in the System's overall open position in foreign currencies exceeding $1.5 billion since the most recent regular meeting of the Committee.

    B. Any swap drawing proposed by a foreign bank exceeding the larger of (i) $200 million or (ii) 15 percent of the size of the swap arrangement.

3. The Manager for Foreign Operations shall also consult with the Subcommittee or the Chairman about proposed swap drawings by the System, and about any operations that are not of a routine character.

APPENDIX E

INFORMAL LIMITS ON HOLDINGS OF FOREIGN CURRENCIES SEPTEMBER 1975 TO MARCH 1989

INFORMAL UNDERSTANDINGS REGARDING LIMITS ON HOLDINGS OF FOREIGN CURRENCY BALANCES
(billions of dollars equivalent)

Date	Limit on total balances	Limit on total balances excluding yen	Limits on individual currencies		
			Yen	Marks	All other currencies
1975 Sept. 16	.1	n.a.	n.a.	n.a.	n.a.
Dec. 16	.15	n.a.	n.a.	n.a.	n.a.
1979 Feb. 6	.5	n.a.	n.a.	n.a.	n.a.
May 22	n.a.	1.0 (1/2 billion for any single currency)	1.0	n.a.	n.a.
1980 Oct. 21	n.a.	1.5	1.0	1.0	0.5
Nov. 7	n.a.	2.0	1.0	1.5	0.5
Dec. 18-19	n.a.	3.0	1.0	2.5	0.5
1981 Feb. 2-3	n.a.	3.25	1.0	2.75	0.5
Mar. 31	4.25	n.a.	1.0	2.75	0.5
Aug. 18	4.5	n.a.	1.0	3.0	0.5
1982 Feb. 2	5.0	n.a.	1.0	3.5	0.5
1983 Mar. 28	5.5	n.a.	1.0	4.0	0.5
1984 Oct. 2	6.5	n.a.	1.0	5.0	0.5
1985 Oct. 1	10.0	n.a.	3.0	6.0	1.0
1987 Mar. 31	12.0	n.a.	3.0	8.0	1.0
1989 Mar. 28	Informal limits were terminated.				

n.a. - No limit established.

APPENDIX F

MEMORANDA RELATED TO SYSTEM FOREIGN EXCHANGE OPERATIONS CIRCULATED TO FOMC, 1961 - 1989

FOMC MEMORANDA RELATED TO SYSTEM FOREIGN EXCHANGE OPERATIONS

NOTE: In addition to the memoranda listed below, the Manager for Foreign Operations (known as the "Special Manager" prior to February 19, 1975) provides detailed reports on foreign exchange operations and related matters in weekly memoranda to the Committee, intermeeting summaries circulated prior to each meeting, and annual reports to the Committee.

The Manager also prepares periodic reports for publication on Treasury and Federal Reserve foreign exchange operations. Four reports are published each year. The first (covering the period March 1961 - August 1962) appeared in the September 1962 Federal Reserve Bulletin.

Distribution Date		
6/27/61	Federal Reserve Holdings of Foreign Currencies	Young
	International Cooperation of Central Banks	Furth
11/ 3/61	System Operations in Foreign Currencies	Young
	Paper No. 1: Proposed Actions by Board of Governors	
	Paper No. 2: Proposed FOMC actions	
	Paper No. 3: Responsibility of the Treasury and the Federal Reserve for Foreign Currency Operations (draft for discussion with Treasury)	
	Paper No. 4: Guidelines for System Open Market Operations in Foreign Currencies	
	Paper No. 5: Aims and Scope of System Foreign Exchange Operations	
	Paper No. 6: Legal Aspects of Proposed Plan for Federal Reserve Operations in Foreign Currencies (Hackley)	
11/29/61	System Open Market Operations in Foreign Currencies (Revised versions of papers 2, 3, 4, 5, and 6 circulated on 11/3/61)	Young

12/12/61	System Operations in Foreign Currencies (Revised versions of papers 1, 2, 4, and 5 circulated on 11/3/61 and a new paper below)	Young
	Paper No. 7: Possible Amendments to Law	Hackley
12/15/61	Monetary Principles Underlying Federal Reserve Holdings of Foreign Currencies	Thomas
1/ 8/62	Letter from Secretary Dillon to Chairman Martin in support of System operations in foreign currencies with enclosed copy of related Dillon memo to the President	Dillon
1/ 8/62	Copy of opinion of Robert H. Knight, General Counsel of the Treasury, re the power under existing legislation of the Federal Reserve to conduct operations in foreign currencies	Young
1/19/62	FOMC Instructions Regarding Open Market Transactions in Foreign Currencies (Redraft and combination of papers 2 and 4)	Young
2/ 9/62	New set of papers re proposed program for System foreign currency operations: 1. Proposed FOMC action regarding System operations in foreign currencies 2. Proposed Guidelines for System Foreign Currency Operations 3. Memorandum on understanding reached between Treasury and FOMC staff representatives on the scope and character of initial foreign currency operations of the System 4. (a) Proposed short-term program for coordinated Treasury and System operations in foreign currencies (prepared by Treasury staff) (b) Treasury memorandum on Treasury and Federal Reserve foreign currency operations and policies - relationships and coordination 5. Proposed initial directive to FRB of NY 6. Treasury staff memorandum on "Treasury Experience in the Foreign Exchange Market" 7. Memorandum from Mr. Hackley on an alternative approach to System foreign currency operations (supervision by the Board of Governors)	Young

2/19/62	Statement of the Legal Authority for Federal Reserve Foreign Exchange Operations (furnished to Joint Economic Committee and Chairmen of Senate and House Banking and Currency Committees)	Hackley
12/13/62	Use of IMF Definition of a Convertible Currency for Determining Whether to Enter into Swap Arrangements	Furth
2/26/63	Request for Authorization of Forward Exchange Operations	Coombs
10/17/63	Rationale of the System's Swap Arrangements	Young, Coombs
11/ 8/63	Request for Authorization of Spot Purchases of Italian Lire and Other European Currencies, and of Their Simultaneous Forward Sales to the U.S. Treasury	Coombs
5/20/65	Action on International Liquidity	Coombs
	Commentary on Mr. Coombs' memo	Furth, Young
7/28/65	Increases in Swap lines with German Federal Bank and the BIS	Coombs
2/18/66	Proposed Reorganization of Instruments Governing Foreign Currency Operations	Secretariat
3/21/66	Federal Reserve Operations in Foreign Exchange, 1962-65	Baker
4/ 8/66	Commentary on Mr. Baker's memorandum	Coombs
4/27/66	Questions Relating to the System's Foreign Exchange Operations	Furth
4/28/66	Revisions of Proposed New Instruments Governing Foreign Currency Operations	Holland
5/ 9/66	Revision (see above) proposed by Governor Mitchell	Holland
6/ 3/66	Sterling Balance Credit Package	Coombs
6/16/66	Text of Authorization for System Foreign Currency Operations Adopted 6/7/66	Broida

8/12/66	Disclosure of U.S. Official Foreign Exchange Operations	Furth
8/18/66	Problems of Increasing Amounts of Mutual Currency Arrangements	Furth
	Contingency Planning re Sterling and the Gold Markets	Coombs
2/ 1/67	Criteria for Increasing Membership in the Federal Reserve Network of Reciprocal Currency Arrangements	Staff
2/28/67	Application of Criteria (see above) to Denmark, Mexico, Norway, and Venezuela	Staff
3/ 2/67	Record of Discussion on Publication of Data on System Foreign Currency Operations	Staff
4/28/67	Alternative Policies on the Disclosure of System Operations in Foreign Currencies	Staff
5/ 9/67	Swap Arrangements with Common Market Countries: Discussions at Basle May 6-7	Coombs
6/ 9/67	Maturity Dates of Swap Lines with Common Market Central Banks	Coombs
12/ 5/67	Short-dated Sterling Swaps with U.S. Commercial Banks	Coombs
2/28/68	Proposed Revisions in Authorization for System Foreign Currency Operations	Secretariat
3/27/68	Recent Purchase of Swiss Francs at Rate Other than Market Rate	Coombs
5/24/68	Proposed Revision of Foreign Currency Directive	Secretariat
7/ 2/68	Legality of FR Participation in Proposed Funding Arrangement for Sterling Balances	Hackley
6/ 3/68	Treasury Views Concerning "Backstopping" of Federal Reserve Swap Arrangements	Staff
7/ 2/68	Legality of Federal Reserve Participation in Proposed Funding Arrangement for Sterling Balances	Hackley

7/15/68	Federal Reserve Participation in Proposed Funding Arrangement for Sterling Balances	Holland
7/15/68	Draft letter from Secretary Fowler to Chairman Martin concerning Treasury backstop facilities for Federal Reserve swap arrangements (actual letter, unchanged from draft, was dated 7/23/68)	via Holland
1/31/69	Discussion of Questions Raised by Governor Maisel Concerning System Foreign Currency Operations	MacLaury
2/27/69	Proposed Technical Amendments to Authorization for System Foreign Currency Operations	Secretariat
6/ 8/69	Request for a more Liberal Interpretation of the $1 billion Warehousing Facility for the Stabilization Fund	Coombs
10/ 6/69	Possible Increase in Swap Arrangements with Austria, Denmark, and Norway	Coombs
1/26/70	Ireland as a Candidate for the Swap Network	Coombs
3/23/70	Recommended Changes in Paragraphs 1B(4) and 1C(2) of the Authorization for System Foreign Currency Operations	Coombs
12/ 8/70	Proposed Modification of Procedures to be Employed in Transactions under Certain Swap Lines	Bodner
12/ 9/70	Dealing with the Overhang of Euro-dollar Liabilities: Laissez-faire vs. Taking Action to Discourage Outflows	Solomon
1/11/71	Euro-dollar problem: Federal Reserve Matched Sale-Purchase Transactions	Staff
	Legality of Matched Sale-Purchase Transactions to Induce Banks to Retain Euro-dollar Holdings	Hackley
1/18/71	Euro-dollar Reflow Problem	Coombs
1/29/71	Expression of Views on MSP Contingency plan	Holland
5/ 4/71	System Drawings on Belgian Swap Line	Coombs

5/ 5/71	System Operations in Forward Marks	Coombs
8/16/71	Use of Swap Network	Solomon
1/ 5/72	System Losses on Foreign Exchange Transactions in 1971	Bodner
3/13/72	Common Market Exchange Rate Policy	Coombs
3/20/72	Activation of Revaluation Clause in Belgian Swap Arrangement	Coombs
4/17/72	Settlement of the Special Drawing with Germany	Bodner
8/14/72	Letter from Secretary Shultz to Chairman Burns (dated 8/8/72) confirming oral understanding on use of System swap facilities	via Broida
8/14/72	Letter from Fritz Leutwiler to C. Coombs regarding swap-related transaction	via Broida
3/12/73	Proposed Changes in Titles of Committee Policy Instruments and Amendments to Foreign Currency Authorization	Secretariat
3/12/73	Recommendation that Committee Establish Positions of Deputy Manager and Deputy Special Manager	Holland
3/16/73	Foreign Official Holdings of United States Treasury Debt--Issues and Problems	Staff, FRB of NY
3/19/73	Foreign Official Holdings of United States Treasury Debt--Issues and Problems (Comment on 3/16 memo from New York Bank Staff)	Staff (Hersey, Keir)
3/30/73	Memo attaching list of Members and Officers, Authorization for Domestic Open Market Operations, Authorization for Foreign Currency Operations, and Foreign Currency Directive	Broida
4/23/73	Report on Banks' Operations during Exchange Market Crisis Preceding February 12 Devaluation	Staff
5/10/73	Reserve Requirements on CDs, Euro-dollars, and Related Proposals	Divisions of R&S & IF

5/23/73	Certain Procedures with Respect to Information on Federal Reserve and Treasury Intervention in Foreign Exchange Markets	Volcker
3/15/74	Designation of Alternates for FOMC Subcommittee	Broida
7/15/74	Draft letter to Treasury Secretary re possible use by Italy of the Federal Reserve swap line	Burns
10/11/74	Considerations Underlying a Subcommittee Decision Regarding Repayment of Belgian Franc Swap Debt	Hayes, Mitchell, Wallich
11/ 5/74	Report on Foreign Official Investment in U.S.--The Federal Reserve's Role	Meek
11/ 5/74	Report on FR Guarantee of Acceptances Held for Foreign Accounts	Sternlight
2/10/75	Burns' Meeting with Leutwiler & Klasen	Broida
3/17/75	Review of Factors Underlying Recent Dollar Decline and Implications for Federal Reserve Intervention Policies	Pardee
4/11/75	System Intervention - Reuss & Burns	Broida
5/ 2/75	Exchange Market Implications of Recent Changes in Valuation of OPEC Currencies	Kubarych
5/14/75	Foreign Account Repurchase Agreements Handled by the Trading Desk	Cooper
6/24/75	Subcommittee on Foreign Currency Instruments	Altmann
8/13/75	Possible Increase in Swap Line with Bank of Mexico	Board's IF Division
8/18/75	Doubling of the Swap Arrangement with the Bank of Mexico and Possible Drawing in Full by that Bank	Holmes
1/15/76	Loss Sharing Agreement with the Swiss National Bank	Holmes
3/30/76	Recent Exchange Market Developments: Analysis and Prospects	Truman

4/15/76	Request for $360 Million Swap Drawing by Bank of Mexico	Pardee
4/15/76	Recent Economic and Financial Developments in Mexico and Prospects for 1976-77 (Attached to Pardee memo 4/15/76)	Maroni
8/18/76	Austrian Swap Line	Broida
10/27/76	Authorization Relating to Repayment of Swiss Franc Debt	Broida
11/12/76	Report of Subcommittee on Foreign Currency Instruments	Foreign Currency Sub-committee
12/14/76	Subcommittee Recommendations for Revised Foreign Currency Instruments	Broida
12/17/76	Additional Subcommittee Recommendations for Revised Foreign Currency Instruments	Broida
12/28/76	Adoption of Rewording of Paragraph 4 of Foreign Currency Directive	Altmann
1/17/77	Background Information on System "Warehousing" of Foreign Currency	Morton
1/17/77	Materials Relating to Official Sterling Balances Facility	Broida
5/18/77	Procedures for Federal Reserve System Foreign Currency Operations	Hopper
6/14/77	The Use of Repurchase Agreements for Foreign Central Banks and International Institutions	Volcker
6/15/77	The Use of Repurchase Agreements for Foreign Central Banks and International Institutions	O'Connell, Gemmill, Keir
6/15/77	Pros and Cons of System Matched-Sale Purchase Transactions with Foreign Accounts (attached to above memo)	Gemmill, Keir
12/ 9/77	Foreign Currency Subcommittee Actions Related to Countering Disorderly Conditions in Foreign Exchange Markets	Broida

12/13/77	The Federal Reserve Role in Providing Short-Term Investment Facilities to Foreign Central Banks and International Institutions	Volcker
2/14/78	Agreement to Warehouse Foreign Currencies for ESF	Truman
2/17/78	Notification of Foreign Currency Subcommittee Increase of the Limits on Open Position and Gross Transactions in a Single Currency for Intermeeting Period from $300 to $500 Million	Broida
3/14/78	Agreement to Warehouse Foreign Currencies for ESF	Truman
3/16/78	Report of Ad Hoc Subcommittee on Certain Foreign Currency Matters	Wallich
4/ 3/78	Correspondence with Treasury re Swap Lines with Bundesbank, ESF	Wallich
5/12/78	Status of Negotiations with Bundesbank on Means of Repayment of Swap Drawings	Holmes
5/12/78	Increase in Foreign Currency Limit in Intermeeting Period	Broida
6/15/78	Recommendations with Respect to Procedural Instructions	Ad Hoc Sub-Committee on Foreign Exchange
	Materials Relating to Disorderly Markets	Ad Hoc Sub-Committee on Foreign Exchange
	Some Observations on Disorderly Markets (distributed in above package)	Smith
	A Response to Governor Wallich's February 13 Note on Definition of Exchange Market Disorder (distributed in above package)	Sleeper
7/10/78	System D-Mark Purchases in Connection with German Government Payments to U.S.	Wallich
8/ 7/78	Revised Authorizations and Directives--Domestic, Foreign, and Procedural Instructions	Altmann

10/ 3/78	Swap Arrangements--Dr. Gleske's Recommendations to Amend	Holmes, Pardee
3/14/79	Limits on Foreign Currency Operations	Axilrod, Holmes
3/16/79	Operations in Foreign Currencies During 1978	Pardee
4/11/79	Holdings of Foreign Currency Balances	Axilrod, Holmes
	Holdings of Foreign Currency Balances by the Federal Reserve (attached to above memo)	Holmes, Pardee
4/18/79	Price Adjusted Exchange Rate Index	Truman
5/17/79	Foreign Currency Holdings	Axilrod, Holmes
7/ 3/79	The Mexican Swap Line	Pardee, Truman
7/10/79	Potential Exchange-Market Impact of a Lowering of the Fed-Funds Rate Target	Balles
8/ 7/79	Correspondence with Director General of Bank of Mexico	Miller
8/10/79	Proposed Increase in Swap Arrangement with the Bank of Mexico	Pardee
9/13/79	Suspension of Daily Limits in Foreign Currency	Altmann
12/18/79	The Bundesbank's Foreign Exchange Swaps: Recent Experience	Wilson
3/12/80	Renewal of Agreement to Warehouse Foreign Currencies for ESF and the Treasury	Truman
5/19/80	Request by Swedish Riksbank for an Increase in the Swap Line	Partee, Caprio
10/10/80 &10/14/80	Background Material on Proposed Changes in Terms on Federal Reserve Swap Drawings	Morton
12/12/80	Background Material on System Foreign Currency Operations Attachment A -- Foreign Currency Directive (3/18/80)	Truman

	Attachment B -- IMF Article IV - Obligations Regarding Exchange Arrangements Attachment C -- U.S. Holdings of Foreign Currency Balances (4/10/79)	Morton, Truman
12/18/80	Update of Table I to 12/12/80 Report (listed above)	Truman
1/22/81	The New Approach to Monetary Policy--A View From the Foreign Exchange Trading Desk	Greene
3/81	Operations in Foreign Currencies During 1980	Staff
3/24/81	Proposed Changes in the FOMC's Foreign Currency Instruments	Staff
3/25/81	Renewal of Agreement to Warehouse Foreign Currencies for the ESF and the Treasury	Truman
4/ 2/81	Special System Objective R-2, 1979: Implications of a Floating Exchange Rate Regime	Shafer
9/28/81	SDR-Denominated Deposit Facilities for the IMF at the New York Bank	Adams, Truman, Schwartz
3/16/82	Renewal of Agreement to Warehouse Foreign Currencies for the ESF and the Treasury	Truman
3/15/83	Renewal of Agreement to Warehouse Foreign Currencies for the ESF and the Treasury	Truman
4/ 6/83	Holdings of Foreign Currency Balances	Steele
3/19/84	Renewal of Agreement to Warehouse Foreign Currencies for the ESF and the Treasury	Truman
10/17/85	Foreign Currency Subcommittee Action	Axilrod
2/10/86	System Investments of Foreign Currency Holdings	Cross

8/13/86	Proposed Bridge Financing Arrangements for Mexico	Volcker
8/27/86	Bridging Arrangements for Mexico	Bernard
4/ 2/87	Operations in Foreign Currencies During 1986	Cross
8/11/88	Increase in Intermeeting Limit on Changes in Holdings of Foreign Currencies	Bernard
3/15/89	Formal and Informal Limits on System Holdings of Foreign Currency Balances	Cross
7/26/89	Mexico (prospective FOMC participation in financing arrangements)	Truman
8/18/89	Proposed Swap Drawing by Mexico for Bridge Financing Attachment: Update of Memorandum on Mexico by Y. Maroni	Truman, Cross

C. POLICY, STRATEGY AND TACTICS

STRICTLY CONFIDENTIAL (FR)
CLASS I-FOMC

March 9, 1990

EVOLUTION OF U.S. EXCHANGE RATE POLICY*

CONTENTS

* Prepared principally by Dianne Pauls, Divison of International Finance, Board of Governors.

Many colleagues provided useful comments; I would like especially to thank Sam Cross, Margaret Greene, Ralph Smith, and Edwin Truman.

STRICTLY CONFIDENTIAL (FR)
CLASS I-FOMC

I. Overview

This paper traces the evolution of U.S. exchange rate policy from 1958 to present. Under the Bretton Woods regime of fixed parities, the United States' obligation was to stand ready to convert dollars into gold for foreign monetary authorities at the official price of $35 per ounce. With this guarantee, and given the dominant position of the U.S.economy, the dollar was the principal reserve currency and, along with gold, the principal reserve asset.

The overriding objective of U.S. exchange rate policy under the Bretton Woods regime was to maintain the value of the dollar as a leading standard of value and the principal reserve currency. Because the dollar's value depended on the credibility of the offer to convert dollars into gold for foreign authorities, the key operational objective of U.S. policy was to protect the gold stock. Direct U.S. intervention in the market was extremely limited under the Bretton Woods system; U.S. operations primarily consisted of redeeming official foreign acquisitions of dollars into gold, or later into own foreign currencies in lieu of conversion into gold.

Eventually, pressures on the fixed parity system from divergent economic policies, structural changes in the world economy, and resulting payments imbalances proved to be too great, and the system collapsed. After attempts to restore the fixed rate system failed, it was replaced on a de facto basis with generalized floating against the dollar in March 1973. This mixed system (with major currencies floating, either individually or as a block, and some other currencies being pegged) was

codified in the Second Amendment to the IMF's Articles of Agreement, adopted in 1976 and effective in 1978.[1]

Since 1976, the basic objective of U.S. exchange rate policy has been to counter "disorderly market conditions". For much of the time, this objective was interpreted narrowly, and U.S. policy was basically one of very limited intervention. The objective was more broadly defined, however, in 1977-79 when the dollar was regarded as unacceptably low, in 1985 when the dollar was deemed to be excessively high, and since February 1987 when U.S. exchange rate policy has been guided by general notions about the limits of tolerance for exchange rates agreed to at the Louvre and subsequent G-7 meetings. Moreover, during those periods, the level of the dollar was also a consideration in U.S. monetary policy deliberations because of its implications for domestic price pressures and, in 1985, for the health of the manufacturing sector.

One frequently used gauge of intervention activity, is its magnitude relative to the size of the U.S. current account position. By this metric, total intervention in 1977-79 and 1987 was quite substantial. Total net official purchases of dollars in 1978 were more than twice as large as the U.S. current account deficit of $15 billion in

1. The international exchange rate arrangements under which the United States operates are part of U.S. law in the form of the Bretton Woods Agreements Act that was first enacted on July 31, 1945, establishing the par value system, and was subsequently amended on October 19, 1976, approving the Second Amendment of the IMF Articles of Agreement. Initially, the par value of the dollar was defined by the President at $35 per ounce of gold under the authority granted to him by the Gold Reserve Act of 1934. Congress modified the par value of the dollar to $38 per ounce of gold in the Par Value Modification Act, passed in February 1972. This Act was subsequently amended in September 1973, to redefine the par value as $42.22 per ounce of gold. When the Second Amendment to the Articles of Agreement was approved on October 19, 1976, Congress repealed the Par Value Modification Act, but retained the value of $42.22 per ounce of gold for the purpose of valuing the U.S. gold stock so that the Treasury could monetize its holdings.

that year, and in 1987, the central banks of major industrial countries effectively financed more than two-thirds of the (much larger) U.S. current account deficit of $144 billion. The U.S. share of these official purchases amounted to $9.5 billion in 1978 and $8.5 billion in 1987. In contrast, U.S. intervention was the largest by far during 1989, when net official U.S. sales of dollars totaled $22 billion.[2] Net official foreign sales of dollars were more than $55 billion in 1989.

The paper divides the past 30 or so years into two regimes -- Bretton Woods and managed floating. The discussion of each regime begins with a consideration of the broad objectives of U.S. exchange rate policy in that regime, followed by a discussion of operational objectives and tactics, and a review of major episodes.

II. Bretton Woods regime: 1958 to March 1973

Although the Bretton Woods agreements were signed in 1945, it was not until the end of 1958, when most major foreign currencies were convertible for the private sector into dollars for current account transactions, that the system of fixed exchange rates envisaged at Bretton Woods became fully functional. Under the Bretton Woods System, par values were established for IMF member countries in terms of gold or the U.S. dollar of specified gold content. Foreign monetary authorities were obliged to intervene in reserve currencies to maintain the value of their currencies within 1 percent of their parities. For major countries, this intervention occurred in dollars. The U.S. Treasury stood ready to buy or sell gold to or from foreign monetary authorities

2. Since the central banks of the world, on net, made substantial sales of dollars during 1989, while the U.S. current account deficit remained quite large, private capital inflows into the United States during 1989 were massive.

at the official price of $35 per ounce. With this guarantee and given the dominance position of the U.S. economy, the dollar was the principal reserve currency and, along with gold, the principal reserve asset. Sterling continued as a reserve currency, but only a minor one for countries not part of the Commonwealth.

Because the responsibility for exchange market intervention was with foreign authorities, direct U.S. intervention during the Bretton Woods era was extremely limited. During the period to August 15, 1971, when official holdings of dollars were convertible into gold, U.S. operations largely were restricted to redeeming official foreign acquisitions of dollars for gold or, later, for own currencies, where such redemptions were financed through the Federal Reserve swap network and Roosa bonds. It was only after the dollar had been declared inconvertible into gold, had been devalued in the Smithsonian Agreement, and still was under downward pressure, that U.S. authorities began to do much intervention in the market (as opposed to redemptions of official holdings of dollars).

The Treasury conducted its operations, which began in 1961, from its Exchange Stabilization Fund (ESF).[3] Until 1962, the System had no

3. The ESF was established by the Gold Reserve Act of 1934 with the purpose of stabilizing the exchange value of the dollar. Its initial capital of $2 billion derived from the proceeds of the revaluation of the U.S. gold stock from $20.67 to $35.00 per ounce. Subsequently, the Bretton Woods Agreements Act directed the Secretary of the Treasury to pay $1.8 billion from the ESF for the U.S. quota subscription in the IMF, thereby reducing the ESF's appropriated capital to $200 million. The ESF grew over time through subsequent revaluations of gold, interest receipts, and any profits resulting from foreign exchange operations. Beginning in 1978, SDRs allocated by the IMF to the United States or otherwise acquired by the United States became resources of the ESF, and the ESF was authorized to issue SDR certificates to the Federal Reserve to help finance its foreign currency operations.

permanent basis for operations except as agent for the Treasury, though the System operated on a very limited ad hoc basis in the forward exchange market in 1961. (See Task Force papers "Evolution of Formal Procedures for FOMC Oversight of System Foreign Exchange Operations" and "Legal Bases for Foreign Exchange Operations".)

A. Broad objectives of U.S. exchange rate policy

In establishing the Bretton Woods system, the IMF's Articles of Agreement placed great stress on exchange rate stability, in an effort to discourage the kind of competitive devaluations that were viewed as having contributed to economic and financial chaos in the 1920s and 1930s. The Articles of Agreement permitted adjustment of a currency's par value essentially only if a country's balance of payments was in "fundamental disequilibrium". This was an imprecise concept, and, in practice, it came to mean that adjustment of exchange rates would be used only as a last resort and in conjunction with policies to redress the disequilibrium.

Given the widespread concern about competitive devaluations and the goal of maintaining a system of fixed exchange rates, the overriding objective of U.S. exchange rate policy was the maintenance of a fixed par value of the dollar, with the aim of providing a fixed center for the world's monetary structure by keeping the dollar (along with gold) a leading standard and store of value. Revaluations of foreign currencies against gold and the dollar were more readily accepted than devaluations, which were tolerated only if seen as unavoidable. Devaluation of the dollar, even if it could be accomplished, was ruled out by most policymakers as likely to have disturbing effects on the world economy by

undermining confidence in the fixed exchange rate system and increasing the propensity to shift reserves out of dollars and into gold.

B. Operational objectives and tactics

The convertibility by official holders of dollars into gold at a fixed price was the linchpin of the Bretton Woods system. However, the credibility of the offer to convert dollars into gold began to be questioned in the early 1960s. At that time, the United States began to cumulate deficits in its balance of payments as U.S. residents continued to invest in the reconstruction of Western Europe and Japan, and those economies enjoyed relatively larger gains in productivity and increased competitiveness.[4] The dollars that were acquired by foreign monetary authorities as they intervened to maintain the value of their currencies in the face of growing U.S. payments deficits increasingly were used to purchase gold from the U.S. Treasury, after foreign authorities had acquired what were regarded as adequate dollar balances.[5] Even if gold were not immediately demanded, there remained the threat that it could be demanded in the future. To preserve the credibility of the offer to convert dollars and, with it, the dollar's role as a leading standard of value, the protection of the U.S. gold stock became the key operational objective of U.S. policy.

4. Various concepts of the balance of payments were used. Analysis of longer-run fundamentals tended to focus on the basic balance, which consists of the current account plus net long-term capital. From the perspective of potential claims on the gold stock, however, the official settlements basis -- the basic balance plus net private short-term capital -- is the relevant concept.

5. Between 1957 and August 1971, the Treasury sold on net about $12-1/2 billion worth of gold, reducing its gold stock by more than 50 percent. Sales to France and in the London gold market to stabilize the free market price around the official price accounted for a large portion of this total.

A major policy response was to substitute credit facilities -- the FR swap network, Roosa bonds, and a greatly expanded potential lending capacity of the IMF -- for international settlements in dollars or gold. In part because the resources of ESF were so meager, a network of reciprocal currency agreements (swap facilities) was established by the Federal Reserve with all the major foreign central banks and the BIS after the FOMC authorized the System in February 1962 to conduct operations in foreign currencies. When such a standby swap arrangement was activated, the Federal Reserve received foreign currency, and the counterparty central bank received dollars. Both parties agreed to reverse the transaction on a specified date in the future at the same exchange rate via a simultaneous forward contract. However, if the foreign currency proceeds of the swap drawing had been disbursed, they would have to be repurchased in the market or obtained from another source before the original transaction could be reversed. If the foreign counterparty revalued its currency in the interim, a potential loss would be incurred by the drawing party. Therefore, the swap agreement also included special provisions to protect the party that drew on the swap line against this eventuality. (No protection was provided for situations in which the drawing party devalued its currency.) Swap credit was explicitly short-term, and was intended to finance or accommodate short-term capital flows believed to be seasonal or temporary. It was not intended to be used in situations where the balance of payments was thought to require more fundamental adjustment. For its part, the Federal Reserve mostly used its swap drawings to mop up excess dollars held at foreign central banks, thereby transferring

exchange rate risk from them to the Federal Reserve. Otherwise, those dollars could have been converted into gold.

To obtain medium-term credit, the Treasury issued so-called Roosa bonds -- medium-term bonds denominated in foreign currencies -- to official institutions of foreign countries intermittently from 1962 to 1971. Roosa bonds were issued in marks, Swiss francs, Italian lira, Belgian francs, and Austrian schillings. There were earlier issues -- also called Roosa bonds -- denominated in dollars with special interest rate provisions. Both types of bonds were designed to be attractive to foreign monetary authorities as an alternative to converting dollars into gold. Part of the foreign-currency proceeds from Roosa bonds was used to extinguish swap debt that otherwise would have lingered beyond the 1-year limit set by the FOMC on swap drawings.

Finally, the Treasury also could obtain foreign currencies by drawing on its credit facilities with the IMF. However, prior to 1961, the IMF's supply of usable non-dollar currencies was limited by the small size of the quotas of other members of the Fund. In 1961, the United States negotiated with the other Group of Ten (G-10) countries and Switzerland an increased availability of their currencies to the IMF under the General Arrangements to Borrow. Nevertheless, the United States was reluctant to borrow from the Fund because it did not want to subject its economic policies to the Fund's conditions.

A second tactic for protecting the gold stock was to try to stabilize the <u>private</u> market price of gold around the official price of $35 an ounce. The United States was concerned that if the market price were allowed to rise appreciably above the official price, foreign central banks would want to convert their dollar holdings into gold. To

eliminate this potential source of pressure on U.S. gold reserves, in 1961 the United States and seven other countries formed the Gold Pool, a consortium to sell gold in the London market in order to keep the market price of gold below $35.20 an ounce (roughly the cost of delivering *loco* London gold purchased in New York). The United States' nominal share of Gold Pool sales was 60 percent, but, in fact, it was larger because some central banks converted the dollar proceeds of their gold sales at the gold window in order to replenish their gold stocks. Although the Gold Pool was later extended to be a gold-buying as well as selling syndicate, the bulk of its transactions were sales, and, given the large U.S. share, in the end these played a major role in the decline in U.S. gold reserves. Ultimately, the Gold Pool was closed in March 1968, and a two-tier market was adopted for gold with a fixed price for official transactions and a flexible price in the private market. The United States continued to sell gold to foreign monetary authorities at $35 an ounce, and they, in turn agreed not to sell gold in the private market.

The amount of U.S. gold reserves that were "free" or available for transactions with foreign monetary authorities was limited by the legal restriction that U.S. authorities hold a portion of the gold stock as backing for domestic currency. This 25 percent gold cover on currency was repealed, also in March 1968, freeing up additional U.S. gold reserves for international settlement.

The third tactic for protecting the gold stock was to redress the payments deficit directly. Since devaluation of the dollar was ruled out by U.S. policy and could not be accomplished unilaterally in any case, and the deficit in the early 1960s was largely the result of capital outflows -- American portfolio and direct investment abroad,

particularly in Western Europe and Japan, and foreign borrowing in the United States -- three programs of capital restraints targeting the three sources of outflow were adopted. The interest equalization tax, initiated in 1963, was a reaction to the rising issuance of foreign bonds in the United States as other countries failed to develop their markets for these issues. The tax applied to purchases of foreign securities -- both bonds and stocks -- in the U.S. market and was essentially prohibitive. Lending abroad by banks and other financial institutions was capped by the Federal Reserve's Voluntary Credit Restraint program, established in 1965.[6] Direct foreign investment by U.S. corporations was limited by the Commerce Department program, begun on a voluntary basis in 1965, but made mandatory in 1968.

While trying to remedy the payments deficit, U.S. policymakers recognized the need to provide a systematic means for growth in international liquidity. An expanding world economy could be expected to generate a secular increase in the demand for international reserves -- dollars and gold -- a demand that had been met by a build-up of official claims on the United States as foreign monetary authorities intervened to maintain the value of their currencies against the dollar. This increase in U.S. official liabilities, however, was not matched by a rise in the U.S. gold stock, and hence confidence in the ability of the United States to meet future calls on the gold stock declined. Thus, reliance on U.S. liabilities to foreign official institutions as the sole source of an

6. Canada was exempted from both the interest equalization tax and the Voluntary Credit Restraint Program on the understanding that Canada would not serve as a conduit for capital flows to the rest of the world.

increase in world reserves clearly was at odds with attempts to maintain the convertibility of dollars into gold.

Two alternative proposals for alleviating this dilemma were made. The first was an increase in the official price of gold against all currencies, leaving exchange rates unchanged. This was opposed by the United States on several grounds. U.S. authorities feared that once they demonstrated a willingness to raise the price of gold, speculation of further price increases would create strong buying pressure on gold, and the system of fixed parities would collapse. In addition, the United States opposed various proposals for an increase in the price of gold on equity grounds. Such proposals would benefit countries that had converted their dollar reserves into gold at the expense of countries that had been cooperative in refraining from demanding gold, so-called low gold-ratio countries. Furthermore, for political reasons the United States objected to a scheme that benefited the large gold producers, South Africa and the Soviet Union. As the U.S. balance of payments continued to deteriorate in the late 1960s, the proposal to revalue gold included a devaluation of the dollar against other currencies. In this instance, not only would low gold-ratio countries lose relatively because they had a smaller proportion of gold in reserves, but they would also lose absolutely because their dollar holdings would be devalued. The United States felt this would put it in a difficult position vis-a-vis those countries that had been the most cooperative in not using the gold window.

Rather than revalue gold, the United States proposed creating another type of reserve asset whose supply could be systematically increased as the world economy expanded. This proposal resulted in an

agreement to create the SDR (Special Drawing Rights on the International Monetary Fund) through the First Amendment to the IMF Articles of Agreement, adopted in 1968 and effective the following year. SDR allocations to IMF member countries are based on IMF quotas, and thereby tend to blur distinctions between high and low gold-ratio countries. The value of the SDR initially was defined in terms of gold at SDR 35 per ounce of gold.[7] Following the establishment of the SDR, the United States increasingly favored a reduction in the role of gold as a reserve asset in the international monetary system.

C. Major episodes and U.S. responses

Given the strains that divergent macroeconomic policies, structural changes in the world economy, and resulting payments imbalances placed on the Bretton Woods system, currencies were devalued/revalued or allowed to float upon occasion when all else failed. Revaluations were generally welcomed by the United States, and devaluations were tolerated if they were seen as unavoidable. However, when sterling came under pressure intermittently in 1964-67, the United States was concerned that the devaluation of the other major reserve currency would prompt enormous market pressure on the dollar.

During the summer of 1964, the U.K. balance of payments deteriorated sharply, largely the result of a stimulative fiscal policy.

7. After the move to widespread floating in 1973, the SDR's value was redefined in terms of a basket of currencies: initially the currencies of the 16 countries that had a share in world exports of goods and services in excess of 1 percent on average over the period 1968-72. These were the currencies of the G-10 countries plus the currencies of Australia, Denmark, Norway, Spain, Austria, and South Africa. The currency composition and weights for the basket of 16 currencies was revised in July 1978 to reflect export shares for 1972-76. Then, in 1981, the Fund decided to reduce the number of currencies in the basket to the five most important currencies in world trade -- the currencies of the United States, West Germany, Japan, France, and the United Kingdom.

Following the Labor Party's victory in October 1964, selling pressure on sterling intensified, as the new government's policies showed little prospect for redressing the payments deficit. The British government strongly opposed the devaluation of sterling. The United States endorsed this position and increased the FR swap line with the Bank of England in 1964 and again in 1966 and otherwise participated in international credit packages to bolster U.K. reserves. The United Kingdom also drew on the IMF in the first use of the General Arrangements to Borrow. When sterling again came under downward pressure in the second half of 1965, the Federal Reserve participated with a number of European central banks and the Bank of Japan in purchasing sterling in the market, based on agreements with the Bank of England regarding guarantees of the sterling they acquired. After intermittent recoveries and bouts of selling pressure, sterling came under persistent downward pressure beginning in the spring of 1967 as U.K. monetary policy eased, tensions mounted in the Middle East culminating in war, and the U.K. trade position steadily deteriorated, especially after the closing of the Suez Canal. In an effort to support sterling, U.S. authorities purchased sterling in the market on a swap basis (i.e., buying sterling spot against redelivery to the market at a future date). After several increases in the bank rate, U.K. authorities gave way and devalued sterling in November 1967. No major country followed the United Kingdom with a devaluation of its currency; nonetheless, the devaluation of sterling brought into question the basic premise of the Bretton Woods System that exchange rates of major countries could be regarded as fixed.

By late 1967, U.S. inflation was picking up and the balance of payments was worsening as a consequence of the economic expansion

associated with the Vietnam War. Continued rapid advances in Japan's competitive position further contributed to the payments imbalance. In this context, selling pressure shifted to the dollar, as the United States had feared. This took the form of record private purchases of gold in London and shifts of private funds from dollars into continental currencies. The United States unequivocally reaffirmed its commitment to maintain the official price of gold at $35 per ounce and, acting jointly with other members of the Gold Pool, continued to stabilize the market price of gold through sales in the London market. The System also enlarged its swap lines, which were used to absorb some of the dollars flowing to foreign central banks, and to a limited extent sold foreign currencies forward to the market. However, heavy sales of gold by members of the Gold Pool tended to encourage speculative buying as market participants came to expect that, given the implied gold loss, these operations would be abandoned.

Indeed, the Gold Pool was abandoned in March 1968, and a two-tier system for gold was established.[8] In supporting the two-tier system, the United States was concerned that foreign monetary authorities not exploit arbitrage opportunities by selling official gold in the private market, and such activity was explicitly banned. Official purchases of gold in the private market, while not banned outright, were strongly discouraged because the United States was concerned that purchases of gold in the market by foreign central banks would undermine confidence in the Bretton Woods system. Moreover, it felt that the

8. Under the two-tier system, all gold at the time in monetary reserves was to remain there and to trade among monetary authorities at the official price of $35 an ounce. All private gold and all gold to be produced in the future was to remain outside official reserves and trade at prices that fluctuated freely in the market.

introduction of the SDR provided for adequate growth in international reserves, and it wanted to promote a demonetization of gold.

The dollar again came under selling pressure in 1971, prompted by the relaxation of U.S. monetary policy after 1969 and the failure of our balance of payments to strengthen. U.S. authorities initially responded with limited forward sales of foreign currencies and swap drawings to mop up part of the increased flow of dollars to foreign central banks. Some foreign currencies, notably including the German mark, abandoned their parities and began to float as early as May. After selling pressure on the dollar intensified and foreign central banks stepped up their demand for gold conversions, on August 15, 1971 the Treasury suspended convertibility of dollars into gold or other reserve assets for foreign monetary authorities. Use of the swap network also was suspended. Foreign authorities then had the choice of continuing to pile up dollars in their official reserves, which were now inconvertible, or of revaluing their currencies. The United States made no effort to support the dollar through intervention after convertibility was suspended. By the end of August, all major currencies except the French franc were floating.[9] The use of capital controls was widespread, and intervention by foreign central banks to slow the appreciation of their currencies was substantial, even though they were no longer defending fixed dollar parities.

A system of fixed parities among the currencies of the G-10 countries plus Switzerland was re-established through a general realignment of exchange rates in the Smithsonian Agreement of December

9. France adopted a dual exchange rate, and the value of the franc for financial transactions was allowed to float.

1971. The dollar was devalued in terms of gold to $38 per ounce; other currencies were revalued against the dollar by varying amounts. Recognizing that somewhat more flexibility in exchange rates was desirable, the G-10 authorities widened the margins for intervention to 2-1/4 percent to permit small adjustments in exchange rates without an explicit change in central parities. The United States had wanted a larger devaluation based on its estimates of what would be required to redress international payments imbalances, but other G-10 countries would not agree. Nonetheless, it hoped that this realignment would be sufficient. The United States made no commitment to defend the Smithsonian parity for the dollar through intervention or to restore the convertibility of the dollar into gold; intervention was still left to foreign monetary authorities if they wanted to maintain their new parities. The United States did agree to examine the case for a more thorough reform of the international monetary system, which led to the establishment in 1972 of the "Committee on Reform of the International Monetary System and Related Issues" (the Committee of Twenty or C-20).

As downward pressure on the dollar continued after the Smithsonian Agreement, and the United States was not intervening to defend the dollar, market participants began to doubt that foreign monetary authorities would continue to buy inconvertible dollars. Eventually, the Treasury agreed to limited sales of foreign currencies to defend the dollar, and the swap network was reactivated in July 1972.

The adoption of dual exchange rates by Italy and the floating of the Swiss franc in early 1973, after sterling had been floating since mid-1972, kindled new concerns about the durability of the Smithsonian Agreement. In this context, tightening of monetary policies abroad, the

partial relaxation of U.S. wage-price controls imposed in August 1971, and the sluggish response of our trade account to the dollar's depreciation in the Smithsonian realignment contributed to renewed downward pressure on the dollar. In February 1973 the dollar was devalued a second time, by 10 percent in terms of gold to $42.22 per ounce. Nearly all other currencies accepted the full devaluation of the dollar, and the yen floated upward to an even higher level. At the same time the dollar was devalued, U.S. authorities stated their intention to phase out all existing controls on capital outflows over the next two years. The United States expected that the devaluation would be sufficient to remedy its payments deficit, but the market was not persuaded. The dollar continued to fall to its new floor against major continental European currencies, triggering massive intervention by foreign central banks. Ultimately, in March the system of fixed parities was suspended, and the G-10 authorities de facto adopted generalized floating.

III. Managed floating: March 1973 to date

Initially, the move to generalized floating was viewed as a temporary means of coping with speculative pressures, rather than as a permanent feature of the international monetary system. The par value system still was regarded as the "normal" regime, and the task of monetary reform was viewed as one of improving the Bretton Woods system so that it would operate, without frequent crises, and in a more symmetrical fashion than previously, to facilitate the continued expansion of international trade and productive capital flows.

Although some issues were never completely resolved, the Committee of Twenty described the broad features of a reformed monetary system in its Outline for Monetary Reform. These features included: (1) An exchange rate regime based on stable but adjustable par values, with the right to float in particular circumstances. (2) A greater symmetry in payments adjustments, such that countries in surplus had a larger responsibility than they had previously for correcting their positions. Under the old system, a country in deficit that was losing reserves was pushed to deal with its exchange rate problem -- either through demand management or devaluation -- more quickly than a surplus country. The United States in particular felt that by, in effect, serving as the residual country, other countries were allowed to maintain undervalued currencies and so accumulate payments surpluses, while the United States ran deficits. (3) Multilateral surveillance. In the context of a par value system where convertibility could be suspended, the United States favored the use of an international reserve indicator as an objective gauge of whether a country's policies were consistent with overall equilibrium in the balance of payments and adequate growth in global liquidity (at the existing par values). The use of this indicator was thought to put more pressure on countries in surplus to adjust than before. (4) Convertibility. European countries focused on the lack of mandatory convertibility of dollars under the Bretton Woods system and felt that if the United States were required to finance its payments deficits with reserve assets (gold, SDRs, and Fund drawings, i.e. restore convertibility), it would have a greater incentive to adopt policies to eliminate its deficits. The United States wanted to limit the convertiblity of dollars beyond a certain point for surplus countries

as a means of encouraging a more symmetric adjustment of payments imbalances. One proposal in connection with the convertibility issue was to establish a substitution account in which IMF member countries could deposit dollar balances in exchange for SDRs. In recognition of the U.S. view, conversion through this account could be subject to certain limits. (5) Better international management of global liquidity, with the SDR becoming the principal reserve asset, and the role of gold and reserve currencies being reduced.

Meanwhile, the increase in worldwide inflation in 1972-74, associated with the run-up in oil prices in 1973, led to greater divergence in rates of inflation across countries, and increased strains on countries' external positions -- problems that were aggravated by the worldwide recession in 1975. Under these circumstances, a par value system seemed even less viable than before. Moreover, the world economy had been functioning reasonably well under a mixed floating system for a few years. U.S. attitudes shifted during this period from favoring a system of stable, but adjustable par values, with floating in particular situations, to an explicit advocacy of floating as an available long-run option.

The Committee of Twenty recognized that the international monetary system was in flux and that it might be particularly difficult in the circumstances of the time to return to a par value system. Accordingly, it concluded that an interim period was needed before final agreement on reform. However, it did recommend the immediate adoption of "appropriate guidelines for the management of floating exchange rates" during this interim period. These were in fact agreed to in 1974, though

many of the rest of the Committee's recommendations were not because there was never a return to a par value system.

Floating was finally "legitimatized" in the Rambouillet Agreement of November 1975, which had two basic elements. The first was to "deepen, systematize, and broaden" daily consultation among monetary authorities, including central banks, of the larger countries with regard to exchange market intervention. Second, Article IV of the IMF's Articles of Agreement, governing exchange arrangements, was revised (in 1976) to permit a member to choose its own exchange arrangements -- including floating.[10] As provided in Section 4 of the revised Article IV, a return to a generalized par value system, if deemed appropriate, requires an 85 percent majority vote, effectively giving the United States veto power over such a move.

Section 1 of Article IV spells out the general obligations of the Fund's members, which include (1) "endeavoring to direct economic and financial policies toward . . . fostering orderly economic growth with reasonable price stability" (2) ". . . fostering orderly economic and financial conditions and a monetary system that does not tend to produce erratic disruptions" and (3) "avoiding manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members". Surveillance over the Fund's members to ensure effective operation of the international monetary system and compliance with

10. According to Section 2 of Article IV these options included: (1) maintaining a stable value for a member's currency in terms of the SDR or another denominator, other than gold (2) cooperative arrangements to maintain the value of members' currencies in terms of the value of other members' currencies and (3) "other exchange arrangements of a member's choice" (floating).

members' general obligations listed above is provided for in Section 3 of Article IV. This provision calls upon the Fund to adopt "specific principles for the guidance of all members" with respect to their exchange rate policies. This new Article IV was incorporated along with a significant number of other changes in the Second Amendment of the IMF's Articles of Agreement that became effective April 1, 1978.

A. Broad objectives of U.S. exchange rate policy

In conjunction with the decision in March 1973 to suspend the commitment to intervene in support of fixed parities against the dollar, the G-10 countries issued a communique stating that intervention might be useful at appropriate times to facilitate the maintenance of orderly market conditions. Then, as time passed and adjustment to the world oil shock transpired smoothly with floating exchange rates, policymakers -- including the Committee of Twenty -- came to see floating exchange rates as inevitable, at least for a while. By the time of the Rambouillet Agreement in November 1975, it was generally agreed that market forces could do a better job of setting a path for a country's exchange rates consistent with its domestic and international policies than officials could. Accordingly, the statement about intervention in the Rambouillet Agreement was changed to "countering disorderly market conditions" from the 1973 formulation "to facilitate the maintenance of orderly market conditions". The Rambouillet formulation is repeated in the IMF's Principles for the Guidance of Members' Exchange Rate Policies, called for by Article IV, Section 3b.[11]

11. IMF, Selected Decisions and Selected Documents, (Fourteenth Issue), Washington, D.C., April 30, 1989. These principles specify that: "(1) A member shall avoid manipulating exchange rates or the international

(Footnote continues on next page)

This declaration, interpreted at times narrowly and at times broadly, has guided U.S. exchange rate policy since. The formal statement of this policy is included in the U.S. notification to the IMF of its exchange arrangements pursuant to Article IV, Section 2(a) of the Articles of Agreement. From 1978 through 1984, this notification stated that the U.S. authorities intervene "when necessary to counter disorderly market conditions in the exchange market". This language also appears in the System's Foreign Currency Directive, which dictates that "System operations in foreign currencies shall generally be directed at countering disorderly market conditions . . . " (See Appendix C of Task Force paper "Evolution of Formal Procedures for FOMC Oversight of System Foreign Currency Operations".) Following the Plaza Agreement of September 1985, the U.S. notification to the IMF was amended to provide for intervention ". . . to counter disorderly market conditions, or when otherwise deemed appropriate", thus providing more leeway for a broader interpretation of our intervention policy. The statement of U.S. intervention policy contained in the notification to the IMF has not changed since 1985.

The precise meaning of "disorderly market conditions" has never been specified. In a narrow sense "disorderly market conditions" has been understood to mean very short-run market disruptions. Along these

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monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members. (2) A member should intervene in the exchange market if necessary to counter disorderly conditions which may be characterized inter alia by disruptive short-term movements in the exchange value of its currency. (3) Members should take into account in their intervention policies the interests of other members, including those of the countries in whose currencies they intervene.

lines probably the most detailed official elaboration on the nature of disorderly markets is the one supplied by the Foreign Desk in response to a request by Rep. Reuss on the occasion of Congressional testimony by former Chairman Burns in August 1973:[12]

> Disorderly markets have certain features in common: exaggerated rate or price movements, wide spreads in quotations, a stifling of the intermediary role of professional dealers, and an unresponsiveness of prices and orders to the fundamentals operating at the time. Disorderly markets are by their nature unstable; in the absence of some stabilizing influence, disorder can increase to the point at which the market ceases to function.

In a broader sense, the phrase "disorderly market conditions" has referred to episodes where market exchange rates are deemed by policymakers to be clearly out of line with economic fundamentals. In his testimony before the Joint Economic Committee in January 1989, Chairman Greenspan interpreted the phrase "countering disorderly market conditions" in the context of our current intervention policy as fostering exchange rate stability, consistent with our understandings with the foreign Group of Seven (G-7) countries.[13]

12. The 1973 Midyear Review of the Economy, before the Joint Economic Committee, 93 Cong. 1 Sess. (GPO 1974)

13. Representative Hamilton: "We are accustomed to hearing on this committee in recent years that you only intervene if there are disorderly markets. . . And yet it seems to me in recent years we have seen very frequent and even massive intervention . . . That surely represents a change of policy. . ."
Chairman Greenspan: "I think it's an issue of terminology. That there has been a change in policy, yes, there certainly has been. The reason for the change is that it was perceived by the G-7 finance ministers and central banks that exchange rate instability was creating adverse consequences in the world and inducing potential destabilizing impulses to the major economies, and it was the judgement of the G-7 that stabilization was something which could and should be undertaken."
The 1989 Economic Report of the President, before the Joint Economic Committee, 101 Cong. 1 Sess. (GPO 1989).

B. Operational objectives and tactics

Since 1976, the objective of "countering disorderly market conditions" generally has been construed by U.S. authorities narrowly and U.S. policy has been one of nonintervention in exchange markets. Perhaps the most extreme narrow interpretation of this objective was during the first Reagan Administration when U.S. operations were minimal in line with the administration's policy of limiting government interference in markets generally. The objective of "countering disorderly market conditions" was viewed more broadly in 1977-79 when the dollar was deemed unacceptably low and again in 1985 when the dollar was unacceptably high, and intervention in these episodes was substantial. By far the most extensive U.S. intervention operations, however, have taken place since the Louvre Accord of February 1987, as the objective of countering "disorderly market conditions" has been interpreted to mean fostering exchange rate stability. Throughout this period, other countries' intervention policies have been more mixed, with some adopting a more consistently active policy.

Although episodes of U.S. intervention were relatively infrequent, the amounts involved often were sizable. Accordingly, the United States took steps to increase foreign currency resources for intervention, particularly at times when the dollar was under sustained downward pressure. The Federal Reserve swap network was enlarged and a new swap facility between the Treasury and the Bundesbank was established in early 1978. The ESF also became an equal partner in intervention in 1978. The Treasury sold SDRs for foreign currency, drew on its reserve position at the IMF, and issued foreign-currency denominated securities in the private market ("Carter bonds"). In late 1980, U.S. authorities

for the first time began to build-up substantial foreign currency reserves through purchases in the market and from other central banks, after having first covered outstanding foreign currency liabilities.

During times when the dollar's exchange value raised particularly great concern -- in 1977-79, 1984-85, and 1987 -- it became a factor in Federal Reserve decisions regarding monetary policy. Furthermore, consultation and cooperation on macroeconomic policies by the major industrial countries has increased over the floating rate era amid a growing perception that the existing international monetary arrangements have not provided as much stability and independence for economic policies as had been expected. Wide swings in exchange rates have occurred, contributing to large trade imbalances and pointing out the need for more compatible policies among the G-7 countries. So far, these international agreements have at most involved loose statements of intentions regarding fiscal policies. No commitments concerning monetary policy have been made at any G-7 meetings, though, at times in recent years, changes in official interest rates have been coordinated among major industrial countries in order to minimize their effects on exchange rates, and, in general, exchange rates have assumed a more important role in individual countries' monetary policy deliberations. General notions about when the G-7 authorities should intervene to influence dollar exchange rates also were decided in the Plaza and Louvre Accords, along with loose understandings about the amount of total intervention and each country's share.

Following the U.S. suspension of convertibility to gold in 1971 and the unwillingness of the United States and others to settle in gold, the role of gold in the international monetary system gradually

diminished. The SDR replaced the "gold dollar" as numeraire for accounts at the IMF, in line with the notion that the SDR was to become the principal reserve asset (although de facto the dollar continues to occupy this role, and the yen and the mark have become important secondary reserve currencies). To further hasten the demonetization of gold, the G-10 countries in 1975 abolished the official price of gold and lifted the ban on sales to the private market. The restrictions on gold purchases under the two-tier gold system initially were extended for a few years, insofar as the G-10 countries' combined official stock of gold, together with that of the IMF, was capped at the then current level. A portion of the gold held by the IMF was sold at its market price for the benefit of developing countries, while another portion of the Fund's gold was reconstituted to members at the official price.

As of 1975, U.S. policy was to "treat gold like any other commodity", and the Treasury began auctioning gold to the market at about the same time that U.S. residents were permitted to legally hold gold again. When the dollar came under downward pressure in 1977-78, the Treasury stepped up its gold sales as another means of supporting the dollar.

C. Major episodes and U.S. responses

Following the adoption of generalized floating, U.S. authorities intervened for the first time in the summer of 1973. Concern over rising U.S. inflation, forecasts of vastly higher energy imports, and the potential ramifications of the Watergate affair weighed on the dollar, while a tightening of German monetary policy supported the mark and associated European currencies. As the dollar fell, trading became increasingly disorderly, with a number of banks refusing to quote rates.

In these circumstances, U.S. authorities intervened to counter disorderly conditions in the narrow sense.

This narrow definition of disorderly market conditions in effect was expanded a bit in subsequent operations to defend the dollar during the winter of 1974-75. At this time, inflation in the United States was still worrisome, while price pressures in many other industrialized countries were abating. The recession, though worldwide, was far more severe in the United States. The Federal Reserve had begun to ease money market conditions in the Autumn of 1974; other countries were more circumspect and maintained restrictive policies until they saw more evidence of progress in bringing down inflation. With real interest differentials between dollar and foreign currency assets eroding, the dollar depreciated. U.S. authorities intervened at first to cushion the dollar's decline, which they regarded as "disorderly". But by mid-January 1975, they became more concerned with the dollar's progressive slippage, and they stepped up intervention in support of the dollar in concert with the central banks of Germany and Switzerland.

The first sustained period of U.S. intervention under the floating rate regime, however, occurred in response to selling pressure on the dollar in 1977-79. During 1977, U.S. monetary policy was directed towards furthering economic growth. M1 expanded at a rate well beyond the upper limit of its target range set by the FOMC. By late 1977 rapid growth in the U.S. economy, accompanied by an even sharper increase in domestic demand, contributed to a deterioration of the U.S. external accounts and a pick-up in inflation. Even though short-term interest rates in the United States rose during 1977, and the Federal Reserve raised its discount rate twice by year-end, the perception in exchange

markets was that the Federal Reserve was "behind the curve". These economic conditions contrasted with those in Germany and Japan, where economic growth was faltering as a result of early attempts to control inflation, contributing to a surplus in these countries' external accounts.

As the depreciation of the dollar intensified around the turn-of-the-year, the Federal Reserve responded by raising its discount rate in January 1978 to 6-1/2 percent, citing developments in foreign exchange markets. However, the pace of U.S. inflation continued to quicken in 1978, in part reflecting the past depreciation of the dollar, while inflation rates abroad generally were coming down. Efforts to reduce the U.S. trade deficit by curbing oil imports also were relatively unsuccessful. The Federal Reserve accepted a modest firming in money market conditions, but the growth of M1 still exceeded its targeted range, and the dollar continued to fall. Noting both disorderly conditions in exchange markets and the serious U.S. inflation problem, the Federal Reserve raised its discount rate 1/2 percentage point further to 7-3/4 percent in August. This move and subsequent increases in the autumn provided only a temporary respite for the dollar. In October, president Carter announced a series of measures to fight inflation including delays and reductions in the amount of scheduled tax cuts, budgetary restraints, and voluntary wage-price guidelines. On November 1, a dollar defense package was announced, which included a further hike in the discount rate by an unprecedented full percentage point, to a then historic high of 9-1/2 percent. In unveiling the package, president Carter stated that "the continuing decline in the exchange value of the dollar is clearly not warranted by the fundamental

economic situation" and, "as a major step in the anti-inflation program, it is now necessary to correct the excessive decline in the dollar . . ."[14] "Disorderly market conditions" in this instance were broadly defined to include resisting a downtrend in the dollar's exchange value in circumstances where that trend was perceived to be out-of-line with economic fundamentals and threatening domestic objectives.

U.S. authorities also took steps to bolster resources for intervention. In December 1977, the President announced an explicit undertaking to intervene in concert with other countries to support the dollar. In January 1978, the Treasury announced that the ESF would henceforth be used as an equal partner in intervention and announced a new swap agreement with the Bundesbank.[15] Resources were further increased in March through a doubling of the Federal Reserve's swap line with the Bundesbank and sales of SDRs by the Treasury to the German central bank in exchange for marks. The Treasury also indicated that, if necessary, it was prepared to draw on its reserve position at the IMF in order to acquire foreign currencies that might be needed for intervention. To lend further support to the dollar, the Treasury announced that it, once again, would resume auctioning gold to the public in May. Finally, as part of the November 1, 1978 dollar defense program, a $30 billion package of foreign-currency resources to finance U.S. participation in coordinated intervention was put together. This consisted of an increase in Federal Reserve swap lines with Germany, Japan and Switzerland, sales of SDRs and a drawing on the U.S. reserve position at the IMF by the Treasury, and issuance of foreign-currency

14. Press release, White House, November 1, 1978.
15. Press release, Department of Treasury, January 4, 1978.

denominated securities -- so-called Carter bonds. The latter were denominated in marks and Swiss francs and issued publicly in the German and Swiss capital markets between late 1978 and January 1980. With these resources at hand, U.S. authorities intervened aggressively and sometimes in concert with other central banks. Net official purchases by U.S. authorities in the market from October 1977 through the end of 1978 amounted to about $10 billion, while foreign authorities bought $37 billion, net.[16]

In the first half of 1979 the dollar recovered somewhat, but by mid-June the dollar came under renewed selling pressure. The second oil-price shock in 1979 added substantial upward pressure to price levels worldwide and contributed to reductions of output. In the United States these problems were particularly acute; inflation already was more serious than in most foreign economies and new data on the economy pointed to a slowdown in economic activity. In contrast, most foreign economies had not yet begun to decelerate, their authorities having committed themselves to stimulative fiscal packages at the Bonn economic summit in the summer of 1978. Policymakers in most foreign countries responded to the hike in oil prices by tightening monetary conditions, but with signs of weakness in the U.S. economy, the Federal Reserve took only modest steps in this direction, raising its discount rate 1-1/2 percentage points in three moves in the third quarter of 1979. Nevertheless, growth of U.S. monetary aggregates remained well above projected rates during the summer of 1979. Furthermore, U.S. energy policy appeared to be in disarray. The subsequent acceptance of the

16. During this period, the United States also revived discussions of a substitution account at the IMF, but no agreement was ever reached, and it became a dead issue as the dollar strengthened in 1980-81.

resignation of many members of the Carter Cabinet prompted political concerns as well. Under these circumstances, U.S. authorities intervened substantially during the summer of 1979 to resist the dollar's decline.

The continued weakness in the dollar and other signs of rapidly deteriorating inflation expectations (rapidly rising prices of gold and other commodities) were important considerations in the adoption of new monetary operating procedures by the Federal Reserve on October 6, 1979. These procedures were intended to assure better control over the growth of the monetary aggregates and, in general, help dampen inflationary pressures. The shift in operating procedures entailed a greater emphasis on the control of bank reserves and less emphasis on short-term fluctuations in the federal funds rate. Also on October 6, the Federal Reserve increased its discount rate a full percentage point to 12 percent.

Following the change in operating procedures, U.S. interest rates rose sharply, amid mounting inflationary expectations and anxiety in financial markets about the Carter administration's economic policies, including the imposition of credit controls in March 1980. The dollar moved up along with U.S. interest rates during the first quarter of 1980, and U.S. authorities took advantage of the opportunity to acquire foreign currencies to repay debt incurred as a result of dollar support operations in 1978-79. Then, as economic activity in the United States contracted sharply in the second quarter of 1980 while, under the new operating procedures, the Federal Reserve adhered to its nonborrowed reserves target, short-term interest rates in the United States plummeted. Between April and July, the federal funds rate fell more than

8 percentage points, prompting a sharp decline in the dollar. During this period, U.S. authorities intervened to slow the dollar's fall.

By September 1980 the dollar began to strengthen markedly as the performance of the U.S. economy compared favorably with other economies. Inflation in the United States had begun to wane, while several other countries, especially the traditionally low-inflation countries of Europe, were making little progress against inflation, which remained high relative to post-WWII experience. The U.S. economy also showed more resilience, bouncing back from the sharp downturn in the second quarter of 1980; output in most European economies stagnated and unemployment increased. As the U.S. economy rebounded and the Federal Reserve continued to emphasize bank reserves rather than interest rates as a means of controlling growth of the monetary aggregates, interest rate differentials moved sharply in favor of dollar assets. Furthermore, the election of Ronald Reagan suggested a political commitment to bringing down inflation. Finally, the global pattern of external balances shifted in favor of the United States. The U.S. current account swung into surplus in the second half of 1980, reflecting a strong improvement in non-oil trade as a result of the past depreciation of the dollar.

At this time, U.S. monetary authorities still had outstanding foreign currency obligations in the form of swap debt and maturing Carter bonds to cover. As the dollar began to strengthen in the fall of 1980, U.S. authorities were eager to purchase the needed foreign currencies and did so when they judged that it would not put downward pressure on the dollar. However, they also stood ready to sell foreign currencies to counter disorderly market conditions if selling pressure on the dollar re-emerged.

Once the outstanding obligations were covered, U.S. authorities continued to purchase foreign currencies with the objective of building up U.S. foreign currency reserves. Prior to this time, the System and Treasury had had essentially no long-term net position in foreign currencies. U.S. authorities decided to acquire foreign currency balances to avoid having to finance intervention by incurring debt with reluctant foreign monetary authorities. In addition, they judged that the dollar's strength could well be temporary. The dollar had been supported primarily by unusually favorable interest differentials and, in an environment of volatile interest rates, it was thought that these might narrow, putting downward pressure on the dollar.

The System and Treasury intervened in this manner from October 1980 through mid-February 1981, purchasing nearly $7 billion equivalent of German marks, about $6 billion equivalent of which was purchased in the market and the remainder was purchased from other central banks. U.S. authorities also bought about $100 million equivalent each of Swiss francs and French francs in the market and from other central banks. As of February 1981, the combined System and Treasury net position in foreign currencies (marks, yen, and Swiss francs) was $6 billion equivalent. This compares with net foreign currency liabilities that peaked at $3.5 billion equivalent (also valued at February 1981 exchange rates) in September 1979.

In early 1981, the new Reagan administration decided to cease the inherited intervention practices that it judged to have been excessively heavy. This decision reflected the view that exchange rates were the product of economic policies and that a "convergence" of the latter was the way to stabilize exchange rates, a view consistent with

the administration's desire to minimize government interference in markets generally. Testifying before the Joint Economic Committee on May 4, 1981, then Undersecretary of the Treasury Sprinkel described the new administration's exchange market policy as "a return to fundamentals" by "concentrating on strengthening and stabilizing the domestic economic factors which have undermined the dollar during the last decade or so." In conjunction with the emphasis on economic fundamentals, Undersecretary Sprinkel stated that the administration intended to "return to the more limited pre-1978 concept of intervention by intervening only when necessary to counter conditions of disorder in the market".[17] He then went on to suggest that, with the President's proposed program of tax cuts to enhance incentives to work, save, and invest, and deregulation, and the Federal Reserve's policy of gradually reducing money growth to noninflationary levels, he anticipated little need for U.S. intervention in in this regard.

From 1981 through early 1985, the dollar continued to strengthen. U.S. monetary restraint in the context of a robust recovery and prospects for continued large U.S. fiscal deficits with consequent upward pressure on interest rates supported the dollar. Meanwhile, monetary authorities abroad initially were reluctant to raise interest rates as their recoveries appeared more fragile. Investment in the

17. Sprinkel, Beryl, "Statement before the Joint Economic Committee", May 4, 1981. In his statement, Undersecretary Sprinkel also described the respective roles of the Treasury and the Federal Reserve in exchange market policy: "The Secretary of Treasury is the chief financial officer of the United States. In close cooperation with the Federal Reserve, he establishes U.S. exchange market intervention policies. Both the Treasury and the Federal Reserve engage in exchange market operations in close coordination to ensure consistency with overall U.S. international monetary and financial policy. The Federal Reserve Bank of New York acts as agent for both the Federal Reserve System and the Treasury when exchange market intervention occurs."

United States boomed, including foreign investment, attracted by the Reagan economic policies and the increasingly favorable business climate. In addition, dollar-denominated assets were sought as a "safe haven" following the onset of the international debt crisis and amid apprehensions about the political situations in some European countries. U.S. intervention operations from April 1981 through 1984 were very limited, occurring on only 20 days, in line with the administration's view that the strong dollar was an indication of the robust U.S. economy and not a cause for concern. Moreover, most of these operations were at the urging of foreign monetary authorities. On net, U.S. authorities sold $750 million against marks and yen during this period.

Some European monetary authorities who favored more active management of exchange rates objected to the U.S. policy of nonintervention. In this context, G-7 officials, meeting in Versailles on June 4-6, 1982 agreed to establish a working group (the Jurgensen Group) to study the effectiveness of intervention in foreign exchange markets.[18]

By mid-1984, however, the dollar had risen nearly 60 percent from its level in the fourth quarter of 1980, and its strength had become a concern for U.S. monetary policy. In particular, in FOMC meetings

18. The Jurgensen report concluded that "intervention had been an effective tool in the pursuit of certain exchange rate objectives -- notably those oriented towards influencing the behavior of the exchange rate in the short run. . . There was also broad agreement that sterilized intervention did not generally have a lasting effect, but that intervention in conjunction with domestic policy changes did have a more durable impact. At the same time it was recognized that attempts to pursue exchange rate objectives which were inconsistent with the fundamentals through intervention alone tended to be counterproductive." For a review of the background studies prepared for the Working Group see the Task Force paper "Foreign Currency Operations: An Annotated Bibliography".

concern was expressed about the implications of the strong dollar for the U.S. manufacturing sector, and the potential consequences for inflation should the dollar drop precipitously. These considerations were among the arguments leading to an adoption of an easier monetary stance in mid-1984.

As the dollar continued to rise, the Reagan administration began to reverse its policy of nonintervention in currency markets. Group of Five (G-5) officials, meeting on January 22, 1985, issued a statement reaffirming their commitment to promote convergence of economic policies, to remove structural rigidities, and (as agreed at the Williamsburg summit of April 1983) to undertake coordinated intervention in exchange markets as necessary. In coordinated operations with other central banks, U.S. authorities sold about $650 million between January and March 1985.

Although the dollar had started to decline by late February, protectionist sentiment in the United States mounted as the trade deficit swelled to $120 billion at an annual rate in the summer of 1985. In part to deflect protectionist legislation, U.S. officials arranged a meeting of G-5 officials at the Plaza Hotel on September 22 with the purpose of ratifying an initiative to bring about an orderly decline in the dollar. In their statement, G-5 officials drew attention to the significant progress that already had been made in promoting favorable economic performance along a path of steady noninflationary growth. Yet, they observed, "recent shifts in fundamental economic conditions among their countries, together with policy commitments for the future, have not been fully reflected in exchange markets." Large imbalances in external

positions were noted, along with the potentially "mutually destructive" protectionism they might engender. The statement concluded:

> The Ministers and Governors agreed that exchange rates should play a role in adjusting external imbalances. In order to do this, exchange rates should better reflect fundamental economic conditions than has been the case. They believe that agreed policy actions must be implemented and reinforced to improve the fundamentals further, and that in view of the present and prospective changes in fundamentals, some further orderly appreciation of the main non-dollar currencies against the dollar is desirable. They stand ready to cooperate more closely to encourage this when to do so would be helpful.

This recognition that exchange rates were out-of-line with economic fundamentals represented a sharp reversal of the U.S. administration's previous stance, and reflected the change in incumbency in the office of Secretary of Treasury.

Although intervention in exchange markets was not explicitly mentioned, the last sentence of the G-5 statement quoted above encompassed it. At the Plaza meeting, the United States suggested an upward adjustment of non-dollar currencies on the order of 10 to 12 percent, though no explicit target was ever agreed to. 552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

During this period, official sales of dollars by G-5 authorities amounted to nearly $9 billion, of which the United States sold $3.3 billion.

With respect to policy intentions, the communique said little that was new. Each country included as an attachment a statement of present policy intentions. No commitments were made regarding monetary policy. Since the imbalance in external positions reflected, to some

extent, the misalignment of fiscal policies, specific programs to reduce fiscal stimulus in the United States and increase it abroad were included in the statements, but these suggested no departure from existing policies. The United States promised to "implement fully the deficit reduction package for fiscal year 1986" specified in the Gramm-Rudman-Hollings bill. This package was intended to reduce the budget deficit for FY 1986 by more than 1 percent of GNP. In addition, U.S. authorities indicated their intention to implement revenue-neutral tax reform. Japan agreed to increase investment by local governments, conditional on the individual circumstances of each region. The West German government stated its intention to continue its ongoing process of tax reform, with tax cuts due to take effect in 1986 and 1988. The United Kingdom and France each promised to curb public expenditure and to reduce tax burdens.

In reaction to the G-5 statement and subsequent intervention, the dollar fell sharply. Monetary tightening in Japan in late October provided further downward impetus for the dollar, so that by year-end the dollar had fallen 16 percent against the yen and 14 percent against the mark from its levels just prior to the Plaza meeting.

Throughout this period, the Federal Reserve emphasized that, given the dependence of the United States for the time being on large capital inflows, underlying confidence in the dollar needed to be maintained. It was concerned that a precipitous fall in the dollar, though perhaps a remote possibility, could lead to sharply higher interest rates and inflationary pressures, thereby threatening the

financial system and the economy.[19] Based on these considerations, the decisions to lower the Federal Reserve's discount rates in March and again in April 1986 were carefully coordinated with similar moves by other central banks. The March move coincided with reductions in official rates in Japan, Germany, France, and the Netherlands. Subsequently, the United Kingdom cut its official rates, as did several other of Germany's EMS partners. In April, the United States and Japan lowered their discount rates in tandem.

Formal procedures to improve the G-7 policy coordination process and strengthen multilateral surveillance were agreed to at the Tokyo economic summit in May 1986. In particular, a framework for the systematic consideration of national policies and performance was adopted, involving the use of economic indicators. According to the summit declaration, the purposes of improved coordination "should explicitly include promoting noninflationary growth, strengthening market-oriented incentives for employment and productive investment, opening the international trading and investment system, and fostering greater stability of exchange rates." Although the United States supported improved coordination of macroeconomic policies to foster increased stability in exchange rates, the dollar's continued decline in 1986 per se was regarded as orderly and not cause for concern, and U.S. authorities did not intervene in exchange markets in 1986. The Bank of Japan, however, became quite concerned about the yen's appreciation, particularly in the run-up to the national elections in Japan, and

19. FOMC policy record, October 1, 1985 meeting.

intervened quite heavily in support of the dollar in the spring and summer of 1986.

The dollar declined to seven-year lows in early 1987, amid signs that the U.S. economy might be weakening while the U.S. trade deficit continued to grow. Furthermore, various press statements attributed to administration officials were interpreted in exchange markets as indicating a lack of concern about the ramifications of a further decline in the dollar. In these circumstances, U.S. monetary authorities at the end of January intervened on one occasion in support of the dollar for the first time since mid-1980 (except for small operations when President Reagan was shot in 1981 and during the Continental Bank crisis in 1984) in coordinated operations with the Bank of Japan.

On February 22, the G-7 officials met at the Louvre in Paris. They concluded that "substantial exchange rate changes since the Plaza Agreement will increasingly contribute to reducing external imbalances and have now brought their currencies within ranges broadly consistent with underlying economic fundamentals". In addition, they expressed concern that "further substantial exchange rate shifts could damage growth and adjustment prospects in their countries." Therefore, they agreed to "cooperate closely to foster stability of exchange rates around current levels" (i.e. around levels of February 20).

Because of innumerable hypothetical circumstances that could not be fully anticipated, the agreement on intervention was in general terms and not pinned down too closely. 552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

552 U.S.C. (b)(4) intervention after the Louvre Accord was substantial, with the G-7 and other central banks effectively financing most of the U.S. current account deficit for that year. The U.S. share of net official purchases in 1987 amounted to $8.5 billion, while the other G-7 countries' share was $82 billion.

No commitments regarding monetary policy were made at the Louvre, and only two aspects of the agreements on fiscal policy represented new initiatives. Japan promised that "A comprehensive economic program will be prepared after the approval of the 1987 budget by the Diet, so as to stimulate domestic demand, with the prevailing economic situation duly taken into account." Germany agreed to "propose

20. 552 U.S.C. (b)(4)
552 U.S.C. (b)(4)

to increase the size of the tax reductions already enacted for 1988." On the U.S. side, the commitment to "policies with a view to reducing the fiscal 1988 deficit to 2.3 percent of GNP from its estimated level of 3.9 percent in fiscal year 1987" was consistent with the Gramm-Rudman-Hollings target, which was not reached.

As the dollar fell 552 U.S.C. (b)(4) : 552 U.S.C. (b)(4), G-7 authorities, meeting in April 1987, 552 U.S.C. (b)(4) :

552 U.S.C. (b)(4)

Despite heavy intervention, the dollar declined sharply in the second half of 1987, particularly after the stock market crash in October. Record U.S. trade deficits and perceptions of disarray among G-7 officials as foreign authorities pursued their own domestic objectives sparked the initial dollar selloff. The dollar's decline gathered momentum once the Federal Reserve moved more aggressively than its foreign counterparts to supply liquidity in the aftermath of the

stock market crash. The Federal Reserve's actions in this regard led market participants to believe that the Federal Reserve would emphasize domestic objectives, if necessary, at the cost of any objective for the dollar.

In these circumstances, G-7 officials reconvened by telephone at year-end and the result was 552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

552 U.S.C. (b)(4). In their public statement, G-7 authorities concurred that "either excessive fluctuation of exchange rates, a further decline of the dollar, or a rise in the dollar to an extent that becomes destabilizing to the adjustment process, could be counterproductive by damaging growth prospects in the world economy." They then reaffirmed their commitment to "cooperate closely on exchange markets". In addition, the agreements on fiscal policy measures contained in the Louvre Accord were extended to include policy for 1988.

During 1988 and early 1989, G-7 finance ministry deputies and, on two occasions, their central bank counterparts met to consider 552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

552 U.S.C. (b)(4) more concrete as part of a broader consideration of ways of strengthening the international monetary system that was called for by 552 U.S.C. officials. 552 U.S.C. (b) also wanted to integrate into the G-7 process closer consultation on monetary policy

action.) In the event, G-7 officials were unable to reach an agreement on ways and means of strengthening the G-7 coordination process.

During both 1988 and 1989, the dollar strengthened over the first part of the year as monetary conditions in the United States tightened more than those abroad and U.S. external accounts improved. As relative monetary stances were reversed and external adjustment stalled during the latter part of both years, the dollar eased back somewhat. For 1988 as a whole, the dollar appreciated moderately and net intervention by the United States was light. However, when the dollar continued to strengthen in 1989, reaching a 2-1/2 year high against the mark and threatening to undermine progress on external adjustment, U.S. authorities intervened more actively.

In September 1989, G-7 officials issued a communique stating that they "considered the rise in recent months of the dollar inconsistent with longer run fundamentals" and "agreed that a rise in the dollar above (then) current levels or an excessive decline could adversely affect prospects for the world economy. In this context, they agreed to cooperate closely in exchange markets." The release of this statement was followed by several weeks of coordinated intervention with the initial objective of lowering the dollar and the later objective of keeping the dollar lower. 552 U.S.C. (b)(4)

[redacted]

For 1989 as a whole, U.S. authorities sold $22 billion net, while other G-7 countries made net sales of $43 billion. Chiefly as a

result of these operations, the combined System and Treasury net position in foreign currencies swelled to $42 billion equivalent at the end of 1989 (valued at December 29, 1989 exchange rates). (See Task Force paper "U.S. Official Holdings of Foreign Currencies" for details.)

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Historical Review of

System Objectives and the Use of Intervention *

* Prepared by Chris Rude, with assistance from Cathy Weintraub, Foreign Exchange Department, Federal Reserve Bank of New York.

This paper discusses the objectives and uses of U.S. foreign exchange intervention operations from the early 1960s to the present. It describes the basic reasons why the U.S. authorities have intervened in the foreign exchange market--what the operations attempted to achieve--and comments on the nature and the extent of the intervention operations themselves, including some of the tactical approaches used to achieve our objectives.

A. Overview

Under the Bretton Woods system, U.S. foreign exchange intervention was light because the United States had another responsibility under that system--to maintain the convertibility of officially held dollar liabilities into gold. In the period immediately after the advent of generalized floating in 1973, U.S. intervention remained light, at least relative to the use of this policy tool by other countries. Subsequently, there have been periods of more sustained and heavier operations--in the years 1977 to 1981; the fall of 1985; and the post-Louvre period, February 1987 to the present.

In a world of extensive capital mobility and floating exchange rates, the U.S. monetary authorities have generally accepted the premise that the underlying economic fundamentals should and ultimately will determine dollar exchange rates. They have taken the view that, under these circumstances, capital and exchange controls would be largely ineffective. These concepts underlie the

basic policy framework that has governed and still governs U.S. foreign exchange operations, a framework which was largely developed during the period between the move to generalized floating in March 1973 and the completion of the Jamaica Amendment to the IMF Articles in January 1976.

Early experience with floating during 1973, however, indicated that short-term phenomena might overshadow underlying economic fundamentals. The U.S. authorities have long recognized, therefore, that intervention may be appropriate, indeed necessary, at times to deal with these phenomena and to restore market conditions that would more likely permit the underlying economic fundamentals to reassert themselves. Accordingly, the United States has throughout the years accepted the need for intervention to deal with "disorderly markets."

Over the years, the phrase "disorderly markets" has been interpreted at times narrowly and at times broadly. That phrase has been used to cover operations ranging from modest efforts designed to achieve the relatively limited objective of containing day-to-day or very short-run market dysfunction, to large-scale efforts which sought to influence exchange rate levels or trends over prolonged periods when current market conditions were perceived as not consistent with underlying fundamentals.[1]

[1] See the accompanying paper on "Historical Review of the Reciprocal Currency Arrangements."

--From time to time, in the mid-1970s, the U.S. authorities intervened in modest amounts to deal with "disorderly markets" in the more narrow sense of the term.

--Subsequently, in the period from September 1977 to December 1979, the U.S. authorities made a major and sustained effort to influence the dollar exchange rates and sought to counteract a severe undervaluation of the dollar, an action based at least partly on the grounds that such a misalignment was itself a cause of market disorder.

--In the following year, 1980, still under the "disorderly market" rubric, we intervened on the opposite side of the market, selling dollars in substantial amounts to cover outstanding debts and build up balances.

--An effort similar to the September 1977-December 1979 exercise began with the Plaza Agreement in September 1985, when the U.S. authorities placed priority on increasing the value of the other Group of Five (G-5) currencies relative to the dollar.

--Beginning with the Louvre Accord in February 1987, the U.S. authorities worked in cooperation with other Group of Seven (G-7) industrial countries to foster greater exchange rate stability, roughly around the then-current exchange rates. This objective was to be achieved through greater economic policy coordination, supported by cooperation in exchange rate intervention.

--That G-7 commitment to foster greater stability has continued since, amplified by successive G-7 statements indicating at times the need for rate stability, and at other times suggesting that further moves of the dollar in one direction or another would not be helpful to international adjustment and a strong world economy.

All U.S. intervention during the floating rate period through 1985 was undertaken under a policy, as formally notified to the IMF, of intervening "when necessary to counter disorderly market conditions in the exchange markets." At the end of 1985, the phrase was added "or when otherwise deemed appropriate."

The basic techniques used to intervene today were developed in the 1960s and 1970s. By the end of the period of relatively heavy intervention 1978 to 1981, the U.S. authorities had employed all of the techniques used today: visible and discreet operations, alone or in cooperation with other central banks, at home in the United States or in other foreign exchange markets, during the New York trading day or around the clock. The absolute size of the operations has increased in recent years, but this should be seen against the background of the size, sophistication, and globalization of the market. In 1989, total intervention by the United States was perhaps somewhat larger

than the level of activity of an earlier, active period 10 years ago; but the growth of the market during the same period has been much larger.[2]

The U.S. monetary authorities have maintained a fairly passive policy toward reserve acquisition throughout most of the period of this review, more or less accepting the consequences for reserves of any intervention operation directed toward market conditions or exchange rates. From the advent of the floating period until November 1978, the swap network was the primary mechanism through which the U.S. monetary authorities obtained the foreign balances necessary for any significant intervention operation to support the dollar. Since intervention operations were essentially financed through short-term borrowing, the authorities had to reverse operations reasonably quickly to repay market-related debt or reconstitute the small level of reserves the U.S. authorities had, or else obtain the needed balances from other sources.

Although the U.S. authorities still maintain a fairly passive policy toward reserves, the operations designed to limit the dollar's rise over the past year have led to a large buildup in U.S. foreign exchange reserves. This relatively new situation has helped to provide greater flexibility to the U.S. authorities and has enabled the United States to be less dependent on other countries in

[2] There is no reliable measure of the size of market imbalances, or the open position of the private sector, but based on the Federal Reserve Bank of New York's Turnover Survey of the U.S. foreign exchange market, the size of the U.S. market increased from an estimated average daily turnover of $18 billion in 1980 to $129 billion in 1989.

discussions and policies concerning the exchange value of our currency. In other words, if the dollar should come under severe downward pressure, the U.S. authorities will not so quickly be faced with the choice of having either to introduce major policy changes that may not be compatible with domestic needs, or to seek financing from others which might be subject to unpalatable conditions.

In summary, over the nearly thirty years of the period under review, there has been a consistent theme in the thinking of the U.S. authorities of primary reliance on economic fundamentals and market forces as main determinants of exchange rates. Nonetheless, within that framework there have been significant changes in U.S. attitudes and practices with respect to intervention, reflecting: a) modifications of the international monetary system; b) evolution of the structure of the U.S. and global economies and capital markets; c) shifting official views about the character of exchange markets as well as the cost, benefits, and effectiveness of intervention with changing Administrations and philosophies; and d) the changes in current economic and financial conditions.

B. U.S. Intervention under the Bretton Woods System

Under the Bretton Woods System, the United States was formally committed to buying and selling gold at $35 an ounce without limit at the request of governments that were members of the International Monetary Fund

(IMF). In turn, foreign authorities were formally committed to keep their exchange rates from moving by 1 percent above or below par against the dollar. Thus, the U.S. monetary authorities were not formally committed to maintaining the market value of the dollar against foreign currencies. This responsibility, in effect, fell upon foreign authorities, an obligation which they fulfilled by intervening, primarily in dollars or other useable currencies. The United States was instead committed to maintaining the convertibility of officially held dollars into gold at $35 an ounce. U.S. "intervention," in this sense, was indirect and passive.

The Bretton Woods system was constructed under conditions of a dominant U.S. economy with a near monopoly of gold--which could perform the "nth" currency function, provide the residual counterpart of all international payments imbalances, and supply the liquidity needed for a growing world economy. In time these premises eroded, with the recovery of Europe and the development of Asia. The Bretton Woods system proved incapable of bringing about the needed policy adjustments by member nations, and came under intolerable strains as growing official dollar liabilities rose relative to a declining U.S. gold stock.

As foreign central banks began to accumulate large dollar reserves--as the "dollar shortage" of the late 1940s gave way to the "dollar overhang" of the 1960s--U.S. foreign exchange policy focused on protecting the U.S. gold stock

and preserving the status of the two major reserve currencies, the dollar and sterling, whose fixed par values were thought to be the linchpin of the system. In particular, the U.S. authorities sought to maintain the dollar's value measured in gold in order to maintain confidence in the dollar and in the monetary system. The U.S. authorities also believed that any loss of confidence in sterling's role could jeopardize confidence in the dollar, thereby prompting foreign monetary authorities to rush to the Treasury's gold window to convert their dollars into gold.

The U.S. authorities developed a variety of strategies to protect Treasury's gold stock.[3] A gold pool was formed whereby foreign central banks shared in the U.S. authorities' efforts to contain the dollar price of gold in the major free markets for gold, mainly in London. The Treasury issued foreign currency-denominated bonds (Roosa bonds), and the Federal Reserve drew on the reciprocal currency arrangements to acquire currencies to, in effect, assume other countries' exchange-rate risk on a portion of their dollar reserves. The operations were all designed to discourage foreign monetary authorities from using their dollar holdings to buy gold. Nonetheless, the U.S. gold stock still continued to fall substantially.

[3] See the accompanying paper "Evolution of U.S. Foreign Exchange Rate Policy" for more details on these measures.

In addition to various measures to protect the gold stock, the U.S. monetary authorities also intervened in foreign exchange markets during this period to ameliorate pressures on the dollar as well as to assist other countries in defending their own Bretton Woods parities. The U.S. Treasury intervened on some occasions, beginning in March 1961, more often in the forward market, and the Federal Reserve intervened, beginning in June 1962, more often in the spot market. The Treasury's operations in the forward market were designed to encourage stabilizing, and discourage destabilizing, speculation. By operating in the forward market, the Treasury did not have to have foreign currency balances to buy dollars, but it was exposed to exchange rate risk because it had to buy the currency spot when it came time to honor its forward transactions. The System's occasional operations were typically in the spot market and at times undertaken to help foreign authorities support the value of their own currencies against the dollar. The System assisted the Bank of England in its defense of sterling against the waves of speculative selling that occurred in the 1960s and which finally culminated in sterling's devaluation in November 1967. The U.S. authorities also assisted the Bank of France in its defense of the franc from speculative selling pressures in 1968.

Intervention operations for both the Treasury and the System were executed by the Foreign Exchange Desk at the Federal Reserve Bank of New York. Spot transactions were usually executed by using commercial banks as agents in the New York brokers market. Forward transactions were executed directly with U.S. banks known to specialize in forward transactions.

Under the Bretton Woods system, the U.S. authorities, lacking significant foreign currency reserves, financed almost all of the spot transactions through the use of the System's swap network. Since the maturities of the swap lines were relatively short (typically 3 months), any operation implied that the U.S. authorities would generally have to reenter the market shortly in order to repay the debt or to cover the liability by some other means. Over time, the swap network became the primary mechanism by which the authorities in both the United States and elsewhere could obtain the reserves necessary for defensive foreign exchange operations, and negotiations to set up larger bilateral swap networks came to play a key role in central bank cooperation.[4]

Two individual operations by the U.S. authorities during this period bear mentioning: the Desk's operations on the day of President Kennedy's assassination on November 22, 1963, and the sterling "bear squeeze" on September 10, 1965. The operations undertaken following the news that President Kennedy had been shot were undertaken for System account and on Federal Reserve initiative to counter what would later be called "disorderly market conditions." Acting through a bank as agent, the Desk offered to buy dollars against marks at the rate which prevailed just prior to the unsettling

[4] See the accompanying paper on "Historical Review of the Reciprocal Currency Arrangements."

news. By the end of the day, the Desk had purchased $23 million; the Bank of Canada joined in by purchasing another $27 million.

The "bear squeeze" operation, two years later, was designed to counter the negative sentiment against the British pound that had persisted for some time. Specifically, it was aimed at generating a rise in sterling against the dollar at a time when many market participants had sold sterling in the expectation of a fall in its price. The operation was undertaken on System account; the strategy was designed by the Federal Reserve. The Desk abandoned its normal practice of intervening discreetly through brokers and, instead, simultaneously placed offers for dollars against sterling totaling $30 million directly with all of the major New York banks in what was the first significant case of overt operations by the Desk. Not only was the size of the total bid large for the market at the time, but the intervention technique itself was seen in the market as a startling change from the usual central bank tactic of supporting an exchange rate quietly, if not secretly, through the agency of a commercial bank. As market participants scrambled to cover previously established short-sterling positions, sterling moved immediately upward. The Desk pursued the rate with new and lower offers to sell dollars. By the end of the day, the Desk had sold $13 million against pounds. This operation was coordinated with the Bank of England, a number of continental central banks, and the Bank of Japan.

C. U.S. Intervention during the Breakup of the Bretton Woods System, August 1971 - March 1973

With the end of gold convertibility on August 15, 1971, the U.S. authorities no longer conducted operations with the purpose of protecting the gold stock. This period was characterized by attempts to reconstitute a system of fixed parities: a new constellation of exchange rates was established as part of the Smithsonian agreement in December 1971; the European Economic Community (EEC) authorities decided to narrow the margins for their currencies and agreed to maintain their exchange rates within 2.25 percent of each other (the IMF rules permitted a range of 4 1/2 percent) to form the EEC "snake" in the Smithsonian "tunnel" in March 1972;[5] and the dollar was unilaterally devalued in February, 1973, in an environment in which a number of currencies were floating de facto. Even so, the exchange markets were subject to recurrent pressures on exchange rates. Many central banks continued to intervene to limit the rise of their currencies against the dollar, even though, with the suspension of gold convertibility, they were exposing themselves to exchange risk.

Intervention operations by the U.S. monetary authorities to influence dollar exchange rates, by contrast, were modest and essentially limited to two episodes. The first was during summer 1972, after pressure against the dollar

[5] The EEC "snake" was a precursor for the European Monetary System (EMS) regional joint float mechanism.

intensified following sterling's abandonment of its Smithsonian parity in the face of a wave of speculative selling. The move by the U.K. authorities cast the entire Smithsonian framework into doubt, and the U.S. authorities entered the foreign exchange market to intervene, purchasing a total of $31.5 million. Swap drawings, which had been suspended since August 15, 1971, began again, following a change in Treasury Secretaries, and the Federal Reserve offered marks in the foreign exchange market beginning on July 19, 1972. At the time, Chairman Burns described the intervention operation as a move by the U.S. authorities to restore order in the foreign exchange markets in keeping with the Smithsonian agreement. The Treasury commented that "the action reflects the willingness of the United States to intervene in the exchange markets upon occasion when it feels it is desirable to help deal with speculative forces." During the following month, the System also purchased dollars against Belgian francs, and the franc moved well below its ceiling level against the dollar.

The second episode of intervention was in early 1973, when the viability of the Smithsonian Agreement, which had never fully recovered from the 1972 developments, was called into question again, leading to the effective demise of the Smithsonian parities. The dollar, along with pound sterling and then the Italian lira, came under successive waves of selling pressure in an increasingly uncertain and nervous environment amid growing concerns about price and external performance in these countries. In late January-early February, the

U.S. authorities, in cooperation with the Bundesbank, entered the foreign exchange market to intervene. Initially, intervention purchases of dollars against marks and guilders were all undertaken for Federal Reserve account. However, once Federal Reserve mark balances were depleted and the System had to draw on its swap line with the Bundesbank to finance continued intervention, Chairman Burns became concerned that the Federal Reserve not be caught with an exchange rate exposure at a time when the Treasury was negotiating a new exchange rate realignment. He insisted that any further dollar purchases against marks be undertaken for the U.S. Treasury account out of Treasury's existing balances. By this action, he confirmed the principle that the Federal Reserve could control the use of its own balances and liabilities.

On February 12, 1973, the dollar was devalued for the second time in 14 months in an environment in which a number of Group of Ten (G-10) currencies were floating de facto or utilizing exchange controls to establish an exchange rate system to help shield their trade and economies from the effects of speculative capital flows. Market participants were unconvinced that stable rates would be soon restored, however, and by March 16, 1973, there was generalized floating of the dollar.

D. Implementation of the Policy Framework for U.S. Intervention under a System of Managed Floating Exchange Rates, March 1973 - December 1974

On March 16, 1973, the Group of Ten (G-10) countries (plus Switzerland) decided to abandon the commitment to intervene in support of fixed parities against the dollar. They issued a communiqué stating that intervention might be useful at appropriate times to facilitate the maintenance of orderly market conditions. Each country agreed to be prepared to intervene at its own initiative in its own market in consultation with the countries whose currencies were being traded. This agreement represented the initial policy framework for any U.S. intervention that might be regarded as necessary or desirable under the system of floating exchange rates for the major currencies.

In the immediate aftermath of the March 16, 1973, meeting, the U.S. authorities interpreted the concept of "disorder" narrowly and abstained from intervention. Some foreign monetary authorities, in contrast, did engage in modest intervention as the dollar continued to move lower.

First Intervention of Floating Rate Period

During May-July 1973, selling pressure on the dollar intensified, and the U.S. monetary authorities intervened for the first time during the floating rate period. During this period, trading was becoming increasingly one-sided, with spreads between bid and asked rates widening substantially, and many corporate customers withdrew from the market. Gold prices rose as the dollar

and U.S. securities prices declined sharply. By July 6, several New York banks refused to quote rates and suspended all foreign exchange transactions, even in major currencies. In response to the near paralysis of the foreign exchange market, the Federal Reserve started to intervene on July 10. These operations were accompanied by a joint statement of the Chairman of the Federal Reserve Board and the Secretary of the Treasury indicating that the U.S. monetary authorities would intervene at whatever times and in whatever amounts were appropriate for maintaining "orderly market conditions."

During July 1973, the Federal Reserve purchased $273.5 million in the market--$220.5 million against marks, $47.0 million against French francs, and $6.0 million against Belgian francs (see Table One).[6] The Desk entered the market on 12 days during the month, or on 57 percent of the trading days, to purchase an average of $23 million on each day that it was in the market. These operations were financed by drawings under the swap arrangements with the respective central banks.

[6] Table One and the subsequent tables report all U.S. operations undertaken in the foreign exchange market by the U.S. Treasury and the Federal Reserve. The tables exclude transactions with customers and off-market transactions conducted directly with foreign central banks. They include both the U.S. foreign exchange market operations designed to influence market conditions and exchange rates--intervention--and the operations undertaken in the market to acquire the foreign currencies necessary to repay market-related swap debt or otherwise to reconstitute reserves. The number of days of the operations, the frequency of the operations, and the average size of the daily operations reflect both "active" intervention as well as reserve-related operations.

Through the remainder of 1973 and 1974, the dollar was occasionally buffeted by releases of unfavorable U.S. economic data, speculation of a revaluation of the mark within the new European Community "snake" arrangement, and financial market uncertainty in the wake of the closures of Bankhaus I.D. Herstatt and Franklin National Bank. During this period, U.S. intervention was moderate, and no major innovations in intervention techniques were introduced. Between August 1973 and December 1974, the Desk intervened in the market on occasion to support the dollar by purchasing a total of $1,345.4 million and on occasion to stem the dollar's rise by selling a total of $203.2 million. These operations were generally conducted for System account.[7]

E. U.S. Intervention Operations: January - March 1975

The first major episode of U.S. intervention in concert with other central banks during the floating rate period occurred in the first quarter of 1975. The United States, Germany, and Switzerland had been intervening beginning in late 1974 to moderate the dollar's decline and to counter disorderly market conditions. Not until February 1975, however, did they adopt a large-scale, concerted approach to intervention and publicly confirm that change in approach.

[7] Between March 1973 and January, 1978, there was one episode of U.S. Treasury intervention, intervention during February and March, 1974 in which the Treasury purchased $42.6 million against marks and Belgian francs.

The intervention had been initiated by these countries at a time when the industrialized countries generally were beset by inflation, recession, and the continuing dislocations of the first oil crisis. The inflationary pressure were moderating more quickly in many of the other industrial countries than in the United States, and moreover, the United States was in a far deeper recession. As U.S. economic policy shifted more decisively to support the economy, interest rate differentials that had previously been strongly in favor of the dollar narrowed quickly in late 1974 and again in January 1975. The other countries wanted to avoid the deflationary consequences of appreciation. The U.S. authorities were concerned that, with market participants already expressing concern that the direction of U.S. monetary policy was inconsistent with fighting inflation, a deterioration of confidence in the dollar would further undermine their ability to contain inflation over time.

Although the Desk had acted several times to check sharp dollar-exchange rate declines on individual days late in 1974, the dollar's overall trend had not changed. By early January 1975, the dollar had declined by 10 percent against the German mark and by 16 percent against the Swiss franc from its highs of four months before, and the market's expectations continued to be bearish. The Desk remained prepared to operate in early January on a modest scale to cushion, but not to prevent, the dollar's day-to-day declines. Thus the Desk approached the market indirectly and on a small scale. It

operated in the brokers market using commercial banks as agents, in amounts typical of the New York market of the period, usually at progressively lower dollar exchange rate levels, to purchase for the Federal Reserve a total of $178.1 million against German marks and Swiss francs during January. But by late January 1975, the dollar had declined another 5 percent.

Under these circumstances, the U.S. authorities sought to reverse the deteriorating conditions in the market, the continuing slippage of the exchange rate, and the deepening pessimism toward the dollar. They tried to increase the coordination of central bank intervention and adopt a more forceful approach to the market. By early February, the Federal Reserve had reached agreement with the Bundesbank and the Swiss National Bank on a new approach. On February 3, the central banks of both Switzerland and Germany entered the market shortly after the European open to buy dollars visibly. The Desk on behalf of the Federal Reserve entered the market even before the usual 9:00 a.m. opening in New York to bid for sizeable amounts of dollars against marks and Swiss francs to set the tone of strong dollar demand for the day. It did so openly in the interbank market by placing bids directly with commercial banks. The Desk supplemented these operations by bidding to buy dollars against Dutch guilders and Belgian francs.

As the dollar turned upward, the Desk kept bidding for dollars against these four currencies at progressively higher dollar rates to demonstrate the U.S.

authorities' willingness to support the dollar's recovery. The dollar's rise accelerated late in the morning after the wire services reported that Chairman Burns had confirmed that the Federal Reserve was intervening to maintain orderly markets. Spokesmen for the other central banks also confirmed the operation. By the end of the day, the Desk had purchased $112.3 million against marks, Swiss francs, Dutch guilders, and Belgian francs in what was then by far the largest single-day operation since the United States began intervening again in July 1973. This operation represented a broadening of the interpretation of activities that might be regarded as appropriate for dealing with "market disorder." The Desk purchased an additional $27 million on February 4.

Although exchange market conditions tended to stabilize following this two-day round of concerted intervention, the dollar continued to move lower on balance during February as a number of events continued to reinforce the concerns that still weighed against it, including a further easing in U.S. monetary policy, release of sharply higher unemployment figures in the United States, and an apparent tapering off in the rise in unemployment in Germany. Although the Bundesbank eased its stance somewhat, the additional evidence that the recession was more severe in the United States than elsewhere tended to confirm the view that any decline in German interest rates would lag behind one in U.S. rates. In this atmosphere, the Desk remained ready to intervene in order to avoid disorder in the market, but not to hold the rate at

any particular level. In fact, it intervened to support the dollar on 12 out of the 16 business days remaining in February in operations coordinated with the Bundesbank and the Swiss National Bank, although the scale of operations on those days was relatively modest.

In March 1975, the dollar began to firm in response to a favorable shift in interest rate differentials; dollar interest rates firmed somewhat due to a move toward relative U.S. monetary restraint, while interest rates on assets denominated in other currencies continued to fall. The Desk continued to intervene at times to resist any reversal in dollar rates, but as the dollar's rise solidified, the Desk's intervention operations tapered off. The cumulative total of the Desk's dollar purchases during February and March amounted to $740.4 million. The bulk--$551.9 million--was against marks, with the remainder against Swiss francs, guilders, and Belgian francs.

F. Countering Declining Confidence: September 1977 - December 1979

The period from September 1977 to December 1979 saw a multi-faceted effort to resist deteriorating confidence in the U.S. economy and resist an at-times precipitous decline in the dollar, which was thought to be both inconsistent with underlying fundamentals and itself a source of market disorder. The effort comprised the full range of intervention techniques: adjustments in monetary policy, including several rounds of Federal Reserve discount rate increases; enhanced coordination with other governments; and

initiatives to address structural weaknesses in the economy. During this period the U.S. authorities undertook the most protracted, intense, and sustained intervention operations to date, and developed and utilized the techniques still used by the authorities today (see Table Two). The downward pressure on the dollar began gradually to subside during early 1979. The change in Federal Reserve operating procedures in October 1979 and the subsequent rise in dollar interest rates contributed to a further rise in the dollar against the yen and helped stabilize the dollar/mark rate.

By late 1977, a number of problems began to undermine the Carter Administration's economic strategy--to promote vigorous growth in the United States so as to provide the engine of expansion for the world as a whole, while simultaneously containing domestic inflation and conserving energy. The U.S. economy was growing rapidly. But the strength of demand had led to a serious deterioration in the U.S. trade deficit that could no longer be excused simply on the grounds that it offset the contractionary effects of the continuing current account surpluses of oil producing countries. Moreover, economic recovery still eluded Germany and Japan, despite U.S. demand for these countries' exports. Thus, the prospect was fading that expansion could quickly or easily be transmitted from the United States to other industrialized countries. Market participants grew skeptical that the growing U.S. current account deficit could be reversed without either a significant curtailment of demand at home or dollar depreciation. Faced with this choice, they believed

the Administration would be more willing to accept depreciation, even though the movement in the exchange rate would result in further deterioration in price performance. In response to these concerns, the dollar was moving steadily lower in the exchange markets, even as interest rate differentials moved in favor of the dollar.

To counter disorderly markets in a fairly narrow sense of the term, the Desk, acting on behalf of the Federal Reserve, first entered the foreign exchange market in late September 1977. Using largely a discreet approach to the market, it placed bids for dollars in the brokers market through banks acting as agents and in amounts in keeping with the normal market practice. Between September 30 and December 20, the Desk purchased $676.5 million against German marks. But the operations were not intended to stop the general trend then underway, and the dollar continued to weaken. Market participants, watching the dollar decline nearly every day, interpreted the limited nature of the operation as evidence of a lack of concern by the U.S. authorities. By December 20, the dollar was 6 percent below the level at which the Desk had first intervened, trading at DM 2.10.

By the end of 1977, the Administration began to show some concern about the dollar. It believed that, if the immediate market pressures could be contained, before long the overall strategy would be seen as bearing fruit. Following conversations between the Federal Reserve and the Treasury,

President Carter announced, on December 21, an explicit undertaking to intervene in concert with other countries. At that point, the Desk started operating for both Treasury and Federal Reserve account and increased the size of its intervention activities, although it continued to intervene in a discreet manner. On that day, the Desk also operated on behalf of other central banks. In the final days of December, the U.S. monetary authorities purchased $173.7 million against marks.

With the Administration now publicly associated with the efforts to resist pressures against the dollar, market participants wondered whether the United States had the resources needed to finance intervention on the scale needed to reverse the dollar's decline.[8] Whereas the Federal Reserve had recourse to its swap arrangements with other central banks to borrow the currencies needed to sell in the market, the Treasury's access to currency was not well known. Moreover, both agencies were understood still to have significant obligations outstanding that dated back to August 15, 1971. In these circumstances, market participants believed the United States had little scope for waging significant resistance against selling pressure and would be quick to take advantage of any let up in pressure to sell dollars in order to repay either recently incurred or long-standing debt. In other words, the market

[8] See the accompanying paper "Historical Review of U.S. Holdings of Foreign Currencies."

believed there to be little risk that the dollar would go up even if the intervention succeeded in stemming the dollar's decline.

Meanwhile, the Federal Reserve and the Treasury were making arrangements to share in the financing of joint intervention operations on an ongoing basis. As acting Treasury Secretary, Solomon agreed that the United States "should act to counter disorderly market conditions in our foreign exchange markets that may develop from time to time" and gave Chairman Burns the Treasury's full approval of Desk's operations since late September. The Treasury also agreed that "the exchange value of the dollar will be determined by underlying economic and financial conditions in the U.S. economy, and that the basic strength of the dollar will depend on our ability to maintain a strong and non-inflationary economy."[9] He also informed the Chairman that Secretary Blumenthal approved the initiation of consultations between the Treasury and the Federal Reserve, on the one hand, and the Congressional Committee chairmen, on the other "with regard to the possibility of [Treasury's Exchange Stabilization Fund (ESF)] participating with the Fed[eral Reserve] in financing U.S. exchange market intervention."[10]

[9] Letter from Under Secretary Solomon to Chairman Burns, December 28, 1977.

[10] Covernote from Under Secretary Solomon to Chairman Burns.

On January 4, 1978, to address these concerns, the Federal Reserve and the U.S. Treasury issued a joint statement that the U.S. Treasury's ESF would henceforth be actively used together with the Federal Reserve's swap network system. In addition, it was announced that Treasury had established a swap arrangement with the Bundesbank, although the size of the arrangement was purposefully never disclosed so as to avoid giving a sense of limitation. Then on January 6, the Federal Reserve increased its discount rate to 6 1/2 percent, while allowing federal funds rates to rise to 6 3/4 percent.

But the dollar continued to come under selling pressure, and the Desk increased its foreign exchange operations. During the first half of January, the Desk purchased $773.5 million against marks. The Desk intervened on 78 percent of the trading days, dealing at times both with banks directly and in the brokers market using banks as agents. On one occasion, the Desk quoted a bid and offer simultaneously to narrow spreads and achieve more orderly market conditions in the first use of two-way prices as an intervention technique.

For the balance of the first quarter of 1978, the Desk continued to intervene on occasion. (For the quarter as a whole, the Desk intervened to purchase a total of $2,102.1 million and operated on 62 percent of all trading days.) In addition, on March 13, to demonstrate determination to address the situation once more, the authorities announced further increases in facilities to finance

intervention. The Federal Reserve's swap arrangement with the Bundesbank was doubled, and the Treasury indicated its willingness to sell Special Drawing Rights (SDRs) to the Bundesbank against the purchase of marks. For its part, the German government reaffirmed its commitment to support economic recovery at home. The dollar continued to decline and toward the end of the month, the dollar traded around the psychologically important level of DM 2.00 against the mark, down another 4 percent.

Pressure against the dollar ebbed and flowed for the next few months, and the U.S. authorities continued to intervene to support the dollar in varying amounts. Foreign central banks, however, remained quite active. Meanwhile, anxiety deepened that U.S. macroeconomic policies and the pace of economic expansion were incompatible with price stability, a return to external balance, and a stable dollar. Data being released at the time showed U.S. labor prices rising more rapidly than those in Germany and Japan as well as the declining dollar exchange rates being reflected in rising domestic prices for imports and import substitutes. As a consequence, the pace of U.S. inflation accelerated, while inflation rates abroad were generally coming down. To make matters worse, efforts to curb the U.S. trade deficit primarily by reducing oil imports faltered.

Against this background, downward pressure on the dollar reemerged in August 1978, and the U.S. authorities stepped up their dollar-support

operations. As the dollar fell through the DM 2.00 level against marks, dealers expressed dismay that the U.S. policy makers were not more prepared to resist the dollar's weakness. None of the actions taken so far had relieved the market's anxieties about the inconsistencies in U.S. economic policy. Talk was widespread in the market that large holders of dollar assets--OPEC countries and central banks all over the world--were actively seeking to diversify their portfolios so as to reduce their dollar exposures. In this context, the overhang of foreign-held dollars appeared huge relative to the resources of the United States available to finance intervention. As a result, trading became increasingly hectic as the dollar's decline gathered momentum, and substantial intervention by the U.S. authorities, as well as other countries, failed to stem the tide.

Since the beginning of this period in September 1977, the U.S. monetary authorities had employed numerous approaches to the exchange markets, ranging from high profile announcements of cooperative efforts with other governments to persistent discreet operations. It used a variety of diverse operating techniques in terms of counterparties and market of operation. For example, the Desk timed some of its operations to coincide with the opening and the closing of the foreign exchange futures market on the International Money Market (IMM) in Chicago. In addition, the U.S. government announced numerous other economic policy steps, trying to arrest the decline in confidence in the United States and in the dollar. The discount rate was

increased again in August 1978 and twice in September 1978. In August 1978 the Treasury announced measures to address the U.S. trade deficit and in September the Senate approved a long-awaited energy bill. Nevertheless, these efforts were perceived by the market as too little and too late. After each initiative, dollar rates were only briefly bid up. In short, the market's extreme pessimism did not fade.

On the evening of October 24, 1978, President Carter announced a new anti-inflationary program that proposed wage-price guidelines and a tax-based incomes policy. But market participants expressed such skepticism about the repeated failure of previous programs to produce meaningful results in terms of stabilizing prices that the dollar came under intense selling pressure in the Far East even before the President had finished speaking. To contain these pressures, the Desk operated for the first time in the Far East. It purchased $75 million against marks though U.S. banks in Hong Kong and Singapore, dealing with the foreign branches of commercial banks with whom it already had formal trading relations in New York. The market was well aware of these operations, but the dollar continued to decline, moving well below the DM 1.80 level by the end of the day.

During the last week of October, the selling of dollars reached near-panic proportions and the dollar fell to record lows against several currencies. The Desk intervened more heavily in an effort to moderate the dollar's decline and

to reestablish a greater sense of two-way risk. Then, as the Administration considered more policy moves to deal with the dollar exchange rates and other more fundamental issues, the Desk pulled out of the market. The dollar dropped to a low of DM 1.7050 on October 31, 17 percent below its early-August level.

The November 1, 1978 Package

On November 1, 1978, President Carter, the U.S. Treasury, and the Federal Reserve announced various measures to "correct the excessive decline in the dollar". Simultaneous announcements were made in Germany and Japan. The program featured an increase in the Federal Reserve's discount rate by an unprecedented 1 percentage point to an historic high of 9 1/2 percent--and an unprecedentedly large $30 billion package of foreign currency resources to finance U.S. participation in coordinated intervention in the foreign exchange markets.

The Federal Reserve's contribution to the $30 billion package was made through a doubling of its swap arrangements with the central banks of Germany, Switzerland, and Japan to a total of nearly $16 billion. The Treasury announced that it would draw $3 billion equivalent of foreign currencies under the U.S. reserve position in the IMF and sell $2 billion of SDRs to acquire marks, Swiss francs, and yen. The Treasury also announced that it would issue up to $10 billion in securities denominated in foreign currencies.

The dollar moved up immediately following the announcement of this program as traders around the world sought to cover their short-dollar positions. The Desk was authorized to operate in close coordination with other central banks to reinforce the dollar's recovery with active and forceful intervention in marks, Swiss francs, and yen. Through commercial banks it bid aggressively for dollars in the brokers market in all three currencies. The Desk acted throughout the day to prevent the dollar from falling and took advantage of any rise in the dollar to purchase dollars aggressively at progressively higher rates. By the end of the day, the dollar was up 7 to 10 percent from its lows of the previous day, and the Desk had purchased $609.3 million, mostly against marks.

In subsequent weeks, as the dollar kept gaining ground, the Desk continued to operate in cooperation with other central banks. By early December, the dollar was trading at DM 1.94 against the mark, 14 percent higher than its late-October low. But then the dollar's rise ran out of steam. Market participants remained skeptical about U.S. economic policy, and the dollar was vulnerable to the political and economic shocks that occurred around mid-December: political upheaval in Iran and the 14.5 percent increase in oil prices following the OPEC price-fixing meeting at the end of the year. The U.S. authorities, joined on occasion by other central banks, intervened persistently and in substantial amounts to blunt the selling pressures. Their largest intervention

operation so far for a single day--more than $1 billion--was done on December 11, 1978, undertaken on their own behalf and for other central banks. The currencies used for these operations were drawn in part by the Federal Reserve under its swap arrangements and in part by the Treasury from balances that had been obtained from the U.S. drawings on the IMF and out of proceeds of the Treasury's first issuance of mark-denominated securities.

U.S. operations during November and December were substantial by any measure--and certainly compared with the historical experience of the United States. In these two months, the Desk purchased $6,647.6 million, including $5,705.8 million against marks, $734.7 million against Swiss francs, and $207.4 million against yen. The Desk purchased dollars on 60 percent of the trading days in November and 80 percent of the trading days in December. The Desk's operations for the two months greatly exceeded the dollar purchases by any other country; its share in the total dollar purchases by the U.S., German, Swiss, and Japanese authorities was about one-half. Including very modest purchases of foreign exchange for reserve-related purposes, the U.S. authorities entered the market on 78 percent of the trading days during November and December; the average size of its daily operations was $220 million. The dollar closed the year at DM 1.8175 against the mark.

Coming into 1979, many market participants had anticipated that the dollar would again come under selling pressure. But the persistent determination of

the U.S. authorities in following up the November 1 package had apparently proved sufficient to blunt negative sentiment towards the dollar. As the market began to respond more favorably to U.S. economic policy, pressure on the dollar subsided, and U.S. intervention operations to support the dollar tapered off (although reserve-related transactions were undertaken). By March, sentiment had clearly tilted in the dollar's favor, and during most of the first half of 1979, the authorities of Germany, Switzerland, and Japan intervened heavily to sell dollars. These operations were largely motivated by the foreign central banks' desire to absorb some of the domestic liquidity created by earlier interventions, but had the effect of limiting the dollar's rise.

The dollar again came under selling pressure in the last half of 1979, as the energy situation and monetary policies of the United States and other countries no longer appeared uniformly to favor the dollar. On various occasions through the summer and early fall, the U.S. monetary authorities sold substantial amounts of foreign currencies to resist the decline. In June, around the time of the Tokyo Summit, with the dollar once again coming down to test the psychologically important level of DM 1.80, the Desk operated around the clock on most business days, purchasing over $5 billion, mostly against marks. Again, in late August and September the Desk intervened in sizable amounts, largely in a defensive action, as the dollar fell from the DM 1.83 level of late August back towards to DM 1.80. By late September, however, the Desk judged that the pressures against the dollar were too large

to be contained by intervention alone, and scaled back its operations. On October 2, the dollar traded as low as DM 1.7250.

On October 6, 1979, the Federal Reserve announced a major change in its operating procedures for monetary policy, through a series of actions to assure better control over money and credit growth and thereby to curb inflation. In the exchange markets, traders at first reacted cautiously to the change in the Federal Reserve's operating procedures. As dollar interest rates moved up sharply, interest rate differentials moved strongly in favor of dollar-denominated assets. But the dollar did not strengthen decisively. The U.S. authorities continued to purchase dollars to maintain orderly markets through early February 1980, but the scale of these operations tapered off (see Table Three). With inflationary expectations fueling the demand for money and credit, the Federal Reserve moved to restrain the growth of money, and short-term dollar interest rates started to move up sharply to levels that clearly discouraged speculative position-taking against the dollar. Then in late February and March, as the dollar began to move sharply higher, the Desk intervened to sell dollars to moderate the dollar's rise and repay debt.

G. U.S. Intervention Operations: April - July 1980

By April, with the announcement of President Carter's special credit restraint program, the scramble for funds in the United State had run its course,

economic indicators indicated economic activity was starting to slow, and dollar interest rates began to decline.

Under these circumstances, the U.S. authorities expected and were willing to see some decline in dollar exchange rates. However, the Federal Reserve was concerned that, given the fragility of confidence about the dollar and U.S. domestic economic policy more generally, the exchange rate not come under such intense selling pressure as to have an adverse effect on domestic money and capital markets. The Foreign Exchange Trading Desk timed its operations to coincide with those of the Open Market Desk, in order to signal to the market that, although the monetary policy actions were being taken to add bank reserves, another free-fall in the dollar would be resisted. In addition, when the credit restraint programs were then eliminated in May and June, the authorities wanted to indicate that the Federal Reserve was not giving up on its anti-inflation efforts. Although the dollar had relinquished its first-quarter gains by early July, the decline was kept orderly. In total, during this period, the Desk purchased $3,688.8 million against marks, Swiss francs and French francs.

H. U.S. Foreign Exchange Operations to Repay Debt and to Replenish Reserves, 1971 - 1981.

Throughout much of the period of floating exchange rates, the U.S. authorities undertook operations in the foreign exchange market to repay debt

and replenish reserves. There were two types of debt to be covered--that arising from operations conducted prior to August 15, 1971, the so-called "pre-1971 debt", and that arising from subsequent operations, "market-related debt".

As for pre-1971 debt, outstanding System swap commitments were $3,045 million and Treasury obligations were $1,998.2 million at the time the convertibility of the dollar into gold was suspended. Negotiations concerning how these obligations were to be met were conducted with the central banks of issue. In some cases, these negotiations extended over a period of years. The understandings that were reached included how the Desk would acquire the needed currencies and the time frame for liquidation of these obligations. The currencies were purchased either in the market or directly from the issuing central bank. In some cases the foreign central bank required the Desk to consult with it frequently, as often as daily, to work out whether market conditions permitted our purchase and if so the amount. In some cases the foreign central banks agreed to sell the United States currency directly on a regular schedule, or to be prepared to do so if market conditions did not permit us to buy in the market.

As for the later, market-related debt, the Desk used a variety of techniques in order not to exert unnecessary downward pressure on the dollar which, in any event, was under selling pressure during much of the time:

--The Desk bought the currencies in question, especially German marks, from central banks other than the Bundesbank that acquired marks either as a result of their own intervention operations, transactions with customers, or transactions among governments.

--It arranged to buy a number of currencies through the agency of the BIS or another central bank in a foreign market, so that the U.S. authorities would not, in effect, be announcing that they were selling dollars in the exchange market.

--It took advantage of opportunities it had to buy currencies in the New York market for the Federal Reserve Bank's customers to "piggy back" on these operations. In this way the Desk sought to minimize the possibility that the market would draw policy conclusions from these operations.

--The Desk looked for moments when the dollar was rising to buy currencies discreetly in the U.S. market, acting similarly to the way it conducts other discreet intervention operations.

--It bought currencies in the forward market, because the Treasury believed that such operations would put less pressure on the fast-moving spot market and thereby be less likely to be detected.

--The Desk also invited the commercial banks with whom it dealt to offer to sell to the Federal Reserve currencies that the banks' customers were selling. It thereby put itself in the position of reacting to, rather than initiating, proposals to buy currencies. This approach had several advantages: The

Desk remained free to accept or reject a proposed transaction and no institution had enough information to know the size of any one day's operations. In general, the banks came to the Desk with offers to sell currencies when there were few other buyers--such as when the dollar was moving up sharply or after the volume of trading had subsided for the day--or when they had an order they felt was too large for the market to absorb.

--As a last resort, the Desk was prepared to take advantage of conditions attached to the System's swap arrangements with some central banks to buy the currency directly from the central bank if market conditions did not permit timely repayment of the swap.

In addition, the U.S. authorities at times purchased currencies openly in the market to repay market-related debt when U.S. exchange market objectives and reserve management needs coincided. The largest amount of these open operations occurred in late 1980 and early 1981. The dollar was strengthening first in response to a renewed tightening of U.S. monetary policy once the dislocations of the credit restraint program had passed. Later on, the dollar drew strength from political developments within the United States that suggested the fight against inflation had widespread support and would be an important policy objective for a new Administration. In its final months, the Carter Administration wanted to take advantage of the dollar's resurgence to repay debt, build up resources to finance further intervention so as to place the United States in a position less dependent on borrowed funds, and to

prevent an erosion of the competitive gains achieved as a result of the dollar's earlier depreciation.

These open operations, together with those indicated above were, during the ten years, sufficient to cover all of the System's and Treasury's obligations and to provide balances on an outright basis by early December 1980.[11]

I. U.S. Intervention Operations: March 1981 - early 1985

From early 1981 to early 1985, the U.S. authorities limited their intervention to a very few instances where there was a clear perception that market disorder had emerged which warranted intervention. The new Administration held strong views that it was generally inappropriate to intervene to influence exchange rates and that there should be a very strong presumption in favor of allowing exchange rates to be determined by the market without government intervention. Therefore, although the basic policy of intervening to counter disorderly market conditions still prevailed, this policy was clearly intended to call for minimal involvement in the foreign exchange market. With respect to monetary policy, at least in the years from 1981 to 1984, it was generally agreed that the overriding priority had to be to squeeze inflation out of the domestic economy, and to restore long-term confidence to the economy and in the credibility of the monetary authorities.

[11] See the accompanying paper "Historical Review of U.S. Holdings of Foreign Currencies." Also, refer to the accompanying paper "Profits and Losses in U.S. Foreign-Currency Operations."

This was a period where growth in Europe languished, and by comparison the U.S. economy was booming under the impetus of fiscal stimulus, deregulation, declining inflation, and renewed confidence. The dollar became an attractive investment. It rose 49 1/4 percent against the mark and 21 percent against the yen between March 1981 and December 1984. The Desk operated to buy or sell dollars on 21 occasions during the four years, or on only 2 percent of the business days. Most of these operations took place in very specific circumstances. For example, the Desk intervened to counter disorder and reassure financial markets generally following the assassination attempt on President Reagan and the political uncertainties which resulted. Another occasion was when the Desk bought dollars at the time of the Continental Bank crisis, an event that instilled concern worldwide over the stability of the U.S. banking system.

By early 1985, U.S. officials were becoming concerned that the dollar had risen since 1980 to levels that were so clearly out of line with underlying economic fundamentals as to cause severe economic consequences and pose serious political risks. The economic consequence was a major loss of U.S. competitiveness, showing up in a decline in activity in the U.S. manufacturing sector, a de-industrialization of much of our economy and shift of capacity to overseas producers, and large payments deficits financed by a massive build-up in foreign debt. The political risk was that the Congress

would try to prevent a further loss of U.S. manufacturing jobs by imposing severely protectionist trade measures, a move which might undermine international trade, not only important to the United States but also vital to a prosperous global economy and the efforts to help relieve the debt burdens of the LDCs. At the same time, other nations, in the G-5 and elsewhere, grew increasingly concerned and more restive about the impact of the strengthening dollar on their own currencies, on their own price performance, and on the structure of trade and payments.

Under these circumstances, after a January 1985 meeting of the G-5, a communiqué was issued which suggested perhaps a modest easing of the U.S. opposition toward intervention, in response to the complaints of the other G-5 members. Indeed, following initiatives of several other industrialized countries, the United States on several days in January-early March 1985 joined in to sell a moderate amount of dollars in order to encourage a decline in dollar rates. Over the eight business days of this operation, the U.S. sold $659.2 million against marks, yen, and pounds, accounting for 7 percent of the total $10 billion sold by the G-10 countries. The intervention at first did not dispel the market's enthusiasm for the dollar, which touched its highest levels in the floating rate period of DM 3.4780 on February 26 and Y 263.65 on February 25. But by early March, the weight of the combined intervention, together with evidence of stronger economic growth in Europe, began to be reflected in a gradual easing of dollar rates that carried on for a few months.

In these circumstance, the Desk refrained from intervening actively in the foreign exchange market until later in the year. By late summer 1985, the dollar had eased 29 3/4 percent and 24 1/4 percent against the mark and the yen, to DM 2.4420 and Y 199.80, respectively.

J. September 22, 1985: the Plaza Agreement

The dollar's decline seemed to peter out in early September just as the United States was ready for a clear policy commitment and coordinated effort to encourage a further reduction in the exchange rate. The Ministers and Governors of the G-5 industrial nations caught the markets by surprise when, on September 22, they announced they had agreed, at a special meeting at the Plaza Hotel in New York, to a U.S. initiative that "some further orderly appreciation of the main non-dollar currencies against the dollar [was] desirable" so that exchange rates would better reflect fundamental economic conditions. Each of the G-5 agreed to intensify individual and cooperative efforts to achieve sustained non-inflationary expansion, as a framework for the exchange rate moves.

The U.S. authorities intervened during the six weeks following the Plaza Agreement to help achieve their goals. The aim was to bring the dollar lower--or euphemistically, to encourage an appreciation of the other G-5 currencies relative to the dollar. The United States' G-5 partners were willing--at times too willing--to sell the dollar even in a falling market. At least within the Federal

Reserve there was concern that the Desk avoid giving the market an impression that the United States was trying to hammer the dollar down, lest the operation get out of control. Memories were still fresh of the U.S. experience of the late 1970s when the market's impression that the United States wanted a depreciation of the dollar was firmly entrenched and consequently difficult to change. The Administration was using tactics other than intervention--public comments, trade policy, and so forth--to communicate its desire for a lower dollar and an improved competitive environment. And many members of Congress were introducing legislation to pursue their own ideals by way of trade protectionism to gain a "fairer" environment for U.S. industry. With so many potentially powerful tactics employed to influence exchange market conditions and sentiment, the Desk took the approach of resisting upward pressure on the dollar at progressively lower dollar rates. It sold dollars in the spot market in New York. Sometimes it conducted its operations through an agent bank which in turn, operated in the futures market, the agent bank taking the risk of dealing spot with the Desk and futures on the floor of the IMM. On one occasion, the Desk dealt spot with banks in Canada when inclement weather had forced many banks in New York to let their dealers go home during regular business hours.

The intervention after the Plaza Agreement was significant in many ways. It represented the first episode in which the United States sold dollars when the dollar exchange rate trend was down (U.S. dollar sales in 1980-81 occurred as

the dollar generally rose). The amount--over $3 billion by the United States--was sizeable, at that time second only to the short period November-December 1978 when the United States' ability to intervene in large volume was first being tested. And the operations were both fairly consistent in approach and carefully coordinated among the major participants: the rest of the G-5 sold $5 billion and other G-10 countries sold an additional $2 billion. But the frequency with which the Desk operated in the market was consistent with earlier intervention operations (see Table Four).

The effect of these operations was to convince the market of the G-7 authorities' determination to bring about the desired change in the dollar exchange rate. After six weeks, the dollar had declined by approximately 8 1/2 percent against the mark, 12 3/4 percent against the yen, and 8 percent on a trade-weighted average from pre-Plaza rates. Thereafter, the United States did not believe it was necessary to intervene (except for one operation to buy dollars against yen during late January 1987) for the subsequent 14 months, until the Louvre Accord in February 1987.

K. U.S. Intervention Operations since the Louvre Accord

By the time of the Louvre Accord, February 22, 1987, the dollar had been on a downward trend for two years (the trade-weighted average having declined by 31 percent from the early 1985 peaks and by 25 percent from the Plaza levels). Although the decline had been reasonably orderly, the extent of

the fall and the levels the dollar had reached against most currencies were causing anxiety in the markets and among officials, particularly abroad where there was fear of a "super-competitive" dollar. Meanwhile, the yen was being bid up relative to all currencies, reflecting the widespread view that a larger upward adjustment was needed for the yen than for other non-dollar currencies to reduce the huge Japanese surplus. But the Japanese authorities were worried that the speed and the extent of the yen's rise was having a serious deflationary effect on the domestic economy, and were intervening, at times heavily, to contain the yen's appreciation.

The essential bargain at the Louvre was an agreement by the United States to cooperate in seeking a greater stability of exchange rates around then-current levels, and agreement by Germany and Japan to introduce some stimulative fiscal measures to their domestic economies. Accordingly, the G-7 monetary authorities shifted their objective from one of encouraging an appreciation of the non-dollar G-7 currencies to one of fostering greater stability of exchange rates. The G-7 Accord looked forward to a strengthening of macroeconomic policy coordination supplemented by exchange market intervention. There was agreement that intensified economic policy coordination would promote more balanced global growth and would facilitate the reduction of existing external imbalances. Given their policy commitments at the time of the Louvre, the G-7 authorities stated that their currencies were "within ranges broadly consistent with underlying economic fundamentals." In

particular, the Louvre Accord maintained that, given the dollar's orderly decline since the Plaza agreement, "further substantial exchange rate shifts among [major] currencies could damage growth and adjustment prospects" and therefore the governors and ministers agreed "to co-operate closely to foster stability of exchange rates around current levels."

During the nearly three years since the policy shift reflected in the Louvre Accord, from dollar depreciation to greater dollar stability, there have been several periods of sustained intervention on the part of the U.S. authorities, including periods in which the authorities intervened to resist downward pressures on the dollar and also periods in which they intervened to resist upward pressures.

Intervention in the First Year after the Louvre Accord: February 22 - December 1987

The dollar, which had been on a long downward trend, moved higher in the days immediately following the Louvre Accord, especially against the mark. This movement reflected the market's initial acceptance of the concept that the G-7 authorities were no longer actively seeking to lower the dollar. Market participants were willing to believe that the G-7 authorities were prepared to keep the dollar around the then-current levels while giving the economies of the major industrial nations time to adjust to the significant depreciation of the dollar that had occurred since 1985. As this initial reaction boosted the dollar

in the exchange markets, questions arose in the market about how much of a recovery in the dollar the G-7 authorities would tolerate. Therefore, on March 11, when in keeping with the agreement the Desk entered the market to sell $30 million against marks when the dollar/mark rate was at DM 1.8715, this operation drew immediate market attention. The market concluded that it had discovered the upper limit of the unannounced G-7 target ranges and quickly returned to testing the downside of the dollar. The dollar then started to move lower, especially against the yen, and was periodically under downward pressure for much of the rest of the year.

A major test occurred after the dollar fell through the Y 150.00 level against the yen. To many market participants, especially in Japan, the Y 150 level had been perceived as the lower limit of the Louvre accord. Indeed Y 150 had been regarded as an important psychological level by the Japanese well before the Louvre, and there had been widespread reports that the Japanese authorities had encouraged the view that level would not be breached. When the dollar did decisively break below Y 150, Japanese institutions sold dollars heavily not only to cover their dollar exposures but also to seek alternative investments, while prices of U.S. bonds and equities fell and prices of precious metals and of bonds denominated in other currencies rose.

In these circumstances, pressures against the dollar persisted from late March to early May 1987. The U.S. monetary authorities intervened more

forcefully to resist, if not reverse, the downward direction of the dollar's exchange rate movements. Monetary policy was also adjusted somewhat to help stabilize the dollar. At its March 31, 1987, meeting, the Federal Open Market Committee agreed that open market operations needed to be especially sensitive to any tendency for the dollar to weaken significantly, and generally firmer reserve conditions were subsequently maintained. But it was not until mid-April, when Treasury Secretary Baker, in a speech to the Japan Society in New York, pointed to ways other than exchange rate adjustment that the United States could improve its external performance vis-a-vis Japan that the selling pressure against the dollar subsided. Subsequently, when the leaders of the G-7, at the mid-June Venice summit meeting, reaffirmed the Louvre Accord and adopted plans for increased multilateral surveillance aimed at improving policy coordination and economic performance among the G-7, the dollar rose. In early August, the U.S. authorities intervened to resist the upward pressure.

During late 1987, the dollar again came under persistent downward pressure amid concerns about the large U.S. external imbalances and continuing large U.S. budget deficits. Press reports suggested there were major policy disputes among the G-7, in particular Germany and the United States. Further, in the wake of the October 1987 break in equities prices, fears of a possible recession in the United States intensified, and many market participants perceived that the scope for a tightening in U.S. monetary policy

was limited. In these circumstances, on December 22, 1987, the G-7 issued a statement that went beyond the Louvre call for exchange rate stability, stating that a further decline of the dollar could be counterproductive. The initial market response was quite negative. The dollar continued to decline in thin, holiday trading as market participants expressed disappointment that the communiqué offered no explicit new economic policy initiatives to stop the dollar's fall and redress international imbalances. There was heavy and sustained intervention by the U.S. authorities in the days following the December 1987 G-7 meeting. Although the dollar continued to decline to reach its record lows early on the first business day of the new year, January 4, 1988, the intervention served to put the dollar technically in an oversold position in very thin year-end markets.

During the period from February 22, 1987, to the end of the year, the Desk entered the market on 23 percent of the trading days either to buy or sell dollars. The Desk purchased a total of $9,194 million and sold $661 million; its gross operations amounted to $9,855 million.

U.S. Intervention Operations in 1988

On January 4, 1988, after the dollar hit its lows of DM 1.5615 against the mark and Y 120.20 against the yen in Australian trading, market perceptions of official commitments to support the dollar changed dramatically. Telephone calls by the Desk to Far Eastern markets to ask for exchange rate quotations,

together with intervention by the Japanese authorities, gave market participants the impression that a concerted and aggressive intervention operation was about to be embarked upon to turn the dollar around. As traders clamored to cover their short positions, the dollar bounced up against all the major currencies. The U.S. and other G-7 authorities did intervene to reinforce the dollar recovery, and traders continually struggled to cover short positions as the dollar moved to progressively higher levels. Once the immediate scramble for dollars had passed, and the market recognized that the dollar was considerably above the levels prevailing at the time of the December G-7 statement, market participants came to believe that the U.S. monetary authorities were seriously committed to supporting the dollar. Beginning in March, U.S. trade figures also began to show impressive improvement. In these circumstances, the dollar continued generally to advance for much of the spring and summer.

For the rest of 1988, the U.S. authorities intervened at times to buy and at times to sell dollars. To resist brief periods of downward pressure, the U.S. authorities intervened on several occasions in March and April to buy dollars. But soon the dollar took on a stronger tone. During the spring some other central banks began to sell dollars in order to trim back their foreign currency reserves. During the summer, the U.S. authorities also entered the market to resist the upward pressure by selling dollars. Market participants did not appear to be too concerned about the central banks selling dollars since, for

the most part, they expected that the central banks would resist sharp movements in the dollar ahead of the Presidential election.

But, as the election approached in the United States, many market participants began to reflect again on the severity of the U.S. budget and balance of payment deficits, and to wonder whether a new administration would be as concerned about and as committed to fostering exchange rate stability. Many observers believed that the change in administration would provide an opportunity for the United States to seek another depreciation to enhance competitiveness; others expressed concern that, with a possibly increased Democratic majority in Congress, budget negotiations with the administration would become more contentious. In these circumstances, the U.S. authorities once again entered the market to resist the dollar's fall and to reassure market participants of their continued commitment to the Louvre agreements to foster exchange rate stability.

During 1988, the Desk purchased $4,133 million and sold $5,066 million, operating on 19 percent of the trading days in the year. Its gross operations were $9,199 million; the Desk's operations averaged $192 million on each day that it was in the market.

U.S. Intervention Operations during 1989

During 1989, U.S. intervention operations were all on the side of containing rises in the dollar in the face of several waves of dollar buying pressure, most heavily in May and June, and to a lesser extent in September and early October. In each instance, the dollar was buoyed by strong investment and commercial demand. In part, market attitudes toward the dollar may have reflected increased market confidence based on experience since the Louvre that the G-7 officials would firmly resist too sharp a decline in the dollar. Investors and commercial interests seemed to have become more convinced that the dollar would not depreciate greatly, and showed greater confidence in both increasing the share of dollar assets in their overall portfolios and reducing the hedged proportion of their dollar assets.

The strength of the dollar took place in spite of a large reduction in the dollar's interest rate advantage over other major currencies between April and December 1989 of 400 basis points against the yen and 200 basis points against the mark--to the extent that the dollar's margin over yen and mark assets virtually disappeared. At times, the relative attractiveness of the dollar was improved by concerns about political developments abroad--in China, Japan, and Europe--which spurred bursts of strong demand for the U.S. currency. Although the U.S. current account deficit remained large, and did not show as much improvement in 1989 as in the previous year, there was little apparent market concern about the deficit since it was being so easily financed--indeed overfinanced--by private capital flows.

The U.S. authorities adjusted their intervention approach to respond to the varying degrees of intensity of market pressures on the dollar. As the dollar rose in mid-May to approach earlier highs of the Louvre period, the authorities stiffened their resistance. On two days, May 18 and May 19, 1989, the U.S. authorities sold a total of $2 billion, mostly in visible and concerted intervention. On several occasions, the Desk placed bids or offers in several commercial banks simultaneously in close coordination with similar operations by other central banks. As May progressed, the Desk began to supplement these visible operations with discreet ones in order to reduce the predictability of the Desk's actions and thereby increase a sense of greater two-way market risk. At one time, during the summer, the Desk coordinated "rolling" discreet operations whereby the U.S. and foreign monetary authorities would enter the market in successive turns to sell dollars discreetly.

The May-June period was the time of the heaviest U.S. intervention, almost $12 billion for the two months. In this period, the dollar rose to its highest rates of the post-Louvre period--to DM 2.0476 against the mark and Y 151.90 against the yen. In the summer months the dollar eased back moderately, and there were much smaller amounts of intervention. But in late August and September, there was a resurgence of upward pressure on the dollar, partly reflecting evidence of a stronger-than-expected U.S. economy. U.S. intervention again grew larger, leading up to the G-7 meeting on September

23. As the date approached many market sources were anticipating a renewed, major coordinated effort by the central banks to stop the dollar's upward momentum.

At that meeting, the G-7 Finance Ministers and Governors confirmed these expectations and issued a statement concluding, among other things, that the dollar's rise in recent months was "inconsistent with longer-run economic fundamentals" and that a further dollar rise above then current levels, or an excessive decline, could adversely affect the world economy. The Ministers and Governors reiterated their intention to cooperate closely in the exchange markets.

Following the release of the September 23 G-7 statement, the dollar moved sharply lower. Coordinated intervention by the U.S. and other G-7 authorities to sell dollars at successively lower rates helped to reinforce the market view that there was strong official determination to deal effectively with the rising dollar. In order to encourage that view, the United States, Japan, and Germany all operated during the first few days in other foreign exchange markets--a very unusual though not unprecedented practice. Thus the United States operated in Tokyo, Singapore, and Sydney (some of it on Sunday night in New York), and Germany and Japan operated in similar ways.

In these intervention activities after the September 23 statement, the U.S. and other G-7 authorities were of the view that it would be necessary to operate more aggressively than before in order to change market attitudes and to break the strong upward momentum in the trend of the dollar that had developed. In operations earlier in the year, the U.S. authorities had tended to resist upward pressure by selling dollars at progressively higher levels--a kind of gradual retreat, in order to avoid being seen to be forcefully driving the dollar down with sales in a falling market. The problem with such an approach was that, in the strong and rising dollar market that existed at that time, position-takers had an incentive to hold on to and increase their long-dollar positions. If the official intervention failed to stop the dollar's rise, the position-taker gained; if the intervention succeeded in stabilizing the dollar, the position-taker neither gained nor lost, but was hardly discouraged from trying again the next day. In late September, it was felt that containing the dollar's rise was not enough--it was necessary to try to reduce the dollar's level, so as to cause the position-takers to suffer losses on their long-dollar positions and cut those positions. That was the approach followed in the days after the September 23 communiqué. The aim was to restore a two-way market, and encourage greater stability over the medium term, by breaking the dollar's upward momentum. The U.S. and other G-7 countries (mainly Japan) intervened in substantial amounts until October 12.

For the last 2 1/2 months of 1989, there was virtually no U.S. intervention (dollars were sold against yen on only 2 occasions, totalling $150 million). In addition to whatever effects the late-September-early-October intervention had, there were further interest rate changes in Germany, Japan, and the United States all of which tended to continue to reduce the dollar's margin of attractiveness relative to the other major currencies. Also, changes in Eastern Europe and other factors buoyed the German mark against other currencies. The dollar closed the year below the June 1989 peaks by about 17 percent against the mark, though down by only about 4 percent against the yen.

In total, U.S. intervention during the waves of upward dollar pressure and intervention during 1989 totalled nearly $22 billion for the year as a whole. This amount was larger than U.S. intervention in the prior years of the Louvre Accord--in 1987 total U.S. intervention was $9.8 billion (gross dollar purchases and sales) and in 1988 it was $9.2 billion. But that did not reflect a different intervention policy or approach than was followed in those prior years. Hence, the United States did not, for example, sell dollars at lower levels than in 1987 or 1988. The larger amounts of intervention in 1989 reflected heavier exchange market pressures on the dollar and the effect of following the same general approach at a time when market pressures were more intense.

The decision to resist the upward pressure on the dollar to the extent the United States did in 1989 was taken in light of the U.S. understandings with the

other members of the G-7. It reflected the view that further sharp upward movements of the dollar, beyond the rises that had already been registered, would worsen the already large U.S. payments deficit and be harmful to the effort to bring about international adjustment. A higher dollar was seen 1) as being unsustainable over an extended period, 2) as leading to potentially greater instability, uncertainty, and volatility in the foreign exchange market, and thus, 3) importantly, as a potential source of instability for other U.S. financial markets with possibly disturbing and dangerous consequences.

Finally, it is worth looking at the size of operations during 1989, and more generally since the Louvre Accord, in comparison with those undertaken in earlier periods of strong pressure in the exchange markets, especially during the period September 1977 to December 1979 (see Table Five). During the earlier period, the U.S. authorities were in the market on 61 percent of the trading days compared with 27 percent for the post-Louvre period as a whole and 39 percent in 1989. To be sure, the average daily operations during the 1977-1979 period were smaller--$82 million compared to $207 million and $226 million, respectively. But the growth in the average daily operations should be viewed in the context of the greatly increased size of the U.S. foreign exchange market.[12] There has been much publicity about the extent to which

[12] Based on the Federal Reserve Bank of New York's turnover survey of the U.S. foreign exchange market, the market increased from an estimated average daily turnover of $18 billion in 1980 to $128 billion in 1989.

U.S. official dollar purchases have "financed" the U.S. current account deficit in recent years. But official U.S. dollar purchases in the 1977-1979 period were nearly identical to the estimated current account deficit for the same period--or about $23 billion. Comparing the size of all operations--intervention plus operations to repay debt and adjust balances--for the (almost) three-year period since the Louvre with the three-year period 1978-80:

--Gross operations since the Louvre were $41 billion (of which $13 billion was dollar purchases and $28 billion dollar sales).

--Gross operations during 1978-80 were $43 billion (of which $27 billion was dollar purchases and $15 billion dollar sales).

The heaviest single year of intervention since the Louvre was 1989, with $22 billion (all dollar sales), while the heaviest single year in the earlier period was 1980, with $16 billion (two-thirds of which was dollar sales, and one-third dollar purchases).

Table One: U.S. Foreign Exchange Operations 1/

During the Early Floating Rate Period, March 1973 - August 1977

PERIOD	DIRECTION OF PRESSURE ON DOLLAR	AMOUNT OF OPERATIONS (Millions of dollars) Purchases: Intervention	AMOUNT OF OPERATIONS (Millions of dollars) Sales: Intervention	AMOUNT OF OPERATIONS (Millions of dollars) Sales: Repay debt & Reconstitute Reserves	NUMBER OF DAYS OF OPERATIONS	FREQUENCY OF OPERATIONS (Percent of Trading Days)	AVERAGE SIZE OF DAILY OPERATIONS (Millions of dollars)
March to June 1973	Downward	0.0	0.0	0.0	0	0.0%	0
July 1973	Downward	273.5	0.0	0.0	12	57.1%	22.8
August 1973 to December 1974	Mainly Downward	1345.4	-203.2	-1285.5	129	36.2%	22.0
January to March 1975	Downward	928.7	0.0	-130.3	43	68.3%	24.6
April 1975 to August 1977	Mainly Downward	1059.6	0.0	-1977.7	259	42.3%	11.7
TOTAL PERIOD	Downward	3607.2	-203.2	-3393.5	443	38.9%	16.3

1. This table reports all U.S. operations conducted in the foreign exchange market by the U.S. Treasury and Federal Reserve. It excludes transactions done with customers and off-market transactions conducted directly with foreign central banks. It includes both the U S. foreign exchange operations designed to influence market conditions and exchange rates--intervention--and operations undertaken in the market to acquire the foreign currencies necessary to repay market-related debt or otherwise to reconstitute reserves. The number of days of operations, the frequency of operations, and the average size of the daily operations reflect both "active" intervention as well as reserve-related operations.

Table Two: U.S. Foreign Exchange Operations 1/

September 1977 - December 1979

PERIOD	DIRECTION OF PRESSURE ON DOLLAR	AMOUNT OF OPERATIONS (Millions of dollars) Purchases: Intervention	Sales: Intervention	Sales: Repay debt & Reconstitute Reserves	NUMBER OF DAYS OF OPERATIONS	FREQUENCY OF OPERATIONS (Percent of Trading Days)	AVERAGE SIZE OF DAILY OPERATIONS (Millions of dollars)
September to December 1977	Downward	850.0	0.0	-11.5	34	42.0%	25.3
January to March 1978	Downward	2102.1	0.0	-69.3	39	61.9%	55.7
April to July 1978	Mixed	258.4	0.0	-1042.3	45	52.9%	28.9
August to October 1978	Downward	2492.8	0.0	-224.7	32	50.0%	84.9
November to December 1978	Downward	6647.6	0.0	-190.7	31	77.5%	220.6
January to June 14, 1979	Mainly Upward	852.1	0.0	-3808.5	76	65.0%	61.3
June 15, 1979 to December 1979	Downward	10173.5	0.0	-696.0	102	75.6%	106.6
TOTAL PERIOD	Downward	23376.5	0.0	-6043.0	359	61.4%	81.9

1. This table reports all U.S. operations conducted in the foreign exchange market by the U.S. Treasury and Federal Reserve. It excludes transactions done with customers and off-market transactions conducted directly with foreign central banks. It includes both the U.S. foreign exchange operations designed to influence market conditions and exchange rates--intervention--and operations undertaken in the market to acquire the foreign currencies necessary to repay market-related debt or otherwise to reconstitute reserves. The number of days of operations, the frequency of operations, and the average size of the daily operations reflect both "active" intervention as well as reserve-related operations.

Table Three: U.S. Foreign Exchange Operations 1/

January 1980 – August 1985

PERIOD	DIRECTION OF PRESSURE ON DOLLAR	AMOUNT OF OPERATIONS (Millions of dollars) Purchases: Intervention	Sales: Intervention	Sales: Repay debt & Reconstitute Reserves	NUMBER OF DAYS OF OPERATIONS	FREQUENCY OF OPERATIONS (Percent of Trading Days)	AVERAGE SIZE OF DAILY OPERATIONS (Millions of dollars)
January to March 1980	Mixed	800.7	-582.7	-1195.4	49	76.6%	52.6
April to July 1980	Mixed	3688.8	0.0	-937.3	53	62.4%	87.3
August 1980 to February 1981	Upward	363.3	-2805.4	-4991.5	114	78.6%	71.6
March 1981 to December 1984	Upward	209.4	-889.1	-25.0	21	2.2%	53.5
January to August 1985	Mainly Downward	0.0	-659.2	0.0	8	4.7%	82.4
TOTAL PERIOD	Mainly Upward	5062.2	-4936.4	-7149.2	245	20.8%	70.0

1. This table reports all U.S. operations conducted in the foreign exchange market by the U.S. Treasury and Federal Reserve. It excludes transactions done with customers and off-market transactions conducted directly with foreign central banks. It includes both the U.S. foreign exchange operations designed to influence market conditions and exchange rates--intervention--and operations undertaken in the market to acquire the foreign currencies necessary to repay market-related debt or otherwise to reconstitute reserves. The number of days of operations, the frequency of operations, and the average size of the daily operations reflect both "active" intervention as well as reserve-related operations.

Table Four: U.S. Foreign Exchange Operations 1/
September 1985 - December 1989

PERIOD	DIRECTION OF PRESSURE ON DOLLAR	AMOUNT OF OPERATIONS (Millions of dollars) Purchases: Intervention	AMOUNT OF OPERATIONS (Millions of dollars) Sales: Intervention	AMOUNT OF OPERATIONS (Millions of dollars) Sales: Repay debt & Reconstitute Reserves	NUMBER OF DAYS OF OPERATIONS	FREQUENCY OF OPERATIONS (Percent of Trading Days)	AVERAGE SIZE OF DAILY OPERATIONS (Millions of dollars)
September to November 1985	Downward	0.0	-3300.9	0.0	22	36.1%	150.0
December 1985 to January 1987	Downward	50.0	0.0	0.0	1	0.3%	50.0
February to December 1987	Mainly Downward	9194.1	-661.0	0.0	53	23.0%	185.9
1988	Mainly Upward	4133.0	-5066.0	0.0	48	19.0%	191.6
1989	Upward	0.0	-21957.0	0.0	97	38.5%	226.4
TOTAL PERIOD	Mixed	13377.1	-30984.9	0.0	221	20.3%	200.7
TOTAL SINCE LOUVRE ACCORD	Mainly Upward	13327.1	-27684.0	0.0	198	27.0%	207.1

1. This table reports all U.S. operations conducted in the foreign exchange market by the U.S. Treasury and Federal Reserve. It excludes transactions done with customers and off-market transactions conducted directly with foreign central banks. It includes both the U.S. foreign exchange operations designed to influence market conditions and exchange rates--intervention--and operations undertaken in the market to acquire the foreign currencies necessary to repay market-related debt or otherwise to reconstitute reserves. The number of days of operations, the frequency of operations, and the average size of the daily operations reflect both "active" intervention as well as reserve-related operations.

Table Five: Summary of Foreign Exchange Operations

March 1973 – December 1989

PERIOD	DIRECTION OF PRESSURE ON DOLLAR	AMOUNT OF OPERATIONS (Millions of dollars) Purchases: Intervention	Sales: Intervention	Sales: Repay debt & Reconstitute Reserves	NUMBER OF DAYS OF OPERATIONS	FREQUENCY OF OPERATIONS (Percent of Trading Days)	AVERAGE SIZE OF DAILY OPERATIONS (Millions of dollars)	MEMO ITEMS: APPROXIMATE SIZE OF U.S. FOREIGN EXCHANGE MRKT (Avg. daily turnover, Millions of dollars)	MEMO ITEMS: BASED ON F.R.B.N.Y TURNOVER SURVEYS CONDUCTED IN THE FOLLOWING YEARS
March 1973 to August 1977	Downward	3607.2	-203.2	-3393.5	443	38.9%	16.3		
September 1977 to December 1979	Downward	23376.5	0.0	-6043.0	359	61.4%	81.9	18000	1980
January 1980 to February 1981	Mixed	4852.8	-3388.1	-7124.2	216	73.5%	71.1	18000	1980
March 1981 to August 1985	Mainly Upward	209.4	-1548.3	-25.0	29	2.6%	61.5	26000	1983
September 1985 to November 1985	Downward	0.0	-3300.9	0.0	22	36.1%	150.0	58500	1986
December 1985 to January 1987	Downward	50.0	0.0	0.0	1	0.3%	50.0	58500	1986
February 1987 to Present	Mainly Upward	13327.1	-27684.0	0.0	198	27.0%	207.1	128900	1989
TOTAL FLOATING RATE PERIOD		45423.0	-36124.5	-16585.7	1268	31.8%	77.4		

1. See footnote 1/ on other tables.

Review of

Approaches and Tactics of Intervention in the Context of Changing Market Conditions, Policy and Objectives*

* Prepared by Meg Browne, Foreign Exchange Department, Federal Reserve Bank of New York.

Overview

This paper deals with the execution of intervention policy and not the formulation of such policy. It discusses how the Desk tries to implement the decision, whatever it may be, once the U.S. monetary authorities have reached agreement on what the United States should try to do in the exchange market.

The techniques used by the Foreign Exchange desk for intervening have been developed against the background of the particular structural characteristics of the foreign exchange market, and reflect, among other things: the objective or strategic aim of the intervention operation; market conditions at the time, that is, the main forces and psychology, the tactical environment; the nature and degree of coordination with other central banks and governments; and whatever constraints there may be on available financing or other limits. These factors are discussed below, followed by a description of the differences between the operating techniques of the Foreign Exchange Desk and those of the Open Market Desk. A final section discusses how the desk assesses the results of its operations.

Structure of Foreign Exchange Market

The desk's intervention operations are undertaken in an exchange market which is large in size, worldwide in scope, and virtually twenty-four hours in duration with interlocking exposures linking financial centers. No one knows the exact size of the worldwide market, but estimates are that turnover is

perhaps $650 billion per day. Only about one fifth of these transactions take place in the U.S. market. The U.S. market is not regulated as such, though many or most of the participating institutions (other than the brokers) are regulated by bank supervisors or the SEC.

The Foreign Exchange desk perceives itself as being only one of a number of large and potentially influential players in the foreign exchange market. There are many private sector entities which can be quite active, from time to time, and whose activities are hard for the desk to monitor, either because of the nature of the institution or its location. Moreover, unlike the Open Market desk, the Foreign desk is not the only official institution intervening in its market. In fact, there are many other central banks that play a role in the foreign exchange market for dollars, executing their own exchange rate policies and reserve management strategies as well as meeting other operational objectives.

In addition, the desk has much less "hard" data or information available to it than does the Open Market desk when designing a strategy for conducting a foreign exchange market intervention. It has virtually no way of knowing precisely what institutions have been most active, what their operations have been, why they have conducted them, or what the consequences are for their exchange rate exposures. There is no reporting system for United States-based institutions that provides such information on a timely enough basis to be of any use for this purpose. And, of course, information about

offshore institutions is never available. There is an effort to exchange some information among central banks, both about transactions executed in their own markets and their own operations. But this exchange is also quite limited. The central banks that nominally participate in this exercise are no more than about 20, compared to the total number of IMF members of 152, and the participating central banks do not always report even all of their own operations.

Working within these constraints, the desk has sought to develop effective relationships with other market participants which voluntarily discuss with the desk what they see taking place in the markets and their own attitudes and expectations. In addition, those working on the desk need to develop some "market sense" of their own in order to evaluate the commentary they receive from others and independently make judgments about the receptiveness of the market to certain types of tactics that the desk may employ to execute an intervention operation. The type of factors that the desk keeps track of to maintain this "market sense" has evolved over time as the market has grown and changed in character.

In the 1950s and early 1960s, there was no true "international" market for foreign exchange, just a series of isolated national markets. Also, exchange rates were fixed, capital transfers were generally restricted, and international capital flows were more or less limited to financing current account imbalances. Traders working on the desk were expected to pay close

attention to the major countries' trade and current account positions, as well as the level of their official reserves.

As the growth of world trade and capital flows increased, as capital controls were relaxed, and as communications technology improved, global foreign exchange and other markets began to develop in the late 1960s. The real expansion in foreign exchange trading volume in the United States took place in two stages. The first was in the late 1970s when international brokering was introduced and international dealing therefore became a reality. Foreign exchange turnover, as measured by the Federal Reserve Bank of New York's triennial surveys, increased nearly five-fold from roughly about $5 billion per day in April 1977 to $23.4 billion per day in March 1980 (or $18 billion adjusted to eliminate double counting). The second stage was after 1983 when daily average turnover adjusted to eliminate double counting went from $26 billion in April 1983, to $58.5 billion in March 1986, and to $128.9 billion in April 1989. This second phase coincided with a shift from trade-financing to predominantly investment financing, the adoption of a wide variety of new products and new techniques, the absorption of major improvements in technology and communication, and a broadening of the inter-bank market to include some investment houses. In this environment, those who work at the desk are expected to develop good understandings of all the major financial markets around the globe as well as some of the major commodity markets, new trading techniques (such as "charting" and program trading) and new instruments. Desk coverage has also been

extended. As a matter of routine it is manned from 3:30 a.m. until 5:30 p.m. with at least one dealer covering the markets during the evening from home. During times of turbulence the desk is manned and can be active around the clock.

The growth in the size of the foreign exchange market has been parallel by an increase in the volume of heavy interventions conducted by the United States. Looking back over the record of U.S. operations as presented in the periodic reports to Congress, one can see that, in the early days of intervention, an operation that amounted to $50 million in a day might have been described as "active" or "heavy." The first $1 billion dollar day for the desk for our own account did not occur until May 1989.

But the growth in the market does not mean that all operations have to increase proportionally in order to be effective. This is because central bank intervention operates on the margin, when there is great uncertainty or an imbalance between demand and supply. Such an imbalance at any point of time may be very small, even in a market that has the capacity to be quite deep. Indeed, the historical record shows that when the desk came into the market on March 11 to intervene for the first time after the Louvre Accord of 1987, the desk's sale of $30 million was sufficient to reverse a 2 1/2 week advance of dollar rates.

Objectives and Tactics

Fundamental to any intervention operation is the question of what is the desired strategic objective. As described in other Task Force papers, it is possible to identify over the past 12 years five (partly overlapping) periods in which the United States had different strategic objectives with respect to intervention:

1. Nov. 1978 to July 1980 - to support the dollar and push it up.
2. April 1979 to Feb. 1981 - to take market opportunities as they occurred to acquire foreign exchange for repaying debt and building up balances.
3. Feb. 1981 to Sept. 1985 - to limit intervention strictly to countering "disorderly market" conditions, narrowly defined.
4. Sept. 1985 to Feb. 1987 - to encourage appreciation of other G-7 currencies relative to the dollar.
5. Feb. 1987 to present - to foster exchange rate stability.

Put another way, our intervention operations have been aimed primarily at: a) dealing with short-term flare-ups that could disrupt markets; b) acquiring foreign currency balances for repaying debt; and c) moving dollar rates, up

or down, or maintaining stable rates, in line with what are regarded as "fundamentals."

Obviously the different objectives call for different tactical approaches.

The need to calm a disorderly market may require prompt, bold actions, perhaps highly visible, perhaps discreet, conceivably entering the market on both the buy and sell sides simultaneously in very exceptional circumstances.

Accumulating or restoring balances may be best accomplished by modest purchases over time on a daily or other gradual basis, possibly discreetly, with operations timed in a way so as to minimize market disruption or attention.

Encouraging the currency to follow a particular medium-term trend--be it up, or down, or stable--can be particularly sensitive, and tactics must be fashioned to the particular circumstances. When the authorities are trying to encourage a medium-term trend--such as on November 1, 1978, or September 1985, and most of the post-Louvre period--the desk has been more inclined than at other times to intervene openly, in order to take maximum advantage of the "announcement" effects of intervention. This technique can be powerful, when combined with other announcements or actions (such as occurred on November 1, 1978 and with the Plaza

statement of September 1985). But because it is so potentially powerful it carries particular dangers when used to push a currency down. That is why, during the period after the Plaza, when the policy guideline was to encourage appreciation of the G-7 currencies relative to the dollar, the desk tried as much as possible to allow the dollar to move downward when market forces tended in that direction, and to resist (with varying degrees of firmness and at progressively lower levels) when market forces tended to move the dollar back up. The desk sought to avoid any impression that we wanted to "hammer" the dollar down. This asymmetrical approach helped to encourage a gradual, substantial, and certainly helpful correction of the dollar's very high level.

Monitoring Market Conditions

Since the dollar was floated in 1973, the U.S. monetary authorities have undertaken to intervene if necessary to deal with "disorderly conditions" in the exchange market and, more recently, at other times that may be appropriate.

As a result of this mandate, the desk watches for evidence that disorderly conditions may exist or be developing. It also evaluates market conditions on an ongoing basis in order that, if intervention operations are considered appropriate for other reasons, it can take account of those conditions in recommending a tactic that is most likely to accomplish the desired results.

Elements of a disorderly market include: exaggerated rate movements, wide spreads in quotations, a stifling of the intermediary role of the professional traders, and near total unresponsiveness to the fundamentals operating at the time. A market that is in such a disorderly state as to show all of these characteristics is by its nature unstable. If left to its own devices, it can deteriorate further, leading eventually to a kind of paralysis of the market place. Such a paralysis actually occurred--in July 1973 in an episode that convinced the authorities that, even in a floating exchange rate regime, intervention is sometimes appropriate.

Since the Louvre Accord the United States has intervened even though evidence of market disorder in that narrow technical sense was not present. These operations have had the objective of trying to foster greater exchange rate stability, usually by resisting a rise or a decline in the dollar that was thought to be excessive and potentially counterproductive to international adjustment. Sometimes in these circumstances, the intervention operations have been fairly straightforward. The market was looking for evidence that the current movement in rates was causing official concern. All that the intervention needed to accomplish was to reassure market participants that, indeed, there was enough concern for the central banks to do something about it. But at other times, such as in the spring of 1989, the pressures the desk was confronting were very strong. Under these circumstances, the desk finds it more difficult to come up with strategies that will appear credible, particularly over a sustained number of days. Therefore, the desk

may simply change its strategy in order to regain an element of unpredictability or temporarily adopt a more aggressive mien.

Whenever the desk is trying to devise its tactics, it tries to take into account: the current position (long or short) of the largest intra-day position-taking entities, the current position (again long or short) of more "strategic" position takers, the level of activity, expectations about the near-term course of exchange rates and other relevant prices, the strength of conviction about those expectations, "chart" points, and anything else that might influence exchange market conditions during the time span of the operation (such as press releases, economic data, political events, operations of the Domestic desk--the list is endless). Since these are qualities of market performance which are unmeasurable or unknown at the time an operation is being planned, much is based on a combination of judgment and experimentation. It may happen, for example, that the desk starts out with one strategy, but revises the strategy when it sees how the operation is going.

Coordination with Other Central Banks

Another factor affecting the approach to be taken in intervention operations is the degree and form of coordination with other central banks. All U.S. intervention is in some sense "coordinated" under present circumstances. The general policy issues are discussed by the G-7 Ministers and Governors. The overall framework for U.S. intervention operations is presented to the desk by the Treasury. The desk tries to work

out a strategy for the operation that is consistent with that framework, acceptable to the Federal Reserve, and agreeable to if not supported by the central bank responsible for the counterparty currency. Nowadays we generally coordinate in ways that go much farther than that: recognizing that markets are much impressed by concrete evidence of close operational harmony and coordination (and also quick to exploit even the most minuscule hint of intra-G-7 disagreement), we frequently try to act jointly, at the same time and in the same manner, or, as the clock moves, to pass the baton from one central bank to the next in a way which indicates uniformity of view and consistency of purpose.

Financial and Other Constraints

The effectiveness of intervention is enormously enhanced if the operation can be conducted at the appropriate time. A missed opportunity to influence the market can often mean that to achieve the same effect, a much larger operation than was initially envisaged becomes necessary. The Foreign Exchange desk's task is to try to determine when the market's dollar position, psychology and technical factors are right for intervening to achieve the desired objective. But to take advantage of the most opportune time, the desk has to have the appropriate authorization and quantity of funds. It can happen that the desk's scope of action is limited by not having timely authorization, not having authorization of sufficient size to achieve the objective in the most efficient manner, or other constraints.

The problems of timeliness and size of authorization, when they occur, reflect essentially the decision-making process (see Task Force paper on "Federal-Reserve Treasury Coordination"). In recent years the Treasury has insisted that it authorize the funds to be available for intervention on a daily basis, and sometimes the Treasury's plans are for very limited amounts. It is the desk's practice then to review the authorization within the Federal Reserve, seeking FOMC guidance when called for under the Procedural Instructions, before initiating any operation. Working in this way, an opportunity to be most effective can be lost. The desk does not know the extent to which additional authorization will be forthcoming if the need should arise, and therefore cannot really budget the resources as effectively as it ought. Furthermore, if the desk does request additional authorization, the request often requires concurrence or approval by the most senior Treasury officials who may be unavoidably unavailable or inaccessible on short notice.

This decision-making process may also lead to situations in which the market senses inconsistencies in carrying out intervention strategies from one day to the next. Such a perception can be costly. If, for example, the desk is successful in pushing the dollar through an important technical level on one day but the desk does not reappear to intervene on the following day when the dollar returns to that same technical level, market participants may assume the desk has given up and/or that participants have license to push the dollar even further away from the goal of the policymakers.

At times the desk may also feel constrained from acting as strongly as it might to pursue a U.S. policy objective in the exchange market, out of concern that doing so would put pressure on other countries' currencies or otherwise compromise other countries' approach to the exchange market. When using the German mark or another continental currency as its intervention currency, for example, the desk is mindful that its actions could have an impact on exchange rate relationships within the EMS and tries to avoid aggravating pressures that may already exist there.

Various Approaches to the Market

Depending on market sentiment and other conditions at the time, the desk may operate directly in the interbank market. In this approach, which the desk utilized extensively in the past year or so, the desk asks banks for prices on standardized amounts. The desk deals with the bank as an equal partner--a direct counterparty to the trade--and the other partner has the option to deal with the information of our trade as he sees fit--just as we do. Accordingly, a bank with which we operate in this fashion may inform the news services, other participants, or bank customers of the fact that they have dealt with the Federal Reserve. Normally, information that the Federal Reserve is undertaking such transactions gets around the market quickly (although there are frequently reports of such transactions when none have taken place). This technique is useful if the operation's effectiveness is enhanced by the market's knowing either that we are intervening and/or the

market conditions and approximate exchange rates at which we are operating.

In many situations, however, the desk has sought to avoid an "announcement effect" for its operations for either policy or technical reasons and to enhance the effectiveness of the operations. In such an operation, the desk may ask one or more banks to act as its agent to place bids or offers in the brokers market. In this situation the desk approaches a bank just as any customer would approach his own banker, and we expect the same privileges of customer service, including that our agent business not be reported to the news media or other customers. The desk does not ask or accept any special treatment by virtue of being the Federal Reserve.

The brokers market may at times be more appropriate because the interbank market is thin and the brokers market presents greater opportunities, sometimes the only opportunities, for actually executing trades. (In the afternoons, after the European markets have closed, activity in U..S. markets usually declines sharply, and most transactions are executed through brokers.) Alternatively, we may use the brokers market because it is judged that the transactions conducted in a more unobtrusive manner would be more successful in achieving our objective. There are times when the credibility of the central banks in the market is very strong and other times when it is not--and that can influence our views on whether to operate openly or discreetly. The brokers market can enable us to test the strength

of dollar pressures without getting deeply engaged, and without giving signals to the market that could be misleading. It provides a way to intervene and have more control over the amount spent in volatile market conditions. Furthermore, when our desk carries out intervention for foreign central banks, we are often instructed to do so in a discreet fashion. The use of a more discreet approach is by no means a new or recent innovation. Indeed for most of our experience with intervention during the period of floating exchange rates--namely throughout the years from 1973 to 1985--the U.S. monetary authorities typically wished the desk to avoid using any technique that might generate expectations in the market that the United States was seeking to estabiish a particular level or range of exchange rates for the dollar. Having the market know the exchange rates at which we were operating was believed to raise the risk that market participants would interpret the authorities as responding to a movement in the exchange rate to an "undesirable" level when in fact they were responding to a deterioration of exchange market conditions.

Over the years, the desk had developed a number of approaches to the market that have fallen into relative disuse more recently.

During the 1960s and again in the early 1980s, the desk did a fair amount of operations in the forward market. During the fixed-exchange rate regime of Bretton Woods, the desk at times thought it useful to curb speculation about a change in parity by trying to influence forward rates when the

forwards had moved well beyond the intervention points for spot rates. Also, there were a number of operations that were predicated on the idea--an idea that was never fully tested--that forward rate operations have a different effect than spot-market operations. Forward operations can also be conducted at a time when the cash resources needed to finance spot transactions are not available. The last time the desk conducted forward operations for the United States was when it bought foreign currency for the account of the Treasury in 1980 to cover the Treasury's foreign currency obligations. (However, exchange rates that looked attractive at the time the Treasury negotiated the trades did not look so attractive by the time of the value date. Treasury incurred an immediate loss when the transaction was completed, which attracted the attention of Treasury auditors.)

During much of the late 1970s and early 1980s, the desk also conducted "two-way" price operations. In this approach, the desk contacts a bank directly and offers simultaneously both to buy (at one price) and to sell (at another price) dollars against a specific currency. Acting this way, the desk approaches a commercial bank in precisely the same professional manner that other banks deal directly among themselves. (Market makers always quote both bid and offered rates.) The range of rates quoted may be shaded either on the high side or the low side, depending on the desk's desire to buy or sell. This technique was developed in the first instance to restore order to a disorderly market where the spread between bid and offered rates had gotten unusually wide. By quoting a spread that was

narrower, the desk could restore more normal trading conditions without indicating that it wanted to encourage either a rise or fall in dollar exchange rates. Over time, the desk came to use this technique to influence the direction of exchange rates at times when it perceived risks in being visible. Also, the desk used this technique to buy (provide support) for the dollar at moments of weakness while still taking advantage of moments of strength to sell (acquire foreign currencies to repay debt). Whenever this technique was used, the market responded constructively, taking reassurance in the fact that the desk knew how to meet its sometimes conflicting objectives without disrupting the market.

Another technique that the desk used in the late 1970s was to develop the practice of letting banks with whom it dealt call in whenever those banks had large customer orders. The tactic gave the desk the opportunity, but not the obligation, to conduct trades in currencies and at rates it so chose. The idea was that the desk might be able to buy foreign currency it needed to repay debt, and at the same time smooth any short-term disturbance to exchange rates of a large deal--particularly late in the trading session--without declaring itself a seller of dollars to the market as a whole. A corollary benefit of this technique was that the desk obtained a lot more information than normal about the large transactions of banks operating in the United States, since banks had an incentive to share this information with the desk.

Differences in Approaches of Foreign Exchange Desk and Open Market Desk

It is noteworthy that the operating techniques of the Foreign Exchange desk differ in key respects from those used by the Open Market desk, because of basic differences in the character of the two markets, as well as differences in policy objectives.

In the case of domestic open market operations, the objective of the Federal Reserve is primarily a quantitative one--to add or subtract bank reserves, although of course, the domestic desk expects thereby to influence credit conditions and does have views about the level of Federal funds associated with particular transactions. The Federal Reserve operates on the level of Federal Reserve balances, controls the supply and is effectively the only source over time that can increase or reduce such balances. As a result, the Federal Reserve's authority within that market is unique. A primary aim of the brokers and dealers in that market is to know--as soon as, if not sooner, than anyone else knows--what the Federal Reserve is going to do, so as to be able to anticipate possible market responses to the Federal Reserve's actions and to trade in the same direction. In these circumstances, the Federal Reserve's operations are typically carried out by offering to buy/sell in a market "go-around" in which contact is made virtually simultaneously with virtually all 40-odd primary dealers.

The Foreign Exchange desk's role in the foreign exchange market differs

from that of the Open Market desk in the domestic markets in key respects. The Foreign Exchange desk does not have the unique position of control; as noted above it is only one of a number of potentially large participants in the foreign exchange market, and represents only one of a number of central banks that can supply or absorb dollars (effectively in the form of dollar denominated-securities) from the private sector. Moreover, the Foreign Exchange desk's objective is not quantitative: it has never set as an objective to inject or withdraw a predetermined amount from the worldwide pool of dollars. Instead, it tries to influence views, attitudes, and asset preferences of market participants in order to attain the desired objective--e.g., to foster stability in exchange rate relationships and market conditions. Partly as a result of these differences, the Foreign Exchange desk's operations are not intended and are not able to determine uniquely movements in exchange rates. Federal Reserve/Treasury intervention is an important but by no means an exclusive factor in moving exchange rates; the other factors may be complementary or contradictory.

The Foreign Exchange desk's intervention operations are generally a fraction of the Open Market desk's operations on a daily basis, and subject to much wider variation in amount. The two desks do maintain close contact, and the Open Market desk is kept fully informed of Foreign Exchange desk operations so that the domestic desk can make any necessary adjustments to its own operations. Another difference is that, whereas the Federal Reserve is operating only on behalf of the FOMC in

domestic markets, our exchange market intervention, as noted above, is carried out pursuant to decisions that are not only carefully worked out with the Treasury, but usually in close coordination with other central banks and governments under policies approved by the G-7. These operations take place in a foreign exchange market that is global rather than national, has widespread participation by extremely diverse types of institutions, and has become accustomed to operating with considerably more rate variability than normally exists in the domestic Federal funds market.

Evaluating the Results of Particular Intervention Operations

As is clear from the Task Force papers on "Evolution of U.S. Exchange Rate Policy" and "System Objectives", intervention can be viewed from a variety of perspectives and evaluated against a wide range of objectives, time frames and circumstances. The counterfactual situation, or what would have happened if the authorities had not intervened, is particularly difficult to ascertain given the lack of understanding over how exchange rates are determined. Since intervention operations in recent years have normally been conducted at times of market pressure, it is especially difficult to disentangle their effects from those resulting from the initial pressures in the markets and to assess the results on the basis of exchange rate movements. In many cases, exchange markets may still display undesirable conditions, or exchange rates may show undesirable moves, although perhaps less so than would otherwise have occurred. Moreover, the objectives of particular operations may vary or be multiple, and the time frame over which intervention operations are conducted or show their effects can range from minutes to days or weeks, or even to years, as in the periods of the declining dollar in 1985-87 (after the Plaza), or the effort beginning at the Louvre in February 1987 to foster increased stability of the dollar and other exchange rates in the context of enhanced policy coordination.

From the desk's viewpoint the aims of particular operations can usefully be arrayed from those related to (a) immediate market conditions, through (b) efforts to complement the overall thrust of economic policy, to (c) efforts to affect market dynamics over more extended periods. Some examples are shown below.

a. Objectives Related to Exchange Market Conditions

1. **Reinforce/diminish resistance at specific (technical) levels:** Certain of the intervention operations in September-October 1985 after the immediate effects of the announcement of the Plaza agreement wore off were intended to prevent a rebound of the dollar/yen and dollar/mark rates.

2. **Narrow bid/offer spreads:** A tactic used frequently during the late 1970s and early 1980s to calm markets at times of unsettling announcements or news, as, for example, in January 1978, when, with the dollar continuing to come under selling pressure despite a range of initiatives, market conditions became disorderly.

3. **Restore better order to disorderly or frozen markets:** Reagan assassination attempt (March 1981).

Success or failure is relatively easy to determine in terms of these objectives, even if the results may not have clear significance in terms of broader policy. The desk can directly observe a narrowing of bid/offer spreads, or a shift in market momentum or order flow in the brokers' market associated with its operations, and draw strong inferences as to the success of its activity. If the desk judges that its efforts are meeting with only minimal success, measured in these terms, it may discontinue the operations or change its approach.

To the extent that the desk can achieve its immediate objective in individual operations, it can pursue similar operations in an attempt to shape the subsequent evolution of exchange rates over a somewhat longer period.

b. Complementary Policy Objectives

4. **Calm other financial markets:** At the time of the Continental Bank problem in 1984; in the weeks following the stock market break of October 1987.

5. **Indicate a change/no change in policy:** When we signalled continued commitment to anti-inflation efforts during April - July 1980; when Chairman Volcker announced his departure in June 1987; when Secretary Brady was appointed in mid 1988.

6. **Buy time until other policies are implemented or become effective:**

Around the time of the implementation of new Federal Reserve operating procedures in October 1979.

7. **Demonstrate support for other countries or the coordination process:** Various times since the Plaza Accord; in March 1990, when we operated in support of Japanese and German efforts to resist weakness in their own currencies.

This second class of objectives is focussed not on the foreign exchange rate or market directly, but rather on the broader economic policy context. In some cases, such as demonstrating support for other countries and their policies, intervention may be successful by definition -- it is the effort itself that is important in this context, whatever may be the ultimate results of the operation. In other cases, where the objective is to affect the perception of economic policy or reassure markets by using intervention in an almost symbolic way, the question of success or failure is not easily assessed.

A controversial objective is that of "buying time". Some would argue that buying time is a euphemism for costly delay, and no one would contest the idea that operations should not impede timely implementation of policy actions. In practice, however, occasions arise, as in late summer 1979, when time may be required to identify, implement and realize the impact of other policy measures. In such circumstances intervention can be a useful tool in mitigating the deterioration in exchange market conditions which might otherwise occur. The measure of success, then, is not so much what happens to exchange rates but, rather, whether better economic policies ultimately are put in place.

c. Objectives Related to Market Dynamics

8. **Deflate speculative bubbles:** The upward spike in dollar exchange rates in January-February 1985; the dollars downward spiral and turnaround in December 1987 and January 1988.

9. **Resist/encourage the dollar's fall/rise/stability:** Encourage a rise of the dollar following unveiling of November 1, 1978 package; encourage

decline in dollar in January-February 1985 and again following the Plaza Agreement in September 1985; encourage greater stability in the dollar following the February 1987 Louvre Accord.

Sometimes the success or failure of an operation can be better assessed as the results of individual operations cumulate. The intervention in late 1987, at a time of concern about the fragility in financial markets after the October stock market break, helped stop the dollar's downward spiral by early January 1988. Other episodes, when the cumulative effect of individual operations may have resulted in a change in market dynamics over extended periods, have occurred in January-February 1985 and during both the Plaza and the post-Louvre periods.

It is particularly difficult to assess in a precise way the results of intervention in influencing market dynamics over an extended period. Certainly, if one looks at a chart of exchange rate movements during the period 1985 to February 1987, when the aim was to reduce the level of the dollar relative to the other major industrial country currencies, the dollar did indeed decline very substantially.

Similarly, if one looks at a chart of exchange rate movements since the Louvre Accord in February 1987, there has certainly been more rate stability than in the rest of the 1980s. To the extent that the G-7 objective since the Louvre has been to "foster greater exchange rate stability", that result has in that sense been achieved, even though rates did not for very long remain within the specific ranges discussed at the Louvre.

In such cases it is not possible to determine the extent to which these results were attributable to intervention or other factors. A good example of the difficulty of assessment is the experience in 1989, when the world's demand for dollars was very strong. Not only did the United States supply the rest of the world with dollars

amounting to $110 billion through its current account deficit, but intervention by the G-10 central banks also provided another $70 billion. Moreover, monetary policy in the United States and abroad markedly reduced the relative attractiveness of the dollar as interest rate differentials narrowed during the last three quarters of the year. In the end, the dollar closed the year very close to where it opened it, with both monetary policy and intervention yielding only that limited result.

Little can be said by way of overall assessment other than rather general statements -- that intervention can be helpful in working with other factors to influence exchange rates, but that it cannot accomplish much if other policies are operating in the opposite direction. Intervention can be an important part of the arsenal, but is most effective when consistent with overall macro-economic policies.

D. INSTITUTIONAL FRAMEWORK

Federal Reserve - Treasury Coordination *

* Prepared by Paul DiLeo, Foreign Exchange Department, Federal Reserve Bank of New York.

Overview

The Task Force paper "Review of Approaches and Tactics of Intervention" discusses the execution of intervention policy; this paper comments on the policy formulation process.

As noted in the Task Force paper "Legal Authority for Foreign Exchange Operations," the Federal Reserve has consistently held that it has independent authority to undertake foreign exchange transactions, and that authority has not been seriously challenged. However, the record of the past 30 years is replete with communications between the Federal Reserve and the Treasury, and indications of Congressional reliance on these communications, that the Federal Reserve will in undertaking any foreign exchange operations act in close collaboration with the Treasury. Indeed, the FOMC's Foreign Currency Directive requires that operations shall be conducted "in close and continuous consultation and cooperation with the United States Treasury."

Key Citations

Some key citations are as follows:

A. In 1962, Chairman Martin, in Congressional testimony at the time the Federal Reserve was resuming operations in foreign exchange, gave assurances that "the System will, of course, coordinate its foreign exchange operations with those of the Treasury Stabilization Fund" (Statement to

House Committee on Banking and Currency, February 28, 1962). These assurances were repeated when Congressman Reuss expressed concerns that much of the Federal Reserve's proposed activities seem " to duplicate the foreign exchange stabilization operation that the Secretary of the Treasury has very properly undertaken pursuant to the Gold Reserve Act of 1934" (see page 102 of Hearings), and that those foreign exchange activities appeared to be "an usurpation of the powers of Congress."

The House Banking Committee, in its report to Congress on these hearings, indicated its expectation that in order to avoid the possibility of conflicts between the Federal Reserve operations and the foreign financial policies of the United States, "(1) that the President and the Secretary of the Treasury will take full responsibility for defining the foreign financial policy of the Unite States as it relates to the conduct of foreign financial operations; (2) that if any instance should arise where the Federal Reserve System fails to conform its activities to the foreign financial policies of the United States as set forth by the President or the Secretary of the Treasury, the Secretary will inform the proper Congressional committees..." (Attachment 1.)

B. In 1972 and 1973, letters between Secretary Shultz and Chairman Burns confirm that the Federal Reserve and Treasury are in agreement that market operations by the Fed will be conducted "in close day-to-day consultation with the Treasury." (Attachment 2.)

C. On March 6, 1973, in testimony before the House Banking Committee on the legal basis for Federal Reserve intervention, then Under-Secretary Volcker was asked by Congressman Gonzalez what would happen if there were "a run on the dollar, and the question of intervention arises, and there is a difference between the Federal Reserve managers and Treasury, and is it possible for Federal Reserve to intervene independently of Treasury?..."

Mr. Volcker replied: We cooperate very closely on these matters and basically I think in the last analysis the foreign monetary policy of the United States, the foreign financial policies of the United States, is directed by the President of the United States through the Secretary of the Treasury. But on this issue we cooperate very closely with the Federal Reserve.

Mr. Gonzalez — You don't see any possibility of the Fed acting independently?

Mr. Volcker: — I do not.

Mr. Gonzalez: — To intervene?

Mr. Volcker: — No.

Mr. Gonzalez: — Without some joinder with Treasury?

Mr. Volcker: — No, sir.

Mr. Gonzalez: — That has been bothering me. Thank you.

D. On June 27, 1973, in testimony before a subcommittee of the Joint Economic Committee, Congressman Reuss asked Chairman Burns:

"Having in mind the independence of the Federal Reserve under our

constitutional system and further the wealth of historical statements over the last years on coordination of policy, in the event that the Federal Reserve under a given set of circumstances deemed it desirable to intervene in exchange markets, and the executive branch deemed it undesirable, I take it that the Federal Reserve would abide by the wishes, right or wrong, of the executive branch. Is that a correct political science observation on my part?"

Chairman Burns replied: "It is correct for one time, one time only. By that I mean that if we could not really reconcile our differences in that case, then the Federal Reserve would abide by the wishes of the administration. But if I thought that we had done something that was wrong, we would have a constitutional problem and, as I told you at the Gonzalez hearing, if such a problem arose, I would come to the Congress immediately and raise the constitutional issue.

I do not think that will happen. We have worked together. There have been differences, but in the process of reasoning and deliberation, we have always worked out our differences. I do not think that the likelihood of a genuine difference arising is at all significant, therefore, I do not think we have a problem."

E. On June 15, 1976, in response to a letter requesting comments on proposed legislation to prohibit the Fed from engaging in foreign exchange dealings specifically disapproved by the Secretary of the Treasury, Chairman Burns wrote:

"The proposed amendment is clearly unnecessary. Both the Federal Reserve and the Treasury have indicated on previous occasions that Treasury and Federal Reserve officials work together very closely to ensure that Federal Reserve dealings are in furtherance of and at all times are consistent with the international financial policy of the United States. There is no problem in this area that calls for Congressional action. When a consultative relationship, such as has long existed between the Treasury and the Federal Reserve, works well, no statute is needed. It would indeed be a mistake to attempt to rigidify that relationship within a statutory framework.

If, in the future, a problem were to arise between the Federal Reserve System and the Treasury regarding the foreign exchange dealings of the system, the appropriate Committee of the Congress would be immediately notified. However, such a problem has not arisen in the past and the Board considers it highly unlikely that it will ever arise." (Attachment 3.)

F. Secretary Simon also responded that the proposed legislation appeared unnecessary, since officials of the Federal Reserve "have always worked in close collaboration with the Department of the Treasury to assure that System dealings in foreign exchange...are in furtherance of and consistent with the international financial policy of the United States..." In its report, the House Banking Committee noted the comments of the Chairman of the Board and the Secretary of the Treasury, and indicated that it expected the "international financial transactions of the Federal Reserve

System will continue to be fully consistent with the international financial policies of the United States as determined by the President and the Secretary of the Treasury." While the proposed amendment was not adopted, the Committee stated that "if any instance should arise where the Federal [Reserve] System fails to conform its activities to the foreign financial policies of the United States as set forth by the President or the Secretary of the Treasury, the Secretary will inform the proper Congressional committees;..." (Attachment 4.)

G. Subsequent correspondence confirms the understandings between the Federal Reserve and the Treasury on exchange market operations undertaken by the FOMC. Sec. Simon's letter of January 23, 1976 to Chairman Burns, states:

> "Our policy recognizes that intervention in foreign exchange markets may be appropriate to maintain orderly markets by countering erratic fluctuations. This can best be achieved by continued Federal Reserve coordination of its foreign exchange activities with the Treasury. In particular, our day-to-day consultations on foreign exchange operations ought to ensure, as in the past, the effective implementation of the U.S. policy." (Attachment 5.)

H. Acting Secretary Anthony Solomon wrote a letter dated December 22, 1977, to Chairman Burns which was requested by Chairman Burns in order to have a public record showing that Federal Reserve intervention was

consistent with Treasury policy. The letter states:

"Since last October the Federal Reserve has intervened in an amount of nearly $800 million for that purpose. Those intervention operations have been undertaken in close consultation with Treasury and with our full concurrence. It is my view that the Federal Reserve should under present conditions continue to intervene to counter disorderly conditions, and we would expect to continue consultation as to the extent that seems appropriate." (Attachment 6.)

I. Finally, on May 7, 1976, in a letter responding to an inquiry from Congressman Gibbons about budget procedures for Treasury's Exchange Stabilization Fund (ESF), then President of the FRBNY Volcker, in presenting his personal reflections on the need for both the Federal Reserve and the ESF to have operational authority in foreign exchange, stated that "consultation and cooperation--day by day and sometimes hour-by-hour--has necessarily been close." He said further:

"It is appropriate, in my judgment, for the broader ranging (but smaller) operations feasible for the ESF to be conducted by the Treasury itself, since it is the Secretary of the Treasury who is primarily and directly responsible to the President and the Congress for formulating and defending international financial and monetary policy, for assessing the position of the United States in the world economy, and for conducting international negotiations on these matters. At the same time, since exchange markets are closely linked to money markets and questions of

monetary policy, there is a distinct role and responsibility for the Federal Reserve to work in cooperation both with foreign central banks, which are operating in their own markets, and with the Treasury. The fact that both agencies have operating responsibilities in the area, forces them to work closely together on operational decisions and to take full account of the various considerations bearing upon operational decisions. There is the strongest kind of motivation to reach a full meeting of minds in engaging in operations, because any operations at cross purposes would be virtually immediately apparent, highly confusing, and totally counterproductive. I know of no instance of that kind." (Attachment 7.)

Volcker's comments immediately above describe well the logic of the present arrangements between the Federal Reserve and Treasury, and how the process should and generally does function, within the framework that Federal Reserve activities in this area always have been, and are understood by the Congress and the public to be, closely coordinated with and in conformity with the foreign financial policy of the United States.

The General Policy Framework: U.S. Exchange Arrangements and International Agreements

The Secretary of the Treasury, as representative of the President, is responsible for the international or foreign financial policies of the United States. He has political accountability for any commitments or understandings which the United States undertakes with other nations or international institutions, and which provide the general framework for U.S.

intervention operations.

As a formal matter, the Secretary of the Treasury, as U.S. Governor of the IMF, notifies the IMF of the exchange arrangements applied by the United States pursuant to Article IV, Section 2(a), of the IMF Articles of Agreement. In recent years, exchange rate policy has been seen as being effected to an important extent by the various undertakings of the Group of 7 (G-7). The Federal Reserve plays a role in both the IMF and G-7 processes. Any changes in the notification of exchange arrangements to the IMF are normally preceded by extensive discussions between the Federal Reserve and Treasury, and the Chairman of the Board of Governors of the Federal Reserve System participates in meetings of G-7 Ministers and Governors.

For many years following the move to floating rates and the adoption of the Second Amendment of the IMF Articles of Agreement, the U.S. notification to the IMF stated, with respect to intervention, that the U.S. authorities intervene "when necessary to counter disorderly conditions in the exchange market"--an approach which was adopted when the dollar first was permitted to float. The phrase "disorderly conditions" has always been an elastic concept. At a minimum, it relates to the technical aspects of market conditions--size of spreads, volatility, and the like--which might prompt U.S. intervention. But it has also been interpreted much more broadly to cover sustained and extensive operations to influence the exchange rate or to acquire balances such as occurred in the period from 1978 to early 1981.

On December 31, 1985, following the Plaza Agreement of the G-5, the U.S. notification was expanded to provide for intervention "...to counter disorderly conditions in the market or when otherwise deemed appropriate", thus providing greater leeway if any were needed. (Attachment 8.)

The understandings of the G-7, with some notable exceptions, do not customarily call for precise actions in well-defined circumstances. The understandings are usually rather broad and general, indicating directions and, at times, presumptions with respect to intervention, and may sometimes be subject to differing interpretations by the various parties particularly with the passage of time. This is a description of the process, not a criticism of it; some G-7 participants have strongly resisted efforts to make G-7 commitments more precise, stressing the difficulties of trying to "program" automatic or mechanical responses over an extended period to rapidly changing market conditions and economic circumstances.

In either the earlier or current form, U.S. intervention policy is stated within such broad parameters that even within the context of G-7 undertakings there is a considerable scope for day-to-day consultation and decision making on possible intervention operations.

The Consultation Process

Over the past 30 years, the Federal Reserve's relationships with Treasury on intervention operations have varied greatly, depending on policy views,

economic conditions, personalities, and other considerations. There have been periods when those in authority in Treasury have more or less delegated all operational decisions to the Federal Reserve on a broad scale, and periods when even the most minor details were tightly monitored and controlled by the most senior Treasury officials. Also there have been times when policy views of the two institutions were quite similar or diverse.

As a broad generalization, during the period of general floating starting in 1973, the Federal Reserve has served usefully as a kind of "balance wheel" to Treasury policy shifts, tending to lend a stabilizing influence to the process. Thus, in the mid-1970s, when the Treasury was very reluctant to intervene, the Federal Reserve tended to favor somewhat greater activity; in the late 1970s, when Treasury had moved to heavy intervention, the Federal Reserve urged more restraint; in the first half of the 1980s, the Federal Reserve thought the Treasury was too inclined to stay out of the markets; in recent years, we have again been a restraining influence on intervention during certain periods.

The process of lively discussion and coordination with the Treasury certainly continues at present. The process normally starts with desk conversations with Treasury staff and Board staff well before the New York market opens, based on reports that the desk has picked up from other central banks, the market, and the media. The Manager or another officer will usually make a recommendation to the Treasury and the Federal

Reserve for whatever action or non-action seems appropriate, given the general policy approach being followed and in light of the market conditions and overnight developments. If Treasury and the Chairman agree, then all is well. If Treasury presses for an approach that seems inadvisable to the Federal Reserve, there can be extensive discussions to try to resolve differences. If the differences are serious enough, this can lead to conversations at progressively higher levels--ultimately involving the Chairman and the Secretary--until an approach is agreed to or at least accepted. Independent of these discussions, there are other regular meetings between the Chairman and the Secretary to exchange general views on market matters where broad areas of agreement or disagreement can be identified.

This consultative process does lead to a decision, one way or the other, to deal with the immediate situation. Where there are deep-seated differences of view, the decision usually represents a compromise. Over time no one party consistently wins or loses the entire debate. But usually there are few fundamental disagreements. Indeed for long periods, most participants in the process see eye to eye on the basic approaches. Much of the debate that does occur essentially reflects little more than discussions about the best tactics to follow, based on different sensitivities of the Treasury, the Federal Reserve, and the market technicians at the desk. The process of consultation assures that all of these points of view are taken into account, and, although time consuming, it is probably necessary and desirable because the process leads to a broader-based and better-

grounded decision than would otherwise occur.

When a decision has been reached and an operation is to be undertaken, typically both Treasury and Federal Reserve resources are used. In recent years, operations have in the great bulk of cases been shared on 50/50 basis. Treasury can not commit Federal Reserve's resources against the Federal Reserve's will. However, it is useful to recall that the decision by the Federal Reserve in 1962 to resume foreign currency operations was motivated by a desire to augment the Treasury's limited resources. In light of this history, a decision of the Federal Reserve not to participate could have important implications--in significantly reducing the Federal Reserve's role and influence in these matters, and in conveying a major rift in policy with potentially severe adverse effects on financial markets.

Summary

In summary, in matters of intervention policy, the Federal Reserve has an influential role. Though it may have an "independent" legal authority to undertake foreign exchange operations, in practice it must and does operate in close consultation with Treasury consistent with the Secretary of the Treasury's responsibility for the international financial policies of the United States. The Federal Reserve brings to the consultative process a technical competence in financial matters, a background in and knowledge of monetary developments, an ability to participate in the financing of any operations, and very importantly, an independence and authority in monetary policy.

ATTACHMENT 1: H.R. Report No. 1484, 87th Congress, 2d. Session (1962)

ountry which made loans to the Fund but
ıntered a balance-of-payments need, it is
obtain prompt repayment from the Fund.
are to enter into force upon completion of
ıirements enabling formal adherence of at
ith commitments totaling $5.5 billion. The
er into force, therefore, without the adher-
with a commitment greater than $500
t is France, Germany, Italy, the United
l States. The arrangements are to remain
may be extended for an additional period
ıents cannot be amended without the unani-
icipants.

N BY THE UNITED STATES AND U.S. DRAWING
HTS ON THE FUND

proposed arrangements cannot be opera-
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ssary to renegotiate the entire arrangements
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wever, that the United States would have to
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ed in the testimony of the Secretary of the
ents are intended to make it possible for
ipating countries having serious balance-of-
osing reserves by permitting the Fund to
ountries with payments surpluses and in-
the present U.S. balance-of-payments cir-
Fund still has almost $2½ billion available
ıg U.S. quota), it is regarded as extremely
States could be called upon to lend to the
ıture.
new arrangements would be of great impor-
es should the need ever arise to request a
H.R. 10162 assures the United States of the
needed, in the event a U.S. drawing should
Jnited States has never drawn on the Fund
ring rights.
e United States are of real interest, and may

d be drawn on a virtually automatic basis,
billion readily available, and with larger
ious situations and in furtherance of U.S.
ect a balance-of-payments deficit situation.
this moment, it lacks the resources in gold
hich could be used by the United States
United States as a member would be
n time of need. At the close of 1961, the
a the currencies of the major industrial
ited States and the United Kingdom—

the latter has recently required large assistance from the Fund. The Fund also had available $2.1 billion in gold reserves. Against these resources, however, the Fund had outstanding commitments under standby arrangements with the United Kingdom and other members amounting to $1.4 billion.

In his message of February 6, 1961, on balance of payments, the President also referred to our drawing rights in the International Monetary Fund and said that U.S. access to Fund's resources must be regarded as part of our international reserves available to be drawn upon as necessary. The proposed arrangements authorized by H.R. 10162 furnish added assurance that the Fund could obtain the currencies which would be needed in the event the United States should ever request a drawing. For this reason, the arrangements will be to the advantage of the United States and the position of the U.S. dollar even if it is never necessary for the United States to call upon the Fund for such assistance.

Finally, the knowledge that the major industrial nations of the free world are agreed in strengthening further the large resources in gold and other assets which now stand behind the dollar, with a large supplementary pool of usable foreign currencies through these new Fund borrowing arrangements, will act as a strong deterrent to any speculation against the U.S. dollar. For that matter also, the position of the other major world currencies, and of the entire free world monetary system, will also inherently benefit from the presence of these new and additional resources in the International Monetary Fund.

In the course of his testimony in support of H.R. 10162, William McChesney Martin, Jr., Chairman of the Federal Reserve Board, indicated that the Federal Reserve System had initiated foreign exchange operations to acquire convertible foreign currencies for the primary purpose of safeguarding the value of the dollar in the international exchange markets. This step will not, of course, solve the basic problems of the deficit existing in our balance of international payments accounts. The Federal Reserve System actions are principally aimed at discouraging speculation against the dollar. Chairman Martin, under questioning, testified that this new foreign exchange program was established with the full approval of the Secretary of the Treasury and the National Advisory Council on International Monetary and Financial Problems. Additionally, in reply to questioning regarding the legal aspects of engaging in such foreign exchange operations, Mr. Martin stated they had been reviewed and concurred in by the General Counsel of the Federal Reserve System, the General Counsel of the Department of the Treasury, and the Attorney General of the United States. Chairman Martin testified also that the foreign exchange operations would supplement the operations of the Stabilization Fund of the Treasury, as well as complement the arrangements for the International Monetary Fund contemplated by H.R. 10162.

Your committee expects that the System's arrangements with foreign reserve banks will be confined to normal banking transactions incidental to the establishment and use of reciprocal balances and will in no wise involve matters normally negotiated through Executive agreements.

In order to avoid the possibility of conflicts between System operations and the foreign financial policies of the United States, your com-

mittee further expects (1) that the President and the Secretary of the Treasury will take full responsibility for defining the foreign financial policy of the United States as it relates to the conduct of foreign financial operations; (2) that if any instance should arise where the Federal Reserve System fails to conform its activities to the foreign financial policies of the United States as set forth by the President or the Secretary of the Treasury, the Secretary will inform the proper congressional committees; and (3) that the Secretary of the Treasury will inform the proper congressional committees concerning any significant "cooperative arrangements between Foreign Central and Reserve banks."

CONCLUSIONS AND FAVORABLE RECOMMENDATION ON H.R. 10162

The National Advisory Council on International Monetary and Financial Problems, under the chairmanship of the Secretary of the Treasury, includes in its membership the Secretaries of State and Commerce, Chairman of the Federal Reserve Board, and the President of the Export-Import Bank. Their report on special borrowing arrangements of the International Monetary Fund, January 1962, discussed the financial climate and pressures which contribute to fluctuations in the balances of payments of the leading industrial countries having convertible currencies. In this special report the National Advisory Council points out that it is in the interest of the international community to prevent such circumstances from impairing the stability of the international monetary system. In commenting upon the arrangements which are embodied in H.R. 10162 the Advisory Council indicated they are—

> * * * well adapted to dealing with the monetary system that has emerged in recent years and will contribute significantly to the maintenance of sound international monetary conditions.

The President, in his letter to the Speaker of the House of Representatives, dated February 2, 1962, urging draft legislation (introduced as H.R. 10162) to implement the recommendations of the National Advisory Council stated:

> The new proposals would strengthen the position of the dollar as the world's major reserve currency. They would also provide new armament for the defense of the currencies of the free world and for reinforcing the entire international monetary system.

The Secretary of the Treasury, in his testimony to your committee, stated that it is "essential to us and to other countries that the dollar be maintained as a sound and reliable currency at its present parity," and he describes in detail the extreme importance for the United States represented in the provision of these additional resources to the International Monetary Fund. The resources involved in this legislation would greatly reinforce the Fund's ability to assist the United States should that ever become necessary. The legislation will provide an additional means of assistance to the United States in handling its balance-of-payments problem.

Your committee is in full accord with these conclusions and favorably recommends H.R. 10162 as a highly desirable step in supporting the stability of the U.S. dollar and a strong international monetary system.

Attachment 2: Shultz-Burns Correspondence

G

THE SECRETARY OF THE TREASURY
WASHINGTON

AUG 1972

Dear Mr. Chairman:

I want to confirm our understanding in conversations on and before July 18, 1972, with respect to intervention in foreign exchange markets.

Such market intervention by the Federal Reserve will require resources of foreign exchange that can most readily be obtained from recourse to use of the existing swap network. On August 15, Secretary Connally requested the suspension of the virtually automatic use of your swap network for the purpose of converting dollars into other currencies, while noting the future operation of these and other mutual credit facilities will be determined in the light of emerging developments. I have agreed the planned Federal Reserve intervention in exchange markets will require use of the swap facilities for that purpose.

In undertaking these operations, we agreed that market operations will be conducted in close day-to-day consultation with the Treasury, and I noted the Exchange Stabilization Fund might, when convenient and desirable, engage in such intervention on behalf of the Treasury.

Sincerely yours,

George P. Shultz

The Honorable
Arthur F. Burns
Chairman, Federal Reserve Board
Washington, D. C. 20551

H

July 9, 1973

Dear George:

As you know, I feel that prompt intervention on the part of the United States in the foreign exchange markets has become essential. My colleagues at the Federal Reserve share this view. On the basis of recent conversations with you and Paul, I believe that this is also the Treasury's judgment.

On August 8, 1972 you sent me a letter confirming the understanding that we had reached in conversations held on and before July 18, 1972 with respect to intervention in foreign exchange markets. It would be helpful to have a similar letter from you with regard to the Federal Reserve's use of its swap facilities in the current circumstances.

Sincerely yours,

Arthur F. Burns

The Honorable George P. Shultz
Secretary of the Treasury
Department of the Treasury
Washington, D. C.

AFB:ccm

THE SECRETARY OF THE TREASURY
WASHINGTON

AUG 8 1973

Dear Mr. Chairman:

In response to your letter of July 9, I would like to confirm the understanding we reached in conversations held during the time of and after the recent meeting of central bankers in Basle that intervention by the Federal Reserve in foreign exchange markets would be appropriate in current circumstances in pursuance of the general approach agreed to at the meeting of the Group of Ten with the European Economic Community in March of this year.

We have agreed that, in undertaking these operations, the Federal Reserve will remain in close day-to-day consultations with the Treasury. Operations will be conducted in the interests of orderly markets and will not undertake to preserve any particular relationship between the dollar and any specific foreign currency. I also noted that the Exchange Stabilization Fund might, when convenient and desirable, engage in such intervention on behalf of the Treasury.

Sincerely yours,

George P. Shultz

The Honorable
Arthur F. Burns
Chairman, Federal Reserve Board
Washington, D. C. 20551

Attachment 3: Rees-Burns Correspondence

I

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON BANKING, CURRENCY AND HOUSING

NINETY-FOURTH CONGRESS

2129 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, D.C. 20515

June 15, 1976

Mr. Arthur F. Burns, Chairman
Board of Governors
Federal Reserve System
Constitution Avenue
Washington D.C. 20551

Dear Mr. Chairman:

The Subcommittee on International Trade, Investment, and Monetary Policy of the House Committee on Banking, Currency, and Housing is considering an amendment to the Federal Reserve Act. The language of this amendment, as revised by Federal Reserve counsel, reads as follows:

> Section 6. A Federal Reserve Bank may not engage in dealings in foreign exchange which are specifically disapproved by the Secretary of the Treasury.

This new section 6 would be inserted on page 3, line 22, after section 5. The current number 6 would be renumbered as section 7.

In order that the Subcommittee may judiciously and promptly consider this proposed amendment, could you please communicate to me as soon as possible the opinion of the Board on the above language.

Sincerely,

Thomas M. Rees, Chairman
Subcommittee on International
Trade, Investment, and Monetary
Policy

Questions Regrading Proposed Amendment to Section 14(c) of the Federal Reserve Act Which Would Add A New Sentence reading:

> A Federal Reserve Bank may not engage in any dealings in foreign exchange under this section which are specifically disapproved by the Secretary of the Treasury.

In my judgement legislation should only be propsed to correct a problem that has emerged or that is in real danger of emerging. Has such a problem emerged between the Federal Reserve and the Treasury as regards the New York Federal Reserve Bank's dealing in foreign exchange? If not, why is this amendment necessary?

To the best of your knowledge has there ever been a problem between the Federal Reserve and the Treasury arising from the New York Federal Reserv Bank's dealing in foreign exchange? It is my understanding that the FED and the Treasury have always worked closely together as regards the foreign exchange transactions of the New York FED. Do you have a different understanding?

It is my understanding that Chairman Burns has stated on a previous occasio that if a problem were to arise between the Federal Reserve and the Treasur regarding the foreign exchange dealings of the New York FED, that the appro priate Committees of the Congress would be immediately notified and if necessary remedial legislation requested. Isn't this procedure an adequate one making unnecessary the amendment which you are proposing?

What is the exact purpose of your amendment and what problem or abuse does it seek to correct?

Have the formal views of the Federal Reserve Board been requested on this amendment to the Federal Reserve Act? Shouldn't they have been?
(note--There has been staff contact between the House Banking Committee staff and the Federal Reserve staff at the technical level, but no formal communication has been received requesting the views of the Board)

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

DRAFT

June 15, 1976

The Honorable Thomas M. Rees
Chairman
Subcommittee on International Trade,
Investment, and Monetary Policy
Committee on Banking, Currency and Housing
House of Representatives
Washington, D. C.

Dear Mr. Chairman:

Thank you for your letter of June 15 requesting the Board's comments on an amendment, as follows, which may be proposed to H.R. 13955:

> "Section 6. A Federal Reserve Bank may not engage in dealings in foreign exchange which are specifically disapproved by the Secretary of the Treasury."

The proposed amendment is clearly unnecessary. Both the Federal Reserve and the Treasury have indicated on previous occasions that Treasury and Federal Reserve officials work together very closely to ensure that Federal Reserve dealings in foreign exchange are in furtherance of and at all times are consistent with the international financial policy of the United States. There is no problem in this area that calls for Congressional action. When a consultative relationship, such as has long existed between the Treasury and the Federal Reserve, works well, no statute is needed. It would indeed be a mistake to attempt to rigidify that relationship within a statutory framework.

If, in the future, a problem were to arise between the Federal Reserve System and the Treasury regarding the

foreign exchange dealings of the System, the appropriate Committees of the Congress would be immediately notified. However, such a problem has not arisen in the past and the Board considers it highly unlikely that it will ever arise.

Sincerely yours,

Arthur F. Burns

I. EXCHANGE RATE OBLIGATIONS

The Committee expects the administration to honor scrupulously the obligations of Article IV of the amended Articles, to collaborate with the Fund in the development of the "specific principles for the guidance of all members" mentioned in section 3(a), and to represent to other members, as appropriate, the importance we attach to the obligation of all members to

> Avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members.

The Committee expects the administration to keep it informed through timely consultation of its efforts to promote international cooperation and coordination of exchange rate policies and practices.

II. INTERNATIONAL LIQUIDITY

The Committee urges the administration to give special attention to the task of managing the growth of international liquidity, in collaboration with the International Monetary Fund. It is the sense of this Committee that, as the role of gold declines, every effort should be made to promote the role of Special Drawing Rights as the primary reserve asset of the international monetary system. As SDR's move to the center of the system, it will be necessary to ensure that the creation and distribution of new SDR's are related to the growth of world trade and investment, and the evolution of the international payments system, in a manner that satisfies the need for liquidity without inducing inflation.

In the course of deliberations on H.R. 13955, the opinion was expressed that the development of a substitution account within the IMF, which would permit members to exchange other reserve assets for SDR's, might be a feasible approach to the objectives of SDR enhancement and the non-inflationary management of international liquidity. The Committee notes that consideration of this subject by the Executive Directors was recommended by the Interim Committee in its communique of January 8, 1976. It urges the administration to cooperate with the IMF in considering such an account for the purposes of promoting SDR's and controlling liquidity.

III. TREASURY AND FEDERAL RESERVE COORDINATION OF EXCHANGE RATE POLICY

In the course of examining the fundamental reforms of the International Monetary system described above, your committee considered whether it would be appropriate to specify, by statute, the respective responsibilities of the Treasury and the Federal Reserve system in formulating, coordinating, implementing, and supervising the execution of the international financial policies of the United States. The committee understands that while, in practice, the Federal Reserve System, the Congress, and other Executive agencies contribute to the formulation of international monetary policy, the final executive re-

sponsibility for decision and implementation rests with the President and the Secretary of the Treasury.

The Federal Reserve System, through its ability to intervene in exchange markets, also plays an important role in implementing international financial policy. An Amendment to the Federal Reserve Act was offered to prohibit any Federal Reserve Bank from engaging in dealings in foreign exchange which are specifically disapproved by the Secretary of the Treasury. When asked for their opinions on this amendment, both the Board of Governors of the Federal Reserve System and the Treasury Department responded that, as a practical matter, the amendment was unnecessary. The Secretary of the Treasury responded that the amendment reflected "the fact that it is the responsibility of the Secretary of the Treasury as chief financial officer of the United States, U.S. Governor to the IMF and Chairman of the National Advisory Council on International Monetary and Financial Policies to direct and coordinate U.S. exchange market intervention policy."

In his response to Chairman Thomas M. Rees of the Subcommittee on International Trade, Investment and Monetary Policy, Chairman Arthur F. Burns of the Board of Governors of the Federal Reserve System said:

> Treasury and Federal Reserve officials work together very closely to insure that Federal Reserve dealing in foreign exchange are in furtherance of and at all times are consistent with the international financial policy of the United States.

Secretary of the Treasury William E. Simon responded in a letter to Representative J. William Stanton, ranking minority member of the Subcommittee, as follows:

> The officials of the Federal Reserve system have always worked in close collaboration with the Department of the Treasury to assure that System dealings in foreign exchange—whether through swap arrangements or direct foreign exchange intervention—are in furtherance of and consistent with the international financial policy of the United States, and would not run counter to any actions undertaken by the Secretary of the Treasury for the account of the Exchange Stabilization Fund.

This committee expects that the international financial transactions of the Federal Reserve System will continue to be fully consistent with the international financial policies of the United States as determined by the President and the Secretary of the Treasury.

To this end it is appropriate to call attention to and reaffirm certain comments made in Report No. 1484 offered to the House of Representatives on March 22, 1962, to accompany H.R. 10162.

Your committee expects that the System's arrangements with foreign reserve banks will be confined to normal banking transactions incidental to the establishment and use of reciprocal balances and will in no wise involve matters normally negotiated through Executive agreements.

In order to avoid the possibility of conflicts between System operations and the foreign financial policies of the United States, your

committee further expects (1) that the President and the Secretary of the Treasury will take full responsibility for defining the foreign financial policy of the United States as it relates to the conduct of foreign financial operations; (2) that if any instance should arise where the Federal System fails to conform its activities to the foreign financial policies of the United States as set forth by the President or the Secretary of the Treasury, the Secretary will inform the proper congressional committees; and (3) that the Secretary of the Treasury will inform the proper congressional committees concerning any significant "cooperative arrangements between Foreign Central and Reserve banks."

IV. CONSULTATION ON IMF GOLD

The Committee notes that the proposed amendments to the IMF Articles will empower the Fund to dispose of its remaining gold holdings in a variety of ways, including restitution to members, or sales to the private market. Decisions to dispose of gold holdings under the amended Articles will require an 85 per cent majority vote, and thus be subject to a veto by the United States. The Committee feels that the Congress should be consulted, prior to the casting of the United States vote, by the U.S. Governor of the Fund, and should have ample opportunity to register its views on the proposed disposition of IMF gold. Secretary of the Treasury William E. Simon, has given his assurance, in a letter to Chairman Reuss, dated June 17, 1976, that there will be ample consultations with the Congress on this issue. That letter reads, in part,

> I understand your concerns about possible future restitution and your desire that there be an opportunity for members of Congress to register their views prior to decisions to restitute any part of the IMF's gold beyond that already agreed. Accordingly, I want to assure you that, in the event the U.S. were to consider agreeing to further restitution, you and your colleagues would be given ample opportunity to consult with the Treasury and register your views on the proposal.

STATEMENTS REQUIRED IN ACCORDANCE WITH HOUSE RULES

In accordance with clauses 2(l)(2)(B), 2(l)(3), and 2(l)(4) of Rule XI and clause 7(a) of Rule XIII of the Rules of the House of Representatives, the following statements are made:

Committee Vote (Rule XI, clause 2(l)(2)(B)): H.R. 13955 was reported out of Committee by a rollcall vote on June 17, 1976, with 24 votes cast for and 1 vote cast against reporting the bill.

Oversight Findings (Rule XI, clause 2(l)(3)(A) and Rule X, clause 2(b)(1)): The Committee has held hearings on the subject matter contained in H.R. 13955 and based upon the evidence presented concludes that the provisions of H.R. 13955, as amended, are necessary to authorize the United States to accept amendments to the Articles of Agreement of the International Monetary Fund, to consent to an increase of the quota of the United States in the Fund, and to enact consequential changes in United States statutes:

THE SECRETARY OF THE TREASURY
WASHINGTON 20220

Attachment 5

JAN 23 1976

Dear Arthur:

I am writing to reaffirm with you and the other members of the FOMC our common understandings with respect to foreign exchange market operations undertaken on behalf of the Committee.

Our policy recognizes that intervention in foreign exchange markets may be appropriate to maintain orderly markets by countering erratic fluctuations. This can best be achieved by continued Federal Reserve coordination of its foreign exchange activities with the Treasury. In particular, our day-to-day consultations on foreign exchange operations ought to ensure, as in the past, the effective implementation of the U.S. policy.

In addition to daily consultations, there will be cooperative exchanges of relevant information between our agencies pursuant to the U.S.-French Memorandum of Understanding. The language of the Memorandum that states "They (Deputies) would convey their conclusions to their central banks" refers to such exchanges of information with central banks and does not imply directives to central banks.

The Treasury and Federal Reserve, in foreign exchange activities, as in the area of domestic economic activities, have maintained close and harmonious working relations. I look forward to our continued close cooperation in the future.

With best wishes,

Sincerely yours,

William E. Simon

The Honorable Arthur F. Burns
Chairman
Federal Reserve Board
Washington, D.C. 20551

Attachment 6

File: FR Swaps: C

21

The Under Secretary of the Treasury (see also)
for Monetary Affairs

December 28, 1977

Arthur

I have checked with Secretary Blumenthal and he approves this letter. He also approves Steve and I initiating consultations with the Congressional committe chairmen with regard to the possibility of ESF participation with the Fed in financing U.S. exchange market intervention.

Tony

THE SECRETARY OF THE TREASURY
WASHINGTON 20220

Dear Mr. Chairman:

I am writing to clarify our understandings with respect to exchange market operations.

We are in full agreement that the exchange value of the dollar will be determined by underlying economic and financial conditions in the U.S. economy, and that the basic strength of the dollar will depend on our ability to maintain a strong and non-inflationary economy.

Within this framework we agree that the U.S. should act to counter disorderly conditions in our exchange markets that may develop from time to time. Since last October the Federal Reserve has intervened in an amount of nearly $800 million for that purpose. Those intervention operations have been undertaken in close consultation with Treasury and with our full concurrence. It is my view that the Federal Reserve should under present conditions continue to intervene to counter disorderly conditions, and we would expect to continue consultation as to the extent that seems appropriate. I know that the Federal Reserve and Treasury will continue to work closely together in this matter, as in the past.

Sincerely,

Anthony M. Solomon
Acting Secretary

The Honorable
Arthur Burns
Chairman
Federal Reserve Board
20th & Constitution Ave., NW
Washington, DC 20551

CONFIDENTIAL

Attachment 7 : Gibbons-Volcker Correspondence

NINETY-FOURTH CONGRESS

U.S. House of Representatives
COMMITTEE ON THE BUDGET
Washington, D.C. 20515

March 3, 1976

Mr. Paul A. Volker
President
Federal Reserve Bank of
New York
New York, New York 10045

Dear Mr. Volker:

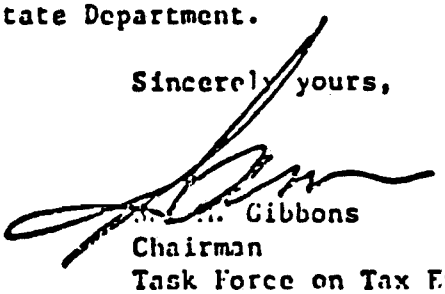
One of the responsibilities of the House Budget Committee's Task Force on Tax Expenditures and Off-Budget Agencies is to determine whether off-budget agencies should continue to be treated outside of the budget. The first agency that we are examining is the Exchange Stabilization Fund and the Task Force held a hearing on it on February 18. At the hearing Mr. E. M. Bernstein and Mr. M. Bradfield testified as independent consultants and Under Secretary of the Treasury Edwin H. Yeo, III presented the Treasury's point of view.

Since many of the foreign exchange stabilization activities are conducted by the Federal Reserve Bank of New York we are also very interested in your views on the current status of the Fund. One of the issues we are interested in is the respective tasks performed by the Federal Reserve Bank of New York and the Exchange Stabilization Fund. There are some serious questions concerning the continuing need for the Fund considering the fact that most of the United States' foreign exchange transactions are carried out by the Federal Reserve Bank of New York using its own reserves. Furthermore, the use of the Fund has been negligible since floating exchange rates were adopted in 1973. We would appreciate hearing your views on the question of whether the Federal Reserve Bank of New York would be capable of taking over all foreign exchange activities of the United States. What would the impact be of such a change?

Also, in view of your extensive experience as a Treasury official responsible for the Fund's activities, we would be very interested in any thoughts you may have on whether the administrative expenses

of the Fund should be included in the budget. The Treasury prefers keeping those expenses off-budget saying that it provides them with flexibility needed to handle unexpected crises in the foreign exchange markets. However, we have been unable to identify any reason why the personnel payed for by the Fund should not be included in the budget like other Treasury personnel and the people working for the State Department.

Sincerely yours,



J. L. Gibbons
Chairman
Task Force on Tax Expenditures
and Off-Budget Agencies

May 7, 1976

The Honorable Sam M. Gibbons
Chairman
Task Force on Tax Expenditures
and Off-Budget Agencies
Committee on the Budget
U.S. House of Representatives
Washington, D. C. 20515

Dear Sam:

I must apologize for not writing sooner on the question you raised with me concerning the appropriate budgetary treatment of the Exchange Stabilization Fund. My delay reflects no lack of interest. As you noted, I had certain responsibilities for the ESF in the Treasury, and in my present position, I see the functions from a somewhat different angle. In any case, while I am glad to comment, you should consider this in the nature of personal reflections rather than a statement of official position--either Federal Reserve or Treasury.

As you know, under the Gold Reserve Act of 1934, Congress gave the Secretary of the Treasury general responsibility for maintaining the value of the dollar internationally. To carry out these responsibilities, the ESF was also established, provided with sizable resources, and given broad authority under the exclusive control of the Secretary to deal in gold and foreign exchange as well as other credit instruments. It was thereby given a status which enabled it to operate with flexibility, speed and confidentiality. Congress directed the use of ESF funds for the initial U.S. subscription to the IMF substantially, depleting the ESF's cash resources at that time. While transactions with the IMF are conducted by the Treasury itself, those transactions may give rise to foreign currency balances or requirements that are channelled through the ESF.

Although the Federal Reserve Bank of New York has acted as agent for the ESF in its exchange operations and in certain other respects since its inception, the Federal Reserve System did not engage in exchange operations on its own account until 1962. At that time, as our balance of payments position came to be a matter of chronic concern and some questions began to arise about the ability of the U.S. to maintain its policy of freely buying and selling gold at $35 an ounce to maintain the stability of the dollar exchange rate, the Treasury discussed with the Federal Reserve

the possibility of the latter supplementing the ability and capacity of the ESF to engage in exchange market operations. It was concluded that the Federal Reserve should establish a series of mutual credit agreements with some foreign central banks--the so-called "swap arrangements"--in order to obtain foreign currencies as needed. These arrangements are essentially bilateral credit facilities under which each participating central bank agrees to exchange its currency for that of the other up to a maximum amount for a limited period of time, enabling our partners or ourselves to obtain funds to deal with passing balance of payment or exchange market disturbances. Those credit arrangements subsequently were substantially enlarged, and the Federal Reserve in fact has carried out the great bulk of the U.S. operations in the exchange markets since that time.

The specific guidelines controlling the precise type of transactions to be entered into by the Federal Reserve are set forth by the Federal Open Market Committee in its directive to the Federal Reserve Bank of New York, which acts as agent for the Federal Open Market Committee in these operations as it does for the ESF. From the start, it has also been understood that operations in this area would be conducted in close consultation with the Treasury in recognition of its general responsibilities for international financial affairs.

Obviously, the operational responsibilities of the Federal Reserve and the ESF overlap, and in concept the question can be raised as to whether it is desirable for the U.S. Government to have two instrumentalities for conducting exchange market operations and arranging short-term credits. In my judgment, there are both substantive and policy grounds for an unambiguously positive answer to that question.

The Federal Reserve, in time of need, can bring very substantial resources to bear, as reflected in the present size of the established lines of credit, amounting to some $20 billion with 14 foreign countries and the Bank for International Settlements. While I cannot now imagine circumstances that would require or justify full utilization of these facilities in their aggregate, the ability to marshall large amounts of resources in one currency or another through these Federal Reserve swap arrangements at a time of need remains important in dealing with specific problems as they arise. However, while Federal Reserve resources are large, another distinguishing feature of the swap arrangements, consistent with central bank traditions and in some cases legal powers, is their short-term nature. Swaps are drawn for three-month intervals; they may be renewed at maturity but, except for quite unusual cases, they have been repaid within one year. Normal practice has been, in fact, to effect repayment within six months. This is consistent with the general philosophy that mutual central bank assistance should be short-term in nature and designed to deal only with temporary payments imbalances that are expected to be reversible. The arrangements are also limited to a relatively small group of foreign central banks.

In these respects, Federal Reserve operations are more limited than the potential operations of the ESF. The ESF, although its resources are much smaller, can respond in a greater variety of ways to contingencies not envisaged in guidelines for Federal Reserve operations. The ESF can, for instance, engage in transactions with countries that may not be included in the System's overall swap network. Since ESF financings can more easily be arranged on an ad hoc basis instead of as part of an overall network of credits, as is the case for the Federal Reserve, the ESF can respond more flexibly to unusual or special circumstances, attaching such conditions and specifications to these financings as may be appropriate to each operation. The ESF has also been assigned a number of significant functions with respect to SDR's. It can undertake operations to deal with unusual market situations which might entail a longer-term exposure than is appropriate for the System under the swap arrangements. And, it can potentially supplement the amount of financing that is available to any one country under System swap arrangements.

Because of some of these differences, the flexibility with which the U.S. could approach a particular situation has sometimes been enhanced by having both the System and the ESF participate in its own way.

Conceivably, the Federal Reserve might be given and accept broadened authority to engage in all these types of transactions, or alternatively, the resources of the ESF could be very substantially enlarged. In a sense, either result would appear "neater" than present arrangements. But the "neatness" would sacrifice some very important, if intangible, advantages in the current arrangement. Specifically, I believe that, in the end, any appearance of divided authority or cumbersomeness implicit in the present division of (overlapping) responsibilities is justified by the "checks and balances" implicit in the current approach.

It is appropriate, in my judgment, for the broader ranging (but smaller) operations feasible for the ESF to be conducted by the Treasury itself, since it is the Secretary of the Treasury who is primarily and directly responsible to the President and the Congress for formulating and defending international financial and monetary policy, for assessing the position of the United States in the world economy, and for conducting international negotiations on these matters. At the same time, since exchange markets are closely linked to money markets and questions of monetary policy, there is a distinct role and responsibility for the Federal Reserve to work in cooperation both with foreign central banks, which are operating in their own markets, and with the Treasury. The fact that both agencies have operating responsibilities in the area, forces them to work closely together on operational decisions and to take full account of the various considerations

bearing upon operational decisions. There is the strongest kind of motivation to reach a full meeting of minds in engaging in operations, because any operations at cross purposes would be virtually immediately apparent, highly confusing, and totally counterproductive. I know of no instance of that kind.

Having been with both the Treasury and the Federal Reserve, I can testify that lively discussions do sometime take place about the appropriate scale and nature of operations. I can also testify that, in the end, these discussions in the process of developing an agreed approach have been useful and constructive in bringing to bear on the decision varying considerations and viewpoints. Consultation and cooperation--day-by-day and sometimes hour-by-hour--has necessarily been close.

On an operational basis, because the exchange market operations of both the Federal Reserve and the ESF are executed by the same people at this Bank, full coordination can be, and is, readily achieved. Both agencies are fully and continuously informed of the activities of the other, and the decisionmakers have equally prompt access to full information about emerging market developments.

Under the particular conditions of recent years, the need for operations by the ESF to supplement those of the Federal Reserve have not been great, and as a practical matter exchange market operations have been left almost entirely to the latter. While I personally can see advantages in the ESF participating more frequently in these operations as a continuing symbol of the close cooperation between the agencies, that is not a crucial matter. It does seem to me essential, however, that, in view of the rapid changes that can take place in financial markets around the world, the United States retain the capacity to respond promptly and flexibly to emerging developments, and that the Secretary of the Treasury not be deprived of all operational capacity to influence events in this area. The ESF seems to me vital if this capacity is to be retained, even though the Federal Reserve is available to handle the great bulk, or even all, of the operations that fall into a more established mold.

With respect to the budgetary treatment of the ESF, there is no doubt in my mind that the credit and exchange market operations undertaken by the ESF, by their nature, are not appropriate for inclusion in the budget. These operations do not involve government expenditures in any ordinary sense of the word; instead they are more akin to management of cash balances or other exchanges of assets. The volume of operations is bound to swing widely in an essentially unpredictable fashion, and there swings in no sense should be equated, in an economic or administrative sense, to the spending of government funds for the purchase of goods or services or for transfer payments. The usefulness of the ESF is, in the last analysis, dependent upon the flexibility, and often the confidentiality, with which it can act.

Of course, there are risks of loss as well (more typically) as prospects for gain. The amount of loss that can be borne by the ESF without the need for Congressional action is reflected in its capital, which was initially set by the Congress. In a sense, this situation is in that respect similar to certain insurance and guarantee programs.

As you know, apart from its operations, certain expenditures arising in the administration of the ESF, and in the related international responsibilities of the Treasury, are funded out of ESF earnings and excluded from the budget. Policy and practice in this area are long standing, and have been concurred in by the Congress. These expenditures are more comparable to other budgetary expenditures, and the precise line between those expenditures funded through the ESF and those funded through usual appropriation processes is necessarily somewhat arbitrary at the margin.

In my period at the Treasury, careful guidelines were developed concerning those positions and activities that might appropriately be financed by the ESF; with the introduction of the audit by the GAO of such expenditures in 1970, those guidelines can be, and were, subjected to independent review outside the Treasury.

The important points of substance in this respect seem to me that the ability of the Treasury to respond flexibly to rapidly changing needs be preserved and that necessarily confidentiality be maintained. Congress has, I believe, consistently recognized the legitimacy of both points, specifically in the review in 1970 that resulted in the GAO audit. In passing that legislation, the Congress specifically noted that upon occasion certain administrative expenditures may be internationally sensitive and, in effect, may in that respect be indistinguishable from operations. In recognition of that reality, those administrative expenditures which the Secretary might determine to be "internationally significant" from time to time were specifically excluded from GAO audit. At the same time the more routine use of ESF funds for certain related administrative expenditures of the Treasury was implicitly confirmed. Whatever the judgment of the Congress may be as to the precise line to be drawn between the ESF and budgetary expenditures, I would urge that the necessary confidentiality and flexibility for certain of those expenditures be recognized and retained.

Sincerely,

(sgd.) Paul

Paul A. Volcker

PAV/ar

Attachment 8: U.S. Notification to IMF

UNITED STATES

(Position on December 31, 1985)

Exchange Arrangement

The currency of the United States is the U.S. Dollar. The U.S. authorities do not maintain margins in respect of exchange transactions, and spot and forward exchange rates are determined on the basis of demand and supply conditions in the exchange markets. However, the authorities intervene when necessary to counter disorderly conditions in the exchange markets or when otherwise deemed appropriate. There are no taxes or subsidies on purchases or sales of foreign exchange.

The United States formally accepted the obligations of Article VIII, Sections 2, 3, and 4, of the Fund Agreement as from December 10, 1946.

Review of Organization of

Foreign Currency Operations in Other G-7 Countries and Switzerland*

Tables

* Prepared by Paul DiLeo, Foreign Exchange Department, Federal Reserve Bank of New York.

OVERVIEW

This paper reviews exchange rate policy and intervention in the other G-7 countries and Switzerland. The focus is on identifying how policymakers view exchange rates and how they pursue their objectives for their own currency, with particular focus on the use of exchange market intervention. Some sense of the institutional and operational frameworks for these operations is also provided.

The range of practices and approaches for the group of countries reviewed are summarized below and in the tables which follow. More detailed treatments of each country follow.

Views of Exchange Rates -- The range of views within the group on the importance of exchange rate developments, and the relative weight of exchange rate considerations in policy determination, varies a great deal superficially (Table I). On the one hand, there are a number of countries which explicitly identify the exchange rate as a or the primary instrument in their pursuit of economic objectives. Canada, for example, cites the exchange rate as a key instrument in its pursuit of price stability; Japan sees exchange rates as a tool in the pursuit of external adjustment. On the other end of the spectrum is Switzerland, which in recent years has adopted something of a "hands-off" attitude towards exchange rates, focussing instead almost exclusively on the evolution of the monetary base. Toward the same end of the spectrum, though not so extremely, is Germany which places a primary focus on the achievement

of domestic monetary and economic goals, but will, albeit reluctantly, temporarily subordinate these goals to exchange rate considerations at times of severe market pressures. Somewhere between these extremes fall the United Kingdom, France and Italy. In these three cases, exchange rate policy and monetary policy are difficult to distinguish, with the authorities tending first to identify objectives and then to select an instrument on the basis of tactical or strategic considerations.

Notwithstanding the divergence in stated objectives, the differences in views among countries is less pronounced in practice. The focus of any one of the authorities can shift to the exchange rate if developments in the exchange market appear likely to undermine domestic stabilization objectives seriously. An example at the moment is Switzerland which is placing considerable emphasis on preventing a further depreciation of the Swiss franc in order to achieve stabilization of prices and the economy.

Policymaking Process -- The policymaking process, and in particular, the roles of the Finance Ministries and central banks in setting exchange rate and intervention policy, differ widely (Table II). In Switzerland and Germany highly independent central banks have more or less exclusive control over exchange rate policy, with the exception of the most fundamental decisions, such as whether to alter fixed rates against other currencies, as in the ERM mechanism of the EMS. In these countries, consultations with government Ministries cover exchange rate policy in only the broadest terms, and information on day-to-

day activities or decisions is not necessarily routinely shared. In Italy, the central bank also operates with more or less complete independence in exchange rate policy. However, unlike Switzerland and Germany, consultation and coordination with the Finance Ministry tends to be much more frequent and substantive. In most other cases, the involvement and influence of other parts of the government, and particularly Finance Ministries, is much greater. In Japan, the Ministry of Finance wields more or less total control over policy, in both general and day-to-day terms. In Canada, the United Kingdom, and France, the Finance Ministries have ultimate control over exchange rate policy, although in practice, the central banks have significant influence in the design of overall policy and a very substantial degree of influence over day-to-day decisions.

Despite this wide range in the policy-making models, operational responsibility for intervention is in all cases the province of the central bank. This operational role tends to magnify the central bank's influence in the policy-making process, by providing it with unique expertise in terms of implementation and tactics, and a unique asset and role in terms of market intelligence.

The structure of ownership of reserves used for intervention purposes varies widely among countries. In those countries, such as Switzerland and Germany, with highly independent central banks exercising more or less total control over exchange rate policy and intervention, reserves are owned by the central bank.

In Italy, reserves used for intervention purposes are owned by the central bank; the bulk of reserves are held by a separate entity which, although nominally administered jointly by the Bank of Italy and the Finance Ministry, is effectively part of the central bank. In the other countries, reserves are owned by the Finance Ministries, but typically managed by the central banks.

Intervention -- Views on intervention among the countries coincide to a large degree. In the most narrow "disorderly markets" sense, all countries explicitly assert the utility of intervention in preventing the intensification of "speculative bubbles" or "bandwagon effects" which, if unchecked, could have negative implications for the real economy (while in recent years Switzerland has backed away from this type of operation, it had previously been relatively active in this regard). Several countries, in particular Canada and Italy, cite intervention as an important tool in "smoothing" the movement of the currency along its long run path. Japan and the United Kingdom would appear to ascribe the most influence to exchange market intervention, principally because they view it as an influential means of affect market expectations and participants' understanding of the views of the authorities. Nevertheless, none of the countries ascribes much influence to intervention beyond the short term unless it is supported by consistent monetary and other policies.

Some evidence of these various attitudes towards intervention can be discerned in data on the frequency as well as gross and net volumes of intervention operations in 1989 (Table III). In Canada and Italy, for example,

where "smoothing" of rate movements is an important goal, intervention is relatively frequent, in terms of days in the market, and gross operations greatly exceed "net" operations. In other countries, such as Japan and the United Kingdom, which assign intervention an important role in achieving economic objectives, there was little difference between gross and "net" intervention.

Sterilization -- Most countries report a general commitment to "sterilization" of intervention operations. Germany most closely adheres to both the letter and the spirit of sterilization, with the impact of foreign exchange market operations for domestic monetary aggregates fully offset and monetary and exchange rate policies generally viewed as separate instruments directed towards different goals. Most of the other countries sterilize more or less routinely, offsetting intervention as part of their regular monetary programming exercises, or automatically sterilizing, in the case of Canada, as a consequence of the structure of the government's reserve holdings. However, in many of these countries monetary policy itself is determined with the exchange rate as the or a primary objective, and not infrequently may be modified to address exchange rate considerations, and the concept of sterilization may be somewhat less meaningful.

TABLE I

Policy Framework for Foreign Currency Operations

	Exchange Rate Policy/ Intervention Goals	Intervention Sterilized
CANADA	Contain price pressures. Smooth rate movements. Avoid "bandwagon" effects with negative impact on real economy.	Automatic.
JAPAN	Reduce external surplus. Avoid excessively rapid movements.	Routine.
SWITZERLAND	Focus is on evolution of monetary base; exchange rate is usually not an objective.	Routine. Foreign exchange swaps are used to control money growth.
UNITED KINGDOM	Balance between reducing inflation and preserving competitiveness. Intervention is used as first response to deviations of rate from desired path, and to give market official view of fundamentals.	Routine.
FRANCE	Reinforce fiscal discipline. Encourage price stability.	Routine. Monetary program may be adjusted to ensure achievement of exchange rate objectives.

TABLE I (continued)

Policy Framework for Foreign Currency Operations

	Exchange Rate Policy/ Intervention Goals	Intervention Sterilized
GERMANY	Focus is on monetary policy, maintaining purchase power of mark. Intervention used to deflate/prevent speculative bubbles.	Routine.
ITALY	Reinforce fiscal discipline. Combat inflation. Smooth speculative and seasonal movements.	Routine. Monetary program may be adjusted to ensure achievement of exchange rate objectives.

TABLE II

Organization of Foreign Currency Operations

	Policy Authority	Operations	Information Release	Control of Reserves
CANADA	Shared	Bank	Minimal	Ministry
JAPAN	Ministry	Bank	Minimal	Ministry
SWITZERLAND	Bank	Bank	Partial	Bank
UNITED KINGDOM	Ministry	Bank	Minimal	Ministry
FRANCE	Ministry	Bank	Partial	Ministry
GERMANY	Bank	Bank	Minimal	Bank
ITALY	Bank	Bank	Minimal	Bank

Note: "Bank" denotes the central bank. "Ministry" denotes the Finance Ministry or Treasury.

TABLE III

Foreign Currency Intervention in 1989

	Days in Market* (percent)	Total Gross Operations ($ mil)	Composition					Net** Operat ($ mil)
			$/Loc	$/Oth	DM/Loc (percent)	Oth/Loc	Oth/Oth	
CANADA	[redacted]							
JAPAN								
SWITZERLAND								
UNITED KINGDOM								
FRANCE								
GERMANY								
ITALY								
MEMO: United States	38	21957	n.a.	n.a.	n.a.	n.a.	n.a.	21957

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Notes: This table includes only those operations reported as intervention. A number of countries conduct a large volume of other operations in the market.
Under "Composition", "Loc" refers to local currency, "Oth" to non-dollar, non-DM, non-local currency.
* Based on an estimated 255 trading days in 1989.
** In the "Net" Operations estimate, opposite transactions in the same currency pair have been offset.

TABLE IV

Techniques of Foreign Currency Operations

	Visible/ Discreet	Instruments	Approaches	Central Bank FX Traders
CANADA	Both	Spot	Banks/Brokers IMM Futures	4
JAPAN	Both	Spot	Banks/ Brokers	9
SWITZERLAND	Both	Spot/Swaps	Banks	6
UNITED KINGDOM	Both	Spot/Forward Swaps	Banks/Brokers Investment Bnks	8
FRANCE	Mostly Discreet	Spot	Banks	8
GERMANY	Mostly Visible	Spot/Forward	Banks/ Brokers	4
ITALY	Both	Spot	Banks	6
MEMO: United States	Both	Spot	Banks/ Brokers	6

CANADA

I. Official Views of Exchange Rate Policy[1]

Canadian policymakers tend to view the evolution of the exchange rate (the Canadian dollar/U.S. dollar rate) in Canada -- a small, open economy -- primarily in terms of its possible impact on inflation, and to the extent that movements in the rate could undermine the achievement of price stability, they are considered a matter of concern. In the 1986 Bank of Canada Annual Report, it was noted that "[e]xchange rate depreciation always involves an upward push to domestic prices and is never easily accepted because this rise in prices undermines the purchasing power of wages and salaries. If people are already fearful of inflation, these additional price pressures only exacerbate their fears." In addition, policymakers hold the view that short-term volatility of the exchange rate can initiate "bandwagon effects" with negative implications for trade, real output, capital flows, and investment, and are particularly sensitive to the possibility of sharp movements in the exchange rate in light of the relatively small and concentrated Canadian foreign exchange market. At the same time, it is believed that intervention will be most effective in the short run, and will have little or no effect on the level of the exchange rate over a period of a quarter or longer.

In light of these views, Canadian exchange market intervention has adopted a tendency to "lean against the wind." The Department of Finance indicated in

[1] This and other sections of this paper on Official Views of Exchange Rate Policy is based largely on public statements by the authorities in the various countries, and in particular on a 1988 BIS compilation, entitled "Exchange Market Intervention and Monetary Policy".

1982 that over the period of floating rates "official operations in the foreign exchange market by the Canadian authorities have been directed towards smoothing out erratic movements in the Canadian dollar/US dollar rate of exchange and avoiding disorderly market conditions." It is not the aim of intervention to achieve or maintain a specific rate, or to have any particular long run influence, although upon occasions, movements which appeared to carry the rate far out of line with fundamentals have been vigorously resisted.

In general, the Canadian authorities respond to short-term movements in the exchange rate. They are more likely to intervene, and the amounts are greater, the larger is the day-to-day movement in the spot rate. Operating in this way, they expect their interventions to net out over time, so that they do not feel the need for either large foreign currency reserves or official financing facilities to finance intervention. In the event Canadian intervention requires substantial financing, the authorities expect to borrow the needed funds in private markets, an avenue easily available to them because the bulk of their foreign currency sales are U.S. dollars, and they have established ready access to this market.

All intervention activity is automatically "sterilized" because exchange reserves are held by the Federal government; foreign exchange purchases and sales affect the Canadian dollar deposits which the government holds at banks and have no effect on the central bank's books. In any event, policymakers do not perceive much scope for intervention operations to conflict with monetary policy objectives because the objective of intervention operations is to smooth

movements rather than to affect the level of the exchange rate over time. The scope for intervention operations to neutralize at least partially bandwagon effects and speculative bubbles is viewed as reducing the need for and providing time to implement necessary interest rate adjustments.

II. Policy Determination

The Bank of Canada executes exchange rate policy on behalf of the Department of Finance (DOF). The DOF focusses primarily on strategic considerations, while the Bank of Canada has both a significant amount of input into these strategic deliberations as well as undertaking much of the day-to-day activity associated with intervention, and asset and liability management.

Within the general policy framework, the Advisor to the central bank Governor is responsible for the conduct of exchange market operations, subject to formal clearance by the Deputy Minister at the DOF. In practice central bank proposals for intervention are rarely overruled.

Information on reserve holdings is released monthly. In addition, the central bank Governor testifies from time to time to various parliamentary committees, and may choose to discuss exchange rate policy at that time. In a 1989 audit of the Department of Finance, the Office of the Auditor General recommended that the DOF should provide more complete information to Parliament on the operations of the Exchange Fund Account, with primary emphasis on the information required to evaluate the costs and profits associated with

intervention and the maintenance of reserves. The DOF indicated that it would consider the recommendation.

III. Policy Implementation

The Bank of Canada establishes a "trading program", providing for target amounts of currency to be bought or sold for each 10 basis point move within a 100 basis point range in the U.S. dollar/Canadian dollar exchange rate. As a general matter, intervention is initiated only after the rate has moved some distance within the range. The intensity of intervention -- in terms of the volume of transactions per basis point move -- tends to increase the further the movement within the range. Within the program, central bank traders have a fair amount of discretion to deviate from the predetermined amounts. For example, if the exchange rate appears to be moving decisively out of the range, the traders may decide to withdraw from the market temporarily.

Under these operational procedures, overall intervention is frequent. The amounts can vary from small to large. Over short periods of time, the monetary authorities may find themselves both buying and selling US dollars as pressures on the Canadian dollar shift.

The Bank of Canada administers the Exchange Fund Account for the Department of Finance, from which operations are financed. Until recent years, Canadian holdings of foreign currency reserves were minimal, and when the Canadian dollar came under pressure, intervention activity needed to be

financed through a variety of means. These included lines of credit the Bank of Canada had in place with various Canadian banks and U.S. banks with branches in Canada; such lines totalled $7.5 billion in the early 1980s. In recent years, and particularly in late 1989, these lines were reduced and now total $3 billion. In addition, a "Canada Bills" program is utilized, whereby the U.S. commercial paper market can be accessed to raise dollars for intervention purposes. With the strengthening Canadian dollar over the past few years, Canadian reserves have grown rapidly, and these financing arrangements have not been needed, although outstandings under the Canada Bills program have been maintained on the order of $1 billion.

IV. Operational Issues

The Bank of Canada traditionally operates in the spot market for intervention purposes and generally buys or sells US dollars. It has, on occasion, also operated on the organized futures exchanges in Chicago, buying or selling Canadian dollar futures contracts through commission houses or investment banks. In addition, the Bank of Canada, in order to avoid conflict with operations being undertaken by the U.S. authorities, has at times in the past few years operated in German marks or Japanese yen when those countries were amenable.

The Bank of Canada approaches banks both directly and through the brokers market in its own name. Bank of Canada operations are normally conducted discreetly. However, since the Bank of Canada operates in a

predictable fashion, market participants can frequently determine when the BOC is likely to be active.

JAPAN

I. Official Views of Exchange Rate Policy

In recent years the authorities have been concerned about reducing Japan's huge external surpluses without exerting an excessively deflationary impact on the domestic economy. Under these circumstances, the authorities permit trends in the exchange rate to take their course insofar as they appear consistent with continued adjustment of imbalances. They use intervention either to minimize disruptive or excessively rapid movements in the desired direction or discourage undesired movements in exchange rates that do not appear to reflect economic fundamentals.

Policymakers believe that forceful intervention is often effective in calming market sentiment when disorderly conditions develop. They are less convinced of the effectiveness of intervention when it aims at correcting the level of exchange rates or at stabilizing the exchange rate in the longer run. However, it is believed that intervention, when perceived to be supported in a coordinated fashion by other policies such as monetary and fiscal policies, can be highly effective, particularly in influencing market sentiment.

The BOJ routinely sterilizes its foreign currency intervention operations, including intervention along with other factors contributing to surpluses or shortages of funds in the money market in determining what operations are necessary to control the money supply and to ensure that the market is confident about its controllability.

II. Policy Determination

The Ministry of Finance has the sole authority to intervene in foreign exchange markets and holds all Japanese reserves in the "Foreign Exchange -- Special Account". The MOF instructs the BOJ when to intervene and in what amounts, while taking counsel from the BOJ on market conditions.

No information on intervention activities per se is formally published, and no parliamentary testimony on the subject is given. Observers can try to infer the scale of intervention from information on the reserve holdings, published monthly. In addition, many market participants allege that it is possible for banks in Japan, especially large Japanese banks, privately to obtain information about the monetary authorities' operations and intentions.

The Foreign Exchange -- Special Account of the MOF is managed by a Deputy Director in the Foreign Exchange Markets Division of the MOF. All investment decisions are made in the MOF; the BOJ acts as agent.

III. Policy Implementation

The Foreign Exchange Markets Division of the MOF is in frequent contact with the BOJ Foreign Operations Bureau throughout the day, beginning with a call at about 8:30 am to review market conditions. Normally, the MOF will give the BOJ instructions on how much intervention to undertake, and at what level or at what time. It would leave to the BOJ's discretion issues of tactics.

IV. Operational Issues

The BOJ deals with banks directly and through the brokers market in its own name. It operates both visibly and in a discreet manner. Operations are conducted in the spot market, primarily in US dollars, although other currencies may be used in certain circumstances.

The BOJ has recently broadened its intervention techniques to intervene on occasion in Far Eastern markets while the Tokyo market is closed.

SWITZERLAND

I. Official Views of Exchange Rate Policy

The Swiss National Bank currently is concentrating on the evolution of the monetary base, taking the view that the domestic money market will work to stabilize the franc and smooth out short term fluctuations. However, it recognizes that at times these stabilizers may not succeed in preventing excessive swings in exchange rates. If exchange rates movements appear large enough to cause significant conflict between policy objectives, the authorities are prepared to alter the thrust of policy so as to stabilize the exchange rate. In particular, when excessive exchange rate movements have threatened to damage the domestic economy, the authorities are prepared to deviate from, or temporarily abandon, the money stock target.

The Swiss authorities believe that sterilized intervention is useful for giving signals to the foreign exchange market, but not for dealing with extreme aberrations in rates, and consequently have not relied much on sterilized intervention in recent years.

II. Policy Determination

Foreign exchange policy is the responsibility of the Swiss National Bank (BNS). As noted above, the BNS's principal focus in recent years has been on the development of the monetary base, and, at least until quite recently, foreign exchange considerations were subordinate to this goal. Currently, however, monetary policy is directed at achieving an appreciation of the Swiss franc

against the DM. The conclusion of foreign currency swaps is the primary instrument employed in monetary control operations.

The BNS will not volunteer information about intervention operations to the public, although in recent years it has sometimes confirmed that operations have occurred, without giving amounts.

The BNS has recently initiated a quarterly report in which it discusses its operations. BNS officials do not, however, testify about operations before any parliamentary bodies.

III. Policy Implementation

The decision to intervene is taken by the Director General in charge of the Monetary Operations Department. He is under no obligation to consult with any part of the Federal Government.

The dollars purchased in the market are kept in the BNS's portfolio in the form of U.S. money market investments. The BNS also holds limited amounts of assets in other currencies.

IV. Operational Issues

The BNS operates through banks in Switzerland. For domestic monetary control purposes it frequently uses foreign exchange swap or forward transactions.

UNITED KINGDOM

I. Official Views of Exchange Rate Policy

The views of policymakers towards exchange rate policy have shifted during the last decade. Recently, the focus has been on the need for policy to find a balance between the implications of exchange rate developments for inflation and for competitiveness. Policymakers evaluate developments in exchange rates in light of the causes and expected duration of any movements, and the relative impact of domestic conditions and external developments on the exchange rate before determining the appropriate response. If some official response is considered appropriate, intervention is normally the first instrument to be used. If necessary, in light of developments more generally, intervention may be followed by changes in interest rates.

Operations in the money and exchange markets are closely coordinated. There is no hard and fast rule about whether the authorities intervene or adjust interest rates. Instead the decision will depend on the particular circumstances and tactical considerations, although changes in money market intervention rates are infrequent relative to intervention operations.

In addition, the British authorities believe that speculators in the foreign exchange market as well as the growing volume of capital flows can generate substantial movements in exchange rates which are often unwarranted by economic fundamentals. In this context, they believe that the role of exchange rate management, and the scope for intervention, goes beyond smoothing short

term fluctuations in exchange markets, and includes the need to give the market a clear understanding of the official view of economic fundamentals.

Sterling bought or sold in exchange market intervention is included in calculations used to determine the daily money market operations of the Bank of England, and its effect on banks' operating balances at the Bank, and on the monetary base, is routinely sterilized. More broadly, the authorities are committed to a "funding rule" which implies that the effect of intervention on broad money is also sterilized over some period, although this period may extend beyond the end of the current fiscal year. It is believed that even sterilized intervention can have an impact on exchange rate movements, so long as the rate which the authorities are endeavoring to protect lies within a range considered by market participants to be consistent with economic fundamentals.

II. Policy Determination

Management of foreign exchange reserves is governed by the Exchange Equalization Act. Reserves are owned by the Treasury. Through an exchange of letters between the Treasury and the Bank of England, the Bank is appointed manager of the reserves, and is charged with investing balances held by the Exchange Equalization Account. However, the ultimate responsibility for exchange rate policy remains with the Treasury, which is answerable to parliament.

Each month, exchange rate policy, along with interest rate policy, are discussed at a meeting of the Chancellor of the Exchequer and the Bank's Executive Director in charge of the Markets Division, which covers both foreign exchange and domestic market operations; the central bank Governor may occasionally attend. In addition, ad hoc meetings would be held in the event of any need for a policy review or change.

Some information about exchange rate policy and operations is provided in the Bank's Quarterly Report, however, the discussion tends to be relatively guarded.

III. Policy Implementation

The policy determined by the Chancellor and the Bank's Executive Director in charge of Markets is translated into operational guidelines, which govern the activities of the trading room. For example, the guidelines might specify how much the traders are permitted to sell during a certain period or if exchange rates move beyond specified levels.

Any changes in the guidelines are typically dealt with at the Executive Director level; his counterpart is one of the three Permanent Secretaries of the Treasury. In the event of his absence, consultations would be carried out by the Head of the Foreign Exchange Division. There is a great deal of contact and sharing of information between the Treasury and the two managers in the Bank's foreign exchange area. There is no contact between the dealing room

itself and the Treasury.

All intervention is financed through the Exchange Equalization Account.

IV. Operational Issues

The Bank operates in the markets directly with banks and through the brokers market in its own name; the latter route is used when quick and wide public dissemination of the information on the operation is desired. Intervention operations are normally conducted in the spot market, and mainly in US dollars, although operations are also occasionally undertaken in marks and yen. However, the Bank conducts operations in forwards and sometimes extensively in swaps, in order to manage the extent to which its operations are reflected in monthly reserve data. The Bank of England also conducts extensive (almost daily) foreign exchange operations to cover the currency needs of the British government, including the armed services.

EUROPEAN MONETARY SYSTEM EXCHANGE RATE MECHANISM

The remaining three countries to be considered in this review -- France, the Federal Republic of Germany and Italy -- are all members of the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS). Membership in the ERM implies certain obligations with respect to exchange rate policy and intervention. In particular, each member country agrees to fixed but adjustable exchange rates in which each participating currency is tied to each of the other participating currencies by bilateral central rates. Around the bilateral central rates, fluctuation margins of 2.25 percent (6 percent in the case of the Spanish peseta) have been established that determine the bilateral intervention points for each currency against each of the other currencies. At these points, intervention in the partner currency concerned is obligatory and potentially unlimited in amount. The necessary funds for carrying out such intervention, to the extent the country involved cannot draw on reserves, are supplied by the respective partner central banks under mutual credit lines, under the "very short term financing facility" of the European Monetary Cooperation Fund (EMCF).

Within this context, different participating countries at times have had different views with regard to the desirability of full use of the fluctuation margins. Some believe the flexibility provided by the margins serves as a cushion available to absorb some external shocks without the need for policy adjustments. In addition, they believe full use of the margins helps limit the need for intervention. Others, however, adopt the view that greater stability of rates may better serve the objective of domestic monetary stability and avoid the buildup

of momentum for exchange rate movements. Consonant with this view, a number of EMS central banks have adopted a strategy of keeping their exchange rates well within the band and minimizing movements against the key currency, the German mark. At times this has necessitated both substantial intervention as well as the maintenance of higher interest rates than might otherwise have been desired. When intervening "intramarginally", participating countries do not have recourse to the very short term financing facility of the EMCF.

Over the years, the use of "intramarginal" intervention has increased. Such operations are viewed as a first line of defense to counteract tensions, and as useful to gain time and obtain a more precise picture of the sources of disturbances, as well as proving effective in smoothing short term fluctuations due to occasional mismatches of supply and demand. Under the EMS Agreement, the holding of currencies of other participating countries in excess of working balances, and the use of these currencies in intervention, requires the consent of the central bank of issue. The central bank most often approached in this connection is the Bundesbank, issuer of the main EMS intervention currency. 552 U.S.C. (b)(4)

, has become an important intervention currency with the EMS.

FRANCE

I. Official Views of Exchange Rate Policy

The French authorities believe that the obligations of a fixed exchange rate regime are desirable because they impose constraints on government policy making in a way that makes it easier for the government to accept and then adhere to appropriate stabilization policies. In the current context, the French authorities ascribe their desire to prevent a depreciation of the franc -- particularly against the DM -- to the need to encourage price stability by maintaining pressure on firms to restrain costs. This objective is pursued by membership in the ERM of the EMS as well as by participation in various coordination efforts, such as the Plaza Agreement and the Louvre Accord.

The policy-making framework in France explicitly incorporates intervention policy into overall stabilization policies. The Bank of France, after consultation with the Ministry of Finance, adopts a target or objective for monetary or credit growth thought to be consistent with forecast growth of the real economy and financing requirements of the balance of payments. If during the year, the Bank of France intervenes to support the franc by more than was expected, based on current account projections, the Bank of France provides correspondingly less credit to the domestic economy -- either to finance the fiscal deficit or private sector expenditures. In an earlier regime when credit controls were an important tool of monetary policy, this rationing of credit was done, after negotiation with the government, through various ways the Bank of France influenced the allocation of credit. More recently, this process has been

performed using interest rates, and indeed interest rates in France have been changed during the past several years far more frequently than before in direct response to exchange market developments. Similarly, if intervention results in taking in more reserves than expected, the Bank of France provides either more credit to the economy or lowers interest rates. In this way, the policy framework in place in France provides for foreign exchange market intervention to serve as the mechanism for making short-term adjustments to the medium term strategy.

In the view of the French authorities, disturbances in the exchange market normally take the form of spontaneous and rapid fluctuations in spot rates, generally with no immediately obvious, convincing explanation. Such fluctuations may generate uncertainties which can develop into movements more difficult and costly to contain, particularly as full use of the ERM fluctuation margin may lead market participants to believe that a realignment is imminent. Consequently, the French authorities respond to unexpected exchange rate fluctuations by acting to prevent speculative movements from gaining momentum.

The French authorities consider the effectiveness of exchange market intervention to be indisputable, at least in the short run. Intervention, in this view, is an adaptable and flexible instrument which is well-suited to episodes of unexpected upward or downward pressure whose origin is not immediately apparent. In addition, coupled with appropriate interest rate policy, intervention

can prevent even more severe tensions from turning into crises. Nevertheless, even if coupled with appropriate interest rate changes, there is no substitute for the adjustment measures necessary to correct excessive imbalances. It is certainly not advisable to lean without limit, or for too long, against the general market trend.

The Bank of France routinely sterilizes intervention, attempting to maintain a level of interest rates consistent with domestic and external objectives. The franc counterpart of purchases or sales of foreign currencies is taken into account along with all the domestic factors which might affect the banks' liquidity. If the overall net balance of francs is estimated to be consistent with the desired development of interest rates no action is taken; if not, action is taken to absorb or supply liquidity, as necessary.

II. Policy Determination

The Finance Ministry has the lead role in policy issues related to exchange rate policy. But the Governor of the Bank of France, though he serves at the pleasure of the government, can use his influence in monetary policy, together with financing requirements to support the franc, to exert a restraint on fiscal policy.

French reserves are formally held in the Fonde de Stabilization de Change (Exchange Stabilization Fund), a Finance Ministry account managed by the Bank of France. The Fonde was created in 1936 to help obscure intervention

operations. However, in practice, the Fonde has very small resources, and holds only about 5 percent of reserves. The remainder is swapped with the Bank of France. Once a week, before publication of the Bank of France balance sheet, reserves are transferred off balance sheet. These swaps are not done to offset intervention operations franc for franc, but rather to smooth movements in published reserve data.

Both the Bank and the Fonde publish information on gross reserves. No information is published on Fonde liabilities or on off balance sheet items of the Bank. There is no formal parliamentary discussion of Bank of France intervention operations.

III. Policy Implementation

Intervention operations are executed by the Bank of France which is in the market frequently, operating for customers, intervening, and taking positions. Typically, when pressure emerges on the DM/franc rate, an objective is set in terms of a certain level to defend with a specified amount of reserves. Levels can be shifted as intervention operations proceed, with a view to trying to soften movements. The initiative for these operations can be taken within the central bank's dealing room without further review unless the pressure persists. The trading room is also given the authority to take positions, up to explicit limits. If the pressure against the franc becomes significant, the head dealer would report the situation to senior management of the Bank. In cases of particularly intense or sustained pressure the Ministry would be informed.

The Bank and the Ministry carry roughly equal weight in discussions of the appropriate stance towards the market when pressure is not great, or if it appears to reflect technical considerations. If the pressure is intense, or if the policy implications appear significant, the Ministry's weight in the discussion increases substantially.

IV. Operational Issues

The Bank of France holds a daily fixing, at which by law it must fix rates for more than 20 currencies. Small customer orders are typically executed at the fixing, which normally accounts for a small fraction of total market turnover.

The Bank deals with about 50 or 60 bank counterparties in Europe and North America; no brokers are used. The Bank seeks to have at least two counterparties willing to deal each currency covered at the fix. About 25-30 banks are used for marks and US dollars, about two-thirds of which are outside of France.

The Bank has an understanding with its counterparties that all operations are strictly confidential, and has made clear that transactions will be immediately halted if this understanding is breached. This confidentiality is reportedly so rigorously observed by counterparties that on those occasions when the Bank has wanted its operations to receive more notice in the market, it has had difficulty persuading counterparties to abandon the normal practice.

The Bank operates mostly in FF/DM and $/FF, and on a few occasions $/DM, and typically operates in the spot market. The Bank of France also conducts frequent operations on behalf of the French government, greatly increasing its volume of activity in the market.

GERMANY

I. Official Views of Exchange Rate Policy

Monetary management in Germany is predominantly geared towards the achievement of domestic monetary and final economic goals by means of publicly announced annual targets for the growth of the money stock. Nevertheless, in pursuing these objective, the authorities always take account of exchange rate developments. There is considerable scope for transitory exchange market pressures to be reflected in domestic money market conditions or in short-run variations in monetary growth. Furthermore, in cases of abnormal appreciation or depreciation pressure on the mark, the authorities are willing to tolerate a lasting overshooting of annual monetary objectives in order to mitigate the repercussions of lasting exchange rate aberrations on the domestic economy. Policymakers focus on movements in the effective rate of the mark to determine when exchange rate aberrations warranting corrective action have occurred. However, the authorities do not necessarily respond immediately to extreme fluctuations in the effective exchange rate, but rather are inclined to wait until it appears that undesirable exchange rate movements threaten seriously to disrupt domestic economic objectives.

Policymakers view the primary purpose of intervention in the mark/dollar market as the maintenance of orderly market conditions through short-run "smoothing" operations and efforts to dampen over- or under-shooting of the mark in relation to its warranted long run trend. The authorities aim to counter disorder resulting from political shocks, the emergence of "bandwagon" effects, or apparent "speculative" bubbles, which might be dampened by the creation

of two way risk for speculators.

Intervention is normally fully sterilized, and monetary management and exchange market intervention are regarded as two separate policy instruments aimed at different intermediate operating objectives. The authorities believe that largely neutralized exchange market intervention exercises only a limited and transitory influence on exchange rate movements. Official purchases and sales of foreign exchange are permitted to affect the monetary base under the Bundesbank's short term monetary operating procedures only to the extent that it is consistent with the Bundesbank's objectives in this regard. Excess reserves or reserve shortages of the banking system resulting from exchange market intervention are offset completely.

II. Policy Determination

The government, in particular the Finance Ministry, determines the very broad parameters of German exchange rate policy: whether to follow a fixed or floating regime, to join a regional currency arrangement, such as the ERM, or to change the DM's central rates in the ERM. Within these basic parameters, the Bundesbank (DBB) has essentially total control over policy and operations.

On a day-to-day basis, the DBB operates with complete independence, and does not necessarily inform the government of any operations it may undertake. On a more medium term basis, exchange rate policy is discussed within the context of overall economic policy. These discussions might occur in one of two forums. First, the Finance and Economy Ministers are entitled under the

Bundesbank Law to take part in the fortnightly Council meetings, as non-voting participants, and do so 3-4 times each year, often in response to a request from the DBB. The second, and more significant, forum is the various technical committees of parliament, such as Finance and Budget, in which the President and Vice President of the Bundesbank participate. Participation in these committees does not constitute testimony before parliament; the DBB does not testify before parliament, and any questions which deputies may have on the conduct of the DBB must be directed to the government.

The DBB publishes monthly and annual reports, which give minimal information on intervention operations; it publishes reserve data fortnightly. Other sources of information on policy and operations are speeches by the President of the DBB in which he may, at his own discretion, discuss such matters.

At the beginning of each fortnightly Council meeting, the DBB Director responsible for foreign exchange operations reports to the Council, composed of the Bundesbank President and Vice President, up to eight Directors and the Presidents of the 11 state banks, on the foreign exchange operations conducted and any other relevant issues.

III. Policy Implementation

The decision to intervene and in what amounts is typically taken by the member of the DBB Directorate charged with responsibility for foreign exchange policy. This decision would then be communicated to the Head of the Foreign

Department of the DBB and from there to the Head of the Foreign Exchange Division. The Foreign Exchange Division would have most of the responsibility for operational decisions: how many and which banks or brokers to contact, the size of transactions, etc.

The DBB owns and manages all German reserves.

IV. Operational Issues

The DBB intervenes primarily through commercial banks, and occasionally, when it wishes to draw an extraordinary amount of attention to an operation, through the brokers market in its own name. In principle, the DBB always operates visibly, although there have been exceptional occasions when it has operated more discreetly.

Except for operations mandated by membership in the ERM, intervention by the DBB has been largely confined to US dollars. The DBB nearly always operates in the spot market, although it has operated extensively in the forward market on occasion when it wishes to influence exchange market conditions but postpone the money supply effects. Other exchange market activities may be undertaken but are not considered instruments of active exchange rate management, such as swap transactions or foreign exchange transactions under repurchase agreements, in order to "fine-tune" domestic money market conditions.

ITALY

I. Official Views of Exchange Rate Policy

The Italian authorities, like those in France, have accepted the intervention obligations of the ERM, largely for domestic macro-economic management purposes. In recent years they have emphasized the implications of movements in the exchange rate for combating inflation at the expense of ensuring price competitiveness for industry. Having accepted the proposition that Italy should give up the wider, 6 percent band applicable to the lira in the ERM since its inception, the Bank of Italy has used intervention and monetary policy to try to exert pressure on the government to deal meaningfully with its fiscal problems. Under these circumstances, the lira remained mostly within the narrow margins of the ERM during the latter part of the 1980s, and formally adopted the 2.25 percent band in January 1990.

Intervention in recent years has occurred primarily within the margins with the objective of smoothing exchange rate changes against the DM and countering speculative and seasonal pressures.

A few foreign exchange restrictions, mainly to discourage capital outflows, remain in place, but have been gradually lifted in recent years and are much less binding. Nevertheless, specific restrictions have been reintroduced from time to time to counter speculative attacks on the lira viewed as inconsistent with economic fundamentals and a threat to the process of disinflation.

Money market and exchange market operations are coordinated on a daily

basis, with both types of operations taken into account in analyzing and forecasting the short run behavior of the monetary base, assessing the likely effects on banks' reserves, and planning the appropriate operations for subsequent days.

II. Policy Determination

Policy is set, implemented and financed by the Bank of Italy. The Bank controls about 10% of reserves with the remainder controlled by the Ufficio Italiano dei Cambi (UIC). The Ufficio was originally a joint Bank - Treasury office, but has effectively, if not formally, been absorbed into the Bank with some independent responsibilities (for example pertaining to the administration of exchange controls). The Governor of the bank of Italy also serves as President of the Ufficio. There is some talk of formally absorbing the UIC into the Bank, although it is not seen as a pressing issue.

III. Policy Implementation

While the UIC holds the bulk of foreign exchange reserves, the Bank holds the most liquid portion, and all intervention activities are financed out of these holdings. In those cases where the Bank requires access to additional reserves, the UIC supplies the needed funds.

IV. Operational Issues

A feature of the Italian exchange market is the daily fixing, which begins each day at 1:15pm, although its importance is reportedly declining. The fixing is effected by means of a three way conference call linking the Bank with staff on

the Rome and Milan stock exchanges. Eighteen currencies are fixed in a session which generally takes between 60 and 90 minutes; the dollar, mark, and French franc are usually fixed first. The most relevant price information for determining day-to-day intervention is the mark/lira rate and, to a lesser extent, the U.S. dollar/lira and French franc/lira rates. The Bank of Italy may intervene to facilitate the process of fixing exchange rates, and such operations are visible. In addition, the Bank may intervene extensively outside the fixing. Such operations normally are not officially reported or confirmed.

In its foreign exchange dealings, the Bank operates exclusively through commercial banks; no non-banks or brokers are used. The Bank operates in the spot market. Only banks registered in Italy are used for these operations; Italian branches of foreign banks are included. Intervention in the market usually involves lira sales and purchases; cross currency transactions are occasionally conducted with the aim of changing the currency composition of reserves.

When the senior management of the Bank decides to intervene in the foreign exchange market, the foreign exchange desk, with 5-7 traders, is given the discretion to operate up to some authorized amount. The Desk has direct access to the most senior levels of the Bank, and routinely reports market conditions during the course of intervention operations.

E. RESOURCES

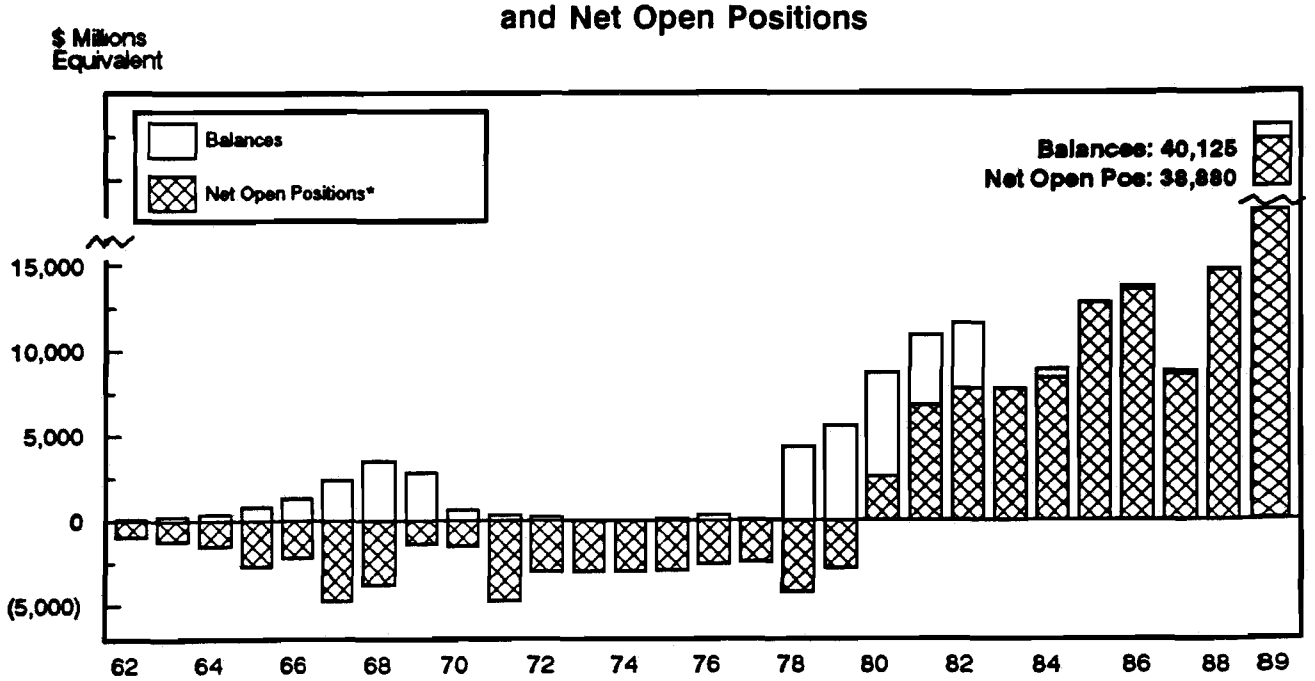
Historical Review of
U.S. Official Holdings of Foreign Currencies*

* Prepared principally by Thad Russell, Foreign Exchange Analysis Staff, Foreign Exchange Department, FRBNY, with the help of Eddie Wolf and other members of the Foreign Currency Accounts Management Division

I. Overview

During most of the period since 1962, U.S. holdings of foreign currencies were low or virtually nonexistent. Until 1980, those holdings the U.S. monetary authorities did have were outweighed by foreign currency liabilities so that, on a net basis, the open position* of the United States in foreign currency was actually strongly negative (see Chart 1 below). There were only three periods -- 1980-1981, 1985, 1988-89 -- when there were substantial increases in U.S. net foreign currency reserves. The rise in U.S. foreign currency holdings was particularly rapid in 1989 when the United States intervened heavily to sell dollars to resist the dollar's rise.

Chart 1
Gross Foreign Currency Balances and Net Open Positions

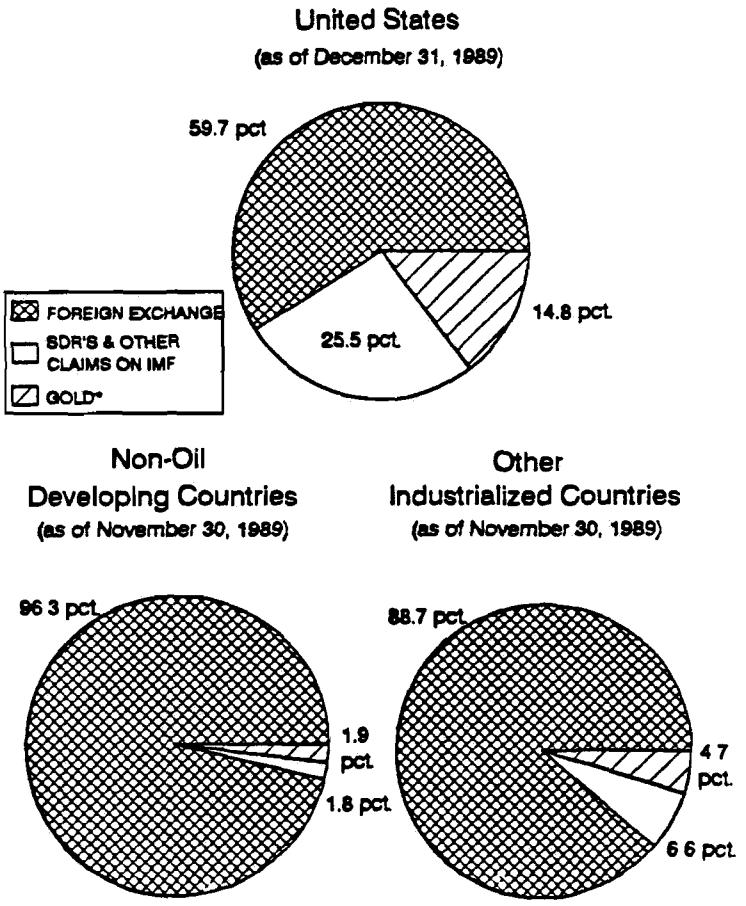


Year-end figures on the basis of original costs. See Table II for supporting data.

* For the purposes of this review, the U.S. open position has been defined as gross foreign currency holdings less foreign currency liabilities arising from swaps, forward sales, and foreign currency-denominated securities.

The level of U.S. foreign currency reserves, about $40 billion at the end of 1989, is the fourth highest after Taiwan, Japan, and Germany. Although among the world's largest in absolute terms, the level is still low according to various relative measures. For example, while foreign exchange has come to account for a record 59 percent of all U.S. official reserves, this is a small proportion compared against the composition of other countries' international reserves (see Chart 2 below). The United States therefore remains unique in the extent to which it holds its official reserves in gold and IMF-related assets.

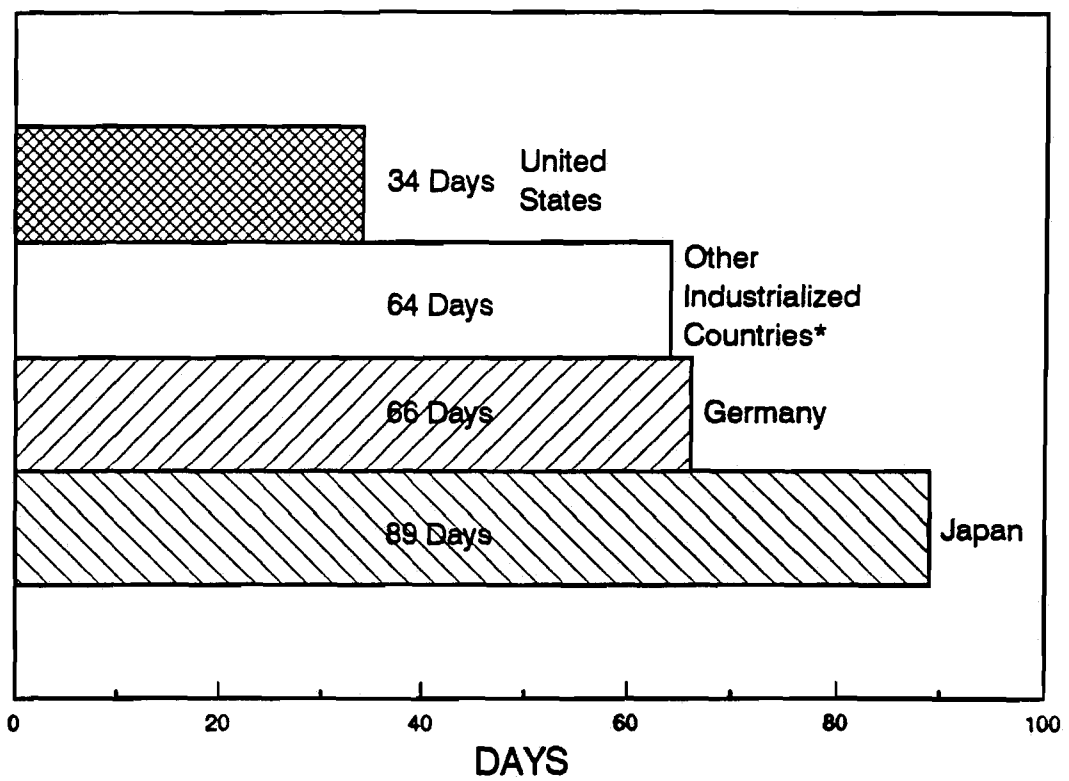
Chart 2
Composition of Official Reserves



Source: International Financial Statistics.
* Gold valued at $42.22 per ounce.

More importantly, the size of U.S. foreign currency holdings is relatively modest when foreign currency reserves are viewed against the size of the U.S. and other economies. A common gauge of the size of a country's international reserves is the number of days the central bank could finance the economy's imports. According to this measure, most other industrial countries could use their foreign currency holdings and other non-gold reserves to cover at least two months of their trade. For the United States, these reserves could finance just one month of trade (see Chart 3 below).

Chart 3
Official Reserves' Cover of Imports of Goods and Services (# of days)



Source: International Financial Statistics
Imports: Calculations based on trade figures for QI - III of 1989 for the United States, Germany and Japan and for 1988 for other countries.
Reserves: As of end December 1989. Includes holdings of foreign exchange, SDRs, and other IMF-related assets.
* IFS group, not including the United States, Germany, and Japan.

In today's environment, of course, the United States would not be called upon to draw on its foreign currency reserves to finance its trade directly. The U.S. authorities could, however, decide to use those reserves to resist a fall in the dollar in the exchange markets, and the speed with which the United States has accumulated reserves suggests the speed with which it might lose reserves.

This capacity to intervene with reserves without, at least initially, having to finance operations by borrowing from other countries or in the credit markets gives the United States somewhat greater policy flexibility and control over its own financial environment. This is because borrowing foreign currencies to finance intervention, whether through the swap arrangements or in foreign credit markets, may be conditioned on taking certain policy actions. This has often been the case in the past. In the late seventies, for example, the German authorities became reluctant to extend additional marks to the United States on the swap line in the absence of U.S. policy actions to deal with the current account deficit. For their part, the U.S. authorities have made the extension of credit contingent on following IMF programs or meeting other conditions. While U.S. and foreign monetary authorities work together cooperatively, differing perceptions of underlying economic conditions as well as differing national interests may mean that credit for intervention will not always be available when desired or on acceptable terms.

In the early sixties, when the System first resumed foreign exchange operations, it was felt that the central bank was the appropriate institution to deal with speculative short-term capital flows. The Treasury, as part of its broader responsibilities for the government's international financial policies, was the entity to provide longer-term financing in the case of continuing imbalances. This distinction was reflected in the types of operations that were conducted by the System and the Treasury, through the Exchange Stabilization Fund (ESF). But over the years, the operational distinctions in carrying out U.S. intervention operations have virtually disappeared. The System and Treasury currently have approximately the same foreign currency

resources and generally share equally in financing foreign exchange operations conducted on their behalf by the Federal Reserve Bank of New York.

Another important development associated with the growth of U.S. foreign currency reserves has been the establishment of new investment facilities for U.S. foreign currency holdings. These facilities were developed to meet U.S. requirements for market-related rates of return, safety, and liquidity. While the arrangement of these facilities has been complicated by foreign central banks' statutory and operational limitations, instruments were devised so that the United States now earns market-related rates of return on virtually all of its holdings of foreign currencies.

II. Foreign Currency Holdings and Exposures

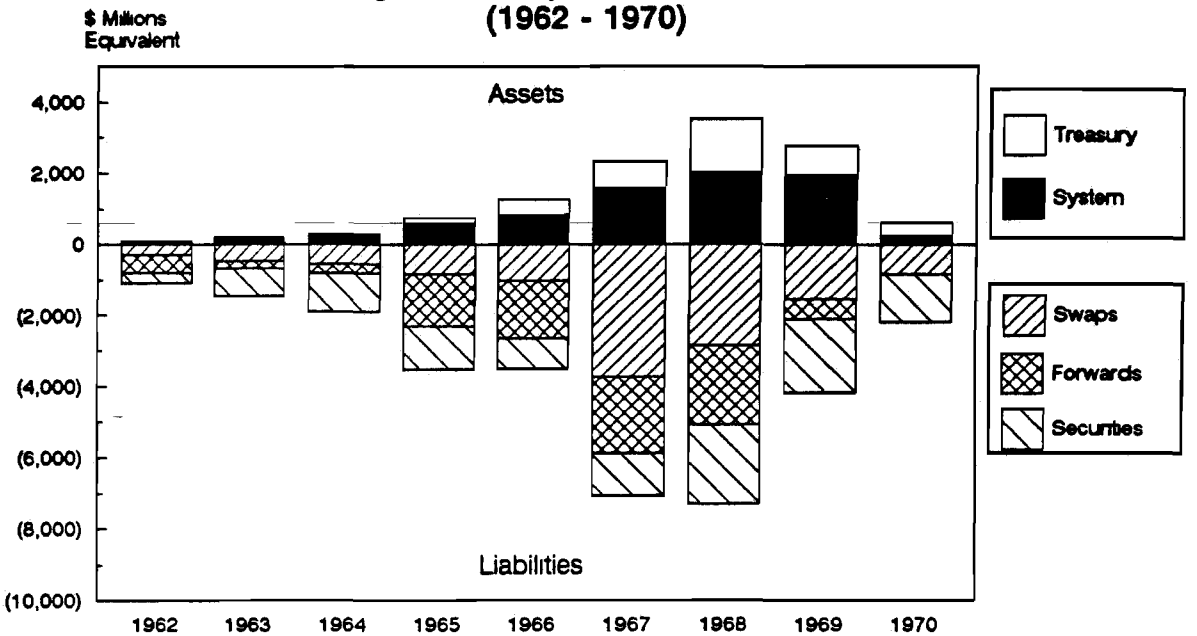
A. The Sixties

At the time the Federal Reserve resumed foreign exchange operations in 1962, the United States had little reason, and little opportunity, to hold or acquire foreign currency reserves (see "Policy" and "Objectives" papers). Under the Bretton Woods system of fixed exchange rates then in place, the United States did not assume any responsibility to intervene in the exchange markets to buy and sell foreign currencies, a responsibility that other industrialized countries assumed. Instead, under the Bretton Woods system, the United States undertook to redeem dollars held by other countries' monetary authorities into gold at the fixed price of $35 an ounce The United States, therefore, had only modest balances of foreign currencies (see Tables III.b and III.c) and kept the bulk of its reserves in gold. Other countries gained or lost foreign currency reserves in the conduct of their intervention operations to maintain fixed exchange rates. Since the principal reserve currency and the dominant transaction currency was the dollar, almost all of these foreign-held currency reserves were held in the form of dollars. But increasingly during the sixties, many central banks became wary of holding large amounts of dollars rather than the traditional reserve asset, gold. These central banks came to perceive their dollar reserves as subject to the risk of a fall in value from either a revaluation of their own currencies or a devaluation of the dollar as declines in the U.S. gold stock and rapid increases in the amount of dollars in foreign official hands raised doubts about the dollar's future convertibility.

During the period from 1962 to the suspension of gold convertibility on August 15, 1971, the United States could obtain currency balances generally in four ways:

First, in order to protect the country's gold stock, the U.S. authorities borrowed foreign currency from the foreign central bank of issue.

Chart 4
U.S. Foreign Currency Holdings* and Liabilities (1962 - 1970)



Year-end figures on the basis of original costs. See Table II for supporting data
* System balances include foreign currencies warehoused for the Treasury.

The U.S. authorities used the borrowed currency to conduct some foreign exchange transactions directly with other central banks in a way that effectively transferred the exchange rate risk of holding some of their dollars from these central banks to the U.S. authorities. That is, the U.S. authorities would use the foreign currency which they had borrowed to purchase dollars from the foreign central bank which otherwise might have been turned in for gold. The foreign currency value of the amount borrowed was guaranteed by the United States, thereby eliminating the exchange rate risk to the foreign central bank of a possible dollar devaluation. In this way, other countries were dissuaded from using their dollar holdings to buy gold from the United States. (In the jargon of the day, the United States provided "cover" for other central banks, which as a result held "covered" dollars in their reserves.) These borrowings, if undertaken by the Federal Reserve, were executed under the Federal Reserve reciprocal currency (or

"swap") arrangements which required repayment in three months, subject to renewal, but no longer than one year (see Table II and "Swaps" paper). If undertaken by the Treasury, the borrowings took several forms of which the most important was the issuance to foreign monetary authorities of foreign-currency denominated, non-marketable medium-term securities, the so-called "Roosa" bonds (see Tables V.a and b). At times, the proceeds of these securities were used to repay System swap debt when market conditions prevented the purchase of currencies to liquidate the swaps within one year, in keeping with understandings that swaps should be used only for short-term financing.

Second, the U.S. authorities acquired currency as a direct result of credit operations they extended to bolster the Bretton Woods system of fixed exchange rates. These credit operations generally took the form of the Federal Reserve lending to other central banks, most importantly the Bank of England, under the swap arrangements. In other words, the Federal Reserve provided dollars to the borrowing central bank in exchange for currency issued by that central bank. The currency so acquired was purchased on a spot basis, with a corresponding obligation to deliver the same amount of currency back to the borrowing central bank at the same exchange rate at a predetermined maturity date--again usually three months after the transaction. Of course, U.S. holdings of foreign currencies arising from such transactions could not be used since their sale would counter what the borrowing central bank had been trying to accomplish.

Third, the U.S. earned interest on its credit operations. The amounts of interest were generally pretty small, amounting to less than $300 million equivalent during this period, and the proceeds were frequently left deposited in accounts the Federal Reserve Bank of New York maintained at the relevant central banks for this purpose.

Fourth, the U.S. had the authority to exchange assets--to sell gold or another reserve asset to a foreign central bank for foreign currency. This option was avoided since the exchange of assets was viewed by the U.S.

authorities as an admission that concern about the size of U.S. dollar liabilities to official foreign monetary institutions was warranted and the underlying situation would never be reversed.

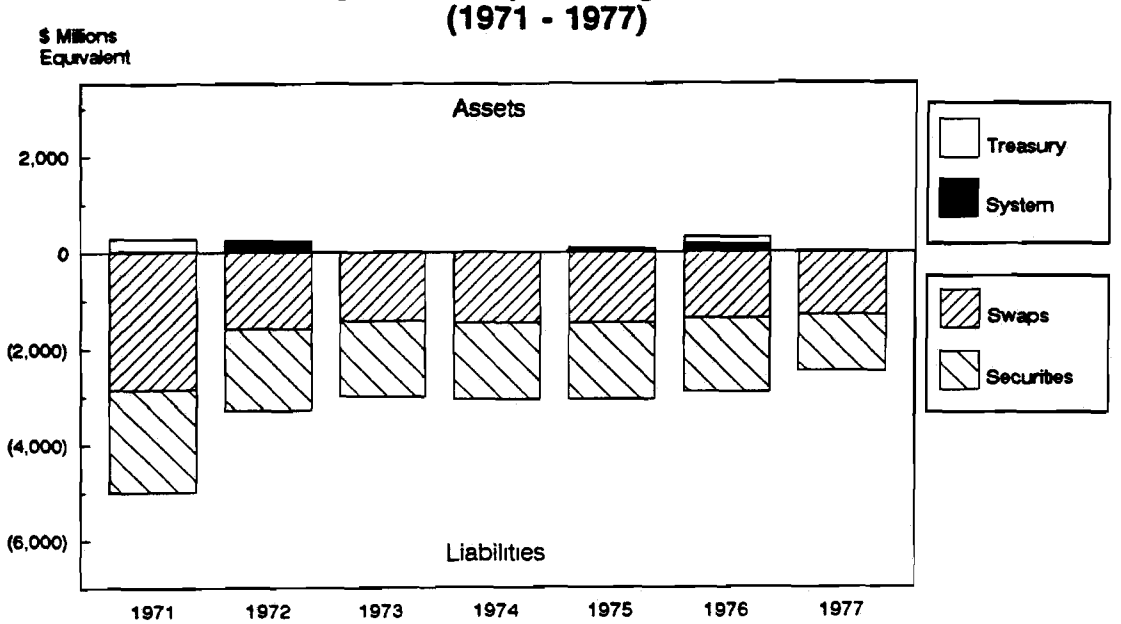
The exchange of assets, along with the earning of interest, were about the only ways the United States acquired foreign currency balances during the fixed exchange rate period on an outright basis--that is, without the obligation to repay.

B. 1971 - 1977

With the suspension of gold convertibility on August 15, 1971, the United States no longer felt it appropriate to provide cover to foreign central banks for their holdings of dollars. The Federal Reserve did, however, borrow under the swap agreements to obtain the funds needed to finance intervention in the exchange markets on a few occasions in 1972 and early in 1973 after the dollar had been devalued, and then again later in 1973 after the start of the floating rate regime (see "Swaps" paper). The amounts drawn were equal to the amounts sold in the exchange market on a daily basis, so that currencies so borrowed never showed up in outstanding balances.

Meanwhile, the authorities engaged in lengthy and difficult discussions with their counterparties abroad over how to unwind the extensive liabilities the United States had left outstanding at the end of the Bretton Woods regime. These amounted to slightly more than $3 billion equivalent in swap debt for the System and almost $2 billion equivalent in foreign-currency denominated securities for the Treasury. These were gradually reduced, in large part through foreign currency purchases from the foreign central banks which held the claims, to $1.7 billion by the end of 1977.

Chart 5
U.S. Foreign Currency Holdings and Liabilities (1971 - 1977)



Year-end figures based on original costs. See Table II for supporting data.

During the mid-seventies, U.S. holdings of foreign currencies were even lower than in the sixties. By the end of 1977, the combined balances of the Federal Reserve and the Treasury stood at less than $10 million. Meanwhile, post-1971 liabilities had been assumed which at the end of 1977 stood at $800 million. Together with pre-1971 debt, these obligations resulted in a net open position of a negative $2.5 billion as of the end of 1977.

C. 1978 - February 1981

As part of the November 1, 1978 package to support the dollar, the United States took a series of measures to shore up its foreign currency balances--both by borrowing at various maturities and by exchanging

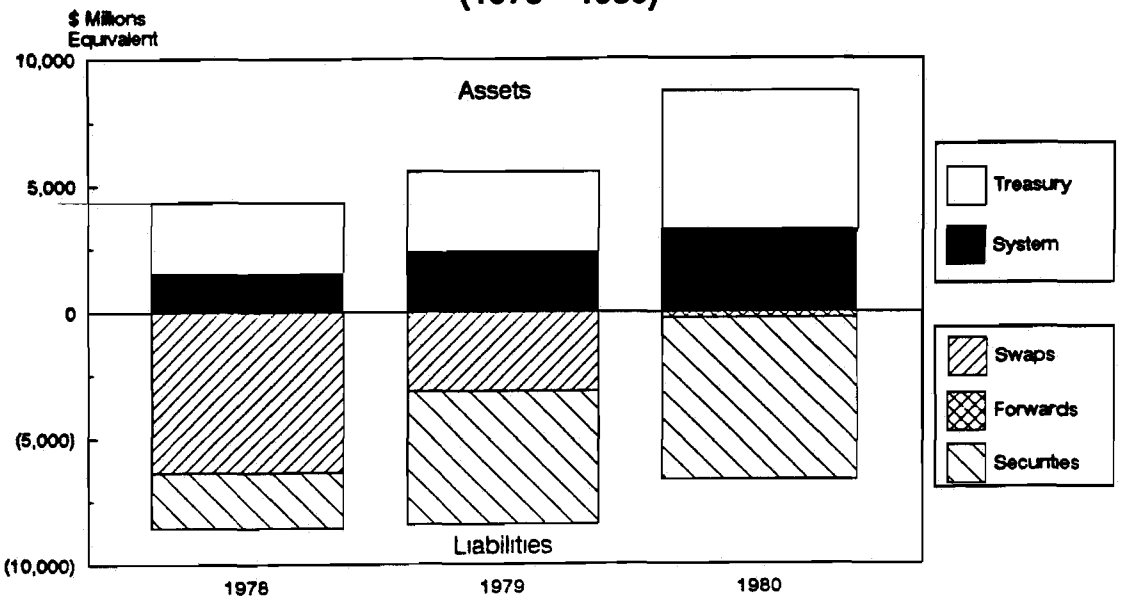
assets. While the dollar had fallen to levels the U.S. authorities felt were clearly undervalued, selling pressure in the exchange market persisted nonetheless. For its part, the Federal Reserve had begun to run out of room to borrow under its swap arrangements with the major creditor countries as the limits of the facilities were approached and creditor countries (especially Germany) had become reluctant to provide additional swap financing in the absence of other actions by the United States to adjust its economic policies. Under these circumstances, the U.S. authorities came to believe that new actions were necessary to provide credibility to a new U.S. balance of payments adjustment and financing program.

Accordingly, in late 1978, the United States drew foreign currencies from the IMF totaling $3 billion, exchanged SDRs for foreign currency balances in the amount of $1.4 billion, and announced its willingness to float foreign currency bonds publicly in foreign markets up to $10 billion. The U.S. Treasury issued these securities (the so-called "Carter bonds") in German marks and Swiss francs, in amounts that ultimately totalled $6.4 billion equivalent (see Tables V.a and b). At the same time, the central banks of Germany, Japan, and Switzerland agreed to increases in their reciprocal swap lines with the Federal Reserve by a total of $9.6 billion.

Boosted by these actions, gross U.S. foreign currency balances totaled more than $4 billion equivalent by the end of 1978; $5 1/2 billion by the end of 1979; and $8 1/2 billion by the end of 1980 (see Chart 6 on next page). However, despite the Treasury's exchange of IMF assets for foreign currencies, the negative open position of the United States in foreign currencies still amounted to well over $4 billion for a time in the late seventies (see Table II). And at the start of 1979, net indebtedness in foreign currencies of the Federal Reserve by itself to foreign central banks reached an all-time peak at more than $5.5 billion equivalent.

As the dollar began to recover in late 1980, U.S. authorities acted to buy currencies in the foreign exchange market to meet their liabilities. They

Chart 6
U.S. Foreign Currency Holdings* and Liabilities (1978 - 1980)



Year-end figures based on original costs. See Table II for supporting data.
* System balances include foreign currencies warehoused for the Treasury.

began these operations very tentatively, so as not to add any downward pressure on the dollar that might limit the scope for future currency purchases. As the dollar gained strength, U.S. authorities became bolder in their approach to the market. In covering their liabilities, the Federal Reserve and Treasury agreed that short-term obligations, such as those under swap lines, should be addressed first. Since all the System's liabilities were short-term, its debt was fully repaid by October 15, 1980. The Treasury's foreign currency-denominated bonds were repaid as they matured, the last being in July 1983, but these liabilities were fully matched (either with remaining proceeds of the "Carter" bonds or foreign currency purchases in the market) by December 5, 1980. After the matching of liabilities was achieved, the System and the Treasury decided to continue to build up some foreign currencies on an outright basis at a time when the authorities in any case were willing to resist a rise in the dollar's exchange

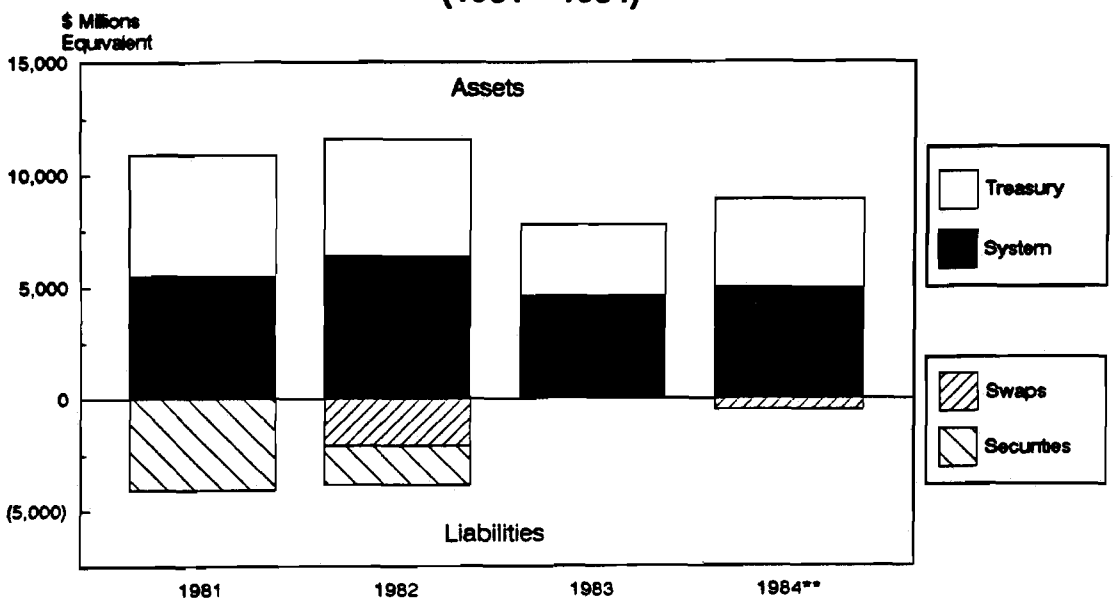
rate. When these operations ended at the end of February 1981, the combined open positions of the Federal Reserve and the Treasury had increased to a positive $6.1 billion.

Meanwhile, U.S. authorities began to seek more attractive investment instruments for their foreign currency balances. The Federal Reserve requested and was granted the authority in the Monetary Control Act of 1980 to invest its foreign currency balances in securities issued or guaranteed by foreign governments. Previously, all Federal Reserve balances had been invested in deposit accounts at foreign central banks or the BIS, and some of these central banks did not have the authority to pay interest on such accounts. The Federal Reserve Bank of New York had already initiated negotiations with the relevant central banks to improve the investment opportunities for the U.S. monetary authorities. In the early eighties, progress in achieving market-related rates of return on the Federal Reserve's foreign currency assets, while at the same time assuring liquidity and safety, was achieved by access to new instruments. Most of the investments used today were arranged at this time. These are described briefly in Section III of this paper.

D. March 1981 - September 1985

Between end-February 1981 and the Plaza Agreement of September 1985, the sources of increases in balances and in the open position were interest earnings on previously acquired balances and a small amount of intervention. Gross interest earnings alone added $3.0 billion to balances during this period. U.S. intervention was minimal for most of this period, especially before 1985. The largest purchase of currency occurred early in 1985, when the U.S. authorities intervened in cooperation with the authorities of several other industrialized countries to try to resist the dollar's rise. The net increase in U.S. balances during the 4 1/2 year period before September 1985 arising from intervention amounted to another $1.3 billion.

Chart 7
U.S. Foreign Currency Holdings* and Liabilities (1981 - 1984)



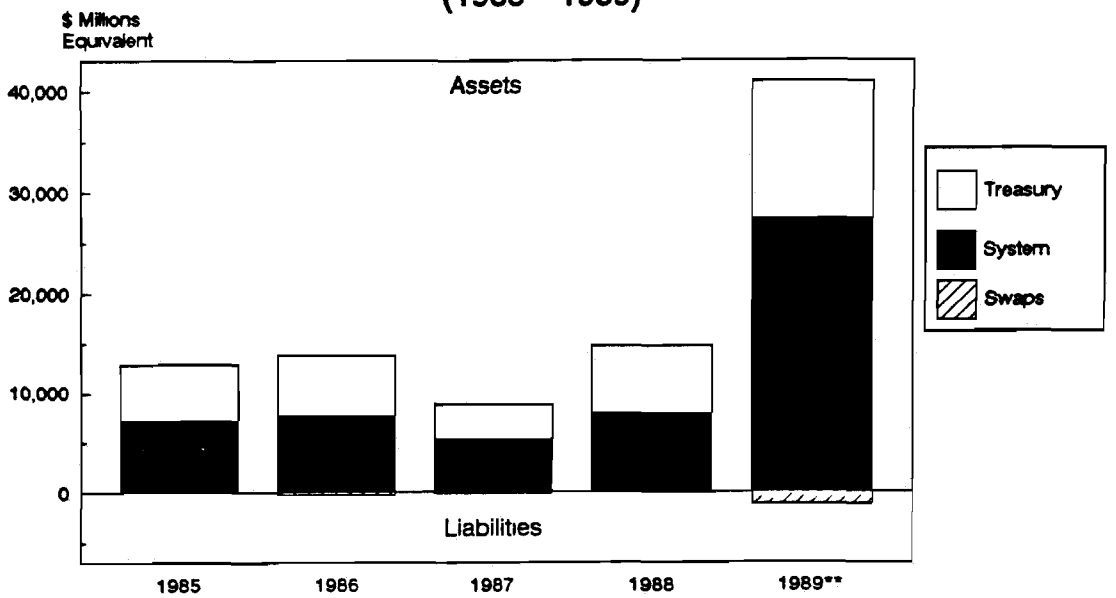
Year-end figures based on original costs. See Table II for supporting data.
* System balances include foreign currencies warehoused for the Treasury.
** Liability as of end 1984 reflects counterpart to swap drawing by Argentina.

Balances were used by the U.S. authorities to pay interest and principal on the Carter bonds and to make a partial payment of the increase in the U.S. quota to the IMF as part of a general increase in IMF quotas in 1983. A total of $5.0 billion equivalent of balances was paid out for these purposes during the period from February 1982 to the Plaza Agreement of September 1985. Since the repayments of Carter bonds extinguished both an asset and a liability, these repayments did not affect the open position, which strengthened on balance during this period. In fact, by mid-1983, most foreign-currency obligations had been repaid (see Chart 7) so that the net U.S. open position nearly equaled gross balances.

D. September 1985 to the present

The period between the Plaza Agreement and the Louvre Accord was characterized by an increase in balances acquired through intervention in exchange markets and interest earnings. With U.S. authorities intervening during late 1985, balances rose by $3.3 billion by the end of that year. There was no intervention during 1986, so that the change was the result of interest earnings. For the 1 1/2 years between September 1985 and February 1987, intervention accounted for a net $3.25 billion increase in balances and interest earnings for a net $400 million increase.

Chart 8
U.S. Foreign Currency Holdings* and Liabilities
(1985 - 1989)



Year-end figures based on original costs. See Table II for supporting data.
* System balances include foreign currencies warehoused for the Treasury.
** Liability as of end 1989 reflects counterpart to swap drawing by various countries

The period since the Louvre Accord is the one with the largest swing in foreign currency balances. Initially during 1987 there was considerable intervention to resist the decline in the dollar, and $8.6 billion

equivalent of foreign currency balances were expended by the end 1987. Subsequently, intervention operations gave rise to a very large increase in balances since the bulk of the operations in 1988 and 1989 were to sell dollars --i.e., buy foreign currencies-- in order to resist the dollar's rise. From early 1988 to the end of 1989, the total increase in balances arising from intervention operations was $22.9 billion, bringing the net increase from intervention alone since the Louvre Accord to $14.4 billion.

Also, after early 1988, when yen reserves had been drawn down to $400 million equivalent as a result of operations since the Louvre Accord* resources to finance future intervention were supplemented in four ways. The U.S. authorities sold dollars to the Bank of Japan for yen in the amount of $3.0 billion, sold SDRs in the amount of $1.1 billion, received earnings from the IMF in foreign currency in the amount of $300 million, and bought $200 million equivalent of foreign currencies from customers.

* Reserves of all foreign currencies amounted to $8 billion equivalent at the time.

III. Investment of Foreign Currency Reserves

With the increase in U.S. foreign currency holdings of marks, yen, and Swiss francs in the late seventies, new investment arrangements began to be negotiated with the central banks of issue. These arrangements have enabled the United States to earn interest on virtually all of its foreign currency holdings. The only non-interest bearing holdings are small amounts held in transactions accounts at the Bank of Canada, the Bank of England, and the Bank of Japan.

In the late seventies, the placement of funds in foreign money market instruments was not considered an option, both because of the lack of suitable instruments in terms of safety and liquidity as well as because foreign central banks felt that such large investments could create problems for their management of domestic liquidity. However, over the next few years, new investment facilities were designed to provide market-related rates of return while at the same time satisfying U.S. requirements for a very high degree of safety and liquidity as well as other countries' concerns over monetary control.

Previously, interest rates on balances for the most part were determined by the arrangements through which the balances were acquired. Balances obtained from reciprocal swaps earned the three-month U.S. Treasury bill rate as provided by the terms of the swap arrangement of the time. (In 1980, the swap arrangements were changed to provide that the interest on foreign currency balances be based on a money market rate of the country of issue.) Balances held outright were left on deposit with the central bank. If that central bank was empowered to pay interest on deposits, the rate paid was often tied to an administered rate such as the central bank's discount rate, rather than a market rate. If the central bank did not have the authority to pay interest on deposits, the funds were either transferred to the Bank for International Settlements (BIS) or left uninvested.

Investments placed as interest-bearing time deposits with the BIS generally have been made either to ensure interest earnings or to accommodate foreign central banks' desires to keep the funds in the market for monetary policy considerations.

As new facilities were established to meet U.S. investment needs for its reserves, different instruments were often developed in keeping with the operational requirements and statutory limitations of the foreign central bank. 552 U.S.C. (b)(4) In yen, balances were invested in a money employed account based on commercial bill rates. In Swiss francs, a repurchase agreement-swap facility was created.

A. Investment Facilities Established in the Late Seventies

552 U.S.C. (b)(4)

German Mark Schuldscheine

552 U.S.C. (b)(4)

Japanese Yen Money Employed Account

Yen balances were invested in money employed accounts at the Bank of Japan. Balances earned interest based on commercial bills "notionally allocated" to U.S. accounts. While the bills remained the property of the Bank of Japan, the interest from the bills was credited to the U.S. authorities.

Swiss franc Repurchase Agreement-Swap Facility

The "repo-swap" facility in Swiss francs was a combination of a currency swap and securities repurchase agreement. 552 U.S.C. (b)(4)

The swap involved a System spot sale of francs against dollars to the Swiss National Bank and the simultaneous forward purchase of francs, usually for 14 days. The dollars from the spot transaction were used by the Federal Reserve to purchase U.S. Treasury bills held by the Swiss central bank at the Federal Reserve Bank of New York. These securities were then sold back to the Swiss National Bank on the same date that the swap was unwound. Prevailing interest and exchange rates were applied to all

transactions, though the forward part of the swap was adjusted for the interest rate on the repurchase agreement. While the swap network used the Treasury bill rate to determine the amount of interest earnings, the repo-swap facility was unique in that it involved the actual purchase of a domestic instrument to earn interest on foreign assets.

B. Investment Facilities Established in the 1980's

With the authority of the Monetary Control Act empowering the Federal Reserve to invest in foreign currency-denominated securities*, U.S. authorities diversified their investment instruments.

German Mark Repurchase Agreements

U.S. authorities have kept DM 1 billion invested in repurchase agreements in mobilization and liquidity paper since 1981. These securities, which are structured like U.S. Treasury bills, are sold by the Bundesbank principally to German commercial banks in order to assist in the central bank's management of domestic liquidity. The United States also currently holds DM 750 million in repurchase agreements in German government bonds, although holdings have totaled as much as DM 2.5 billion at times. 552 U.S.C. (b)(4) , all of these repurchase agreements have 3-month maturities and earn interest based on the German interbank rate less 25 basis points. In the event of the liquidation of these investments by the United States ahead of maturity, there is no charge. However, a profit or loss may be incurred depending on the level of German interest rates and the cost of refinancing compared to the interest rates on the investments being liquidated.

German Long-Term Bonds

Although German government and Federal agency bonds historically have been a fairly large source of investments for the System and Treasury, U.S. authorities presently hold only nominal amounts of these obligations. This reflects the 1-year maturity limitation** on investments and

* Unlike the System, the ESF had not been restricted from investing in foreign currency-denominated securities.
** FOMC Authorization for Foreign Currency Operations (Section 5).

the virtual unavailability of German government bonds with remaining maturities of one year or less as investors generally choose to hold these securities to maturity.

Japanese Treasury Bills

In 1981, the Federal Reserve began to place some of its yen reserves in Japanese Treasury bills, as the U.S. Treasury had done since 1978. 552 U.S.C. (b)(4)

552 U.S.C. (b)(4)

Swiss Money Market Certificate

The Swiss National Bank currently auctions and sells on a discount basis approximately SF 200 million per month of 3-month obligations of the Swiss Confederation. The System's bids at recent auctions have not been accepted, so the System currently does not hold any of these securities.

* 552 U.S.C. (b)(4)

Since this past summer, the auctions' accepted prices generally have produced yields below the alternative investment rate in Swiss franc time deposits at the BIS.

C. Rates of Return

The United States has obtained market-related rates of return on its foreign currency holdings in recent years. Differentials between Euro-currency rates and returns on these holdings have generally been fairly narrow. The annual average rates of return since 1982 for U.S. holdings of yen, marks, and Swiss francs, the principal U.S. foreign currency reserve assets, are shown on the table below. Also shown are three-month Euro-currency deposit rates and the differentials between the portfolio's rates of return and these market rates.

Table I
Rates of Return on U.S. Foreign Currency Balances
(1982 - 1989)

	Japanese yen			Swiss francs			German marks		
	Rate of Return	Euro yen	Differentials	Rate of Return	Euro Swiss	Differentials	Rate of Return	Euro mark	Differentials
1982	6.83	6.93	-0.10	5.47	5.81	-0.34	9.00	9.02	-0.02
1983	6.58	6.54	+0.04	3.45	4.03	-0.58	5.88	5.63	+0.25
1984	6.33	6.32	+0.01	3.74	4.18	-0.44	5.73	5.79	-0.06
1985	6.32	6.40	-0.08	4.62	5.01	-0.39	5.27	5.36	-0.09
1986	5.36	5.40	-0.04	3.82	4.21	-0.39	4.35	4.51	-0.16
1987	3.97	4.15	-0.18	3.47	3.80	-0.33	3.86	4.06	-0.20
1988	3.92	4.35	-0.43	2.91	2.84	+0.07	3.89	4.03	-0.14
1989	4.50	5.07	-0.57	6.05	6.23	-0.18	6.40	6.59	-0.19

Euro currency rates are for 3-month maturities.

APPENDIX -- Warehousing

Since U.S. authorities resumed foreign exchange operations in the early sixties, the Federal Reserve has "warehoused" foreign currencies for the Exchange Stabilization Fund of the U.S. Treasury on several occasions. (See Table IV for amounts outstanding at the end of each year.) Warehousing is a temporary exchange of foreign currency for dollars. In carrying out a warehousing operation, the Federal Reserve buys the foreign currency in a spot purchase from the Treasury and simultaneously undertakes to sell it back to the Treasury at a future date. Interest earnings on the foreign currencies being warehoused accrue to the System. Since the spot and forward transactions are done at the same rate and therefore for the same amounts, neither party incurs any foreign exchange rate risk as a result of the transaction. The ESF may realize a previously unrealized foreign exchange profit or loss when the warehousing is undertaken and remains exposed to valuation gains and losses on the foreign currencies being warehoused. Warehousing transactions are reversed when the Treasury repays the dollars and the Federal Reserve repays the foreign currencies.

The ESF is the Treasury's vehicle for foreign exchange activity. Since the use of the ESF's funds is not subject to the appropriations process, the ESF provides the Treasury with flexibility and discretion for exchange market operations. However, the ESF's capacity to purchase foreign currencies is limited. When its limits have been reached, warehousing has served to give the ESF the room to undertake additional purchases by temporarily selling some of its foreign currencies to the System for dollars. The Bank's authority to warehouse foreign currencies for the Treasury is provided under the Federal Open Market Committee's Authorization for Foreign Currency Operations, Section 1.A and B and in the Foreign Currency Directive, Section 3.B (see "Procedures" and "Legal Bases" papers).

The first warehousing transaction was conducted in 1963 and enabled the Treasury to purchase $100 million equivalent of lire from Italy's finance ministry. In the late sixties, sterling was warehoused, to permit the Treasury to participate in the international support packages for that currency, as well as French francs and lire.

Warehousing was not used again until 1978 when the mechanism facilitated the Treasury's handling of the proceeds of its foreign currency-denominated securities. In this case, as authorized by the FOMC in December 1978, the System provided the warehousing directly to the Treasury, not to the ESF. The warehousing was done for the Treasury's General Fund since the Treasury wished to obtain dollars but did not wish to sell the foreign currencies and transfer the associated foreign exchange rate risk to the ESF.

Currently (as of March 8), the Federal Reserve is warehousing $8 billion equivalent of German marks which have enabled the ESF to participate in additional sales of dollars as part of U.S. intervention operations. The upper limit on the facility is now $10 billion equivalent.

TABLE II

U S FOREIGN CURRENCY RESERVES AND OPEN POSITIONS
(1962 --- 1989)
(in $ millions equivalent)

End Of	FOREIGN CURRENCY BALANCES			OUTSTANDING SWAP LIABILITIES			NET FORWARD COMMITMENTS (FWD SALES & WARESHOUSING)			TREASURY FOR. CURR.	NET OPEN POSITION *		
YEAR	SYSTEM	TREASURY	TOTAL	SYSTEM**	TREASURY	TOTAL	SYSTEM	TREASURY	TOTAL	SECURITIES	SYSTEM	TREASURY	TOTAL
1962	80 8	18 6	99 4	265 0	0 0	265 0	0 0	-516.0	-516.0	298.3	-184.2	-795.7	-979.9
1963	152 6	59 0	211.6	469 0	0 0	469.0	0 0	-207 9	-207.9	760.3	-316.4	-909.2	-1225.6
1964	294 9	37 0	331 9	545 0	0 0	545 0	-98 8	-154 2	-253.0	1086.0	-348.9	-1203.2	-1552.1
1965	629 0	142 0	771.0	700 0	111 3	811.3	-486 7	-1000 0	-1486.7	1207.8	-557.7	-2177.1	-2734.8
1966	874 7	408 8	1283 5	880 0	130 0	1010 0	-532 9	-1101 2	-1634.1	859.5	-538.2	-1681.9	-2220.1
1967	1605 3	738 4	2343 7	3216 0	515 0	3731 0	-557 5	-1580 0	-2137.5	1199.6	-2168.2	-2556.2	-4724.4
1968	2060 5	1464 8	525 3	2099 6	750 0	2849 6	-72 5	-2136.3	-2208.8	2229.7	-111.6	-3651.2	-3762.8
1969	1966 1	813.5	2779 6	980 0	550 0	1530 0	-975.0	425 0	-550.0	2089.9	11.1	-1401.4	-1390.3
1970	257.3	371.9	629.2	810.0	0.0	810.0	0.0	0.0	0.0	1365.7	-552.7	-993.8	-1546.5
8/15/71	22 9	225.1	248.0	3045.0	0.0	3045.0	0.0	0.0	0.0	1998.2	-3022.1	-1773.1	-4795.3
1971	17 0	258 0	275 0	2855.0	0 0	2855 0	0 0	0 0	0.0	2145.2	-2838.0	-1887.2	-4725.2
1972	192 3	48.5	240 8	1585 0	0 0	1585.0	0 0	0.0	0.0	1711.2	-1392.7	-1662.7	-3055.4
1973	4 3	3.3	7.6	1426.8	0 0	1426 8	0.0	0.0	0.0	1586.6	-1422.5	-1583.3	-3005.8
1974	1 7	3.7	5.4	1462.2	0 0	1462.2	0.0	0.0	0.0	1599.3	-1460.5	-1595.6	-3056.1
1975	80.2	0.0	80.2	1464.8	0.0	1464.8	0.0	0.0	0.0	1599.3	-1384.6	-1599.3	-2983.9
1976	170 6	150 0	320.6	1215 9	1650 0	1365.9	0 0	0.0	0.0	1545.7	-1045.3	-1545.7	-2591.0
1977	18 4	0.0	18.4	1306.6	0 0	1306.6	0.0	0 0	0.0	1168.9	-1268.2	-1168.9	-2457.1
1978	1529.2	2805.0	4334 2	5464.3	889.4	6373.7	-1487.3	1487.3	0.0	2195.6	-5442.4	1207.3	-4235.1
1979	2384 3	3183.0	5567.3	3150 2	0.0	3150 2	-2105.5	2105.5	0.0	5268.7	-2871.4	19.8	-2851.6
1980	3246 2	5477.2	8723.4	0.0	0 0	0.0	-3107.1	3340.0	232.9	6436.6	139.1	2380.6	2519.7
1981	5505.2	5382.3	10887.5	0 0	0 0	0 0	-1931.8	1931.8	0 0	4080.8	3573.4	3233.3	6806.7
1982	6388 6	5191 3	11579.9	739 8	1353 6	2093.4	-1464 8	1464.8	0 0	1733.7	4184.0	3568.8	7752.8
1983	4596 6	3186.3	7782 9	0 0	10 0	10 0	0.0	0 0	0.0	0.0	4596.6	3176.3	7772.9
1984	4942 9	3958.2	8901.1	0 0	500.0	500.0	0 0	0.0	0.0	0.0	4942.9	3458.2	8401.1
1985	7152.0	5618.4	12770.4	0.0	0 0	0.0	0.0	0.0	0.0	0.0	7152.0	5618.4	12770.4
1986	7640.7	6071.4	13712.1	98 9	99 2	198.1	0 0	0 0	0.0	0.0	7541.8	5972.2	13514.0
1987	5273 4	3490.9	8764.3	0.0	0.0	0 0	0.0	-182.0	-182.0	0.0	5273.4	3308.9	8582.3
1988	7750.6	6948.3	14698 9	0 0	47 7	47 7	0 0	0.0	0 0	0.0	7750.6	6900.6	14651.2
1989	27575 6	12549 3	40124.9	741.8	502.8	1244 6	-7000 0	7000 0	0.0	0.0	19633.8	19046.5	38680.3

*Open position = Balances - (swap liabilities) + (net forward commitments) - (foreign currency securities).
**Outstanding pre-1971 swap debt at end year: 1971 - 2855.0, 1972 - 1585 0, 1973 - 1426 8, 1974 - 1240 3, 1975 - 1464 8 (revaluation), 1976 - 1051.0, 1977 - 506.3, 1979 - 157.3, 1980 - 0.
All data are reported on the basis of original costs except as noted and are as of year end. See Tables III-V for more detailed information regarding Balances (III), Forward Commitments (IV), and Foreign Currency Securities (V). See Reciprocal Currency Arrangements paper for more information on swaps.

TABLE III.a.

COMPOSITION OF U.S. FOREIGN CURRENCY RESERVES *
(in millions of dollars equivalent)

December 29, 1989

	SYSTEM	U.S. TREASURY	TOTAL
GERMAN MARKS **	19,966.7	4,682.2	24,648 9
JAPANESE YEN	6,443.1	7,325.9	13,769 0
SWISS FRANCS	380.2	22.9	403.1
STERLING	15.8	15.5	31.3
OTHER MAJOR CURRENCIES ***	28.0	0.0	28.0
LDC CURRENCIES +	741.8	502.8	1,244.6
TOTALS	27,575.6	12,549.3	40,124.9

* Reserves based on original acquisition cost.
** Warehoused funds included in System balances.
*** Includes Netherlands Guilders, Belgian Francs, French Francs, and Canadian Dollars.
\+ Includes Mexican Pesos, Bolivian Bolivianos, and Polish Zlotys representing counterpart to swap drawings.

TABLE III. b.

FEDERAL RESERVE BALANCES (1962 - 1989)
(in millions of dollars equivalent)

	GERMAN MARKS	SWISS FRANCS	JAPANESE YEN	STERLING	OTHER	TOTAL
	BALANCE	BALANCE	BALANCE	BALANCE	BALANCE	BALANCE
1962	27.0	4.0	0.0	0.3	49.5	80.8
1963	1.1	0.4	0.0	9.6	141.5	152.6
1964	1.1	0.0	0.9	234.1	58.8	294.9
1965	33.8	0.3	0.9	534.3	59.6	628.9
1966	216.3	2.9	0.9	593.6	61.0	874.7
1967	412.5	2.4	0.9	1,140.6	48.9	1,605.3
1968	165.0	2.6	0.9	1,443.6	448.4	2,060.5
1969	59.8	3.6	0.9	1,574.7	327.1	1,966.1
1970	98.4	4.2	0.9	153.6	0.2	257.3
1971	2.1	7.9	0.9	3.2	2.9	17.0
1972	164.5	6.3	0.9	0.2	20.4	192.3
1973	0.1	3.0	0.9	0.2	0.1	4.3
1974	0.5	0.0	0.9	0.2	0.1	1.7
1975	51.6	13.2	0.9	0.2	4.3	70.2
1976	10.7	0.4	0.9	0.2	158.4	170.6
1977	1.0	4.6	0.9	0.2	11.7	18.4
1978	1,515.6	0.2	0.9	0.2	12.3	1,529.2
1979	983.5	1,186.5	200.7	0.2	13.4	2,384.3
1980	1,483.2	1,312.0	435.2	0.2	15.6	3,246.2
1981	4,523.1	541.8	422.5	0.2	17.6	5,505.2
1982	4,474.9	663.2	492.7	0.2	757.6	6,388.6
1983	3,698.1	303.0	575.6	0.2	19.7	4,596.6
1984	3,996.8	311.2	614.1	0.2	20.6	4,942.9
1985	5,397.9	321.1	1,402.1	9.1	21.8	7,152.0
1986	5,662.0	333.6	1,512.1	10.5	121.9	7,640.1
1987	4,774.3	346.3	116.5	11.8	24.5	5,273.4
1988	6,574.7	359.6	777.0	13.4	25.9	7,750.6
1989	19,966.7	380.2	6,443.1	15.8	769.8	27,575.6

"Other" currency balances principally reflect the foreign currency counterpart of swap drawings by foreign monetary authorities.
Balances include foreign currencies warehoused for the Treasury.

TABLE III. c.
U.S. TREASURY BALANCES (1962 - 1989)
(in millions of dollars equivalent)

	GERMAN MARKS	SWISS FRANCS	JAPANESE YEN	STERLING	OTHER	TOTAL
	BALANCE	BALANCE	BALANCE	BALANCE	BALANCE	BALANCE
1962	1.9	13.2	0.0	0.0	3.5	18.6
1963	2.9	0.6	0.0	5.8	49.7	59.0
1964	8.2	0.5	0.0	27.6	0.7	37.0
1965	16.8	2.3	0.0	121.8	1.1	142.0
1966	0.9	12.0	0.0	363.7	32.2	408.8
1967	17.3	0.2	0.0	716.0	4.9	738.4
1968	90.8	0.0	0.0	1,372.1	1.9	1,464.8
1969	225.7	0.1	0.0	578.7	9.5	814.0
1970	218.7	0.2	0.0	152.8	0.2	371.9
1971	257.4	0.0	0.0	0.1	0.5	258.0
1972	45.7	0.0	0.0	2.6	0.2	48.5
1973	0.3	0.0	0.0	2.8	0.2	3.3
1974	0.1	0.0	0.0	3.0	0.6	3.7
1975	0.0	0.0	0.0	0.0	0.0	0.0
1976	0.0	0.0	0.0	0.0	0.0	0.0
1977	0.0	0.0	0.0	0.0	0.0	0.0
1978	1,171.5	0.0	1,633.5	0.0	0.0	2,805.0
1979	0.0	1,502.6	1,680.4	0.0	0.0	3,183.0
1980	3,586.0	111.8	1,779.4	0.0	0.0	5,477.2
1981	3,413.7	88.1	1,880.5	0.0	0.0	5,382.3
1982	1,757.0	78.0	2,002.7	0.0	1,353.6	5,191.3
1983	1,413.8	18.1	1,744.4	0.0	10.0	3,186.3
1984	1,598.8	18.6	1,840.8	0.0	500.0	3,958.2
1985	2,902.3	19.3	2,687.7	9.1	0.0	5,618.4
1986	3,052.1	20.1	2,889.7	10.3	99.2	6,071.4
1987	2,987.1	20.6	471.6	11.6	0.0	3,490.9
1988	5,493.9	21.6	1,371.9	13.2	47.7	6,948.3
1989	4,682.2	22.9	7,325.9	15.5	502.8	12,549.3

"Other" currency balances principally reflect the foreign currency counterpart of swap drawings by foreign monetary authorities.
Balances do not include foreign currencies being warehoused with the Federal Reserve

TABLE IV

FORWARD COMMITMENTS
(in millions of dollars equivalent)

	FORWARD SALES		WAREHOUSING	
	SYSTEM	TREASURY	SYSTEM	TREASURY
1962	0.0	-516.0	0.0	0.0
1963	0.0	-207.9	0.0	0.0
1964	-98.8	-154.2	0.0	0.0
1965	-486.7	-1000.0	0.0	0.0
1966	-532.9	-1101.2	0.0	0.0
1967	-557.5	-1580.0	0.0	0.0
1968	-72.5	-2136.3	0.0	0.0
1969	0.0	-550.0	-975.0	975.0
1970	0.0	0.0	0.0	0.0
1971	0.0	0.0	0.0	0.0
1972	0.0	0.0	0.0	0.0
1973	0.0	0.0	0.0	0.0
1974	0.0	0.0	0.0	0.0
1975	0.0	0.0	0.0	0.0
1976	0.0	0.0	0.0	0.0
1977	0.0	0.0	0.0	0.0
1978	0.0	0.0	-1487.3	1487.3
1979	0.0	0.0	-2105.5	2105.5
1980	0.0	232.9	-3107.1	3107.1
1981	0.0	0.0	-1931.8	1931.8
1982	0.0	0.0	-1464.8	1464.8
1983	0.0	0.0	0.0	0.0
1984	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0
1987*	0.0	-182.0	0.0	0.0
1988	0.0	0.0	0.0	0.0
1989	0.0	0.0	-7000.0	7000.0

*Represents spot sale of Japanese yen transacted in 1987 for settlement in 1988.
All data as of year end.

TABLE V.a

NEW ISSUES AND REDEMPTIONS OF TREASURY FOREIGN CURRENCY DENOMINATED SECURITIES
(in millions of dollars equivalent)

	GERMAN MARKS		SWISS FRANCS		OTHER		TOTAL	
	ISSUE	REDEEM	ISSUE	REDEEM	ISSUE	REDEEM	ISSUE	REDEEM
				ROOSA BONDS				
1962	0.0	0.0	98.8	0.0	199.5	0.0	298.3	0.0
1963	275.2	0.0	106.4	0.0	80.4	0.0	462.0	0.0
1964	402.4	0.0	121.6	0.0	0.0	(199.5)	524.0	(199.5)
1965	0.0	(75.4)	23.2	0.0	175.2	0.0	198.4	(75.4)
1966	0.0	(251.5)	0.0	(46.2)	0.0	(50.4)	0.0	(348.1)
1967	250.4	0.0	60.3	0.0	60.4	(30.2)	371.1	(30.2)
1968	750.7	(50.3)	288.5	0.0	165.9	(126.1)	1,205.1	(176.4)
1969	124.3	(199.6)	144.6(	53.2)	0.0	(150.5)	268.9	(403.3)
1970	0.0	(542.0)	0.0	(54.7)	0.0	(125.4)	0.0	(722.1)
1971	0.0	0.0	1,572.0	(940.5)	0.0	0.0	1,572.0	(940.5)
1972	0.0	(459.0)	0.0	0.0	0.0	0.0	0.0	(459.0)
1973	0.0	(325.4)	63.6	(62.2)	0.0	0.0	63.6	(387.6)
1974	0.0	0.0	127.3	(127.3)	0.0	0.0	127.3	(127.3)
1975	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1976	0.0	0.0	0.0	(53.6)	0.0	0.0	0.0	(53.6)
1977	0.0	0.0	0.0	(376.8)	0.0	0.0	0.0	(376.8)
1978	0.0	0.0	0.0	(568.5)	0.0	0.0	0.0	(568.5)
1979	0.0	0.0	0.0	(600.4)	0.0	0.0	0.0	(600.4)

				CARTER BONDS				
1978	1,595.2	0.0	0.0	0.0	0.0	0.0	1,595.2	0.0
1979	2,470.5	0.0	1,203.0	0.0	0.0	0.0	3,673.5	0.0
1980	1,168.0	0.0	0.0	0.0	0.0	0.0	1,168.0	0.0
1981	0.0	(1,611.4)	0.0	(744.5)	0.0	0.0	0.0	(2,355.9)
1982	0.0	(2,347.0)	0.0	0.0	0.0	0.0	0.0	(2,347.0)
1983	0.0	(1,275.2)	0.0	(458.5)	0.0	0.0	0.0	(1,733.7)

Other includes issues and redemptions of securities denominated in Austrian schillings, Belgian francs, Italian lire and Dutch guilders.

TABLE V.b

OUTSTANDING ISSUES OF TREASURY FOREIGN CURRENCY DENOMINATED SECURITIES AT YEAR END
(in millions of dollars equivalent)

	GERMAN MARKS	SWISS FRANCS	AUSTRIAN SCHILLINGS	BELGIAN FRANCS	ITALIAN LIRE	TOTAL
			ROOSA BONDS			
1962	0.0	98.8	0.0	0.0	199.5	298.3
1963	275.2	205.2	50.3	30.1	199.5	760.3
1964	678.7	326.9	50.3	30.1	0.0	1,086.0
1965	602.1	349.9	100.7	30.2	124.8	1,207.7
1966	350.7	303.5	50.3	30.2	124.8	859.5
1967	601.2	362.9	50.3	60.4	124.8	1,199.6
1968	1,301.4	652.4	50.3	0.0	225.6	2,229.7
1969	1,219.5	745.0	0.0	0.0	125.4	2,089.9
1970	675.1	690.6	0.0	0.0	0.0	1,365 7
1971	765.0	1,380.2	0.0	0.0	0.0	2,145.2
1972	306.0	1,405.2	0.0	0.0	0.0	1,711.2
1973	0.0	1,586.6	0.0	0.0	0.0	1,586.6
1974	0.0	1,599.3	0.0	0.0	0.0	1,599.3
1975	0.0	1,599.3	0.0	0.0	0.0	1,599.3
1976	0.0	1,545.7	0.0	0.0	0.0	1,545.7
1977	0.0	1,168.9	0.0	0.0	0.0	1,168.9
1978	0.0	600.4	0.0	0.0	0.0	600.4
			CARTER BONDS			
1978	1,595.2	0.0	0.0	0.0	0.0	1,595.2
1979	4,065.7	1,203.0	0.0	0.0	0.0	5,268.7
1980	5,233.6	1,203.0	0.0	0.0	0.0	6,436.6
1981	3,622.3	458.5	0.0	0.0	0.0	4,080.8
1982	1,275.2	458.5	0.0	0.0	0.0	1,733.7
1983	0.0	0.0	0.0	0.0	0.0	0.0

Note: Outstanding issues + New Issues - Redemptions might not equal issues outstanding for the following year due to revaluations.

No securities of this type have been outstanding since July, 1983.

Historical Review of the

Reciprocal Currency Arrangements

(or "Swap" Network)*

Tables

* Prepared principally by Danilo G. Dungca, Foreign Currency Account Management Division, Foreign Exchange Department, FRBNY. With acknowledgment to E. Wolf, T. Kiriposki and D. Charles.

HISTORICAL REVIEW OF THE RECIPROCAL CURRENCY ARRANGEMENTS (OR "SWAP" NETWORK)

Overview

The network of Federal Reserve System's reciprocal currency arrangements (or "swap" arrangements) was developed in the early 1960s to supplement the resources of the U.S. monetary authorities needed to carry out the Treasury's responsibility under the 1934 Gold Act "to support the dollar internationally". The United States, with all of its reserves held in the form of gold, possessed no foreign exchange with which to intervene in the exchange markets. Thus, one of the objectives of establishing the swap network was to develop a mechanism to provide the United States with such currencies. A second objective was to provide the international monetary system indirectly with at least a moderate degree of short-term liquidity not dependent on U.S. balance of payments deficits. Moreover, the establishment of the network served to strengthen confidence in the system by showing the world that the monetary authorities of the major nations were prepared to cooperate to deal with pressures on the system.

Initially, the Federal Reserve drew on its swap facilities most often to protect the U.S. gold stock. Currency operations involving the swaps provided foreign central banks with an alternative to exchanging "excess" dollar holdings for the Treasury's gold reserves. It was not until the floating rate period that the Federal Reserve used swaps primarily as a means of financing U.S. intervention operations. After the dollar was floated the use of swaps became less frequent in general. Also, the tendency developed for the creditor

central bank to exert more pressure than before on the borrowing country to adjust monetary and/or other policies in response to pressures in the exchange market. These pressures were stronger, the more the swap facility was utilized and the longer drawings were outstanding. Since 1980, the Federal Reserve has not initiated any swap drawings, as official sales of foreign currencies have been paid out of reserve balances.

The swap facility as used in the 1960s had several useful features. Foreign currency could be obtained quickly. All that was required was the approval of the counterpart central bank, an approval that could be obtained in one phone call, so as to allow central banks to react to market events as they occurred. Also, swap drawings in general were not usually conditional (although there were important exceptions). The central banks viewed the swap arrangements as the first line of defense after their foreign currency balances to finance intervention to support their currency. The financing was expected to be short term and accessible to contain temporary disruptions to exchange markets. As a result, neither party to a swap drawing expected to engage in negotiations over economic measures to be taken by the borrowing country, a characteristic reserved for medium-term, conditional financing. Third, the use of swaps usually worked in the sense that drawings were reversed without recourse to other arrangements. Proceeds from drawings were directed at combatting "disequilibrating forces" in the short-term. To the extent that pressures on the dollar and other foreign currencies were more fundamental and persistent so that a drawing could not be repaid in a timely fashion, pressures increased for the borrowing country to seek recourse from longer-term facilities such as the IMF.

In recent times, as U.S. foreign currency balances have grown, the Federal Reserve has not had to rely on the swaps to finance currency sales but, instead, has been able to use its own currency holdings. In part, this has enabled the U.S. authorities to maintain control of its foreign exchange operations and avoid conditions on swap drawings. Still the swap network remains in place. It is considered a useful mechanism and an important expression of international cooperation. In recent years, Federal Reserve and ESF swaps have been important components of multilateral financing packages for developing and Eastern European nations. These swaps have thus become associated with longer term financing by multilateral official institutions and have been an essential part of policy efforts aimed at structural reform.

Provisions and Mechanics of Reciprocal Currency Arrangements

Reciprocal currency arrangements between two central banks are facilities whereby each of the banks agrees to exchange its currency for that of the other up to a prearranged maximum amount and agreed period of time. The prearranged maximum represents the "limit" or size of the facility. Generally, both parties commit to the terms of the arrangement for one year.[1] An actual drawing on a facility usually has a term of three months, but can be renewed by mutual agreement. Traditionally, central banks were expected to repay after six months (that is, not request a second renewal) and every

[1] Although warehousing operations between the Federal Reserve and Treasury bear similarities to swap arrangements, discussion of such warehousing operations can be found in a separate paper, "Historical Review of U.S. Official Holdings of Foreign Currencies".

effort was made to prevent a facility from being in continuous use for as long as a year.

A drawing on one of these facilities takes the form of a simultaneous spot purchase and forward sale of one currency against another for a stated (usually three-month) maturity. When a drawing is made, the central bank that initiates the drawing incurs an obligation to sell back the currency. The exercise of this forward commitment in effect reverses the original transaction, liquidating the drawing. Consultations between the two parties are required to initiate or roll over a swap drawing. Two days' notice is required prior to a drawing. The exchange rate used is usually the spot rate prevailing in the market, as agreed by the parties at the time the drawing is agreed, normally two days prior to the value date. This exchange rate serves also as the basis for the rate used to liquidate the swap. When the Federal Reserve used the swaps to finance its intervention during the 1970s it established the amount, exchange rate and value date of a swap drawing to coincide with those of the intervention transaction being financed.

On value date, the Federal Reserve Bank of New York (FRBNY) credits the foreign central bank with dollars. In turn, the foreign central bank credits the FRBNY account on its books with its respective currency. The drawer may intend to use the currency obtained from the swap to finance intervention in the exchange market. In that case, the drawer is exposed to exchange rate risk as a consequence of selling the borrowed currency in the exchange market. It has an obligation to sell the currency back to the central bank of issue at the rate agreed to when the drawing was made, but does not know at which rate it can buy the currency back in the market.

Unused balances obtained from swap drawings are typically invested. Thus,

investment facilities are an integral part of the swap arrangements. The central bank that acts as the creditor almost always invests the currency obtained during the entire term of drawing. If the Federal Reserve System initiates a swap, the central bank counterparty may invest the dollar balances in a non-transferable certificate of indebtedness that the Treasury has agreed to offer for this purpose at a market rate. (See page 7.) If the foreign central bank initiates the swap, the System invests the foreign currency balances with the host central bank. In the original agreements established during the early 1960s, these foreign currency balances earned the equivalent of the U.S. Treasury bill rate. The interest was usually paid in foreign currency either through a direct credit of interest to the System's account prior to liquidation, though sometimes interest was paid by adjusting the forward exchange rate.

Changes in Terms and Conditions

The standard terms and conditions of the swap arrangements have been modified over time. In addition to changes in the swap limits, changes have been made in the exchange rate and interest rate provisions of the swaps.

The exchange rate risk on reciprocal swap arrangements has been handled in two basic ways. The first swap arrangements included a mechanism providing an exchange rate guarantee -- within the framework of the Bretton Wood's par value system of exchange rates -- to protect the borrower from exchange losses that would have resulted if the creditor country revalued its currency. The swap arrangements included a "revaluation clause" which provided that, if a borrower had disbursed part or all of its

drawings, the borrower could purchase from the creditor country that country's currency at the rate in effect prior to the revaluation up to an amount sufficient to replenish outstanding drawings on the swap. This provision was exercised on only one occasion -- in May 1971 -- in connection with a Federal Reserve drawing on its swap line with the Netherlands Bank. These clauses offered no protection in the event that the exchange rate system changed or, individual currencies were floated. Consequently, for U.S. swap drawings outstanding as of August 15, 1971, the System incurred all the losses due to revaluations and the subsequent floating of exchange rates on Belgian franc, sterling and German mark commitments. After negotiation, the Swiss National Bank agreed to absorb a portion of losses from Swiss franc swaps. (For further discussion, see the paper "Profits and Losses in U.S. Foreign Currency Operations").

With the advent of the floating rate regime in the spring of 1973, exchange rate risk was handled in a different way. Foreign central banks continued to intervene heavily at times to restrain rises in their currencies. Meanwhile, the U.S. authorities initially abstained from intervention even when the dollar continued to fall sharply. In a meeting at the Bank for International Settlements (BIS) in July 1973, several foreign central banks agreed to include a risk-sharing clause on the swap provisions as an inducement for the Federal Reserve to undertake more active intervention in the exchange market. This clause -- negotiated with Germany, Belgium, France, the Netherlands and Switzerland -- provided that when the Federal Reserve drew on the swap arrangements for intervention purposes, any profit or loss that resulted at the time the foreign currencies were repaid was to be shared equally between the Federal Reserve and the creditor central bank. This risk-

sharing procedure did not apply when the other central banks drew on their respective swaps with the Federal Reserve.

In December 1980, this risk-sharing procedure, as well as any remaining revaluation clauses, were removed from the terms of the agreements. Subsequently, the U.S. authorities, like their counterparties in the swap agreements, agreed to take the full exchange rate risk on their own swap drawings in exchange for changes in the interest rate provisions indicated below.

The interest rate at which the System earns or pays interest on foreign currency balances from swaps has also changed over the years. Originally, the interest rates on all swap operations were "flat" -- *i.e.,* the interest rate was the same on holdings of both currencies. The actual rate used for all transactions was a dollar-based rate, specifically, the average rate of discount at the latest auction of three-month U.S. Treasury bills.

With the advent of dollar floating, these provisions remained for a time for practical reasons. Many of the foreign countries lacked an instrument comparable to U.S. Treasury bills on which to base an interest rate. By 1980, however, comparable instruments had become more readily available abroad and questions had arisen as to whether the United States should continue, in effect, to pay its relatively higher interest rates when borrowing low interest rate currencies such as the mark. Therefore, when the United States authorities agreed in December 1980 to eliminate the risk-sharing procedure, foreign monetary authorities in return agreed to changes in the interest rate provisions. Specifically, in instances where the Federal Reserve initiates the drawings, the foreign central bank's dollar holdings are still invested at the U.S. Treasury bill rate. However, the forward exchange rate on the swap is now adjusted to take into account the differential

between the Treasury bill rate and its foreign counterpart rate. In this way the interest the United States effectively pays is no greater than that on a comparable instrument in the other currency.

Establishing the Federal Reserve Swap Network

The first reciprocal currency arrangement established by the Federal Reserve was with the Bank of France in March 1962. In the following months, additional swap lines were opened with other central banks and the BIS and, in most cases, utilized immediately. By the end of 1963, the Federal Reserve had established a $2.1 billion swap network, consisting of lines with eleven central banks and the BIS. (Table 1 provides current information on each of the Federal Reserve swap arrangements; Table 2 lists the swap lines and changes in the limits from 1962 to the present.)

The size of the swap lines was increased periodically in the 1960s and 1970s. The establishment of or increase in the swap arrangements were often timed so that the announcement of these operations would create a strong impact in the exchange market, at times as part of a broader policy package aimed at helping to restore a more orderly market atmosphere. By 1967 three more central banks and a second swap facility with the BIS were included in the network. During 1978, the Federal Reserve swap network was increased to $29.8 billion from $20.2 billion, as swap lines with Germany, Japan and Switzerland were increased by $4 billion, $3 billion and $2.6 billion, respectively. In 1979, the Federal Reserve swap line with Mexico was increased to $700 million; in the following year, the arrangement with Sweden was increased to $500 million. The Swedish

arrangement returned to the $300 million maximum in 1981, bringing the total of Federal Reserve swap network to its current $30.1 billion. Apart from the swap network, the Federal Reserve has entered into one-time special swap arrangements with Mexico in 1982 and 1989.

Use of the Reciprocal Swap Arrangements

Use of the swap network by the United States has varied since its establishment in the early 1960s with changes in circumstances and in official policy views. Broadly speaking, four periods can be identified: 1962-August 1971; August 1971-1973; 1973-1980; and 1981 to the present.

1962 to August 1971

The swap facilities were used extensively to provide exchange rate cover for other countries' holdings of dollar reserves as the dollar suffered repeated and increasingly severe bouts of downward pressure. [See "Historical Review of Official Holdings of Foreign Currencies" for further discussion.] The Federal Reserve drew many currencies in the swap network -- to absorb the mounting dollar liabilities held by a large number of foreign central banks and thereby limit purchases on U.S. gold reserves. (See Table 3.) Direct sales in the market of foreign currencies drawn by the United States were extremely limited.

Ten counterparties also drew on their swap arrangements with the Federal Reserve. Most importantly, the Bank of England drew a total of $8.7 billion on various occasions

between 1962 and 1971 as part of efforts to contend with recurring pressures on sterling during the period. The Bank of France drew $1.2 billion to deal with balance of payments problems, while the BIS drew $2.3 billion against marks to meet short-term liquidity requirements.

August 1971 to 1973

During the period immediately following the suspension of gold convertibility, the swap network was virtually unused. Swap drawings were regarded as inappropriate in 1972 and early 1973, as discussions continued about the future structure of the international monetary system.

1973 to 1980

In mid-1973, after the move to floating, the United States began once more, in a modest way, to utilize swaps. (See Table 4.) At first, the United States believed the swap arrangements should be used only to help finance intervention. Since U.S. intervention was infrequent and modest in size, the use of swaps by the United States was much more limited than before 1971. During 1977 - 1980, however, the United States made substantial use of swaps when it encountered serious exchange rate difficulties. Unlike in the 1960s, during this period the Federal Reserve drew only those currencies used for exchange market intervention, principally German marks and Swiss francs. All of these later drawings were repaid either by buying currencies from the counterpart central bank, other monetary authorities or the market as the dollar regained its strength after 1978 - 1979.

In the mid-1970s, the Federal Reserve also accepted a few requests from other countries to draw on the swap arrangements under certain circumstances. From 1974 to 1976, the Bank of Mexico drew more than $1 billion on its swap lines to meet a temporary need to increase its reserves and to help finance its intervention operations. In January 1976, the Bank of Italy drew $250 million on its Federal Reserve swap line. In anticipation of medium-term credits to Italy from the International Monetary Fund and European Economic Community governments, a second drawing for the same amount was made in March of that year. In June, 1976, the Federal Reserve agreed to include its swap facility with the Bank of England as part of a $5.3 billion package of standby credits from Group of Ten countries, the Swiss National Bank and the BIS. The Treasury also participated with a $1 billion special swap arrangement. The United Kingdom drew $300 million on each U.S. facility and repaid each in full before year end. Another multilateral facility was established for the United Kingdom during January 1977, to deal with the sterling balances. This facility, however, was not drawn on.

Drawings for these countries were undertaken to combat severe bouts of downward pressure on their currencies and, at times, to bolster their dollar reserves. In each case, however, drawings became increasingly tied to implementing changes in economic policy and assured sources of funds for repayment.

1981 to Present

The United States initiated no swap drawings in the decade of the 1980s. Between 1981 and 1986, most intervention operations which were undertaken involved the sale of

dollars (purchase of foreign currencies). Subsequent official purchases of dollars (sales of foreign currencies) in 1987 and 1988 were mainly covered out of balances built up over the previous seven years. Although reserves of Japanese yen were substantially reduced by 1988, alternative methods of financing were used (mainly, direct purchases from official sources in Japan). There were, however, drawings made by Mexico on the swap line in 1982-83, 1986, 1988 and 1989 and special one-time swap drawings in 1982 ($325 million) and 1989 ($125 million) as well as one drawing each by Sweden in 1981 and the BIS in 1982. (See Table 5.)

Federal Reserve Swap Arrangements with the BIS

The System maintains two swap lines with the BIS. The first, a Swiss franc swap agreement, was established in 1962. The second, a swap arrangement against other European currencies, was established in 1965. These facilities were negotiated with recognition of the special status of the BIS as a clearing bank for central banks.

The Swiss franc facility with the BIS, with an initial size of $100 million (subsequently raised in several steps to its current size of $600 million), was established at the same time the System established a $100 million swap line with the Swiss National Bank (BNS). The BIS dollar/franc facility was created at the request of the BNS. The need to supplement Switzerland's own swap lines, was due in part to Swiss statutory limits on "loans" to non-Swiss banks. Along with the BNS swap, the BIS Swiss franc swap was largely used in the 1960s to purchase dollars from the BNS to avoid BNS purchases of gold at times when the BNS was gaining dollar reserves.

The System established its second swap arrangement with the BIS in 1965 with an initial size of $150 million (subsequently raised in several steps to its current size of $1,250 million), to add to the System's access to European currencies at a time when the swap network was being expanded with other central banks. Last drawn upon in 1982, the "other European currency" facility has been used in two types of operations. First, it replaced an arrangement by which the BIS could borrow against gold it held on the books of the FRBNY for its temporary cash needs related to its routine transactions. The facility was so used on various occasions. During the 1970s the BIS established arrangements with a commercial bank to meet most of these needs. Second, the facility was used on some occasions in the 1960s and 1970s as a means by which the Federal Reserve could supply funds to the Eurodollar market at times of strain in the Euromarket.

ESF Swap Arrangements

Although the Federal Reserve is closely associated with reciprocal currency arrangements, the Treasury, through the Exchange Stabilization Fund (ESF), maintains this type of facility with several countries and established the first such arrangement, that with Mexico, in 1936. It currently has standing arrangements with Germany, Mexico and the Netherlands. Of the three arrangements, the Mexican facility is the only one that is reciprocal -- where either party may request a drawing. The arrangement with Germany allows for the ESF to make drawings while the Netherlands arrangement is set up to allow the Dutch authorities to request drawdowns. From time to time, the Treasury has also entered into temporary swap arrangements with LDCs and east European countries.

In January 1978, the Treasury established a $1 billion reciprocal currency arrangement with Germany as part of a package to provide supplemental resources to finance intervention to cushion the dollar's fall in that year. The existence, but not the size of the facility was announced at that time. The bulk of the Treasury's mark sales during 1978 were covered through the swap facility with the Bundesbank which became extensively used during two episodes that year -- January through April and August through December. The facility was last utilized in September 1979 when the ESF drew $338 million equivalent; the drawing was fully repaid the same month.

The Treasury had Stabilization Fund Agreements with Mexico as early as 1936 and has maintained arrangements on a continuous basis since 1941. The 1941 agreement allowed Mexico to draw up to $40 million to stabilize the peso/dollar rate. On a number of occasions the terms of the agreement have been revised. The last revised agreement in January 1990, states that drawings can be requested for "balance of payments purposes or to forestall or counter disorderly market conditions". The facility has been used most recently in 1988. Other drawings by Mexico during the past decade have been made under special swap arrangements.

In August, 1981, the ESF established a swap arrangement with the Netherlands authorities in connection with arrangements made to settle non-bank claims on Iran after frozen Iranian assets were released. The Algiers Accords of January 1981 set up a tribunal for the settlement of such claims. The Netherlands central bank offered to act as a depository for the fund from which awards by the tribunal are paid. Because of concerns that there might be attempts to attach assets in the fund, the Netherlands Bank

did not want the funds commingled with its own funds and thereby established the N.V. Settlement Bank of the Netherlands. As further protection, the Netherlands Bank requested access to dollar funds that could be drawn in the event of an attachment. Given that no such attempt at attachment has taken place, the swap has never been drawn. Since the tribunal is expected to continue to exist, the swap has been renewed at two-year intervals.

The Treasury has participated in numerous *ad hoc* swap arrangements with LDCs and others since 1982. Most of these special arrangements are part of multilateral arrangements that provide short-term financing in anticipation of longer-term financing from the IMF, the World Bank, and at times, from commercial banks. (Table 6 provides a summary of ESF special swap arrangements from 1982 to the present.) Aside from Mexico, the largest drawer on these special arrangements has been Argentina. In five facilities since 1984, Argentina has drawn a total of $1.7 billion from the ESF. Brazil has made three drawings, in 1983 - 1984 and 1988, totalling $2.1 billion. At the end of 1989, drawings on ESF facilities were outstanding with Mexico, Bolivia and Poland.

Assessment of the Use of Swaps

The U.S. experience with the use of swaps can be assessed from various viewpoints. Operationally, the swap network has worked quite well. It is based on a familiar and widely used market mechanism. It is simple in concept, easy to understand and easy to work with. Experience with its use is extensive. With the operational structure in place, the facilities can be activated quickly once agreement to do so has been reached.

It is more difficult to assess the financial impact of the extensive use of swaps during the 1960s since we do not know what would have happened in the absence of their use. When the dollar was devalued in 1971, outstanding swaps were $2,855 million (in addition to foreign currency denominated bonds of $2,145 million) and in a sense the Treasury and Federal Reserve suffered losses on these amounts because of the change in exchange rates. But in another sense, assuming that the swaps and other instruments did succeed in reducing sales of gold at $35 per ounce, the "gains" from reduced gold sales would have far exceeded the "losses" on the swaps. But the balance would shift again if it were assumed that such demands to buy gold would have caused the United States to close the gold window some months or years earlier.

An assessment of the way the swap network was used in the 1960s from a policy viewpoint is even more complex. It is understandable that the swaps were widely used, since at that time there were few if any alternatives. But in retrospect the dollar's problem in the 1960s was not short-term and could not be effectively dealt with by such mechanisms. In such circumstances, use of the swap network can serve as a stop-gap measure -- to counter market pressure and buy time to agree on and introduce more fundamental solutions.

Of course, the decision to provide or not to provide swap credit becomes part of the governmental negotiating process with each party using it for its own ends. The creditor may strongly favor extending swap credit -- it provides an exchange rate guarantee and may discourage unpalatable corrective action by the debtor. Alternatively, a swap creditor may withhold the credits to force the debtor to take other actions to

correct or finance its deficits. One example of this practice is Germany in the late 1970s, which limited its provision of swap credit in order to "encourage" the United States to use other sources of finance (notably sales of SDR drawings from IMF, and borrowing in the market) and to make changes in U.S. economic policies. It was partly in response to this episode that U.S. authorities decided to build up United States foreign currency balances in 1980 and 1981. The United States has also used this technique as a creditor -- using swap credits in 1976 to "encourage" the UK to agree with the IMF on a balance of payments correction program and similarly with Mexico in 1982.

The swap network is a useful mechanism, and its existence is a valuable and reassuring manifestation of international cooperation among the major industrial nations toward management of the system. It cannot replace or obviate the need for owned foreign exchange holding which can be used without the need for the creditors' concurrence, but it can be a useful supplement.

The question has been raised to what extent the use of two-way swap arrangements with foreign central banks might reduce the translation risk associated with holding foreign currencies now that the United States has built up large currency balances. As the reciprocal currency arrangements are now structured, the use of swaps by the Federal Reserve would have no effect on exchange rate risk, although there might be some reallocation between realized and translation profits and losses. Balances held are revalued at the end of each reporting month to take account of current exchange rates. If, instead, these balances, or a portion of these balances were sold spot to another central bank under our "swap arrangements" which provide for a simultaneous

commitment to buy them back three months later, the Federal Reserve would have a realized profit or loss at the time the swap was entered into. The forward contract to buy the currency back would be revalued to market rates at the end of each reporting period during the time the swap was outstanding. The only effect of these transactions, relative to holding the currency in balances, is that some of the translation profit and loss would be realized.

The Federal Reserve could permanently sell the currency back to the central bank of issue or another central bank and thereby reduce its exposure to translation risk if the foreign central bank agreed. But the consequence of such an arrangement would be to reduce the United States foreign currency reserves without recourse in the event of need. Such an action would bring forward the need to borrow foreign currencies, using techniques similar to those employed during the 1970s (see "Historical Review of Official Holdings of Foreign Currencies) -- thereby, subject U.S. economic policy to a greater degree of influence from other monetary authorities -- whenever the United States might again find itself intervening to support the dollar.

Central banks from many countries have wrestled with the issues of providing adequate foreign currency reserves for their own domestic economy, managing to some degree the exchange value of their currency and avoiding exchange rate risk. Given the choices, central banks have usually, in the end, accepted the inevitability of exchange rate exposure.

However, central banks abroad are particularly sensitive to what they regard as the special role of the dollar: it is the principal currency in their reserves yet difficult for them

to control. Repeatedly since the early 1960s, foreign central banks have asked the United Sates to devise a means whereby they could be protected from the risk of holding dollars in their reserves. The U.S. authorities consistently have been unwilling to agree to such arrangements. The early risk-sharing arrangements related to swap drawings were never applied when other central banks drew on their swap lines with the Federal Reserve. Since the suspension of convertibility of the dollar with gold, no such arrangement has ever applied to dollar balances held by foreign monetary authorities.

Should the United States try to seek the cooperation of these same central banks in requesting them to accept some of the exchange risk for U.S. holdings of their currencies, it would be natural for them to expect the United States to be more sympathetic to similar request from them. In that event, the amount of relief the United States would get from reducing some of the exchange rate risk on foreign currency reserves amounting to about $40 billion would pale by comparison to the task the United States would have of providing relief to others whose dollar holdings are measured in the hundreds of billions.

TABLE 1

CURRENT PRINCIPAL TERMS AND CONDITIONS
OF FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENT

Agreement with Central Bank of	Original Date	Amount (millions)	Term (months)	Maturity Date	Applicable Interest Rate on Swap Drawings by: Federal Reserve	Applicable Interest Rate on Swap Drawings by: Foreign Central Bank	Side Conditions (included in text of swap agreements)	Side Conditions (not included in text of swap agreements)
Austria	10/25/62	$ 250.0	12	12/04/90	Unspecified Austrian 3-month money market instrument	Discount rate on 3-month Treasury bills(a)	None	None
Belgium	06/20/62	1,000.0	12	12/18/90	3-month Belgian Treasury Certificates(b)	-do-	Fed could, upon mutual agreement, acquire francs directly from the BNB (rather than in the market) to repay outstanding swap drawings	None
Canada	06/26/62	2,000.0	12	12/28/90	3-month Canadian Treasury bills(c)	-do-	None	None
Denmark	05/17/67	250.0	12	12/28/90	Unspecified Danish Treasury security	-do-	None	None
England	05/31/62	3,000.0	12	12/04/90	3-month U.K. Treasury bills(c)	-do-	None	None

NOTE: "Unspecified" instrument - Swap cannot be activated without further agreement.

a/ The rate of discount is applied to the C of I issued to the foreign central bank. Thus, the rate of discount on the bills is equivalent to the investment yield of the C or I.
b/ Not specified whether rate on a discount basis or on investment yield basis will be used in calculating the amount of interest
c/ Interest rate is on a discount basis.

TABLE 1

(Continued)

CURRENT PRINCIPAL TERMS AND CONDITIONS
OF FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENT

Agreement with Central Bank of	Original Date	Amount (millions)	Term (months)	Maturity Date	Applicable Interest Rate on Swap Drawings by: Federal Reserve	Applicable Interest Rate on Swap Drawings by: Foreign Central Bank	Side Conditions (included in text of swap agreements)	Side Conditions (not included in text of swap agreements)
France	03/01/62	$2,000.0	12	12/28/90	Interbank rate on 3-month collateral loans less 0.25 percentage points(d)	Discount rate on 3-month Treasury bills(a)	Fed could, upon mutual agreement, acquire francs directly from the Bank of France to repay outstanding swap drawings	None
Germany	08/02/62	6,000.0	12	12/28/90	3-month interbank rate less 0.25 percentage points(d)	-do-	Under certain conditions agreement, acquire marks directly from Bundesbank to repay outstanding swap drawings	Letter from former President Emminger to former Chairman Miller confirms that the Bundesbank will give a favorable consideration to sale of marks to the Fed when it cannot acquire through other means to repay outstanding swap drawings
Italy	10/62	3,000.0	12	12/28/90	3-month Italian Treasury bills	-do-	None	None

a/ The rate of discount is applied to the C of I issued to the foreign central bank. Thus, the rate of discount on the bills is equivalent to the investment yield of the C or I.
d/ Not specified, but text suggests a rate on an investment yield basis.

TABLE 1

(Continued)

CURRENT PRINCIPAL TERMS AND CONDITIONS
OF FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENT

Agreement with Central Bank of	Original Date	Amount (millions)	Term (months)	Maturity Date	Applicable Interest Rate on Swap Drawings by: Federal Reserve	Applicable Interest Rate on Swap Drawings by: Foreign Central Bank	Side Conditions (included in text of swap agreements)	Side Conditions (not included in text of swap agreements)
Japan	10/29/63	$5,000.0	12	12/04/90	3-month Japanese Gensaki repurchase	Discount rate on 3-month Treasury bills[a]	The text contains a number of provisions ("understandings") which are of technical nature, such as which foreign exchange rate applies to swap drawings and renewals of drawings.	Terms provide for a fairly strong commitment by Bank of Japan to supply yen to the Fed to repay outstanding swap commitments if market conditions do not permit acquisitions in the market.
Mexico	05/17/67	700.0	12	12/04/90	3-month Mexican Treasury certificates[b]	-do-	None	None
Netherlands	06/13/62	500.0	12	12/28/90	3-month Netherlands Treasury paper[c]	-do-	Fed could, upon mutual agreement, acquire guilders directly from the Netherlands Bank to repay outstanding swap drawings.	None
Norway	05/17/67	250.0	12	12/04/90	Unspecified Norwegian money market instrument	-do-	None	None

a/ The rate of discount is applied to the C of I issued to the foreign central bank. Thus, the rate of discount on the bills is equivalent to the investment yield of the C or I.
b/ Not specified whether rate on a discount basis or on investment yield basis will be used in calculating the amount of interest.
c/ Interest rate is on a discount basis.

TABLE 1

(Continued)

CURRENT PRINCIPAL TERMS AND CONDITIONS
OF FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENT

Agreement with Central Bank of	Original Date	Amount (millions)	Term (months)	Maturity Date	Applicable Interest Rate on Swap Drawings by: Federal Reserve	Applicable Interest Rate on Swap Drawings by: Foreign Central Bank	Side Conditions (included in text of swap agreements)	Side Conditions (not included in text of swap agreements)
Sweden	01/17/63	$ 300.0	12	12/04/90	Unspecified Swedish money market instrument	Discount rate on 3-month Treasury bills(a)	None	None
Switzerland	07/16/62	4,000.0	12	12/04/90	3-month Swiss govt. money market certificates(c)	-do-	Fed could, upon mutual agreement, acquire francs directly from the BNS to repay outstanding swap drawings	None
B.I.S	07/16/62	600.0 (against SF)	12	12/04/90	3-month Swiss govt. money market certificates(d)	-do-	Text is silent, but there is the presumption that the BNS, upon mutual agreement, would supply francs to the Fed to repay swap drawing.	None
B.I.S.	08/02/65	1,250.0 (against European currencies other than SF) (e)	12	12/04/90	Unspecified	Unspecified	None	None

a/ The rate of discount is applied to the C of I issued to the foreign central bank. Thus, the rate of discount on the bills is equivalent to the investment yield of the C or I.
c/ Interest rate is on a discount basis.
d/ Not specified, but text suggests a rate on an investment yield basis.
e/ There are three types of drawings under this swap facility:
(1) those made in lieu of loans under the gold loan facility
(2) those made for special cash requirements of the B.I.S., usually for financial assistance to another country; and
(3) those for placement in the Euro-dollar market.
The latter are normally at our suggestion and always with our specific agreement

TABLE 2

FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENTS

CHANGES IN SWAP LIMITS, 1962 - 1989

(IN MILLIONS OF DOLLARS)

	AUSTR	BELG	CANAD	DEM	ENG	FR	GERM	ITL
1962	50	50	250	-	50	50	50	150
1963	50	50	250	-	500	100	250	250
1964	50	100	250	-	750	100	250	250
1965	50	100	250	-	750	100	250	450
1966	100	150	500	-	1350	100	400	600
1967	100	225	750	100	1500	100	750	750
1968	100	225	1000	100	2000	1000	1000	1000
1969	200	500	1000	200	2000	1000	1000	1000
1970	200	500	1000	200	2000	1000	1000	1250
1971	200	600	1000	200	2000	1000	1000	1250
1972	200	600	1000	200	2000	1000	1000	1250
1973	250	1000	2000	250	2000	2000	2000	2000
1974	250	1000	2000	250	3000	2000	2000	3000
1975	250	1000	2000	250	3000	2000	2000	3000
1976	250	1000	2000	250	3000	2000	2000	3000
1977	250	1000	2000	250	3000	2000	2000	3000
1978	250	1000	2000	250	3000	2000	6000	3000
1979	250	1000	2000	250	3000	2000	6000	3000
1980	250	1000	2000	250	3000	2000	6000	3000
1981-89	250	1000	2000	250	3000	2000	6000	3000

	JPN	MEX	NETH	NOR	SWE	SWITZ	BIS $/SF	BIS $/OTH	TOTAL
1962	-	-	50	-	-	100	100	-	900
1963	150	-	100	-	50	150	150	-	2050
1964	150	-	100	-	50	150	150	-	2350
1965	250	-	100	-	50	150	150	150	2800
1966	450	-	150	-	100	200	200	200	4500
1967	750	130	225	100	200	400	400	600	7080
1968	1000	130	400	100	250	600	600	1000	10505
1969	1000	130	300	200	250	600	600	1000	10980
1970	1000	130	300	200	250	600	600	1000	11230
1971	1000	130	300	200	250	1000	600	1000	11730
1972	1000	130	300	200	250	1000	600	1000	11730
1973	2000	180	500	250	300	1400	600	1250	17980
1974	2000	180	500	250	300	1400	600	1250	19980
1975	2000	360	500	250	300	1400	600	1250	20160
1976	2000	360	500	250	300	1400	600	1250	20160
1977	2000	360	500	250	300	1400	600	1250	20160
1978	5000	360	500	250	300	4000	600	1250	29760
1979	5000	700	500	250	300	4000	600	1250	30100
1980	5000	700	500	250	500	4000	600	1250	30300
1981-89	5000	700	500	250	300	4000	600	1250	30100

TABLE 3

DRAWINGS (+) AND REPAYMENTS (-) UNDER THE FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENTS, 1962 - 1973

(IN MILLIONS OF DOLLARS)

A. SWAP DRAWINGS AND REPAYMENTS INITIATED BY THE FEDERAL RESERVE SYSTEM

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
AUSTRIA	+50.0	-	-	-	-	-	-	-	-	-	-	-
	-	-50.0	-	-	-	-	-	-	-	-	-	-
BELGIUM	+50.0	-	+95.0	+65.0	+30.0	+110.0	+107.1	+55.0	+395.0	+755.0	+10.2	+6.0
	-	-	-50.0	-75.0	-65.0	-10.0	-257.1	-	-240.0	-475.0	-85.2	-159.2
CANADA	+250.0	+20.0	-	-	-	-	-	-	-	-	-	-
	-250.0	-20.0	-	-	-	-	-	-	-	-	-	-
DENMARK	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
ENGLAND	50.0	+35.0	-	-	-	-	-	-	-	+750.0	-	-
	-50.0	-35.0	-	-	-	-	-	-	-	-35.0	-715.0	-
FRANCE	+50	+21.5	-	-	-	-	-	-	-	-	-	+47.0
	-50	-12.5	-9	-	-	-	-	-	-	-	-	-47.0
GERMANY	-	+286.0	+105.0	+15.0	+140.0	+350.0	+412.1	-	-	+60.0	-	+561.2
	-	-226.0	-115.0	-65.0	-	-140.0	-650.0	-112.1	-	-10.0	-50.0	-561.2
ITALY	+50.0	-	-	+350.0	+325.0	+500.0	+175.0	-	-	-	-	-
	-	-50.0	-	-250.0	-410.0	-15.0	-675.0	-	-	-	-	-
JAPAN	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
MEXICO	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
NETHERLANDS	+60.0	+150.0	+100.0	+25.0	+65.0	+170.0	+15.0	+340.0	+300.0	+250.0	-	+2.9
	-50.0	-80.0	-80.0	-125.0	-30.0	-35.0	-185.0	-210.0	-130.0	-550.0	-	-2.9
NORWAY	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
SWEDEN	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
SWITZERLAND	+50.0	+80.0	+25.0	+150.0	+75.0	+345.0	+498.0	+300.0	+500.0	+1750.0	-	-
	-	-55.0	-100.0	-150.0	-60.0	-110.0	-428.0	-475.0	-345.0	-450.0	-430.0	-5.0
BIS: $/SF	+80.0	+150.0	+100.0	-	+75.0	+485.0	-	-	-	-	-	-
	-25.0	-60.0	-145.0	-100.0	-	-160.0	-400.0	-	-	-	-	-
$/OTHER	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3

(CONTINUED)

B. SWAP DRAWINGS AND REPAYMENTS INITIATED BY FOREIGN CENTRAL BANKS AND THE BIS

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
AUSTRIA	-	-	-	-	-	-	-	+50.0	-	-	-	-
	-	-	-	-	-	-	-	-50.0	-	-	-	-
BELGIUM	-	-	-	-	-	-	+210.5	+513.0	-	-	-	-
	-	-	-	-	-	-	-203.0	-520.5	-	-	-	-
CANADA	-	-	-	-	+17.6	-	+250.0	-	-	-	-	-
	-	-	-	-	-17.6	-	-250.0	-	-	-	-	-
DENMARK	-	-	-	-	-	-	+25.0	+125.0	-	-	-	-
	-	-	-	-	-	-	-25.0	-125.0	-	-	-	-
ENGLAND	-	-	+1370.0	+1765.0	+625.0	+1650.0	+2045.0	+795.0	+400.0	-	-	-
	-	-	-1170.0	-1490.0	-750.0	-950.0	-1945.0	-1295.0	-1050.0	-	-	-
FRANCE	-	-	-	-	-	-	+765.0	+290.0	+100.0	-	-	-
	-	-	-	-	-	-	-335.0	-720.0	-100.0	-	-	-
GERMANY	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
ITALY	-	+50.0	+100.0	-	-	-	-	+300.0	+1000.0	-	-	-
	-	-	-150.0	-	-	-	-	-300.0	-1000.0	-	-	-
JAPAN	-	-	+80.0	-	-	-	-	-	-	-	-	-
	-	-	-80.0	-	-	-	-	-	-	-	-	-
MEXICO	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
NETHERLANDS	-	-	-	-	-	-	+54.7	+191.9	-	-	-	-
	-	-	-	-	-	-	-54.7	-191.9	-	-	-	-
NORWAY	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
SWEDEN	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
SWITZERLAND	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
BIS: $/SF	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
$/OTHER	-	-	-	-	+285.0	+837.0	+638.0	+142.0	+334.0	+30.0	+19.0	+116.0
	-	-	-	-	-85.0	-691.0	-909.0	-217.0	-334.0	-30.0	-19.0	-116.0

TABLE 4

DRAWINGS (+) AND REPAYMENTS (-) UNDER THE FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENTS, 1974 - 1980

(IN MILLIONS OF DOLLARS)

A. SWAP DRAWINGS AND REPAYMENTS INITIATED BY THE FEDERAL RESERVE SYSTEM

	1974	1975	1976	1977	1978	1979	1980
AUSTRIA	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
BELGIUM *	+15.0	+29.7	-	-	-	-	-
	-15.0	-47.9	-297.6	-	-	-	-
CANADA	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
DENMARK	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
ENGLAND	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
FRANCE **	-	+45.6	-	-	-	-	+166.3
	-	-45.6	-	-	-	-	-165.2
GERMANY ***	+686.9	+707.5	+148.8	+835.4	+5558.6	+4597.5	+1577.8
	-468.1	-926.3	-133.9	-50.3	-1924.7	-5989.4	-4758.0
ITALY	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
JAPAN	-	-	-	-	+156.5	-	-
	-	-	-	-	-50.0	-106.5	-
MEXICO	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
NETHERLANDS	+45.7	+96.3	+19.6	-	-	-	-
	-42.4	-99.6	-19.6	-	-	-	-
NORWAY	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
SWEDEN	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
SWITZERLAND	+13.3	+152.0	+1747.2	-	+1086.9	+186.3	+33.9
****	-199.7	-159.4	-1863.3	-544.5	-649.8	-1130.1	-33.9
BIS: $/SF	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
$/OTHER	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

* Belgian franc forward commitments assumed prior to 8/15/71 were adjusted upward by $54 million in 1975.

** Revaluation adjustments from swap renewals totalled $5 5 million. Repayments include revaluation adjustments from swap renewals of $1.1 million.

*** Revaluation adjustments from swap renewals totalled $145.0 million during 1979-80. Repayments include revaluation adjustments from swaps renewed after 7/31/80 of $6.7 million.

**** Swiss franc forward commitments assumed prior to 8/15/71 were adjusted upward by $196 million in 1975.

TABLE 4

(CONTINUED)

B. SWAP DRAWINGS AND REPAYMENTS INITIATED BY FOREIGN CENTRAL BANKS AND THE BIS

	1974	1975	1976	1977	1978	1979	1980
AUSTRIAN	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
BELGIUM	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
CANADA	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
DENMARK	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
ENGLAND	-	-	+300.0	-	-	-	-
	-	-	-300.0	-	-	-	-
FRANCE	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
GERMANY	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
ITALY	-	-	+500.0	-	-	-	-
	-	-	-500.0	-	-	-	-
JAPAN	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
MEXICO	+180.0	+360.0	+510.0	-	-	-	-
	-180.0	-360.0	-360.0	-150.0	-	-	-
NETHERLANDS	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
NORWAY	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
SWEDEN	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
SWITZERLAND	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
BIS: $/SF	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
$/OTHER	+296.0	+190.0	+51.0	+35.0	+317.0	+70.0	+242.0
	-296.0	-190.0	-51.0	-35.0	-317.0	-70.0	-242.0

TABLE 5

DRAWINGS (+) AND REPAYMENTS (-) UNDER THE FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENTS, 1981 - 1989

(IN MILLIONS OF DOLLARS)

A. SWAP DRAWINGS AND REPAYMENTS INITIATED BY THE FEDERAL RESERVE SYSTEM (NONE)

B. SWAP DRAWINGS AND REPAYMENTS INITIATED BY FOREIGN CENTRAL BANKS AND THE BIS

	1981	1982	1983	1984	1985	1986	1987	1988	1989
AUSTRIA	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
BELGIUM	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
CANADA	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
DENMARK	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
ENGLAND	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
FRANCE	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
GERMANY	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
ITALY	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
JAPAN	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
MEXICO (Regular)	-	+2200.0	-	-	-	+272.0	-	+700.0	+700.0
	-	-1717.4	-482.6	-	-	-173.2	-98.8	-700.0	-
(Special)	-	+301.0	+67.8	-	-	-	-	-	+84.1
	-	-43.8	-325.0	-	-	-	-	-	-42.3
NETHERLANDS	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
NORWAY	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
SWEDEN	+200.0	-	-	-	-	-	-	-	-
	-200.0	-	-	-	-	-	-	-	-
SWITZERLAND	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
BIS: $/SF	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-
$/OTHER	-	+124.0	-	-	-	-	-	-	-
	-	-124.0	-	-	-	-	-	-	-

TABLE 6

DRAWINGS (+) AND REPAYMENTS (-) BY MEXICO AND LDCS

UNDER U.S. TREASURY SWAP ARRANGEMENTS[1], 1982 - 1989

(IN MILLIONS OF DOLLARS)

	1982	1983	1984	1985	1986	1987	1988	1989
MEXICO	+825.0				+273.0 F/		+300.0 M/	+300.0 F/
	-825.0				-173.8	-99.2	-300.0	-300.0
	+559.0 M/	+122.2 M/						+ 84.1 M/
	-81.2	-600.0						- 42.3
ARGENTINA			+500.0 M/	+142.9 M/		+415.0 M/	+550.0	
				-642.9		-415.0	-550.0	
							+ 79.5 M/	
							- 31.8	- 47.7
BRAZIL	+1,480.0	+ 400.0					+232.5 M/	
	- 604.2	-1,275.8					-232.5	
JAMAICA		+10.0						
			-10.0					
PHILIPPINES			+ 45.0 M/					
			- 45.0					
ECUADOR					+ 75.0	+ 31.0		
					- 75.0		- 31.0	
NIGERIA					+ 22.2 M/			
					- 22.2			
YUGOSLAVIA							+ 50.0 M/	
							- 50.0	
VENEZUELA								+ 450.0
								- 450.0
BOLIVIA								+ 250.0
								- 175.0
POLAND								+ 86.0 M/

Unless otherwise noted, swap facility is bilateral in nature.
F/ Utilized in conjunction with drawing on Federal Reserve facility.
M/ As part of multilateral arrangement.

1/ All swap drawings were made under special swap arrangements, except for Mexico's $300 million utilization in 1988.

F. ANALYTICAL ISSUES

STRICTLY CONFIDENTIAL (FR)
CLASS I-FOMC

March 9, 1990

Profits and Losses in U.S. Foreign Currency Operations*

CONTENTS

* Prepared principally by Michael P. Leahy, Division of International Finance, Board of Governors. This work has had the benefit of comments from many people, especially Ralph W. Smith and Edwin M. Truman. Maya Larson provided valuable research assistance.

APPENDICES

TABLES

CHARTS

STRICTLY CONFIDENTIAL (FR)
CLASS I-FOMC

I. Introduction

This paper describes some of the issues involved in estimating the profitability of foreign currency operations and presents an assessment of U.S. experience in this regard. By necessity, U.S. foreign currency operations expose the accounts of the Federal Reserve System and the Treasury to foreign exchange risk. This paper is intended to provide information helpful in assessing the risk to which the System account has been exposed or to which it might be exposed, and to describe how U.S. operations have fared in the face of such risk in the past.

Concerns about the profitability of official foreign currency operations have taken two forms. One centers on the question of how policy-makers should interpret the profitability of their operations. Some analysts have proposed that profitability be used as a test of the desirability of official intervention in the foreign exchange markets. These studies are based on an argument, originally suggested by Milton Friedman in his essay "The Case for Flexible Exchange Rates,"[1] that intervention will not be destabilizing if officials sell currencies when the currency values are above their equilibrium levels and buy currencies when the values are below. When the authorities are correct about the equilibrium levels, buying low and selling high should earn them profits. When they are wrong, their intervention will be unprofitable.

1. "To put the same point differently, if speculation were persistently destabilizing, a government body like the Exchange Equalization Fund in England in the 1930's could make a good deal of money by speculating in exchange and in the process almost certainly eliminate the destabilizing speculation." Milton Friedman, Essays in Positive Economics (Chicago: University of Chicago, 1953), p. 175.

Since Friedman's essay, further analysis of the profitability criterion has shown that the relationship is not so clear-cut. Depending upon the particular assumptions made, it is possible to show that stabilizing intervention may be unprofitable and that profitable intervention need not be stabilizing. One can see some of the complications by considering two simple examples. If the authorities were to purchase foreign exchange when its price was low and sell it when its price was high, then, abstracting from interest-rate considerations, the intervention would be profitable even if the purchases and sales had no significant effect on exchange rates. If it is possible to earn profits on intervention that has no effect on exchange rates, then it is difficult to argue that those profits imply the intervention has had a stabilizing effect on exchange rates.

Alternatively, if the authorities stabilize the exchange rate perfectly, then intervention profits (again, abstracting from interest-rate considerations) will be zero because all purchases and sales of foreign exchange will be at the same price. Taking this argument one step further, one can see that if the authorities overshoot the exchange rate target slightly, driving the price just above the target when purchasing foreign exchange and driving the price slightly below the target when selling, losses will accrue even though the transactions may have reduced the exchange rate variability from what it would have been without any intervention.

Because positive profits do not necessarily imply that intervention is stabilizing and negative profits do not necessarily imply that intervention is destabilizing, the usefulness of profitability as a

criterion for the success of official foreign currency operations is called into question.[2]

A second type of concern about profitability focuses on the fiduciary responsibilities of policy-makers as managers of the public trust. As with all public policy actions, it is important to assess the costs of government operations to taxpayers against the benefits, and to include in that assessment both the direct effects of the operations and any indirect effects associated with changes in the overall allocation of resources.

This paper provides information that bears on this second type of concern. Its focus is on estimating the economic profits and losses generated by U.S. foreign currency operations, which include not only intervention operations in the foreign exchange market but also nonmarket transactions between monetary authorities, and on assessing the extent to which these operations expose the net worth of the System and the Treasury to foreign exchange risk. The paper does not purport to present a complete evaluation of U.S. foreign currency operations, however. In particular, no attempt is made here to measure the benefits of these operations. To the extent that operations are effective in producing important but difficult-to-measure benefits, such as might result from smoothing or stabilizing exchange rates, narrower considerations of profit and loss need not be dominant. However, regardless of the effectiveness of operations in achieving overall goals, any evaluation of

2. One might argue that profitability can be used for a more limited inference: if the intervention yields profits, then it has not been destabilizing. On the other hand, it is incorrect to infer from losses alone that intervention has been destabilizing.

those operations should include some measure of the economic cost of that achievement.

This paper begins with a general discussion of analytical and methodological issues associated with estimating the economic costs of official foreign currency operations, including (1) the treatment of the variety of foreign currency operations conducted by the United States at different times, (2) the proper measurement of the costs of funds used in foreign currency operations, and (3) the sensitivity of estimates of profits to the choice of period examined.

The remainder of the paper looks at U.S. operations since 1962, with an emphasis on the period since March 1973, and presents assessments of their profitability. The discussion is in three parts. The first provides a qualitative overview of the profitability of U.S. operations under the Bretton Woods regime between 1962 and 1971. The second looks in somewhat more detail at the steps taken to repay the large foreign currency debts outstanding at the time of the breakdown of the Bretton Woods regime in 1971 and attempts to assess the profits and losses those operations generated. The third part analyzes U.S. operations since generalized floating began in 1973. After a discussion of the evolution of U.S. operations during the period, this part presents estimates of the economic profits generated by those operations, along with a discussion of the methodology used and assumptions made in the calculations, and an assessment of the sensitivity of the estimates to fluctuations in exchange rates.

U.S. foreign currency operations in marks, yen, and Swiss francs from March 1973 through December 1989 are estimated to have generated profits of about $6-1/4 billion overall, although, at present, the risk

of sharp changes in the profitability of those operations is higher than it has been since generalized floating began in March 1973 because they have left U.S. authorities with unprecedented levels of foreign currency exposure.

Four appendices are attached. The first contains a formal presentation of the methodology used to calculate profits for the floating-rate period.[3] The second compares the measure of profits and losses in this study to those used in reports on Treasury and Federal Reserve foreign exchange operations by the Manager of the foreign operations of the System Open Market Account. The third describes the data used in the calculations. The fourth contains a memorandum to the FOMC written by Edwin M. Truman and Paul R. Wood on a policy statement recently released by the Shadow Open Market Committee that was critical of U.S. foreign exchange operations.

3. This approach is presented in more detail in Michael P. Leahy, "The Profitability of U.S. Intervention," International Finance Discussion Paper #343, Washington: Board of Governors of the Federal Reserve System, February 1989. (This paper and other recent papers that discuss the profitability of intervention are summarized in the Task Force paper "Foreign Currency Operations: An Annotated Bibliography.")

II. Issues in Estimating Profits

Several issues arise in the construction of estimates of the profitability of foreign currency operations, and different approaches may produce different results. This part focuses on three sets of issues: what operations to consider, what opportunities should foreign currency operations be judged against, and how to assess the uncertainty associated with measuring the value of large foreign currency positions.

A. Operations

What operations should be considered? Since the early 1960s, the System and the Treasury have engaged in a variety of foreign currency operations, as well as operations involving gold that were related to the maintenance of the Bretton Woods exchange rate system. While these operations were conducted with a variety of aims, some of which are discussed later in this section and elsewhere in the Task Force papers, they were not undertaken with a view to their being sources of profit or revenue for the authorities. Profits and losses did accrue, however, when the operations generated exchange-rate or gold-price exposure and exchange rates or the price of gold subsequently changed. Generalized descriptions of the major types of foreign currency operations conducted by the Federal Reserve and the Treasury are reviewed below, along with an analysis of the exposures these operations generate.

1. Sterilized Intervention

A sterilized intervention transaction is essentially an exchange between a monetary authority and a private-sector agent in which an asset denominated in one currency is traded for an asset denominated in another. The transaction is considered sterilized if it is not allowed to affect the monetary liabilities of the monetary authorities. U.S. intervention is routinely sterilized. Sometimes a distinction is made between active intervention and transactions with customers. The Foreign Exchange Trading Desk frequently conducts transactions on behalf of parties such as the World Bank or monetary authorities of developing countries. On occasion, when these transactions are consistent with the U.S. authorities' objectives in the market, the Desk may act as a principal, rather than an agent, and consequently conduct an operation that takes the exposure onto its own books rather than passing that exposure through to the market. Such transactions are called customer transactions.

Regardless of whether the intervention is labeled active or customer, however, the currency composition of the portfolios held by both the monetary authorities and the aggregate private sector changes.[4] For example, a sterilized intervention purchase of dollars against marks increases the dollar position of the monetary authorities' portfolio and decreases their mark position. By necessity, it also decreases the dollar position of the aggregate private sector and increases its mark position. If, after such a transaction, the dollar appreciates relative to the mark, the net worth of the monetary authorities' portfolio rises

4. In this context, the aggregate private sector may include monetary authorities from developing countries.

relative to what it would have been without the intervention transaction, and the net worth of the aggregate private-sector portfolio falls relative to what it would otherwise have been.

Intervention in the forward market is similarly an exchange between a monetary authority and a private-sector agent in which an asset denominated in one currency is traded for an asset denominated in another. In the case of a forward purchase of dollars against marks, for example, the monetary authority would acquire an obligation to pay marks in the future, just as it would have acquired had it borrowed marks from the market, and also a right to receive dollars in the future, just as if it had lent dollars to the market. Thus, a forward market intervention is essentially equivalent, in terms of its effects on the currency composition of portfolios, to a sterilized spot market intervention in which a mark security was sold and a similar dollar security purchased.

2. Asset Exchanges with other Monetary Authorities

When monetary authorities conduct foreign currency or gold transactions among themselves to reconstitute their holdings of reserves or to reduce their exposures to changes in the values of particular foreign currencies, they are shifting their foreign exchange exposures and altering the distribution of any subsequent profits and losses from what it would otherwise have been. Included in this category are transactions such as U.S. official purchases of yen from Japanese authorities in exchange for dollars. If, following such a transaction, the dollar were to appreciate against the yen, the net worth of the U.S. government would decline relative to what it would have been had there been no asset exchange, while the net worth of the Japanese authorities

would rise. Similarly, a purchase of gold from the United States by French authorities in exchange for dollars increases the gains to the French of a possible rise in the dollar price of gold and decreases the gains to the United States.

3. Issuance of Foreign Currency Denominated Securities and Swap Drawings

At times U.S. authorities have issued securities denominated in foreign currencies to foreign monetary authorities ("Roosa bonds") or to the private sector ("Carter bonds"). As long as the U.S. authorities hold the proceeds in foreign currency denominated investments, no change in foreign exchange exposure results; the United States has increased its foreign currency assets and foreign currency liabilities simultaneously. Similarly, the foreign monetary authority or private sector has experienced no change in currency exposure. Normally, however, foreign currency bonds are issued so that the foreign currencies can be used to intervene or to purchase domestic currency from foreign monetary authorities who have accumulated more than they desire. These accompanying transactions, as discussed above, will generate changes in the authorities' foreign currency exposures.

A swap drawing under the reciprocal currency arrangements between U.S. and foreign monetary authorities is the same kind of transaction as a foreign currency bond issuance in terms of the exposure it generates. The swap drawing, a purchase of foreign exchange today and a simultaneous agreement to deliver it back at a predetermined time and rate in the future, is another method used by monetary authorities to borrow foreign currencies. The swap transaction itself generates no change in the currency exposures of the parties involved, since the

foreign currency asset acquired today is matched by a foreign currency liability in the future. Thus, monetary authorities can hold foreign currencies but bear no exchange rate risk. However, if the funds are used to finance intervention or asset exchanges with other monetary authorities, as has been the case for Federal Reserve drawings, changes in exposures will result.

B. Opportunity Costs

In an ideal calculation of the profitability of foreign currency operations, one would like to compute the difference between the government's net worth after the operations and its net worth had no operations occurred at all. This kind of computation raises at least two issues. One concerns the proper measurement of the opportunity costs of the funds used in the operations. A spot purchase of dollars against marks, for example, requires that the marks be sold from reserves or borrowed. Accordingly, interest on DM assets will be foregone or interest on DM borrowings paid. Similarly, through the process of sterilization, the dollars purchased are invested in interest-earning assets or are used to reduce dollar-denominated debt. In either case, interest on the dollars purchased will be earned. To estimate economic profits, net of opportunity costs, the interest cost of funds used in the operations should be deducted from the interest earnings on the funds acquired.

A second issue concerns the potential complexities in determining what exchange rates, interest rates, and gold prices would have been in the absence of the operations. Lacking a better assumption,

most academic studies of the profitability of intervention assume, either implicitly or explicitly, that intervention and other foreign exchange operations leave market prices unchanged. This assumption is at least open to question, and there may be instances in which more likely alternatives can be proposed.

C. Valuation of Foreign Currency Positions

Another issue that arises in computing the profitability of foreign currency operations concerns the problem of valuing large foreign currency positions. Suppose, for example, that during a sustained period of intervention in one direction, U.S. monetary authorities sold dollars against marks for several months. Calculating the profitability of the intervention over that period requires determining the dollar value at the end of that period of the potentially large U.S. holdings of mark assets and subtracting from that value the dollar cost of acquiring those holdings. When the mark position is large, however, the profitability measure will be quite sensitive to the exchange rate used to compute its dollar value. Normally, the exchange rate at the end of the period is used. When that is the case, however, the profitability measure is sensitive to the choice of period; operations that are profitable when measured at one end-of-period exchange rate can become unprofitable later, even if no additional operations have occurred. Thus, using an end-of-period exchange rate makes the profitability measure sensitive to the choice of the period over which profitability is measured, especially when the terminal foreign currency positions are large.

A further complication arises if one takes into consideration the possibility that selling large foreign currency holdings back into the market may affect exchange rates. If one assumes that foreign currency operations can affect exchange rates, at least in the short run, then the value of the foreign currency may decline as the reserves are sold. Thus, using an end-of-period exchange rate may overstate the liquidation value, measured in dollars, of a large foreign currency position. Similarly, valuing large holdings of foreign currency debt with an end-of-period exchange rate may understate its dollar value, since, as foreign currency is purchased in the market to repay the debt, the value of the foreign currency may increase, making the debt more expensive in terms of dollars. In either case, it is not clear how much these large foreign currency positions are worth in terms of dollars, and the larger the positions the more likely their calculated values could not be realized in the market over any given time interval.

Because, in general, profit estimates will be sensitive to end-of-period exchange rates, especially when terminal foreign currency positions are large, it is useful to have some gauge with which to calibrate the uncertainty of the estimates. One approach is to decompose total profits into realized profits and unrealized profits.[5] The precise breakdown into realized and unrealized profits depends on the accounting convention that profits are "realized" only when purchases or

5. In 1978, the System began reporting unrealized profits and losses on foreign currency transactions along with the realized profits and losses it had been reporting up till that time. This shift put the System's books on a comparable basis with the Treasury's; changes at both institutions were to incorporate the practice of marking-to-market described in FASB 8. At that time, the System also began to include the unrealized profits and losses in its transfers of profits and losses to the Treasury.

sales have been reversed and a decision about the accounting method to use to calculate the "acquisition cost" of foreign currencies resold to the market--LIFO, FIFO, or an average cost method. While these practices are based on standard accounting procedures, their relationship to the calculation of economic profits from official foreign currency operations is not transparent. Still, the practice persists, probably because splitting total profits into realized and unrealized yields some measure of the confidence with which one should regard the profit estimate.

An alternative approach to gauging the uncertainty of profit estimates is to decompose the estimates into the terminal currency positions. Because the source of uncertainty in these estimates, from the U.S. point of view, is the translation of foreign currency positions into dollar values, separating profits into terminal positions in each currency makes it easy to evaluate the foreign currency positions at a variety of exchange rates and, thus, to determine the sensitivity of the profit estimate to possible future changes in those rates. For example, assume $10 million are sold for marks on a Monday at an exchange rate of 2 marks per dollar. Further, assume that, on Tuesday, $10 million is repurchased for marks at 1.5 marks per dollar. In this example, the terminal dollar position by close-of-business Tuesday is zero, the terminal mark position is long DM 5 million, and profits are positive. Using the end-of-period exchange rate, profits are $3-1/3 million. If, the next day, the dollar were to depreciate to 1.25 marks, the profitability of those operations would be $4 million. If, on the other hand, the dollar were to appreciate to 1.75 marks, the profitability would be just under $3 million. Thus, to calibrate the sensitivity of the profit estimate to possible future changes in the exchange rate, one

can evaluate the terminal mark position at a variety of possible exchange rates.

The conceptual issues presented above are important in the presentations in the next three parts of this paper. Each section begins with a review of the major U.S. foreign currency operations and discusses how those operations affected the foreign exchange exposure of the U.S. monetary authorities. Following those reviews are assessments of the profitability of the operations. These assessments include, to varying degrees of detail, discussions of the net interest costs of the operations and the alternatives against which to evaluate the overall economic costs of the operations. The issue of the valuation of large foreign currency positions, discussed explicitly only in the final section of the paper on U.S. operations since March 1973, is most relevant in that period because of the large foreign currency positions the operations of that period have generated. While large positions were generated in earlier periods, especially at the time of the breakdown of the Bretton Woods system, the estimates of profit and loss for those periods are based on exchange rates that occurred as the positions were being closed out, and thus a discussion of the uncertainty of the estimates in terms of the valuation of those positions is not necessary for those periods.

III. Foreign Currency and Gold Operations: 1962-1971

In the early 1960s, after nearly thirty years of inactivity, the U.S. monetary authorities resumed foreign exchange operations. The mark and the guilder were revalued in 1961, and there was speculation of further changes in par values, including a possible devaluation of the U.S. dollar with respect to gold. The United States had been running persistent balance of payments deficits that generated concerns about a possible drain of the U.S. gold stock. With this as background, the FOMC authorized System open market operations in foreign currencies in February 1962. (For details on the legal and procedural developments regarding Federal Reserve foreign currency operations, see the Task Force papers "Legal Bases for System Foreign Currency Operations" and "Evolution of Formal Procedures for FOMC Oversight of System Foreign Exchange Operations.") The Treasury had resumed operations less than a year earlier.

This part of the paper discusses U.S. operations in gold and foreign currencies between 1962 and 1971 and provides a qualitative overview of the profitability of these operations. Because large movements in exchange rates and the price of gold were infrequent during these years, periods of large U.S. exposure generated profits and losses that were quite small relative to those in subsequent years.

A. Operations

Downward pressure on the dollar during these years was met with intervention purchases of dollars by foreign monetary authorities,

generating increases in their holdings of dollar reserves and increases in their dollar exposures. Unlike the foreign authorities, however, the United States was not obliged to intervene in exchange markets to defend parities under the Bretton Woods system, and U.S. intervention operations during these years were minimal. Nonetheless, to relieve foreign authorities of a portion of the exchange risk their intervention had generated and to limit temptation to demand gold from the United States in exchange for their dollar reserves, the United States frequently purchased dollars directly from foreign authorities during these years with foreign currencies, thereby taking on the unwanted exchange risk generated by the defense of dollar parities. (Further discussion of U.S. policy at this time is contained in the Task Force papers "Evolution of U.S. Exchange Rate Policy" and "Historical Review of System Objectives and Use of Intervention.")

The authorization granted by the FOMC in February 1962 allowed the System to purchase the foreign currencies necessary to open accounts with foreign central banks and led to the establishment of a network of reciprocal currency arrangements--the swap network. (See also the Task Force paper "Historical Review of Reciprocal Currency Arrangements.") These arrangements provided facilities that enabled the System and a corresponding foreign authority to acquire each other's currencies for short periods. When the System initiated a swap drawing under the Bretton Woods regime, its purpose was normally to transfer dollar exchange-rate exposure from a foreign central bank to the System. The System would use the foreign currency proceeds of a swap to purchase a foreign central bank's unwanted dollar holdings, thereby substituting

"covered" for "uncovered" dollars in the foreign bank's reserves and effectively removing the immediate need for purchases of U.S. gold.

Repayment of System-initiated swap obligations was achieved through a variety of means. Often the downward pressures on the dollar that prompted the swap drawing reversed, and the System could purchase the foreign currencies from foreign authorities when they found their dollar holdings decreasing. In that case, the proceeds could be used to repay swap obligations. At other times the pressures did not abate, and repayment had to be effected through other sources, including purchases of foreign currencies from the Treasury or, to a lesser extent, from the market.

These swap operations and asset exchanges with other monetary authorities accounted for the bulk of the Federal Reserve's foreign exchange activities between 1962 and 1971. The System drew on the swap network frequently throughout the period, with especially heavy activity in 1967 when pressure on sterling was spilling over onto the dollar, and again in 1971 as the fixed exchange-rate mechanism began to unravel. For the period as a whole, swap drawings initiated by the System totaled nearly $12 billion, and repayments totaled about $9 billion. The largest share of System swap activity was in Swiss francs. (For further details on swap network utilization, see the Task Force paper "Historical Review of Reciprocal Currency Arrangements.")

When a foreign central bank initiated a swap drawing, its purpose was normally to use the dollar proceeds to intervene in the open market to defend its currency. Under these circumstances, the System's exposure would not change, since the foreign currency assets acquired by the System were normally held, not sold, and the future dollar value of

those assets was guaranteed under the terms of the swap. The Bank of England drew most heavily on the swap network, especially in the years immediately before and after the sterling devaluation in 1967. Swap drawings initiated by foreign monetary authorities totaled about $15 billion between 1962 and 1971, and by end of 1971 all foreign initiated drawings had been repaid.

The System also intervened directly in exchange markets during this period, but, as mentioned before, intervention did not play a big role in System operations. It was used on occasion to supplement the efforts of foreign central banks in the market or to acquire foreign currencies to repay swap debt. On rare occasions, the System also intervened in spot markets when markets were disorderly, such as following the assassination of President Kennedy in 1963. Most System intervention was in the spot market, but there were also a few occasions on which the System intervened in the forward market.

Financing for Treasury operations, in contrast to that for the System, came mostly from the issuance of foreign currency denominated securities. These securities, which came to be called "Roosa bonds" after Robert V. Roosa, the Under Secretary of the Treasury who originally negotiated them, were issued with maturities that were normally longer than one year and provided the Treasury with a medium-term facility to borrow foreign currencies. Between 1962 and 1971, the Treasury issued about $5 billion equivalent of these securities, the bulk of which were denominated in Swiss francs and German marks. The proceeds of these operations were normally used to purchase unwanted dollars from foreign monetary authorities, or were sold to the System primarily to repay swap drawings.

The Treasury also drew on its holdings of gold to buy unwanted dollars from foreign monetary authorities, although gold sales were not considered the first-choice method of transferring foreign exchange exposure. Between 1962 and 1971, the Treasury sold on net about $6 billion worth of gold; roughly 1/3 of that amount was sold to France. U.S. participation in the gold pool, a consortium of monetary authorities who between 1961 and 1968 operated in the London gold market to contain the private market price at around the official price of $35 per ounce, also provided a sizable drain on the Treasury's gold stock. U.S. net sales in the gold pool were somewhat less than net sales to France.

The ESF also participated in some non-network foreign currency swaps and foreign currency/gold swaps. In addition it conducted some intervention operations in spot and forward markets, but, as with the System, these operations were of modest scale.

B. Profitability

Until 1971, when the Bretton Woods parities came under strong pressures, profits and losses from foreign exchange operations were modest. In general, exposure was not large and, aside from the exchange-rate realignments mentioned below, exchange rates stayed within narrow bands for most currencies.[6] Even when realignments did occur, the swap

6. The upper and lower limits for the European currencies were established under the European Monetary Agreement at approximately 3/4 percent on either side of the par value, except for Switzerland, which maintained margins of about 1-3/4 percent on either side of parity. Canada established a par value in May 1962 with margins set at 1 percent on either side of parity. This range was in effect until May 1970, when the Canadian dollar was allowed to float beyond its upper intervention limit.

agreements at the time contained clauses providing some protection to countries that had outstanding swap obligations. Many of the Roosa bonds also carried such protection. While the debtor bore the risks associated with a devaluation of the debtor country's currency and the risks associated with exchange-rate changes within the margins around parities, the debtor was in general protected against a revaluation of the creditor country's currency. This provision, along with the generally small exposures and narrow exchange-rate movements, tended to minimize the profits and losses associated with the foreign exchange operations by the System and the Treasury during this period. (See also the section on terms and conditions in the Task Force paper "Historical Review of Reciprocal Currency Arrangements.")

Aside from the contribution of exchange-rate realignments to profits and losses on foreign exchange operations, one should also consider interest flows and the cost of financing foreign exchange operations. Even without exchange rate changes, U.S. authorities may have suffered reductions in net worth if the interest cost of currencies borrowed exceeded the returns on the currencies purchased. Alternatively, they may have made gains if the reverse were true. For most of the period between 1962 and 1971, however, interest-rate differentials were quite narrow relative to those in the years that followed, making it unlikely that net interest costs were very large. The small size of interest-rate differentials was reflected in the terms of the swap agreements during those years in that foreign currencies were drawn at identical rates of interest equal to the U.S. Treasury bill rate. In an economic sense, this resulted in a transfer or subsidy to countries whose market interest rates were lower and a tax on countries

whose interest rates were higher. However, at least during during period from 1962 to 1971, this transfer was not likely to have been large. The Treasury's borrowing of foreign currencies via Roosa bonds was done at market rates of interest.

Between February 1962 and August 1971 there were four exchange-rate realignments that could have possibly generated significant profits or losses for the System or the Treasury: the sterling devaluation in November 1967, the French franc devaluation in August 1969, the mark revaluation in September-October 1969, and the Swiss franc revaluation in May 1971. The first two events, however, resulted in only negligible changes in U.S. government net worth. At the time of the sterling devaluation, both the System and the Treasury held sterling balances but the dollar value of these balances was protected through guarantees offered by the Bank of England and forward sales of sterling. Thus, U.S. authorities had no net sterling exposure at that time. Similarly, at the time of the devaluation of the French franc, the Treasury's holdings of francs were almost completely covered by forward sales; the System had no French franc balances at that time.

In contrast, the mark revaluation generated a small profit for the System, since the System had a small uncovered long position in marks when the mark began to float upwards in September 1969. The Treasury, however, had mark-denominated securities outstanding when the mark began to appreciate, and the resultant increase in the dollar value of its debt was only partly offset by the revaluation of mark balances held by the ESF and the activation of revaluation protection clauses. Losses on the

Treasury's mark position due to the revaluation amounted to $24 million.[7]

Finally, the 7-percent Swiss franc revaluation generated small profits for the System because the System had small uncovered holdings of Swiss francs at the time of the revaluation. The revaluation generated no loss for the Treasury, even though the Treasury had a sizable quantity of outstanding Swiss franc debt, because all of the Treasury's Swiss franc securities at that time were covered by revaluation protection clauses and the Swiss National Bank compensated the Treasury for the increase in the dollar value of its debt.

7. See U.S. Treasury Department, Exchange Stabilization Fund: Report of Audit, for the fiscal year ended June 30, 1970, footnote c.

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IV. The Unraveling of the Bretton Woods System

The pressures that culminated in the August 15, 1971 closing of the gold window left the System and the Treasury with large net borrowings in foreign currencies. As shown in the table below, these debtor positions were concentrated in a few currencies. System liabilities were largest in Swiss francs, sterling, Belgian francs, and marks. Net liabilities in these currencies were comprised almost entirely of swap debt; the swap debt was offset only marginally by small holdings of foreign currency balances. The Treasury held net liabilities in Swiss francs and marks. Even though the Treasury had sufficient holdings of gold to extinguish those foreign currency obligations,

Table 1
Net Foreign Exchange and Gold Positions at the end of August 1971
(million of dollars equivalent)

Currency or Commodity	System	Treasury	Total
Sterling	-749.9	0.1	-749.8
Marks	-48.0	-450.6	-498.6
Swiss francs	-1592.2	-1323.1	-2915.3
Belgian francs	-632.9	0.3	-632.6
Canadian dollars	0.1	--	0.1
Yen	0.9	--	0.9
Lire	--	0.2	0.2
Subtotal	-3022.0	-1773.1	-4795.1
Gold	--	9665	9665
Total	-3022.0	7891.9	4869.9

Sources: Currency positions obtained from "Operations in Foreign Currencies During 1971," a report prepared for the FOMC by the Foreign Function of the Federal Reserve Bank of New York, March 1972. Gold holdings obtained from Treasury Bulletin, U.S. Department of Treasury, Office of the Secretary, January 1972, Tables IFS-1 and IFS-2. Gold is valued at $35 per ounce.

President Nixon's decision to close the gold window meant that U.S. authorities had to look for other ways to meet them.

A. Operations

The swap debt of the System in sterling and marks was repaid by the third quarter of 1972. Most of the relatively small amount of marks needed to pay down System obligations was acquired directly from German authorities in July 1972. The bulk of the sterling was acquired in July and August of 1972, when sterling came under pressure. The System purchased sterling in the market, from the Bank of England, and from the Treasury, which had drawn sterling from the IMF earlier that year. Similarly, the mark debt of the Treasury was paid down by October 1973 through regular purchases of marks from German authorities.

The remaining swap debt of the System, in Belgian and Swiss francs, was not repaid so quickly. Some of the Belgian debt was repaid in 1971 and 1972, when, at the request of the National Bank of Belgium, the System made small purchases of Belgian francs in the market from time to time, and used the proceeds to work down the debt. However, these episodic repayments were halted in 1973, as the Treasury sought to clarify the terms on which the Belgian debt would be repaid. The issue was whether there would be a sharing of the profits and losses associated with repayment of the debt since generalized floating began. The switch to floating exchange rates blurred the interpretation of the revaluation protection clauses in the swap arrangements, which were designed for an adjustable peg system; without fixed parities it was difficult to determine whether one currency appreciated or the other depreciated. The

Treasury wanted equal sharing of the portion of profits and losses attributable to floating exchange rates, but the Belgians interpreted this request as a change to the original agreement and felt no obligation to comply.

The inability of the United States and Belgium to reach agreement on this issue, however, did not preclude the making of arrangements under which the System could repay. In December 1975, the System and the National Bank of Belgium agreed to adjust the outstanding swap debt to take into account the revaluation of the Belgian franc in 1971 and the two devaluations of the dollar in 1971 and 1973. Near the end of 1975 the dollar had recovered sufficiently to make the losses associated with the remaining repayment fairly small, and this fact may have made it easier to ignore the disagreement on loss sharing. The System subsequently resumed a program of regular purchases of Belgian francs from the market and from the National Bank of Belgium and, by November 1976, had completely liquidated the Belgian franc debt.

Repayment of System Swiss franc debt was made sporadically at first. The System acquired Swiss francs in the market from time to time, as well as from Swiss National Bank, and these were used to make irregular payments on the swap debt until October 1976, when the System and the Treasury reached an agreement with the Swiss National Bank on an orderly procedure for repaying the outstanding indebtedness. The System's original swaps were repaid using francs drawn under a newly established swap facility. This new drawing was to be liquidated through regular repayments over the subsequent three years. Most of the Swiss francs were purchased directly from the Swiss National Bank against dollars and other currencies, but some were purchased in the market.

Prior to this agreement, the Swiss and Federal Reserve had agreed to adjust the System's Swiss franc swap commitments to reflect the consequences of the two dollar devaluations. And, in contrast to the negotiations with the Belgians, the System and the Swiss agreed on a loss-sharing procedure in which the two parties would share equally the losses incurred on System purchases of francs at rates up to 20 percent above the newly adjusted swap contract rate. Beyond that, the System would absorb the full loss.

The Treasury also made regular purchases of Swiss francs from the Swiss National Bank beginning November 1976, and by April 1979, all the Swiss franc obligations of the United States incurred before August 15, 1971 had finally been repaid.

B. Profitability

Different approaches can be used to determine the profitability of the U.S. operations that generated and subsequently unwound the positions held on August 15, 1971. Two are presented here. The first measures profits and losses on these foreign currency operations against a hypothetical alternative in which no operations were conducted. Implicit is the assumption that these losses could have been avoided had the United States refrained from the operations that generated the indebted position in 1971. The second measures the losses against a hypothetical alternative in which the Treasury repaid the outstanding liabilities with gold sales.

The assumptions of the first measure are akin to those behind the usual presentation of profits and losses for accounting purposes.

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Using a standard accounting approach which defines a profit as the difference between the original dollar value of the foreign currencies borrowed and the quantity of dollars ultimately spent to repay the debt, U.S. losses on these operations were roughly $2-1/2 billion, with System losses totaling about $1 billion and Treasury losses about $1-1/2 billion. (See the table below.)

Table 2
Estimated U.S. Losses on Foreign Currency Operations to Repay Debt Outstanding on August 15, 1971*
(millions of dollars)

	System	Treasury	Total
Sterling	13	--	13
Marks	6	110	116
Swiss francs	841	1,380	2,221
Belgian francs	126	--	126
Total	986	1,490	2,476

*These estimates are constructed from information contained in a variety of sources: International Finance Division files at the Federal Reserve Board; "Operations in Foreign Currencies," reports prepared for the FOMC by the Foreign Function of the Federal Reserve Bank of New York, various years; Annual Reports of the Exchange Stabilization Fund, U.S. Department of Treasury, various years; and testimony by Under Secretary Edwin H. Yeo, Hearings before the Task Force on Tax Expenditures and Off-Budget Agencies of the Committee on the Budget, House of Representatives, February 18, 1976, pp. 39-54. Treasury estimates are subject to somewhat more error.

While these figures take into account neither the interest costs of using the foreign currencies while the debt was outstanding nor the interest earnings on the dollars acquired, an explicit accounting for the

net interest flows would probably not change the estimates presented above in significant ways. Because the interest costs of outstanding swap debt were tied to the interest rate on U.S. Treasury bills and the U.S. Treasury bill rate would also have been representative of the rate of return on the dollars acquired, net interest flows due to swap borrowings are not likely to have been significant. Perhaps some adjustment is required for the Roosa bonds, since the interest payments were adjusted for realignments of parities in 1971 and 1972. However, subsequent interest payments were protected by revaluation protection clauses. In addition, although these bonds were issued at foreign market rates of interest, the interest rates were usually near or below interest rates on U.S. Treasury securities of comparable maturities at the time of issue. Thus, the effects of the devaluations on interest flows was offset to some extent by the levels of the rates.

If, then, the estimates of loss shown in the table would not be significantly different after adjusting for interest flows, one may interpret this measure as being approximately equal to the economic losses generated by U.S. foreign currency operations in the last stages of the Bretton Woods system. However, as mentioned above, implicit in that interpretation is the assumption that the United States could have avoided those losses by refraining from the operations, and that the absence of U.S. operations would have had no effect on exchange rates, interest rates, or gold prices. Given the pressures that ultimately brought the system down and the subsequent movements in exchange rates and the price of gold, the latter assumption is difficult to accept; it seems highly unlikely that exchange rates and interest rates would have followed the same paths in both scenarios.

A second approach considers the profitability of the operations relative to the alternative of selling gold on August 15, 1971 to pay down the debts. As before, it is difficult to determine what exchange rates, interest rates, and gold prices would have been in the hypothetical scenario. However, under the assumptions that the Treasury would have used about $5 billion in gold to liquidate the U.S. foreign exchange debt outstanding on August 15, 1971 (see table 1 on foreign currency positions) and that subsequent realized losses in repaying this debt were roughly $2-1/2 billion (see table 2 on estimated losses), then a 50 percent rise in the price of gold would have been sufficient to cover all the losses actually incurred. Given that after 1971, the price of gold rose to several multiples of its 1971 value, the losses were more than covered by the appreciation in the value of gold.[8] Thus, viewing the foreign currency operations as necessary to prevent reductions in the U.S. gold stock, one could argue that the foreign currency operations resulted in sizable profits for the United States and losses for the foreign monetary authorities.

8. For example, from August 1971 to December 1972, the price of gold in London rose about 50 percent to just under $65 per ounce. By the end of 1973, the price had risen 150 percent to more than $105 per ounce.

V. System and U.S. Foreign Exchange Operations since 1973

This part of the paper analyzes the profitability of U.S. operations since generalized floating began in 1973. The first section describes the evolution of U.S. operations during the period. The second presents estimates of the economic profits generated by those operations. The second section has three subsections. The first contains a discussion of the methodology used in the calculations, the second presents the calculations themselves, and the third offers an assessment of the profitability of U.S. operations.

A. Operations

Prior to March 1973, U.S. foreign currency operations focused on covering the dollars foreign monetary authorities had acquired in intervention operations and taking on the unwanted exposure foreign operations had generated. Consequently, most operations were with other monetary authorities. After the move to generalized floating in March 1973, however, the mix of U.S. foreign currency operations changed, and intervention operations began to play a much larger role in the conduct of U.S. foreign currency operations overall. Furthermore, the financing of U.S. operations shifted during this period. After the United States made a conscious effort in late 1980 to build foreign currency reserves, the borrowing of foreign currencies through swap drawings or foreign currency securities was halted. Finally, the currencies used to intervene shifted away from the Swiss franc and towards the mark and, even later, the yen. (For further discussion of these changes, see the

Task Force papers "Evolution of U.S. Exchange Rate Policy" and "Historical Review of System Objectives and Use of Intervention.")

Since March 1973, there have been two periods of heavy intervention by U.S. authorities. The first was between late 1977 and early 1981. As the dollar moved down in late 1977 amid concern about large trade imbalances, the System sold marks, acquired almost entirely through swap drawings on the Bundesbank. Pressures on the dollar continued into 1978, however, and the United States took measures to increase its access to foreign currency resources that could be used to defend the dollar. A new swap line was set up between the Treasury and the Bundesbank and the swap line between the Federal Reserve and the Bundesbank was doubled to $4 billion. In addition to these actions, the Treasury announced it was prepared to sell special drawing rights to Germany and, if necessary, to draw on its reserve position at the IMF to acquire currencies that might be needed. Additional resources were mobilized later in 1978, when on November 1, a program (the "Dollar Defense Package") was announced that included, among other measures, increases in the System's swap lines with the Bank of Japan, the Swiss National Bank and the Bundesbank. The Treasury announced it would draw $3 billion in marks and yen from the International Monetary Fund, sell $2 billion equivalent of special drawing rights to obtain additional mark, yen, and Swiss franc balances, and issue up to $10 billion equivalent of foreign currency denominated securities ("Carter bonds"). The Treasury also announced it would substantially increase the amounts of gold to be offered at its monthly auctions.

With these resources at their disposal, U.S. authorities intervened heavily during the remainder of this period, mostly in marks.

Operations in yen were not large, despite the mobilization of resources in that currency, because the yen began to depreciate. Much of the mark and Swiss franc intervention activity was financed through swap facilities and foreign currency securities. When downward pressures on the dollar abated, the swap obligations were quickly repaid in 1980. (See the Task Force paper "Historical Review of Reciprocal Currency Arrangements.") The Treasury took those opportunities to increase its foreign currency holdings to cover the outstanding foreign currency securities. Not all of the foreign currencies used in intervention were borrowed, however. Both the System and the Treasury made sizable purchases of marks directly from the Bundesbank, and the Treasury drew $2 billion equivalent of marks from the IMF and acquired an additional $770 million equivalent from German authorities in exchange for SDRs. While these non-market transactions were motivated by the desire to pay down foreign currency debts without generating additional downward pressure on the dollar, they also had the consequence of transferring some of the foreign exchange exposure generated by the intervention to other monetary authorities.

By the end of 1980, after a number of ups and downs, the dollar had begun a sustained appreciation as U.S. monetary policy tightened decisively and the U.S. current account moved into surplus. U.S. authorities took advantage of the opportunity to repay swap debt and to build foreign currency balances. By the end of March 1981, the System had accumulated, on a cost-of-acquisition basis, net long positions of about $2-1/2 billion equivalent in marks, $400 million equivalent in yen, and $140 million equivalent in Swiss francs. At the same time, the Treasury had accumulated net long positions of about $1-1/4 billion

equivalent in marks and $1-3/4 billion equivalent in yen. The Treasury had also covered all but about $50 million equivalent of its outstanding Swiss franc debt. (See the Task Force paper "Historical Review of U.S. Official Holdings of Foreign Currencies.")

In 1981, U.S. policy toward intervention in the foreign exchange markets changed, and intervention operations were essentially halted, except in circumstances of extreme disorder. This inactivity continued until 1985, when the second period of more active U.S. intervention began.

By 1985, the dollar had appreciated more or less steadily for 4 years and the U.S. current account had deteriorated. After a meeting in January, in which the G-5 reaffirmed their May 1983 Williamsburg agreement to undertake coordinated intervention as necessary, the United States entered the market in January, February, and March, selling dollars against marks and yen.[9] As the dollar moved down from its February peak, there was no U.S. intervention activity until September, when, following the Plaza Agreement, the United States intervened heavily, selling dollars against marks and yen and adding the proceeds to foreign currency balances.

In 1986, the foreign exchange value of the dollar continued to decline, and the United States did not intervene. Intervention resumed in 1987, and, following the Louvre Accord, the United States and other nations began to purchase dollars against marks and yen. Over the course of the next year, U.S. intervention purchases of dollars substantially

9. The United States also sold dollars against sterling, in what was one of only a handful of sterling operations since 1973. The amount of sterling purchased was not large, $16.8 million equivalent.

reduced System and Treasury holdings of foreign currencies, especially yen. This reduction prompted the United States to acquire marks in the market and yen from foreign authorities in the summer of 1988. Since December 1988, U.S. activity consisted exclusively of dollar sales, at times on a very large scale. By the end of 1989, U.S. intervention had generated very sizable long foreign currency positions.

B. Profitability

1. Methodology

As mentioned above, calculating the economic profits associated with any activity requires consideration of alternatives to that activity. The profit calculations for this period are based on a comparison of the returns to U.S. foreign currency operations relative to the returns that would have been earned had U.S. authorities refrained completely from foreign currency operations. As before, it is difficult to know what exchange rates and interest rates would have been in the absence of U.S. operations, but, for the purposes of these calculations, it is assumed that rates would have remained the same. It is, perhaps, easier to accept this assumption for the period of managed floating than for the period of fixed exchange rates, since under managed floating monetary policies are affected less immediately by exchange-rate concerns than they would be under a fixed exchange-rate system.

The general approach, presented more formally in Appendix A, is to construct a notional portfolio of dollar and foreign currency assets. It is assumed that initially the portfolio contains no assets or liabilities, of either currency; its initial value is, by construction,

zero. This assumption makes it possible to distinguish the returns to foreign currency operations within a given period from the returns to operations conducted before the period. Even though interest flows and exchange rate changes in one period affect the value of positions accumulated from operations in previous periods, these returns would have been earned in the absence of operations this period and, thus, have no effect on the economic profits or losses associated with this period's operations. Consequently, the effects of exchange-rate changes and cumulative interest flows on stocks of foreign exchange acquired in previous periods (i.e., reserves) are excluded from the calculations. Within the period, only foreign currency transactions and the effects of subsequent net interest earnings and exchange-rate changes on the dollar values of positions generated by those transactions affect the profit estimates.

To capture economic profits, the calculations incorporate the interest cost of funds used to intervene and the interest earnings on the assets acquired, as well as valuation changes arising from exchange-rate fluctuations. For example, suppose at the beginning of the period under consideration, dollars are purchased against marks. Because the initial portfolio contains no assets, it is assumed that the U.S. authorities borrow marks, sell the marks in the foreign exchange market for dollars at the current exchange rate, and then invest the dollars. These transactions would make the dollar-mark portfolio long dollars and short marks. At subsequent times, if no further operations take place, the long-dollar position becomes larger as the interest earned on the dollar assets accumulates, and the short-mark position becomes larger as more marks must be borrowed to pay interest on the outstanding mark debt. If

later operations do take place, the dollar and mark positions are adjusted, and interest flows are calculated based on the adjusted positions.

Starting from the zero notional portfolio, profits are calculated by computing the dollar value of the portfolio at the end of the period. If, as in the previous example, the notional portfolio is long dollars and short marks at the end of the period, the dollar value is computed as if the remaining mark debt had been liquidated by selling dollars for marks at the end-of-period exchange rate. Formally, profits are equal to the accumulated dollar position at the end of the period plus the dollar value of the foreign currency position at the end of the period.

2. Calculations

It should be stressed that the following calculations are estimates. They are approximate in that no attempt was made to determine the exact exchange rates at which each day's operations were done or the exact rates of return associated with the particular instruments used in each transaction. It is assumed that all foreign currency operations for a particular day were done at exchange rates observed at noon in the New York market and that the relevant interest rates are those on the U.S. three-month Treasury bill, the German and Swiss three-month interbank rates less 25 basis points, and the three-month gensaki rate in Japan.[10] These rates are comparable to the actual rates at which U.S. authorities

10. For dates before March 1979, the gensaki rate was not available, so the interest rates quoted on "over-two-month-end" loans in the Japanese commercial bill market were used.

borrow and lend dollars, marks, Swiss francs, and yen, at least in recent years.[11] (See Task Force paper "Historical Review of U.S. Official Holdings of Foreign Currencies.") Furthermore, because, in a few cases, daily data on U.S. purchases of foreign currencies from other monetary authorities were not readily available, monthly data for these operations were used, and a given month's purchases were allocated evenly across the days of the month.[12] In addition, no allowance is made for the sharing of profits and losses on swap drawings of marks and Swiss francs before 1980, although the relevant amounts do not appear to be large.[13]

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11. These interest rates may misstate to some extent the actual interest cost of foreign currencies borrowed in earlier years. Between 1973 and 1980, System swap drawings of marks and Swiss francs paid the rate of interest on U.S. Treasury bills. The same rate of interest applied to the Treasury's swap drawings of marks between January 1978 and February 1979. Since during most of these years, the U.S. Treasury bill rate was above the foreign three-month interbank rate, the estimates presented in this paper may overstate to some extent the actual net interest earnings during those years. In addition, between December 1978 and January 1980, the Treasury issued Carter bonds, which had maturities of 2-1/2 to 4 years, and paid market rates of interest. Under the assumption that the interest rates on longer-term assets are unbiased predictors of the path of shorter-term interest rates, however, the three-month interest rates represent reasonable estimates of the rates on the longer-term securities.

12. This is essentially equivalent to assuming the monthly purchases were done at the average value of the exchange rate that month, and thus should not generate any large losses in precision. Two such monthly figures are used for the mark calculations, which correspond to the Treasury's mark transactions with the IMF in November 1978 and December 1983. Eight monthly figures on System operations in yen and thirteen monthly figures on Treasury operations in yen correspond to transactions with the Bank of Japan, the IMF, and other authorities and are used to supplement the daily data on yen operations in the market. The bulk of these correspond to off-market purchases of yen in late 1987 and 1988; two of the Treasury figures correspond to operations with the IMF in November 1978 and December 1983.

13. Internal documents compiled for the Manager of Foreign Operations, System Open Market Account, show realized losses on mark operations for the System and Treasury for the periods during which mark swap debt was outstanding. Between July 1973 and September 1980, the System realized losses of about $43 million on German mark operations. Between January

(Footnote continues on next page)

Finally, the scope of this calculation is limited to U.S. operations in marks, Swiss francs, and yen; and it is assumed that these transactions were made against dollars. To the extent that the United States bought or sold these foreign currencies against third currencies or SDRs, as it did on occasion, the calculations misstate somewhat the exposure and profits associated with those transactions. However, nearly all U.S. foreign currency operations during this period were conducted in these currencies and against dollars.

Table 3 shows estimates of profits from dollar-mark operations by the U.S. Treasury and the Federal Reserve System combined for selected periods. It also provides information used to compute the dollar value of the notional dollar-mark portfolio for these periods. Columns (1) and (2), which relate to U.S. activity following the Plaza Agreement, are presented separately to illustrate various features of the calculations and to show the sensitivity of the estimates to the end-of-period exchange rate. As shown at the top of column (1), cumulative net sales of dollars against marks between the time of the Plaza Agreement in September 1985 and the end of that year amounted to almost $1.9 billion. Since there were no offsetting dollar purchases against marks during that period, gross dollar purchases and sales, line (2), are of the same magnitude as the net.

(Footnote continued from previous page)
1978 and February 1979, the Treasury realized losses of about $41 million on German mark operations. Assuming these losses are predominantly associated with swap operations, one can conclude that the profit estimates in this paper understate actual profits to the extent that realized losses were shared with the Bundesbank. However, the amounts do not appear to be large relative to profits overall. Profit sharing on Swiss franc operations not associated with the repayment of debt outstanding on August 15, 1971 is likely to have been even smaller.

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Table 3

Estimates of Profits from Dollar-Mark Operations
(rounded to millions of U.S. dollars or equivalent, unless otherwise indicated)

	September 1985-December 1985 (1)	September 1985-December 1986 (2)	October 1977-February 1981 (3)	January 1985-December 1989 (4)	March 1973-December 1989 (5)
(1) Cumulative net dollars purchased	-1,861	-1,861	-3,685	-14,847	-18,927
(2) Gross dollar purchases and sales	1,861	1,861	50,195	23,818	81,549
(3) Terminal dollar position	-1,892	-2,012	-2,729	-16,314	-23,176
(4) Terminal mark position	2,052	2,728	3,134	20,320	28,424
(millions of DM)	(5,022)	(5,247)	(6,678)	(34,330)	(48,023)
(5) Profits	161	716	405	4,006	5,248
System	80	358	-54	2,082	2,264
Treasury	80	358	460	1,924	2,984
Memo:					
(6) Profits without net interest earnings	170	723	-16	3,820	5,073
(7) Net interest earnings	-10	-7	421	186	175
(8) end-of-period exchange rate (DM/$)	2.4470	1.9235	2.1310	1.6895	1.6895
Profits based on valuing terminal mark position at:					
(9) 20% stronger dollar	-181	262	-117	620	511
(10) 20% weaker dollar	674	1,398	1,188	9,086	12,354

Line (3) shows the short-dollar position that had accumulated in the notional portfolio by the end of the period. The magnitude of the terminal dollar position is slightly larger in absolute value than the cumulative net dollar purchases because the terminal dollar position includes an estimate of the accumulated interest cost of the dollars sold during the period.

Line (4) contains the corresponding mark position in the notional portfolio at the end of the period and includes an estimate of the accumulated interest earnings on the marks purchased.

The profit estimate shown on line (5) is the sum of the terminal dollar position and the terminal mark position, where the latter is converted into dollars using the end-of-period exchange rate. If the dollar-mark intervention immediately following the Plaza Agreement is evaluated as of the end of 1985, profits are estimated to have been $161 million. Because all foreign currency operations during this period were split evenly between the System and the Treasury, the shares of profit are equal. System and Treasury profits are calculated from the operations of each institution by creating a notional portfolio for each.

Lines (6) and (7) show an alternative decomposition of line (5) into profits from net interest flows and profits from exchange-rate changes alone.[14]

The sensitivity of the profit estimates to end-of-period exchange rates can be seen by comparing columns (1) and (2). Extending the calculation period to the end of 1986--in column (2)--when no additional intervention was done, yields a much larger estimated profit

14. This decomposition is described in equation (9) of Appendix A.

of $716 million. Profits increased because the dollar continued to decline in 1986, by more than the depreciation implicit in the dollar-mark interest-rate differential, raising the dollar value of the long-mark position that had accumulated by the end of 1985 more than enough to offset the deterioration of the short dollar position. To calibrate the sensitivity of the profit estimates to end-of-period exchange rates, lines (9) and (10) provide alternative estimates based on hypothetical values of the dollar that are 20 percent stronger and 20 percent weaker than the actual end-of-period value.

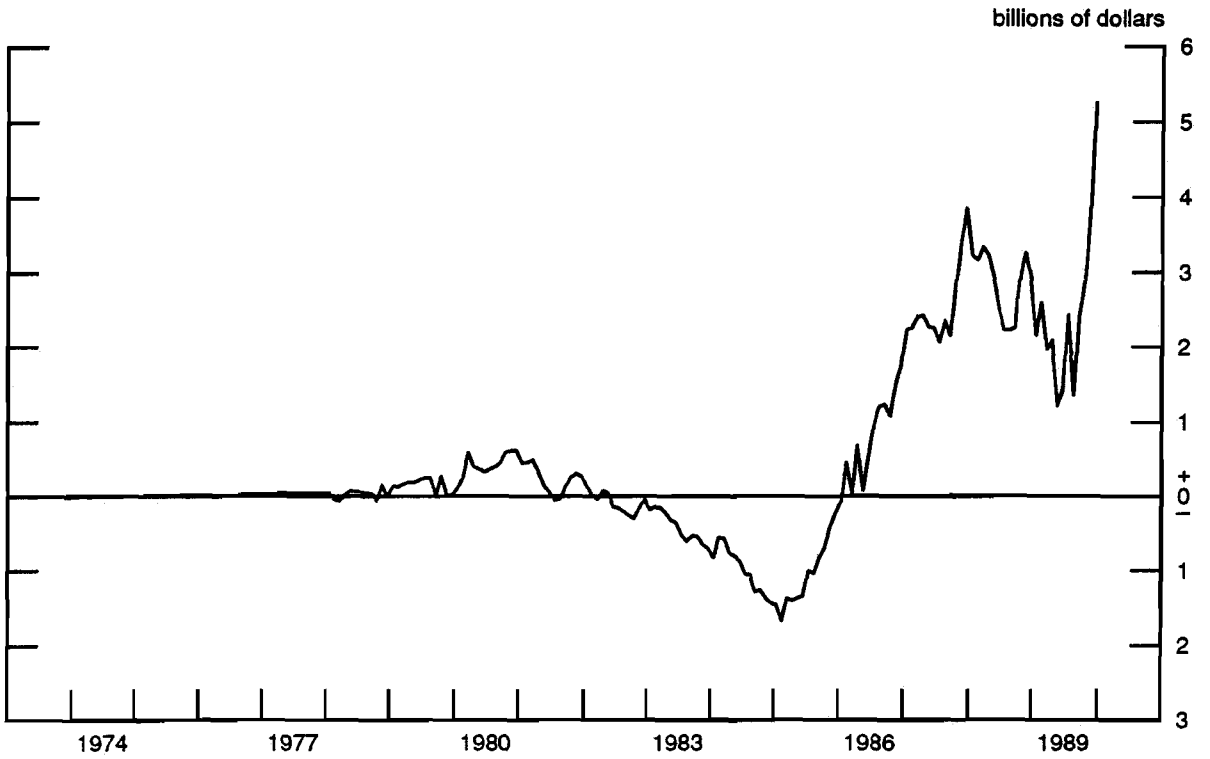
The remaining columns of table 3 summarize the profitability of dollar-mark operations over three periods. Columns (3) and (4) cover the subperiods from late 1977 to early 1981 and from 1985 to the sample-end in December 1989--two intervals during which the United States conducted foreign currency operations frequently and in size. The last column covers the entire period of generalized floating since March 1973 with a cutoff date of December 1989. As shown in line (5), U.S. operations in DM in those periods are estimated to have been profitable overall, although in the earlier subperiod the System portfolio showed a small loss.

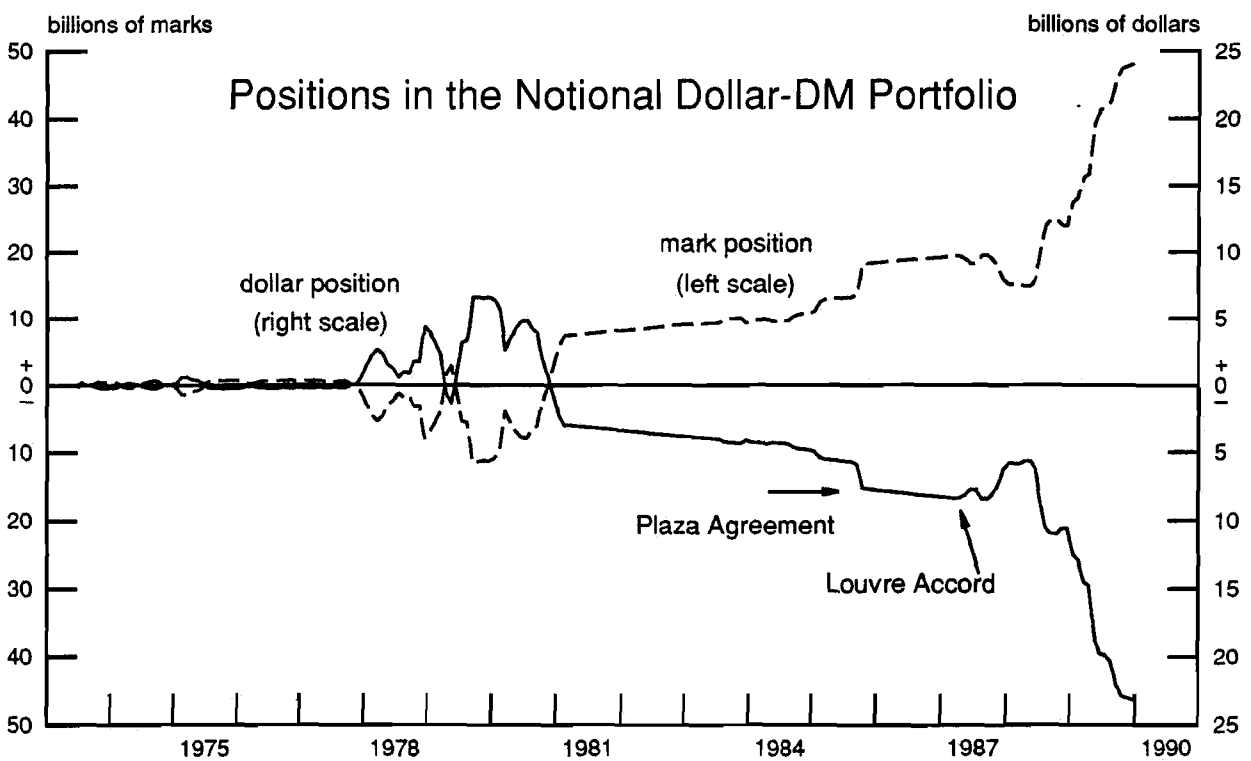
Chart 1 displays cumulative profits and the cumulated dollar and mark positions, evaluated at month-end exchange rates, for dollar-mark operations beginning in March 1973 and ending each subsequent month until December 1989. The chart shows the correspondence between exposure, which can be inferred from the bottom panel by the spread between the dollar and mark positions, and the volatility of estimated profits, shown in the top panel. Between 1973 and 1977, exposure was small.

Chart 1

Cumulative Estimated Profits from DM Operations

Combined System and Treasury





End-of-month data

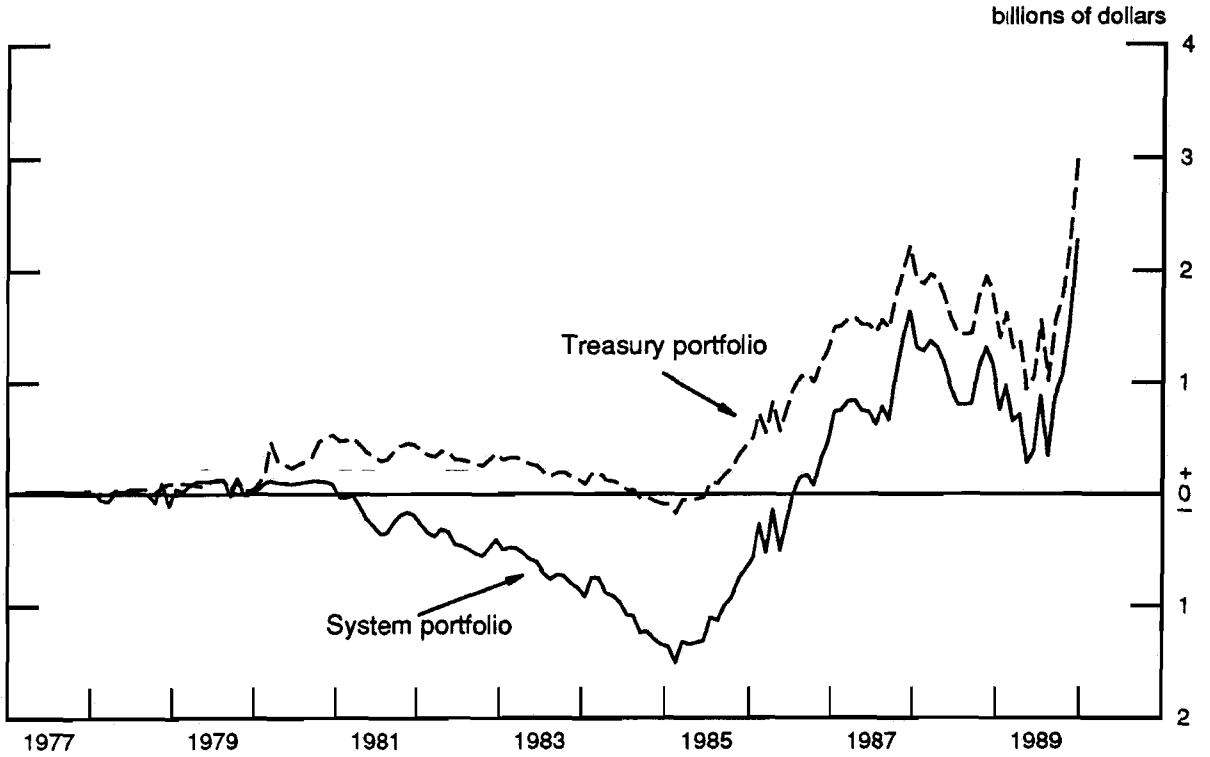
Consequently, profits were small, and the values of the portfolios did not display much volatility. Beginning in late 1977, however, dollar support operations generated long-dollar and short-mark positions. As shown in the top panel, the level and volatility of profits began to increase. Because of a favorable interest-rate differential, especially after the dollar began appreciating in the second half of 1980, interest earnings were large. As shown in column (3) of table 3, profits from dollar-mark operations during that period alone totaled about $400 million, when measured at the end-of-period exchange rate. These profits were more than accounted for by net interest earnings.

Chart 2 shows cumulative profits and the cumulated mark positions for the System and Treasury separately.[15] Corresponding dollar positions for each portfolio were suppressed to make the bottom panel of the chart more readable. In 1980, the profitability of Treasury operations moved above that for System operations, as the Treasury's larger short position in marks during that year allowed it to benefit more from the favorable interest-rate differential and the appreciation of the dollar. As the dollar rose against the mark, both the System and the Treasury took steps to build mark balances, and, by early 1981, both

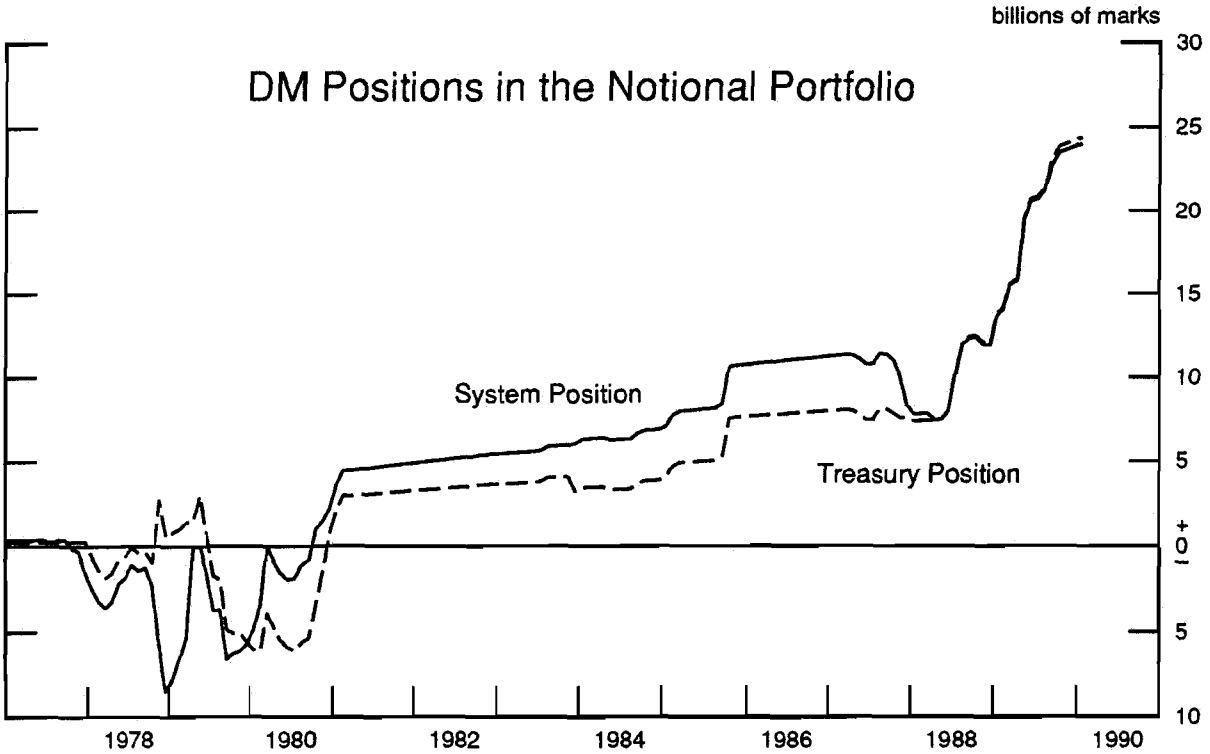
15. This chart and the comparable chart for the yen operations begin in 1977, rather than 1973, because daily data on the foreign-currency operations prior to 1977 for each institution are not readily available. To make the disaggregated computations comparable to those for the aggregate series, System and Treasury positions at the end of 1976 were set equal to half the positions calculated using the aggregate data. As shown in the charts, the estimated positions at the beginning of 1977 are close to zero and, consequently, do not effect the results in a major way.

Chart 2

Cumulative Estimated Profits from DM Operations



DM Positions in the Notional Portfolio



End-of-month data

had generated long positions in marks. Since that time, neither the System nor the Treasury has been a net borrower of marks, and the dollar-mark portfolios have remained long DM and short dollars.

Mark operations in the four years between March 1981 and December 1984 were sparse, amounting to net sales of about $200 million against marks. Since the dollar appreciated during this period and interest-rate differentials favored dollar-denominated assets, this small amount of intervention was undoubtedly unprofitable. However, the upper panel of chart 1 shows cumulative profits dropping off substantially during this period because these small losses were augmented by the decline in the value of the long mark positions that had been attained by the beginning of 1981. As shown in chart 2, the System position in DM during this period was larger than the Treasury's, and, consequently, the System took a larger loss than the Treasury on mark balances during the period.

In early 1985, when the foreign exchange value of the dollar began to fall, the profitability of the dollar-mark portfolios began to rise. As the dollar continued to fall and the operations immediately following the Plaza Agreement increased still more the long-mark, short-dollar positions, the values of the portfolios increased steadily. Later, after the Louvre Accord in 1987, the United States began to sell marks and reduce its long-mark position somewhat. Mark sales were halted in early 1988 as the mark began to weaken against the dollar. By the summer of 1988, the dollar had strengthened sufficiently to prompt intervention sales of dollars against marks, increasing the long mark positions. These positions grew still larger in 1989 as a result of heavy intervention sales of dollars. When measured from January 1985 to

the end of December 1989, as shown in column (4) of table 3, mark operations have contributed about $4 billion to U.S. government net worth. During that time, the profitability of the dollar-mark portfolios have become increasingly volatile, reflecting the effects of changes in exchange rates on the large mark exposure.

Table 4 and charts 3 and 4 provide similar information about dollar-Swiss franc operations. Because some Swiss franc operations between 1973 and 1979 were conducted to repay Swiss franc debt outstanding on August 15, 1971 and because these operations have been discussed in a previous section, an attempt was made to adjust the data used in the calculations for this section to exclude those operations. The scale of the remaining operations was small relative to that of mark operations, with the bulk of the Swiss franc operations occurring between October 1977 and February 1981. As shown in the bottom panel of chart 4, the System was a net seller of Swiss francs in the second half of 1978, but these sales were quickly reversed in 1979 as the dollar strengthened. Profits attributable to System operations rose relatively sharply at the end of 1978. The Treasury had conducted no operations in Swiss francs up to this time, outside of those undertaken to repay the debt from August 1971. In the second half of 1980, both the System and the Treasury purchased Swiss francs to build balances. Since 1981, however, there have been no operations in Swiss francs. As shown in column (1) of table 4, the operations between October 1977 and February 1981 produced profits of about $50 million for the System and Treasury combined. After 1981, this profitability of the Swiss franc positions fell and rose in close correspondence to movements in the dollar-Swiss franc exchange rate.

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Table 4

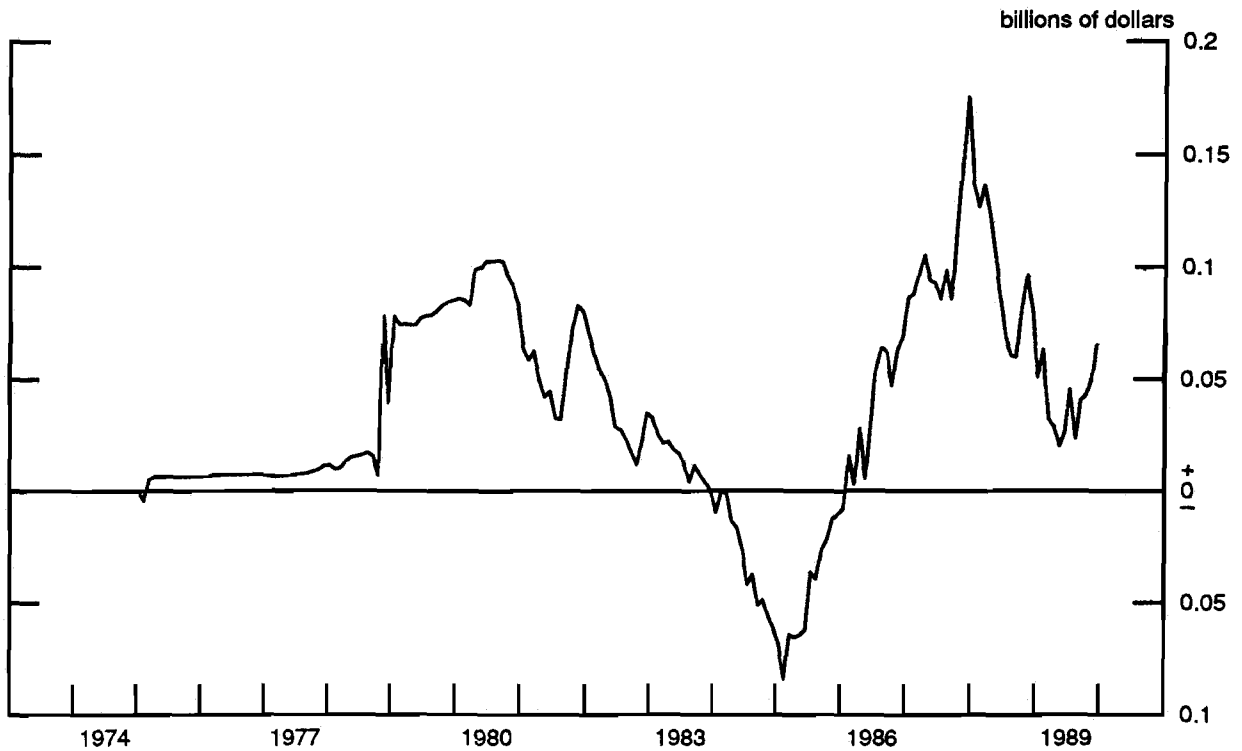
Estimates of Profits from Dollar-Swiss Franc Operations
(rounded to millions of U.S. dollars or equivalent, unless otherwise indicated)

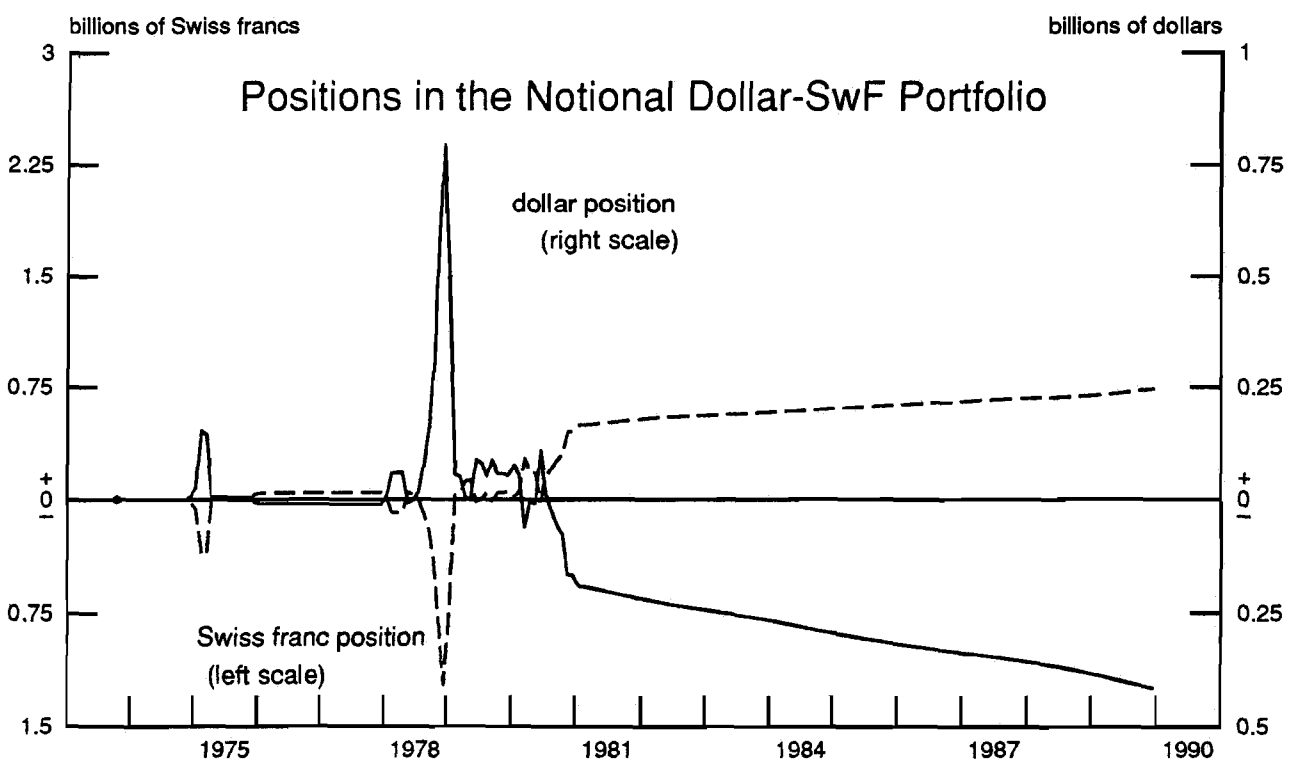
		October 1977-February 1981 (1)	March 1973-December 1989 (2)
(1)	Cumulative net dollars purchased	-200	-212
(2)	Gross dollar purchases and sales	3,367	3,722
(3)	Terminal dollar position	-177	-415
(4)	Terminal Swiss franc position	226	480
	(millions of SwF)	(443)	(739)
(5)	Profits	49	65
	System	59	101
	Treasury	-10	-36
Memo:			
(6)	Profits without net interest earnings	20	96
(7)	Net interest earnings	30	-31
(8)	end-of-period exchange rate (SwF/$)	1.9620	1.5410
	Profits based on valuing terminal SwF position at:		
(9)	20% stronger dollar	12	-15
(10)	20% weaker dollar	106	185

Chart 3

Cumulative Estimated Profits from SwF Operations

Combined System and Treasury

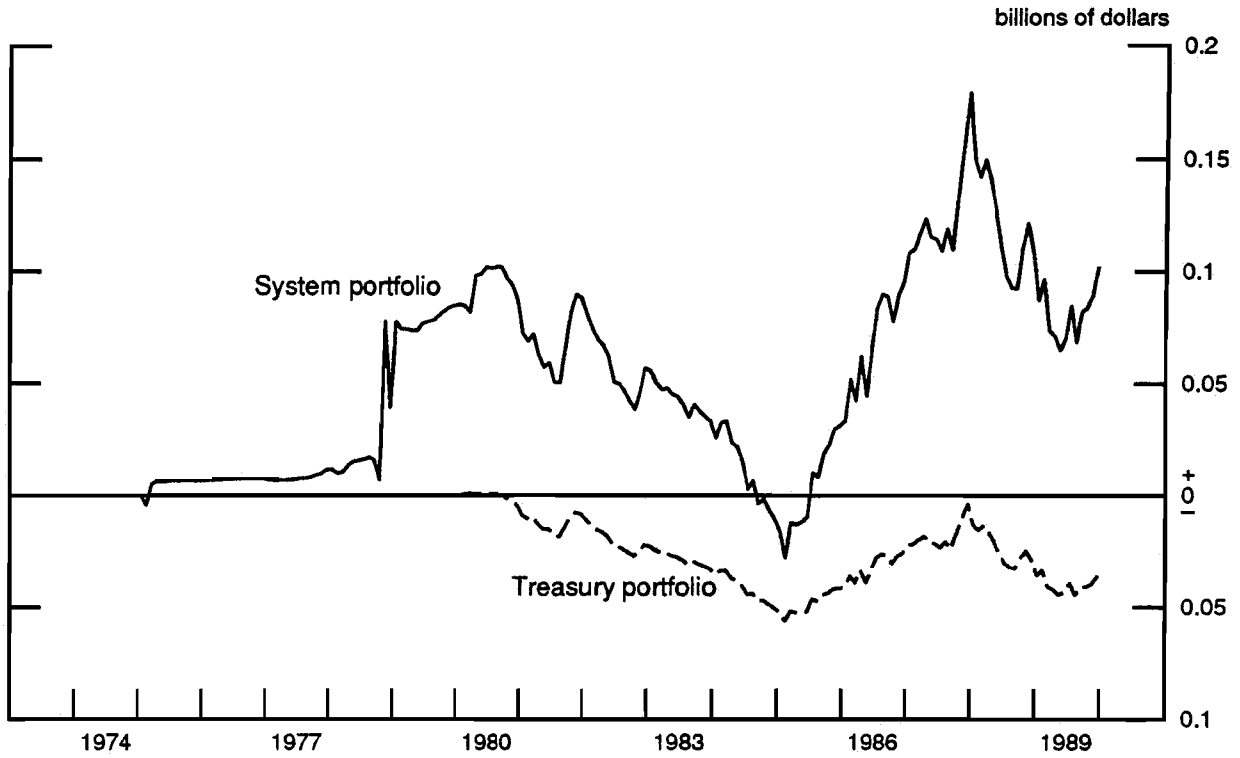




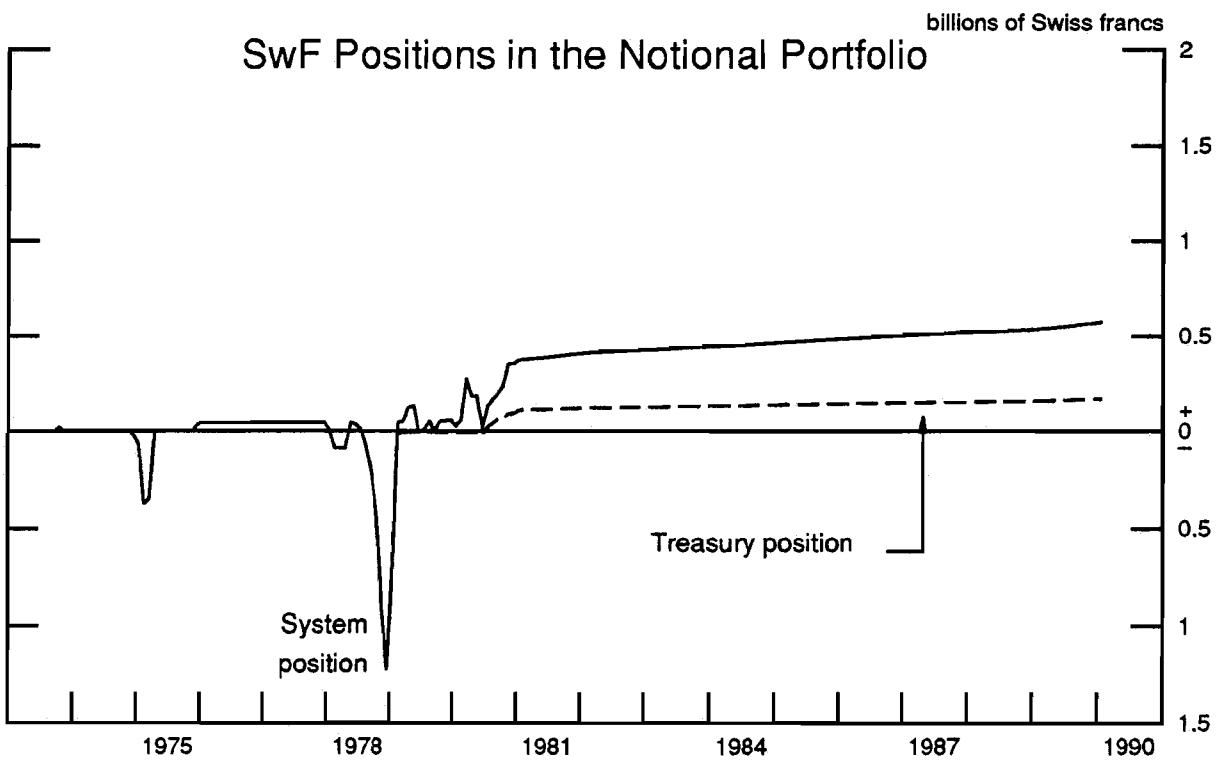
End-of-month data

Chart 4

Cumulative Estimated Profits from SwF Operations



SwF Positions in the Notional Portfolio



End-of-month data

Table 5 and charts 5 and 6 show the results for dollar-yen operations. Dollar-yen activity during the first 16 years of the floating rate period is estimated to have been profitable, on balance, although, because positions were smaller, profits were smaller than for dollar-mark. Between 1978 and 1989, the dollar-yen portfolios were long yen in the aggregate portfolio, shown in chart 5; as shown in the bottom panel of chart 6, however, the System was short yen for a brief period in 1978 when the swap line with the Bank of Japan was first activated. The Treasury's yen position was boosted sharply in 1978 with yen acquired through a drawing on the IMF and sales of SDRs. These long-yen and short-dollar positions generated losses, on balance, during the early 1980s when the dollar appreciated against the yen. The Treasury portfolio shows a larger dip in profitability, as show in the top panel of chart 6, because of its larger long yen position. The value of the dollar-yen portfolio began to increase, however, after the dollar's value against the yen started falling in February 1985. Furthermore, following the Plaza Agreement in September of that year, the profitability of the dollar-yen portfolio continued to increase, as the United States increased its long yen position and decreased its short dollar position while the dollar's exchange value continued to fall. The large long-yen, short-dollar positions attained following the Plaza Agreement dropped quickly in 1987 after the Louvre Accord in April. Consequently, the profitability of the dollar-yen portfolios leveled off in the later part of 1987. In 1988, these positions were built back up by purchases of $3 billion equivalent of yen from the Japanese Ministry of Finance, split equally between the System and the Treasury. The Treasury also acquired

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Table 5

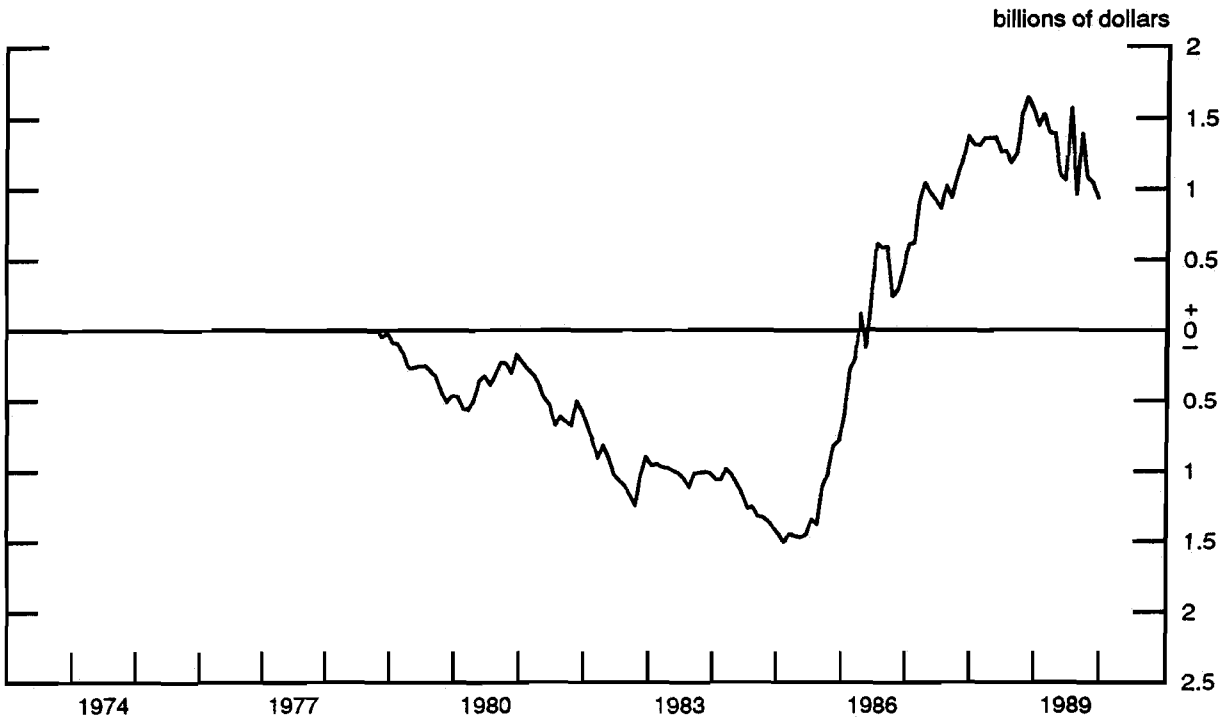
Estimates of Profits from Yen Operations
(rounded to millions of U.S. dollars or equivalent, unless otherwise indicated)

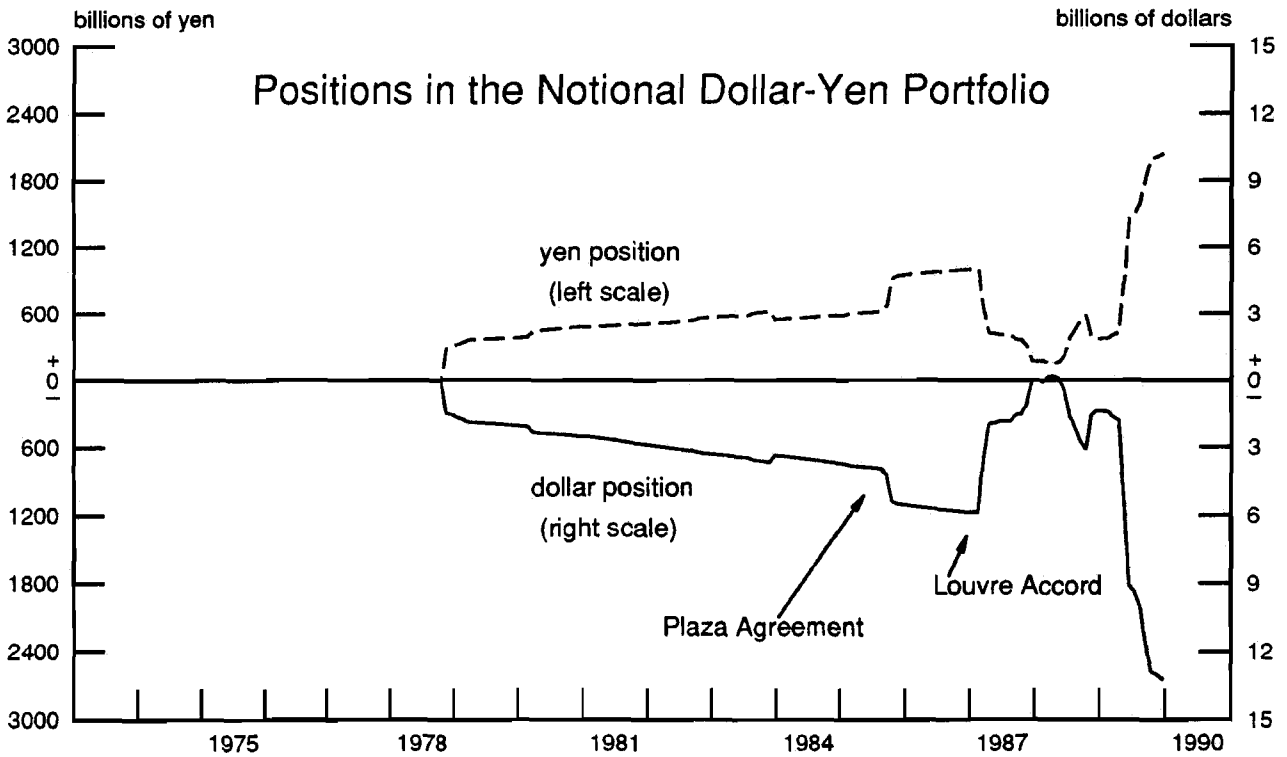
		January 1985-December 1989 (1)	March 1973-December 1989 (2)
(1)	Cumulative net dollars purchased	-8,028	-9,843
(2)	Gross dollar purchases and sales	25,654	28,362
(3)	Terminal dollar position	-7,951	-13,217
(4)	Terminal yen position	9,041	14,159
	(billions of yen)	(1,300)	(2,036)
(5)	Profits	1,091	942
	System	399	672
	Treasury	691	270
Memo:			
(6)	Profits without net interest earnings	823	1,517
(7)	Net interest earnings	268	-575
(8)	end-of-period exchange rate (¥/$)	143.80	143.80
	Profits based on valuing terminal yen position at:		
(9)	20% stronger dollar	-416	-1,418
(10)	20% weaker dollar	3,351	4,482

Chart 5

Cumulative Estimated Profits from Yen Operations

Combined System and Treasury

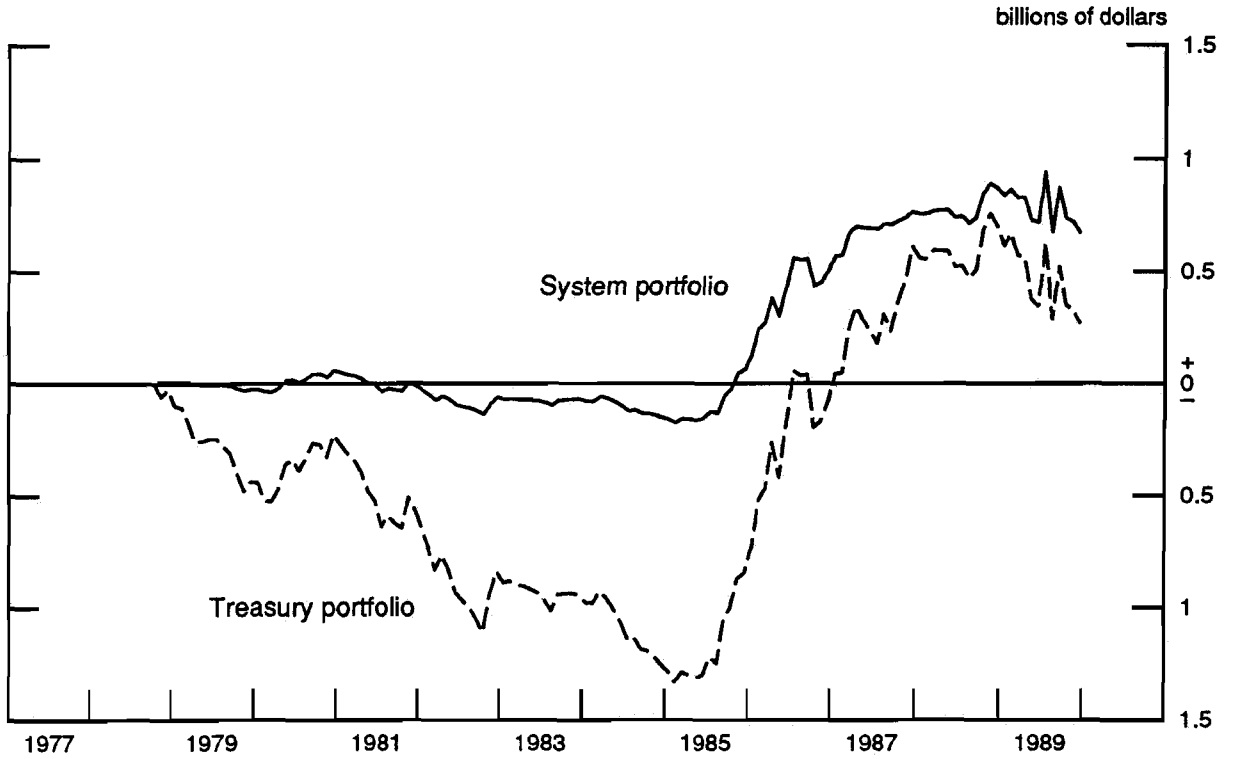


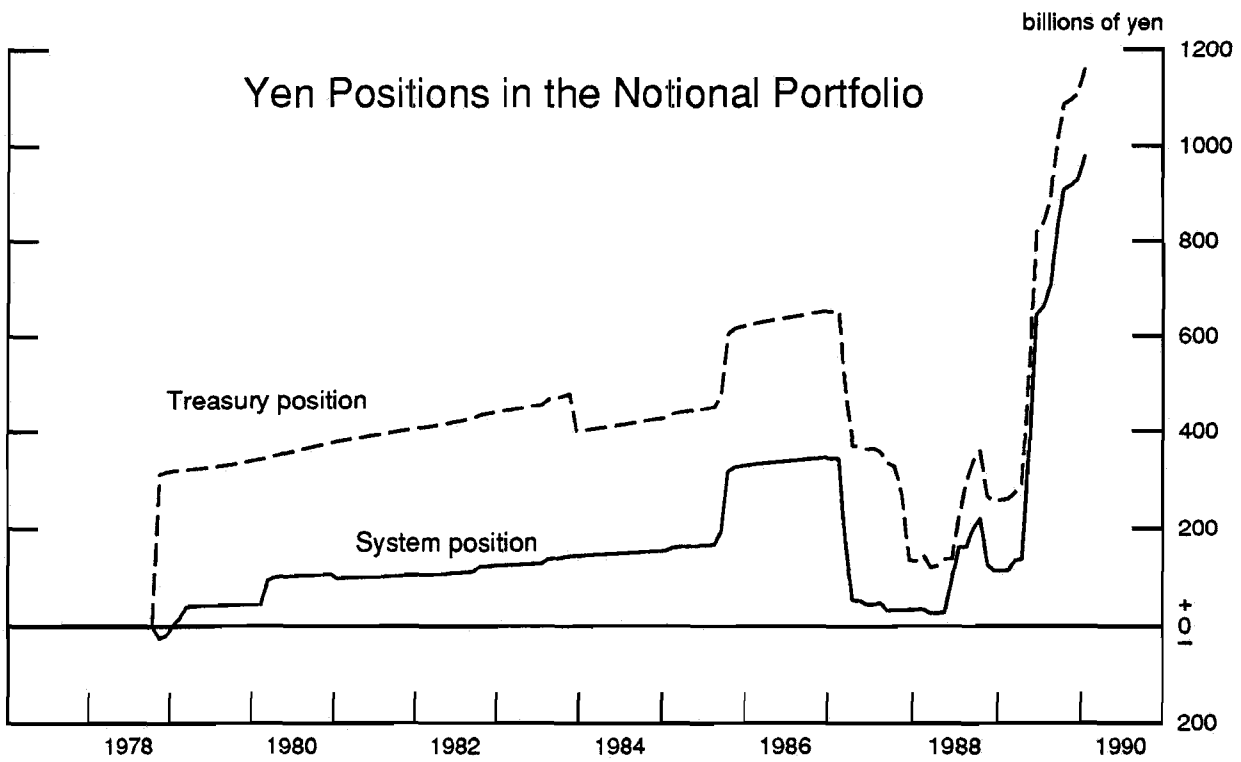


End-of-month data

Chart 6

Cumulative Estimated Profits from Yen Operations





End-of-month data

smaller amounts of yen through operations with the IMF and sales of SDRs. Subsequently, System and Treasury balances increased still more through heavy intervention sales of dollars in 1989. As shown in table 5, yen operations since the beginning of 1985 have contributed about $1.1 billion to the net worth of the U.S. monetary authorities.

3. Assessment

As shown on table 6, U.S. foreign currency operations in marks, Swiss francs, and yen, when measured from the time of the abandonment of fixed exchange rates in March 1973 to the end of December 1989, have produced profits of $6-1/4 billion. System operations have generated about $3 billion in profits. These estimates of economic profits are subject to all the qualifications laid out earlier in this paper.

Because terminal mark and yen positions are large, however, these estimates are quite sensitive to subsequent changes in exchange rates. For example, a 20 percent increase in the value of the dollar from the end of December 1989 applied to the same portfolios would alter the estimate from $6-1/4 billion in profits to almost $1 billion in losses; the profitability of the System portfolio would change from $3 billion in profits to about $1/2 billion in losses. Similarly, a 20 percent weaker dollar would substantially raise estimated profits. Overall, it appears that System and U.S. operations have added to System and U.S. net worth, although, at present, the risk of sharp changes in the profitability of these operations is higher than it has been since generalized floating began in March 1973.

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Table 6

Estimates of Profits from Foreign-Currency Operations
March 1973 - December 1989
(rounded to millions of U.S. dollars or equivalent)

	Marks	Swiss francs	Yen	Total
Total profits	5,248	65	942	6,255
System	2,264	101	672	3,037
Treasury	2,984	-36	270	3,218
Profits based on valuing terminal foreign-currency positions at 20% stronger dollar:				
Total profits	511	-15	-1,418	-922
System	-86	40	-404	-450
Treasury	597	-55	-1,014	-472
Profits based on valuing terminal foreign-currency positions at 20% weaker dollar:				
Total profits	12,354	185	4,482	17,021
System	5,789	193	2,287	8,269
Treasury	6,565	-9	2,195	8,751

Appendix A: Derivation of Profits Formula

The formula presented below is based on the construction of a notional portfolio of domestic-currency and foreign currency assets. It can be used to estimate the difference between the portfolio's net worth after a period of intervention and its net worth had no intervention occurred at all. In the ideal calculation, to compute the counterfactual net worth, one would reverse any effects intervention may have had on exchange rates and interest rates during the period and compute net worth under the assumption of no intervention with the alternative rates. This approach, which would require a model of the effects of the intervention on exchange rates and interest rates and which would be necessary for a fuller evaluation of the costs and benefits of intervention, is not taken here. Rather, for the limited purpose of calculating the intervention portfolio's net worth, it is assumed that intervention has no effect on exchange rates and interest rates and that the same data on rates can be used to evaluate net worth with intervention and without.

It is necessary to make some assumption about the initial portfolio of domestic-currency assets and foreign exchange reserves to compare the change in the value of that initial portfolio to the difference between the value of the initial portfolio and the value of the portfolio that results after a sequence of intervention transactions. For simplicity it is assumed that the initial portfolio is empty (i.e., it contains no assets and no liabilities, of either currency of denomination). Under these conditions, one can then simply determine the terminal value of the portfolio that results from the sequence of intervention transactions to compute the contribution of intervention to

the final value of the portfolio. This simplification is not necessary, however. Any other initial portfolio can be incorporated into the analysis. The contribution of the intervention transactions to the final value of the portfolio will be the same, however, regardless of the initial portfolio assumption.

The construction of this formula begins by computing the future (day t) value of the currency purchased on a given day (day i) less the future value foregone of the currency sold on that day. Given the assumption that the initial portfolio is empty, it will be necessary to borrow assets to begin intervening. It is assumed that the interest paid on an asset borrowed is the same as the interest that would be foregone if the same asset were sold from the portfolio. Thus, it makes no difference for this calculation that the asset sold is not already owned.

Let x_i represent government purchases (or sales, if $x_i < 0$) of dollars against a foreign currency on day i, S_i represent the price of dollars in terms of the foreign currency on day i, r_i represent the daily interest rate on dollar assets held as reserves, and r_i^* represent the daily interest rate on foreign currency assets. When the x_i dollars are purchased on day i, it is assumed that these dollars are used to purchase an asset that earns interest r_i, and that principal and interest are reinvested at the interest rates available on the subsequent days until day t, the date at which we wish to evaluate the profits associated with the intervention. Thus, the dollar value on day t of intervention on day i is given by:

$$(1) \quad VI_i = x_i(1+r_i)(1+r_{i+1})(1+r_{i+2})\cdots(1+r_{t-1})$$

$$= x_i \prod_{j=0}^{t-1-i} (1+r_{i+j}).$$

For notational simplicity, define $\tilde{r}_{i,t}$ as:

$$(2) \quad \tilde{r}_{i,t} = \prod_{j=0}^{t-1-i} (1+r_{i+j}) - 1.$$

The compound interest rate $\tilde{r}_{i,t}$ represents the rate of return associated with an investment on day i in which principal and interest are reinvested until day t. In a world of perfect foresight and no risks, it might also be interpreted as the rate of return on a single asset that matures on day t. Using $\tilde{r}_{i,t}$, one can express VI_i as:

$$(3) \quad VI_i = x_i(1+\tilde{r}_{i,t}).$$

To calculate the value on day t of a sequence of intervention purchases of dollars that began on day k and ended on day t, take the sum:

$$(4) \quad \sum_{i=k}^{t-1} VI_i + x_t = \sum_{i=k}^{t-1} x_i \prod_{j=0}^{t-1-i} (1+r_{i+j}) + x_t$$

$$= \sum_{i=k}^{t-1} x_i(1+\tilde{r}_{i,t}) + x_t .$$

$$= TDP(k,t).$$

The expression TDP(k,t) is the terminal dollar position resulting from intervention beginning on day k and ending on day t. It is the sum of the day-t values of dollars purchased (or sold) between days k and t, including the value of dollars purchased on day t itself. TDP(k,t) will be positive when the terminal dollar position is long and negative when the terminal dollar position is short.

To compute the opportunity cost of these intervention purchases of dollars (OCI), consider the foreign currency value on day t of the investment of $S_i x_i$ foreign currency units on day i:

$$(5)\quad OCI_i = S_i x_i (1+r^*_i)(1+r^*_{i+1})(1+r^*_{i+2})\cdots(1+r^*_{t-1})$$

$$= S_i x_i \prod_{j=0}^{t-1-i} (1+r^*_{i+j}) = S_i x_i (1+\tilde{r}^*_{i,t}),$$

where $\tilde{r}^*_{i,t}$ is defined as

$$(6)\quad \tilde{r}^*_{i,t} = \prod_{j=0}^{t-1-i} (1+r^*_{i+j}) - 1.$$

The opportunity cost in terms of day-t dollars of the sequence of intervention purchases between days k and t is:

$$(7)\quad (1/S_t)\Big[\sum_{i=k}^{t-1} OCI_i + S_t x_t\Big] = \sum_{i=k}^{t-1} (S_i x_i/S_t) \prod_{j=0}^{t-1-i} (1+r^*_{i+j}) + x_t$$

$$= \sum_{i=k}^{t-1} (S_i x_i/S_t)(1+\tilde{r}^*_{i,t}) + x_t$$

$$= -(1/S_t)TFCP(k,t),$$

where TFCP(k,t) is the terminal foreign currency position from intervention beginning on day k and ending on day t. As with TDP(k,t), TFCP(k,t) is defined to be negative when the terminal foreign currency position is short and positive when the terminal foreign currency position is long.

Subtracting from the values of the sequence of interventions their associated opportunity costs, one can compute the economic profits (P) arising from intervention between day k and day t:

$$(8)\quad P(k,t) = \sum_{i=k}^{t-1} VI_i - (1/S_t)\sum_{i=k}^{t-1} OCI_i$$

$$= \sum_{i=k}^{t-1}\left[x_i\left\{\prod_{j=0}^{t-1-i}(1+r_{i+j}) - (S_i/S_t)\prod_{j=0}^{t-1-i}(1+r^*_{i+j})\right\}\right]$$

$$= \sum_{i=k}^{t-1}\left[x_i\left\{(1+\tilde{r}_{i,t}) - (S_i/S_t)(1+\tilde{r}^*_{i,t})\right\}\right]$$

$$= TDP(k,t) + (1/S_t)TFCP(k,t)$$

From the derivation shown above, it can be seen that this opportunity-cost measure of economic profits is equivalent to the sum of the terminal dollar position plus the dollar value on day t of the terminal foreign currency position. Note, however, that the sum of

currency positions will yield the proper measure only if accumulated interest flows are included in the computation of the position values.

One can also decompose the expression for P(k,t) into profits from foreign exchange transactions alone and profits from net interest flows.

$$(9)\quad P(k,t) = \sum_{i=k}^{t-1} x_i(1 - S_i/S_t) + \sum_{i=k}^{t-1} x_i(\tilde{r}_{i,t} - (S_i/S_t)\tilde{r}^*_{i,t}).$$

The first term on the right-hand side of the equation above represents profits measured at the day-t exchange rate from intervention if both dollar and foreign currency interest rates were zero. The second term captures the interest earnings from purchases of dollar-denominated assets and the foregone interest earnings from sales of foreign currency-denominated assets. Because the interest flows associated with the foreign currency asset are denominated in foreign currency units, it is necessary to include the exchange-rate factors to obtain a dollar value on day t. While the interaction, in an accounting sense, between exchange-rate changes and foreign currency interest rates is second-order for small changes, large swings in exchange rates can produce large effects on the net interest component of profits.[16]

16. See Michael P. Leahy, "The Profitability of U.S. Intervention," International Finance Discussion Paper #343, Washington: Board of Governors of the Federal Reserve System, February 1989.

Appendix B: Comparison with Published Reports

The profit estimates presented above differ in many respects from the net profits and losses on foreign currency operations in reports of the Manager of the Foreign Operations of the System Open Market Account on Treasury and Federal Reserve Foreign Exchange Operations.

The treatment of interest flows is different. The calculations of profits and losses on foreign currency transactions in the Manager's reports add foreign currency interest receipts to foreign currency balances but treat the interest receipts as if they were "purchased" with dollars at the exchange rate prevailing at the time interest is received. Thus, current interest receipts do not contribute to current profits. However, as future changes in exchange rates generate gains or losses on the overall foreign currency positions, the accumulated interest receipts do contribute to calculated profits and losses just as ordinary purchases of foreign currencies would.

Put another way, the interest payments and receipts associated with holdings of U.S. dollar-denominated securities that are used in foreign currency operations are not measured. Instead, dollar interest payments are implicitly assumed to be equal to an exchange-rate adjusted value of foreign interest receipts.[17] At the time of the foreign currency interest transaction, the contribution to profits is zero.

17. In the terminology of Appendix A, the dollar interest rate r_i is assumed to be equal to $(-Q_i/S_{i+1})r^*_i$, where Q_i is the ratio of the foreign-currency position at time i to the dollar position at time i, S_{i+1} is the spot exchange rate at time i+1 in terms of foreign currency per dollar, and r^*_i is the foreign-currency interest rate. This assumption essentially adjusts the foreign-currency interest rate for the rate of appreciation of the foreign currency from an average exchange rate at which foreign-currency transactions were conducted up to time i.

Subsequently, however, as the exchange rate used to translate the foreign currency interest into dollars changes, foreign currency interest earnings will contribute to profits and losses.

Thus, even if the transactions covered were the same and the interest rates and exchange rates used were the same, profits and losses presented in the Manager's reports would differ from the ones presented in this study, for methodological reasons. However, as mentioned above, these other factors are not the same. The data used in the Manager's reports are more accurate and the coverage is more extensive. The Manager's reports use the exact exchange rates at which transactions were conducted and take foreign currency interest flows into account more accurately. The Manager's reports also cover all foreign currency transactions over the years, not just transactions in the three currencies presented in this study.

Appendix C: Data

Interest Rates

United States -- daily observations[18] on U.S. three-month Treasury bill rate, quoted on a discount basis at an annual rate using a 360-day year, from January 1, 1973 to sample-end.

Source: Federal Reserve Bank of New York.

-- these discount rates were converted to daily yields using the following formula:

$$\frac{(\text{discount rate})/100}{360 - (91)(\text{discount rate})/100},$$

where 91 days is assumed to be the maturity of the bill quoted each day.

Germany -- daily observations on domestic German three-month interbank interest rates, assumed to be quoted on a simple-interest basis at an annual rate using a 360-day year, from January 1, 1973 to sample-end. The annual rate was decreased by 25 basis points to obtain a better approximation to the actual rate of return on U.S. holdings of DM reserves.

Source: International Finance Division database, Federal Reserve Board.

18. Interest rates on Saturdays, Sundays, and holidays are assumed to be the same as on the previous business day in the country. Exchange rates on Saturdays, Sundays, and holidays are assumed to be the same as on the previous business day in the New York market.

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Switzerland -- daily observations on domestic Swiss three-month interbank interest rates, assumed to be quoted on a simple-interest basis at an annual rate using a 360-day year, from January 7, 1974 to sample-end. The annual rate was decreased by 25 basis points to obtain a better approximation to the actual rate of return on U.S. holdings of SwF reserves. Prior to January 7, 1974, monthly observations on 3-month deposit rates with large banks in Zurich, decreased by 25 basis points, were used.

Source: International Finance Division database, Federal Reserve Board.

Japan -- Two interest-rate series were spliced to obtain Japanese interest rates covering the whole period. From January 1, 1973 to March 1, 1979, daily observations on interest rates quoted for "over-two-month-end" loans in Japan were used. From March 2, 1979 to sample-end, daily observations on three-month gensaki rates were used. Both of these were assumed to be quoted on a simple-interest basis at an annual rate using a 365-day year.

Source: International Finance Division database, Federal Reserve Board.

Intervention Data

Class II FOMC - Strictly Confidential (FR) data on U.S. official purchases of dollars against yen, Swiss francs,

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and marks, daily observations. Sources: from January 1, 1973 to December 31, 1976, Federal Reserve Bank of New York; from January 3, 1977 to sample-end, International Finance Division database, Federal Reserve Board. System and Treasury operations are disaggregated in data beginning in 1977 only, and Swiss franc data were adjusted in an attempt to exclude purchases of Swiss francs to repay debt outstanding on August 15, 1979.

Purchases of Foreign Currencies from Foreign Monetary Authorities

Class II FOMC - Strictly Confidential (FR) data on System and Treasury official purchases of dollars against yen, Swiss francs, and marks for foreign monetary authorities, monthly observations. Source: "Operations in Foreign Currencies: A Report Prepared for the Federal Open Market Committee by the Foreign Function of the Federal Reserve Bank of New York, annual publication. Also used were data on U.S. Treasury Exchange Stabilization Fund purchases of yen against SDRs from November 1988 to December 14, 1989, daily observations.

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Exchange Rates

Dollar/mark, dollar/Swiss franc, and dollar/yen exchange rates are daily observations of noon spot rates in New York City from January 1, 1973 to sample-end. Source: International Finance Division database, Federal Reserve Board.

September 29, 1989

TO: Federal Open Market Committee

FROM: Ted Truman and Paul Wood

Subject: The Shadow Open Market Committee on U.S. Foreign Exchange Losses

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Class I - FOMC

The Shadow Open Market Committee (SOMC) recently released a Policy Statement that was critical of U.S. reporting on U.S. foreign exchange operations. (The relevant excerpt is attached.) The report contained a number of inaccuracies that could have been avoided by relying on material published by the Federal Reserve and the Treasury.

(1) The Policy Statement states: "In 1988, the Federal Reserve reported losses of more than $500 million on foreign exchange market intervention . . . the Federal Reserve reports only realized losses . . . if no sales occur, no losses are reported." In fact, the number that the Policy Statement cites, from Table 6 of the Annual Report of the Board of Governors of the Federal Reserve System, includes both realized profits of $610 million and unrealized losses of $1,121 million in 1988.

(2) The Policy Statement states: ". . . the Federal Reserve only accounts for losses on foreign exchange on its own books. It also intervenes for the account of the Treasury's secret Exchange Stabilization Fund. The fund does not report the results of its operations publicly." In fact, profits and losses, realized and unrealized, are reported for both the Federal Reserve and the Treasury in the Manager's quarterly report on "Treasury and Federal Reserve Foreign Exchange Operations," which is released to the public, sent to Congress, and published in the Federal Reserve Bulletin. In addition, the Treasury itself publishes a statement of profits and losses in the

Annual Report of the Exchange Stabilization Fund (ESF) and in the Treasury Bulletin.

(3) The Policy Statement states: ". . . the Federal Reserve made net purchases of $23 billion of foreign exchange in the 13 months ending July 1989." In fact, according to figures from the Manager's published quarterly report, the U.S. authorities made net sales of $18,372 million (excluding net sales of $225 million in customer transactions) between June 27, 1988 and July 31, 1989.

(4) The Policy Statement estimates: ". . . the Fed had realized and unrealized losses of $5 billion in the year ending July 1989." The basis of this estimate is not explained. In fact, between July 31, 1988 and July 31, 1989, the System's unrealized losses (the reduction in cumulative valuation profits) were only $56 million, which were more than cancelled by the System's $155 million in realized profits during that period. For the ESF, unrealized losses were $132 million, and realized profits were $233 million. Thus, over this 12-month period, during which the dollar moved little on balance, the U.S. authorities had a net profit of $200 million[1]. (These figures do not

1. The figures for unrealized losses can be derived from Table 3 of the Manager's quarterly report by subtracting the cumulative valuation profits for July 31, 1989 from those of July 31, 1988. However, that would produce unrealized losses of $354 million for the ESF, rather than the $132 million reported above. The discrepancy arises because the accounting used in the quarterly report did not mark to market the expected future receipt by the Treasury of DM 7,952 million that were warehoused with the System as of July 31, 1989. Instead, those marks were valued at the exchange rate at which they were warehoused (DM 1.9880 per dollar) so that their dollar value on the books was $4 billion, when in fact they were worth more by July 31, owing to the dollar's decline since the warehousing was done. Not marking to market those expected receipts caused the quarterly report's figure for the Treasury's cumulative profits on July 31, 1989 to be $222 million lower than it would otherwise be. Having uncovered this inconsistency in treatment, we are trying to correct it in the future.

include interest earned on foreign currency holdings nor interest foregone on U.S. dollar securities.)

For the Committee's confidential information, from the dollar's low point on December 31, 1987 to September 29, 1989, realized profits for the System amounted to $435 million while unrealized losses totaled $1,266 million. For the ESF, comparable figures were $479 million in realized profits and $1,004 million in unrealized losses. Thus, the System and the ESF combined have recorded a net loss of $1,356 million (realized profits plus unrealized losses) since the dollar's low point.

Attachment

Excerpt from Shadow Open Market Committee
Policy Statement
September 18, 1989

EXCHANGE MARKET INTERVENTION

During 1989, the nominal value of the U.S. dollar has risen on the foreign exchange markets as a consequence of the vigorous monetary restraint the Federal Reserve initiated in May 1988. The rise of the dollar has coincided with a decline in gold prices and a one percentage point drop in long-term bond yields between March and September.

These developments demonstrate that the Fed's anti-inflationary policy actions are understood in the financial markets and are achieving their intended results. Fears that the strong dollar will hamper growth of U.S. exports are unfounded. Exports depend on real, inflation-adjusted exchange rates, not on nominal exchange rates. If inflation drops, a fall in the real value of the dollar will coincide with a rise in its nominal value.

By acquiring $34 billion of foreign currency, the monetary authorities have taken a speculative position that yen, D-marks and other currencies will appreciate in relation to the dollar. In effect, U.S. authorities are gambling that their own anti-inflationary policies will fail.

These gambles have been costly. In 1988, the Federal Reserve reported losses of more than $500 million on foreign exchange market intervention. This is only a small part of the cost of intervention to the U.S. public. There are three major omissions: One, the Federal Reserve reports only realized losses. The $500 million loss is the difference between purchases of foreign currency made at a higher price than was received when the currency was sold. But if no sales occur, no losses are reported.

Two, the Federal Reserve only accounts for losses on foreign exchange on its own books. It also intervenes for the account of the Treasury's secret Exchange Stabilization Fund. The fund does not report the results of its operations publicly.

Three, the Federal Reserve made net purchases of $23 billion of foreign exchange in the 13 months ending July 1989. Most of the holdings are in Japanese yen and German marks. Since the dollar appreciated against both currencies during the period, the Federal Reserve has large unreported losses. We estimate that, on a conservative basis, the Fed had realized and unrealized losses of $5 billion in the year ending July 1989.

The Federal Reserve, by sterilizing its foreign currency purchases, has not allowed exchange market operations to alter its restrictive monetary stance. Hence, the intervention has not changed the growth rate of the monetary base.

From June 1988 through May 1989 the monetary base grew by $10 billion. However, during the same period, domestic interest-bearing securities held in the System Open Market Account declined by $7 billion. Net income of the Federal Reserve Banks, which is normally rebated to the Treasury, has accordingly been reduced - another loss for taxpayers.

There are no benefits to offset the losses. Sterilized intervention has no effect on exchange rates. We urge that these costly operations be stopped. At the same time, the public has a right to know how much has been lost in foreign exchange market operations. The Congress should insist on a public accounting of the realized and unrealized losses.

Foreign Currency Operations: An Annotated Bibliography*

* Prepared principally by Hali J. Edison, Division of International Finance, Board of Governors. She benefitted from comments from Dale W. Henderson and other members of the Task Force. Section IX and Appendix prepared by Paul Wood, Division of International Finance, Board of Governors.

Foreign Currency Operations: An Annotated Bibliography

I. Introduction

This document is an annotated bibliography of recent research on foreign currency operations or exchange market intervention. It includes studies undertaken for the G-7 Working Group on Exchange Market Intervention (1982-83); subsequent studies on intervention, primarily key empirical contributions; and some related studies.[1] Of course, the studies reviewed in this bibliography are not the only information relevant for an assessment of intervention policy; some of that other information is contained in other Task Force papers.

There are two types of exchange market intervention: nonsterilized and sterilized. Nonsterilized intervention affects the monetary base, but sterilized intervention does not. Most of the studies included in this bibliography address the central question regarding intervention: Does sterilized intervention have a quantitatively significant effect on the exchange rate?[2] A few studies address other important questions regarding

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1. The G-7 Working Group completed its report in January 1983. It was released in April 1983. The report is officially entitled the Report of the Working Group on Exchange Market Intervention and is commonly referred to as the "Jurgensen Report". The Report itself draws no explicit conclusions. The official press release of the G-7 Finance Ministries and Central Bank Governors, who received and reviewed the report, states that the analysis in the report seems to suggest that (1) sterilized intervention has a much smaller impact on exchange rates than does nonsterilized intervention; (2) sterilized intervention can have some short-run impact on exchange rates and may therefore be effective in achieving some short-run exchange market objectives; (3) sterilized intervention does not appear to have much long-run impact, and its effects are often swamped by those of other macroeconomic policies; and (4) coordinated intervention is more effective than intervention by a single country, although the conditions for successful coordination are exacting.

2. A quantitatively significant effect is one that is predictable, sizeable, and lasting.

intervention: First, does coordinated intervention have a different effect than noncoordinated intervention?[3] Second, has intervention been profitable?[4] Third, what factors have prompted intervention? Fourth, to what extent has intervention been sterilized?

Researchers have identified two channels through which sterilized intervention might affect exchange rates: (1) a portfolio balance channel and (2) an expectations or signalling channel. Sterilized intervention can affect spot exchange rates through a portfolio balance channel if domestic currency bonds and foreign currency bonds are imperfect substitutes, <u>even if the expected future exchange rate is fixed</u>.[5] [6] Sterilized intervention changes the relative supplies of domestic and foreign bonds. A change in relative bond supplies necessitates a change in relative quantities of bonds demanded. Relative bond demands depend on expected returns and financial wealths. The expected return on domestic bonds is just the domestic interest rate and the expected return on foreign bonds is the foreign interest rate plus the expected rate of depreciation of the domestic

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3. Coordinated intervention occurs when two central banks intervene in the same direction. Noncoordinated intervention occurs either when only one central bank intervenes or when two central banks intervene in opposite directions. Noncoordinated intervention has sometimes been referred to as unilateral intervention.

4. This issue is also discussed in the Task Force paper entitled: "Profits and Losses in U.S. Foreign Currency Operations".

5. The case in which the expected future exchange rate is fixed is considered in order to keep the explanation of the portfolio balance channel as simple as possible. The expected future exchange rate would be unaffected by a change in the relative supplies of domestic and foreign bonds if this change were temporary.

6. In addition, it must be assumed that private agents do not regard the bond holdings of the authorities as their own. If private agents do regard the bond holdings of the authorities as their own, then a change in relative bond supplies resulting from a sterilized intervention operation is matched by an equal change in private relative bond demands, so there is no need for any change in expected returns and financial wealths.

currency. Sterilized intervention leaves monetary bases and, thus, interest rates unchanged.[7] Therefore, the spot exchange rate must change in order to bring about the required change in relative quantities of bonds demanded through changes in the expected return on foreign bonds and financial wealths.

Sterilized intervention can affect the spot exchange rate through an expectations channel if a change in relative bond supplies conveys any kind of information that causes agents to change their estimate of the expected future exchange rate, <u>even if domestic and foreign bonds are perfect substitutes when their expected returns are equal</u>. A change in the expected future exchange rate changes the expected return on foreign bonds. If domestic and foreign bonds are perfect substitutes, both types of bonds are held only if the domestic interest rate equals the expected return on foreign bonds. As stated above, sterilized intervention leaves interest rates unchanged. Therefore, the spot exchange rate must change by as much as the expected future exchange rate changes in order to reestablish equality between the domestic interest rate and the expected return on foreign bonds.

The rest of this bibliography is divided into eight more sections. Section II contains more detailed definitions of nonsterilized and sterilized intervention. In sections III - VIII a brief overview precedes a listing of papers. In section VIII, the listing is annotated. The last

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7. This conclusion is based on some implicit assumptions about the variables that affect the demand for a country's monetary base and the behavior of those variables in the short run. It is assumed, for example, that the demand for the domestic country's monetary base depends only on a domestic price index, a measure of domestic real economic activity, and the domestic interest rate and that only the domestic interest rate is free to vary in the short run.

section and Appendix I present evidence on intervention and the volatility of interest rates.

Sections III - V include empirical studies that address the central question of whether sterilized intervention has a quantitatively significant effect on the exchange rate. Section III is devoted to formal statistical studies of the portfolio balance channel. In the great bulk of these studies, the researchers did not find a quantitatively significant effect for sterilized intervention. In most of the studies, the researchers did not find a statistically significant effect for sterilized intervention. In a few, the researchers found an effect that was statistically but not quantitatively significant. In one study, the researchers found a quantitatively significant effect.

Section IV includes the few available formal statistical studies of the expectations or signalling channel and the relative effects of coordinated and noncoordinated intervention. Some of these studies are preliminary. Daily data are used in all but one study. In some of the studies, it is assumed that sterilized intervention can affect the exchange rate through both the expectations channel and the portfolio balance channel, but in others it is assumed that sterilized intervention can affect the exchange rate only through the expectations channel. In all of the studies, the researchers found that sterilized intervention has some statistically significant effect through the expectations channel, but in one study the researcher found that the effect was very short-lived. In two studies, the researchers found that the difference between the effects of coordinated and noncoordinated intervention was statistically significant, but in one study, the researcher found that it was not. In most of the

studies, the researchers did not assess the quantitative significance of the effects that they found.

Just because a quantitatively significant effect for sterilized intervention has not been found in most of the research studies reviewed in Sections III and IV does not mean that such an effect definitely does not exist. The researchers used particular assumptions, data, and techniques, and other researchers using different assumptions, data, and techniques might reach different conclusions.

The studies in Section V are descriptive studies of particular episodes of intervention. Most of the descriptive studies included in this bibliography were undertaken for the G-7 Working Group. In these studies, it was concluded that sterilized intervention had a temporary impact on the exchange rate and that it was useful as a short-run tool to stabilize trading conditions and provide time to make policy adjustments.

Section VI is devoted to studies that address the question of whether intervention has been profitable. (See also the Task Force paper entitled: "Profits and Losses in U.S. Foreign Currency Operations" for evaluation of U.S. profitability.) In most of these studies, the researchers found that intervention was profitable for a majority of the time intervals considered.

Section VII includes studies that address the questions of what factors have prompted intervention and to what extent intervention has been sterilized. In these studies, the researchers estimated policy reaction functions for intervention operations and for conventional open market operations. The researchers who analyzed intervention behavior found that intervention was undertaken to smooth nominal and real exchange rates, to achieve a target level of the nominal exchange rate, and for some other

reasons. Most of the researchers who analyzed sterilization behavior found that a large part of intervention has been sterilized.

Section VIII includes two types of empirical studies which do not make use of data on bond supplies or intervention: (1) studies of the joint hypothesis that domestic and foreign bonds are perfect substitutes and that exchange rate expectations are rational and (2) studies of maximizing models with imperfect substitutability between domestic and foreign bonds.[8] These studies are listed because they are closely related to the other studies in the bibliography. They are not annotated because they do not directly address questions regarding intervention.

Section IX investigates whether official intervention in the foreign exchange market affects the volatility of, or uncertainty about, U.S. interest rates. The results show that interest rates are no more volatile in periods of heavy or moderate intervention than in periods of little or no intervention.

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8. In the theoretical models used in some of these studies to derive the relations that are used in the empirical work, sterilized intervention has no effect because it is assumed that private agents treat the bond holdings of the authorities as their own. See footnote 6.

II. Definition of Intervention

Intervention has the direct effect of altering the balance sheet of the monetary authority. When a central bank intervenes in the foreign exchange market it, in effect, exchanges bonds denominated in foreign currency for its own domestic currency reserve liabilities to commercial banks. This action has two immediate effects: both the stock of bonds denominated in foreign currency held by the public (at home and abroad) and the domestic monetary base change. This type of intervention is conventionally referred to as nonsterilized. When foreign exchange intervention is nonsterilized it can affect exchange rates by changing the stock of base money -- a change that leads to adjustments in broader monetary aggregates, in interest rates, and in market expectations.

If the monetary authority also sells or purchases domestic-currency bonds in exchange for its own domestic currency reserve liabilities so that the monetary base remains unchanged, the initial exchange market intervention is said to be sterilized. In this sense, sterilized intervention is a 'pure' change in the relative stocks of national-currency bonds held by the public that is not accompanied by a change in the monetary base. In discussing the macroeconomic effects of intervention the focus in this paper is on sterilized intervention. In particular, the review addresses the important question of whether intervention can have significant effects on exchange rates independent of the effects of monetary policy.

III. Portfolio Balance Models

As was stated in the introduction, it is postulated that sterilized intervention may influence the exchange rate through two possible

channels: (1) the portfolio balance channel and (2) the expectations (signalling) channel. These two channels would not be operative if (1) assets denominated in different currencies were perfect substitutes and/or (2) if current market prices perfectly reflect future prices as the theory of rational expectations suggests. Many researchers have used ex post rates-of-return to test this joint hypothesis -- that assets are perfect substitutes and rational expectations holds -- not necessarily with the intention of testing for the effectiveness of intervention.[9] In these tests, one cannot differentiate between the two hypotheses, but can only test jointly for their validity. There is considerable evidence, using many different types of tests on different data sets, that strongly rejects this joint hypothesis.

Attempts at explaining the rejection of the joint hypothesis abound in the literature. It is possible to divide the explanation of this rejection into models that have macroeconomic foundations, which tend to focus on the issue of the effectiveness of intervention, and those that have microeconomic (finance) foundations, which tend to focus on the various aspects of risk. The portfolio balance approach is an important member of the macroeconomic group. A salient feature of the portfolio balance approach is that it is based on a set of *postulated* (or *ad hoc*) asset demand equations where rates-of-return are endogenous and asset supplies are policy determined. Typically, the ex post rate-of-return is expressed as a function of outstanding stocks of foreign and domestic securities and

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9. The ex post rate-of-return is the difference between the rate-of-return on domestic assets and the expected rate-of-return on foreign assets in domestic terms, where the expected rate of depreciation of the domestic currency is replaced by the actual rate of depreciation by assuming rational expectations.

wealth. This approach tends to be motivated by policy considerations and focuses on the effectiveness of sterilized intervention.

The main thrust of the *postulated* demand literature is that a necessary and sufficient condition for sterilized intervention to affect the exchange rate and interest rates is that securities denominated in different currencies are imperfect substitutes. This condition requires certain qualifications. This proposition may not hold if a government exchange of foreign for domestic assets with domestic residents has no effect because private agents fully take account of all future net taxes levied by the government. In this extreme case of *Ricardian equivalence* between debt issue and taxes, the government cannot systematically affect the relevant "outside" bond supplies -- the net supply of claims on governments that the public must hold. Therefore, in a Ricardian world imperfect substitutability of assets is not a sufficient condition for sterilized intervention to affect exchange rates.

Most of the empirical studies summarized in this section use some form of a *postulated* portfolio balance model to analyze the effects of intervention in exchange markets. In such models, asset holders allocate their wealth among different assets in shares that are increasing functions of the expected returns on each asset. If investors are averse to risk and if rates-of-return are uncertain, investors will diversify their portfolios instead of holding only the one asset with the highest expected return.

The portfolio balance model consists of demand equations for domestic and foreign assets. It explains the demand for each asset as a function of expected returns, wealth, and a variable representing transactions demand. Equilibrium occurs when the demand for each asset is equal to its supply; relative rates-of-return on each asset adjust to

maintain equilibrium. In this framework, adjusting the spot exchange rate can change the value in domestic currency of assets denominated in foreign currency and alter the expected rate-of-return on foreign assets.[10]

Three basic approaches have been adopted in the estimation of this type of model. The first approach, the direct approach, is simply to estimate the structural asset demand equations of portfolio balance models. Asset demands are specified as linear functions of expected returns. This approach tends to be straightforward for money demand equations, but is more complicated for bond-demand equations because data are unavailable for the typical level of aggregation that is needed. To circumvent this problem, the model is frequently estimated by aggregating the asset demands to derive total demand functions for domestic and foreign-currency bonds -- data that are readily available. The coefficients on the rate-of-return variable in the asset demand function reflect the degree of asset substitutability. A small coefficient indicates assets are imperfect substitutes; while a large coefficient implies assets are close substitutes.

This second approach, the inverted asset demand approach, estimates inverted *postulated* asset-demand functions, whether aggregated or

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10. The general specification of the postulated asset demand models assumes that the residents of both countries hold four assets: home money, foreign money, home (currency) securities, and foreign (currency) securities. Many of the models summarized in this bibliography have used models that have made several simplifying assumptions, such as: (1) Residents do not hold foreign currency (no currency substitution). (2) Each country's demand for money is independent of the return on the security denominated in the foreign currency. (3) All changes in residents' demand for money resulting from changes in nominal income and prices are matched by changes in demand for securities denominated in their country's currency. (4) Demand for money is independent of nominal wealth in each country. Further details about the specification of the postulated asset demand functions are described in Branson and Henderson (1985).

not, so that the rate-of-return variable appears on the left-hand-side. The rate-of-return variable is typically the ex post rate-of-return, the difference between the expected returns on domestic and foreign currency bonds after having invoked the rational expectations hypothesis. Under the null hypothesis of perfect substitutes the coefficients on the right-hand-side are all zero. Under the alternative hypothesis of imperfect substitutability, the coefficients are finite but not zero. To reject the joint hypothesis of rational expectations and perfect substitutability, all the coefficients on the right-hand-side should be jointly significant. In particular, if the portfolio balance channel holds, then the coefficients on the asset supplies also will be statistically significantly different from zero. The empirical estimates could reject the joint hypothesis and also reject the perfect substitutes hypothesis. This would occur if the right-hand-side coefficients are all zero, but the error follows some process other than white noise.

Two econometric problems can arise in connection with the estimation of asset demand functions in either direct or inverted form. First, several endogenous variables appear on the right-hand-side of the equation. Second, assuming that expectations are rational implies that the overall equation error has unusual properties. Under the assumption of rational expectations, the ex post return is used as a proxy for the expected return. The difference between the ex post return and the expected return is a forecast error. The overall equation error depends both on this forecast error and on an ordinary equation error. The presence of the forecast error gives rise to the unusual properties in the overall equation error. Both of these econometric problems can be solved by using some form

of instrumental variables estimation that allows for errors with unusual properties. (See Hodrick (1987) for a description of these techniques.)

A third approach, the individual optimization approach, derives the asset demand equations from an individual's optimization problem, as in the micro-finance literature, rather than simply postulating them. In particular, it is assumed that investors choose their portfolios so as to maximize a function of the mean and variance of their real wealth. In this way the parameters of the asset demand equations are explicit functions of the mean and variance of rates of return and investors attitudes toward risk. These restrictions can be tested. In addition, this approach provides more structure than just testing for non zero coefficients. What distinguishes this approach from the general micro-finance literature is that relative asset supplies are postulated as influencing the rate-of-return variable.

In the literature there are examples using each of these three different approaches. Some studies examine these issues using a bilateral exchange rate (and data); some studies, especially those using the individual optimization approach, use several exchange rates. The frequency, the definition, and the quality of the data vary across studies. When data on actual asset supplies are employed, either weekly, monthly, or quarterly data have been used. Those studies using daily data have tended to use cumulated intervention as a proxy for asset supplies.

A common feature of this entire body of literature is that the joint hypothesis -- that assets are perfect substitutes and that expectations are rational -- is consistently rejected statistically. The rejection of the joint hypothesis is persistent over data frequency, sample size, and asset definitions. In the great bulk of these studies, the

researchers did not find a quantitatively significant effect for sterilized intervention. In most of the studies, the researchers did not find a statistically significant effect for sterilized intervention. In a few, the researchers found an effect that was statistically but not quantitatively significant. In one study, the researchers found a quantitatively significant effect.

Three studies, Obstfeld (1983), Kearney and MacDonald (1986), and Blundall-Wignall and Masson (1985), not only estimate portfolio balance equations but also simulate different forms of intervention using a small macroeconomic model. The evaluation of the efficacy of the different types of intervention is based on how much these policies influence the exchange rate.

The Obstfeld and the Kearney and MacDonald studies follow very similar methods. The latter study examines the United Kingdom and the former Germany. Both of these studies use the forward exchange rate as a proxy for the expected future exchange rate. The study for the United Kingdom provides some evidence from the simulation exercise that sterilized intervention could have a quantitatively significant influence on the exchange rate; this evidence was not forthcoming in the German case. The Blundall-Wignall and Masson study which focuses on Germany follows a slightly different research strategy. Nevertheless, they find that the estimates of a portfolio balance equation indicate sterilized intervention has a statistically significant effect. In the simulation section of their study, they show that this effect is not quantitatively significant.

Blundell-Wignall, A. and P. R. Masson. "Exchange Rate Dynamics and Intervention Rules," *International Monetary Fund Staff Papers*, vol. 32 (March 1985), pp. 132 - 59.

This paper extends the well-known Dornbusch overshooting model by including a role for asset supplies through a risk premium variable and by including an intervention rule whereby the authorities attempt to resist movements in the real exchange rate. This model is then examined empirically for Germany from 1973 Q3 through 1982 Q2.

A small macroeconomic model for Germany is estimated under the assumption of rational expectations for both the exchange rate and the price deflator. The risk premium parameter is estimated to be small but statistically significant. It suggests that a one percent change in the cumulated current account will lead to a .05 percent change in the spot exchange rate, other factors given.

In order to examine the full effects of intervention the model was simulated with and without intervention in the foreign exchange market assuming that market participants know the structure of the model and the future values of the the exogenous variables. It is shown that in response to a 10 percent domestic monetary shock that the effect of intervention is small, especially over the initial few periods. In general, if the purpose of intervention is to limit nominal exchange rate overshooting, then the simulation results suggest that the evidence provides little justification.

Boothe, Paul, and others. *International Asset Substitutability: Theory and Evidence for Canada*. Ottawa: Bank of Canada, 1985.

This work contains a chapter that examines the effectiveness of sterilized intervention using the Canadian dollar-U.S. dollar exchange rate. It reports original estimates and surveys other empirical estimates of the portfolio balance model. This study examines several of these different models using monthly data from January 1971 to November 1982. Two definitions for outside assets are used: (1) the federal debt and (2) the sum of federal, provincial and municipal debt.

The authors show that the empirical work for Canada consistently rejects the joint hypothesis that assets are perfect substitutes and expectations are rational. However, movements in the ex post rate-of-return are not related to asset stocks, and they conclude that intervention can only be effective if it can influence expectations.

Branson, William H., and Dale W. Henderson. "The Specification and Influence of Asset Markets," in Ronald Jones and Peter Kenen, eds., *Handbook of International Economics*, Volume II. Amsterdam: North Holland, 1985, pp. 749 - 805.

This article provides a complete survey of portfolio based approaches. It discusses two complementary approaches to the analysis of asset markets in open economies. The first approach is based on *ad hoc (postulated)* asset demand functions. These asset demand functions are broadly consistent with, but not directly implied by, microeconomic theory.

The second approach derives asset demands that are based on the solution to a maximization problem faced by an individual investor. The consumer arrives at its asset demands by maximizing its utility given interest rates and the parameters of the distribution of prices and exchange rates.

Danker, Deborah J., and others. "Small Empirical Models of Exchange Market Intervention: Applications to Germany, Japan, and Canada," *Journal of Policy Modeling*, (Spring 1987), pp. 143 - 73.

This is one of the studies for the G-7 Working Group. The authors use a standard portfolio balance model with the distinguishing feature that the private sector in each country is disaggregated into nonbank and bank sectors. Attention is focused on the demand for bonds denominated in the home currency. The home country is represented in succession by three different countries: Germany, Japan, and Canada. The sample periods in this study are February 1975 to December 1981 for Germany, February 1974 to December 1980 for Japan, and quarterly for Canada from 1971:Q2 to 1981:Q4.

The authors first estimate inverted asset demand functions, using the Hayashi-Sims two-step,two-stage least squares method. The right-hand-side variables in each equation for each country include part or all of the available quantity of home bonds. For two of the three countries studied, Germany and Canada, the authors reject the joint hypothesis that assets are perfect substitutes and that exchange rate expectations are rational. They also find some evidence that the ex post rate-of-return tended to be correlated with the supply of bonds in the case of Germany. In the Japanese case they were unable to reject the joint hypothesis.

The authors do some further testing by examining actual asset demand equations and by searching over various inverted demand functions, but are unable to estimate a model that confirms that sterilized intervention is effective.

Engel, Charles M., and Anthony P. Rodriques. "Tests of International CAPM with Time-Varying Covariances," *Journal of Applied Econometrics*, vol. 4 (April/June 1989), pp. 119 - 38.

This article attempts to explain by relaxing some assumptions why the models described and tested in Frankel (1982), Frankel (1986), and Engel and Frankel (1984) -- all summarized below -- have not been supported by the data. These studies assume that the regression coefficients of the inverted demand equations for asset supplies are proportional to the covariance matrix of the regression errors. In these above mentioned studies, the conditional variance has been treated as a constant.

The country coverage is the same as the earlier studies -- the United States, Germany, the United Kingdom, Japan, France, and Canada. The data have been updated from the earlier studies and are monthly from June 1973 to December 1984.

In this study, the authors examine different ways of modeling the variance. They test a six-country ex post rate-of-return model, first by relating the variances to macroeconomic data (U.S. money supply and oil prices) and second by modelling the time varying variances as ARCH processes. In addition, they allow for a generalization of the Frankel-type model by introducing the possibility that the asset demand equation does not hold exactly.

The empirical section first estimates the standard Frankel equation and imposes and tests the restriction that coefficients on asset supplies are proportional to the variance term, which is assumed constant. This restriction is rejected.

The basic formulation of this model does not require the assumption that the variance is constant, therefore the authors relax this assumption by allowing the variance to move with other macroeconomic data. The estimates of this model, using either economic variable, show that the assumption of a time-varying constant is a significant improvement, however the coefficient restrictions placed on the model are still rejected. The ARCH model does not require knowledge of the economy, but allows the variances to vary. The estimates of this formulation of the model also show that the explanatory power of the model is increased by letting the conditional variances follow an ARCH process. Yet, the suggested restrictions of the derived demand functions are once again rejected.

One explanation for the rejection of these restrictions may be that the initial formulation of the model assumes that the asset demands hold exactly. Consequently, the authors relax this assumption and create a composite error term, which is often pursued in the more standard empirical literature on *postulated* portfolio demand models. In general, the estimates of the measurement error models do not significantly improve the explanatory power of the models.

This paper extends the frontiers of estimation of these models to consider some of the most important possibilities that have been suggested for the empirical failure of that model; yet the model is not supported by the data.

Frankel, Jeffrey A. "In Search of the Exchange Rate Premium: A Six Currency Test Assuming Mean-Variance Optimization," *Journal of International Money and Finance*, vol. 1 (December 1982), pp. 255 - 274.

This study tests a portfolio balance model where asset demand functions are based on mean-variance optimization using monthly data from June 1973 to August 1980 for six countries: the United States, Germany, the United Kingdom, Japan, Canada, and France. Rates of return are based on the difference of the log of the forward rate and the log of next month's spot rate. Asset supplies are calculated as the outstanding government debt corrected for three factors: (1) debt issued in foreign currency, (2) cumulated central bank intervention and (3) foreign exchange intervention in the domestic currency by other countries' central banks. Net wealth is calculated as the cumulation of the government deficit and the current account surplus.

One of the major contributions of the paper is the estimation of the system of equations subject to the restrictions imposed by the mean-variance optimization. Frankel estimates his equations under the assumption of rational expectations. The estimates are imprecise. Nevertheless, the estimates appear to be consistent with risk neutral investors in which case investors would only hold the asset with the highest rate of return, so that domestic and foreign assets are perfect substitutes.

Frankel suggests that the failure to reject the null hypothesis does not imply that the null is true, but that the test may not be very powerful. He also notes that several auxiliary assumptions are made when testing this hypothesis. Therefore the test is more than just a joint test. In this vein the assumption that consumption shares are identical across countries is relaxed. As before the estimates are very imprecise and the hypothesis that the risk aversion term is zero could not be rejected.

This study is able to reject the joint hypothesis, but is unable to establish a link between asset supplies and relative rates-of-return.

_____. "The Implications of Mean-Variance Optimization for Four Questions in International Macroeconomics," *Journal of International Money and Finance*, vol. 5 (March 1986), pp. S53 - S75.

This paper shows that the hypothesis of mean-variance optimization has important implications for some standard questions of interest in

macroeconomics. It presents a limited number of new estimates and draws upon the database of Frankel (1982).

One of the main points of the paper, relevant for the current discussion, shows that changes in relative asset supplies tend to imply very small changes in the ex post rate-of-return. The author argues that this result does not, however, imply that intervention will have negligible effects on the level of the spot rate, because intervention may affect expectations which, in turn will affect the exchange rate. The argument is that the hypothesis of mean-variance optimization implies that the current exchange rate is very sensitive to expectations of future changes. The paper gives an estimate that if the expected permanent rate of growth of domestic asset supply is raised by .1 percent per annum, the mean-variance model would predict a 20 percent increase in the current exchange rate.

_____ and Charles M. Engel. "Do Asset Demand Functions Optimize Over the Mean and Variance of Real Returns? A Six-Currency Test", *Journal of International Economics*, vol 17 (November 1984), pp. 309 - 323.

This study is similar to the Frankel (1982) study discussed above. Instead of studying the relationship between *nominal* ex post rate-of-returns and outside asset supplies they study the relationship between *real* ex post rate-of-returns and outside *real* asset supplies, thereby relaxing the assumption that inflation is predetermined. The same data set (June 1973 to August 1980) and same country coverage is used.

The first part of the paper estimates a standard real ex post rate-of-return equation. Each equation is estimated unconstrained by OLS using all six outside real asset supplies as right-hand-side variables. Although each equation contains only one or two coefficient estimates that are statistically significantly different from zero, they report that the test of the constraint that all coefficients are zero is rejected. From this part of the paper, they conclude that the low degree of precision plagues the estimation of general portfolio-balance equations. This provides motivation for considering the constraints placed on the parameters by the mean-variance optimization.

The second part of the paper estimates the constrained model with and without the estimation of the relative risk aversion parameter. When the relative risk aversion parameter is constrained to be equal to 2, the model fits considerably worse than the unconstrained model. The authors choose to interpret this as a rejection of the optimization hypothesis. When the relative risk aversion is allowed to be a free parameter, its maximum likelihood estimate is -67. Since their model of a risk-averse investor only makes sense with the relative risk parameter constrained to be greater than zero, this finding is a clear rejection of the model.

This study, like most of these studies, is able to reject the joint hypothesis, but is unable to establish a link between asset supplies and relative rates-of-return.

Ghosh, Atish, R. "Is it Signalling? Exchange Intervention and the Dollar-Deutschemark Rate," Unpublished paper, Princeton University, September 1989.

This paper tests the portfolio balance channel, while controlling for the signalling channel using a sticky price-monetary model to characterize the movements in the exchange rate. The null hypothesis of the paper is that the monetary model is the true model, so that sterilized intervention can, at best, influence the current exchange rate by signalling future changes in monetary policy. The alternative model, is the monetary model augmented to include the portfolio balance channel. The two models are examined empirically from December 1979 to December 1988 using monthly data.

The monetary model is statistically rejected, but is shown to perform well both in its in-sample forecasting and out-of-sample prediction. The portfolio balance model when using the supply of assets denominated in dollars and marks account for significant deviation of the exchange rate from its value implied by the monetary model. However, changes in reserve assets, an alternative measure of outside assets, appear to have little effect on the exchange rate.

The results are interpreted as being generally supportive of sterilized intervention being effective through the portfolio channel.

Henderson, Dale W. and Stephanie Sampson. "Intervention in Foreign Exchange Markets: A Summary of Ten Staff Studies," *Federal Reserve Bulletin*, vol. 69 (November 1983), pp. 830 - 36.

This paper summarizes the ten staff studies of the Federal Reserve System and the U.S. Department of Treasury written for the G-7 Working Group. These studies covered a wide range of topics including: (1) the definition of intervention, (2) the studies of historical episodes of intervention, (3) the calculation of the profitability of intervention, (4) the review of the research literature, and (5) the presentation of formal econometric analysis. Most of these studies are summarized within this paper.

Kearney, Colm, and Ronald MacDonald. "Intervention and Sterilisation under Floating Exchange Rates: the UK 1973 - 1983," *European Economic Review*, vol. 30 (April 1986), pp. 345 - 64.

This article is divided into two parts. The first part addresses the question: Does the Bank of England intervene in the foreign exchange market, and, if so, how? The second part considers whether sterilized intervention is effective at influencing the exchange rate. It estimates a central bank reaction function and a small portfolio balance model for the British pound-dollar exchange rate using quarterly data over the period 1973 Q2 to 1983 Q4. The resulting estimates of the reaction function show that the Bank of England has tended to intervene in the foreign exchange market in a 'leaning against the wind' fashion. The authors also test and confirm that the Bank of England usually sterilizes its intervention.

To assess the efficacy of sterilized intervention the authors estimate and simulate a small macro model of the U.K. economy. The authors estimate equations for money demand, money supply, domestic demand for bonds, and foreign demand for such bonds. Foreign wealth, proxied by U.S. wealth, is measured as portfolio wealth for the United States and domestic wealth as financial wealth for the United Kingdom. They use the three-month forward premium as a proxy for the expected change in the exchange rate following an earlier Obstfeld paper -- summarized below. As noted in our review of that study this proxy assumes assets are perfect substitutes and clouds the interpretation of the results. The coefficient estimates of the demand for U.K. bonds by both U.K. and U.S. residents are correctly signed, but few are statistically significant.

To evaluate the effectiveness of sterilized intervention the authors conduct two policy simulations. A nonsterilized intervention is considered first, in which the authorities sell foreign exchange reserves and allow the monetary base to contract by 10 percent. A sterilized intervention is subsequently considered in which the monetary consequences of an equal sale of foreign exchange are offset by a reduction in the stock of privately held domestic assets. Both policies are considered transitory. The effect of the nonsterilized intervention causes an immediate appreciation of the exchange rate of almost eight percent. The sterilized intervention causes the value of sterling to appreciate by just over three percent on impact.

The conclusion of this study is that sterilized intervention does appear to have an effect on the exchange rate though not as great as nonsterilized intervention, but nevertheless substantial.

Lewis, Karen K. "Testing the Portfolio Balance Model: A Multi-lateral Approach," *Journal of International Economics*, vol 24 (February 1988), pp. 109 - 27.

This paper estimates directly, as opposed to the inverse form, outside *multilateral* as opposed to *bilateral* asset demand equations for the portfolio balance model for the currencies of five countries: the United States, the United Kingdom, Germany, Japan, and Canada. The data cover the period from January 1975 through December 1981. Data

for Canadian, German, and Japanese assets and wealth are from the Danker et al study with some modification in timing.

As in most studies, this author assumes rational expectations, therefore the error becomes a composite error. The author uses the two-step, two stage least squares estimator. This enables her to estimate the equations consistently. She also exploits some of the cross equation restrictions on the covariance matrix.

The coefficients on the relative rates of return are insignificant for the most part. The only exception is the positive relationship between yen returns and Canadian bonds. The effect of wealth upon asset demands provides some evidence for the portfolio model. In general the empirical results indicate little relationship between asset supplies and rates of return. The domestic variables--income and interest rates were generally insignificant.

Despite attempts to use improved and more efficient empirical techniques, the results of this study indicate that estimates of the portfolio balance model are imprecise.

_____. "Inflation Risk and Asset Market Disturbances: The Mean-Variance Model Revisited," *Journal of International Money and Finance*, vol. 7 (September 1988), pp. 273 - 88.

This paper studies the ex post rate-of-return using a mean-variance optimizing model. It is an extension of the earlier work by Frankel (1982) and Frankel and Engel (1984). It explicitly introduces inflation risk without requiring purchasing power parity. In addition, it allows for the possibility of there being asset market disturbances.

The estimation uses data for six different countries -- Canada, France, Germany, Japan, the United Kingdom, and the United States. The model is estimated using monthly data from January 1975 through December 1981. Interest rates on one-month Eurocurrency deposits are used as measures of the rate of return on the asset.

The results in this paper are similar to the earlier studies despite differences in estimation methods. The covariance parameter estimates are like those in Frankel and Engel. In fact, the point estimates of the risk aversion parameter in this paper are closer to zero. These estimates may be imprecise, but the results are consistent with risk neutral investors. This result in turn implies that intervention which would alter asset supplies will have no effect on the expected rates-of-return. In other words, this study does not report findings that suggest intervention may be effective.

Loopesko, Bonnie E. "Relationships Among Exchange Rates, Intervention, and Interest Rates: An Empirical Investigation," *Journal of International Money and Finance*, vol. 3 (December 1984), pp. 257 - 77.

This is one of the studies for the G-7 Working Group. It analyzes the effect of sterilized intervention using daily data on the exchange rate of the U.S. dollar vis-a-vis the currencies of the other G-7 countries. The data are carefully compiled and constructed taking into consideration the institutional structure of the various markets.

It uses an ex post rate-of-return equation to test the joint hypothesis that assets are perfect substitutes and expectations are rational. To test this joint hypothesis, Loopesko estimates an equation for the ex post returns that uses lags of itself, lagged exchange rates, and cumulated intervention as a proxy for the stock of domestic outside assets.

The joint hypothesis is rejected for all currencies and subsamples examined. For at least one subsample period for five out of the six exchange rates examined sterilized intervention may have affected the exchange rate through the portfolio channel. In about half of the total cases considered the data do not support the existence of a portfolio balance channel. Thus, sterilized intervention could have a short-term impact on exchange rates for all the countries in the study, but through a variety of channels.

Loopesko also tests the proposition that coordinated intervention is more effective than noncoordinated intervention for the case of the United States and Germany. The test that is actually implemented compares whether these two types of intervention have different effects. The results of this test are dependent on the definition of intervention used. When using a broad definition of intervention (including a component categorized as "other") it appears that coordinated and noncoordinated intervention have the same effect. But when a narrower definition (one that excludes "other" intervention transactions by the Bundesbank) is used, coordinated intervention has in general an effect on the exchange rate that differs significantly from that of noncoordinated.

Micossi, S. and S. Rebecchini. "A Case Study on the Effectiveness of Foreign Exchange Market Intervention: The Italian Lira (September 1975 - March 1977)," *Journal of Banking and Finance*, vol. 8 (December 1984), pp. 535 - 55.

This paper discusses the effects of Italian intervention during an episode of major depreciation of the Italian lire, September 1975 to March 1977. Daily time series of official intervention, the exchange rate, and interest rates are estimated in a general framework that does

not depend on any particular structural model. Interest rates and intervention do not explain changes in the exchange rate, but the interest differential seems to influence intervention significantly.

The study also estimates the effects of intervention on the ex post rate of return following the work of Loopesko. However, unlike Loopesko, the estimation shows that intervention itself was not significant. Nevertheless, they report rejecting the perfect substitutability hypothesis because lagged values of the ex post returns were significant.

Obstfeld, Maurice. "Exchange Rates, Inflation and The Sterilization Problem: Germany 1975 - 1981," *European Economic Review*, vol. 21 (March 1983) pp. 161 - 89.

This paper examines the Bundesbank's foreign exchange intervention policy during the years 1975 - 1981. It asks whether the Bundesbank pursued a sterilized intervention policy or not. Since it finds that German intervention was predominately sterilized, it then asks whether sterilized foreign exchange intervention is effective in the German case.

The first question is addressed by estimating a domestic credit reaction function. This reaction function tested whether the Bundesbank responded positively to cyclical shortfalls in output, but negatively to increases in foreign exchange reserves. The econometric evidence supports the hypothesis that the Bundesbank used domestic credit policy to attain domestic policy objectives while engaging in sterilized intervention.

To assess the efficacy of sterilized intervention the author estimates and simulates a small macro model of the German economy, which contains structural asset demand equations. Obstfeld estimates equations for money demand, money supply, domestic demand for bonds denominated in deutsche marks, and foreign demand for such bonds. In the two domestic demand equations, he includes income as a transaction variable, and a lagged dependent variable to allow for stock adjustments. In the estimation Obstfeld uses the forward premium for the expected exchange rate depreciation. This procedure implies the absence of an exchange risk premium and clouds interpretation of his results.

The coefficient on interest rates in the equation for foreign demand for bonds is significant, but this is the only equation in which the rate-of-return variable has a significant effect. The explanatory power of the bond-demand equations is almost entirely due to the wealth and lagged dependent variable terms. These results offer only slight support for the portfolio-balance model.

Obstfeld adds a price equation to the model which allows changes in the exchange rate to affect prices and feed back into the model via money demand. To evaluate the effectiveness of sterilized intervention three

simulations are considered. First, the benchmark simulation, the model is simulated assuming perfect foresight for the exchange rate, so that the forward rate in one period is equal to the solution for the spot rate in the next period. The next simulation considers the effect of a 10 percent temporary (three-quarter) decline in the monetary base. This monetary perturbations causes an immediate 3.0 percent appreciation of the currency relative to its benchmark value. The last simulation considers the effect of a sterilized sale of DM 13.25 billion. This policy change causes on impact a .04 percent appreciation of the exchange rate relative to the benchmark.

The conclusion reached in the simulation experiments suggest that the Bundesbank's ability to influence the exchange rate using sterilized intervention is very limited.

_____. "The Effectiveness of Foreign-Exchange Intervention: Recent Experience," NBER Working Paper 2796, (December 1988).

The paper relies on a casual observation rather than any formal statistical analysis. It reviews the recent evolution of key macroeconomic fundamentals, other than intervention, that are likely to have influenced exchange rates. It sets out the mechanics of both sterilized and nonsterilized intervention, and emphasizes the effects on asset supplies of alternative intervention strategies. It also considers an alternative to the portfolio balance rationale for sterilized intervention, the signalling theory. According to this view, official portfolio shifts between nonmoney assets can influence exchange rates, independent of any necessity for private portfolio rebalancing, by credibly signalling future policy intentions or information not widely appreciated by the market. It also raises several fundamental questions about the effectiveness of this channel.

The paper concludes that the international currency experience since 1985 lends little support to the idea that sterilized intervention has been an important determinant of exchange rates. Anecdotal evidence suggests that intervention has been useful as a device for signalling official views on currency prices to the exchange market.

Rogoff, Kenneth. *Time-Series Studies of the Relationship between Exchange Rates and Intervention: A Review of the Techniques and Literature*. Staff Studies 132. Washington: Board of Governors of the Federal Reserve System, September 1983.

This is one of the studies for the G-7 Working Group. This review article explores whether the nonstructural time-series techniques, especially vector autoregressions, can be used to examine the impact of intervention in the short run. It concludes that the gains in using this approach are more apparent than real, especially when modelling

effects of intervention on exchange rates with daily data. This technique is not a way of escaping the severe problem of omitted variables presented by daily data. The money supply is not available daily, and one can reasonably assume that changes in the money supply are correlated with sterilized intervention and changes in the exchange rate.

It also surveys three time-series investigations of the effectiveness of exchange rate intervention. Two use daily data on exchange rates and intervention to analyze the Canadian experience with floating exchange rates. Neither of these studies distinguish between sterilized and nonsterilized intervention. The first study concludes that official intervention did play an important role in stabilizing the Canadian dollar from 1952 to 1960. The second study, using the same data but somewhat less sophisticated econometric techniques, finds that if one adds lagged exchange rates to the equation that the intervention variable becomes insignificant. The third study differentiates between sterilized and nonsterilized intervention and estimates a six variable vector autoregressions for the United States, the United Kingdom, Germany and Japan. There are a number of econometric problems making the interpretation of the results rather cloudy.

_____. "On the Effects of Sterilized Intervention: An Analysis of Weekly Data," *Journal of Monetary Economics*, vol. 14 (September 1984), pp. 133 - 50.

This study tests for the existence of the "portfolio balance effect" by using high frequency data and by implementing an instrumental variable technique. Weekly data, the shortest interval for which money supply and net new government bond sales data are available, for the Canadian dollar-U.S. dollar are used for the period March 1973 - December 1980.

An ex post rate-of-return equation that depends on the ratio of Canadian dollar government bonds to the Canadian dollar value of U.S. government bonds is estimated. Expectations are assumed to be rational so that the actual exchange rate and a forecast error are substituted for the expected exchange rate. The equation contains both the serially correlated portfolio balance error as well as the rational expectations error. Therefore the equation is estimated using OLS and two-step, two-stage least squares. The advantage of such an instrumental variable technique is that it gives consistent estimates under both hypotheses. Relative asset supplies are constructed alternatively using interest bearing assets only, and interest-bearing assets plus the monetary base. The coefficients on these two different measures of relative asset supplies are insignificant and of the wrong sign. These results are invariant to a number of alternative specification and estimation procedures. In addition, different interest rate data are considered but similar results emerge.

The study concludes that it is difficult to demonstrate that the ex post return responds as predicted by theory to changes in the relative supplies of outside assets denominated in different currencies.

Taya, Teizo. "Effectiveness of Exchange Market Intervention in Moderating the Speed of Exchange Rate Movements: An Empirical Study of the Case Of Japan," in David Bigman and Teizo Taya, eds., *Exchange Rate and Trade Instability: Causes, Consequences and Remedies*. Cambridge, Mass.: Harper and Row, Ballinger, 1983, pp. 217 - 55.

This paper examines the effectiveness of intervention on moderating exchange rate movements utilizing Japanese data. It uses daily and weekly data by observing the yen-dollar exchange rate from both the London and Tokyo market from October 1977 to December 1979. These two markets are sampled to examine possible intra-day effects of intervention. Two separate subperiods are analyzed: a period of dollar support (October 1977 - December 1978) and a period of yen support (January - December 1979). The intervention figures are those estimated by market sources for the Bank of Japan in Tokyo and quoted by the Reuters wire service.

Simple linear regressions of the change of the exchange rate on interest rate differentials and intervention are used. Over the two subsamples intervention and lagged intervention are not significant. The conclusion reached in this study is that intervention does not appear to have a significant effect on the market. (The reviewer notes that the results are somewhat difficult to interpret because there are a number of econometric problems.)

Tryon, Ralph W. *Small Empirical Models of Exchange Market Intervention: A Review of the Literature*. Staff Studies 134. Washington: Board of Governors of the Federal Reserve System, September 1983.

This is one of the studies for the G-7 Working Group. It reviews the literature on the empirical estimation of small structural models, which shows the effects of intervention in foreign exchange markets. It begins with a theoretical framework for examining these effects using a standard portfolio balance model and goes on to discuss ways to estimate the model econometrically. It notes that two problems are encountered in the estimation of these models: (1) data on bond holdings of residents of each country are not generally available and need to be estimated, and (2) expected future exchange rates are unobservable therefore one must make an assumption about how expectations are formed. It then reviews existing empirical studies in this area. None of the studies reviewed provide a definitive answer to

the question of whether sterilized intervention is an effective means of altering exchange rates.

Weber, Warren E. "Do Sterilized Interventions Affect Exchange Rates?" *Federal Reserve Bank of Minneapolis Quarterly Review*. vol. 10 (Summer 1986), pp. 14 - 23.

This article reviews the mechanics of a sterilized foreign exchange market intervention and presents a theoretical model that shows how intervention may affect the exchange rates. It also reviews the empirical literature. The empirical evidence cited, most of which is surveyed here, does not show that sterilized intervention has an effect on exchange rates, at least over time intervals of a month or more.

IV. Studies of the Expectations or Signalling Channel and of the Differential Effects of Coordinated and Noncoordinated Intervention

Sterilized intervention might affect exchange rates through an expectations or signalling channel, whether or not domestic and foreign bonds are imperfect substitutes. Sterilized intervention operates through this channel if it causes private agents to change their exchange rate expectations. Private agents might change their exchange rate expectations for one of two reasons. First, they might change their views about the likely future actions of the monetary or fiscal authorities or of other private agents. Second, although they do not change their views about likely future actions, they might change their views about the likely implications of these actions for the future exchange rate.

Analysts who are skeptical of the argument that sterilized intervention has affected exchange rates through an expectations channel raise two obvious questions. The first question is, Why do the authorities not always announce their intervention when they are doing it, and why do they not disclose more data on intervention? If intervention is to affect the exchange rate expectations of private agents, they must know about it. In the studies of the expectations channel, the researchers have not to date answered the skeptics' first question directly. However, some of them have recognized that the question must be taken seriously. Dominguez (forthcoming) used actual intervention data for Germany which are not available to the public and newspaper reports of intervention for the United States. She argued that her comparisons of the newspaper reports of intervention with actual intervention data covering longer periods that were released in connection with published reports on Treasury and Federal Reserve foreign exchange operations suggest that the newspaper reports were

accurate. Dominguez and Frankel (1989) used one variable based on newspaper reports of both intervention and related developments and another based only on newspaper reports of intervention and actual intervention data.

The skeptics have a second question: What do the authorities have to gain by using intervention instead of, or in addition to, simple announcements when attempting to affect the exchange rate expectations of private agents? In the studies of the expectations channel, the researchers do answer the skeptics' second question directly. They argue that the authorities care about the domestic currency value of their balance sheet. If the authorities sell foreign bonds for domestic bonds and the domestic currency ultimately depreciates, the domestic currency value of their balance sheet is lower than it otherwise would be. That is, if the authorities intervene in order to affect exchange rate expectations, attempts to mislead the public result in a loss of more than just face. Therefore, if the authorities use intervention instead of, or in addition to, simple announcements to affect exchange rate expectations, they are more likely to be taken seriously.

There are only a few studies of the expectations channel. All except one use daily data. The two most promising studies, Dominguez and Frankel (1989) and Humpage (1989), are preliminary. Dominguez and Frankel assume that sterilized intervention can have effects through both the portfolio balance channel and the expectations channel while Humpage assumes that sterilized intervention can have effects only through the expectations channel. Dominguez and Frankel use data on exchange rate expectations obtained from surveys instead of imposing the assumption of rational expectations. All the studies of the expectations channel found that sterilized intervention had some statistically significant effect through

the expectations channel. Dominguez and Frankel found that sterilized intervention had a statistically significant effect through the portfolio balance channel when estimating the equation using instrumental variable estimators. This result was not forthcoming for the OLS regression except for the 1-day intervention during the latter part of their sample period. Dominguez and Frankel report that their results appear to be quantitatively significant under many parameter values. Humpage found that the statistically significant effect of sterilized intervention was very short-lived. In most of the studies, the researchers did not assess the quantitative significance of the effects that they found.

There are also only a few studies of the differential effects of coordinated and noncoordinated intervention. Loopesko (1984) and Dominguez (forthcoming) found that the difference between the effects of coordinated and noncoordinated intervention was statistically significant, but Humpage found that it was not. Loopesko and Dominguez did not assess the quantitative significance of the difference in effects.

Dominguez, Kathryn Mary. "Does Sterilized Intervention Influence Exchange Rates? A Test of the Signalling Hypothesis." Unpublished paper, Harvard University, 1986.

> This paper presents a set of empirical tests of the signalling hypothesis using the mark-dollar exchange rate from February 1977 to September 1981. These tests utilize daily data on intervention from the Bundesbank and the Federal Reserve.
>
> A distinction is made between subperiods where the Federal Reserve appeared credible (November 1978 - May 1979, October 1979 - March 1980) and periods in which it appeared non-credible (September 1977 - October 1978, May 1979 - October 1979, April 1980 - February 1981). This credibility criterion is based on whether the Federal Reserve announces major shifts in monetary policy designed to accomplish anti-inflationary goals and simultaneously backed this change with major policy changes.

The first test examines whether a relationship exists between intervention and weekly money surprises, using publicly available pre-announcement money supply forecasts. This test provides some evidence that during high-reputation periods money supply surprises are positively correlated with intervention. A second test examines the effects of intervention during high-reputation periods. On days that the Federal Reserve intervenes heavily in the market, and has high credibility, the exchange rate change is in the direction implied by intervention. This relationship is not forthcoming in either the low-reputation period or for a given random sample. A third test considers whether intervention helps to explain changes in the spot rate. The results show that without isolating subperiods based on credibility, it is impossible to determine the effects of intervention.

_____. "Market Responses to Coordinated Central Bank Intervention." Forthcoming in *Carnegie-Rochester Series on Public Policy*, Volume 32.

This paper tests whether sterilized intervention influences exchange rates through the expectations or signalling channel by providing information about future monetary policy. It also attempts to determine whether the effects of coordinated and noncoordinated intervention differ.

It examines the dollar-mark and the dollar-yen exchange rate. An inverted asset demand function is used. Ex post returns are calculated daily for dollar-mark and dollar-yen over the same period using overnight, one-month, and three-month eurocurrency interest rates. These returns are regressed on a constant and the previous day's intervention. Intervention is broken into coordinated intervention, defined as the sum of Federal Reserve and Bundesbank intervention on days when at least two of the G-3 central banks were in the market, and noncoordinated intervention by the Bundesbank and by the Federal Reserve, which only pertains to days in which each of these respective authorities was the only G-3 central bank in the market. (Bank of Japan intervention is not included explicitly in the regression.)

The regressions were run over the entire three-year period 1985 through 1987, and over five subperiods: January - March 1985, September - December 1985, September 1986 - January 1987, February - June 1987, and October - December 1987. The results are mixed. In the first two episodes -- periods of dollar sales -- the coefficients on both coordinated and noncoordinated intervention are generally statistically significant and of the correct sign, though the two periods differ in terms of whether noncoordinated or coordinated intervention has a larger effect. Noncoordinated Bundesbank intervention is statistically insignificant in the post-Plaza period when it played a relatively minor role. During the three later periods of dollar purchases, the coefficient on intervention -- when statistically significant -- is generally of the wrong sign, except for coordinated intervention in the post-Louvre period over the one and three-month horizons. For the

three year period as a whole, coordinated intervention is generally statistically significant and of the correct sign, but the magnitude seems implausibly large. In general, coordinated intervention is reported to have a different effect than noncoordinated intervention.

The results reported in this paper should be interpreted cautiously. First, it is not theoretically obvious whether the choice of the level of intervention rather than cumulated intervention as used in the Loopesko study is the most appropriate. Second, to make this test more rigorous additional right-hand-side variables should have been included. Third, the parameters in the equation appear to exhibit instability. Fourth, the significance of some of the coefficients, especially for the longer investment horizons, is likely to be overstated.

_____, and Jeffrey Frankel. "Does Foreign Exchange Intervention Matter? Disentangling the Portfolio and Expectations Effect for the Mark." Unpublished paper, Harvard University, December 1989.

This study tests both the signalling channel and the portfolio balance channel without invoking rational expectations. They use survey data on market forecasts of exchange rates for the expected future exchange rate. One of the innovations of this study is that they estimate both a portfolio balance equation and an equation for the formation of exchange rate expectations.

The study covers two subperiods: November 17, 1982 - October 10, 1984 and October 24, 1984 - December 18, 1987. The equations are estimated by ordinary least squares (OLS) and instrumental variables. The focus is on the mark-dollar exchange rate.

The first equation of their two equation system, the portfolio balance equation, is an inverted asset demand equation and imposes the mean-variance optimization constraint. Asset supplies are modelled as intervention or intervention as a percentage of total wealth, which is defined to be the outstanding stock of government debt. In each case. intervention is measured in three different ways: (1) intervention which occurred the end of the day before the survey; (2) intervention which is accumulated between survey forecasts; and (3) intervention which is accumulated from the beginning of the sample period.

The other equation models the formation of expectations. The dependent variable is the investor's forecast of the change in the expected future spot rate, as measured by survey data. The regressors include the difference between the lagged and contemporaneous spot rate, and three different intervention variables: a dummy to reflect information on intervention appearing in the newspaper, and actual intervention by the Bundesbank and the Federal Reserve, respectively, when reported in the newspapers.

The authors find intervention has a significant effect both through the expectations channel and through the portfolio channel. In addition, they show that these effects can also be quantitatively significant. This result, however, varies depending both on the particular estimates chosen for the key parameters and on the precise experiment that one considers.

Humpage, Owen F. "On the Effectiveness of Exchange-Market Intervention." Unpublished paper, Federal Reserve Bank of Cleveland, June 1989.

This study examines the relationship between day-to-day official intervention and day-to-day exchange rate movements. It examines intervention for the yen-dollar and the mark-dollar rate between August 3, 1984 and October 30, 1987. It uses exchange rates quoted in French francs and therefore calculates the dollar rates using the French franc-dollar rate. Intervention is classified in three ways: actual total daily intervention, coordinated/noncoordinated intervention, and initial/subsequent intervention.

The analysis assumes that intervention works only through the expectational channel. To test this the author regresses the spot exchange rate on lagged intervention, lagged interest rate differentials and the two-day lag of the spot rate.

This equation is estimated over five subperiods: August 3, 1984 - May 31, 1985; June 3, 1985 - December 30, 1985; October 1, 1986 - February 10, 1987; February 11, 1987 - October 30, 1987. The author draws three conclusions from his results: (1) that systematic intervention has no apparent impact on exchange rates, (2) intervention can have a short-term effect if it provides new information to the market, and (3) that the distinction between coordinated and noncoordinated intervention is not important. This latter conclusion is the opposite reached by Loopesko (1984) and Dominguez (1988).

Loopesko, Bonnie E. "Relationships Among Exchange Rates, Intervention, and Interest Rates: An Empirical Investigation," *Journal of International Money and Finance*, vol. 3 (December 1984), pp. 257 - 77.

This paper is summarized in Section III.

Mussa, Michael. "The Role of Official Intervention," Group of Thirty Occasional Papers 6. New York: Group of Thirty, 1981.

This article surveys the role of intervention. It contains one of the earlier arguments that sterilized intervention may be effective through signalling future monetary policy. It argues that a case can be made for intervention on the grounds that central banks possess resources

and knowledge not available to private market participants. In particular, a central bank has the ultimate control over the supply of domestic money and knows about future monetary policy that is not available to market participants. Thus a central bank can use its knowledge of its own future policy to guide its speculations in foreign exchange and if the need arises can use its control over monetary policy to guarantee the success of its speculations.

V. Descriptive Studies of Particular Episodes of Intervention

This section includes descriptive studies of particular episodes of intervention. Three of these studies were written for the G-7 Working Group. These studies discuss the objectives and effects of U.S. intervention operations for several important episodes during the period of floating dollar rates before 1982 both from the perspective of the U.S. monetary authorities at the time the operations were undertaken and from the perspective of the U.S. authorities at the time of the G-7 Working Group.

The other two studies have a different focus. The Funabashi study gives a behind-the-scenes account of Plaza Agreement of September 1985 through the Louvre Accord of February 1987. The Obstfeld study, on the other hand, examines the intervention policies and macroeconomic policies of the United States in order to explain the movement of the dollar during the 1980s.

Funabashi, Yoichi. *Managing the Dollar: From the Plaza to the Louvre*, Washington D.C.: Institute for International Economics, 1988.

> This book is a case study of the policy coordination involved in the G-5 Plaza strategy, focusing primarily on the United States, Germany, and Japan. The time frame is roughly the period from the Plaza agreement in September 1985 to the Louvre Accord, in February 1987. The book has three objectives. The first objective is to account for the Plaza strategy as it evolved, using interviews and reports with the leading people involved. The second objective is to explain the events in the context of both domestic and international politics. The third objective is to analyze the Plaza agreement in terms of its implications for international economic policy coordination.

Greene, Margaret L. *U.S. Experience with Exchange Market Intervention: January - March 1975*. Staff Studies 127. Washington: Board of Governors of the Federal Reserve System, September 1983.

> This is one of the studies for the G-7 Working Group. This study covers the first major episode of the U.S. exchange market intervention

in the period of floating rates. The United States, Germany and Switzerland intervened in late 1974 and early 1975 to moderate the dollar's depreciation against European currencies and to counter disorderly market conditions. In February 1975, the first large-scale concerted intervention began. These operations appear to have achieved the objective of the U.S. authorities because the pattern of daily declines ended. However, the trend of dollar movements appears not to have been reversed until the market became convinced that the U.S. economic performance was improving relative to those of other countries.

_____. *U.S. Experience with Exchange Market Intervention: September 1977 - December 1979*. Staff Studies 128. Washington: Board of Governors of the Federal Reserve System, September 1983.

This is one of the studies for the G-7 Working Group. This case study examines several episodes of U.S. intervention during the roughly two years between September 1977 and December 1979. At various times between September 1977 and December 1979 U.S. authorities shifted their intervention tactics and other polices to meet their changing exchange market objectives. In addition, the Federal Reserve's operating procedures were changed in October 1979 and there was a the subsequent tightening of money market conditions. In general, the evidence from this period suggests that, while intervention was successfully used as a short-run tool to stabilize trading conditions and provide time to make policy adjustments, it did not have a lasting positive impact in the face of persistent, adverse fundamentals.

_____. *U.S. Experience with Exchange Market Intervention: October 1980 - September 1981*. Staff Studies 129. Washington: Board of Governors of the Federal Reserve System, September 1983.

This is one of the studies for the G-7 Working Group. This case study covers the year between October 1980 and September 1981. The period includes two subperiods: October 1980-February 1981 and April 1981 to mid-August 1981. During both of these subperiods the dollar appreciated by about 20 percent against the German mark. During the first rise in the dollar the U.S. authorities sought to take advantage by acquiring currencies to repay outstanding foreign-currency commitments. The second run-up of the dollar occurred after the U.S. Treasury decided not to intervene in the market. Evidence of the role of intervention in this period on volatility of exchange rates was ambiguous.

Obstfeld, Maurice. "The Effectiveness of Foreign-Exchange Intervention: Recent Experience," NBER Working Paper 2796, (December 1988).

This paper is summarized in Section III.

VI. Studies of the Profitability of Intervention[11]

This section discusses the literature that analyzes profitability as a measure of the effectiveness of intervention in stabilizing exchange rates. This argument can be traced back to Milton Friedman. Friedman argues that the criterion with which to evaluate a central bank that is trying to stabilize foreign exchange markets should be the same as that of a private speculator: profitability. In this context, stabilizing speculation is defined to reduce price volatility while destabilizing speculation is generally interpreted to mean greater price volatility than would otherwise have been the case. Friedman's proposition raises several theoretical issues: whether destabilizing speculation is synonymous with losses by speculators and stabilizing speculation always associated with profitability, and whether welfare increases as a result of reduced price volatility.

Much of the early debate on the relationship of profitability of speculation and stability of prices was inconclusive. Depending on their assumptions some studies showed that profits could be associated with increased price variability and some showed losses could be possible with reduced price variability. Discussion about the profit criterion generally shifted from the ambiguous relationship between profitability and price stability to the general welfare effects of the profits (or losses) that arise from speculation.

In addition to some unsolved theoretical questions, there are substantial practical problems in trying to calculate profits made from

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11. For a more detailed discussion on Profitability of Intervention see the Task Force paper entitled: "Profits and Losses in U.S. Foreign Currency Operations".

central banks intervening in the foreign exchange market. The emphasis of the reviews contained here will be on these practical issues rather than on the interpretation of the results in regard to the effectiveness of intervention. Most of these studies use different methods with which to choose the time period for their calculations and to deal with the related problem of valuing changes in the stock of foreign assets. Dramatically different results arise from altering various assumptions.

Jacobson, Laurence R. *Calculations of Profitability for U.S. Dollar-Deutsche Mark Intervention*. Staff Studies 131. Washington: Board of Governors of the Federal Reserve System, September 1983.

This is one of the studies for the G-7 Working Group. The paper reviews the literature that analyzes profitability and calculates the profits on dollar-mark intervention from 1973 to 1981.

The author calculates profits using different formulas. For some comparisons to the earlier literature, profits are calculated as the dollar value of foreign currency purchased since the initial period, evaluated at end-of-period exchange rates, less its initial dollar cost. For the entire period 1973-81, using this formula, net profits are $289 million. However, the evaluation from 1973-79 shows a loss of $500 million. This loss is a consequence of the revaluation of large net dollar purchases at the dollar's historic low. These differences in results indicate how profit calculations are sensitive to the choice of time period. This result also sheds some light on the results of earlier work by Taylor -- summarized below.

The author also calculates profits for eight subperiods in which net intervention is nearly zero. These calculations also include net interest earnings. Profits are positive for all but one subperiod when the differential between the U.S. Treasury bill rate and the German interbank rate is used to calculate net interest earnings. They are positive for all subperiods when the forward discounts are used.

Including net interest earnings increases measured profits significantly. Almost 90 percent of gross daily intervention occurred during one subperiod, October 1977 to January 1981. Profits calculated for this episode are close to the total calculated for the entire period. Moreover, net interest earnings in this subperiod constitute more than half the total profit figure: the United States gained by issuing mark debt at interest rates substantially lower than dollar interest rates.

Leahy, Michael P. "The Profitability of U.S. Intervention" International Discussion Papers 343. Washington: Board of Governors of the Federal Reserve System, February 1989.

This study evaluates the profitability of U.S. intervention. It offers a method of calculating profits that differs from earlier studies in that it computes net interest earnings using a general formula; other formulas are shown to be variants of a first order approximation.

In general, the results of these calculations show that since 1973 the monetary authorities in the United States have earned profits. It is estimated that the combined net worth of the Federal Reserve and the U.S. Treasury increased due to intervention by $5.5 billion from 1973 to January 1988.

The results of these profit calculations indicate that the calculations are extremely sensitive to changes in sample periods and end-of-period exchange rates. For example, U.S. dollar-mark intervention from September 1985 to December 1985 yielded profits of $161 million. Extending the calculation period to the end of the next year -- when no intervention was done -- yields a much larger estimates for profits, $716 million. Profits increased because the dollar continued to decline in 1986, by more than the depreciation implicit in the dollar-mark interest rate differential, raising the dollar value of the long-mark position that had accumulated by the end of 1985 more than enough to offset the deterioration of the short dollar position.

The study also reports that dollar-yen intervention during the first 15 years of the floating rate period was profitable -- $1,172 million. Studying the various subperiods are limited for the yen because the U.S. intervention in the yen was minimal until 1978. It is important to note that this study does report some periods where the central bank incurs losses. During the period January 1981 to January 1985, U.S. intervention in the yen showed losses of $1,426 million.

Murray, John, and others. "Measuring the Profitability and Effectiveness of Foreign Exchange Market Intervention: Some Canadian Evidence," Unpublished paper, Ottawa: Bank of Canada, May 1989.

This paper presents empirical evidence on the profitability of Canadian intervention over the period 1975 to 1988. This study incorporates many of the refinements to the calculation of profits that are suggested in the Leahy study.

The authors calculate profits over nine different sample periods. The first included the full sample, July 1, 1975 to June 30, 1988. The remaining eight were run over various subperiods. The results suggest the Canadian foreign exchange market intervention has been very profitable over the post Bretton Woods period. They show that total

profits on trading and investment income generated C$1,625 million in net profits. More than 78 per cent of these returns came from net interest earnings. Although large net profits were reported for the period as a whole, substantial trading losses were realized through most of the 1980s.

Taylor, Dean. "Official Intervention in the Foreign Exchange Market, or, Bet Against the Central Bank," *Journal of Political Economy*, vol. 90 (April 1982), pp. 256 - 68.

This is one of the earlier studies on profitability of central bank intervention. The paper examines nine major industrial countries -- Canada, France Germany, Italy, Japan, Spain, Switzerland, the United Kingdom, and the United States -- using monthly data to investigate the profitability of central bank intervention from the early 1970s, at the start of the floating exchange rate period, through the end of 1979.

The author defines profits of the foreign central banks as the sum of dollars purchased less the sum of the dollar value of domestic currency sold. It excluded valuation changes in the assets initially held, the losses incurred due to the inflow or outflow of reserves just prior to the unpegging of the exchange rate, and net interest income.

According to the estimates in the paper, central banks lost between $11 billion and $12 billion over the entire period. The paper also reports profits and losses for various subperiods. Generally, the central banks studied show a loss for subperiods of 4 to 5 years. The profits and losses for an individual country varied substantially depending on the dates that are used to begin and end the calculations.

These results lead the author to claim that intervention was necessarily costly to central banks and probably deceitful to foreign exchange markets, though there appears to be little empirical basis for the latter conclusion.

VII. Studies of Factors Prompting Intervention and of the Extent of Sterilization of Intervention

This section includes studies of the factors that have prompted intervention and of the extent to which intervention has been sterilized. In these studies, the researchers estimated policy reaction functions for intervention operations and for conventional open market operations. The researchers who analyzed intervention behavior found that intervention was undertaken to smooth nominal and real exchange rates, to achieve a target level of the nominal exchange rate, and for some other reasons. Most of the researchers who analyzed sterilization behavior found that a large part of intervention had been sterilized.

Blundell-Wignall, A and P. R. Masson. "Exchange Rate Dynamics and Intervention Rules," *International Monetary Fund Staff Papers*, vol. 32 (March 1985), pp. 132 - 59.

This paper is summarized in Section III.

Gartner, Manfred. "Intervention Policy Under Floating Exchange Rates: An Analysis of the Swiss Case," *Economica*, vol. 54 (November 1987), pp. 439 - 53.

This study evaluates the Swiss National Bank's intervention. It considers two motivations: smoothing of short-run fluctuations of the exchange rate ('leaning against the wind') and exchange rate targeting. In this study no attempt is made to distinguish between sterilized and nonsterilized intervention. It instead attempts to explain Swiss National Bank foreign exchange market intervention by modelling a reaction function using the Swiss franc-dollar exchange rate from January 1974 to June 1986. The empirical estimates of the reaction function, using instrumental variables to take account of simultaneity, reveal that the Swiss National Bank leans not only against today's wind, but also uses intervention to target the exchange rate.

Kearney, Colm, and Ronald MacDonald. "Intervention and Sterilisation under Floating Exchange Rates: the UK 1973 - 1983," *European Economic Review,* vol. 30 (April 1986), pp. 345 - 64.

This paper is summarized in Section III.

Neumann, Manfred J. M. "Intervention in the Mark/Dollar Market: the Authorities' Reaction Function," *Journal of International Money and Finance*, vol. 3 (August 1984), pp. 223 - 39.

This paper investigates the intervention behavior of the Bundesbank using a central bank reaction function for the dollar-mark exchange rate over the period March 1974 to December 1981. The intervention data are those provided by the Bundesbank. The reaction function depends on: (i) the difference in the actual dollar-mark exchange rate from its target rate (various alternative formulations of exchange rate targets are considered), (ii) the expected risk premium, (iii) current account surplus, and (iv) the difference in base money from its target.

Two findings reported in this study are striking. In contrast to the Obstfeld (1983) study, this paper reports evidence that the Bundesbank does not fully sterilize its exchange rate intervention. Secondly, it finds that the Bundesbank shifts in favor of achieving its monetary targets with perceived increases in exchange rate uncertainty.

VIII. Studies That Do Not Make Use of Data on Bond Supplies or Intervention

This section includes two types of empirical studies that do not make use of data on bond supplies or intervention: (1) studies of the joint hypothesis that domestic and foreign bonds are perfect substitutes and that exchange rate expectations are rational and (2) studies of maximizing models with imperfect substitutability between domestic and foreign bonds.

The maximizing models with imperfect substitutability in the studies included in this Section are asset pricing models. One example is the consumption-based asset pricing model in which the consumption-saving and portfolio allocation decisions are interdependent. In this model a key determinant of ex post asset returns is the conditional covariance between asset returns and the rate of change in consumption. Although domestic and foreign bonds are imperfect substitutes in this model, sterilized intervention has no effect. Changes in the bond holdings of the authorities do not alter the covariance of asset returns denominated in different currencies with consumption.

Empirically, tests for imperfect substitutability of domestic and foreign bonds conducted without using data on bond supplies have yielded as little evidence in favor of imperfect substitutability as tests conducted using such data.

A. Studies of the Joint Hypothesis

Baillie, Richard T. and others. "Testing Rational Expectations and Efficiency in the Foreign Exchange Market," *Econometrica*, vol. 51 (May 1983), pp. 553 - 63.

Cumby, Robert E. and Maurice Obstfeld. "A Note on Exchange-Rate Expectations and Nominal Interest Differentials: A Test of the Fisher Hypothesis," *Journal of Finance*, vol. 36 (June 1981), pp. 697 - 703.

Giovannini, Alberto and Phillipe Jorion. "Interest Rates and Risk Premia in the Stock Market in the Foreign Exchange Markets," *Journal of International Money and Finance*, vol. 6 (March 1987), pp. 107 - 23.

Hansen, Lars P. and Robert J. Hodrick. Forward Exchange Rates an Optimal Predictor of Future Spot Rates: An Econometric Analysis," *Journal of Political Economy*, vol. 88 (October 1980) pp. 829 - 53.

Hsieh, David. "Tests of Rational Expectations and No Risk Premium in Forward Exchange Markets," *Journal of International Economics*, vol. 19 (August 1984), pp. 173 - 84.

Korajczyk, Robert A. "The Pricing of Forward Contracts for Foreign Exchange," *Journal of Political Economy*, vol. 93 (April 1985), pp. 346 - 68.

Levich, Richard. "On the Efficiency of Markets for Foreign Exchange," in Rudiger Dornbusch and Jacob Frenkel, eds., *International Economic Policy: Theory and Evidence*, Baltimore: The Johns Hopkins University Press, 1979.

Tryon, Ralph W. "Testing Rational Expectations in Foreign Exchange Market," International Finance Discussion Paper 139, Washington: Federal Reserve Board, 1979.

B. Studies of Maximizing Models with Imperfect Substitutability

Campbell, John Y. and Richard H. Clarida. "The Term Structure of Euromarket Interest Rates: An Empirical Investigation," *Journal of Monetary Economics*, vol. 19, (January 1987), pp. 25 - 44.

Domowitz, Ian and Craig Hakkio. "Conditional Variance and the Risk Premium in the Foreign Exchange Market," *Journal of International Economics*, vol. 19 (August 1985), pp. 47 - 66.

Giovannini, Alberto and Phillipe Jorion. "The Time-Variation of Risk and Return in the Foreign Exchange and Stock Markets," *Journal of Finance*, vol. 64 (June 1989), pp. 307 - 325.

Hansen, Lars P. and Robert J. Hodrick. "Risk Averse Speculation in the Forward Foreign Exchange Market: An Econometric Analysis of Linear Models," in Jacob A. Frenkel, ed., *Exchange Rate and International Macroeconomics*. Chicago: University of Chicago Press for National Bureau of Economic Research, 1983.

Hodrick, Robert J. *The Empirical Evidence on the Efficiency of Forward and Futures Foreign Exchange Markets*. Fundamentals of Pure and Applied Economics 24. Chur, Switzerland: Harwood Academic Publishers, 1987.

Hodrick, Robert J. and Sanjay Srivastava. "The Covariation of Risk Premiums and Expected Future Spot Exchange Rate," *Journal of International Money and Finance*, vol. 3 (April 1984), pp. 1 - 29.

Mark, Nelson C. "Time Varying Betas and Risk Premia in the Pricing of Forward Exchange Contracts," *Journal of Financial Economics*, vol 22 (December 1988), pp. 335 - 354.

Robichek Alexander A. and Mark R. Eaker. "Foreign Exchange Hedging and the Capital Asset Pricing Model," *Journal of Finance*, vol. 33 (June 1978) pp. 1011 - 18.

Roll, Richard and Bruno Solnik. "A Pure Foreign Exchange Asset Pricing Model," Journal of International Economics, vol 7 (May 1977), pp. 161 - 80.

IX. The Effect of Intervention on Interest Rate Volatility[12]

This note investigates whether official intervention in the foreign-exchange market affects the volatility of, or uncertainty about, U.S. interest rates. The period studied extends from October 1982 to the present. First, we look at monthly standard deviations of daily changes in U.S. short-term interest rates, long-term interest rates, and the weighted-average value of the dollar. Since volatility is not a scale-free measure and can vary with the overall level of interest rates, we also calculate the corresponding coefficient of variation. We divide the months into those with no U.S. foreign-exchange intervention (39 months), those with light intervention (greater than zero but less than $100 million; 10 months), those with moderate intervention ($100-$500 million; 19 months), and those with heavy intervention (above $500 million; 20 months). We find that, by either measure, interest rates are no more volatile in periods of heavy or moderate intervention than in periods of little or no intervention.

Standard Deviation

	3-month CD	10-year Treasury	Weighted-average dollar
Zero intervention	0.15	0.16	1.31
Light intervention	0.20	0.16	1.35
Moderate intervention	0.16	0.15	1.28
Heavy intervention	0.13	0.14	1.17

12. Section IX and Appendix I have been prepared by Paul Wood, Division of International Finance, Board of Governors.

Coefficient of Variation

	3-month CD	10-year Treasury	Weighted-average dollar
Zero intervention	0.019	0.017	0.011
Light intervention	0.022	0.014	0.010
Moderate intervention	0.018	0.015	0.011
Heavy intervention	0.016	0.016	0.012

Next, if intervention contributes to uncertainty about interest rates, or increases the variance of interest rates, then its inclusion should reduce the forecast error in an equation forecasting interest rates. A first-order auto-regressive process is used to forecast interest rates. To alleviate potential simultaneity bias, we use lagged daily intervention. We also use cumulated intervention for the previous 5 business days to allow for any effects of sustained intervention. Neither of those two measures of intervention proves to be a significant factor in explaining the behavior of U.S. interest rates. There may be omitted variables which might help explain interest rates but, to the extent that those variables are significant, their inclusion would only make it more difficult for intervention to show a significant effect.

```
CDrate = 0.0126 + 0.9984 CDrate(-1) - 0.0025 Intervention(-1)
         (1.11)   (738.6)             (-0.72)

CDrate = 0.0136 + 0.9983 CDrate(-1) - 0.0010 CumulatedIntervention(-1)
         (1.19)   (729.0)             (-0.93)

TenYear = 0.0081 + 0.9990 TenYear(-1) + 0.0022 Intervention(-1)
          (0.73)   (891.4)              (0.63)

TenYear = 0.0088 + 0.9990 TenYear(-1) + 0.0014 CumulatedIntervention(-1)
          (0.79)   (882.4)              (1.27)
```

The t-statistic is in parenthesis.

Appendix 1: Intervention and the Volatility of Interest Rates

Table A1: Months with Zero Intervention

Dates	Monthly U.S. Intervention (in millions of dollars)	Coefficient of Variation[a] 3-month CD rate	10-year Treasury yield	Trade-Weighted U.S. Dollar[b]
Nov 82	0.0	0.023	0.010	0.011
Dec 82	0.0	0.014	0.010	0.010
Jan 83	0.0	0.022	0.017	0.016
Feb 83	0.0	0.019	0.023	0.009
Mar 83	0.0	0.032	0.013	0.010
Apr 83	0.0	0.024	0.009	0.003
May 83	0.0	0.025	0.019	0.007
Jun 83	0.0	0.016	0.011	0.005
Sep 83	0.0	0.019	0.014	0.006
Feb 84	0.0	0.014	0.013	0.015
Mar 84	0.0	0.025	0.013	0.008
Apr 84	0.0	0.007	0.009	0.009
Jun 84	0.0	0.023	0.014	0.013
Jul 84	0.0	0.012	0.022	0.008
Aug 84	0.0	0.005	0.006	0.005
Nov 84	0.0	0.030	0.016	0.015
Dec 84	0.0	0.037	0.011	0.008
Apr 85	0.0	0.029	0.018	0.017
May 85	0.0	0.035	0.030	0.014
Jun 85	0.0	0.018	0.020	0.007
Jul 85	0.0	0.019	0.021	0.021
Aug 85	0.0	0.006	0.018	0.009
Dec 85	0.0	0.014	0.028	0.006
Jan 86	0.0	0.010	0.016	0.009
Feb 86	0.0	0.008	0.035	0.024
Mar 86	0.0	0.020	0.022	0.011
Apr 86	0.0	0.033	0.022	0.029
May 86	0.0	0.015	0.028	0.017
Jun 86	0.0	0.015	0.044	0.012
Jul 86	0.0	0.012	0.014	0.009
Aug 86	0.0	0.044	0.023	0.005
Sep 86	0.0	0.021	0.023	0.008
Oct 86	0.0	0.014	0.014	0.012
Nov 86	0.0	0.010	0.012	0.009
Dec 86	0.0	0.033	0.008	0.011
Feb 87	0.0	0.016	0.008	0.005
Jul 87	0.0	0.010	0.015	0.006
Feb 88	0.0	0.008	0.007	0.005
May 88	0.0	0.017	0.013	0.006
Average:		0.019	0.017	0.011

a. Monthly standard deviation of daily data divided by the monthly mean.
b. Against the other G-10 currencies plus the Swiss franc.

Table A2: Months with Light Intervention

Dates	Monthly U.S. Intervention (in millions of dollars)	Coefficient of Variation[a] 3-month CD rate	10-year Treasury yield	Trade-Weighted U.S. Dollar[b]
Oct 82	-91.0	0.070	0.036	0.007
Jul 83	-24.7	0.011	0.015	0.006
Oct 83	-9.6	0.006	0.012	0.005
Nov 83	-20.0	0.007	0.008	0.006
Dec 83	-50.0	0.019	0.007	0.007
Oct 84	-95.0	0.051	0.024	0.010
Jan 85	-94.0	0.010	0.019	0.004
Mar 85	-97.5	0.019	0.008	0.028
Jan 87	50.0	0.009	0.008	0.021
Nov 89	-50.0	0.014	0.006	0.008
Average:		0.022	0.014	0.010

a. Monthly standard deviation of daily data divided by the monthly mean.
b. Against the other G-10 currencies plus the Swiss franc.

Table A3: Months with Moderate Intervention

Dates	Monthly U.S. Intervention (in millions of dollars)	Coefficient of Variation[a] 3-month CD rate	10-year Treasury yield	Trade-Weighted U.S. Dollar[b]
Aug 83	-229.3	0.019	0.018	0.009
Jan 84	-143.4	0.010	0.007	0.005
May 84	135.0	0.026	0.025	0.006
Sep 84	-185.0	0.021	0.015	0.014
Feb 85	-451.3	0.019	0.018	0.020
Sep 85	-408.0	0.011	0.010	0.032
Nov 85	-102.2	0.008	0.013	0.010
May 87	293.0	0.024	0.019	0.009
Sep 87	335.0	0.031	0.014	0.006
Oct 87	460.3	0.069	0.052	0.016
Mar 88	318.0	0.005	0.017	0.008
Apr 88	500.0	0.012	0.013	0.006
Sep 88	-392.3	0.009	0.009	0.005
Oct 88	200.0	0.006	0.007	0.017
Dec 88	300.0	0.008	0.008	0.011
Feb 89	-350.0	0.026	0.016	0.008
Apr 89	-270.0	0.010	0.009	0.005
Jul 89	-230.0	0.017	0.010	0.008
Dec 89	-100.0	0.009	0.007	0.013
Average:		0.018	0.015	0.011

a. Monthly standard deviation of daily data divided by the monthly mean.
b. Against the other G-10 currencies plus the Swiss franc.

Table A4: Months with Heavy Intervention

Dates	Monthly U.S. Intervention (in millions of dollars)	Coefficient of Variation[a] 3-month CD rate	10-year Treasury yield	Trade-Weighted U.S. Dollar[b]
Oct 85	-2790.7	0.007	0.012	0.005
Mar 87	2405.2	0.010	0.013	0.009
Apr 87	1628.4	0.033	0.040	0.007
Jun 87	513.0	0.008	0.018	0.007
Aug 87	-601.3	0.010	0.013	0.017
Nov 87	1217.0	0.024	0.011	0.011
Dec 87	2208.0	0.028	0.016	0.016
Jan 88	715.0	0.017	0.026	0.012
Jun 88	-535.0	0.010	0.011	0.019
Jul 88	-2429.7	0.019	0.012	0.008
Aug 88	-1815.2	0.020	0.015	0.007
Nov 88	2100.0	0.033	0.016	0.014
Jan 89	-1880.0	0.004	0.013	0.012
Mar 89	-1618.1	0.013	0.009	0.008
May 89	-6735.0	0.019	0.024	0.022
Jun 89	-4952.0	0.011	0.015	0.013
Aug 89	-1020.0	0.021	0.020	0.016
Sep 89	-3081.0	0.009	0.009	0.017
Oct 89	-1770.0	0.023	0.015	0.010
Jan 90	-600.0	0.005	0.017	0.008
Average:		0.016	0.016	0.012

a. Monthly standard deviation of daily data divided by the monthly mean.
b. Against the other G-10 currencies plus the Swiss franc.