

Federal Reserve Bank of New York

Quarterly Review

Spring 1978 Volume 3 No. 1

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This Quarterly Review is published by the Research and Statistics Function of the Federal Reserve Bank of New York. The current issue begins with a description of a new supervisory approach to foreign lending that is being developed by the Federal bank supervisory agencies. The following members of the Research and Statistics Function also contributed to this issue: LOIS BANKS (on the market for agency securities, page 7), JOEL L. PRAKKEN (on issues and impacts of mandatory retirement, page 25), and REUVEN GLICK (on the structure and growth of the United States international service transactions, page 34).

A report on Monetary Policy and Open Market Operations in 1977 begins on page 41.

A semiannual report of Treasury and Federal Reserve Foreign Exchange Operations for the period August 1977 through January 1978 begins on page 54.

A New Supervisory Approach to Foreign Lending

International lending activities by United States commercial banks have increased greatly in size, complexity, and geographical scope during recent years. International credits now make up a significant portion of major bank loan portfolios and represent an important source of bank earnings. Foreign lending, of course, involves special kinds of risks that are not ordinarily found in domestic lending, although banks' loss experience from foreign loans has in fact been better than from domestic loans in recent years. Nevertheless, the rapid growth of international banking activities has created the need for improved techniques on the part of both banks and bank supervisors for defining, monitoring, and controlling those special risks.

The Federal Reserve System responded by reviewing existing bank examination procedures for foreign credits. It also made a survey in early 1977 of risk management practices by United States banks. Drawing on these reviews, a System Committee on Foreign Lending recommended changes in Federal Reserve procedures to strengthen supervision of international banking. The Federal Reserve Bank of New York has adopted these procedures on a trial basis in its current examinations of international loan portfolios. System-wide implementation would follow final approval by the Board of Governors.

The other Federal bank supervisory agencies—the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC)—were in the meantime studying their respective sys-

tems for supervising foreign lending. The three agencies joined together in an effort to develop principles for a common approach to international bank supervision. The aim is an effective supervisory system to ensure that foreign lending does not have adverse effects on the safety and soundness of the United States banking system.

A broad measure of agreement has now been reached on the essentials of a new Federal supervisory approach to foreign lending. An important element is the development of a common reporting form, which measures overall international exposure and its components for each bank. Most banks in this country with international operations have been asked to provide information on their foreign exposure twice a year. That information would enable bank supervisors to evaluate the exposure by country of individual banks and of the United States banking system as a whole.

A further element involves changes in procedures for examination of bank international loan portfolios. The emphasis would be on identifying concentrations of lending that seem large relative to bank capital and country conditions. In addition, examiners would pay particular attention to a bank's own procedures for monitoring and controlling its exposure in each country where it does business.

This article provides some of the details of how the new approach was developed and how it is expected to work.

Defining the special risks of international lending

Much of the risk in foreign lending is no different from that in domestic lending. The present and future standing of individual borrowers must be appraised and monitored in light of changes in economic and financial conditions. Well-managed companies may be adversely affected by a general economic slowdown in a country or by problems in a particular industry. Poorly managed companies may have difficulties even in a strengthening economy. Banks and bank examiners have found it useful to analyze *credit risk* in loan portfolios in terms of traditional risk categories.¹ These same categories are applied to individual international credits as well as to domestic credits.

In addition, international lending involves *country risk*. It is a principal factor that differentiates international lending from domestic lending. Country risk can be and has been defined in various ways. But, broadly speaking, it encompasses the whole spectrum of risks that arise from the economic, social, legal, and political conditions of a foreign country and that may have potential favorable or adverse consequences for loans to borrowers in that country. More concretely, country risk includes the risks of political or social upheaval, nationalization or expropriation, government repudiation of external debts, exchange controls, or foreign exchange shortfalls that might make it impossible for a country to meet external obligations on time. In some cases, payment of interest or principal on loans may be delayed or loan terms may have to be restructured. In rare cases, the result may be actual loan defaults.

Events such as these might materially affect the condition of the United States banks that make loans to a foreign country. Consequently, the potential risks must be carefully considered by banks and bank examiners. The examiners are responsible for alerting bank management to those risks that might be difficult for a bank to absorb and might therefore jeopardize the liquidity or soundness of the bank.

The Federal Reserve's review of international lending

In view of the growth of international lending by United States banks and the enlarged role of commercial banks in financing international payments imbalances, the Federal Reserve undertook a comprehensive review of the System's supervisory approach in this area. An *ad hoc* Committee on Foreign Lending was appointed in late 1976 to study procedures and techniques

used by member banks in making foreign loans and by Federal Reserve examiners in appraising state-chartered member bank foreign lending.

The committee initially conducted a survey of the existing foreign lending practices of member banks. The survey took the form of detailed discussions with senior bank officers by representatives of Federal Reserve Banks and the staff of the Board of Governors. In addition, an OCC examiner attended each meeting with a national bank. In all, discussions were held with forty-six banks across the country, including the twenty-five largest banks, to obtain a broad cross section by bank size and location.

The discussions were structured around questions concerning a bank's procedures for appraising, monitoring, and controlling foreign credit exposure. Each bank was asked how it defined country exposure, how it distinguished between different types and maturities of credits, and how it treated such factors as guarantees, collateral, and contingencies. The bank was asked whether limits on credits or commitments to a country were established and how they were reviewed as a country's economic and financial conditions changed. Questions were posed on how economic projections for a country were considered in individual lending decisions. Finally, each bank was asked about its policy toward diversification of country credits.

The survey revealed that all banks visited had in place internal systems for monitoring and controlling foreign lending, although practices varied considerably from bank to bank. The range of procedures largely reflected differences in bank size and organization as well as the kinds of international business conducted by individual banks. But they also reflected the relative inexperience of some banks in defining country risk and in measuring exposure to that risk. As a result, the detailed measurement of country exposure differed among banks, both in the types of credits considered subject to country risk and in the methods for consolidating the exposure to a country of different offices of a bank.

Although banks would naturally wish to emphasize particular aspects of their country exposure depending upon their business, the survey suggested that a greater uniformity in measuring exposure would be useful. It would allow bank supervisors to compare banks and let individual banks compare their foreign loan portfolios with averages for others. But, given the diversity of bank size and organization, it would not be desirable to impose a uniform set of procedures for all banks to use in evaluating, monitoring, and controlling foreign lending. Instead, the survey suggested aspects of an effective risk management system could be drawn from the experience at a wide range of banks.

¹ Three classifications of loans with above-normal risk are used by examiners: substandard, doubtful, and loss. In addition, some loans which are superior to those in the substandard class are specially mentioned as warranting more than usual management attention.

What a new supervisory approach should include

From this review, it became clear that a restructured supervisory approach to appraising foreign lending should incorporate several features.

It should provide for uniform measurement of a bank's country exposure and a systematic basis for calling bank management's attention to any relatively large exposure which might be potentially troublesome. There is no precise way of measuring country risk, *per se*, or of assigning probabilities to potentially adverse developments in a country. However, a bank's country exposure, the sum of its credits and commitments to a country, can be quantified. A consistent measure of exposure would allow examiners to compare portfolio management among different banks and to formulate standards for appropriate diversification within portfolios.

It should ensure that banks themselves have adequate internal systems for appraising, monitoring, and controlling country exposure. A bank supervisor can assess a bank's country exposure only at periodic intervals. But a bank's exposure may change from day to day. An effective internal control system is essential for maintaining continuous management oversight of international lending.

It should keep the appraisal of country exposure separate from the traditional risk classification system used for evaluating individual credits.

It should be capable of uniform application throughout the System. In the past, individual examiners had differing approaches to appraising international loan portfolios, and their individual judgments could vary.

It should provide a mechanism by which Federal Reserve Bank examiners would draw upon the knowledge and expertise of specialists within the System about country conditions to help identify potentially adverse developments in a country.

It should not give credit ratings to countries. Nor should it establish a list of particularly risky countries to which banks would be told not to lend. Bank supervisors are concerned with the condition of individual institutions as the components of a sound banking system. Actions of bank supervisors are not intended to result in the channeling of credit flows toward or away from specific countries or to lead to large disruptions of credit flows. In any case, there is no reason to believe that assessments about countries by bank supervisors would always be better than those of commercial banks.

It should recognize the great uncertainties that exist in any assessment of country risk and should stress that banks are best protected against adverse developments through diversification within their foreign loan portfolios.

Based on those criteria, new examination procedures and techniques were developed that would assist examiners in making more professional evaluations of individual loans and country exposures. They were field tested at state-chartered member banks in the New York, Chicago, and San Francisco Districts in the course of regular examinations. In addition, examination concepts and proposed techniques were discussed with senior officers of several other member banks.

Concurrently, work was in progress by the OCC and the FDIC to review their respective examination procedures for international lending. Discussions among the Federal Reserve and these other agencies suggested that a new Federal supervisory approach would provide the most effective and most equitable basis for examining United States banks' foreign lending portfolios. A broad measure of consensus has been reached on the basic elements of that approach. These are outlined in the following section.

The new supervisory approach

Under the new supervisory approach to international lending, credit risk would continue to be appraised using standard examination procedures and techniques. Individual credits would be reviewed to determine the creditworthiness of the borrowers. Credits identified as having an above-normal credit risk element would be classified by the examiner using the traditional groupings of substandard, doubtful, and loss.

Where the new examination approach would differ from previous procedures is in the treatment of country risk. The new approach would consist of three parts:

(1) *Measurement of exposure* in each country where a bank has a business relationship. In turn, individual bank exposure would be consolidated to show the overall exposure of the United States banking system to each country abroad.

(2) *Analysis of exposure levels and concentrations of exposure* in relation to the bank's capital resources and the economic and financial conditions of each country in which the bank has outstanding credits.

(3) *Evaluation of the risk management system* used by the bank in relation to the size and nature of its foreign lending activities.

The end product would be an examination report that reviews internal management systems and identifies certain concentrations of credit within the foreign loan portfolio that warrant management attention.

Measurement of exposure

The Federal Reserve survey of United States commercial banks' foreign lending practices showed that there was no standard or uniform banking industry approach to measuring country exposure and no single best method among those used by different banks. Similarly, the Federal supervisory authorities had been defining country exposure differently.

The Federal supervisory authorities have now agreed on a uniform method for measuring exposure. It is based on a common reporting system for international lending information. That system benefited from earlier exercises in collecting international lending data conducted by the major central banks under the auspices of the Bank for International Settlements (BIS). But it goes further by measuring international exposure on a consolidated bank basis. Thus, loans to each foreign country would be included whether made by a bank's head office or by a branch or affiliate abroad. Information about foreign claims is provided by each reporting bank in a semiannual country exposure report, beginning with data for end-December 1977.² The report breaks down the bank's claims for each country by type of borrower and by maturity. Loan commitments and other contingencies are also detailed. Activities of a bank's foreign offices with local residents in local currencies are shown separately.

One feature of the country exposure report takes account of an important distinction in international lending. The location of a borrower may not coincide with the location of the ultimate country exposure. If, for example, a United States bank has made a loan to a borrower in country X and the loan is guaranteed by another institution in country Y, then the ultimate country exposure is allocated to country Y.

In its country exposure report, a bank is asked to reallocate credits and commitments to the country where the ultimate risk appears to reside. The examiner would then be able to analyze the foreign loan portfolio by this more comprehensive treatment of country exposure, as well as by country of location of borrower. The reallocation of exposure takes into account external guarantees or realizable collateral outside the country of the borrower. In the case of claims on foreign branches of other banks, ultimate exposure is reallocated to the location of those banks' head offices.

By consolidating the data for all reporting banks, the supervisory authorities also get a clearer picture, by location of credit and by country of ultimate risk,

of the United States banking system's exposure to each country abroad. These aggregates allow the authorities to compare one bank's foreign loan portfolio with those of other United States banks.

In the examination process, the examiner would use the information from the country exposure report in analyzing a bank's international exposure. In particular, the examiner would express the overall measure of exposure for each country where a bank has outstanding credits as a ratio of the bank's capital funds. These ratios would give a picture of the bank's concentrations of lending relative to its own ultimate resources to absorb risk. They would serve also as an indicator to the examiner of which parts of a bank's international portfolio deserve a deeper look.

In summary, the country exposure data would enable the examiner: (1) to evaluate the amounts, location, maturities, and types of claims a bank has abroad, (2) to evaluate the amounts of claims reallocated to country of ultimate risk, and (3) to compare the exposure levels with the bank's capital and to suggest areas for further analysis.

Analysis of exposure levels and concentrations

The second part of the new examination approach would involve analysis of country exposure levels and concentrations of exposure. The objective would be to identify high concentrations of exposure relative to the bank's capital funds and relative to the economic and financial conditions of borrowing countries.

The analysis of country exposure levels would involve three steps:

(1) An evaluation of country conditions by research economists and country specialists. These evaluations would be made available to bank examiners for use as background to their analyses of foreign loan portfolios.

(2) Disaggregation by the examiner of aggregate exposure by referring to a bank's internal records. Particular attention would be paid to the types of borrowers and the maturity distribution of the bank's foreign claims.

(3) Examiner comments on the results of the analysis.

Countries that warrant in-depth review would be identified through simple statistical screening techniques. The techniques would be used to pick out countries which have, in relation to other countries, large current account deficits or heavy external debt service or low international reserve positions relative to the size of their own economies and their external trade. The aim is to base a screening mechanism on

² The country exposure report is filed by all United States banks and bank holding companies with international activity above a specified level. For a description of the report, see box on page 6.

objective criteria. But the statistical indicators themselves are not designed to be, nor would they be used as, predictors of potential debt repayment difficulties.

For this limited screening purpose, indicators have been computed from reported balance-of-payments statistics and other financial data. One is a measure of short-term current account imbalance, while another is an indicator of medium-term current account imbalance and the rate of external debt accumulation. Other indicators measure countries' debt interest burden in terms of such factors as current receipts (exports of goods and services) and international reserves. The indicators would be regularly computed for the major borrowing countries in which United States banks have exposure.

The screening mechanism is intended to be suggestive only and not exhaustive. But its obvious advantage is its objectivity and relative simplicity. System research economists, moreover, continue assessing available economic statistics which could improve the screening process.

Countries identified through the screening process would be thoroughly reviewed. Comprehensive studies would be prepared for the examiner's use in raising questions with the bank under examination and in appraising country risk in portfolio concentrations. On the economic side, the focus would be on a country's balance of payments and its international reserves, both current and prospective. The review would also include an analysis of the country's domestic economic situation and government policies, foreign exchange rate behavior, and structural trends in the economy. In addition, conditions affecting political and social stability would be noted, especially as they may have a bearing on the overall economic environment.

These reviews of country conditions would provide background for the examiner's analysis of exposure concentrations in a bank's international loan portfolio. All country concentrations which appeared high would be looked at in detail. A bank's outstanding credits in a country would be examined by type of business (loans, acceptances, investments, placements, etc.), by maturity (short term versus long term), and by class of borrower (government, nonbank private sector borrowers, and banks).

Drawing on this analysis of exposure levels and the assessment of country conditions, the examiner would comment on those country exposures which appeared high in relation to the bank's ability to absorb risk and to the country's condition. Certain norms would be established to guide examiners in making critical comments on high concentrations by country. These would not be hard and fast rules. But the approach would ensure a reasonable level of uniformity,

while allowing the examiners to exercise judgment and discretion in framing their comments.

Examiner comments might include references to a country's status with the International Monetary Fund or adherence to conditions imposed by the IMF on credit drawings. Comments might also be made where a bank's outstanding loans to a country represent a disproportionate share of the total lending by United States banks to that country, or where information maintained by the bank on a country or group of countries is deemed inadequate.

The objective of any critical commentary would be to encourage appropriate diversification in a bank's international lending portfolio. Diversification remains a bank's best protection against risk in an uncertain world.

Evaluation of risk management systems

The third part of the new examination approach would involve an evaluation of the risk management systems used by banks in appraising and controlling their foreign credit exposure. All banks engaging in international business should have the capability to analyze their customers and risks independently. No bank should lend to a particular borrower, for example, simply because other banks are extending credits to that borrower.

As the Federal Reserve survey of bank foreign lending practices confirmed, banks involved in international business have already set up internal systems for controlling foreign lending. There are notable differences in approach among banks, although these mostly reflect differences in the size and organizational structure of banks as well as the composition of their business.

Whatever the differences of detail, certain general characteristics should be found in all internal control systems. The examiner would need to be satisfied that a bank's risk management system is comprehensive and covers all aspects of the bank's international business. The examiner would evaluate the bank's internal system for measuring exposure to each country where the bank does business. The bank's methods for assessing country conditions would be evaluated to see whether risk assessments are based on reliable and up-to-date information, reviewed with reasonable frequency, and kept separate from marketing considerations. The bank's procedures for monitoring and controlling country exposure would be analyzed. The analysis would consider how the bank limits its lending to individual countries. It would also focus on how and at what stage country risk assessments are considered by bank officers in making lending decisions and in modifying country exposure limits. Any inadequacies

found by the examiner in the bank's country risk management system would be brought to management's attention in the examination report.

Concluding remarks

The new approach to appraising international lending outlined in this article has several advantages. It emphasizes diversification of risk in individual bank portfolios. By doing so, it avoids any implications of official

credit ratings of foreign countries. It underlines the role of bank managements in seeking diversified portfolios and in maintaining adequate internal mechanisms for monitoring and controlling country exposure. Details of this supervisory approach are still being developed, and discussions among the Federal supervisory agencies are continuing. There is every reason to hope that before long the technical groundwork will be completed and a new approach fully implemented.

Country Exposure Report

A semiannual country exposure report (FR 2036, CC 7610-08, or FDIC 6502/03) is filed by all United States banks and bank holding companies with international activity above a specified level. The report consolidates exposure for all domestic and foreign offices of an institution. Aggregate data from the country exposure report will be made public. The initial report provides data for end-1977. Results of a preliminary survey for June 1977 were released in January 1978.

Country exposure includes both outstanding claims on foreign residents and contingencies. Foreign claims are defined under three categories. (1) *Cross-border claims* are those of bank offices located in one country on residents of other countries. A loan to a company in Britain by a New York bank's head office is a cross-border claim. (2) *Nonlocal currency claims* are those of a bank's foreign offices on local residents denominated in currencies other than the local currency. A loan in dollars to a company in Britain by a New York bank's London branch is a nonlocal currency claim. (3) *Local currency claims* are those of a bank's foreign offices on local residents denominated in the local currency. A loan in pounds sterling to a company in Britain by a New York bank's London branch is a local currency claim.

On the report, cross-border and nonlocal currency claims are combined and shown by country of residence of the borrower. The total for each country is broken down by type of borrower: banks, public borrowers, and all other borrowers. The totals are also broken down by estimated time remaining to maturity. Four maturity categories are used: one year and under, one to two years, two to five years, and over five years.

Contingencies are shown separately. They are contractual commitments to extend credit, such as letters of credit and undisbursed portions of loans that are

not subject to further bank approval. Contingencies are broken down into two categories: (1) public borrowers and (2) banks and other nonpublic borrowers.

Total cross-border and foreign office nonlocal currency claims are adjusted for each country to take account of external guarantees, collateral, and interbank placements that shift the ultimate country risk to another country. The reporting bank makes a separate tally by reallocating the claims from the country of the borrower to that of the guarantor. A similar reallocation is made for contingencies. The adjusted data show exposure by country of ultimate risk.

Guarantees are narrowly defined to include only formal and legal obligations by residents of countries other than the borrowers'. Claims collateralized by tangible and liquid assets (e.g., cash, certificates of deposit, gold, marketable securities) are reallocated to the country where the pledged assets are held or where their value can be fully realized. In the case of marketable securities, for instance, the exposure would usually be shifted to the country where the security was issued. Interbank claims on a branch abroad are shifted to the country in which the head office is located. Claims on subsidiary banks are adjusted to the country of the parent only if formally guaranteed or collateralized in that country.

Local currency claims of a foreign office, the third category of claims noted above, are treated as a country exposure only to the extent that they are not offset by local currency liabilities. To provide a broader picture, local currency assets and liabilities by country are shown separately.

As a final entry, each reporting institution shows for each country in which it has offices the net amount "due to" or "due from" those offices. This reflects the cross-border flows of funds within a banking organization.

The Market for Agency Securities

In the last twenty-five years the market for agency securities has registered substantial growth—from about \$2 billion in the early fifties to over \$100 billion today. The issuers of these securities are a group of institutions created under Federal law to serve explicit public purposes. Some are a part of the Federal Government and are known as Federal agencies, while others are privately owned and have come to be known as Federally sponsored agencies. Together their securities now form one of the largest financial markets in the United States, with total outstanding debt amounting to about one fifth the size of United States Treasury securities and one third that of corporate bonds. As a result, there is now active secondary trading of agency securities, allowing investors to buy and sell these issues more cheaply and efficiently than in earlier years.

The market is dominated by the Federally sponsored agencies, institutions established by the Government but now privately owned organizations with only limited access to Government funds. The remainder of the market consists of the Federal agencies, which are still partially or wholly owned by the Federal Government. In recent years, the agencies in the latter group have not issued new debt but instead have been financed indirectly by the United States Treasury.

This article looks at the pattern of agency market growth over the past quarter of a century and investors' attitudes toward the securities issued by the Federally sponsored and Federal agencies. It also explores some of the issues surrounding the activities of the agencies. In the main, it is the agencies serving the housing sector that have received most attention from both academic economists and policymakers. Do the agencies influence residential construction activity and,

if so, does their influence tend to stabilize the economy? How is agency activity related to the regulation of interest rates on time and savings accounts, and is such regulation desirable? And, in regard to the Federal National Mortgage Association (FNMA), why do the critics seek tighter regulation?

What is the agency market?

Notwithstanding the legal distinctions among the agencies such as the extent and degree of Federal Government backing and control, their securities are essentially similar and those of comparable maturities trade at about the same yields. Agency securities, however, are regarded as distinct from those issued by the United States Treasury, state and local governments, and ordinary private corporations.

The "agency market" as commonly defined covers about \$103 billion of debt, consisting mainly of taxable bonds and discount notes.¹ Most securities included here are general obligations of the agency that issues them, *i.e.*, there is no particular asset pledged to them.

Agency securities run the gamut as far as original maturities are concerned but tend to be concentrated in the intermediate-term area of from one to ten years. For most intermediate- and long-term agency securities, denominations of \$10,000 and in some cases of \$1,000 are available. The short-term discount notes and mortgage-backed securities, however, often come only in larger denominations of \$50,000 or more. Agency issues may be bought from

¹ The definition used in this article includes those agency issues that are large enough and of a suitable nature to permit a significant amount of secondary market trading in them.

Borrowers in the Agency Market: Acronyms and Nicknames

Federally sponsored agencies

Banks for Cooperatives	BCs or COOPs
Federal Farm Credit Banks*	FFCBs
Federal Home Loan Banks	FHLBs
Federal Home Loan Mortgage Corporation	FHLMC or Freddie Mac
Federal Intermediate Credit Banks ..	FICBs
Federal Land Banks	FLBs
Federal National Mortgage Association	FNMA or Fannie Mae

Federal agencies

Export-Import Bank	EXIM
Farmers Home Administration	FmHA
General Services Administration	GSA
Government National Mortgage Association	GNMA or Ginnie Mae
Postal Service	PS
Tennessee Valley Authority	TVA

Other

Washington Metropolitan Area Transit Authority	WMATA
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* Federal Farm Credit Bank consolidated debt is the name given to the joint obligations of the three sponsored farm agencies: BCs, FICBs, and FLBs.

page lists these agencies and the acronyms by which they are known. Both types of agencies were originally created by the Federal Government and were initially funded to some extent by the United States Treasury.

The Federally sponsored agencies comprise the bulk of the agency market: \$89 billion of outstanding debt in 1977. Treasury capital was repaid by the sponsored agencies when they became private, and they now obtain most of their funds by issuing securities to the public. The Treasury neither contributes financially to them nor guarantees their securities. However, the sponsored agencies do have emergency backstops at the Treasury which can be drawn on subject to Treasury approval (box on page 9).

Despite the lack of financial involvement, the Federal Government does maintain some degree of control over the sponsored agencies: through appointment of directors, setting of debt limits, and approval of terms, size, and timing of debt issues. FNMA, for example, is regulated by the Secretary of the Department of Housing and Urban Development (HUD) and five of its fifteen directors are appointed by the President. In addition, all three members of the FHLB Board, which supervises the FHLBs, are Presidential appointments as are most members of the Federal Farm Credit Board which provides policy guidance for the farm credit agencies.

With the exception of the Federal Home Loan Mortgage Corporation (FHLMC), which was created in 1970, the sponsored agencies have existed in one form or another for several decades. The Banks for Cooperatives (BCs), the FHLBs, and FNMA were all established during the 1930's, while the Federal Land Banks (FLBs) and the Federal Intermediate Credit Banks (FICBs) have an even longer history.⁴ The sponsored agencies channel credit and technical support either to the agricultural or to the housing sector. The FLBs, FICBs, and BCs serve the farm sectors, whereas FNMA, the FHLBs, and FHLMC are associated with housing. In many respects these agencies act as financial intermediaries. Most of them lend to, or purchase assets such as mortgages from, other intermediaries which in turn provide funds to individuals and businesses. All the housing agencies and the FICBs operate through other financial intermediaries. For example, the FHLBs lend money to savings and loan institutions, which have the bulk of their portfolios in home mortgages. The FLBs and the BCs operate without intermediaries and lend the funds

or sold to a number of securities dealers who also handle United States Government obligations. These dealers trade in an over-the-counter telephone market for agency securities, just as they do in the case of Federal Government securities. The interest earned on agency securities is subject to the Federal income tax, and many are also subject to state and local income taxes.² In the former respect, they differ from state and local government securities that are exempt from the Federal income tax while, in the latter respect, they are different from United States Treasury securities which are exempt from state or local taxation.

As noted earlier, a clear-cut distinction can be made within the agency market between two types of borrowers: the Federally sponsored agencies, which are now wholly privately owned, and the Federal agencies, which are owned by the Government.³ The box on this

² The major exceptions to state and local income taxation are the securities of the Federal Home Loan Banks (FHLBs) and the sponsored farm credit agencies.

³ In addition, Federally guaranteed bonds issued by the Washington Metropolitan Area Transit Authority (WMATA) are also part of the agency market.

⁴ A detailed description of the background and functions of each of the agencies and the securities issued by them is contained in Appendix B.

Flow of Funds from Federally Sponsored Agencies

Agency	Method of transmission of funds	To whom transmitted	Sector of agency's concern
BCs	Make loans	Cooperatives made up primarily of farmers, ranchers, and commercial fishermen	Agriculture
FICBs	Make loans secured by notes and other assets	Production credit associations and financial institutions	Agriculture
FLBs	Make loans secured by real estate	Individual farmers, ranchers, rural residents, and farm-related businesses	Agriculture
FHLBs	Make advances (loans)	Savings and loan associations primarily	Housing
FHLMC	Buys mortgages	Savings and loan associations primarily but also other Federally insured depository institutions	Housing
FNMA	Buys mortgages	Mortgage bankers, commercial banks, savings and loan associations, and savings banks	Housing

Characteristics of the Federally Sponsored and Federal Agencies

Agency	Securities are obligations of the United States	Wholly private	Allowable debt to capital ratio or debt ceiling	Backstop funds available from the Treasury (billions of dollars)	Market debt as of December 31, 1977 (billions of dollars)
Federally sponsored agencies					
BCs or COOPs	No	Yes	20:1	0.1	4.4
FICBs	No	Yes	20:1	0.1	11.2
FLBs	No	Yes	20:1	less than 0.1	19.1
FHLB system*	No†	Yes	12:1	4.0	20.0
FNMA	No†	Yes	25:1	2.2	31.3
Federal agencies					
EXIM	Yes	No	—	6.0	2.7
FmHA	Yes	No	—	—	3.9
GSA	Yes	No	—	—	0.7
GNMA	Yes	No	—	—	3.7
PS	No	No	\$10 billion	2.0	0.3
TVA	No	No	\$15 billion	0.2	1.8

See box on page 8 for explanation of acronyms.

* Includes FHLBs and FHLMC.

† Both FNMA and FHLMC have some mortgage-backed securities outstanding which are GNMA guaranteed.

they have borrowed directly to the farmers and farm cooperatives whom they serve.

The sponsored agencies are generally able to finance their various activities without subsidy or loss. These agencies can usually borrow at interest rates below the average return from their portfolios. What enables them to do this? For one thing, despite the lack of an explicit guarantee on their securities, these agencies are subject to Government control far beyond that of ordinary private corporations, and the close Governmental involvement enhances investor confidence in their financial stability. Perhaps an even more important element is the liquidity of agency issues relative to agency assets. There may also be another element: these agencies act as poolers of risk and may thereby have a lower default rate than a smaller localized financial institution.

The direct Federal agencies, which have always comprised a smaller part of the market, differ from the Federally sponsored agencies in a number of ways. They are a part of the Federal Government, and most of their securities are for credit purposes obligations of the United States. Some of the activity of the Federal agencies is included in the Federal budget, and since 1974 most of their borrowing has been conducted indirectly through the United States Treasury rather than in the agency market. The Federal agencies borrow from the Federal Financing Bank (FFB) which in turn borrows from the Treasury.

The FFB was created by a December 1973 act of the Congress, which established this new umbrella agency within the Treasury "to assure coordination of [borrowing] programs with the overall economic and fiscal policies of the Government, to reduce the costs of Federal and Federally assisted borrowings from the public, and to assure that such borrowings are financed in a manner least disruptive of the private financial markets and institutions". Soon after its creation, the FFB made a short-term offering of its own. Since then, however, the FFB has financed its operations solely through borrowing from the Treasury. This change took place because it appeared that its borrowing cost from the public would be more expensive than the Treasury's borrowing cost. As a consequence, the Treasury must borrow more than the amount of its deficit to make funds available to the FFB for conducting its operations. This added borrowing by the Treasury presumably continues to be at a lower cost than the FFB would have incurred in the market. However, it may well be that, had the FFB continued borrowing in the market, over time its financing costs would have come closer to the Treasury's.

Since the establishment of the FFB, the public debt of the Federal agencies has been limited to the

obligations issued prior to the creation of the FFB and has declined as these outstanding issues have matured. Eventually, unless current procedures are changed, the agency market will consist only of the obligations of the Federally sponsored agencies.

Growth of agency obligations

The agency market has grown rapidly since the early fifties. From a level of just over \$2 billion in 1952, the volume of agency debt reached \$102.5 billion by year-end 1977. This fiftyfold increase amounted to a compound growth rate of 17 percent per year. The outstanding debt for each agency is shown for selected years in Table 1. The growth of agency debt was particularly rapid in the latter half of the fifties and again in the latter half of the sixties. Since 1974 there has been a marked slowdown as is evident from Chart 1 and Table 2.

Looking at the individual agencies, it is FNMA which has shown the most dramatic growth. FNMA was divided into two parts in 1968: a privately owned sponsored agency which retained both the secondary mortgage market function and the name FNMA and a new Federal agency called the Government National Mortgage Association. GNMA remained a part of HUD and assumed that part of FNMA activities that had been concerned with Federally assisted housing programs. Most of FNMA's growth occurred after it became private in 1968. Over the interval since then, FNMA's outstanding market debt has almost quintupled and at year-end 1977 was \$31 billion. It is now the third largest debtor in the nation, exceeded only by the United States Government and the American Telephone & Telegraph Company. FNMA's assets consist mainly of mortgages which it buys in the secondary market from primary mortgage lenders.

A closer look at the annual growth rates of agency debt reveals a wide variation from year to year, with some years showing substantial increases and others showing outright declines. What influences these patterns? The agencies generally respond to the credit demand of their constituents. In the housing sector, it is the demand for mortgages relative to the supply of funds from depositors that largely determines the need for the thrift institutions to borrow or sell mortgages. Two major factors have an effect on this balance: overall economic activity, which usually influences the demand for mortgages, and the level of interest rates, which affects deposit inflows and outflows as well as mortgage demand. Under existing regulations, there are ceilings on the interest rates that thrift institutions and commercial banks may pay on various categories of deposits. In addition, since mort-

Table 1

Agency Market Debt by Issuer

In billions of dollars

Issuer	Year-end 1961	Year-end 1966	Year-end 1971	Year-end 1976	Year-end 1977
Federally sponsored agencies					
BCs	0.4	1.1	1.8	4.3	4.4
FFCBs	—	—	—	0.7	2.5
FHLBs	1.6	6.9	7.1	16.8	18.3
FHLMC	—	—	0.6	1.7	1.7
FICBs	1.6	2.8	5.5	10.5	11.2
FLBs	2.4	4.4	7.2	17.1	19.1
FNMA	2.5	3.8	17.7	30.0	31.3
Federal agencies					
EXIM	—	1.4	1.4	3.2*	2.7*
FmHA	—	—	1.7	5.4	3.9
GSA	—	—	—	0.7	0.7
GNMA	—	2.0†	5.9	4.1	3.7
PS	—	—	—	0.3	0.3
TVA	0.1	0.3	1.6	1.8	1.8
Other					
WMATA	—	—	—	0.8	0.8
Total	8.6	22.7	50.7	97.5	102.5

Totals may not add because of rounding of components.

See box on page 8 for explanation of acronyms of agencies.

* Includes participation certificates reclassified as debt in October 1976.

† Participation certificates transferred from FNMA after the creation of GNMA.

Sources: United States *Treasury Bulletin*, the *Semi-Annual Report* of the Federal National Mortgage Association, and telephone conversations with several agencies.

Table 2

Annual Growth of Agency Market Debt

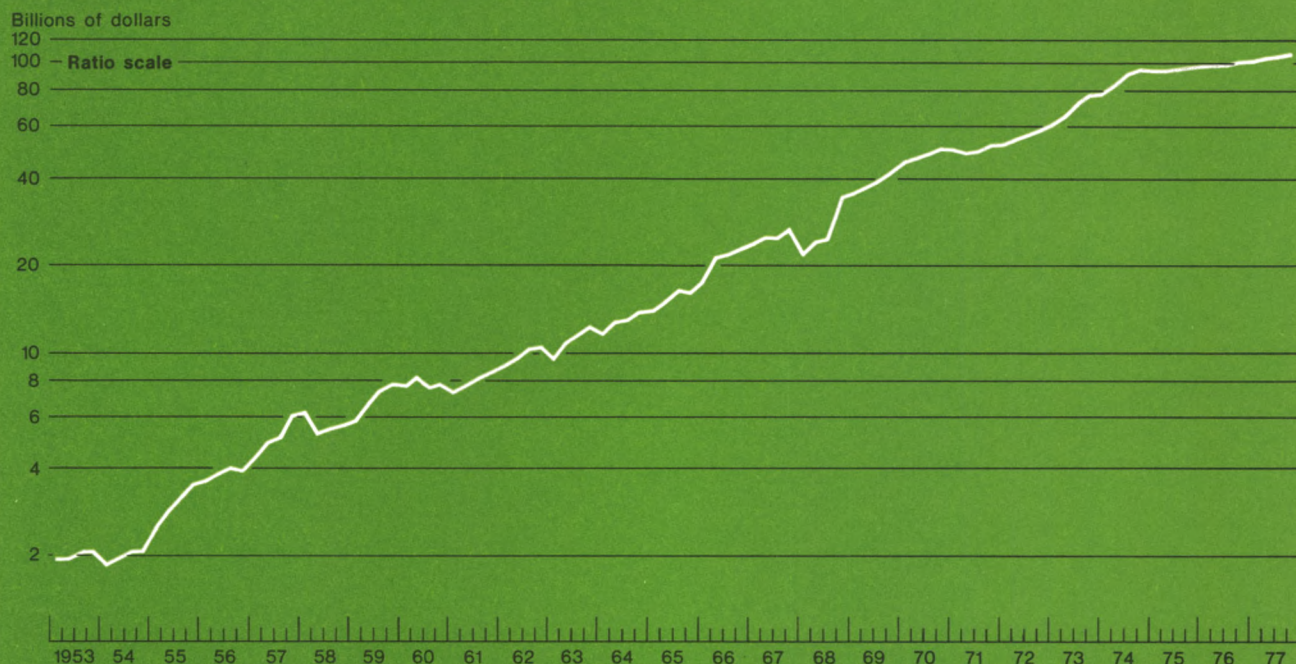
In percent

Largest agencies	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
BCs	34.9	16.7	12.8	5.6	18.3	2.8	8.1	37.4	33.2	1.8	18.5	2.4
FHLBs	31.4	—40.8	15.8	79.2	21.0	—29.9	—2.4	120.4	42.5	—13.7	—11.1	9.1
FICBs	24.7	15.4	10.6	16.2	17.5	13.9	5.4	18.9	23.9	7.7	13.4	6.4
FLBs	18.2	11.8	12.8	10.0	7.5	10.3	13.3	23.0	25.8	18.5	14.2	11.6
FNMA	101.7	29.4	29.6	64.9	44.7	16.4	7.5	18.0	23.0	6.5	2.1	4.4
Growth of all Federally sponsored and Federal agency debt	41.9	17.0	28.6	22.2	19.3	3.0	12.7	31.4	22.9	2.3	3.3	5.2

See box on page 8 for explanation of acronyms of agencies.

Sources: United States *Treasury Bulletin*, the *Semi-Annual Report* of the Federal National Mortgage Association, and telephone conversations with several agencies.

Chart I

Market Debt of Federal and Federally Sponsored Agencies

Sources: United States Treasury Bulletin, the Semi-Annual Report of the Federal National Mortgage Association, and telephone conversations with several of the agencies.

gages are long-term loans, the average return on thrift portfolios adjusts very slowly at times of rising interest rates. As a result of these factors, when market rates are high, rates paid on deposits become less competitive with those on market instruments and some depositors shift funds to these higher yielding securities. Moreover, new savings also tend to go into higher yielding market instruments. When market interest rates recede, funds tend to flow into the thrift institutions and banks. This pattern of inflows and outflows, in turn, influences the need to borrow from the FHLBs and the supply of mortgages offered to FNMA and the FHLMC. It is these housing agencies that account for most of the variation in total agency debt. In the period from 1952 to 1968, economic activity appears to have been the dominant influence, as agency market debt generally moved in line with business activity, increasing during periods of economic expansion and declining during recessions. In the most recent recessions of 1969-70 and 1973-75, however, agency debt continued to grow throughout the downturn. This reflected in part the fact that interest rates remained high relative to the ceilings

on deposits well into those recessions.

The agricultural agencies' debt, on the other hand, does not display a pronounced cyclical pattern. The demand for agricultural credit stems from the need to finance farm equipment, buildings, land improvements, and seasonal production expenses. For the most part, these borrowing needs reflect variations in the world supply and demand for farm products rather than domestic business activity.

Although not actually a part of the agency market, there is another type of debt issue involving a Federal agency which should be mentioned both because of its size and rapidly growing importance and because some investors view these securities as substitutes for agency issues. These are the mortgage-backed pass-through securities which regularly return to investors a portion of principal as well as interest, with payments made more frequently than the semi-annual interest return on most agency issues. By far the largest volume of these are the GNMA-guaranteed packages of Federal Housing Administration (FHA)-insured or Veterans Administration (VA)-guaranteed mortgages assembled by private issuers such as mort-

gage banking companies. Close to \$52 billion of these securities was sold from their introduction in 1970 to the end of 1977. In addition, some \$8 billion of FHLMC mortgage-backed participation certificates was sold between their introduction in 1971 and the end of 1977. Both the FHLMC certificates and the GNMA-guaranteed pass-throughs are considered real estate investments for certain tax purposes.⁵ While they are quite similar to mortgages in terms of their monthly repayment of principal and interest and their treatment for tax purposes, trading in them is usually conducted through securities dealers.

Who owns agency securities?

Agency securities are held by a wide variety of financial and nonfinancial institutions and by individuals. According to the Treasury's survey of ownership, the major holders at the end of 1977 were commercial banks with about 20 percent, United States Government accounts and Federal Reserve Banks with 10 percent, and "all other investors" with about 50 percent (Table 3). This last group, a residual category, is composed of individuals, nonprofit organizations, foreign investors, and various businesses which do not report in the survey.

Over the 1961-77 period, the most dramatic changes occurred in the holdings of the Government accounts and Federal Reserve Banks—their share went from less than ½ percent in 1961 to 10 percent in 1977—and in the holdings of nonfinancial corporations, whose share declined from 11.3 percent to 1.5 percent. During this period, corporations increased their holdings of short-term liquid assets much more rapidly than their holdings of longer term securities, such as Government and agency issues. Other groups continued to hold approximately the same share of agency debt in 1977 as they did in 1961. Of course, given the huge increase in the dollar volume of outstanding debt, all the investor groups registered absolute gains in their holdings of agency obligations.

The survey data suggest that there may be changes in the distribution of holdings as conditions in financial markets tighten and ease. For example, at times of high interest rates commercial banks appear to reduce their share of agency securities. This is consistent with the usual finding that banks reduce their demand for securities and make more loans as credit demands strengthen. However, the cyclical variation in bank holdings of agency issues is much more moderate than in their holdings of Government securities. Offsetting the reductions in the commercial bank share at

such times is an increase in the share of the all other investor group.

Current marketing arrangements

The Federally sponsored and Federal agencies have used various techniques to market their new debt in recent years. The main technique entails the use of a fiscal agent who markets the securities through a selling group of dealers and commercial banks. This is different from the technique used by the typical corporation and from that used by the Treasury. Most corporations market through syndicates of investment banking firms who underwrite the securities,⁶ while the Treasury typically conducts auctions through the Federal Reserve Banks.⁷ The agencies, in issuing discount notes which are of very short maturity, typically rely on a few dealers who continually make a market in that agency's issues.

Under the selling group technique, the agency employs a fiscal agent who maintains close contact with the financial community. Based on market conditions and subject to approval by the agency, the fiscal agent determines the size, price, maturity, and offering date of a new issue and engages a group of securities dealers to sell the issue to investors. (Either by law or by custom the agencies also clear new issues with the Treasury.) The members of the selling group are apportioned a share of the issue and receive a commission for distributing the securities.

On occasion, some agencies have used an underwriting syndicate. In this case, a group of dealers purchases the entire issue from the agency and assumes the risk of reselling it to investors. Its gain or loss on the undertaking is the difference between the purchase price it pays to the agency and the average price at which it can sell the issue to investors.

Individual new issues of all the agencies vary widely in size but have generally ranged between \$¼ billion and \$1 billion over the past two years. By comparison, the typical Treasury issue is \$2½-3½ billion. This difference in size of issue explains some of the difference in the liquidity of Treasury issues and agency issues; large issues are usually more liquid since they permit more trading activity.

Most of the agencies offer new issues at intervals of from one to three months. In the last two calendar years, FNMA averaged eight offerings a year while the FHLBs and FLBs issued bonds once every three

⁵ Certain institutions qualify for more favorable Federal tax treatment based on their holdings of real estate investments.

⁶ Burton Zwick, "The Market for Corporate Bonds", *Quarterly Review* (Autumn 1977), pages 27-36.

⁷ Christopher McCurdy, "The Dealer Market for United States Government Securities", *Quarterly Review* (Winter 1977-78), pages 35-47.

months. The other farm agencies offer bonds which are their joint obligations on a monthly basis. In terms of original maturity, agency issues tend to be concentrated in the intermediate range of between one and ten years. At midyear 1977, two thirds of the agencies' outstanding market debt had been issued with an original maturity of from one to ten years. The remaining third was virtually evenly divided between issues with

original maturities of one year or less and those with maturities of more than ten years. There are, however, considerable differences among the maturities issued by different agencies. The BCs and FICBs borrow mainly at the short end of the spectrum, with most of their issues having original maturities of six and nine months. The FLBs, FNMA, and the FHLBs tend to borrow longer, however, with 50 percent or more of their

Table 3

Ownership of Agency Market Securities by Holder

In percentage of total and in billions of dollars

Holder	Year-end 1961	Year-end 1966	Year-end 1971	Year-end 1976	Year-end 1977
In percentage of total					
United States Government accounts and Federal Reserve Banks	0.4	7.0	5.3	9.1	9.9
Commercial banks	19.5	15.6	21.5	20.7	19.5
Mutual savings banks	6.0	4.8	5.1	4.0	3.8
Savings and loan associations	3.6	2.2	5.9	4.2	4.8
Life insurance companies	1.2	0.7	0.4	0.9	1.0
Fire, casualty, and marine insurance companies	2.4	2.1	1.3	1.5	1.6
Nonfinancial corporations	11.3	3.7	1.4	2.1	1.5
State and local governments	4.8	7.2	7.1	6.6	7.3
<i>General funds</i>	2.8	5.6	4.9	3.9	4.3
<i>Pension and retirement funds</i>	2.0	1.5	2.2	2.6	3.0
All other investors	50.8	56.7	52.1	50.9	50.7
Total	100.0	100.0	100.0	100.0	100.0
In billions of dollars					
United States Government accounts and Federal Reserve Banks	—	1.4	2.7	8.7	9.9
Commercial banks	1.7	3.0	10.9	19.7	19.5
Mutual savings banks	0.5	0.9	2.6	3.8	3.8
Savings and loan associations	0.3	0.4	3.0	4.0	4.8
Life insurance companies	0.1	0.1	0.2	0.9	1.0
Fire, casualty, and marine insurance companies	0.2	0.4	0.7	1.4	1.6
Nonfinancial corporations	1.0	0.7	0.7	2.0	1.5
State and local governments	0.4	1.4	3.6	6.2	7.3
<i>General funds</i>	0.2	1.1	2.5	3.7	4.3
<i>Pension and retirement funds</i>	0.2	0.3	1.1	2.5	3.0
All other investors	4.4	10.9	26.4	48.4	50.7
Total	8.6	19.2	50.7	95.0	100.1

Data for 1966 do not include ownership of EXIM issues or FNMA participation certificates. Data for 1976 and 1977 exclude ownership of GSA and WMATA issues, which were first sold in 1972, and some recently reclassified EXIM participation certificates.

Source: United States *Treasury Bulletin*.

recent new issues having original maturities of four years or more.

Trading activity in agency securities

The volume of trading activity in agency securities has grown considerably over the years, indicating a broadening market in which investors can conduct transactions easily and efficiently. Since 1962 the reported volume of trading activity increased more than tenfold from less than \$0.1 billion per day in that year to about \$1 billion per day in 1977. (These data reflect information provided by Government securities dealers who report to the Federal Reserve Bank of New York. Currently, there are thirty-seven reporters.) The data suggest that there was an increase in trading activity per dollar of outstanding debt as well as an increase in activity reflecting the expanded supply of agency issues.

Particularly notable was the increase in trading activity in the intermediate range of agency market debt, *i.e.*, securities with maturities of more than one through ten years. Average daily volume for this category increased twentyfold, considerably more than would be accounted for by the increase in outstanding debt of this maturity.

In 1966 the Congress authorized the Federal Reserve System to deal in agency securities as well as in Treasury obligations. Until 1971, the System restricted itself to repurchase agreements (RPs) rather than to outright operations in agency securities, as the agency market was not considered to have developed to a point where the System could conduct outright operations of a meaningful size without distorting or dominating the market. Under these RPs, which it initiates to meet short-term needs for additional bank reserves, the System temporarily purchases securities from Government securities dealers, with the stipulation that the dealers will repurchase them within a specified number of days. Being able to use agency issues for obtaining these short-term funds aided the dealers in financing inventories and contributed to their willingness to make markets in agency obligations.

By 1971 the agency market had developed to the point where the System was able to begin to make outright transactions, and the first purchases were made in September of that year. The Federal Open Market Committee (FOMC) established certain criteria for open market operations in these securities. These guidelines were designed to limit the System's impact on the agency market by setting ceilings on the share of any one issue that the System could hold and establishing a minimum size for issues that the System could purchase. Over the next few years the System expanded

the use of agency securities in open market operations, though in the last three years the growth of its holdings has slowed. Starting in February 1977, System transactions were restricted to those agencies that cannot borrow from the FFB.⁸ Thus, open market operations are now limited to sponsored agency securities.

Relationship between the agency market and other financial markets

Although all financial markets are interrelated, the agency market bears a particularly close relationship to the market for United States Treasury coupon securities and the market for prime corporate bonds. This is because the three types of securities have important similarities—they are all taxable, fixed-income securities with a high degree of safety. The yields on these three types of securities, however, typically differ from each other. Agency securities are considered somewhat less attractive than Treasury issues and generally trade at yields which are higher than those on Treasury issues of similar maturity. In contrast, agency issues are more attractive than corporate utility bonds which form the bulk of outstanding Aaa corporate securities in the intermediate maturity range. Consequently, agency issues usually offer lower yields than comparable top-rated corporate utility issues.

Chart 2 displays the yields on medium-term issues of agencies, the United States Government, and prime corporate utilities for the period since 1970. Clearly all three yields move very closely together. This reflects the process of arbitrage. If, for example, the positive yield spread between agency and Government debt widens, investors would buy more agency securities, pushing their prices up and yields down, and sell Government issues, pushing their prices down and yields up. This process would bring the spread back to normal limits.

What are the "normal" spreads among these three securities? As the chart shows, the yield spread among these three highly substitutable investments varies considerably. In the period since 1970 the spread between agency and Treasury securities of similar maturity has generally ranged between 15 and 65 basis points (100 basis points = 1 percentage point). The variation in the spread between agency and corporate utility obligations was still greater. (Top-rated corporate industrial issues have been relatively scarce particularly since 1974, and investors have regarded them as more attractive than agency issues although market participants do not appear to consider them safer than agency obligations.)

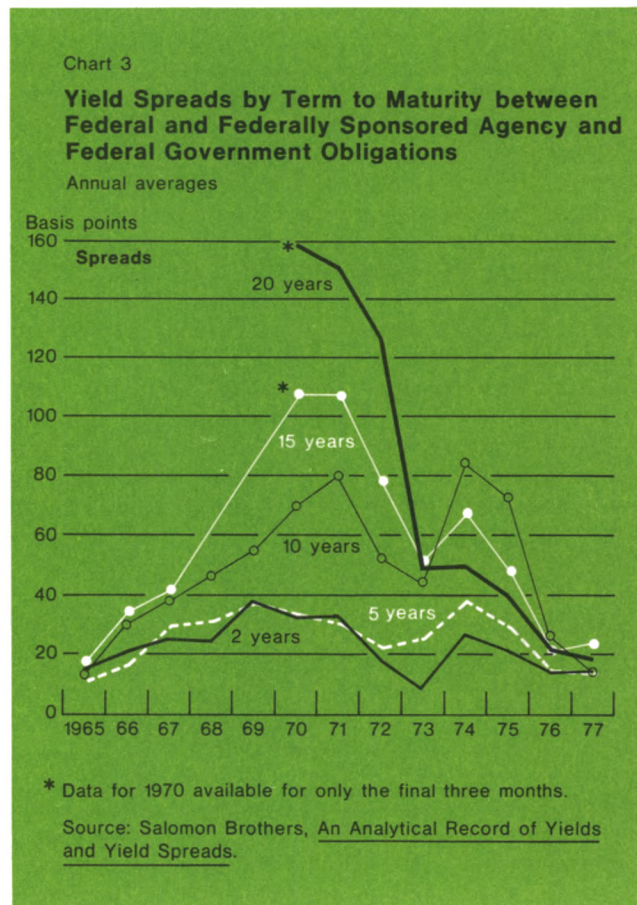
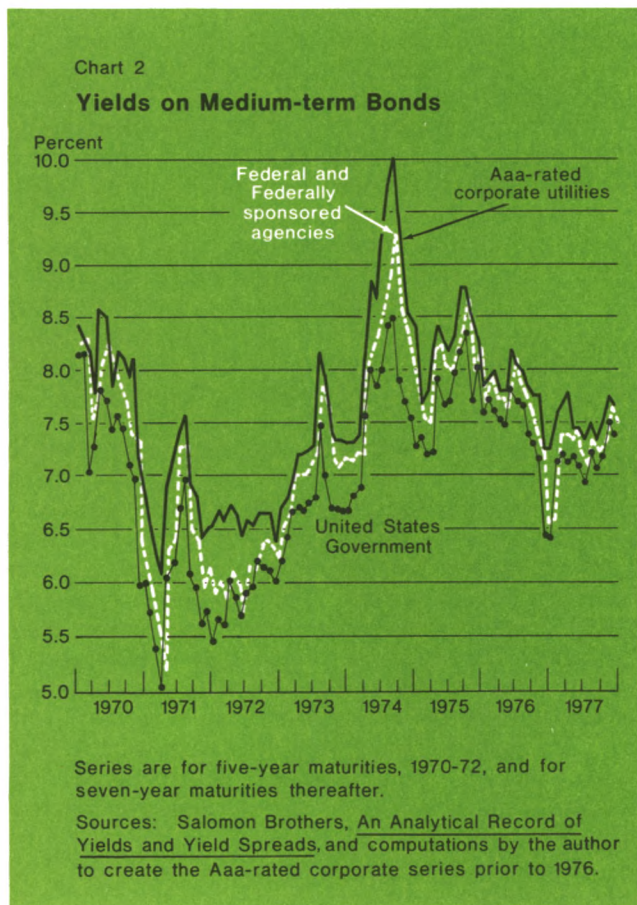
⁸ The current FOMC guidelines can be found in Appendix A.

What causes the differentials among yields to vary? Some variation in spread can occur because it is profitable to arbitrage only if the difference from the "normal" spread is greater than the cost of arbitrage transactions. In addition, statistical analysis of the spread between agency and Treasury securities suggests that about one half the variation in the spread can be explained by the relative supplies of agency and Treasury obligations, the overall conditions in the money market, and the public's degree of familiarity with agency debt. Spreads have tended to narrow, as the public has become more familiar with agency debt. They have tended to widen, however, when the supply of agency issues is large relative to Treasury debt, because more people must be induced to hold agency issues in place of Treasury securities. Spreads also tend to widen when money market conditions are tight, since investors apparently value liquidity more highly at such times.

These factors help explain the historical pattern of yield spreads between agency issues and Treasury

issues. Over the last half of the sixties the spread widened considerably as agencies greatly expanded their supply of new issues and interest rates were generally high (Chart 3). Then, with the easing of money market conditions over the next few years, the spreads between the yields on agency and Treasury debt narrowed. This pattern was sharply reversed in 1974, when money market conditions again tightened and agencies were heavy borrowers. In 1975 and 1976, agency demand for funds moderated while the Treasury sharply increased its borrowing. As a consequence of this development and the easing of money market conditions, the spreads declined in 1975 and 1976. They essentially stabilized in 1977 in the wake of a moderation in Government borrowing.

By far the most dramatic change in yield spreads since 1965 occurred at the long end of the maturity spectrum where the spread on fifteen-year issues increased from 40 to almost 110 basis points. This reflected "technical" factors as well as some actual widening in spreads. The major factor was that prior



to 1971 there was a 4¼ percent interest rate ceiling on all Treasury bonds. Because long-term market rates had climbed higher than this, after 1965 no new Government obligations of longer than seven years' maturity had been issued. As a result, the only long-term Government securities outstanding were old issues which carried very low interest rates and traded at deep discounts in the market. Because of certain tax advantages, the yield on such bonds is usually lower than on bonds selling close to par.⁹ Beginning in 1971, however, the Congress granted the Treasury authority to issue limited amounts of long-term debt free from the 4¼ percent interest rate ceiling. Consequently, as increasing amounts of long-term securities were issued under this new authority at the prevailing higher market rates, spreads between long-term agency and Government yields narrowed.

Some outstanding issues

While the activities of the farm agencies have been relatively noncontroversial, those of the housing agencies have generated considerable discussion. One issue that has arisen from time to time is how much of an effect the housing agencies actually have on the amount of home construction. While at first glance it would appear that the provision of credit to the housing sector ought to have a significant impact on residential construction, in reality the extent is much less clear.¹⁰ Very simply stated, market participants may substitute one type of debt for another and offset the initial flow into the desired sector. For example, savings banks may sell some mortgage holdings to FNMA but invest the funds in corporate bonds instead of new mortgages. Alternatively, some institutions that purchase FNMA securities may have sold mortgages to do so. Thus, it is not clear how much the activities of FNMA and the FHLBs in fact increase the volume of mortgages and push mortgage rates down. Moreover, even if the activities of the agencies serving housing do increase the net supply of mortgage money, there is a question whether borrowers will actually use mortgage funds for the purchase of new homes rather than finance various other activities or build up their holdings of other financial assets.

What have the data shown about the relationship

between the provision of credit by agencies and home building? Some economists have found that the FHLBs through their advances and FNMA through its mortgage purchases do tend to have a positive short-run effect on housing activity lasting up to two and a half years.¹¹ However, over the long run, the studies have not found that the activities of these agencies have a significant positive impact.

Over the years there has been considerable concern about the great variability in the level of residential construction activity. The cycles in home building reflect several factors: families' choices about when to purchase new homes, the availability of mortgage funds at thrift institutions, and the activities of the agencies that can augment the supply of mortgage money by lending to the thrift institutions or buying mortgages from primary mortgage lenders. The pattern of home building generally follows the pattern of overall economic activity except that, when economic activity is very high, housing starts as a rule begin to drop off. In part, this reflects the preferences of households. They prefer to buy homes when mortgage money is available at lower rates of interest than usually prevail when the economy is running strong. Perhaps a more important factor is the shifting of funds out of depository institutions into marketable securities when interest rates on deposits are no longer competitive. At such times, thrift institutions are less able to make new mortgage loans.

The housing agencies act to moderate the effects of the decline in deposit flows. When thrift institutions need funds, they can borrow from the FHLBs or sell mortgages to FNMA as a means of meeting mortgage commitments until the deposit inflows strengthen. Thus, the housing agencies assist the home building industry mainly when interest rates are above the ceilings by enabling thrift institutions to recapture some of the funds being lost to marketable securities. Typically, at such a time the economy is operating close to a peak of capacity utilization. Superficially, this might suggest that the activities of the agencies, by bolstering housing in boom periods, accentuate the economy's ups and downs. However, if housing is aided through the agencies' bidding funds away from other sectors, the latter may reduce their spending and the net effect of the agencies on total economic activity may, therefore,

⁹ Deep discount bonds offer capital gains which receive more favorable tax treatment than does interest income. Another technical factor in the widening of the spreads was that so-called "flower bonds" were not separated from other long-term Government obligations until 1973 and affected the yield series. These issues have a lower yield because their par value can be used for the payment of estate taxes even though market value is well below par.

¹⁰ This issue is also discussed in Zwick, "The Market for Corporate Bonds", *loc. cit.*

¹¹ Some of these studies are Eugene Brady, "An Econometric Analysis of the U.S. Residential Housing Market", and Ray Fair, "Monthly Housing Starts", *National Housing Models*, ed. by R. Bruce Ricks (Lexington, Mass: D.C. Heath and Company, 1973), James Duesenberry and Barry Bosworth, "Policy Implications of a Flow of Funds Model", *Journal of Finance* 29 (May 1974), and Dwight Jaffee, "An Econometric Model of the Mortgage Market", *Savings Deposits, Mortgages, and Housing*, ed. by Edward Gramlich and Dwight Jaffee, (Lexington, Mass: D.C. Heath and Company 1972).

be small. To date, there is no widespread agreement as to the cyclical impact of agency activity on the economy as a whole.

One striking feature of high interest rate periods is that investors buying Federally sponsored agency securities receive higher rates for financing housing activity than the depositors of the thrift institutions themselves. In general, it is primarily the small investor who remains a savings and loan depositor and receives the lower yield. The problem, however, would not seem to be the availability of agency securities, as some critics of the agencies have implied, but rather the structure of the interest rate ceilings. The thrift institutions have been allowed greater flexibility in the rates they pay for various maturities in recent years, alleviating but not ending the problem.

Of late, there has been much discussion of FNMA's activities. Most observers agree that FNMA has contributed to the liquidity of mortgages by being willing to buy mortgages from mortgage originators, such as mortgage bankers and thrift institutions. Until 1970 FNMA's purchases were by law limited to insured or guaranteed mortgages, but thereafter FNMA was also authorized to buy conventional mortgages and since then has added to the liquidity of this type of mortgage as well. FNMA views its growth and profitability as being in accord with its mandate to provide liquidity in the secondary mortgage market and to earn a reasonable return for its owners.

Some critics, on the other hand, have argued that FNMA has not adequately fulfilled its obligation to create a secondary market, because it continually purchases but rarely sells mortgages. Others believe that Federal sponsorship carries with it an obligation for FNMA to participate more fully in the implementation of Government housing objectives. Specifically, HUD would like FNMA to purchase set proportions of its mortgages in inner city areas, but FNMA considers this proposal too restrictive. Concern over some of these issues has recently led the Senate Committee on Banking, Housing, and Urban Affairs to undertake a review of FNMA's policies and activities.

Recent trends and future evolution of the market

Since the end of 1974 the growth of publicly held agency debt has slowed down markedly. While agency debt almost doubled between 1971 and 1974, the increase was only 11 percent between 1974 and 1977. The recent slowing resulted from several factors. To begin with, the Federal agencies have been borrowing through the FFB, which in turn borrows through the Treasury. As a result, when Federal agency debt matures and is replaced by obligations to the FFB, outstanding Federal agency market debt is reduced.

Table 4

Federal Financing Bank (FFB) Holdings of Securities*

In billions of dollars; as of December 31

Issuers†	1974	1975	1976	1977
Five largest				
FmHA	2.5	7.0	10.8	16.1
EXIM	—	4.6	5.2	5.8
TVA	0.9	1.8	3.1	4.2
REA‡	—	0.6	1.4	2.6
PS	0.5	1.5	2.7	2.2
Others	0.6	1.7	5.5	7.6
Total	4.5	17.2	28.7	38.6

* With the development of the FFB, the public debt of the Federal agencies is limited to the amounts issued prior to the creation of the FFB and is reduced as these outstanding issues mature. The FFB, created by Congressional act in December 1973, has financed its operations, with the exception of one offering, solely through borrowing from the United States Treasury.

† See box on page 8 for explanation of acronyms of agencies. Because of rounding, components may not add to totals.

‡ Rural Electrification Administration is part of the Department of Agriculture and has never borrowed in the agency market.

Sources: *Federal Reserve Bulletin* and telephone conversations with the Federal Financing Bank.

(Table 4 shows the growth of the securities holdings of the FFB since its inception, with a breakdown for the five largest agency issuers.) In addition, the Federally sponsored housing agencies have not been growing as fast as they did in the early seventies. The FHLBs reduced their debt by about \$3½ billion between 1974 and 1977, as savings and loan associations repaid their loans to the FHLBs over most of this period. The repayment of advances reflected the large inflows to the thrift institutions, coupled with weak demand for mortgages during the early part of that period. Since the last half of 1977, however, advances have increased in response to greatly reduced thrift inflows and substantial outstanding mortgage commitments. During the 1974-77 interval, FNMA's borrowing slowed substantially from the rapid pace of the previous ten years. This probably reflects some of the same factors that influenced the FHLBs. In addition, FNMA's growth may have slowed in response to its critics and also because the secondary mortgage market is now fairly well developed.

What is the likely pattern of agency growth in the future? Among the Federal agencies, based on Federal budget projections, it is anticipated that the activities of the Farmers Home Administration, the Tennessee Valley Authority, and the Export-Import Bank will continue to expand and so will their total borrowing needs. However, since their borrowing is from the FFB, which borrows through the Treasury, this will not have an impact on agency debt outstanding. Of course, this increased Federal agency borrowing will affect the overall capital market, since the Treasury must borrow beyond its deficit to provide funds to the FFB. Turning to the sponsored agencies, the main factors influencing the housing agencies are time and savings account inflows and residential mortgage demand.

Since the rate of inflow to time and savings accounts has slowed considerably at the same time that mortgage demand appears to be running very strong, some near-term growth of FHLB borrowing to make advances to the savings and loan associations appears likely. The main consideration for the future of the FHLBs is whether the increased issuance of longer maturity time deposits at thrift institutions will tend to stabilize deposits there and to lessen the need for borrowing from the FHLBs on the scale that occurred in the past. In light of current discussions, the future development of FNMA seems unclear. If, for example, it became a net seller at times, the pattern of its future borrowing might well resemble that of the FHLBs.

Lois Banks

Appendix A: Guidelines for the Conduct of System Operations in Federal Agency Issues

Board of Governors of the Federal Reserve System press release dated February 22, 1977

- (1) System open market operations in Federal agency issues are an integral part of total System open market operations designed to influence bank reserves, money market conditions, and monetary aggregates.
- (2) System open market operations in Federal agency issues are not designed to support individual sectors of the market or to channel funds into issues of particular agencies.
- (3) System holdings of agency issues shall be modest relative to holdings of United States Government securities, and the amount and timing of System transactions in agency issues shall be determined with due regard for the desirability of avoiding undue market effects.
- (4) Purchases will be limited to fully taxable issues, not eligible for purchase by the Federal Financing Bank, for which there is an active secondary market. Purchases will also be limited to issues outstanding in amounts of \$300 million or over, in cases where the obligations have a maturity of five years or less at the time of issuance, and to issues outstanding in amounts of \$200 million or over in cases where the securities have a maturity of more than five years at the time of issuance.
- (5) System holdings of any one issue at any one time will not exceed 30 percent of the amount of the issue outstanding. Aggregate holdings of the issues of any one agency will not exceed 15 percent of the amount of outstanding issues of that agency.
- (6) All outright purchases, sales, and holdings of agency issues will be for the System Open Market Account.

Appendix B: Federally Sponsored and Federal Agencies

Federally sponsored agencies—farm

The oldest of the sponsored agencies are the twelve *Federal Land Banks* which were created in 1917 pursuant to the Federal Farm Loan Act of 1916. (The twelve districts of the three sponsored farm agencies coincide with each other, but they differ from the twelve Federal Reserve Districts.) While most of the original stock was Government owned, there has been no Government capital in the banks since 1947. Since that date the banks have been completely owned by the Federal Land Bank associations, which in turn are owned by farmers and ranchers who belong to the associations. The FLBs are authorized to make mortgage loans in rural areas with maturities of from five to forty years. The loans are extended for such purposes as the purchase of homes, real estate, equipment, and livestock and for the refinancing of existing debt. To finance their lending activity, the FLBs issue consolidated bonds which are the joint obligations of all twelve banks. There was \$19.1 billion in these bonds outstanding at the end of 1977.

The twelve *Federal Intermediate Credit Banks* were established under the Agricultural Credits Act of 1923. The Federal Government capital in the FICBs was retired in 1968, and the banks are now entirely owned by some 430 local production credit associations. The associations are composed of borrowers assisted by the FICBs, who must use a specified percentage of their loans to purchase stock in the lending association. The FICBs' function is the provision of short- and intermediate-term credit to farmers, ranchers, rural homeowners, farm-related businesses, and commercial fishermen primarily for their marketing needs. The FICBs do not themselves make loans to individuals but, rather, lend to and discount paper for the production credit associations and other financial institutions such as commercial banks which provide direct financing to agricultural producers. The twelve FICBs issue consolidated bonds, and there was \$11.2 billion in outstanding FICB debt at the end of December 1977.

The third group of sponsored agencies serving the agricultural community, the *Banks for Cooperatives*, is composed of a central bank and twelve regional banks. The BCs came into being pursuant to the Farm Credit Act of 1933 shortly after the creation of the Farm Credit Administration which supervises the three sponsored farm agencies. Government capital was retired in 1968, and the banks are now entirely owned by borrowing cooperatives. The BCs lend funds to agricultural and fishing cooperatives which provide various kinds of services, such as marketing and processing, to their members. The principal function of the Central Bank for Cooperatives is to participate in large loans originated by the banks which exceed the legal lending capacity limits of the individual banks. To finance their activity the thirteen banks jointly issue consolidated bonds usually of six-month maturity, though on occa-

sion an issue of more than one year is offered as well. BC market debt outstanding at year-end 1977 totaled \$4.4 billion.

In addition to the separate obligations of the FLBs, FICBs, and BCs, in 1975 the three agencies began to sell short-term discount notes which are the joint obligations of all thirty-seven banks. These systemwide offerings are called Federal Farm Credit Bank notes. In the summer of 1977 the three agencies jointly sold the first longer term Federal Farm Credit Bank bonds, two issues with maturities of five and twelve years. At the end of 1977, the sponsored farm agencies had a total outstanding debt of \$37.3 billion.

Federally sponsored agencies—housing

Among the sponsored agencies serving the housing sector the twelve *Federal Home Loan Banks* are the oldest and date back to 1932, a time when many home-financing institutions were in difficulty. All Government capital was retired by 1951, and the banks have been privately owned by member savings institutions since then. They remain subject to the policies and supervision of the Federal Home Loan Bank Board, an agency in the executive branch of the Federal Government. The primary function of the banks is to provide loans for member savings and loan associations which are mainly engaged in residential mortgage financing. To provide credit to their members, the FHLBs jointly issue medium- and long-term consolidated obligations of various maturities. FHLB long- and medium-term debt outstanding totaled \$17.0 billion at year-end 1977. In addition, to meet short-term needs the banks initiated a program of discount note sales in 1974, but only a relatively small amount of these short-term issues is outstanding at any given time.

The *Federal Home Loan Mortgage Corporation* was created as a subsidiary of the Federal Home Loan Bank Board in 1970, pursuant to one portion of the Emergency Home Finance Act of that year. It is authorized to maintain a secondary market in residential mortgages including multifamily dwellings and was created to be particularly attuned to the needs of the thrift and other depository institutions. The bulk of its activity is in conventional mortgages, and only a small amount is in mortgages insured by the Federal Housing Administration (FHA) or guaranteed by the Veterans Administration (VA). In the eight years of its existence, FHLMC has tapped the credit markets in several ways, two of which are not generally considered part of the market for agency securities. These are its direct placement of issues with state and local governments and its continuous sale of certificates of participation in groups of mortgages which "pass through" principal and interest at monthly intervals. Included in the agency market, however, are two other types of

mortgage-backed securities which have the characteristics of bonds. These are securities issued by FHLMC and guaranteed by GNMA and, a more recent innovation, FHLMC-guaranteed mortgage certificates. On December 31, 1977, \$1.7 billion of these last two groups of securities was outstanding, the smallest total for any of the sponsored agencies.

The *Federal National Mortgage Association*, the third of the Federally sponsored housing agencies, originated in 1938. FNMA was rechartered in 1954 to distinguish between its public and essentially private functions and was divided into two separate corporations in 1968. These two entities are the privately owned FNMA, from which Government funds were retired in 1968, and the Federally owned Government National Mortgage Association.

FNMA was initially established to provide a secondary market for FHA-insured mortgages and ten years later, in 1948, was also authorized to purchase and to sell VA-guaranteed mortgages. FNMA's activities were restricted to insured and guaranteed mortgages until the Emergency Home Finance Act of 1970 empowered it to deal in conventional mortgages as well. However, most of its portfolio is still composed of insured and guaranteed mortgages. FNMA is by far the largest of the sponsored agency borrowers with outstanding debt of over \$31 billion at the close of last December. In addition, FNMA had bonds totaling about \$550 million directly placed with state and local governments. The bulk of FNMA's outstanding debt was in the form of medium- and long-term debentures though it also owed close to \$2 billion in short-term discount notes. Included in FNMA's outstanding debt is a small amount of GNMA-guaranteed mortgage-backed bonds which FNMA issued several years ago.

Federal agencies

Since the Federal Financing Bank began operations in mid-1974, none of the Federal agencies have issued new securities in the agency market. Instead, they have sold their securities to the FFB with the exception of GNMA which borrows directly from the Treasury. The market debt of the Federal agencies is restricted to issues sold prior to 1974.

As of year-end 1977 the largest amount of debt still outstanding among the partially or wholly owned Federal agencies was the \$3.9 billion of *Farmers Home Administration* insured notes. This agency in the Department of Agriculture extends loans in rural areas for farms, homes, various types of community facilities, and the establishment of rural business and industry. Its loans to individuals are primarily to those who cannot obtain needed credit on suitable terms elsewhere. The FmHA sold insured notes to the public representing participations in its loans. For accounting purposes, these notes are treated in the Federal budget as a sale of assets rather than a debt liability of FmHA. They are, however, marketable securities which are in-

sured by an agency in the Federal Government.

The \$3.7 billion of *Government National Mortgage Association* participation certificates was the second largest volume of Federal agency debt outstanding on December 31, 1977. These mortgage-backed certificates were sold prior to the 1968 division of FNMA and were assumed by GNMA after its formation. GNMA, an agency in the Department of Housing and Urban Development, assists in financing residential mortgages originated under subsidized Federal housing programs established by the Congress or the President. The funding of GNMA's activities other than by participation certificates is primarily through borrowing from the Treasury and sales of some mortgages. As of mid-1977, its debt to the Treasury totaled \$5.1 billion.

The *Export-Import Bank* is a wholly Government-owned corporation which assists in the financing of United States exports through either direct loans to foreign importers or the issuance of guarantees and insurance. In existence since 1934, the bank has some \$2.7 billion of outstanding debt in the agency market.

The *Tennessee Valley Authority* is another wholly Government-owned corporation with a sizable volume of bonds outstanding with the public. TVA participates in the economic development of the Tennessee Valley and its activities include electric power production, flood control, forestry, and wildlife development. TVA's power program is financially self-supporting or funded from the sale of securities, while most of its other activities receive Congressional appropriations. At year-end 1977, \$1.8 billion of TVA bonds was outstanding in the agency market.

Each of the *remaining Federal agencies* in the agency market has less than \$1 billion in public debt outstanding. These are the General Services Administration and the United States Postal Service, which are both agencies in the executive branch of the Government.

GSA, which manages the Government's property and records, has outstanding debt consisting of certificates of participation in Government building projects which were sold to the public in 1972-73. Under the Postal Reorganization Act of 1971, the PS was granted the power to issue debt obligations to finance capital expenditures and current operations. It sold one issue to the public in 1972 but did not borrow in the market after that.

Washington Metropolitan Area Transit Authority

WMATA was established in 1967 under the joint auspices of Maryland, Virginia, and the District of Columbia. It was created to develop and operate mass transit facilities in the Washington metropolitan area. Construction of the facilities is financed through Federal and local government contributions and from the issuance of Federally guaranteed bonds. WMATA sold bonds to the public in 1972-74 but, like most of the Federal agencies, has borrowed from the FFB since then.

The business situation Current developments



The first signs of spring brought a spirited recovery to the United States economy after the winter's stagnating activity. Sales, production, and employment were all bounding upward by March (Chart 1), and fragmentary evidence pointed to a further quickening of the pace of business in April. Unfortunately, inflation appeared to be heating up even during the winter doldrums. To be sure, the most noticeable price increases were on food products whose supplies had been disrupted temporarily by severe weather conditions. But the underlying inflation rate appeared to have moved up a notch as well, spurred by the renewed vitality of aggregate demand, possibly deteriorating agricultural supply conditions, the aftermath of earlier declines in the value of the dollar on the foreign exchange markets, and a multitude of governmental measures that have the incidental effect of putting upward pressure on prices.

Unusually cold and stormy weather severely hampered business activity over much of the nation this past winter. The 110-day bituminous coal strike was an additional depressant in the Midwestern region. The Department of Commerce estimates that those two factors shaved 2½ to 3 percentage points from the growth of real gross national product (GNP) in the first quarter of 1978. According to preliminary estimates, real GNP decreased slightly in the first quarter, at an annual rate of 0.6 percent. If it withstands subsequent revisions, that will have been the first decline in real GNP since the opening quarter of 1975, which marked the nadir of the last recession.

The depressant effect of the weather was evident in the pattern of spending that emerged in the first

quarter. Especially hard hit was construction activity—residential and commercial—and easily postponable consumer purchases of automobiles and household durable goods. Government expenditures also declined in real terms, and the balance of net exports of goods and services deteriorated further, according to preliminary and incomplete data. On the other hand, consumer purchases of services increased rapidly, and business investment in producers' durable equipment continued to rise modestly in real terms.

The winter's disruptions apparently affected final sales more than production. Consequently, inventory accumulation is estimated to have increased in the first quarter from the relatively slow fourth-quarter pace. Based on data through February, inventories generally appeared to be comfortable. Inventory-sales ratios were below year-ago levels except in the retail trade sector. Domestic automobile inventories loomed especially large in relation to slumping sales in January and February. The March resurgence in auto sales, however, substantially reduced the stock-sales ratio.

In March, industrial production recovered strongly from the winter slowdown. After dropping 0.8 percent in January and showing a rise of only 0.3 percent in February, industrial output rose 1.4 percent in March. The rise was widespread except for declines in output of utilities. Production of consumer goods was especially strong, with the largest gains in production of automobiles and household durable goods. Output of business equipment, construction supplies, and materials all posted sizable increases as well. And output of mines rose sharply with the end of strikes in the iron ore and coal industries.

The prolonged strike of 160,000 coal miners never did have the dire consequences that some had predicted. Midwestern utilities were able to stretch fuel supplies with the help of voluntary conservation measures by customers, conversion to oil or gas generating capacity, availability of Western and nonunion coal supplies, and purchases of power from other utilities. Some moderation in the weather after January also facilitated declines in power consumption in February and March. According to a special survey conducted by the Bureau of Labor Statistics, layoffs of factory workers precipitated by the coal strike peaked at only 25,500 in early March. Upon the settlement of the strike, coal production quickly returned to normal and was running above year-ago rates by early April.

Employment growth was strong throughout the winter. Apparently looking beyond the temporary dislocations in production and sales, employers added successively larger numbers of workers to payrolls during the first three months of the year. For the first quarter as a whole, nonfarm payroll employment grew at an unusual-

ly rapid 4.4 percent annual rate. (The returning coal miners will show up in the April data.) The gains were widespread among industries. Nearly three quarters of 172 nonfarm industries surveyed reported increased employment in March. The average factory workweek, which had fallen sharply in January and remained relatively short in February, returned to normal in March. The unemployment rate fell to an average of 6.2 percent in the first quarter from 6.6 percent in the preceding quarter, as the proportion of the population with jobs rose to a new postwar high.

Consumer spending began to recover in February, when retail sales rose 3 percent after declining 3.5 percent in January. Sales rose 1.9 percent further in March. The February increase in retail activity was broadly based, with an especially large rise in sales of household durable goods after a sharp drop in January. The early Easter and a series of dealer sales-incentive contests by automobile manufacturers make the significance of the March sales gains rather difficult to assess. Sales of new domestic-type automobiles recovered strongly in March, rising to a seasonally adjusted annual rate of 9.9 million. By comparison, 9.7 million domestic-type cars were sold in the peak year of 1973. Sales strengthened a bit more in the first twenty days of April. Imported cars continued to sell well, at least through March, in spite of a succession of price increases in recent months.

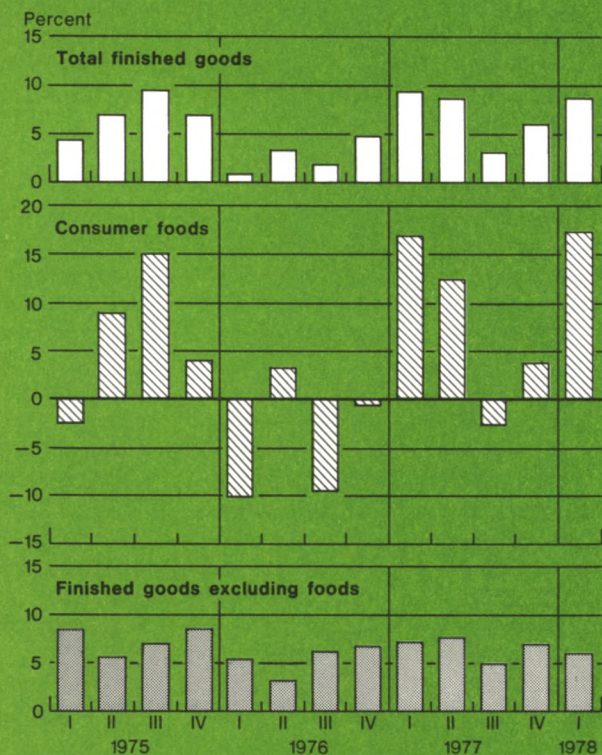
Construction activity quickened in March after two months of weather-related disruptions. Private housing starts rebounded to a seasonally adjusted annual rate of 2.07 million units, but that was still below the 2.15 million rate of starts in the fourth quarter of last year. Starts of single-family dwellings, in particular, remained below the record pace of the fourth quarter. Starts of multiple-unit buildings, on the other hand, climbed in March to the highest rate since early 1974. Government assistance programs, rising rents, and historically low rental vacancy rates may stimulate further increases in apartment construction, which is still running well below the 1972-73 record.

The near-term prospects for business capital spending also look bright, although the longer term outlook remains cloudy. The Commerce Department's survey of plant and equipment spending plans, taken in January and February, indicated a disappointing 10.9 percent increase in 1978 over last year's level. Most forecasters look for a somewhat stronger growth in capital spending, and some indicators seem to be consistent with that view. For example, new orders for nondefense capital goods increased 6.5 percent in the first quarter of 1978 over the rate of the preceding quarter. These orders were 20 percent higher than a year earlier. Similarly, construction contracts for com-

Chart 2

Producer Prices of Finished Goods

Quarterly changes at annual rates



All data are seasonally adjusted.

Source: Bureau of Labor Statistics.

mercial and industrial buildings, measured in terms of floor space, rose 8 percent from the fourth to the first quarter. According to the F. W. Dodge Division of the McGraw-Hill Information Systems Company, such contracts in the first quarter of 1978 were up 26 percent from a year earlier.

The pace of price increases quickened during the early months of 1978. According to preliminary estimates the broadest measure of prices, the implicit price deflator for GNP, increased in the first quarter at an annual rate of 7.1 percent. That was up from 5.9 percent in the fourth quarter of last year and an average of 5.4 percent during the past two years. In part, the uptick in prices reflected temporary effects of the harsh winter weather in interfering with agricultural supplies. As shown in the middle panel of Chart 2, producer prices (formerly known as wholesale prices)

of consumer food products spurted at an annual rate of 17.3 percent in the first quarter. At the same time, producer prices of other finished goods, shown in the bottom panel of Chart 2, rose at an annual rate of 6 percent, which was in line with the average increases over the past two years.

The consumer has yet to feel the full brunt of the price pressures that built up during the winter. Some of the increases in producer prices of finished goods may be passed on to consumers in the near future. Furthermore, some of the sharp, first-quarter increases in prices of crude materials—including plant and animal fibers as well as many foodstuffs—have yet to be passed through to prices of finished products. The first ripple from the coal labor settlement surfaced in early April with the \$5.50 per ton increase in steel prices. According to the latest survey of the National Association of Purchasing Management, 64 percent of respondents reported paying higher prices in April, up from 25 percent as recently as last November.

The longer run price situation is also disquieting. Most forecasters look for an expansion in economic activity during the next several quarters strong enough to shrink further the margins of unused labor and capital resources, which may lead to an intensification of price and wage pressures. Widening ripples may be expected from the coal labor settlement, which is estimated to yield increases in wages and benefits totaling about 39 percent over the three-year life of the contract. While the coal industry has not traditionally been a pattern setter in labor negotiations, some observers feel it may have established a target for future settlements in other industries. The depreciation of the dollar on the foreign exchange markets has already forced up the prices of certain imported goods and facilitated increases in prices of domestically produced goods that compete with imports, and more increases may well be in the offing. Many governmental policies threaten to put further upward pressure on the price level: increased farm price supports, "set aside" programs to restrict output of wheat and feed grains, import restrictions, and myriad regulations that raise business costs. Increases in payroll taxes and in the minimum wage contributed materially to the 14 percent annual rate of increase in compensation per hour worked in the private business sector during the first quarter. Unless modified, further increases that have already been legislated will continue to raise labor costs in the future. In short, there has been cause for increased concern over the outlook for inflation. But that heightened concern is now also being reflected in public policies, including President Carter's call for a cooperative anti-inflationary effort on the part of Government, business, and labor.

Mandatory retirement: issues and impacts

The average age of Americans is increasing. The United States Bureau of the Census estimates that in the next fifty years the proportion of our population aged sixty-five or older will rise sharply from its current level of ten in one hundred to seventeen in one hundred. This demographic change has heightened public concern over protecting the civil rights of the elderly and assuring them of continued economic support in retirement. Such concern recently resulted in President Carter's signing of legislation that raises the age of mandatory retirement from sixty-five to seventy. Several states and municipalities already had enacted similar bills.¹

Although mandatory retirement is unpopular with the public, little study has been made of its import for the American economy. This essay reviews the issues surrounding mandatory retirement and explores some of the potential impacts of the new legislation on this country's retirement patterns, unemployment rates, and costs of supporting the elderly. It concludes that an increase in the age of mandatory retirement is unlikely to reverse the trend toward early retirement. The legislation will probably have little effect on unemployment and will generate only modest savings to pension plans and the social security system. Over time, however, the law could lead to important changes in the structure of job opportunities so as to accommodate better the increasing number of older employees.

¹ In 1976, Florida became the first state to prohibit mandatory retirement of public employees. In 1977, California outlawed mandatory retirement in the private sector and relaxed such provisions for public employees as well. The same year, Maine banned compulsory retirement in the public sector and planned to extend such legislation to private employees, while Los Angeles and Seattle eliminated mandatory retirement at age sixty-five among municipal workers.

Mandatory retirement in the United States

Before the turn of the century, Bismarck's Germany viewed age sixty-five as the bench mark for retirement, but the practice was not introduced into the United States until the time of World War I. It gained widespread recognition when, in 1935, the Social Security Act adopted sixty-five as the age at which workers covered by social security could collect retirement benefits. This decision undoubtedly had a profound impact on the public's perception of retirement age and, thereafter, an increasing number of private and public pension plans established sixty-five as the age of eligibility for retirement benefits. Indeed, the extent to which retirement at age sixty-five had become institutionalized in American society was reflected in the Age Discrimination Act of 1967, which protected workers from dismissal because of age only until they reached sixty-five. Thus, in general, it was both socially and legally acceptable to require an employee to step aside at sixty-five. Sixty-five was maintained as the "normal" age of retirement despite greatly extended life expectancies which have resulted from improved nutrition and medical care. In Bismarck's day, most workers did not live until retirement at age sixty-five. In fact, if the retirement age had increased with longer life expectancies, today's equivalent age would be between seventy-five and eighty. Accordingly, there has been a marked increase in the proportion of a worker's life spent in retirement.

An employer administers a policy of mandatory retirement if he requires employees to step down at a predetermined age. The pattern of mandatory retirements in this country is not completely uniform. Although most forced retirements do occur at age sixty-five, smaller numbers also are observed both earlier and later. Among persons required to retire

earlier, sixty-two is the most common age. Mandatory retirement at sixty-two, if part of a pension plan, was *not* in violation of the law because bona fide pension and retirement programs were exempt from coverage by the Age Discrimination Act. Most Federal employees face mandatory retirement at age seventy.

Since provisions of private pension plans result in the vast majority of forced retirements, it is instructive to examine briefly the workings of such programs. Nearly all plans define a "normal" age of retirement, usually sixty-five, at which an employee becomes eligible to receive retirement income provided his age and service record entitle him to vested rights in the pension fund. Relatively few plans call for unquestioned compulsory retirement at the normal age. Instead, at the employer's discretion, the employee may continue to work for several more years, often until sixty-eight, at which time he must retire regardless of his performance on the job. In practice, most employers strongly encourage retirement at the normal age. The structure of the plans serves to induce the employee to step aside at the normal age because, in most instances, his pension will not rise with additional service. Indeed, an increasing number of plans encourage retirement before the normal age by offering only slightly reduced pension payments to those who retire, say, at sixty-two or even earlier.

The incentives of American private pension plans differ substantially from those in other countries. In Western Europe, where in many other respects society is structured in a manner similar to ours, pension plans encourage the elderly to continue working. The incidence of plans calling for compulsory retirement is lower there than in the United States, and often retirement benefits are augmented by years of service contributed after reaching the pensionable age.

It is difficult to gauge with accuracy the number of persons in the United States subject to mandatory retirement. Private pension plans currently cover an estimated 31 million workers, of which roughly 16 million are subject to some form of mandatory retirement.² Federal Civil Service and other government

pension programs extend like provisions to another 13 million,³ bringing to 29 million the number of Americans working on jobs covered by rules mandating compulsory retirement. Thus, although some individuals not covered by pension programs are subject to forced retirement, it appears that approximately 30 percent of the work force faces eventual mandatory retirement. Of course, the number of employees mandatorily retired in accordance with officially announced company rules may understate the actual number of persons forced from their jobs because of age since some employers may adopt an informal policy designed to pressure elderly employees into retirement.

Review of the legislation

In March of this year, a joint House-Senate committee reached agreement on a measure to amend the Age Discrimination Act by abolishing mandatory retirement for most Federal employees, increasing to seventy the age of individuals protected by the act and rescinding the exemption previously granted to those provisions of existing pension programs that expressly require retirement before age seventy. This last provision is of most importance because, as noted earlier, the majority of mandatory retirements result from the observance of terms of pension plans. With the exceptions discussed below, the amendments prohibit the forced retirement of workers less than seventy years old by reason of their age alone. The bill, which passed both the House and the Senate by near-unanimous votes, was signed into law by President Carter on April 6.

The law becomes effective in three steps. Immediately upon enactment of the legislation, the exemption granted pension plans under the Age Discrimination Act was rescinded. This voided those provisions, currently incorporated into a small number of pension plans, that compel the retirement of employees before age sixty-five. Next, effective September 30 of this year, mandatory retirement will be completely abolished for most Federal employees. Finally, as of January 1, 1979, the coverage of the Age Discrimination Act will be extended to persons up to seventy years of age.

The law allows several exemptions. Persons subject to mandatory retirement under terms of a collective bargaining agreement in effect on September 1, 1977 are not covered by the amended act until the expiration of the agreement or until January 1, 1980, whichever occurs first. As in the original act, occupations for which age is a bona fide qualification, such as

² Private pension coverage in 1974 was put at 29.8 million by A.M. Skolnik, "Private Pension Plans, 1950-1974", *Social Security Bulletin* (June 1976), pages 3-17. Allowing for some growth over the last three years would bring the figure to about 31 million. In 1971, an estimated 58 percent of those covered by private pensions was also subject to mandatory retirement; see H.E. Davis, "Pension Provisions Affecting the Employment of Older Workers", *Monthly Labor Review* (April 1973), pages 41-45. A figure of 45 percent for 1974 is cited by D.R. Kittner, "Forced Retirement: How Common is It?", *Monthly Labor Review* (December 1977), pages 60-61. Although there is other evidence to suggest a fall in this proportion, Kittner's estimate seems to exaggerate the decline. Therefore, an average value of 52 percent was applied to the 31 million to yield an estimate of 16 million persons who are in private pension plans and subject to mandatory retirement.

³ Nearly all Federal employees are subject to mandatory retirement, and 79 percent of state and municipal pension programs also include such provisions. The latter figure is cited by W.C. Greenough and F.P. King, *Pension Plans and Public Policy* (New York: Columbia University Press, 1976), page 127.

police work, fire fighting, and other jobs entailing unusual risk, are not covered by the new amendments. Nor are persons working in an establishment with less than twenty employees. An executive or policymaker can still be retired at sixty-five if he or she stands to receive in excess of \$27,000 per annum in employer-financed retirement income, and tenured professors at colleges and universities can be retired at sixty-five until July 1, 1982. The law does not prevent employers from dismissing older workers for good cause other than age.

As noted earlier, most pension programs do not grant an employee increased benefits if he works beyond the normal age of retirement. The new legislation does not address this practice. The Department of Labor is charged with the responsibility of rewriting regulations governing the administration of pension programs. Although new guidelines have not yet been issued, the history of legislation involving pension plans suggests that, as in the past, most employees working beyond the normal retirement age will not be entitled legally to additional benefits.

Discrimination and costs to employers

Discrimination in the labor market may be said to exist when personal characteristics other than productivity are a factor in determining an individual's status in the labor force. In a labor market where wages always reflected productivity, the wage of an aging employee who suffered a decline in productivity would fall accordingly so that his service would remain profitable to the employer. Under these circumstances, employers would perceive no need for a policy of mandatory retirement, and there would be little discrimination against aging workers.

In reality, matters are more complex. If an employer reduces the wage of aging workers whose productivity has fallen, he risks damaging the morale of his employees and is likely to attract widespread criticism for his treatment of the elderly. Two alternatives to reducing wages are to utilize better the employee's deteriorating skills by assigning him to a less demanding position or, in the extreme, simply to fire him. These options will also prove highly unpopular. In addition, disagreement between employer and employee concerning the employee's ability to continue work may result in litigation involving age discrimination, further burdening firms with the costs of legal proceedings. Companies can elect to avoid all these difficulties by permitting the continued employment of workers whose productivity has fallen relative to the wage rate. This strategy, of course, is also costly.

The evolution of mandatory retirement in this country can be viewed, in part, as an attempt of employers

to cope with the problems presented by aging workers. An employer realizes fully that by administering mandatory retirement, he must pay the costs of losing some very capable employees and of contributing to the pensions of his retired workers. Nonetheless, by establishing a normal age of retirement which is accepted by participants in the labor market, it is possible both to replace aging workers without humiliating them and at the same time to avoid the onus of dealing with the particulars of individual retirements. Therefore, mandatory retirement, when combined with pension plans and the social security system, may be an economically efficient method of creating opportunities for promotion among younger employees while assuring retirees both a sense of dignity and reasonable levels of economic support.

However, in a labor market where workers are subject to mandatory retirement, an older employee is judged by a personal characteristic, *i.e.*, age, which often is unrelated to his productivity. This constitutes discrimination which, in itself, is undesirable. Nevertheless, a question of importance is whether the gains to society from the elimination of discrimination attributable to mandatory retirements more than offset the costs to firms of developing and administering judicial policies regarding the treatment of older workers.⁴ The ease with which the legislation passed the Congress emphasizes the extent of governmental interest in the reduction of whatever discrimination exists under our current institutional arrangements.

Unemployment

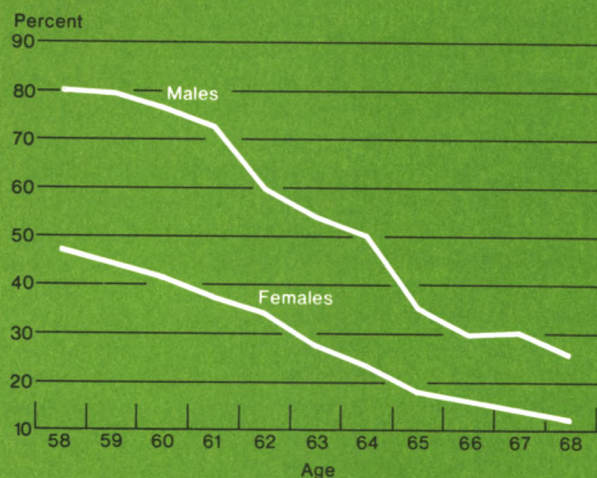
When an individual retires from the labor force, his former position is often filled by promotion of another relatively experienced employee. This chain of promotions continues until, finally, an entry level position is made available to a young and relatively inexperienced worker. Therefore, one frequently voiced argument against raising the age of mandatory retirement is that doing so will both jeopardize the advancement of minorities, who only recently gained access to entry level openings, and drive up the national unemployment rate by denying job opportunities to young workers.

A 1968 survey of newly entitled beneficiaries of the social security system revealed that roughly 30 percent of men and 27 percent of women who retired at age sixty-five were compulsorily retired but wished to

⁴ Some companies have already developed such plans. At United States Steel, for example, production workers can continue to work regardless of age provided they pass a yearly physical examination.

Chart 1

Labor Force Participation Rates Among the Elderly in 1977



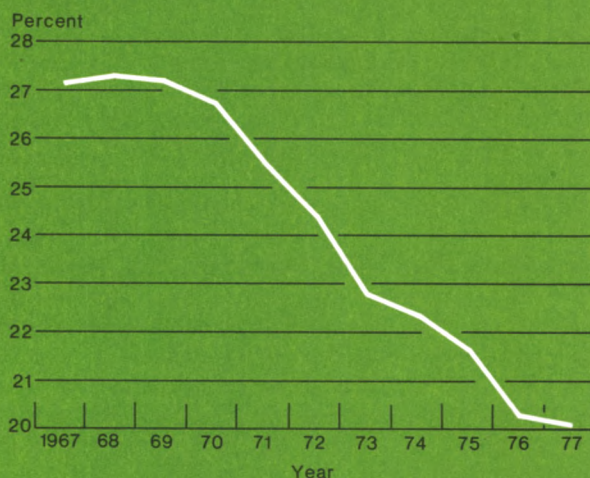
Source: United States Department of Labor, Bureau of Labor Statistics.

have continued at their former jobs.⁵ When these percentages are applied to the number of men and women who retired in 1977, they suggest that a total of only about 40,000 individuals were involuntarily retired from their work at age sixty-five last year. The effect of the legislation will continue to accumulate fairly rapidly over a five-year period, during which time an estimated 200,000 persons will be affected. Thereafter, as workers turning seventy are mandatorily retired, the total number of employees between the ages of sixty-five and seventy will increase more slowly as the percentage of the population over sixty-five increases. These figures suggest that the impact of the new law on unemployment is likely to be surprisingly small in the near term. The figure of 200,000 represents only about 2/10 percent of the labor force! As the percentage of the population over sixty-five grows, however, the impact could become more substantial. Furthermore, the figures do not capture those who, because of their age, were informally pressured into retirement and subsequently withdrew from the labor force.

⁵ United States Department of Health, Education, and Welfare, Social Security Administration, *Reaching Retirement Age* (Washington, D.C., 1976). The figures cited in the Social Security Administration's study are somewhat smaller than those reported in a 1974 survey conducted by Louis Harris and Associates. The Harris poll found that 37 percent of retired employees had been "forced into retirement".

Chart 2

Labor Force Participation Rates for Men Aged Sixty-Five and Older



Source: United States Department of Labor, Bureau of Labor Statistics, Employment and Earnings.

There are, however, reasons to believe that in the long term the labor market will be better able to accommodate both old and young workers. Although an individual's energy and physical resources generally do decline as he reaches advanced age, his skills and accumulated experience still represent valuable assets. Many firms would prefer to keep these employees if given more leeway to adjust the wages and responsibilities of aging workers to reflect their deteriorating skills. Current public attitudes often make such adjustments difficult. However, raising to seventy the age of mandatory retirement greatly increases the costs of employing until retirement age those workers whose capabilities are waning. As a result, many older persons who wish to continue to work may simply be dismissed unless they adopt a realistic view of their declining productivity. Therefore, under the new legislation, both employers and employees can benefit by restructuring careers to achieve a better matching of older workers with jobs that otherwise would not have existed or would have gone unfilled. For example, an aging but experienced foreman might be kept on at a reduced wage in an advisory role. This type of gradual withdrawal from the labor force by older employees makes possible the promotion and hiring of other workers. In this case, postponed retirement need not aggravate unemployment among the young.

There are other reasons to discount the importance

of the impact on the unemployment rate of raising the age of mandatory retirement. First, if a worker is mandatorily retired and at the same time a younger worker is hired, the unemployment rate will *not* fall unless the older worker forced from his job withdraws from the labor force. If he stays in the labor force as an unemployed worker, the overall unemployment rate remains unchanged although the age distribution of unemployment does shift against the elderly. If he succeeds in finding new employment, the overall unemployment rate falls. Second, the unemployment rate fails to include those persons who, following mandatory retirement, withdrew from the labor force but wished to have continued at their former jobs. Therefore, the official measure of unemployment understates the actual extent of discontent among workers, and any increase in unemployment resulting from postponed retirements cannot be interpreted as a decrease in national well-being. Rather, it may merely reflect the accurate measurement of unemployment which previously went undetected but now will be shifted onto younger workers where it can be captured in the official statistics.

In sum, although the new law's impact on unemployment may increase as the percentage of the population over sixty-five rises, the near-term effects appear to be small in percentage terms. Even the long-run effects should be limited, provided there is no dramatic reversal of the trend toward early retirement already under way in this country.

Retirement patterns in the United States

The estimates presented above were based on the Social Security Administration's 1968 survey of its newly entitled beneficiaries. There are, however, several reasons to question the precision of that survey. First, the results are ten years old and do not reflect more recent changes in the attitudes of workers toward retirement. On average, employees now seem to prefer retiring earlier than they did then, so that the survey's results may overstate the degree of involuntary retirements at age sixty-five. Yet, even if current, such a survey remains problematic. The pressures of living in a work-oriented society could lead respondents to disguise their true feelings by stating a preference for work over leisure. Furthermore, the timing of the survey creates difficulties. Retirees were canvassed shortly after withdrawing from the labor force and may have had insufficient time to assess accurately their sentiments regarding retirement. Given the various biases inherent in the responses, it is important to attempt to infer the extent of involuntary retirement, not from such surveys, but from the actual patterns of retirements observed in this country.

Many people retire either at age sixty-two or at age sixty-five. This fact is clearly reflected in the sharp declines in the labor force participation rates of both men and women of these ages (Chart 1). By far the most common age at which companies apply rules governing mandatory retirement is sixty-five. Such practices could account for the drop in participation rates observed at that age. On the other hand, an employee with prospects of substantial retirement income might be willing to withdraw from the labor force at sixty-five, desiring to have more time to pursue interests not related to employment. The inducement is particularly strong for those with health problems which, although not totally debilitating, render work difficult. Therefore, since workers aged sixty-five usually are eligible for full social security benefits and often are eligible for pension income as well, it is not easy to discern whether a "compulsory" retirement at age sixty-five is voluntary or not.

Some insight into this dilemma is provided by considering the drop in labor force participation which occurs at age sixty-two. Few pension programs force automatic retirement upon an employee at that age. On the other hand, many plans do make available reduced payments to those retiring before sixty-five, and actuarially reduced social security benefits can be collected by those eligible at age sixty-two. Thus, existing institutional arrangements allow one to conclude that many of the retirements occurring at age sixty-two are determined principally by the availability of retirement income, and this conclusion suggests that the same might be true of retirements among those aged sixty-five.

Supporting evidence for this view is provided by Michael Boskin, who studied the decision to retire of one hundred and thirty-one white married men between the ages of sixty-one and seventy.⁶ His results suggested that for couples with a potential combined social security pension of \$4,500 per year, the availability of this retirement income had over three times as much influence on the husband's decision to retire as did social customs and institutional arrangements which might have pressured these men into retirement at age sixty-five. Furthermore, Boskin's study may understate the impact of income on the decision to retire because he did not have adequate data on the availability of retirement income from private pension programs and public plans other than social security.

In any event, it is clear that a trend toward earlier rather than later retirement has been under way in the United States for some time. Since 1956, when women

⁶ Michael Boskin, "Social Security and Retirement Decisions", *Economic Enquiry* (January 1977), pages 1-25.

became eligible before age sixty-five to collect early retirement benefits under the social security program, the proportion of those eligible who actually collected such benefits has risen steadily to a figure now in excess of 55 percent. In 1961 men were granted the same privilege, and the proportion of those eligible who exercised the option has grown rapidly to over 48 percent. The number of private and other public pension plans offering the option of early retirement is also on the rise.

The latter two developments are clearly reflected by the decline during the last decade in the labor force participation rate of men over the age of sixty-five (Chart 2), and at least part of the decline should be attributed to the concurrent sharp rise in the ratio of retirement to pre-retirement earnings stemming from the liberalization of pension and social security benefits. Whether the abolishment of mandatory retirement at age sixty-five will result in a substantial lengthen-

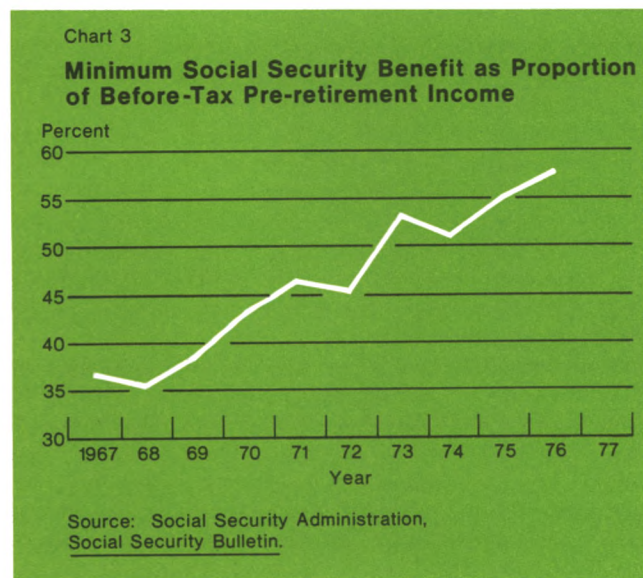
ing of careers depends, in part, on the future movements of this ratio. In recent years, the proportion has pressed upward strongly, principally as a result of the "overindexation" of social security benefits with respect to inflation (Chart 3). The recent social security act removed this feature, so that the rise in the ratio of retirement income to pre-retirement earnings will likely ease in the near future. In this case one might well observe moderation in the move toward early retirement, but a reversal of the trend is highly unlikely.

Costs of supporting the retired

The costs to society of supporting the retired portion of the population through the social security system and pension plans depend on two factors: the level of benefits relative to pre-retirement earnings and the proportion of the population achieving retired-worker status. Although, as noted earlier, growth in the ratio of retirement to pre-retirement income should moderate in the near future, it is difficult to predict this factor accurately. However, one certainty is that during the next twenty years the proportion of the population aged sixty-five or older will grow quickly as a result of the decline in birth rates following the surge of the early fifties. This alone will cause substantial increases in the costs of maintaining our retirement programs.

It has been suggested that raising the age of mandatory retirement to seventy is an effective way to lessen the burden on future generations of supporting retired workers, since those who prolong their careers would continue to pay social security taxes without drawing either social security or other pension benefits. Cost reductions will occur, however, only to the extent that careers are in fact lengthened, and the discussion presented here holds little promise for a reversal of the trend toward earlier retirement. Therefore, although the legislation will help improve the financial positions of retirement programs, the resulting savings to such plans are not likely to be dramatic.

Joel L. Prakken



The financial markets

Current developments



After remaining virtually flat for more than two months, interest rates began to rise in late March, as they had in early January and the latter part of 1977. Among the factors that contributed to the steadier environment during most of the winter were the slowing in the expansion of business activity and unexpectedly sluggish growth of the monetary aggregates. These developments tended to offset the concern over inflation and the weak performance of the dollar in foreign exchange markets. However, toward the end of March, investors became more apprehensive and rates once again began to rise.

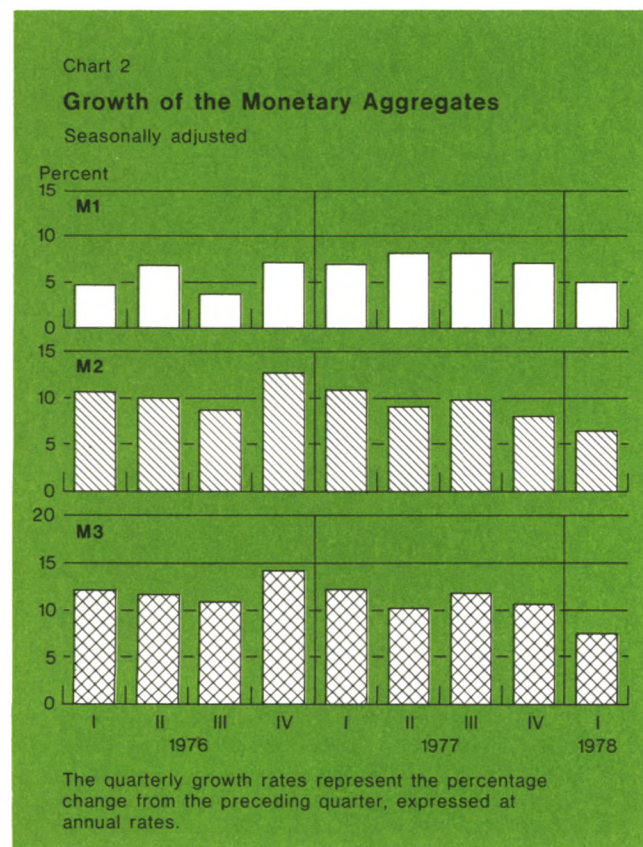
Anchored by the stability of the Federal funds rate, most short-term market yields varied very little one way or the other from mid-January through the end of March. Some general upward pressure became apparent at that time as this key money market rate edged up, arousing concern over a possible firming of Federal Reserve policy. Late in April the Federal funds rate did increase from $6\frac{3}{4}$ percent to around $7\frac{1}{4}$ percent and most other short-term rates followed suit (Chart 1).

Interest rates on United States Treasury bills moved somewhat out of step with other money market rates. On January 4 the Board of Governors of the Federal Reserve System and the Treasury Department announced actions that would be taken to check speculation and reestablish order in the foreign exchange markets. This led some observers to expect a decline in foreign central bank purchases of Treasury bills, and yields on these securities rose relative to those on other short-term instruments. However, as time passed, the demand for bills remained strong and the rate dif-

ferential gradually returned to its earlier level.

In the capital markets, yield fluctuations were also moderate during most of the first quarter, with little net change in the level of rates. The more relaxed atmosphere in these markets reflected a decline in new issues of both corporate and municipal securities. Although there was some pickup in March, gross offerings of corporate and municipal bonds in 1978 are running below their levels of last year.

Toward the end of March, long-term yields resumed their upward movement as the market reacted to signs that the economy was rebounding and that inflationary pressures were strong. The announcement of a record United States balance-of-trade deficit in February and the release of revised monetary aggregate data by the Board of Governors on March 23 strengthened expectations that a more restrictive policy stance was likely in the near term. The revisions in the monetary aggregates incorporated bench-mark adjustments for domestic nonmember banks, based on call reports for December 1976 and for March, June, and September 1977, as well as on revised seasonal factors. The bench-mark adjustments were somewhat larger than usual.



The level of M_1 at the end of 1977 was increased by \$1.6 billion, while the growth of M_1 for 1977 was revised up from 7.4 percent to 7.8 percent. Of perhaps greater importance for bond market participants was the impact of the seasonal and bench-mark adjustments on recent monetary growth. They showed that M_1 rose at a 4.3 percent annual rate over the first two months of 1978, compared with the 1.6 percent rate of increase that had been previously reported for this period.

Despite the effects of the data revisions, M_1 growth did ease some in the first quarter, although there was a sharp rise in April. The first quarter's gain amounted to just over 5 percent at an annual rate, the lowest one-quarter advance in more than a year (Chart 2). Nevertheless, for the year ended in the first quarter, M_1 grew 7.3 percent, well above the 4½ to 6½ percent range that the Federal Open Market Committee (FOMC) had projected for the period. For the year ending in the first quarter of 1979 the projected range for M_1 is from 4 to 6½ percent, the same as the range projected for 1978.

Some of the first-quarter moderation in M_1 growth presumably reflects the temporary slowing of economic activity associated with the severe winter weather and the coal strike. But some may also reflect deficiencies in the seasonal adjustment techniques used by the Federal Reserve to adjust financial data.* The adequacy of these techniques has been a source of concern to the System for some time. On March 23 the Board of Governors announced the formation of a committee of experts to assess the applicability of various seasonal adjustment techniques to financial data, with a view to recommending the most appropriate methods to be used. Of particular interest to the Board is the adjustment of weekly and monthly series for the monetary aggregates, their components, and related bank reserve and credit flows.

Due partially to the easing in M_1 growth and partially to a noticeably weaker advance in savings and consumer-type time deposits at banks and thrift institutions, the broader monetary aggregates— M_2 and M_3 —also rose more slowly during the first quarter than they did in 1977. These increases (expressed at annual rates) were 6.4 percent for M_2 and 7.4 percent for M_3 . Both are just below the ranges projected by the FOMC for all of 1978. The projected growth of M_2 for 1978 is 6½ to 9 percent, while for M_3 it is 7½ to 10 percent. At its April meeting the FOMC voted to maintain the

* The March 23 data revisions substantially increased the slow first-quarter growth of M_1 in 1976 and 1977. For 1976 the increase was from 2.9 percent to 4.7 percent, while for 1977 it was from 4.3 percent to 6.9 percent.

same ranges for both M_2 and M_3 for the year ending in the first quarter of 1979.

With market interest rates at or above the Federal interest rate ceilings on savings and small-denomination time deposits at banks and thrift institutions, some decline in the growth of these deposits was to be expected. Evidence of the enhanced attractiveness of other investment alternatives is provided by an increase in the volume of noncompetitive tenders in Treasury bill auctions and by the renewed growth of money market mutual funds. Money market mutual funds first attracted broad attention in 1974 when market yields exceeded deposit rate ceilings by wide margins. In little more than a year, assets of these funds rose from less than \$200 million to nearly \$4 billion. Thereafter, market rates declined and there was no further growth of the funds through the end of last year. In the three months since then, though, holdings of these deposit alternatives have expanded by \$1.5 billion.

Net mortgage lending by thrift institutions has also moderated in recent months, but not so much as deposit growth. Under these circumstances, thrift institutions—particularly savings and loan associations—have added to their nondeposit liabilities in order to meet demands for mortgage credit. Federal Home Loan Bank advances to these associations, the principal source of nondeposit funds, amounted to approximately \$21 billion at the end of February. This is up from \$14 billion in March 1977 and is very close to the record level established in December 1974. These changes in savings and loan association balance sheets have been associated with some deterioration in liquidity positions, as measured by the ratio of cash and investment securities to savings capital and total borrowings. However, this ratio remains well above the values reached in 1973-74, the previous period of sluggish deposit growth.

Commercial banks have experienced a similar tendency for inflows of consumer-type savings and time deposits to fall short of customer loan demands. To service their customers' needs, banks have sought to raise funds in the money market by selling Government securities, issuing large-denomination time deposits which are not subject to Regulation Q interest rate ceilings, and borrowing funds from nonbank sources in the markets for Federal funds and repurchase agreements. (The functioning of the latter markets is discussed in "Federal Funds and Repurchase Agreements", this *Quarterly Review*, Summer 1977.)

The sale of Government securities provided a considerable amount of financing for banks during the latter part of 1977. More recently, banks have focused on other means of raising funds. In particular, they have continued to issue substantial quantities of large-denomination time deposits. In recent months, most of the net new issues have been negotiable certificates of deposit at large banks (CDs). However, other large time deposits, which consist largely of nonnegotiable deposits in excess of \$100,000 at weekly and non-weekly reporting banks, have also been an important source of financing. Indeed, as of March the outstanding volume of these other large time deposits was about 15 percent greater than that of negotiable CDs of large banks.

Over the last six months, weekly reporting banks in New York City have been as active in issuing CDs as banks outside the city, but the growth of CDs has been concentrated in a few very large banks. The moderate issuance of CDs by most city banks presumably reflects the fact that these banks have yet to participate in the rapid expansion in business loan demand that began in early 1977. Historically, the pickup in loan demand at New York City banks tends to lag behind the rest of the country, but the present temporal disparity is somewhat greater than normal.

United States international service transactions: Their structure and growth

Public awareness and discussion of the United States merchandise trade deficit, which exceeded \$30 billion in 1977, has been widespread. However, little attention has focused on the record \$16 billion *surplus* the United States achieved last year on international service, or so-called invisible, transactions. This comparative lack of interest is understandable. Until recently, the balance on invisible transactions was relatively stable and of minor importance in this country's balance of payments. Moreover, the heterogeneous character of invisible transactions discouraged simple analysis. A variety of items fall within the category of services: income on foreign investments, royalties and fees, tourist expenses, and military transfers, as well as transportation, construction, and financial services performed for or by foreigners. No single set of factors explains all of them.

Yet the relative importance of the balance on service transactions has increased markedly in the past five years. Characterized first by modest deficits and later by small surpluses during the 1960's, this balance has moved into substantial and growing surplus during the 1970's (chart).

Service transactions in the balance of payments

International invisible transactions vary in nature. Some types, such as transportation, construction services, or foreign travel expenditures, tend to respond

to the same factors that affect merchandise trade among countries. Others, such as goods purchased and taken home by travelers abroad, supplies purchased by transport companies in foreign ports, or military transfers, actually involve commodity transactions but are treated as invisibles in the United States balance of payments for reasons of analysis and expedience.

Other important invisible transactions, such as investment income or royalties and fees, are different. Investment income represents a link between the current and capital accounts of the balance of payments. It reflects the flow of earnings on assets accumulated abroad through international capital movements in the past. Royalties and fees primarily represent earnings on such things as patents or licenses transferred abroad. Neither of these types of invisibles tends to respond to the same factors that affect international trade in manufactured goods or primary commodities.

Despite the differences among types of services, there is a common denominator. All invisible transactions involve buying or selling a portion of *current* output of the United States and its trading partners. When the United States exports an airplane, it provides to foreigners a portion of the current product of its own resources. Similarly, when it provides a service to the residents of another country, say, in the form of hotel accommodations, transportation of goods, or the use of capital, it also supplies a portion of its

current output. Thus, while service flows normally do not include physical goods that can be seen crossing international borders, their effects on the current account of the balance of payments are the same as those for merchandise trade flows.

The simplest type of invisible transaction involves the international purchase or sale of the output of a service industry. Foreign goods and travelers may be transported by a United States airline. A bank or law firm may perform financial or legal services for foreign clients. An American company may construct a road in a foreign country. Conversely, United States residents may fly on foreign airlines or use foreign banks and law firms. Foreign construction companies may build a bridge or a pipeline in the United States. Invisible transactions such as these comprise about one third of receipts and one half of payments in the United States service account.

Another type of invisible transaction involves purchases of goods by Americans traveling abroad or foreigners traveling in the United States. Since travel expenses are estimated rather than measured directly, the Commerce Department prefers not to distinguish between expenditures on goods or gifts (which, in principle, could be added to the merchandise trade account) and expenditures on services, such as hotel accommodations. Thus, all tourist expenses are treated as invisibles for purposes of balance-of-payments accounting.¹ Paradoxically, this treatment means that wine imported by a United States resident is a merchandise trade transaction, while the same wine purchased abroad on a vacation shows up as a tourist expenditure within the service account.

Treating particular military transactions as services is another example of expedience in balance-of-payments accounting. Reporting problems and difficulties in distinguishing between payments for equipment deliveries and training services makes it desirable to exclude these transactions from merchandise trade data. Since they still involve purchases of currently produced output, they are included in the current account in the service category.

The remaining items, investment income and royalties and fees, make up about one half of receipts and one third of payments in the United States service account. These flows include payments by foreigners for the use of capital—financial, physical, or technological—that was put in place abroad in an earlier period. Conversely, they include payments by United States residents for the use of foreign capital which was invested in this country.

The capital movements are generally reflected in the capital account of the balance of payments. For example, when a United States resident purchases foreign bonds or an American firm acquires a company abroad, there is no trade involving currently produced goods and services. Rather, there is an exchange of money for a claim on foreign assets (portfolio investment, in the first case, direct investment, in the second) which is recorded in the capital account.

However, when an existing foreign subsidiary expands its operations by reinvesting earnings, the reinvestment is not included in the capital account under present accounting practice, although it will lead to investment income flows later on. Moreover, some investment income flows may have their roots in previous sales of capital equipment that showed up as merchandise trade transactions. If an American firm sells a capital good, such as a drill press, to an affiliate abroad, the transaction is recorded as a merchandise export. The drill press will contribute to the earnings of the foreign affiliate. These earnings are in turn repatriated as investment income in the service account. If an American company licenses the use of a patented technique to a foreign subsidiary, the transaction does not enter the balance of payments. But the license fees subsequently received by the parent firm are regarded as payment for the use of technological capital abroad.

The United States balance of payments distinguishes between income earned by overseas branches and by



¹ Payments to foreign air or ocean carriers are reported as a separate item in the United States service account.

Glossary of International Service Transactions

The service account is a composite of many dissimilar types of transactions. The broad categories are: investment income, travel and transportation expenditure, military transfers, and royalties and fees. The published balance-of-payments statistics provide further disaggregation.

Investment income payments and receipts consist of income received from direct investments and other internationally held private and government assets, including securities and bank and commercial loans. Direct investment income is defined as the repatriated earnings of subsidiaries and the total earnings of unincorporated affiliates. Income payments on government liabilities include the interest on advance payments by foreign countries for military equipment.

Royalties and fees measure the payment by firms and individuals for the use of technological capital, other intangible property, and managerial services.

Travel and transportation includes all expenditures connected with the international movement of people and goods, such as passenger fares and the costs of freight. In addition, expenditures on goods and services by travelers outside their country of residence are in-

cluded as transactions in this category.

Military transfer receipts result from the transfers of goods and services to foreign governments under United States military sales contracts. These transfers are recorded at the time of change in title or performance of service. Direct United States defense expenditures abroad, including the personal expenditures of all military personnel on foreign goods and services, constitute the payments side of the military transfer account. Transfers of goods and services under United States military *grant* programs are listed as a separate line in the balance of payments, with the grant value listed as another, completely offsetting, separate item.

A *residual* category includes income and expenditure on private services such as construction, finance, and insurance. Government services not covered elsewhere, such as the expenditures abroad of nonmilitary agencies and personnel, are also entered.

Private remittances, government grants, and other transfers are included in the current account but not in the United States definition of services. The International Monetary Fund does include them in its definition of invisibles.

subsidiaries of American firms.² The profits of branches are recorded as investment income when earned. However, since under present law United States taxes on the earnings of overseas subsidiaries are not due until income is repatriated, only the repatriated income from subsidiaries abroad is reported as a direct investment receipt. Similarly, only the income remitted by subsidiaries of foreign firms in the United States is reported as a direct investment payment. This treatment of direct investment income creates an inconsistency. It runs counter to the basic concept of income as a payment by foreigners for the current use of capital owned by domestic residents. The portion of affiliate earnings that is not repatriated but is reinvested abroad also represents a return for capital services.

For this reason, the Commerce Department is revising the definitions of direct investment income and payments to include all reinvested earnings, which will bring United States practices in line with standard accounting procedures of the International Monetary Fund. The change in the accounts will have a significant effect on the recorded composition of the United States

balance of payments, but not on the total current and capital accounts. Earnings of subsidiaries that are not repatriated will show up as a large positive item in the service account. At the same time, recorded net capital outflows will be increased by an equal amount to reflect the capital reinvested abroad. These revisions are expected to be published at midyear.

Service transactions in income and product accounts

Invisible transactions are a component of the balance on goods and services included in national income and product accounts. They reflect part of the influence of foreign activity on United States production, employment, and national income. However, the extent of this influence depends upon the particular concept of economic activity referred to—gross national product or gross domestic product.

Gross national product (GNP) is the more familiar measure in the United States. The GNP of this country is defined as the market value of goods and services produced by American-owned factors of production—labor and capital—regardless of the geographic location of production or consumption. It can be measured on a product basis by totaling the value of output added in production by these factors. It also

² Branches are defined as unincorporated affiliates which have no legal identity apart from the parent firm. Subsidiaries are incorporated affiliates.

can be measured on an income basis by totaling all incomes received by these factors.³

According to this concept of product accounting, all receipts from the sale of United States goods or services to foreigners net of payments to foreigners are properly included in GNP.⁴ A rise in receipts from the sale of services, either by a service industry or for the use of American capital, increases GNP in the same way as a rise in merchandise exports.

In another sense, however, the effects of items in the balance on goods and services on domestic economic activity and employment do depend upon the geographic location in which the goods are produced or the services are provided. Exporting a good produced in the United States or providing a service to foreign travelers employs factors of production domestically. Receipts in the form of investment income or wages earned by domestic residents abroad do not. They represent income derived from employing factors in foreign production activity. GNP does not distinguish between these two kinds of effects.

To make that distinction, the analyst can turn to an alternative measure of national income called gross domestic product (GDP). It is defined as the market value of goods and services produced by all factors of production within the United States, whether owned by United States or foreign residents. Thus, investment income and wages earned by Americans abroad are excluded from this measure of economic activity. Conversely, investment income or wages earned by foreigners within the United States are included. In 1977, United States GDP was some \$17 billion less than GNP—a difference of about 1 percent.⁵ That result primarily reflects the fact that the United States has

substantial earnings on capital owned abroad by its residents. The percentage difference between GNP and GDP is larger for many countries, and several of them prefer to measure economic activity by GDP rather than GNP.

Trends within the overall service account

Invisible transactions always have been significant items in the United States balance of payments, and they continue to be. In 1977, service receipts (\$56 billion) and payments (\$40 billion) constituted 32 and 21 percent of total goods and service receipts and payments, respectively. For receipts this proportion has remained relatively constant over the last twenty years, since service exports have grown on average at much the same rate as merchandise exports. Over the period 1960-70, service earnings grew 10 percent annually; this growth has accelerated to a 17 percent annual rate since 1971 (chart).

By contrast, the ratio of service imports to total imports of goods and services has fallen since 1960, when services represented almost 40 percent of total imports. Between 1960 and 1970, service imports rose 9 percent annually, compared with an 11 percent growth rate of merchandise imports. Thereafter, service imports rose an average of 12 percent per year, less than half the growth rate of goods imports.

Reflecting these trends, the balance on the overall service account shifted from small deficits to surpluses by 1962. It showed consistent, though modest, surpluses of less than \$1 billion until the beginning of the present decade, when the relatively rapid rise in receipts accounted for a surge in the service balance surplus. Between 1971 and 1977 the annual net surplus on invisibles has averaged \$6.9 billion, larger than the average annual deficit on merchandise trade of \$6.4 billion over this period. In 1977 alone, the surplus from international services was \$15.8 billion.

Trends of service account components

The various categories of invisible transactions reflect disparate types of economic behavior. No single group of factors can explain the service account as a whole. Each major category deserves separate treatment, and in that spirit the following discussion highlights the recent trends (Table 1).

Investment income.

Net investment income dominates the United States balance on international services. Of last year's \$15.8 billion surplus, \$12 billion resulted from net investment receipts. Movements in the overall service balance and in net investment income always have been closely linked. Investment income behavior can be analyzed

³ These two measures are equivalent in theory. However, in practice they are not, and a balancing item, called "statistical discrepancy", is included to make them equal.

⁴ One definitional distinction is that interest payments by the United States Government to foreign residents—an item in the service account of the balance of payments—are *not* included in GNP. The rationale is that United States Government interest paid to foreigners is not generally for services used in current production. An analogous adjustment to the export of goods and services is not made since foreign official interest payments to United States private residents are unknown. Another minor definitional difference is that certain military sales to Israel are treated as grants in the product account rather than service exports. It should be noted that the balance on goods and services included in GNP is generally measured on a product basis, i.e., on the basis of value added by producers. However, in the case of United States capital employed abroad (and similarly for foreign capital in the United States), there is no direct measure of value added in foreign production by American-owned capital inputs. Consequently, the income derived from the investment of these assets abroad is used as an alternative measure.

⁵ The numbers for recent years (in billions of dollars) are:

Year	GNP	GDP
1977	1,890	1,873
1976	1,706	1,692
1975	1,529	1,518

best by distinguishing between income derived from direct investment and income from other private and official assets (Table 2).

The United States has been in a net creditor position on direct investments throughout the postwar period, reflecting the worldwide expansion of United States multinational firms. Direct investments currently amount to over \$140 billion and make up 40 percent of total United States assets abroad. Despite a speedup in recent years, foreign direct investment in the United States totals only \$30 billion, less than 12 percent of total foreign assets in this country. Given the disparity of investment holdings, it is not surprising that income on direct investments has far exceeded payments. The balance on these flows has increased steadily and in recent years has averaged about \$9 billion. In 1977, net inflows amounted to \$11.5 billion.

Year-to-year changes in direct investment income generally have reflected the effects on earnings of changes in business activity abroad. In addition, specific developments affecting United States petroleum affiliates have been especially important since the steep increase in oil prices late in 1973. The relative importance of these factors is illustrated by the pattern of direct investment receipts from 1974 to 1977. Income increased particularly sharply to over \$11 billion in 1974. This gain reflected higher earnings of United

States petroleum affiliates abroad and buoyant earnings of other affiliates. Higher tax and royalty payments to oil-producing countries and depressed earnings among manufacturing affiliates in the developed economies reduced income inflows in 1975. But direct investment receipts rose in the next two years, as general business conditions improved from the recessionary trough and oil demand increased somewhat. Since foreigners' earnings on their direct investments in the United States were small in comparison, these developments dominated the trend in the balance on direct investment income.

Direct investment income is also influenced by the rate at which overseas earnings are repatriated. Important factors include the tax policies or restrictions on profit remittances of host countries. Another influence is the expected exchange rate at which foreign currency earnings would be converted at the time of repatriation. For example, a German affiliate of an American company may delay repatriating its mark earnings if it expects the German currency to appreciate against the dollar.

In contrast to the large net inflows of direct investment income, both receipts and payments on portfolio investments are high. The United States continues to show a net debtor position on official holdings of financial assets. This position has worsened as foreign

Table 1

Balances on Goods and Services

In billions of dollars

Balances on goods and services	1960-70*	1971-73*	1974	1975	1976	1977
Total	4.6	-1.0	2.1	16.2	3.6	-15.4
Net merchandise trade	3.9	-2.6	-5.4	9.0	-9.3	-31.2
Net services	0.6	1.6	7.5	7.1	12.9	15.8
Investment income	3.5	4.5	8.7	5.9	9.8	11.9
Direct investment	3.3	6.3	11.1	7.5	9.8	11.5
Petroleum	1.6	2.9	5.1	2.5	4.1	4.5†
Manufacturing	0.7	1.8	2.5	2.3	2.7	3.2†
Other industry	1.0	1.6	3.6	2.7	3.0	3.4†
Private portfolio investment	0.1	0.2	0.9	1.9	3.3	4.6
Official portfolio investment	0.1	-1.9	-3.2	-3.4	-3.2	-4.2
Royalties and fees	1.3	2.5	3.5	3.8	3.9	4.2
Travel and transportation	-1.4	-2.8	-3.1	-2.5	-2.1	-3.1
Military transfers	-2.7	-2.9	-2.1	-0.9	0.4	1.4
Other services	-0.1	0.3	0.5	0.8	1.0	1.4

Because of rounding, components may not add to totals.

* Annual average.

† First three quarters at annual rate, not seasonally adjusted.

Source: United States Department of Commerce.

authorities have acquired increasing amounts of United States financial assets, primarily Treasury securities, largely as a result of foreign exchange market operations and the investment of surplus earnings by OPEC. Consequently, investment income payments to foreign officials have risen sharply.

The increased outflows on official investments have been offset by higher receipts from private portfolio assets. In recent years, United States residents have greatly increased their financial claims on nonresidents. These increases were triggered by the removal of capital outflow controls in early 1974 and the subsequent demands on United States banks to finance the deficits of petroleum-importing countries. Correspondingly, portfolio receipts have risen with the growth of American financial assets abroad. In addition, the rates of return on these investments normally have been well above the rates on shorter term assets accumulated by foreign authorities in the United States. As a result, the balance on private and official portfolio investment income is now in surplus.

Royalties and fees.

Royalties and fees have shown a strong trend of increasing surpluses for the past fifteen years. The surplus on these transactions now amounts to \$4.2 billion. In large part, this trend can be explained by the activities of multinational firms which are involved in 80 percent of such transactions. Royalties and fees received from the foreign affiliates of multinational firms have risen at an annual rate of more than 13 percent since 1960. This is due in part to the continued position of the United States as a source of technology and managerial expertise. It also reflects the use of royalty and fee payments as a means of remitting income from affiliates.

Travel and transportation.

Historically, the United States has recorded large deficits in the travel and transportation balance. In recent years, this deficit has exceeded \$2 billion a year. Foreign travel and passenger fares are components of the service account that behave most like merchandise trade flows. Like other consumption expenditures, they show some response to cyclical movements of relative income and to changes in prices and exchange rates. For example, in 1973, receipts from these items jumped over 20 percent, partly in response to the cumulative effects of dollar depreciation on the relative costs of travel to the United States.

Nevertheless, the United States travel account deficit has tended to increase over time. Preference for travel is strongly related to income, and income levels in the United States have risen considerably. Differ-

Table 2

The International Investment Position of the United States*

In billions of dollars

Asset holdings	1973	1974	1975	1976
United States assets abroad . . .	222.8	256.2	295.6	347.4
Official portfolio	53.2	54.2	58.0	64.7
Direct investment	101.3	110.2	124.2	137.2
Private portfolio	68.3	91.8	113.4	145.4
Foreign assets in the United States	174.9	197.4	221.0	264.8
Official portfolio	69.6	80.3	87.5	106.3
Direct investment	20.5	25.1	27.7	30.2
Private portfolio	84.7	92.0	105.9	128.3
Net international investment position of the United States . .	47.9	58.8	74.6	82.6
Official portfolio	-16.4	-26.1	-29.5	-41.6
Direct investment	80.8	85.1	96.5	107.0
Private portfolio	-16.4	-0.2	7.5	17.1

Because of rounding, components may not add to totals.

* Investment position is defined as the year-end value of assets adjusted for valuation effects of price changes.

Source: United States Department of Commerce.

ences between countries in the structure of the passenger transport industry may also be significant. American airlines operate internationally at a competitive disadvantage, since most foreign carriers receive preferential treatment and substantial subsidies from their governments. Consequently, the United States share in the international air passenger market, particularly with third countries, has been eroded.

The balance on other transportation items, primarily freight, is closely linked to merchandise trade levels. When the volume of United States imports is high relative to exports, the balance has tended to be negative. In addition, higher ship construction and operating costs in this country have contributed to a declining role for United States ships in third-country trade. A long-term program of maritime transportation subsidies was enacted in 1970 to offset these costs.

Military transfers.

The United States has run deficits in the past on military transactions. Over the period 1960-72, these deficits ranged between \$2 billion and \$3½ billion. However, a sharp rise in military exports since 1973 helped reverse this pattern and produced a surplus of \$1.4 billion in 1977.

In the early 1960's, military expenditures abroad constituted more than 30 percent of service imports. These expenditures rose during the Vietnam war period, although other service outflows rose even faster. The end of United States involvement in Vietnam helped to dampen further growth. However, increased costs stemming from dollar depreciation and inflation kept these defense-related expenditures at a high level in the mid-1970's.

Receipts from United States military sales grew only modestly during the 1960's. They have more than doubled in the last few years, primarily reflecting foreign government demand for sophisticated American military hardware. These new sales have been concentrated in Middle Eastern countries, which currently account for approximately 70 percent of military service exports.

The service accounts of other countries

The importance of international service transactions is not unique to the United States. Services also represent significant items in the balance of payments of other countries. In aggregate, invisible receipts and payments of OECD countries constitute 30 percent of their total goods and service receipts and payments.

Most developed countries abroad, like the United States, have a favorable balance on invisible transactions. For instance, the United Kingdom, which has ac-

cumulated large holdings of foreign assets, has a substantial service surplus. Some of the less industrialized nations in Europe, such as Spain, Greece, and Yugoslavia, have surpluses as well. But these are due in large part to travel receipts, reflecting the role of these countries as vacation centers.

Canada, Germany, Japan, and Australia are exceptions to the pattern for developed countries. They have sizable service deficits. The first three countries have large travel deficits. Canada and Australia show huge income outflows on foreign investment, while Japan and Australia both bear significant transportation costs in international trade.

The developing countries as a group tend to have deficits on invisibles. Countries that have attempted to industrialize the fastest and expanded their demand for foreign capital, expertise, and specialized services have the largest deficits. The oil-producing countries also have relatively large outflows in the form of investment income and other expenses paid to multinational firms which operate the oil wells. These outflows have largely offset the income receipts from their own foreign investments. Brazil, Saudi Arabia, Iran, and Nigeria all have service deficits of over \$3 billion; Mexico, Libya, Venezuela, Iraq, Algeria, and Indonesia, over \$1 billion. South Korea is an exception and has a small surplus, primarily due to receipts on construction and other miscellaneous activities.

Reuven Glick

Monetary Policy and Open Market Operations in 1977

Federal Reserve policy in 1977 worked to encourage a healthy expansion in economic activity without a renewed burst of inflation. Over the year, the economy experienced substantial real growth at a rate that was somewhat above its long-run average. The expansion contributed to a significant reduction in the unemployment rate, from 7.8 percent in December 1976 to 6.4 percent a year later, even though the labor force continued to increase rapidly. Consumer demand remained impressively strong, and a pickup in residential construction provided further impetus to the economy. On the negative side, inflation averaged about 6.5 percent, according to the consumer price index, although there was some slowing in the second half of the year.¹ Gains were uneven in the various domestic sectors, and the United States trade balance with other countries showed a record deficit.

The sustained expansion of aggregate demand gave rise to stronger demands for money than had occurred earlier in the recovery. In 1977, the Federal Reserve

System moved to a position of moderating the pace of monetary expansion. The System responded to several spurts in monetary growth by limiting the availability of bank reserves in relation to demand, so that short-term interest rates rose and exerted a restraint on monetary expansion.

Over the year, growth of M_1 —demand deposits plus currency in the hands of the public—came to 7.8 percent, compared with 5.7 percent in 1976 (Chart 1)² and was above the top of the range for longer term growth that the Federal Open Market Committee (FOMC) had projected earlier. Still, the System's response to this expansion appeared to have an effect over time, and growth of M_1 slowed somewhat toward the end of 1977 and in the opening months of 1978. Rising interest rates also dampened the expansion of time and savings deposits subject to interest rate ceilings. Hence growth of the broader monetary measures— M_2 and M_3 —remained within or only slightly above the upper end of earlier anticipated ranges and was at a slower pace than in 1976. M_2 —which adds time and savings deposits at commercial banks to M_1 —increased by 9.8

Adapted from a report submitted to the Federal Open Market Committee by Alan R. Holmes, Executive Vice President of the Federal Reserve Bank of New York and Manager of the System Open Market Account, and Peter D. Sternlight, Senior Vice President of the Bank and Deputy Manager for Domestic Operations of the System Open Market Account. Sheila Tschinkel, Adviser, Open Market Operations and Treasury Issues, was primarily responsible for preparation of the report, Ann-Marie Meulendyke, Chief, Securities Analysis Division, contributed to its development, and members of her staff—Nancy Marks, Connie Raffaele, Anne Rowane, and Robert Van Wicklen—prepared the data used herein.

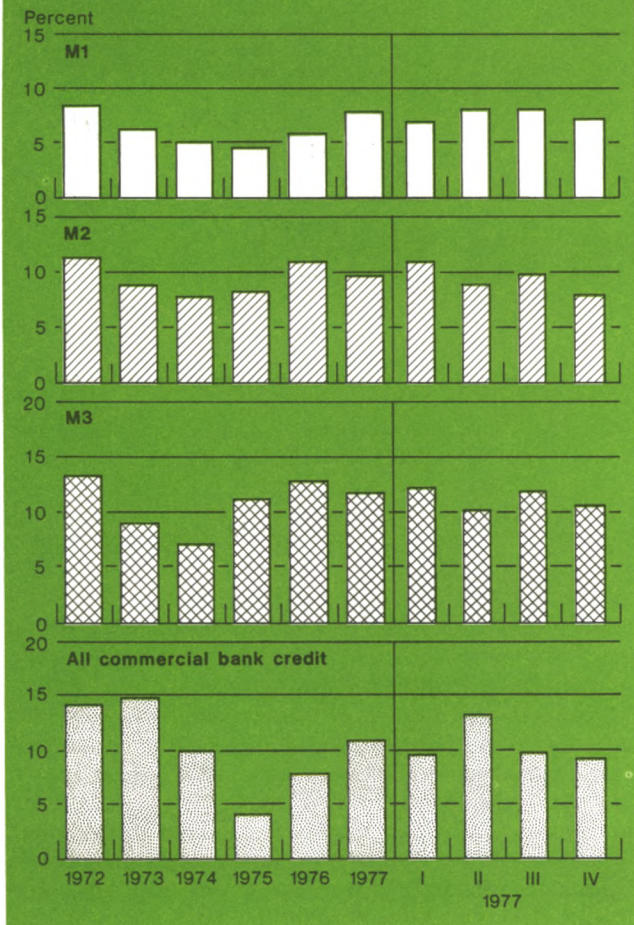
¹ Data on economic activity and prices reflect information available as of April 1978.

² Data in the body of the report include the effects of seasonal and bench-mark revisions published on March 23, 1978, which had the effect of lifting the annual growth for M_1 in 1977 from 7.4 percent reported initially and M_2 and M_3 growth from 9.6 and 11.6 percent reported previously. The revisions also raised the first- and fourth-quarter growth rates and lowered the second- and third-quarter growth rates. The chronological section of the report makes use of the data as published at the time, since Federal Reserve decisions were based on them. Growth rates are based on daily average levels in the fourth quarter of 1977, compared with the fourth quarter of 1976.

Chart 1

Growth of Money Supply Measures and Bank Credit

Seasonally adjusted annual rates



percent, less than the 10.9 percent of the year before, while M_3 —which adds deposits at thrift institutions to M_2 —increased by 11.7 percent, down from the 12.8 percent of 1976.

A record volume of funds was available in financial markets during 1977 to meet expanded borrowing by all economic sectors. Funds raised in credit markets by nonfinancial sectors swelled to an all-time peak of \$336 billion, or nearly 18 percent of nominal gross national product (GNP). Businesses borrowed heavily at banks and in the open market, after repaying short-term debt in 1975 and borrowing very little in 1976. Business bond flotations, at over \$24 billion, remained nearly as high as in the period of debt restructuring earlier in the recovery. Households increased instal-

ment debt sharply, reflecting substantial purchases of durable goods. The unprecedented level of single-family home building led to strong growth of mortgage credit, as did increased commercial and school construction. State and local government financing in the bond market set a record—\$45 billion. Much of this latter total reflected prerefunding of debt issued a few years before when interest rates had been higher.

Financing by the Federal Government receded further in 1977 from the high 1975 total, but borrowing needs remained relatively large for the third year of an economic expansion. Treasury net cash borrowing came to nearly \$57 billion in 1977, and virtually all of this was obtained through offerings of notes and bonds. In January the Treasury sold the final new issue in its cycle of twenty-four monthly auctions of two-year notes. Then in most subsequent months, as outstanding two-year notes came due for rollover, it added to their size to raise marginal amounts of new money. The Treasury also sold new notes with maturities of about four years in a cycle of quarterly auctions, and alternated between five-year notes and fifteen-year bonds in a second quarterly cycle. Additional cash was obtained in the midquarter refinancings, which generally included short- and intermediate-term notes and a long-term bond. In many of its financings, additional new money was raised by selling extra allotments of new coupon securities to foreign central banks and monetary authorities. Altogether, these overallotments totaled \$10.7 billion. Finally, \$9.4 billion of special Treasury issues (or interest arbitrage securities) was sold to states and municipalities in conjunction with their advance refunding of outstanding debt that carried high interest rates.

Because this expanded regularization of Treasury coupon offerings enabled market participants to anticipate such financings, the distribution of the new issues usually proceeded smoothly. As in 1976, the sale of intermediate- and long-term issues led to an increase in the average maturity of the privately held Government debt. Between 1965 and 1975 the average maturity had declined.

With the Federal Reserve seeking to moderate growth in the money and credit aggregates, the heavy demands for credit that developed in 1977 tended to exert upward pressure on interest rates (Chart 2). The yield curve became flatter (Chart 3), as is typical in an economic expansion, even though borrowing in longer term issues was proportionally heavier than in previous economic expansions. Short-term rates trended higher over most of the year, posting net advances of about 2 percentage points. Yields on intermediate-term securities rose 65 to 100 basis points in January and early February but then showed little net

change on five- to ten-year maturities until the closing months of 1977, when they moved up by another 40 basis points. Yields on long-term securities followed a pattern similar to those on intermediate-term issues and rose about 70 basis points for the year. Yields in the note and bond markets were volatile at times, as participants responded to uncertainties about the outlook for the economy and inflation. These worries—and the caution they generated—were also reflected in prices of equity issues, which fell over the year. Prices for tax-exempt securities, in contrast, rose through much of the year, with the largest gains occurring on less than top-rated issues as the earlier market concerns generated by the New York City financial crisis of 1975 receded further into the past. Demands from financial corporations and individuals—including in the latter case buying reflected through bond funds—also tended to strengthen the market.

Monetary Policy in 1977

Long-term ranges for aggregates

The FOMC continued gradually to reduce its twelve-month ranges for monetary growth during 1977, in order to move toward the slower expansion in money needed to dampen inflation and inflationary expectations over the longer run. While aiming at growth rates compatible with price stability over a number of years, the Committee was, nevertheless, able to foster current financial conditions conducive to growth in real income and employment. Once each quarter the Committee reviewed its twelve-month growth ranges for the monetary and credit aggregates and set new ranges for the period ahead, starting from the average level in the quarter just ended (table).

In setting these twelve-month growth ranges, the FOMC sought to take account of the likely effects of market interest rate levels, as well as financial and technological changes, on the public's demands for different types of depository assets. For this reason, the Committee made the largest downward adjustments in ranges for the broader aggregates— M_2 and M_3 . By 1977, the influence of regulatory actions that had encouraged transfers from demand into savings and thrift deposits during 1975 and 1976 had begun to wane, and the higher levels of interest rates that developed on short-term market instruments as the year progressed made these instruments increasingly attractive relative to deposits.

Downward adjustment in the range for M_1 was more modest. In 1975 and 1976, growth of M_1 had been low relative to growth of nominal GNP, because changes in financial and cash management technologies had permitted the velocity of money to rise more than was the

Chart 2

Selected Interest Rates

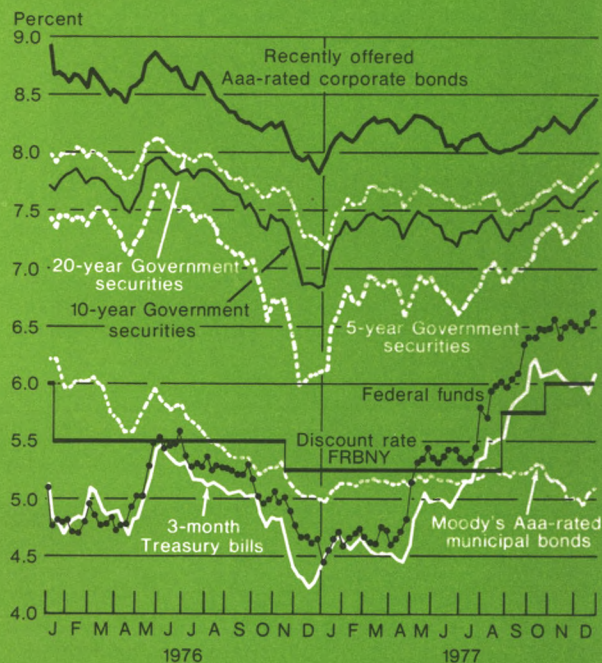
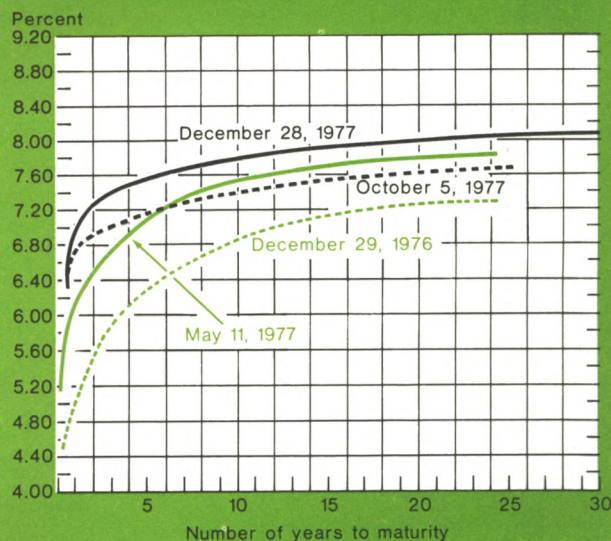


Chart 3

Yield Curves for United States Treasury Obligations



Federal Open Market Committee's Annual Growth Ranges for Monetary and Credit Aggregates

Seasonally adjusted annual percentage rates

Period	Month established	M ₁	Actual	M ₂	Actual	M ₃	Actual	Credit proxy
March 1975 to March 1976..	April 1975	5 to 7½	5.0	8½ to 10½	9.6	10 to 12	12.3	6½ to 9½
June 1975 to June 1976..	June 1975	5 to 7½	4.2	8½ to 10½	8.7	10 to 12	11.2	6½ to 9½
1975-II to 1976-II	July 1975	5 to 7½	5.2	8½ to 10½	9.5	10 to 12	12.0	6½ to 9½
1975-III to 1976-III	October 1975	5 to 7½	4.6	7½ to 10½	9.3	9 to 12	11.5	6 to 9
1975-IV to 1976-IV	January 1976	4½ to 7½	5.7	7½ to 10½	10.9	9 to 12	12.8	6 to 9
1976-I to 1977-I	April 1976	4½ to 7	6.3	7½ to 10	10.9	9 to 12	12.8	6 to 9
1976-II to 1977-II	July 1976	4½ to 7	6.6	7½ to 9½	10.7	9 to 11	12.4	5 to 8
1976-III to 1977-III	November 1976	4½ to 6½	7.8	7½ to 10	11.0	9 to 11½	12.7	5 to 8
1976-IV to 1977-IV	January 1977	4½ to 6½	7.8	7 to 10	9.8	8½ to 11½	11.7	7 to 10
1977-I to 1978-I	April 1977	4½ to 6½	7.3	7 to 9½	8.6	8½ to 11	10.4	7 to 10
1977-II to 1978-II	July 1977	4 to 6½		7 to 9½		8½ to 11		Bank credit 7 to 10
1977-III to 1978-III	October 1977	4 to 6½		6½ to 9		8½ to 10½		7 to 10

case in previous economic expansions. In 1977, however, growth of M₁ apparently reestablished a relationship to GNP closer to the one that had prevailed more generally prior to 1975. In these circumstances, the FOMC elected to make less downward adjustment in the growth range for M₁ than for M₂ and M₃.

Instructions to the Account Manager

In the implementation of monetary policy between FOMC meetings, the Committee's focus continued to be on two-month growth ranges for M₁ and M₂. After each monthly meeting, the FOMC supplied the Trading Desk with ranges of tolerance for these aggregates—defined as the seasonally adjusted annual growth rate from the month before the meeting just held to the month after the meeting. The FOMC also indicated how the Manager was to vary his objective for the Federal funds rate if incoming data caused revisions in the projections of M₁ and M₂ relative to their ranges. In comparing projected behavior against the ranges of tolerance, the Desk was expected to weigh M₁ and M₂ about equally. It is the Manager's visible efforts to adjust the Federal funds rate as new data on the monetary aggregates become available that trigger reactions at financial institutions and in financial markets that ultimately affect the economy.

In 1977, the Committee often established two-month tolerance ranges for the aggregates that had mid-

points below the growth actually expected for them at the time of its meeting, recognizing that if strong expansion in the aggregates persisted this would call for a further limitation on reserve availability. The Committee also lowered the bottom of the aggregate ranges at times, thus reducing the likely need for a temporary drop in the Federal funds rate.

The Committee's ranges for the Federal funds rate were raised as the year progressed. However, at four meetings the Committee expressed a preference for the Manager to keep money market conditions unchanged, unless the aggregates were approaching or exceeding the end points of their ranges. This money market emphasis was adopted in June and October, immediately after there had been substantial increases in the funds rate. Then, in November and December, the Committee again elected to stress money market stability when members found it particularly difficult to judge the significance of the short-run behavior of the aggregates. At times when financial markets were under strain, the FOMC instructed the Manager to take market reactions into account in implementing its objectives. In December, the Committee also instructed the Desk to consider developments in international markets in framing its response to the aggregates, since the weakness of the dollar and the unsettlement in the exchange markets had become a matter of concern.

Implementing policy

Following his instructions, the Manager responded to the strength of the monetary aggregates at several points during the year by seeking an increase in the Federal funds rate. During the first three months, the funds rate was relatively steady, starting around 4½ percent as the year began and then moving toward 4¾ percent by mid-April. Between the April and May FOMC meetings, M_1 continued to grow following a large April bulge, reaching an expansion rate above the Committee's range, and the Manager fostered a 50 basis point rise in the funds rate to 5¼ percent.³ A modest further rise in the funds rate to 5½ percent then developed between May and June. Additional strong money supply growth in early July was not reversed in succeeding weeks to the degree expected, and the funds rate was allowed to rise to 6 percent in the weeks just prior to the August Committee meeting.⁴ A more gradual rise brought the funds rate to 6½ percent by mid-October, because estimates of the aggregates had tended to work toward the high side of the ranges specified at the August and September FOMC meetings. At the end of October, the Desk briefly sought a slight further rise in the funds rate because it appeared that a bulge in the aggregates during that month would not be worked down subsequently and that growth of the aggregates would be near or beyond the upper limits of the specified ranges. In early November, however, projections were revised lower, and the Desk returned to the 6½ percent funds rate objective, which it then retained over the rest of the year.

Financial markets remained acutely sensitive to the short-run behavior of M_1 throughout the year. Large increases in M_1 —sometimes anticipated and sometimes not—usually precipitated upward adjustments in short- and even long-term interest rates. Initial market reactions were typically overdone and partially reversed subsequently. As a result, even by early October, yields on intermediate issues due after about five years and on long-term bonds were little different from the higher levels reached in early February, although fluctuations between February and early October were often substantial. Over the longer run, the System's willingness to let credit demands raise interest rates and the moderation in the pace of the economic expansion helped to bolster confidence that

the recovery could proceed without generating the surging inflationary pressures seen earlier in the 1970's.

Open market operations

System open market operations in 1977 limited the growth of nonborrowed reserves to around 3½ percent. As the Federal funds rate rose above the discount rate, member bank borrowing increased. In 1977, bank use of the discount window proved less predictable than in similar periods in the past. In some weeks, banks borrowed large amounts on Friday, which resulted in unanticipated reserve excesses after the weekend. At other times, borrowing would be light on Friday and reserve scarcities would develop by the end of the statement week. Borrowing also escalated more rapidly than in previous cycles in response to Desk moves to limit reserve growth, notably in August and in October. Increases in the discount rate from 5¼ to 5¾ percent in late August and to 6 percent toward the end of October reduced use of the discount window significantly.

Daily open market operations continued to be shaped by large fluctuations in factors that affect bank reserves, principally the Treasury's balances at Reserve Banks, float, and "as of" adjustments to bank reserve positions. A change in the procedures for arranging short-term transactions on behalf of foreign and international accounts also affected System operations during the year.

The high variability of Treasury cash balances continued to cause huge week-to-week changes in reserve availability, which needed to be offset through open market operations. In 1977, the average absolute change in the weekly balance at the Federal Reserve was \$2.1 billion. This was similar to the experience in 1976 but high when compared with average swings of \$0.5 billion in 1973 before the Treasury instituted its policy of keeping most of its balances at the Federal Reserve.

The Trading Desk was generally successful in offsetting these large variations, though difficulties did arise following major tax receipts in April, September, and to a lesser extent in December. On these occasions, the Desk was unable to make repurchase agreements (RPs) in sufficient volume to offset the rise in Treasury balances, primarily because available supplies of securities were low given market expectations of further increases in interest rates. The Treasury at those times helped alleviate the reserve shortages by temporarily redepositing funds in Tax and Loan Accounts at commercial banks.

On October 28, 1977, President Carter signed into law a bill which provides the Treasury with the au-

³ The Committee raised the upper limit of the range for the Federal funds rate to 5½ percent from 5¼ percent, with the understanding that the Manager would use the additional leeway only if new data indicated significant further strengthening in the aggregates before the next meeting. Such strengthening did not develop in that period, and the additional leeway did not need to be used.

⁴ On August 5, the top of the range for the Federal funds rate was raised to 6 percent from 5¾ percent.

thority to invest its cash balances with commercial banks. Those banks that choose to participate will receive funds flowing into their Tax and Loan Accounts that the Treasury does not immediately need for payment purposes. They may also receive occasional redeposits from balances at the Federal Reserve. The banks will pay interest on these investment funds. It is hoped that the new procedures, when implemented, will enable the Treasury to maintain reasonably steady balances at the Federal Reserve, thereby reducing the need for frequent and massive intervention in the open market by the Desk.

Starting in May 1977, the Desk began to meet all temporary investment orders from foreign central banks by making System matched sale-purchase transactions with them. This action, undertaken after Committee discussion, followed an Internal Revenue Service (IRS) ruling which raised a question as to the taxable status of income earned on RPs by foreign official accounts if the transactions were arranged in the market rather than with a governmental instrumentality, such as the Federal Reserve. For the rest of the year, the Desk essentially treated overnight matched sale-purchase transactions with foreign accounts as a market factor, which it took into account along with the anticipated impacts arising from variations in other factors when assessing reserve availability.⁵

Securities held outright by the System Open Market Account increased by about \$10 billion in 1977, nearly \$3.5 billion more than in the previous year. Most of the increase in growth resulted from larger net purchases of Treasury bills—\$4.4 billion, compared with \$863 million in the previous year. Purchases of coupon issues—at \$4.7 billion—were about \$500 million smaller than in 1976, and net acquisitions of agency securities—at \$1.2 billion—were \$300 million larger. In March 1977, the FOMC voted to discontinue outright purchases of bankers' acceptances under ordinary circumstances, but it continued to authorize RPs against acceptances. Outright holdings of acceptances which totaled \$196 million at the start of the year had all matured by the end of October.

Trading relationships with Government securities dealers

In the past few years, there has been a substantial increase in the number of Government securities dealers that have had a trading relationship with the Desk. One of the steps in the establishment of a trading relationship with the Federal Reserve is inclu-

sion on the list of dealers formally reporting their holdings and activity to the Federal Reserve. At the end of 1974, twenty-seven dealers reported activity daily to the Federal Reserve, while thirty-seven dealers were on the reporting list in February 1978. Several other dealers were making such reports informally, with the intent of becoming more active in the market and being added to the official reporting list.

Several factors have led to this growth. The sustained expansion in Treasury coupon offerings prompted several investment banking firms to enter the market, so that they could provide alternative investment outlets to their customers. Increased emphasis on performance by portfolio managers contributed to far greater buying and selling activity, particularly when prices of debt securities were rising during 1975 and 1976. Disenchantment with the equities markets also contributed to greater interest in fixed income securities.

The Government securities market has become more efficient and competitive and more able to handle large Treasury financings and Federal Reserve operations smoothly. The linkages between it and other debt markets have strengthened. Spreads between bid and offer prices have narrowed significantly for actively traded Treasury issues, and the liquidity of coupon securities—the ability to be converted into cash—has been enhanced. Technological development, involving electronic communications, has led to a broader and more rapid dissemination of prices and has also contributed to the narrowing of spreads.

The rapid expansion in the market has not been free of disadvantages, however. To many dealers the narrowing of trading spreads has reduced one source of income, making the successful anticipation of interest rate movements all the more important. At the same time, the expansion in the market seems to have made it more difficult for individual dealers to perceive actual or potential market supplies of issues and thus to act as buffers for the ebb and flow in customer demands. Daily activity declined somewhat over 1977, and prices often moved significantly in limited trading as participants reduced the size of the markets they were willing to make because of their perception of increased position risk. Dealer losses were widespread in 1977.

Because the expansion of the market was rapid and the availability of financing plentiful, not all participants gave adequate attention to the risks inherent in such activity, particularly with regard to the implicit extension of credit that arises in many transactions. In recent years, the Federal Reserve has increased its surveillance of market activity. In 1977, a number of on-site visits were made to dealer firms to evaluate

⁵ In late 1977, the IRS formally determined that income received by foreign official accounts from repurchase transactions with the System Account or with the Federal Reserve Bank of New York was not subject to Federal withholding tax.

market practices and policies, as well as to check on the accuracy of dealers' statistical reports. Further visits are planned for 1978.

The Federal Reserve has sought to encourage free entry into the market. At the same time, it has been cognizant of the need to evaluate each firm's activity—not just to assess its market practices but also to evaluate the services it provides to the Federal Reserve and the Treasury. Much of the expansion in trading activity in recent years has represented trading among dealers—some directly, but mostly through brokers. Thus, it is not always clear that expanded activity enhances the distributive services of the market. For this reason, when evaluating an individual dealer's performance, the Manager has tended to place increasing emphasis on that firm's trading with customers and not merely on its total market activity.

Observations

In recent years, the System's procedures for establishing and pursuing growth ranges for the monetary aggregates have become more widely understood by the public and by participants in financial markets. As a result, market participants have tried to anticipate movements in the monetary aggregates that might trigger shifts in the System's weekly objective for the Federal funds rate. They have been acutely sensitive to the weekly publication of money supply data and to any nuances they perceive in the Desk's conduct of daily open market operations.

The preoccupation of market observers with the short-run behavior of the monetary aggregates reflects, of course, the System's techniques of operation. Market observers carefully follow evidence on the economy's prospective behavior to reach a judgment about the likely course of interest rates over the long run. But for the operations of Government securities dealers and other short-term holders of securities, a correct forecast of the timing of changes in interest rates is critical to profitability.

In 1977, interest rates evidenced substantial short-run fluctuations, to a considerable extent because market participants found it difficult to identify underlying tendencies in the inherently volatile weekly data on the monetary aggregates. Money supply statistics tend to be highly erratic over periods of a week—and quite volatile for periods of a month or more—partly because the current knowledge of seasonal adjustment techniques does not permit the effective separation of recurring patterns of fluctuation from other information in the data. The market's resulting difficulty in anticipating monetary movements thus tends to be reflected in considerable short-run volatility of interest rates.

In these circumstances, there is much to be said for the System's use of wider short-run tolerance ranges for M_1 —the most volatile of the aggregate measures—as was done over part of the year. Alternatively, ranges might be used that rely upon an averaging technique that is not so sensitive to incoming short-run data. If the System's time horizon were so extended, this would soon be perceived and there might be less emphasis placed on volatile data that frequently contain little information about trends and sometimes even mislead.

While the behavior of M_1 still bulks large in shaping the thrust of System open market operations over the short run, the relative emphasis on M_1 has nevertheless been reduced in recent years. Changes in the financial structure and payments mechanism and in the pattern of regulatory constraints suggest that observed holdings of demand deposits—the major component of M_1 —may not now be serving the same economic purpose as in earlier years. Under present arrangements, demand deposits may now be a rather incomplete measure both of transactions demands for money and of money as a store of liquidity. For example, the availability of investments, such as RPs, to large economic units and the growing possibilities for smaller economic units to use savings deposits for transactions purposes suggest that the narrow money supply—as currently defined—may now be different than in the past. In these changing circumstances, it thus becomes necessary to give added emphasis to the broader measures of money when formulating and implementing policy.

At the same time, however, it must be recognized that the broader measures of money possess certain drawbacks of their own as operating ranges for open market policy. For example, many of the time deposits included in M_2 and M_3 are certificate accounts, with maturities of several years and heavy penalties for early withdrawal. Accounts of this type are not too well adapted to either the transactions or liquidity purposes of money. In addition, time and savings deposits subject to statutory interest rate ceilings can develop a rather erratic growth performance when yields on competitive market securities fluctuate around those ceilings.

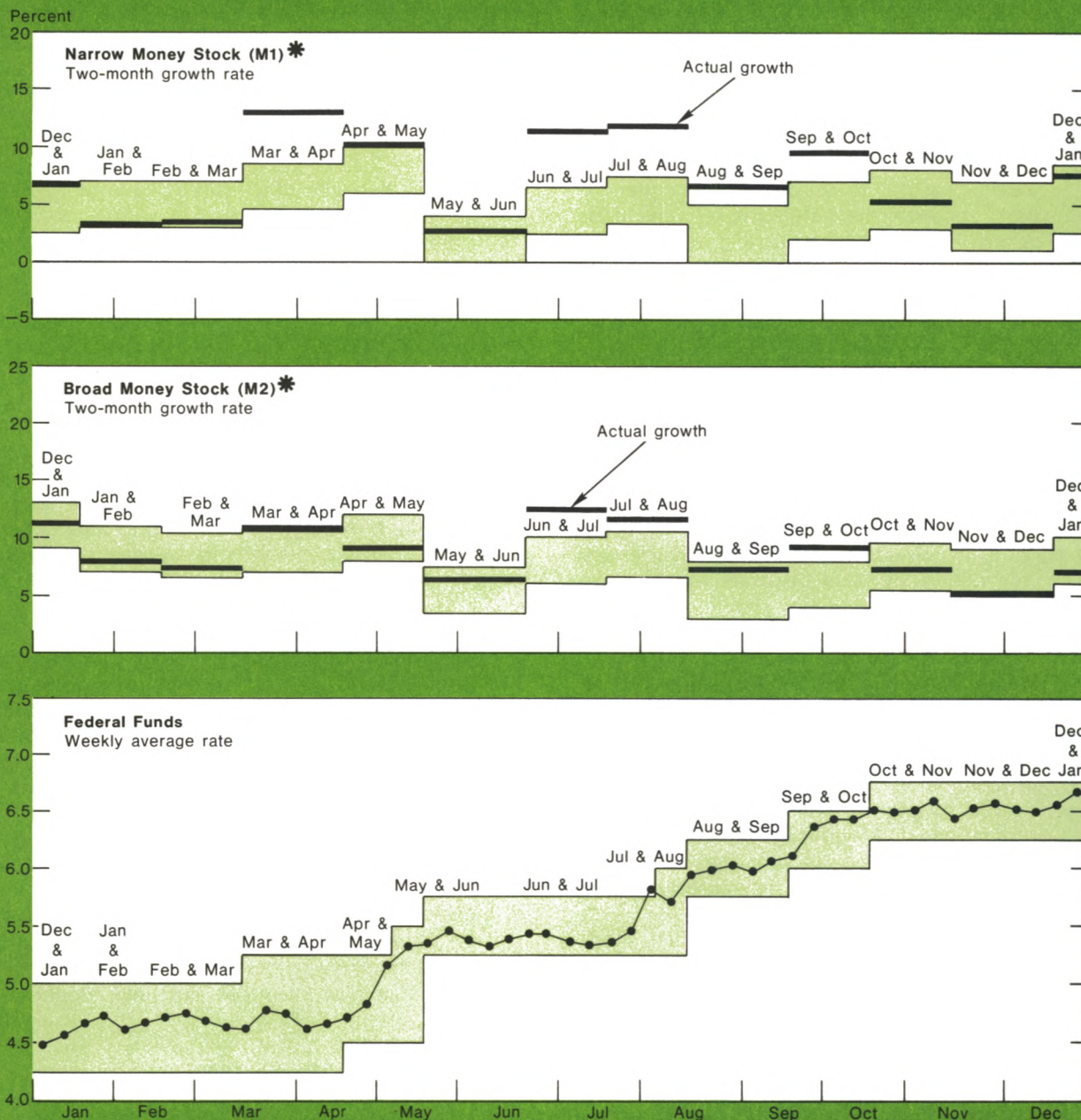
Open Market Operations in 1977

January to mid-April

Early in 1977, FOMC members were generally anticipating a strengthening of the economy. As the first quarter evolved, a vigorous expansion did develop. With the restraints of severe winter weather and fuel shortages receding, it seemed likely that economic growth would accelerate further in the second quarter

Chart 4

FOMC Ranges for Short-run Monetary Growth and for the Federal Funds Rate, 1977



Shaded bands in the upper two charts are the FOMC's specified ranges for money supply growth over the two-month periods indicated; in the bottom chart they are the specified ranges for Federal funds rate variation. Actual growth rates in the upper two charts are based on data available at the time of the second FOMC meeting after the end of each period.

* Seasonally adjusted annual rates.

and then remain relatively strong over the rest of the year. On the other hand, there were signs that price inflation was accelerating, and participants in financial markets were expressing concern that the Administration's fiscal proposals might be overly stimulative.

In specifying its instructions to the Manager during this period, the Committee was conditioned by expectations that the demand for money would strengthen along with economic activity. The FOMC moved cautiously in modifying its policy stance, however, because of the sharp increases in market interest rates that suddenly developed after the turn of the year. In January, the FOMC instructed the Desk to seek a slight upward adjustment in the Federal funds rate from around 4½ percent to the 4½ to 4¾ percent area, within the same 4¼ to 5 percent range adopted in December. It also established tolerance ranges for M_1 and M_2 that were on the low side of the possibilities discussed by the Committee (Chart 4). When growth of the aggregates temporarily faltered in February, the FOMC established tolerance ranges that surrounded the growth expected at the time and many members expressed a preference for the Federal funds rate to remain steady. By the time of the March meeting, monetary expansion appeared to be picking up and tolerance ranges for the aggregates were lowered relative to expected growth; the upper end of the range set for the Federal funds rate was increased by ¼ percentage point to 5¼ percent.

The Desk sought Federal funds trading within the area of 4½ to 4¾ percent after the January meeting, though the slight change in its objective was scarcely perceptible. After being lowered during the final months of 1976, the funds rate had leveled out at 4½ percent by the year-end. By mid-January the Desk had become a bit more tolerant of funds trading slightly above this level than below, since growth of M_1 and M_2 , taken together, had edged toward the high side of the specifications adopted in December. Daily operations during January were conditioned to a degree by the unsettled state of the Government securities market. Between the January and February meetings, the behavior of the aggregates gave no cause for the Manager to modify his approach to reserve provision. In the weeks leading up to the March meeting, estimates were revised lower but both M_1 and M_2 were again reasonably within their ranges.

Securities prices tumbled dramatically just after the start of the year. Dealers in Government securities had increased inventories substantially as 1976 drew to a close, anticipating that the funds rate would move a little lower and that banks and other investors would resume their purchases after a seasonal lull. But the lower funds rate and the expected demand failed to

materialize and, in fact, banks liquidated issues for a while, given the emergence of heavier demand for credit. Interest rates across the maturity spectrum climbed amid the realization that the Federal funds rate was not likely to decline further and that more robust economic growth was likely to lead in time to a less accommodative monetary policy. Concern over the size of prospective Treasury deficits and of long-term financing by corporations and municipalities deepened the pessimism in the market for coupon securities. Yields on intermediate-term Treasury issues rose as much as 65 to 100 basis points from the end of December to early February to around 7 percent in the five-year area, while yields on longer term bonds increased by about 50 basis points to around 7.80 percent. Auction rates on three- and six-month bills rose by about 40 and 50 basis points to 4.72 and 5.01 percent, respectively. The sharp price declines imposed very large losses on the dealer community and in some cases equaled the profits earned in all of 1976, a rather good year for dealer profitability.

The debt markets stabilized during February. Short-term rates moved slightly lower, as the funds rate held fairly steady and data on the aggregates showed modest growth. Just before the March FOMC meeting, three- and six-month bills were auctioned at 4.55 and 4.81 percent, respectively. Intermediate- and long-term rates fell for a few weeks but began to rise again, reflecting caution over the prospects for containing inflationary pressures in the face of expanding business activity and credit demands. While dealers made substantial reductions in their positions in coupon issues after the Treasury's quarterly refunding in February, yield increases were far more modest than at the start of the year, with those on one- to ten-year issues moving up 10 to 15 basis points between early February and mid-March.

Monetary growth accelerated significantly in April, and data available shortly before the FOMC meeting indicated that this bulge was not receding. It appeared that growth of M_1 would exceed its March-April range, while M_2 would be in the upper part of its range. The Desk—which had been aiming for a Federal funds rate in the 4½ to 4¾ percent area—adjusted its weekly objective for the Federal funds rate to 4¾ percent. The extent of the Desk's response was tempered somewhat because of the proximity of the next FOMC meeting, and the change in the Desk's objective was barely perceptible, in part because market attention was focused elsewhere.

Market participants were preoccupied with the Administration's withdrawal of its proposed tax rebate program. The release of data showing the unusually large increase in the narrow money supply over the

first week of April—\$5 billion—and the large rise in industrial production reported for March did little to temper the shift in market expectations toward the view that interest rates would recede. Dealers rebuilt positions in coupon issues significantly, anticipating that Treasury financing needs would be reduced. In the days leading up to the April FOMC meeting, yields on intermediate-term issues fell by about 20 to 30 basis points, well below early-February highs, while those on bonds declined by about 15 basis points. Rates on Treasury bills fell somewhat less.

Mid-April to mid-July

When the Committee met in April, estimates showed that the performance of the economy in the first quarter had been even stronger than anticipated. Expansion over the next few quarters was still expected to be substantial even though fiscal programs seemed likely to be less stimulative than thought earlier. The unemployment rate had been moving lower amid rapid labor force growth. At the same time, however, the outlook for inflation was worrisome in view of upward pressure on food prices and the prospects for an increase in the minimum wage. The Administration was planning to present its energy program to the Congress the day after the meeting. Although the need for an energy program was clear, its effects on business investment and other key components of aggregate demand were difficult to appraise and uncertainties seemed likely to intensify while the Congress deliberated actual measures.

In financial markets, participants generally expected upward rate pressures to emerge as the year unfolded. A seasonal Treasury surplus was anticipated during the second quarter, but private credit demands at banks and in the debt markets seemed likely to continue their brisk expansion. Growth of M_1 and M_2 was very rapid in April, although the unusual increase early in the month was expected to be offset later. At the April meeting, the FOMC acknowledged that near-term monetary growth was likely to be rapid and set 6 to 10 percent and 8 to 12 percent growth ranges for M_1 and M_2 , respectively, for the April-May period. It also set a $4\frac{1}{2}$ to $5\frac{1}{4}$ percent range for the Federal funds rate. With the midpoint of the range a little higher than the $4\frac{3}{4}$ percent rate sought just prior to the meeting, the new range left some room for the Desk to respond to any tendency for rapid money growth to persist.

While initial estimates of the aggregates showed April-May growth within the specified ranges, revisions toward the end of April placed M_1 considerably above its range and M_2 in the middle of its range. Taking both together, the Manager began in the final days of April to seek a rise in the Federal funds rate to 5 percent,

anticipating that a further firming would ensue if additional data were to confirm the strength of money growth. It was decided to make this firming in the System's stance evident to the market promptly, since the Treasury was just about to begin its May refunding, the terms of which were announced on April 27.

A sharp rise in the Treasury's balance at Federal Reserve Banks and an increase in the required reserves of member banks had begun to exert pressure on the money market during the latter part of April. The Desk encountered difficulty in offsetting these reserve drains, since dealers and other active market participants had sharply reduced their securities positions in anticipation of higher interest rates. The Treasury had helped alleviate the reserve scarcity by moderating calls on Tax and Loan Accounts and, at one point, made a temporary redeposit to its balances at commercial banks.

Since the Desk expected substantial reserve needs to persist, it announced late on April 27 that it would arrange four- and seven-day RPs at the start of the May 4 week. After the System had concluded this operation and had bought bills from foreign accounts, the money market firmed from an opening rate of $4\frac{1}{8}$ percent to trading levels of $4\frac{15}{16}$ and 5 percent. No further response from the Desk ensued that day, and the market readily concluded that a further rise in the Federal funds rate was under way. This view was bolstered on April 28, when the weekly monetary statistics published late that day showed that the money supply was remaining high. Funds opened at 5 to $5\frac{1}{16}$ percent on Friday morning, and when they had risen to $5\frac{1}{8}$ percent the Desk arranged over-the-weekend RPs. But trading moved up later on—to as high as $5\frac{3}{4}$ percent—and some banks turned to the discount window.

The Desk supplied additional reserves after the weekend, as trading in funds generally remained higher than 5 percent. By the end of the May 4 statement period, the Desk provided only modest resistance to this firming since it began to appear that a further increase in the objective for the funds rate to around $5\frac{1}{4}$ percent would soon be appropriate. Over the May 4 week, the average effective Federal funds rate rose by 33 basis points to 5.15 percent.

Estimates of monetary growth in the following week were still strong, and the Desk adopted a $5\frac{1}{4}$ percent objective. On May 6, the FOMC raised the top of the range for the funds rate to $5\frac{1}{2}$ percent but indicated that the additional leeway was to be used only if later estimates for monetary growth were significantly higher. When this did not occur, the Desk maintained the $5\frac{1}{4}$ percent objective until the May meeting.

The view that yields would decline, evident in securities markets shortly before the April meeting, faded

quickly once participants began to expect the System to move toward a less stimulative posture, given the evidence of unusual acceleration in monetary growth and a further quickening in the economy. By the time the Treasury conducted its refunding auctions in early May, the market had largely adjusted to the higher funds rate and good bidding interest for new issues developed at the higher rate levels. The adjustment process was facilitated by the fact that the Treasury was paying down \$0.5 billion of maturing debt and needed to sell only two issues, a 6¾-year note and additional bonds due in 2007. While dealers acquired sizable amounts of the new issues, they sold them quickly—though at a loss—amid evidence of further Federal Reserve tightening. By the time of the May 17 meeting, they had a net short position of \$425 million in issues due after one year—\$1.2 billion below the amount held four weeks earlier—despite \$1.8 billion of new refunding issues taken into position. Over the intermeeting period, yields on five- to ten-year issues rose by 30 basis points, while those on longer maturities increased by about 15 basis points. Rates on Treasury bills rose some 50 basis points, but steady and sizable paydowns by the Treasury and a decline in dealer positions helped alleviate the market's adjustment to rising short-term rates.

Information available at the May FOMC meeting continued to suggest a more vigorous economic expansion in the second quarter than had been anticipated earlier. This was confirmed by the data reviewed at the June meeting, although at that time it began to appear that growth in subsequent quarters might slow. While employment was continuing to expand, declines in the unemployment rate had moderated.

The Committee concluded that relatively slow growth of the monetary aggregates over the May-June period would be appropriate after the exceptionally rapid expansion early in the second quarter. It set the tolerance range for M_1 toward the low side of the options discussed. The FOMC narrowed the range for the Federal funds rate to 5¼ to 5¾ percent, instructing the Manager to seek a rate of 5¾ percent after the meeting. While most members preferred to avoid a decline in this rate, there was also concern that a further increase of 50 to 60 basis points—the magnitude of the rise between mid-April and mid-May—could have more significant repercussions on financial markets.

In the days following the May meeting, the Desk sought to establish a funds rate of around 5¾ percent. This represented only a slight increase, since market pressures had already brought the rate to within a 5¼ to 5¾ percent range. Expansion in the monetary aggregates slowed considerably over the May-June period, though they stayed well within their ranges.

By the June meeting there was considerable uncertainty about the outlook for growth in the near term. The early distribution of social security checks in July could raise M_1 growth in that month, as it had in April. The FOMC decided to give greater weight than usual to money market conditions in the conduct of open market operations over the June-July period and retained a 5¼ to 5¾ percent range for the funds rate. It instructed the Manager to maintain a funds rate of around 5¾ percent unless growth of the aggregates should approach or move beyond the limits of the ranges specified for the aggregates. In early July, growth did strengthen substantially but not enough to call for a Desk response under the money market directive. Thus, the Manager retained the 5¾ percent objective until the July meeting.

The securities markets reacted briefly but significantly to the slight upward adjustment in the Desk's objective for the funds rate in mid-May as participants expected the change to continue. When the funds rate soon stabilized, interest rates across the maturity spectrum began to work steadily lower. Treasury bill rates fell by about 5 basis points between late May and the end of June to 4.98 percent and 5.19 percent, respectively, for the three- and six-month issues. Yields on notes and bonds declined by about 10 to 20 basis points into early June and were relatively steady for some weeks thereafter. For five- and ten-year issues, for example, yields moved back to levels that were not much different from those observed after their January rise. While Treasury financing needs had moderated, business demands for longer term funds and mortgage-related borrowing by financial intermediaries had risen to fill the gap. Tax-exempt debt offerings had continued at a record pace.

Mid-July to mid-October

The economic situation appeared fairly strong when the Committee met in July. While growth of real GNP in the second half of the year appeared unlikely to be so rapid as in the first, a gradual slowing was viewed as desirable in many respects. Actual developments over the summer suggested that the economic expansion had become more balanced, with business capital investment gaining momentum for a while and needed inventory adjustments being undertaken promptly. By September, it was clear that the expansion had lost some of the exceptional vigor displayed earlier in the year, although the continued strength in final sales suggested that the slowing might be temporary.

Growth of the monetary aggregates had moderated during the second quarter but was high for the three months as a whole. Growth had speeded up again in

early July. At its July meeting the FOMC specified an aggregates directive, with tolerance ranges for M_1 and M_2 that did not permit room for a continuation of the early-July bulge. The $5\frac{1}{4}$ to $5\frac{3}{4}$ percent range for the Federal funds rate adopted at the two previous meetings was retained. Monetary data available shortly after the July FOMC meeting suggested overly strong growth, and it later appeared that M_1 and M_2 were moving above the specified ranges.⁶ The Manager again faced the need to indicate the System's response to strong monetary growth quickly and clearly in the days before a Treasury refunding. Therefore, in the last few days of July the Desk started to encourage a gradual rise in the funds rate from $5\frac{3}{8}$ percent to the $5\frac{3}{4}$ percent top of its specified range. Since the market had already perceived the rapid growth in the aggregates, the Desk's response was expected. On August 5 the FOMC raised the upper bound for the funds rate to 6 percent, noting that the additional leeway should be used gradually and cautiously if further data still pointed to excessive monetary growth. When estimates of money growth strengthened, the Desk sought a rate of $5\frac{3}{4}$ percent for a few more days and then raised the objective to 6 percent. At its meetings in August and September the FOMC moved the allowable range for the Federal funds rate upward. Funds were trading at about $6\frac{1}{8}$ percent just before the September meeting and at $6\frac{1}{2}$ percent from then until the October meeting, since estimates of growth of the aggregates moved toward the top of the ranges specified at both meetings.

The rise in the funds rate that developed over the summer brought it to levels that were significantly above the $5\frac{1}{4}$ percent discount rate. Member bank borrowing rose sharply, especially in August, amid expectations that the discount rate would soon be raised. Daily average borrowing at the discount window rose to \$1.7 billion late in August from about \$400 million in mid-July. The Desk found it difficult to anticipate how much banks would borrow from day to day. Enlarged borrowings over weekends generated reserve excesses toward the end of some statement periods, often placing the funds rate under downward pressure.

The Board of Governors of the Federal Reserve System approved an increase in the discount rate to $5\frac{3}{4}$ percent at the end of August. After an initial sudden drop in discount window use, borrowing behavior returned to a more predictable pattern. When the funds rate rose again in September and into October, use of the discount window quickly expanded once more, from

daily averages of less than \$350 million to nearly \$1.9 billion, and weekly fluctuations also grew. In late October, the discount rate was increased to 6 percent and borrowing receded again.

The securities markets anticipated—and at times overanticipated—the rise in interest rates that rapid growth in the aggregates would bring. Rates on money market instruments adjusted higher, but other rates were less affected so that the yield curve continued to flatten. By mid-September, rates on issues due after six years were below levels observed in the spring. Investor demand for the Treasury coupon issues sold in the August refunding and for subsequent offerings of two- and four-year notes was impressively strong. Dealers quickly moved to establish fairly large short positions after each note or bond auction, only to encounter sustained investor interest.

During September, however, expectations shifted again. Market participants feared that the aggregates could again bulge in early October, repeating the earlier quarterly patterns, and that economic expansion could pick up from the more moderate pace experienced in the third quarter. While demands for short-term credit had slowed in the third quarter, borrowing in debt markets had again been quite substantial. The Treasury had moved from a cash surplus to a deficit position. State and local government borrowing remained unusually heavy, as they continued to pre-refund issues. External financing by business exceeded the gap between capital outlays and cash flow, suggesting some anticipation of higher borrowing costs in the future. By the time the Committee met in October, interest rates were moving upward across the maturity spectrum.

Mid-October to year-end

The picture of the economy presented at the October meeting was mixed. Staff projections suggested that growth in real GNP would pick up over the remainder of the year and would then continue at a moderate, though diminishing, pace. The rate of inflation was expected to remain high, although lower than in the first half of 1977, while the unemployment rate had shown no significant change since April. Pressure on the dollar in the exchange markets, which had first emerged early in the summer after a year of relative stability, began to build up again near the end of September. The dollar had fallen significantly despite substantial support operations by foreign central banks. The unemployment rate stayed near 7 percent, though after the year was over figures for August through November were revised lower and a decline to under $6\frac{1}{2}$ percent was reported for December. The dollar weakened considerably further in exchange markets

⁶ The Manager awaited further clarification since data for the middle of July might have been distorted by the power blackout in New York City.

in the final months of the year, and this became a matter of concern to the FOMC.

At its final three meetings of the year, the Committee gave relatively more weight to money market conditions in the implementation of monetary policy. Financial flows tend to become more volatile toward the year-end, making it more difficult than usual to assess the significance of short-run behavior of the aggregates. There was also uncertainty about the underlying causes of the strength in money demand over the second and third quarters and the prospects for its velocity. Reflecting these uncertainties, the short-run tolerance ranges for M_1 adopted at these meetings were, for the most part, somewhat wider than typically had been the case. For the Federal funds rate, a $6\frac{1}{4}$ to $6\frac{3}{4}$ percent range was specified at the October meeting and was retained through the year-end.

Estimates of monetary growth strengthened after the October FOMC meeting. By the end of the month they became sufficiently strong, with M_1 projected at rates above its range of tolerance and M_2 not far from the top, to call for some response from the Desk. It was desirable to move promptly since the Treasury was beginning its quarterly financing. Consequently, the Desk began seeking a Federal funds rate in the area of $6\frac{1}{2}$ to $6\frac{5}{8}$ percent in late October until a softening in the aggregates, reported a short while later, led it to return to the $6\frac{1}{2}$ percent objective. Thereafter, esti-

mates of growth of the aggregates remained within the ranges specified by the FOMC, and the Desk sought a funds rate of $6\frac{1}{2}$ percent through the end of the year.

Interest rates rose at the end of October and into early November, as market participants concluded that a further shift in the course of monetary policy was emerging. When the money market firming proved temporary, the increases were retraced for a while. The yield curve in the market for Government securities continued to steepen, however. The investment of the proceeds of exchange market intervention by foreign monetary authorities put Treasury bill rates under some downward pressure. At the auctions on December 21, three- and six-month bills were awarded at average rates of 5.99 percent and 6.34 percent, down by nearly 30 and 15 basis points, respectively, from levels two months earlier though some drift upward occurred subsequently. Between mid-October and the year-end, yields on most Treasury issues due after five years rose by about 20 to 25 basis points while those on long-term corporate bonds were up by 20 basis points. Evidence that economic growth was not so sluggish as many had thought, worries that inflation would accelerate, and that Treasury deficits as well as private credit demands would grow led to expectations that interest rates would need to rise further in the new year.

Treasury and Federal Reserve Foreign Exchange Operations

During the six-month period under review, the United States dollar came under generalized selling pressure in increasingly disorderly exchange market conditions. By the end of January, the dollar had declined against a broad spectrum of major currencies, falling a net 21 percent against the Swiss franc, 10 percent against the Japanese yen, 8 percent against the German mark and currencies linked to it in the European Community (EC) "snake" arrangement, and 12 percent against the pound sterling. The decline was smaller against the French franc, by 3 percent, and the Italian lira, by 1½ percent. As exceptions, the dollar rose some 3½ percent against the Canadian dollar and 6 percent against the Swedish krona.

The depreciation of the dollar came in the context of deepening concern over the lack of progress in resolving serious economic imbalances among major industrial nations. The United States had swung into record trade deficit from \$9 billion in 1976 to \$31 billion in 1977 as a whole. Correspondingly, the United States current account deficit widened from \$1 billion in 1976 to \$19 billion in 1977. This deterioration reflected not only an increasing dependence on foreign oil to complement domestic energy sources but also the more rapid economic growth in the United States

than abroad. By contrast, among the other industrial countries Japan's massive trade and current account surplus continued to mount partly for structural reasons and partly for the lack of sufficient domestic demand to boost imports. Germany, too, remained in substantial trade and current account surplus while experiencing a disappointingly slow pace of economic growth. While other European countries made progress in their efforts to curb previously high inflation rates and large payments deficits, real growth in their respective economies also tapered down.

As the size of these imbalances became apparent during the summer, market participants became increasingly apprehensive about the prospects for the dollar. Concern focused on the net supply of dollars coming on the market as a result of the current account deficit itself. With so many industrial countries suffering from a combination of high unemployment and low profits, protectionist sentiment became increasingly vocal, thereby underscoring the need for early action to redress these imbalances if an increasingly restrictive environment for trade was to be avoided. In the event other adjustment policies were not adopted here or abroad, dealers were fearful that exchange rates would ultimately emerge as the means of achieving adjustment.

Late in July, Chairman Burns and Secretary Blumenthal had stressed their belief in the need for a strong dollar for the United States and for the world generally. A healthy expansion of the United States economy was well under way. And, as United States authorities had pointed out, United States goods had generally retained their price competitiveness in interna-

A report by Alan R. Holmes and Scott E. Pardee.

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tional markets, and our inflation rate—while still uncomfortably high—was among the lowest in the world. To be sure, further action was still required in controversial areas. Legislation was before the Congress for an energy program that could reduce oil imports. United States officials continued their efforts to persuade other governments to promote more rapid growth of their economies and thereby to take on more of the burden of adjustment. Moreover, the Administration faced hard bargaining in containing protectionist pressures at home while seeking to negotiate a further reduction of restrictive trading practices abroad. But, on exchange rate policy, United States authorities, reaffirming the philosophy that dollar rates should move in line with economic fundamentals, felt assured that a strong, noninflationary domestic economy would help keep the dollar strong.

These assurances, and a firming of United States interest rates in early August, tended to settle the markets through the rest of the summer. This enabled the Federal Reserve to repay the modest amount of swap debt in German marks incurred in July. Otherwise, Federal Reserve operations in the exchange markets were minimal through late September.

By that time, however, the energy bill had bogged down in the Congress. Moreover, recent indicators showed that economic growth had slowed in several foreign countries. Although new stimulative measures were announced in Japan, Germany, and elsewhere, they were expected to have little effect before 1978.

And, taking those measures into account, many public and private forecasters saw little prospect for an early improvement for the United States trade deficit. These concerns came to a head during the annual meeting of the International Monetary Fund (IMF) and the World Bank, in late September, where financial officials thrashed out the whole range of economic policy issues but emerged with little apparent consensus on what to do next.

Reports from these meetings triggered an immediate reaction in the markets. In view of Japan's huge trade surplus, the yen came into renewed demand. The Swiss franc, the traditional haven in times of uncertainty, also came into heavy demand. The flow of funds into sterling, already huge throughout most of 1977, became even larger. Demand pressures soon spread to the German mark and other European currencies. Although circumstances varied for individual currencies, the dollar was generally on offer through most of the last three months of 1977.

With currencies being dealt around the clock in Asia, Europe, or North America, unsettled conditions in any one market tended to spill over into the others. The further the dollar fell, the greater was the shift out of dollars into other currencies through speculative positioning, commercial leads and lags, and hedging operations. In addition, traders were sensitive to recurring reports of substantial portfolio diversification by private and official dollar holders. Under such circumstances, the exchange market became increasingly one way and

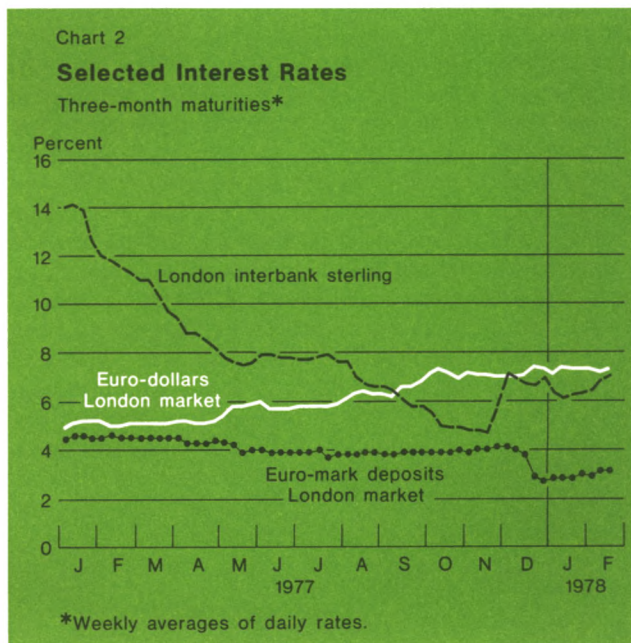
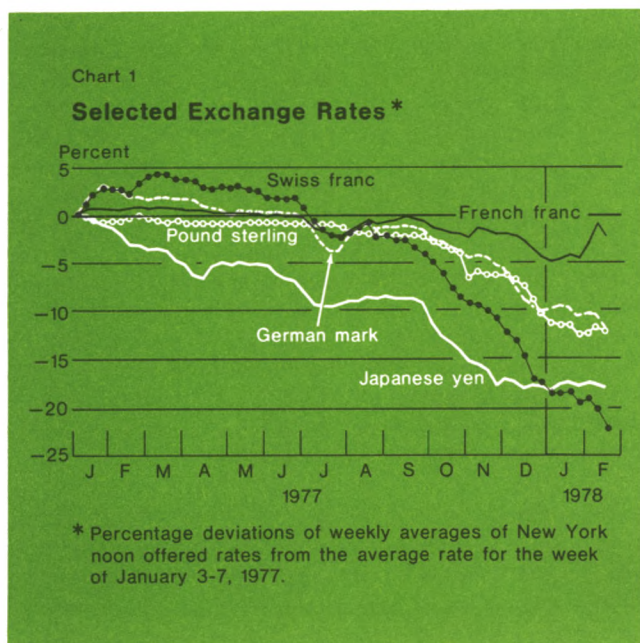


Table 1
Federal Reserve Reciprocal Currency Arrangements
 In millions of dollars

Institution	Amount of facility January 31, 1978
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:	
Swiss francs-dollars	600
Other authorized European currencies-dollars	1,250
Total	\$20,160

unresponsive to economic fundamentals. Movements in exchange rates were abrupt, bid-asked spreads widened, and market professionals were increasingly unwilling to take dollars offered to them into their positions even for brief intervals. In response, foreign central banks continued to intervene in their respective currency markets. For its part, the Federal Reserve intervened frequently and on an increasing scale in the New York market.

Meanwhile, officials were convinced that policies already adopted or soon to be put in place here and abroad would, in time, substantially reduce the imbalances that concerned the market. The pressing need was to deal effectively with the disorder in the exchange market and thereby to provide breathing room both for the measures to take effect and for market participants to take stock of fundamentals. In a statement on December 21, President Carter announced several measures to reduce United States imports of oil and to stimulate exports, and stressed that the United States authorities would intervene to the extent necessary to counter disorderly conditions. In early January, the United States authorities followed up with several measures to restore a sense of balance to the exchanges. On January 4, the Federal Reserve and the United States Treasury announced that the Treasury had entered into a new swap arrangement with the German Bundesbank and that this facility, together with the Federal Reserve swap network, would be

actively utilized to check speculation and to restore order in the exchange market. Beginning that afternoon, the Federal Reserve's foreign exchange Trading Desk shifted to a more open and forceful approach to the market than it had used in previous months. On January 6, the Board of Governors of the Federal Reserve System approved a ½ percentage point discount rate increase, specifically on international considerations, and the Federal Reserve's domestic Trading Desk under instructions from the Federal Open Market Committee acted to firm money market conditions somewhat.

These steps, coming in the context of continuing debate on virtually all of the other issues that had troubled the exchange market for months on end, at first received a mixed reaction. Although the dollar staged a brief initial rally, it came heavily on offer again the following week. The New York Federal Reserve, in close consultation with the Bundesbank, continued to intervene forcefully. These mark sales were financed by drawings in equal amounts on the System and Treasury swap lines with the Bundesbank.

By mid-January, the intervention was beginning to take effect, and the exchange market gradually came into better balance. In fact, with the market settling into active two-way trading, the Desk did not intervene for several days running for the first time since November. And, thereafter, intervention was limited to modest amounts in German marks and, for the first time since 1975, in Swiss francs.

In sum, for the period August 1, 1977-January 31, 1978 covered by this report, the Federal Reserve sold a total of \$1,310.5 million equivalent of marks. It repaid \$35.4 million equivalent of previous drawings in marks on the Bundesbank and drew a total of \$1,251.2 million equivalent to finance operations during the period. The remaining sales were financed from balances. United States Treasury sales of marks after January 4 amounted to \$407.4 million equivalent, financed by drawings on its swap arrangement with the Bundesbank. In addition, in intervention during the period, the Federal Reserve sold \$18.9 million of Swiss francs drawn under the swap arrangement with the Swiss National Bank. Otherwise, as detailed in the Swiss franc section, the Federal Reserve repaid \$235.3 million equivalent and the Treasury repaid \$223.5 million equivalent of Swiss francs from obligations remaining from August 1971.

German mark

In contrast to the solid economic expansion under way in the United States, the growth of output in Germany was losing momentum by midsummer 1977. New orders from abroad were lower, partly reflecting

the generally slack conditions elsewhere in Western Europe and partly in response to the previous appreciation of the mark against most major currencies. In addition, German firms were reluctant to invest in new plant and equipment in view of uncertain prospects for sales, particularly in export markets, and because of postponements in the face of environmental protests of major public investment projects that had been intended to provide fiscal stimulus. Monetary policy remained fairly accommodative. The monetary aggregates were growing somewhat more rapidly than targeted, and bank lending expanded vigorously as interest rates declined. But by early August a public debate had emerged on the need for further fiscal impetus for the domestic economy. On the external side, Germany had been identified by its trading partners as a major current account surplus country that, it was hoped, would increase domestic demand, thereby boosting imports and helping relieve strains on the payments balances of other countries.

As talk about stimulative measures emerged in Germany during August and early September, exchange market participants turned generally cautious toward the mark. By that time, also, United States reassurances on exchange rate policy, along with a firming of United States interest rates, had contributed to an easing of the mark from the highs it had reached in late July. In all, the decline was some 4 percent to a low of \$0.4268 in mid-August. The Federal Reserve took the opportunity to acquire marks in the market and from correspondents, which were used in part to liquidate the \$35.4 million equivalent of swap drawings on the Bundesbank incurred when the market was unsettled in July. When the New York market turned nervous prior to the announcement of United States trade figures on August 24, the Federal Reserve sold \$8 million equivalent of marks out of balances. Otherwise, the Federal Reserve refrained from intervening through August and most of September.

Meanwhile, the German authorities acted to give an additional boost to the economy. On August 25, the Bundesbank announced a reduction in commercial bank reserve requirements and higher rediscount quotas for the banks. In the context of a further firming of interest rates in the United States in late August and early September, these measures increased the interest differential to 1-2 percentage points per annum in favor of placements in dollars as against marks. Moreover, on September 14, the German government announced a package of measures designed to inject an additional DM 12 billion (nearly 1 percent of gross national product) into the economy through the end of 1978. This package included tax relief,

particularly to encourage business investment, and increased public sector expenditures. Even so, current indicators were still revealing the extent to which the German economy had slowed, and many of the proposed measures were expected to have only a delayed impact.

Therefore, after the discussions at the late-September IMF-World Bank meetings in Washington over the difficulties in reducing the United States trade deficit, the German mark soon became caught up in the wave of dollar selling. At first, the rise in the mark lagged behind others. But, as the markets became increasingly unsettled, the demand for marks themselves intensified. The Bundesbank intervened, on occasion heavily, in the Frankfurt market. When pressure spilled into the New York market, the Federal Reserve intervened on eight trading days between September 30 and October 31 and sold \$228.7 million equivalent of marks, of which \$181.1 million equivalent was drawn on the swap line with the Bundesbank and the rest from balances. The generalized pressure against the dollar continued in November, although to a lesser extent. In that month the Federal Reserve intervened on five trading days, selling \$80.9 million equivalent of marks financed by \$77.3 million equivalent drawn under the swap arrangement with the Bundesbank and the remainder from balances. Nevertheless, the mark continued to advance, reaching \$0.4502 by end-November for a rise of 4¾ percent since September.

Chart 3

Germany

Movements in exchange rate*



* Exchange rates shown in this and the following charts are weekly averages of New York noon offered rates.

† Central rate established on October 18, 1976.

Table 2

Federal Reserve System Drawings and Repayments under Reciprocal Currency Arrangements

In millions of dollars equivalent; drawings (+) or repayments (—)

Transactions with	System swap commitments January 1, 1977	1977 I	1977 II	1977 III	1977 IV	1978 January	System swap commitments January 31, 1978
German Federal Bank	14.9	—14.9	-0-	{ +35.4 —35.4	+800.1	+451.1	1,251.2
Swiss National Bank	-0-	-0-	-0-	-0-	-0-	+ 18.9	18.9
Total	14.9	—14.9	-0-	{ +35.4 —35.4	+800.1	+470.0	1,270.1

Data are on a value-date basis with the exception of the last two columns which include transactions executed in late January for value after the reporting period.

Although economic growth in Germany resumed as the year-end approached, the exchange market remained sensitive to the possibility that foreign pressure would continue for Germany either to boost domestic demand or to find other ways to reduce its current account surplus which was widening once more. Amid uncertainty over these policy issues, the mark emerged in the forefront of market attention, rising more rapidly against the dollar than most other currencies in early December. But the German authorities, having put into place a stimulative package which would take effect mainly in 1978, were reluctant to adopt further measures for fear of rekindling inflationary pressures. As it was, the monetary aggregates were growing in excess of the Bundesbank's targets for 1977, partly as a result of the recent intervention in the exchange market. Nevertheless, the rise in the mark had already carried the rate to levels that the German authorities and many market participants considered to be excessive, particularly as compared with relative rates of inflation, and was regarded as likely to undermine chances for more rapid growth of the economy. And so, to reduce pressures on the mark, the Bundesbank on December 16 lowered its discount and Lombard rates by ½ percentage point each. Moreover, to discourage speculative inflows and to absorb some of the liquidity created by exchange market intervention, minimum reserve requirements on foreign deposits were increased and the existing ban on nonresident purchases of German bonds was extended to include securities with maturities of up to four years.

Following these measures, interest differentials in

favor of dollar placements over mark placements widened to 2-3 percentage points per annum. But, in the generally bearish atmosphere for the dollar that was emerging, considerations which were favorable to the dollar were ignored as participants jumped to protect themselves from any further rise in the mark. Thus, the demand for marks became broad based, reflecting a combination of professional positioning, portfolio shifting, commercial leads and lags, and corporate hedging of balance-sheet items before the year-end.

In this atmosphere, trading became increasingly one way. Any news report or rumor which could be considered adverse to the dollar, or favorable to the mark, triggered a further rush into marks. Moreover, the mark had become firmly established at the top of the EC snake, generating renewed speculation that a realignment within that group of currencies would soon be inevitable. As a result, the mark came into additional heavy demand against other participating currencies. In response, there was sizable intervention by the Bundesbank and its EC partners in both snake currencies and dollars to maintain the limits in the joint float.

In all, the mark rose by a further 6 percent against the dollar in December to \$0.4767 at the year-end. Both the Federal Reserve and the Bundesbank continued to intervene virtually daily to avoid even greater disorder. In December, the Federal Reserve sold a total of \$545 million of marks in the New York market, drawn on the swap line with the Bundesbank, raising total drawings outstanding by the year-end to \$803.4 million equivalent. Germany's external reserves rose

by \$2.9 billion in December, for an increase of \$5.2 billion over the last three months of 1977.

Exchange market disorder carried over into early 1978, as professional demand pushed the mark up a further 2½ percent to a peak of \$0.4885. Additional intervention by the Bundesbank and the Federal Reserve, which sold another \$40.1 million equivalent on January 3, was scarcely noticed. Instead, commentary in the market and in the press focused on what was considered an apparent reluctance of the Federal Reserve to intervene.

On January 4 the Federal Reserve and the United States Treasury issued a joint statement:

The Exchange Stabilization Fund of the United States Treasury will henceforth be utilized actively together with the \$20 billion swap network operated by the Federal Reserve System. A swap agreement has just been reached by the Treasury with the Deutsche Bundesbank and is already in force. Joint intervention by the Treasury, the Federal Reserve, and foreign central banks is designed to check speculation and re-establish order in the foreign exchange markets.

When this statement came across the news services early that afternoon, the Federal Reserve's foreign exchange Trading Desk followed up with simultaneous offers of marks to several banks in the New York market. This prompted a quick scramble for cover by some professionals who were short of dollars, and the mark dropped back by some 4 percent that afternoon without the Desk actually having sold any marks. Some further short covering during the next morning in Frankfurt pushed the mark even lower to \$0.4640. But, with many other uncertainties overhanging the dollar, some dealers began to doubt that the central banks could halt the dollar's disorderly decline through intervention alone. Once it became clear that the monetary authorities were not seeking to push dollar rates up or to hold them at any particular level, dealers sought to regain the initiative through renewed heavy bidding for marks. This bidding, over the next two days, was concentrated in the hours toward the European close, after the Bundesbank had ceased its own dealings. The Desk countered forcibly, dealing both directly with banks and through agents, and sold a total of \$253 million equivalent of marks over the two days. The Desk's sales were split evenly between the Federal Reserve and the Treasury, financed by drawings on their respective swap arrangements with the Bundesbank.

These exchange operations were followed by a hike in Federal Reserve discount rates, announced on

January 6, and by the action of the domestic open market Trading Desk to promote somewhat firmer conditions in the United States money market. By the following Monday, January 9, the exchange market came into better balance, and the Desk did not intervene on that day.

Even so, the market remained sensitive to the wide range of policy issues that were still under debate at the time. Over the next two days, bearish sentiment toward the dollar was reinforced by reports of a division of opinion within the United States over the latest monetary policy actions and by suggestions that foreign central bankers had been critical of the United States in the monthly Bank for International Settlements (BIS) meeting in Basle. (Actual participants at the meeting subsequently made clear that the United States policy actions had in fact been warmly received.) Moreover, routine public statements by government officials in Germany and in the United States essentially repeating their positions on broader economic policy issues were taken as an additional sign of disagreement. In this atmosphere of seeming policy discord, many market participants concluded that the United States intervention approach had only grudging support in Washington and elsewhere and might be abandoned at any time. The dollar, therefore, came under renewed heavy selling pressure. Over the four trading days, January 10-13, the mark was bid up to as high as \$0.4782. The German and United States authorities, while not holding the mark rate at any particular level, continued to intervene forcefully. On those days, mark sales by the United States authorities amounted to \$509.9 million equivalent, split evenly between the Federal Reserve and the Treasury and financed by drawings on their respective swap lines with the Bundesbank.

This show of force by the authorities made its point. By that Friday, dealers began to gain a feeling of two-way risk in the market, and natural buyers of dollars began to appear. In the following week, January 16-20, the market in fact came into rough balance with good two-way dealing, providing the first five-day stretch since last November in which the Federal Reserve did not intervene at all. The Desk subsequently entered the market on three occasions through the month end and sold \$52.1 million equivalent of marks. In all, mark sales by the United States authorities after January 4 amounted to \$815 million equivalent. On January 31, Federal Reserve swap debt to the Bundesbank amounted to \$1,251.2 million equivalent of marks while the United States Treasury drawings were \$407.4 million equivalent. By the month end the mark was trading quietly at \$0.4740, some 3 percent below the January 4 peak.

Sterling

By midsummer 1977 the measures the British government had adopted during the previous year to curb inflation, to contain Britain's current account deficit, and to stabilize sterling were strongly taking hold. The government's two-year policy of voluntary pay restraints had succeeded in bringing the rate of wage increases far below the rate of price inflation. Although its strategy was modified in July in the face of stiff opposition to any continued limit on negotiated wage increases, the government had obtained union agreement to space out pay negotiations over the next twelve months and to limit wage increases within the public sector. Strict cash limits on government spending and increased government receipts combined to cut sharply the public sector borrowing requirement to well below the levels anticipated in Britain's standby arrangement with the IMF. The authorities had also acted to slow the decline in short-term interest rates from the crisis levels of late 1976, in part by large sales of government securities outside the banking sector. In this situation, nonresidents joined in the bidding for attractively priced gilt-edged securities, shifting large amounts of foreign funds into sterling-denominated assets.

Consequently, sterling had come into strong demand in the exchanges. For some time the Bank of England had intervened heavily to hold the rate around the \$1.72 level, thereby rebuilding Britain's reserve position in the process. But, as the dollar's decline had persisted during July, the Bank of England shifted to an

intervention approach keyed to a weighted index of major currencies, and the spot rate rose to \$1.7385 by early August. Meanwhile, Britain was winding down its inflation rate in response to the easing of wage pressures, the renewed strength of the pound, and the decline in commodity prices worldwide.

The improvement in Britain's financial position and prospects for inflation had been achieved, however, at the cost of continued sluggishness in production and a high level of unemployment. For the time being, the prolonged stagnation in the domestic economy was continuing to depress British imports, while manufactured exports were benefiting from the previous year's slide in the pound. Moreover, North Sea oil was beginning to bolster the balance of payments. Thus, Britain's current account had shifted from large deficit to solid surplus, and this turnaround provided a continuing source of commercial demand for sterling in the exchanges. Looking ahead, the market came to expect that the government would soon take advantage of its room to maneuver, within the specified limits for monetary expansion and public sector borrowing, to provide some needed stimulation to the domestic economy.

Against this background, the Bank of England's decision in August to allow two successive ½ percentage point reductions in its minimum lending rate to 7 percent was well received in the market. This move revived expectations of still further declines in British interest rates and of renewed potential for near-term capital gains on British securities. Meanwhile, the yields on longer term securities remained attractive relative to those on comparable securities elsewhere. As a result, the inflow of foreign funds again built up and the strength of the demand soon led the market to believe that the British authorities would have to permit an additional appreciation of sterling in the market. This expectation was further fueled during September by news of a large \$1.4 billion reserve gain in August, release of favorable economic indicators, and a strong vote upholding the twelve-month rule on wage increases at the Trade Union Congress. The Bank of England met the demand for sterling with large purchases of dollars almost every day. In its other operations, it attempted to mop up the excess liquidity generated by these dollar purchases and to slow any further drop in interest rates. But during September the minimum lending rate was again lowered in two steps to 6 percent, as short-term British interest rates fell significantly below comparable United States rates for the first time since December 1969.

Early in October, the rush into sterling intensified. With the dollar then on offer generally in the exchanges, dealers expected the spot pound would rise

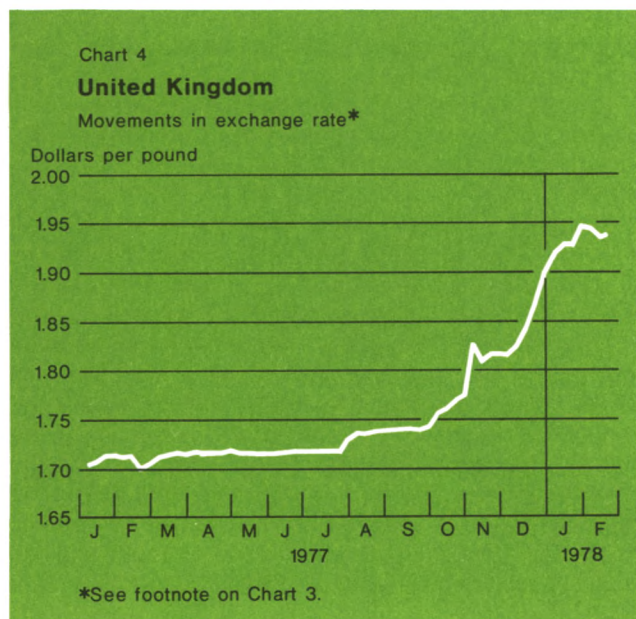


Table 3

Federal Reserve System Repayments under Special Swap Arrangement with the Swiss National Bank

In millions of dollars equivalent

System swap commitments January 1, 1977	1977 I	1977 II	1977 III	1977 IV	1978 January	System swap commitments January 31, 1978
1,051.0	-148.4	-143.6	-143.6	-108.9	-36.4	470.1

Data are on a value-date basis with the exception of the last two columns which include transactions executed in late January for value after the reporting period.

Table 4

Drawings and Repayments by Foreign Central Banks and the Bank For International Settlements under Reciprocal Currency Arrangements

In millions of dollars; drawings (+) or repayments (-)

Banks drawing on Federal Reserve System	Outstanding January 1, 1977	1977 I	1977 II	1977 III	1977 IV	1978 January	Outstanding January 31, 1978
Bank of Mexico	150.0	-150.0	-0-	-0-	-0-	-0-	-0-
Bank for International Settlements* (against German marks)	-0-	-0-	{ +35.0 -35.0	-0-	-0-	+147.0	147.0
Total	150.0	-150.0	{ +35.0 -35.0	-0-	-0-	+147.0	147.0

* BIS drawings and repayments of dollars against European currencies other than Swiss francs to meet temporary cash requirements.

Table 5

United States Treasury Securities, Foreign Currency Series Issued to the Swiss National Bank

In millions of dollars equivalent; issues (+) or redemptions (-)

Amount of commitments January 1, 1977	1977 I	1977 II	1977 III	1977 IV	1978 January	Amount of commitments January 31, 1978
1,545.7	-84.6	-85.8	-85.8	-120.5	-50.9	1,118.0

Because of rounding figures do not add to totals.

Data are on a value-date basis with the exception of the last two columns which include transactions executed in late January for value after the reporting period.

at least partly in line with other currencies. In addition, in the discussions at the IMF-World Bank annual meetings on the need to counter disappointing economic performance worldwide, Britain had been identified by some as one of the countries that could now contribute by providing some stimulus to the domestic economy. In response to this expression of confidence, the flow of funds pouring into London's financial markets swelled to massive proportions and the authorities found it increasingly difficult to neutralize the impact of these inflows on domestic money markets. British short-term interest rates continued to ease, with the Bank of England's minimum lending rate dropping to a six-year low of 5 percent on October 17. The Chancellor's proposals for mild fiscal stimulus immediately and further tax cuts in the spring were, by the time they were announced on October 26, well within what the market had come to expect. But the market had also anticipated new measures to stem the inflows of foreign funds, which were beginning to jeopardize the authorities' target for monetary expansion. When no measures were announced, the rush into sterling continued. By October 28, the pound had risen some 2½ percent above early-August levels to \$1.7780. The Bank of England continued to intervene to limit the rise in the effective exchange rate index which had edged up only marginally since early August to 62.6 percent of its 1971 Smithsonian level. The heavy dollar purchases of the central bank accounted for the bulk of the nearly \$7 billion increase in British reserves over the three months.

To protect the money supply from the expansionary effect of further large inflows, the authorities ended on October 31 their policy of intervening to prevent a rise in sterling's effective exchange rate. As a British Treasury statement acknowledging a change in official intervention policy flashed over the news services, the pound was pushed up in a wave of speculative demand to a high of \$1.8625 the following day in London. But suddenly the market turned around when that same day British mine workers unexpectedly voted down a management proposal for a labor settlement and resubmitted demands for a 90 percent pay raise. At the same time, large sections of the country were subjected to brief electrical blackouts, as power station workers staged an official "work to rule" in support of claims for improved fringe benefits. Immediately, funds flowed from sterling into marks and the pound plunged back as much as 3½ percent to \$1.7960 by November 3.

Trading in sterling quieted as the market adopted a more guarded attitude toward the pound's immediate prospects. On the one hand, Britain's rate of inflation continued to fall toward single-digit levels. Moreover,

the external position was showing further improvement: the trade account had been in solid surplus for three consecutive months, and the overall current account had been in sizable surplus already by the third quarter. On the other hand, renewed labor disputes threatened to undermine the government's policy for wages. Also, the large-scale rise in reserves of previous months left the market uncertain over the outlook for monetary expansion in the near future. As the market weighed these considerations, the pound settled in around \$1.82 until early December while, on a trade-weighted basis, it fluctuated narrowly around 63.5. In general, sterling was bolstered by continuing commercial demand. Although occasionally the pound showed a slight offered tendency, intervention was quite modest.

By that time, however, the caution that had overshadowed sterling was dissipating. The government had made substantial progress in sidestepping the highly visible claims of a few unions for pay increases significantly above a norm of 10 percent per annum. Uncertainties about a rise in interest rates that might prompt sizable withdrawals of foreign funds were cleared away after the Bank of England announced a hike in the minimum lending rate by 2 percentage points to 7 percent on November 25. Furthermore, domestic activity was showing signs of picking up and, with balance-of-payments considerations now placing less of a constraint on growth than at any time since World War II, the British economy was expected to begin a sustained upturn during 1978.

Consequently, when the dollar again began to weaken early in December and market professionals turned their attention to the strong Continental currencies, the pound was carried along in the generalized upsurge against the dollar. News of the abolition of the rule requiring surrender of 25 percent of investment currency premium proceeds from sales of foreign securities and the relaxations of some other restrictions on outflows had no impact on trading. Instead, pulled up by the rise in the mark and Swiss franc and bolstered by year-end commercial demand, the pound rose to \$1.92 by December 30. Then in the new year the pound was bid up in heavy professional demand, joining the Swiss franc in leading the rise in foreign currencies against the dollar. By January 4 it had soared to as high as \$1.9932, 14¾ percent above early-August levels.

The market then turned around and the pound fell 6 percent to \$1.8750 after the announcement by the Federal Reserve and the United States Treasury of a more active United States intervention approach. But sterling remained buoyant against both the dollar and the mark through the rest of January. Signs that mone-

tary growth was back within the targeted range reassured the market, and foreign funds were again attracted into sterling, especially just prior to a ½ percentage point reduction to 6½ percent in the Bank of England's minimum lending rate. The spot rate thus moved back up against the dollar to end the period at \$1.95—12¼ percent above early-August levels. Sterling also rose 4 percent against the mark during the six-month period and, on a trade-weighted effective basis, advanced some 7¾ percent to 66.5. During November-January official reserves increased a further \$947 million to a record \$21.4 billion on January 31.

Swiss franc

By the summer of last year, the Swiss economy was expanding faster than anticipated. At the same time Switzerland's inflation rate, at slightly above 1 percent per annum, remained lowest among industrial countries, partly as a result of the previous substantial appreciation of the Swiss franc. This incipient recovery was fueled in part by a modest rise in consumption and investment. In addition, with many Swiss firms starting to take advantage of the low inflation rate to maintain their competitive position, exports were particularly buoyant. The growth of the Swiss economy prompted an even faster rise in imports than exports, so that Switzerland's trade account shifted back into deficit. But the current account remained in sizable surplus, bolstered by Switzerland's traditionally large earnings on overseas investments.

Thus, sentiment in the exchange markets toward the Swiss franc had become increasingly bullish by late summer. The franc remained in demand, even after the German mark and the Japanese yen eased back amidst uncertainty over the implications of new stimulatory measures being planned in those countries. By end-September, the franc had risen over 2 percent against the dollar to \$0.4260 and 4 percent against the German mark from end-July levels. To counter this pressure, the Swiss National Bank intervened forcefully in Zurich and in New York through the agency of the Federal Reserve Bank of New York. On September 27, the Swiss authorities also imposed an immediate ban on the sale to nonresidents of forward francs with a maturity of less than one month, to prevent evasion of a negative interest charge on nonresident deposits through use of these short-dated swaps with Swiss commercial banks. By this time, the cumulated intervention in Swiss francs was beginning to add more liquidity to the domestic money market than was called for by the National Bank's target for monetary growth of 5 percent for the year. The central bank continued to absorb some of this liquidity by selling dollars to nonresident borrowers of Swiss francs under the of-

ficial capital export conversion requirement. But, in addition, it began to sell dollars in the market on a three-month swapped basis which, in effect, temporarily absorbed domestic funds until they would be needed for year-end purposes.

With concern heightening after the late-September IMF-World Bank meetings over the implications for the exchange markets of the persistent trade imbalances among major nations, exchange dealers and investors around the world again began to move into Swiss francs. Despite the limited availability of convenient instruments for investing in Swiss francs, low interest rates, and the barricade of controls created by the Swiss authorities to inhibit hot money inflows, the rush to acquire francs in whatever form led to a cumulative bidding-up of the franc rate. Both commercial and professional interests bought francs on the expectation that the rate would rise, shifting funds mainly out of dollars but, on occasion, out of currencies such as the pound sterling and the German mark as well. Corporate borrowers that had previously financed short- and long-term credit needs in Switzerland now hastened to buy francs to limit exchange losses on their liabilities. Speculation in the form of foreign acquisition of Swiss franc currency notes intensified. In this highly dynamic exchange market situation, the franc at times led the rise in other currencies against the dollar while at other times the rise in other currencies prompted an additional bidding-up of the franc.

On balance, however, the franc rose more rapidly



than most other major currencies. By end-November, the rate had surged another 9 percent above late-September levels to \$0.4637 and advanced 4¼ percent against the mark. The Swiss National Bank continued to try to contain the franc's rise, buying substantially more dollars in the spot market than it sold directly to nonresident borrowers of francs under the capital export conversion program. It had also acted to prohibit prepayment clauses in new foreign loan contracts. But heavy demand for francs persisted. Prepayments on outstanding loans were unaffected by the new prohibition. Also, the authorities had indicated their concern about the continued injection of new liquidity by announcing their intention to issue sterilization notes and by providing only limited liquidity assistance over the month end.

Even so, as trading conditions deteriorated generally in December, the franc continued to rise in sporadic bursts of demand. In the exchange market this further upward movement became overshadowed for a few days by the surge in demand for German marks. But within Switzerland businessmen, reacting to the uncertainties generated by the appreciation of the franc, began to curtail investment spending plans. Domestic output flagged, the rise in imports stalled, and the trade balance swung back into surplus, partly reflecting changes in the valuation of Swiss imports and exports. To prevent year-end needs for francs by Swiss commercial banks from buoying the rate even more, the Swiss authorities reversed an earlier decision to scale down the volume of their customary assistance and announced they would provide unlimited temporary year-end liquidity at favorable rates. But the franc was still swept up in heavy demand from both commercial and professional interests. From early December to January 4, the franc rose to \$0.5270, up a further 13½ percent against the dollar and 5 percent against the mark.

Following the announcement of a more active intervention policy by the United States authorities, the franc rate immediately dropped back by 8 percent to as low as \$0.4844 on January 5. Subsequently, as the market sought to test the authorities' resolve to avoid a renewed rise in the rate, the Swiss franc was bid upward again. Even when the markets settled down more generally after mid-January, the franc remained subject to bouts of buying that threatened to trigger broader unsettlement in the markets. Consequently, on January 24, the Federal Reserve resumed intervention for its own account in Swiss francs in New York. On that day, the Federal Reserve sold \$18.9 million of francs drawn under the swap line with the Swiss National Bank, in addition to the francs sold by the Desk that day on behalf of the Swiss National Bank.

By the month end the franc was trading more steadily at \$0.5043, for a net rise of 21 percent against the dollar and 13 percent against the mark for the six-month period.

During the period, the Federal Reserve and the United States Treasury continued with the program agreed to in October 1976 for an orderly repayment of pre-August 1971 franc-denominated liabilities. The Federal Reserve repaid \$235.3 million equivalent of special swap indebtedness, while the Treasury redeemed \$223.5 million equivalent of Swiss franc-denominated securities by the end of January. Most of the francs for these repayments were acquired directly from the Swiss National Bank against dollars. However, the Federal Reserve also bought francs from the National Bank against the sale of \$76.3 million equivalent of German marks and \$61.3 million equivalent of French francs, which were in turn either covered in the market or drawn from existing balances. By end-January, the Federal Reserve's special swap debt to the Swiss National Bank stood at \$470.1 million equivalent, while the Treasury's Swiss franc-denominated obligations had been reduced to \$1,118.0 million equivalent.

French franc

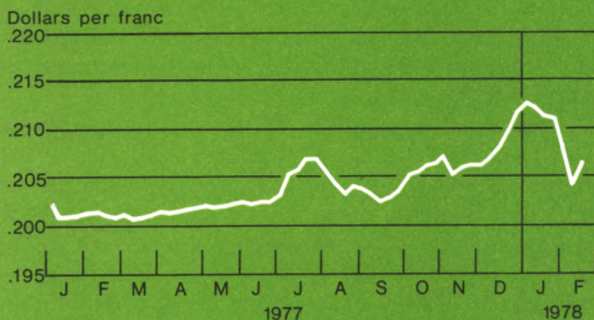
During the first half of 1977, the French economy had begun to respond to the government's concerted efforts to curb inflation and to stabilize the French franc. The pace of wage increases had slowed, inflationary pressures at the wholesale level were moderating considerably, and the rate of increase in consumer prices had stayed just below 10 percent even after a temporary price freeze had been allowed to lapse. At the same time, France's trade account was moving into surplus for the first time in two years and the current account deficit was narrowing considerably. In addition, interest rates had declined more slowly in France than elsewhere, and French residents including public and semipublic entities had accelerated their borrowing activities abroad during the summer months. Thus, the French franc had joined in the rise in European currencies against the dollar to trade around \$0.2050 in early August, even as the Bank of France had taken in reserves from time to time in moderating the rise.

The cost to France's domestic economy of its improved external position had been severe, however. Consumer demand was expanding more slowly than projected, investment demand and industrial production were both flat, and unemployment was rising. With the improvement in France's current account position now giving the government more room to maneuver, it followed up measures taken in the spring with selec-

Chart 6

France

Movements in exchange rate*



See footnote on Chart 3.

tive actions to improve the employment situation without abandoning its overall anti-inflationary stance. On August 31, the Bank of France cut the official discount rate by 1 percentage point to 9½ percent and interest rates on other money market instruments were allowed to ease in line with declining money market rates for other currencies. Early in September, the government announced a mild fiscal stimulus for the economy, introducing new measures to spend FF 5 billion (0.3 percent of GNP) in 1977. In the wake of these policy initiatives and in response to a slowdown in external borrowings, the franc tended to come on offer during September. But by the month end the franc had become caught up in the advance of European currencies against the dollar, rising 2¾ percent to as high as \$0.2088 on November 1.

By this time, however, the market began to question whether the French franc could be expected to keep pace with the German mark's rapid rise against the dollar. As some market participants sought to hedge their mark commitments by selling francs against marks, the franc weakened in the exchanges. Moreover, rapidly rising agricultural prices in France were slowing the progress in reducing inflation. Premier Barre, in a televised speech on November 3, again warned about the dangers of inflation, and soon thereafter the government announced a freeze on a variety of retail food prices. But leaders of opposition parties argued that the continued rise in prices was indicative of the failure of the government's anti-inflation policies.

In an atmosphere of growing political sensitivity before the general elections scheduled for March 1978, the selling of francs gained momentum during early November. The franc thus eased back against

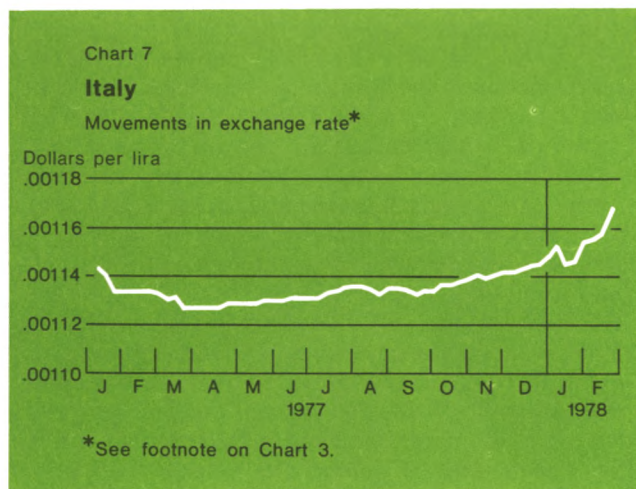
the dollar to \$0.2048 even as the dollar remained on offer against the other European currencies and the yen. To moderate the franc's fall, the Bank of France, which on occasion had sold both dollars and marks in the Paris market through the autumn, stepped up its intervention. Moreover, the central bank moved to tighten interest rates. Nevertheless, by early December the franc had weakened some 4 percent against the mark which was buoyed by a groundswell of speculative inflows out of dollars.

By the year-end, the economic indicators for the French economy were pointing to further improvement. The rise in the consumer price index was now slowing, and unemployment showed a small decline. The trade figures for December had registered a sizable surplus once again, after an unexpectedly large deficit the month before, and the Organization for Economic Cooperation and Development had forecast a narrowing of the current account deficit from \$3 billion to \$2 billion in 1978. As a result, the French franc, buoyed also by commercial month-end and year-end demand, rose sharply at the end of December. In fact, it kept roughly in pace with the German mark as it rose to \$0.2178 on January 3. After the joint Federal Reserve-Treasury announcement the following day, the franc dropped back against the dollar somewhat less than other European currencies. But, as the month of January progressed, commercial leads and lags started shifting against the franc once more as uncertainties over the outcome of the March elections continued to overhang the market. By the month end the franc, trading at \$0.2108, was 2¾ percent above early-August levels, while over the six-month period the franc had fallen 5½ percent against the mark. As of January 31, French foreign exchange reserves stood at \$4.7 billion, little changed over the six-month period.

Italian lira

To curb inflation, to restore equilibrium in the balance of payments, and to stabilize the Italian lira, Italy's minority government had implemented by mid-April 1977 a comprehensive program that served as the basis for a new standby agreement with the IMF. As part of the three-point program, the public sector deficit was to be reduced through tax increases, spending cuts, and higher prices for public services. Monetary policy had been reinforced with a sharp hike in interest rates and strict controls to limit the extension of credit. And steps were undertaken to modify Italy's wage indexation system, with the view to bringing the rate of inflation down from 22 percent to 13 percent by spring 1978.

The completion of this program and the conclusion of a standby agreement had been welcomed in the



market. It provided Italy with \$530 million of new IMF credit and assured the availability of a further \$500 million from the EC. In addition, it paved the way for more private external borrowing since—with the outlook for the lira now more assured and with availability of domestic credit greatly restricted—Italian banks and companies had a strong incentive to meet their financing needs abroad. Bolstered by these and other capital inflows, the lira had steadied around \$0.001130 (Lit 885) through early summer. The authorities bought substantial amounts of dollars in adding to Italy's foreign exchange reserves, which rose to \$7.1 billion by end-July.

By early August, the pace of these capital inflows had begun to slow as the tapering-off of seasonal tourist receipts left the market uncertain about the vulnerability of the lira to renewed downward pressure. But Italy's current account, now benefiting from the impact of the lira's 22 percent fall in 1976 and of the new austerity program, swung toward surplus. Therefore, continuing commercial needs kept the lira in demand throughout the late summer. The Bank of Italy again took in dollars, albeit at a more modest pace. The central bank also took advantage of the favorable climate in the exchange markets to cut the Bank of Italy's discount rate $1\frac{1}{2}$ percentage points to $11\frac{1}{2}$ percent in late August. The authorities made further repayments of credits to the IMF and, in September, repaid a \$500 million tranche on a \$2 billion gold-dollar swap the Bank of Italy had with the Bundesbank. Even with these repayments, Italy's foreign exchange reserves declined only \$518 million during August-September.

By October the lira, too, had become caught up in the generalized advance against the dollar. Demand

for lire intensified and, with the Bank of Italy acting to limit the rise in the rate, its purchases of dollars increased. The unpegging of sterling at end-October triggered even more favorable shifts in commercial leads and lags, as market participants came to expect the Italian authorities might follow suit. As a result, by end-November, Italy's foreign exchange reserves had risen \$1.6 billion in two months while the spot rate had advanced to \$0.001140 (Lit 877.2).

Meanwhile, Italy's current account had strengthened further, swinging from a \$2.8 billion deficit in 1976 to a near \$2 billion surplus in 1977. Moreover, the government's new austerity program had succeeded in bringing the inflation rate down toward 16 percent in just half a year. But these improvements resulted in a considerable slowing of the domestic economy. Industrial production had dropped off sharply to levels below those of the previous year. Unemployment rose and, with corporate profits squeezed by the high cost of borrowing funds, the prospects for an improvement in the labor market seemed dim. Pressure was mounting for new action to stimulate the domestic economy now that some progress had been achieved on the inflation and balance-of-payments fronts. At the same time, however, the public sector deficit had exceeded the limit specified in the standby agreement and subsequent discussions with the IMF. The minority government entered into a new round of negotiations with the opposition parties and the trade unions on new measures to increase public service prices and to reduce expenditures. But by this time the Communist Party and the trade unions were facing growing opposition from within their own ranks against the tacit support they were providing for government policies.

Uncertainties over the outcome of these negotiations, which ultimately led to the resignation of Premier Andreotti's $1\frac{1}{2}$ -year-old government, overshadowed the market for lire during December and January. Flows into Italy slowed substantially, and the lira came on offer at times. But the pressure did not cumulate because the market remained aware of Italy's ample exchange reserves and the overriding concern at the time was the dollar's continuing decline. Nevertheless, the lira weakened against the other major currencies on the Continent, with the Bank of Italy selling dollars on balance during these two months. But against the dollar the lira rose to trade at \$0.001153 (Lit 867.3) on January 31. Overall, it rose 1½ percent for the period while on balance Italy's foreign exchange reserves increased to \$7.6 billion.

EC snake

During the period under review, most of the currencies within the EC snake were pulled up sharply by the rise

in the German mark against the dollar. An exception was the Swedish krona which, after coming on offer throughout the summer in reaction to a continued deterioration in Sweden's trade and price performance, was withdrawn for the time being from the joint float on August 29. At that time, it was devalued by 10 percent in relation to a basket of currencies (weighted according to their importance in Sweden's foreign trade). This entailed a marking-down of the krona by 9 percent against the dollar, before it steadied on an unwinding of short positions and commercial leads and lags. Simultaneously, with this exchange rate adjustment by a major trading partner, Norway and Denmark each adjusted downward the intervention points of their currencies by 5 percent against the other members of the snake. Following this adjustment—the third in less than a year—the Danish krone and Norwegian krone moved into first and second position in the newly realigned joint float. The mark sank to the bottom, thereby affording the National Bank of Denmark an opportunity to take marks into its reserves.

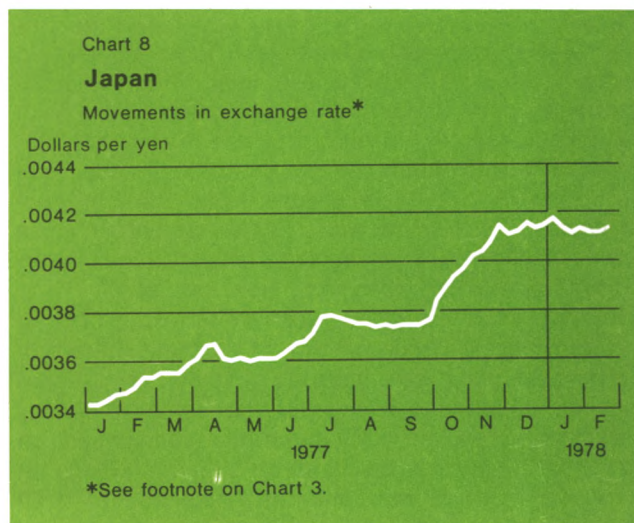
Over the next two months, trading relationships were comfortable within the joint float. But by mid-November, the mark had moved back up to the top of the snake. In the increasingly unsettled climate which was developing, the market began once again to question the durability of the current rate relationships within the snake. As the mark surged further upward against the dollar, the remaining currencies became caught on the floor of a rising joint float. Rumors of another imminent realignment or breakup of the snake surfaced repeatedly. Each time, the selling of weaker currencies intensified, with the greatest pressures coming before weekends and during the December 5-6 EC summit meeting. In response, there was large official intervention in both dollars and marks, and several EC central banks tightened their domestic money markets to maintain the joint float intervention limits.

Following these initiatives, tensions within the EC snake eased in late December and market participants came increasingly to focus on the dollar generally. Thus, the currencies at the bottom of the joint float moved off the floor of the band, thereby enabling the respective central banks to relax monetary pressures and purchase marks in the exchange market to repay debt to the Bundesbank. For the most part, trading remained quiet in the joint float through the end of the period. But one currency, the Norwegian krone, continued to require official support from the Norges Bank and the Bundesbank to keep pace with the mark. In mid-February, to restore a more competitive relationship with its major trading partners, the Norwegian authorities announced an 8 percent downward adjustment of their currency against the other snake currencies.

Japanese yen

During the summer of 1977, economic growth in Japan was still far below the pace projected by the Japanese authorities. Fear of mounting layoffs in a country where the security of lifetime employment has been a tradition was becoming an increasingly important domestic issue. The government had acted, both through fiscal spending programs and a lowering of interest rates, to provide modest stimulation without aggravating the rate of inflation which was still running over 8 percent per annum. But the private sector had been slow to respond. Businessmen were reluctant to increase investment in new plant and equipment in view of the worsening squeeze on profit margins, the recent rise in the yen, and the fear of protectionist actions against Japanese goods abroad. The continued sluggishness of the Japanese economy had exerted a powerful drag on imports. Exports had continued to expand in line with more buoyant economic conditions elsewhere, particularly in the United States. As a result, Japan's current account had mounted to a massive \$10 billion at an annual rate, generating considerable concern internationally.

As the exchange markets had responded to these developments, the yen had advanced 4 percent in the late spring and early summer. But then, as dealers came to expect the government to take stronger steps to bolster the domestic economy, the spot rate settled in the vicinity of ¥ 267 (\$0.003745) through August. In early September, the government proposed a ¥ 2 trillion package of increased public expenditures, along with special programs to aid industry and to speed up raw materials imports. In addition, the Bank of Japan cut its discount rate by $\frac{3}{4}$ percent to $4\frac{1}{4}$



percent while also reducing reserve requirements to facilitate a sustainable economic recovery through a further decline of general interest rates. Market reaction to the measures was mild, since few of the provisions were expected to have an immediate effect. But the lowering of Japanese short-term interest rates, at a time when United States rates were rising, gave further incentive for Japanese companies to reduce their trade financing in dollars in favor of credits in yen. In addition, capital outflows, such as foreign borrowings in Japan, were encouraged. With these outflows offsetting to some degree the continuing current account surplus, the yen market remained in rough balance through mid-September.

Nevertheless, Japan was still cumulating massive trade surpluses each month, while the United States continued to run a trade deficit at an annual rate of \$30 billion. Concerns over this continued imbalance remained strong, and in late September the market came to realize that both private and official forecasters were projecting an even larger United States deficit in 1978. Under these circumstances, Japanese officials attending the IMF-World Bank meetings in Washington were openly urged to take further steps to expand the Japanese economy and to open their markets more to foreign goods, or risk further protectionist measures in their major export markets. Within Japan itself a hot debate was also taking place over whether further reflationary measures were needed to revive the domestic economy.

In this atmosphere, a new wave of demand built up for the yen. As the spot yen rose, even broader demand came into the market on the expectation of higher yen rates to come. The forward yen also strengthened, thereby opening up an incentive for nonresident placement of funds, on a covered basis, in "free" yen deposits and investment in Japanese government securities. Most of the pressure on the yen was concentrated in the Tokyo market. But it also spilled into the European and United States exchange markets where, with the dollar generally on offer, the rise in the yen reinforced and was reinforced by the rise in other major currencies. Thus, in seven weeks through mid-November, the yen advanced by 9 percent to some ¥245 (\$0.004080), even as the Bank of Japan intervened forcefully on occasion to slow the rise.

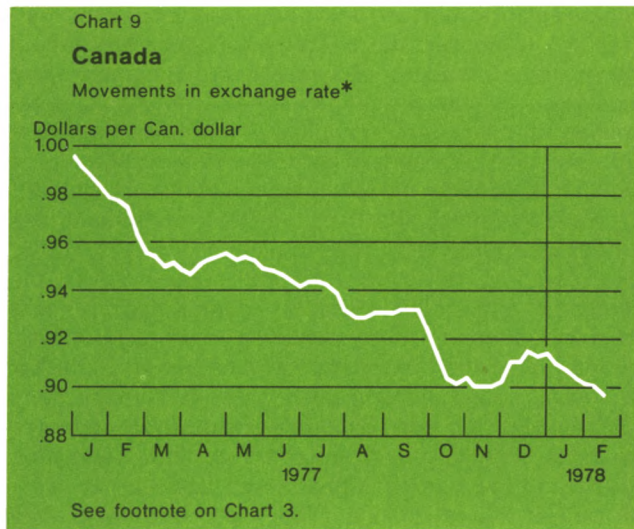
By that time, the rush into yen was far exceeding the surplus on either trade or current account. Inflows of speculative funds were accentuating the yen's sharp rise and threatening to disrupt the domestic money market. In response, the authorities announced on November 17 the suspension of public offerings of Japanese Treasury bills and the imposition of a 50 percent marginal reserve requirement on "free" yen

deposits. On November 24, the Bank of Japan followed up with very heavy intervention, which settled the market with the yen trading at around the ¥240 (\$0.004167) level. Reflecting in large part the Bank of Japan's intervention during October-November, Japan's reserves increased by \$4.5 billion since end-July.

On November 28, Prime Minister Fukuda announced a reshuffling of his cabinet in an attempt to accelerate efforts to prepare a program to reduce the trade surplus while also stimulating the economy. These moves gave new impetus to bilateral trade negotiations between the United States and Japan in preparation for the Tokyo round of multilateral negotiations on reducing tariff and nontariff barriers to trade. In this more positive atmosphere, the yen fluctuated narrowly in the first half of December, even as the dollar was weakening against other major currencies.

Nevertheless, most of the underlying problems affecting the Japanese trade imbalance remained. The uncertainties over the Japanese economic outlook generated by the yen's continued rise was keeping the domestic economy sluggish, lowering import growth, and preventing the leveling-off of export volume from cutting the trade surplus. In fact, the trade surplus was actually becoming somewhat wider as a result of the impact of the yen's appreciation on the terms of trade. For 1977 as a whole, the total surplus reached \$17.5 billion, up \$7.6 billion from 1976. In this context, dealers remained sensitive to public statements about the ongoing trade negotiations, indicating that a dramatic change in Japanese trade flows could not be expected in the short term. Moreover, as the year-end approached, the exchange markets for the dollar generally had become more disorderly. Consequently, the yen came into sporadic bouts of demand through the rest of December and into early 1978. The Bank of Japan continued to intervene forcefully in the Tokyo market and, beginning in late December, supplemented these operations by occasionally intervening in the New York market through this Bank. Even so, the yen continued to be bid up to reach a high of ¥236.5 (\$0.004228) in New York on January 4.

Following the United States authorities' announcement of a more active intervention approach, the yen rate fell back some 2 percent. Thereafter, the yen moved more narrowly in a reasonably balanced market. Announcement of proposed budget changes gave promise of additional fiscal stimulation to the Japanese economy. Later in January, a joint statement by the Japanese and American trade negotiators also helped remove some of the tension in the market. By the month end, the yen was trading around ¥241.5 (\$0.004140) for a net rise of 10¼ percent over the six-month period under review. During that time, Japanese

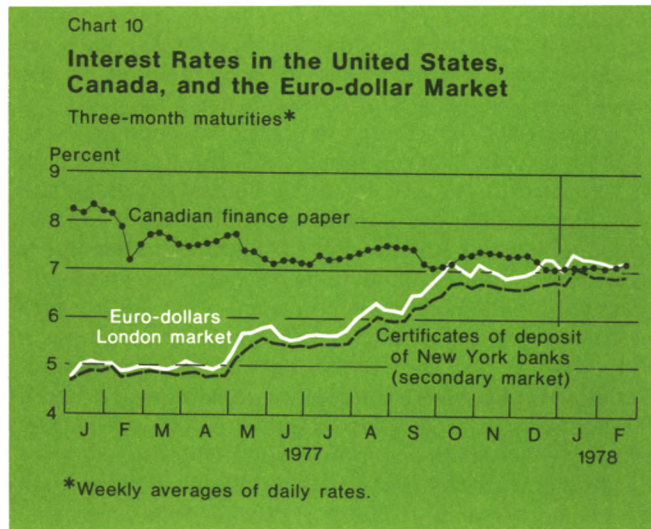


reserves had risen, largely through official intervention purchases, by \$5.7 billion to \$23.4 billion.

Canadian dollar

For two years the Canadian authorities had in place broad monetary and fiscal restraints as well as income controls to curb the severe inflationary pressures that had afflicted the Canadian economy. Although these efforts had brought some early success, the authorities acknowledged last July that, with the increase in prices still hovering around a rate of 9 percent, their 6 percent target could not be achieved during 1977. Meanwhile, the slow pace of economic activity for the second quarter and the rise in unemployment—especially in Quebec and the maritime provinces—had become apparent. Political and social tensions generated by the presence in Quebec of a government committed over the long term to establishing the province's independence also introduced uncertainties that exerted a drag on spending by both businessmen and consumers. Many in the market, therefore, came to expect that the government would shift its priorities away from containing inflation toward stimulating an early rise in employment.

Externally, Canada's current account deficit remained above the \$4 billion level at an annual rate. Unlike 1976, this deficit was not fully covered by capital inflows generated by long-term borrowing abroad. Instead, Canadian public authorities had postponed some of their financing until doubts over foreign capital market receptiveness to Canadian placements had been cleared up. Moreover, a decline in Canadian interest rates earlier in the year had already eroded



interest incentives for short-term flows into Canada and, when United States interest rates started to firm after midyear, market participants expected these interest rate differentials to narrow further. In response, the Canadian dollar had already come heavily on offer in the exchange markets. From November 1976 through mid-August, it had dropped 9¼ percent to as low as \$0.9269 before steadying somewhat to trade around \$0.9320 through end-September.

By early October, however, bearish sentiment toward the Canadian dollar resurfaced. The calendar for new Canadian external borrowings over the near term appeared light, and conversions of previous borrowings tapered off. Looking ahead, some market participants were apprehensive that the government might announce substantial reflationary measures in an economic policy message scheduled for later in the month. Others concluded from official reaffirmation of Canada's floating exchange rate policy that the authorities were prepared for the rate to go substantially lower. Moreover, reports that the provincial government might "nationalize" certain key industries in Quebec, coming on top of an earlier move to adopt French as the official provincial language, further heightened market tensions. In this atmosphere, a wave of selling gathered momentum. Market professionals sold Canadian dollars short, commercial leads and lags shifted against the currency, and some United States corporations chose to repatriate funds ahead of the usual year-end date. The rate was thereby driven down late in October to a low of \$0.8950. The Bank of Canada's intervention to maintain orderly markets under the circumstances resulted in sizable dollar sales in October, as

reflected in a \$605 million decline in external reserves for that month alone. This decline brought Canada's external reserves down to \$4.2 billion by October 31, the lowest level for Canadian reserves since May 1970.

By this time, however, the Canadian economy was beginning to gain strength and Canada's trade account was starting to respond to the decline in the exchange rate. The government had presented its economic message, which contained only moderately stimulatory measures. Finance Minister Chrétien also had announced the dismantling of the wage-price control program, but gradually rather than immediately as some in the market had anticipated. For its part, the Bank of Canada had lowered its monetary growth target to continue to exert a moderating influence on inflation. Moreover, the Canadian authorities arranged a seven-year Euro-dollar standby credit of \$1.5 billion with Canadian banks to replenish, if needed, official dollar reserves.

These developments helped steady the Canadian dollar during November-December. Dealers who had gone short Canadian dollars earlier in the year began to bid for the currency to square their positions before the year-end. Moreover, Canadian public authorities

began again to borrow heavily in foreign capital markets and to convert the proceeds of these and recent issues into Canadian dollars. These demands more than offset whatever commercial year-end selling remained to meet debt servicing requirements and foreign dividend payments. Thus, the rate advanced to as high as \$0.9202, some 2¾ percent above its October lows. In smoothing the rise, the Bank of Canada was a net buyer of United States dollars.

In January, however, renewed concern over the economic and political outlook contributed to more volatile trading in the Canadian dollar. Moreover, United States short-term interest rates had risen further to levels above comparable rates in Canada, and the calendar for new Canadian borrowings appeared to have thinned out. The spot rate thus fluctuated lower, and the Bank of Canada was again a net seller of United States dollars. The Canadian dollar had eased to \$0.9031 by January 31, ending the period 3½ percent below its level at end-July 1977. Canada's external reserves stood at \$4.4 billion, up \$234 million from the low point reached last October but down \$604 million from the level of six months before.

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