

# Federal Reserve Bank of New York

## Quarterly Review

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|----|--|
| 1  | The Challenges of International<br>Economic Policy           |
|    | The business situation                                       |
| 7  | Current developments   |
| 10 | How accurate are capital spending<br>surveys?                |
|    | The financial markets  |
| 16 | Current developments   |
| 19 | Monetary effects of Federal<br>Reserve swaps                 |
| 22 | The Market for Large Negotiable CDs                          |
| 35 | The Dealer Market for United States<br>Government Securities |
| 48 | Treasury and Federal Reserve Foreign<br>Exchange Operations  |

*This Quarterly Review is published by the Research and Statistics Function of the Federal Reserve Bank of New York. A speech on international economic policy by the president of the bank, PAUL A. VOLCKER, starts on page 1. The following members of the Research and Statistics Function contributed to this issue: KAREN BRADLEY and AVRIL EUBA (on the accuracy of capital spending surveys, p. 10), ROGER M. KUBARYCH (on the monetary effects of Federal Reserve swaps, p. 19), and WILLIAM C. MELTON (on the market for large CDs, p. 22).*

*The article on the dealer market for United States Government securities, p. 35, was contributed by CHRISTOPHER J. McCURDY of the Open Market and Treasury Issues Function.*

*An Interim Report of Treasury and Federal Reserve Foreign Exchange Operations for the period August through October 1977 begins on page 48.*

Remarks before the  
Patterson School of Diplomacy of the  
University of Kentucky on  
Thursday, November 10, 1977

# The Challenges of International Economic Policy

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New York

My subject, although not quite so broad as all outdoors, is perhaps more appropriate to a year's seminar than a single lecture. The difficulties it presents lie less in the enumeration of the challenges than in finding the answers—answers not just in an intellectual sense, but in a way that will move the world outside the university. In the end, people need to be impelled to respond to threats that may still seem abstract and abstruse, removed from our daily life, even though they are very real.

Americans have shown again and again that they can respond well to crises that are evident to them. Understandably, their reactions are less certain, less forceful, and apt to be mired in interminable debate when the challenge is less visible, when we still can put off changes in the way we live. To take the most obvious example, can we really get excited about the energy problem—excited enough to take action that affects our pocketbook and our style of living—when the oil storage tanks are full and the local gas station may be undercutting the price of his competitor down the road? Certainly, President Carter is trying to drive the message home, and he has properly made energy a number one priority. Yet, we have not really acted so far. If we procrastinate further, what are the chances of dealing at all effectively with the crisis that seems so likely to come, sooner or later, in the crucial energy sector of our economy, a sector in which large changes require lead times of years or even a decade or more?

The energy problem deserves to be on the top of the list of our international economic priorities partly because it cuts across and complicates our other prob-

lems. It is not only a matter of the huge increase in the prices of petroleum products. Important and painful as that is, the higher prices, as we permit them to be reflected in our domestic markets, at least provide strong incentives to adjust by both conserving and producing.

We also face the hard fact that, in physical terms, our sharply increased oil imports are now nearly equal to our shrinking domestic production. That places an enormous burden on our balance of payments. Oil imports are running at \$45 billion per year, equivalent to *all* our imports only six years ago and almost 40 percent of all our current exports.

The violent changes in the petroleum markets have contributed heavily to a second challenge: the need to deal with the huge imbalances in international payments that have emerged for a number of countries. Such imbalances are not a new feature of international economic life, but they have assumed a new dimension.

Much attention recently has been given to the prospect of a trade deficit for the United States of perhaps \$30 billion this year, several times any previous figures; as I just suggested, our oil imports are a major contributor. But, taken in isolation, that figure can be misleading as to the extent of our problem. We earn a net of well over \$10 billion a year on our foreign investments and on services. We are well placed to attract foreign capital. We are a strong and relatively stable country.

Other countries, including some much poorer ones, have found themselves in a larger deficit position, rela-

tive to the size of *their* economies. Meanwhile, the oil-exporting countries have *surpluses* on current account on the order of \$40 billion. So long as those surpluses exist, other countries, taken together, will have a deficit. But oil cannot fully explain the extent of the current imbalances or how they are distributed. A handful of oil-importing industrial countries, led by Japan, also have large and persistent surpluses. The deficits of others far exceed the impact of oil prices on their imports.

The size and persistence of these imbalances have led directly into a third problem: the need to finance these imbalances, with the concomitant increases in international indebtedness. From an immediate point of view, it might be argued that this challenge, assessed with so much foreboding a few years ago, has been met successfully. A combination of sharply expanded commercial bank lending, larger flows of official assistance to developing countries, and some strategic use of the medium-term lending resources of the International Monetary Fund have, together, bridged the gap in the payments position of most countries without drastically impairing their development programs or growth.

We should pay tribute to the resourcefulness and flexibility of the international capital markets and official organizations in meeting the needs that followed the oil crisis. But let us also clearly recognize there have been elements in this process that cannot be sustained indefinitely. In some instances, financing was so freely available that borrowing countries were slow to take necessary measures of adjustment, thereby building up debts at a rate that would threaten their capacity to service their debts and increasing the risk of abrupt curtailment of new loans. The bulk of the bank lending has been for relatively short terms—

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substantially shorter than the need—which introduced a potential element of instability that could be damaging to both growth and the maintenance of open markets. Helpful as it has been, bank lending—and the short-term indebtedness of some important borrowing countries—cannot reasonably continue to grow at the same rates of speed without at some point jeopardizing economic and financial stability.

Dealing with the problem of international indebted-

ness is only one facet of a still broader challenge: how to meet the aspirations of the developing countries—the so-called poor South—for a higher standard of living, and do so in ways consistent with the prosperity and health of the Northern industrialized world. In a sense, the OPEC nations found a way to meet their own needs by forming a cartel for the supply of oil. But in the wider interest, including that of

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resource-poor developing countries, that is hardly a model we can afford to see emulated. Perhaps it is fortunate that the same technical possibilities exist for few, if any, other commodities. But the basic issue of recognizing and meeting the aspirations of the poor will not go away. While I can barely scratch the surface of this problem now, the acerbic tone of some of the so-called North-South dialogue points to the threat of divisive actions, with implications of political as well as economic tensions, if cooperative approaches are not agreed upon.

Finally, in setting the international agenda, I think we must plainly recognize the threat implicit in all these other challenges to the basic fabric of a liberal, market-oriented world economy. At a time of economic trouble there is a temptation for any country, including our own, to try to meet its immediately visible problems by pushing off adjustments onto its trading partners by means of unilateral protectionist measures. Widespread unemployment, pressures on international trading positions, an inability to obtain international credits, and fear of new competition from developing countries—any one of these can be the breeding ground. Today, in one country or another, we have a combination of all those factors at work.

The fallacy in the protectionist instinct is, of course, quite clear from a global perspective. Even though protected markets may seem attractive from the viewpoint of a particular industry, the net rewards are nil. More than that, when everyone plays the game, they are negative. Collectively, we would all end up losing markets and pay a high price in economic distortions, inefficiency, and political friction. The United States, as the leading trading nation, could hardly expect to indulge in protectionism all by itself.



This might seem a formidable list of problems, but I believe it reflects the shape of the world today. I do not believe, however, that we need to approach the international agenda in a pessimistic, defensive mood. The whole record of the postwar era gives grounds for confidence.

Amid the desolation of economic life in many countries after World War II, we built from scratch new international financial institutions, the IMF and the World Bank, that have stood up for thirty years. Trade barriers have been decisively reduced and the gains consolidated in the GATT trading rules. As recently as the early 1970's we managed a virtual revolution in the international monetary system. All of this has been reflected—taking the broad sweep of the past three decades—in an unparalleled era of growth, an enormous expansion of international trade, and dramatic gains in the welfare of some of the poorest countries of the world.

None of this was, in prospect, simple. If we cast our minds back only four years when the oil crisis burst upon an unsuspecting world, we can readily recall the portents of gloom at that time. Indeed, the concern was justified. In the next year, we saw both record levels of inflation in the industrialized world and the deepest of our postwar recessions. We are still feeling the effects. Yet, much progress has been made toward restoring a healthy economic environment.

Growth in the United States has averaged almost 6 percent a year in the past two and a half years, and we have 7 million more people employed. With some exceptions, growth has resumed in industrialized countries abroad as well. And, notably, growth in the developing world has been at a faster rate than in the industrialized countries abroad, averaging 5 percent, only fractionally below the favorable record of the late sixties and early seventies. The rate of inflation, while still far too high, has been cut almost everywhere.

These accomplishments were not accidental. In part, they were a reflection of positive, deliberate governmental policies. Into that category, I would put the vigorous measures adopted almost everywhere, through monetary policy or otherwise, to bring inflation under control, while encouraging and facilitating economic recovery. A number of countries have addressed with some success their external payments problems. At the same time, steps have been taken to enlarge international official financing facilities so that adequate funds could be brought to bear at sensitive points.

Perhaps as important is what governments *refrained* from doing. They have not, in general, retreated behind protectionist barriers to trade. With rare exception, capital markets were left free to function

both here and abroad. Rather than introducing a panoply of controls, exchange rates have been permitted to swing to support needed adjustments in payments positions, although wide and erratic movements have sometimes been a cause of concern.

In these circumstances, markets for both goods and money have been able to make many of the needed adjustments. I have already touched upon the role played by international financial markets. New syndicated international bank loans and bond issues totaled some \$140 billion-\$145 billion in the three years 1974-76, two and a half times the previous three years and more than six times the volume in the late 1960's. Meanwhile, imports of the oil-producing countries have quadrupled since 1973, reducing their current account surpluses from nearly \$70 billion in the immediate aftermath of the oil price increases to about \$40 billion today. While the great bulk of those shipments was from industrial countries, the nonoil devel-

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oping countries have managed to increase their total exports at a rate of about 15 percent a year since 1974, bringing their deficits to more manageable although still high levels.

But let us look, equally, at what remains to be done. First there is energy. While the degree of effort and success has varied among countries, many still lack forceful and comprehensive energy programs. In particular, the United States—consuming 40 percent of the world's energy and a third of its petroleum products—has been a laggard. Although our use of energy has been prolific, far above other countries' per capita or per unit of production, we have less conservation. Oil imports have increased by nearly \$20 billion in the past two years alone, directly accounting for about half of the reversal in our trade from a surplus of \$9 billion to a deficit of \$30 billion. The four major European countries and Japan are all using significantly less oil per unit of production than in 1973; we are using virtually the same amount.

Fortunately, from the standpoint of financial stability, the oil producers have tended to invest the bulk of their liquid funds in the dollar, helping to finance our balance of payments and maintaining the value of our currency in world markets. That policy is ultimately justified primarily by confidence in our financial policies and in our economy, which places an

extra premium on the way we run our affairs. Given the burden of the oil imports on our external payments, to maintain that confidence it is particularly important that we can point to the prospect, over time, not of inexorable increases in our oil imports but of a decline.

I know the specifics of any energy program are controversial. They are bound to be when the implications for both the consumer and industry are so

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**Substantial public and private credits will be needed for an indefinite period ahead. Each has advantages—and each has dangers—if carried too far. A complementary approach, with private and public lenders both carrying a portion of the burden and risk, seems to me the prudent course.**

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large. Different points of view about how to attack the problem need to be heard and are being heard. But, amid all that controversy, let us not lose sight of the crucial message—that we need a strong energy program and that the time is already late.

In a second area, financing, we have already had some helpful initiatives. Quotas in the International Monetary Fund are about to be raised, providing that institution with an additional \$6½ billion to \$7 billion in usable currencies. A supplementary credit facility, the so-called Witteveen facility, amounting to some \$10 billion in total, is awaiting endorsement by national legislatures, including our own. Together with \$8½ billion of existing usable resources, the IMF should be reasonably well equipped to meet the more immediately foreseeable needs through this decade, provided our Congress and other legislatures act in a timely way.

But the potential requirements remain huge. Not allowing for aid programs, the nonoil developing countries are still running deficits in the neighborhood of \$25 billion-\$30 billion a year. The smaller and economically weaker OECD countries—Spain, Portugal, Turkey, Greece, and others—have combined deficits of some \$20 billion.

Commercial banks can supply part of those needs, if all goes reasonably smoothly. The issue is not, as some have suggested, “bailing out” the banks of existing commitments. But they cannot—they should not—in the interests of their own diversification of risks be asked to continue to carry so much of the load. Needs for official finance, beyond the amounts already in train, are therefore foreseeable. It is only prudent that international negotiations to that end have begun in the framework of both the IMF and the World Bank.

Funding from the IMF and the World Bank brings benefits beyond the money itself; indeed, this must

be part of the ultimate justification. Substantial IMF lending is conditional. In other words, it is dependent upon borrowing countries undertaking orderly programs of adjustment to eliminate or to reduce sharply their needs for external loans as time passes. This often requires dealing with difficult underlying problems of domestic policy. But success in these efforts is crucial, not only in a domestic context, but in protecting the structure of private, as well as public, international credit.

Long-term money from the World Bank is directed primarily toward productive projects—projects that promise reasonable rates of return. Success in those efforts ultimately supports internal growth while improving the capacity of the borrower to service international indebtedness.

The difficulties and sensitivities of working with sovereign countries in support of effective economic policies are well known. But official international institutions in many instances are better equipped, and better positioned, to undertake this delicate work than private lenders. That fact—together with concern over the growing exposure of banks to risks of foreign lending, as well as the vulnerabilities of countries to the risks of dependence on relatively short-term private financing—has stimulated some thinking that the great bulk of lending to developing countries be channeled through official institutions. Alternatively, some have hoped that the IMF might take a much more active role in influencing the decisions of private lenders, that it would, in effect, take upon itself a kind of role as an international credit rating agency, act as a middleman for private funds, or encourage private lenders to commit money only in conjunction with IMF loans.

Those sweeping proposals have foundered, I think rightly, on both practical and conceptual grounds. Governments have demonstrated no willingness to provide money to the official institutions on the scale that would be required. Neither potential borrowers nor lenders want their flexibility and choices so limited. And it is at least doubtful that any single institution is uniquely equipped to do the job, or could or should be given the immense power of credit allocation that it implies.

Much less formally, and without the same implication of comprehensiveness or compulsion, more *ad hoc* arrangements involving a combination of official and private credits to particular borrowers have developed. For instance, some bank lending is specifically conditioned on parallel IMF loans or standby arrangements. Lenders in some instances have entered into co-financing arrangements with the World Bank, working out mutually complementary and dependent

financing terms. Efforts are under way to improve the information available to private lenders.

All of this strikes me as highly constructive and worthy of further experimentation and development. One thing seems clear; substantial public and private credits will be needed for an indefinite period ahead. Each has advantages—and each has dangers—if carried too far. A complementary approach, with private and public lenders both carrying a portion of the burden and risk, seems to me the prudent course.

Over time, the success of all these efforts will be dependent on the economic environment in which they proceed. There can be no question that the most important single contribution the United States, and the industrial world as a whole, can make to that environment is to maintain reasonably steady growth. And, I think the lesson has been driven home that those prospects are closely linked to the success of our efforts to deal with the inflation that has become so deeply ingrained in recent years. Obviously, those goals of growth and price stability are critical, regardless of their implications for international policy. But the international considerations do, it seems to me, raise the stakes enormously.

It is not a process which any one country, even one so large as the United States, can indefinitely maintain as if it were an isolated island. Let me suggest one reason. Over the past two and a half years of recovery, this country has been among the fastest growing in the industrialized world, not so much because our recovery has been exceptionally rapid, but because that of others has been relatively slow. One result has been that our imports, even apart from oil, have been

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growing relatively fast, spurred in some instances by aggressive selling by foreign industries faced with slack markets elsewhere. At the same time, with investment relatively weak abroad, our exports have been almost flat. Some calculations suggest half or more of our current deficit can be traced to differences in growth patterns here and abroad.

Fortunately, some of the same factors helping to account for much of our trade deficit help make the

United States especially attractive to foreign investors, potentially bridging the gap in our payments. I say fortunately because our trade deficit does not appear to stem from circumstances in which our basic competitive position has been impaired, or in which a generalized depreciation of the dollar is helpful or appropriate. To the contrary, as Secretary Blumenthal and Chairman Burns have recently emphasized, a strong

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**Our trade deficit does not appear to stem from circumstances in which our basic competitive position has been impaired, or in which a generalized depreciation of the dollar is helpful or appropriate. To the contrary . . . a strong and stable dollar is in our interest.**

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and stable dollar is in our interest, as it is in the interest of other countries who are dependent on reasonable stability in our currency to conduct international trade and finance and to manage their reserves in orderly fashion. That stability can be better assured to the extent that it can be foreseen that the next major swing in our current account position will be in a positive direction, that our current deficit is indeed in considerable part cyclical, and that the climate for investment, domestic and foreign, is improved.

More broadly, that prospect is fundamentally related to our success in controlling inflation, as well as to the success of our energy policies.

Beyond this, today, more than ever before in the postwar period, we need to recognize and cope with the risk that—deliberately or inadvertently, here or elsewhere—nations will turn inward for solutions, seeking relief for themselves by closing markets to others.

In this country, a week hardly passes when the case is not put that foreign competition has contributed to the closing of a plant or sizable layoffs. The causation often seems direct and certainly visible, even when the underlying situation is clouded by other factors.

In some cases, such as in shoes, in textiles, and increasingly in certain electronics products, the competition is mainly from poor countries, countries that will need expanding foreign markets if they are to grow and service their debt. In other cases, as in steel, the competition is from some of the strongest of our trading partners.

The mistake we could make is to forget that these pressures are not unique to the United States and that the countries from which we import are usually also large markets for our export industries. Jobs are at stake at both ends—here and abroad, in export- as well as import-competing industries.

We stand on strong ground when we insist that competition be fair as well as open, when we guard against dumping and export subsidies.

We need to insist that our open markets are matched by others—and the negotiations now under way at Geneva provide a forum for that.

We will meet with understanding when, in limited and special circumstances, the pressure for rapid change is so great that adjustments can reasonably be slowed through mutual agreement.

The dividing line between those policies and unilateral decisions to close certain markets may sometimes seem thin, but maintaining that distinction is vital to world economic stability and prosperity.

Difficult as it is, the line needs to be drawn. Upon that basic distinction rests much of the hope for world economic progress and order. All those other challenges I have been raising do seem to me solvable in a context of growth and open trade, but not if we col-

lectively retreat into a world where each seeks special advantage.

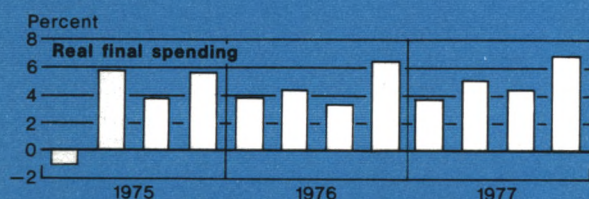
Unlike the immediate postwar period, the United States, important as it is, no longer can dominate the world economy. We cannot undertake almost alone to underwrite the stability of the monetary system, to maintain open markets, to carry the bulk of assistance programs. We live in a much more complicated world—in many ways a less comfortable world—where sovereign countries, sensitive to maintaining their independent power of decision, must yet work in harness if they are to achieve their objectives.

Intellectually, no one disputes the slogan of interdependence. Emotionally, it is still hard to accept that interdependence encompasses the reality of mutual *dependence*. But it is that realization that needs to guide our conduct. The United States cannot unilaterally direct the course of the world economy. But if we don't show the way, who will?

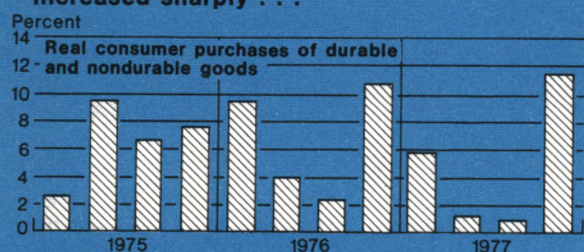
# The business situation

## Current developments

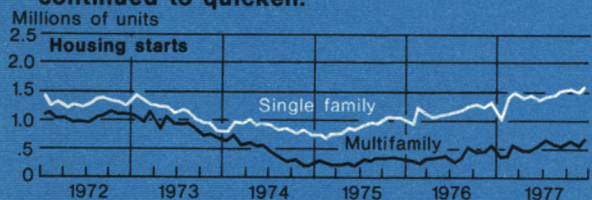
### Real final spending rose strongly late in 1977 . . .



### . . . as purchases of consumer goods increased sharply . . .



### . . . and home-building activity continued to quicken.



All data are seasonally adjusted. Final spending and consumer purchases are expressed as annual rates of change in 1972 dollars. Housing starts are expressed as annual rates.

Source: United States Department of Commerce.

The United States economy closed 1977 with an impressive display of strength. Final demands for goods and services, led by ebullient consumer buying, posted a large advance in the last quarter of the year. The growth of total production, it is true, slowed slightly, but this slowdown was due to a mild downward adjustment in inventory accumulation. By the year-end, strongly rising employment cut the overall rate of unemployment to the lowest level in more than three years.

The news on the price front was less encouraging. Consumer price increases did moderate in the second half of the year, but no reduction of the underlying rate of inflation was evident. Wholesale prices of industrial commodities continued to rise at a fairly steady clip at the year-end, and prices of farm products rebounded in the fourth quarter after four months of substantial declines.

Consumer spending, which had been rather lethargic during much of the spring and summer, provided most of the impetus to the economy during the final quarter of 1977 (chart). In real terms, consumer spending on goods rose at an annual rate of 11.4 percent in the fourth quarter, in spite of a slight reduction in purchases of automobiles. Retail sales posted strong gains in October and November before dropping back somewhat in December. The reported December decline, however, was entirely due to the seasonal adjustment. Actual sales were estimated in the advance report of the Commerce Department to have risen 18 percent from November to December.

The surge in consumer buying in the fourth quarter was fueled by an unusually large increase in personal income. Total personal income is estimated to have grown at an annual rate of 13.7 percent in current dol-



lars during the fourth quarter. In large measure, that growth reflected surprisingly large increases in total employment. Incomes of farm proprietors also rose strongly, reflecting recent upturns in farm prices and sizable Federal price-support payments to wheat growers. Household savings grew proportionately even faster than consumption, and the ratio of personal saving to disposable income rose 0.2 percentage point in the fourth quarter to 5.7 percent, the highest level since the second quarter of 1976.

In part, demand for household goods has been stimulated by the need to furnish new dwellings. Residential construction activity rose vigorously over the past three years from very low recession levels. In the fourth quarter of 1977, construction was begun on one-family houses at a record seasonally adjusted annual rate of 1.57 million units, up 23 percent from a year earlier. Sales of new and existing single-family homes combined broke previous records late in the year. Starts of multi-family housing units rose to 636,000 in the fourth quarter, up nearly 29 percent from a year earlier but still well below the rates that had exceeded 1 million units annually in 1972 and the first half of 1973. In assessing the outlook for home building in 1978, many observers point to the slowdown of inflows into time and savings deposits at banks and thrift institutions—the principal suppliers of residential mortgage credit—as a potential restraining influence.

The growth of capital investment by businesses continued to lag behind the rise in residential construction during 1977. Business fixed investment is estimated to have grown in real terms at an annual rate of 8.4 percent in the fourth quarter and 8.8 percent for the year as a whole. For the entire period of the recovery from the 1973-75 recession, such investment has grown considerably slower than in previous recoveries during the postwar period. The bulk of the fixed investment that was undertaken by businesses in 1977 was in producers' durable equipment, while investment in structures increased only modestly. Prevailing Federal tax policies favor relatively short-lived capital investment by applying a 10 percent tax credit to outlays for equipment. More fundamentally, the reluctance of businesses to undertake increased investment in long-lived assets probably reflects uncertainties over the outlook for profitability and for government policies, especially those relating to taxes, energy, and environmental protection.

Those uncertainties have clouded prospects for capital spending in 1978. Indeed, the surveys of capital spending plans suggest slower growth of such spending in 1978 than in 1977. According to the survey taken by the Department of Commerce in December and released in mid-January, United States firms plan to

increase real outlays on plant and equipment by only about 4.5 percent in 1978, assuming capital goods prices rise at about last year's 5.3 percent rate. (The predictive performance of the surveys of plant and equipment spending plans is analyzed in the following article.) Such a weak outcome is by no means fore-ordained, however. Actual capital spending often exceeds early plans during strong economic expansions. The increase of nearly 10 percent in new orders for nondefense capital goods from the third to the fourth quarter of 1977 may indicate such an outcome. Moreover, enactment of a tax package such as proposed by President Carter on January 21 might stimulate capital spending, especially for structures, by dispelling some of the uncertainties and by enhancing aftertax returns on capital investments. In addition to reductions in personal income taxes, and various other measures, the President proposed reducing the corporate income tax rate to 44 percent from 48 percent, making permanent the 10 percent investment tax credit against outlays for equipment and extending that credit to investments in manufacturing and utility structures.

In the fourth quarter of 1977, total real final sales grew at an annual rate of 6.8 percent, the strongest of any quarter since the current expansion got under way in the spring of 1975. Real gross national product (GNP) growth, however, was held to an estimated 4.2 percent rate as a result of a slowdown in inventory investment. Based upon two months of data for manufacturing and trade inventories, the adjustment of stocks appeared to be considerably milder than in the final quarter of 1976, when inventories were actually run down. Throughout the current period of expansion, business firms have been quick to correct incipient inventory excesses by cutting back orders and output. Such cautious policies have at times slowed production temporarily but have made for a reasonably balanced and sustained economic expansion.

The economy's buoyancy in the latter part of 1977 was especially evident in the labor market. Between September and December, total employment as measured by the Bureau of Labor Statistics (BLS) survey of households rose by 1.5 million persons, or at an annual rate of 6.8 percent, and the proportion of the population with jobs rose to a record level. The size of the gain has been greeted with some skepticism, but the separate survey of business establishments conducted monthly by the BLS also showed a strong employment picture. According to that survey, total nonfarm payroll employment rose over the last three months of the year by 670,000 persons, or at an annual rate of 3.3 percent, well in excess of the longer run growth of the labor force. The increase in payroll em-

ployment would have been even larger except for the strike that idled 160,000 bituminous coal miners beginning December 6.

The overall rate of unemployment (which is derived from the household survey) fell in December to 6.4 percent—the lowest reading in more than three years. Newly revised seasonal adjustment factors released by the BLS in January indicate a fairly steady decrease in the unemployment rate from 7.8 percent at the end of 1976. According to the old seasonal factors, the unemployment rate had dropped sharply in the early months of 1977 but had then fluctuated between 6.9 percent and 7.1 percent from April through November. The revisions affected only the pattern within the year; on both bases unemployment averaged 7.0 percent for all of 1977, down from 7.7 percent in 1976.

Consumer price increases slowed considerably in the second half of 1977. From June through December, the overall consumer price index rose at an annual rate of 4.4 percent, one half the rise in the first six months of the year. Much of the slowdown was in the food sector, where the annual rate of increase dropped to 2.7 percent in the second half from 13.2 percent in the first half of the year, when food prices were inflated by

the effects of severe winter weather and drought at home and sharp increases in prices of some imported foods such as coffee. Advances in prices of nonfood items, both goods and services, also moderated to a 5 percent annual rate in the second half of 1977 from 7.5 percent during the first half.

Unfortunately, these developments do not necessarily signify any lessening in the underlying rate of inflation. Wholesale prices of industrial commodities forged ahead during the second half of the year at an annual rate of 6.7 percent, essentially the same as in the first half. Prices of farm products and processed food and feed rose strongly in the last three months of 1977 after declining for four months. While the growth of compensation per hour worked in the private business sector slowed slightly in 1977, productivity gains slackened even more. Consequently, unit labor costs rose 6.1 percent in 1977, up from 4.7 percent the year before. At the beginning of 1978, labor costs were subjected to additional upward pressure from the increases in payroll taxes for social security and unemployment insurance and from the boost in the minimum wage. Such cost pressures make it very difficult to achieve any reduction in the underlying rate of inflation.

# How accurate are capital spending surveys?

The expansion of capital spending has remained disappointingly sluggish in the current recovery to date, and there is so far no indication of a pickup in the near future. In fact, all surveys of capital spending plans for 1978 point to a slowdown in the growth of plant and equipment spending from the 1977 rate of 13.7 percent, which after inflation amounted to a real increase of roughly 8 percent. The latest survey, that taken in December by the Department of Commerce and issued in mid-January, confirmed the earlier results. In the past, these surveys have been reasonably good indicators of actual outlays. However, capital expenditure plans do change in line with policies that shape the economic outlook, and the possibility of a stronger stepup in plans and spending during the course of the year should not be written off.

## The capital spending surveys

There are four organizations that conduct major surveys of capital spending intentions, and the results are extremely useful in forecasting the capital spending component of the gross national product. The record indicates that the surveys have been fairly accurate guides for this purpose. Indeed, as several studies have shown, they are more accurate than forecasts of business investment derived from econometric models.<sup>1</sup> However, mainly because of differences in coverage and in timing, the surveys are not equally reliable.

The four surveys are conducted by the Department of Commerce, McGraw-Hill Publications Company, Department of Economics, Merrill Lynch Economics, Inc., and Rinfret Associates, Inc. McGraw-Hill, Merrill Lynch, and Rinfret take both fall and spring surveys. Commerce does five a year and is the only one of the four organizations to collect and publish quarterly as well as annual estimates. The first Commerce survey for the new year is taken in December and published in January.

All the surveys use the Commerce industry categories and spending definitions, which makes it possible to compare their published results. All also limit their coverage to investment expenditures within the United States but include purchases abroad for installation within the United States. The Commerce capital spending survey is based on a sample of approximately 10,000 firms of all sizes. Respondents to the private surveys tend to be concentrated among the larger firms within each industry. For those industries in which the coverage of these surveys is relatively incomplete, particular attention is paid to obtaining a representative cross section of companies.

The extent of coverage of each survey is indicated by the ratio of the investment spending accounted for by the respondents to total plant and equipment expenditures in the economy. The Commerce survey is the most inclusive, for its respondents account for about 75 percent of total outlays for fixed investment. The coverage of the other surveys has been much lower in recent years: McGraw-Hill 57 to 62 percent, Merrill Lynch 48 to 52 percent, and Rinfret 45 to 50 percent (chart).

The response rate—the number of firms that respond as a percentage of the total number surveyed—bears importantly on the accuracy of the surveys. The sample size of Commerce's survey and thus the extent of coverage is kept fairly constant, because Commerce regularly replaces firms who do not re-

The authors are grateful for the helpful information provided by John T. Woodward of the Department of Commerce.

<sup>1</sup> See, for example, D. W. Jorgenson, J. Hunter, and M. I. Nadiri, "A Comparison of Alternative Econometric Models of Quarterly Investment Behavior", *Econometrica* (March 1970), pages 187-224, and H. I. Liebling, P. T. Bidwell, and K. W. Hall, "The Recent Performance of Anticipation Surveys and Econometric Model Projections of Investment Spending in the United States", *The Journal of Business* (October 1976), pages 451-77.



Table 1

**The Record of Plant and Equipment Spending Surveys**

Period	Actual percentage change*	Survey results less actual percentage change				
		Commerce*† (adjusted)	Commerce*† (unadjusted)	Merrill Lynch‡	McGraw- Hill‡	Rinfret‡
1958 .....	-17.4	4.2	2.5	9.4	10.7	—
1959 .....	6.6	- 2.4	- 4.2	- 9.6	- 6.1	—
1960 .....	9.6	4.1	- 0.4	- 3.0	0.4	—
1961 .....	- 3.7	0.6	- 2.7	- 1.0	1.0	—
1962 .....	8.6	- 0.5	- 5.3	- 8.3	- 4.6	—
1963 .....	5.1	- 0.3	- 5.0	- 0.5	- 2.4	—
1964 .....	14.5	- 4.4	- 5.9	- 6.8	-10.3	—
1965 .....	15.7	- 4.0	- 6.2	- 6.9	-10.8	—
1966 .....	16.7	- 0.8	- 3.6	- 4.4	- 8.9	—
1967 .....	1.7	2.2	- 0.6	1.5	3.8	—
1968 .....	3.9	1.9	- 0.3	1.9	1.0	4.1
1969 .....	11.5	2.4	- 0.2	- 4.5	- 3.9	- 4.4
1970 .....	5.5	4.3	0.3	1.1	2.8	2.7
1971 .....	1.9	2.4	0.1	2.1	0.5	6.7
1972 .....	8.9	1.6	0.0	0.1	- 2.0	- 0.4
1973 .....	12.8	1.0	0.4	- 2.8	- 1.8	- 3.7
1974 .....	12.7	0.3	1.3	- 0.7	1.0	2.6
1975 .....	0.3	3.0	4.0	9.7	11.5	14.2
1976 .....	6.8	- 0.3	2.2	- 3.9	2.0	6.7
1977 .....	13.7§	- 2.0§	0.5§	0.3§	- 0.7§	- 3.7§
<b>1958-77:</b>						
Average error .....		0.67	-1.16	-1.32	-0.84	—
Average absolute error .....		2.14	2.29	3.93	4.31	—
<b>1958-67:</b>						
Average error .....		-0.13	-3.14	-2.96	-2.72	—
Average absolute error .....		2.35	3.64	5.14	5.90	—
<b>1968-77:</b>						
Average error .....		1.46	0.83	0.33	1.04	2.48
Average absolute error .....		1.92	0.93	2.71	2.72	4.92

\* Based on the first data published by the Department of Commerce.

† Surveys taken in January-February.

‡ Surveys taken in the fall.

§ Preliminary.

Sources: Computations based on data from the Department of Commerce, McGraw-Hill Publications Company Department of Economics, Merrill Lynch Economics, Inc., and Rinfret Associates, Inc.

spond with other companies that are in the same industry.<sup>2</sup> The fall 1977 response rates to Merrill Lynch, about 76 percent, and to Rinfret, 62 percent, were lower than in the past. Rinfret's latest rate, in fact, was the lowest ever. Each ascribes the decline in its response rate to uncertainties surround-

ing public policies and the economy in general. These uncertainties may have caused some of their respondents to delay firming up investment plans.

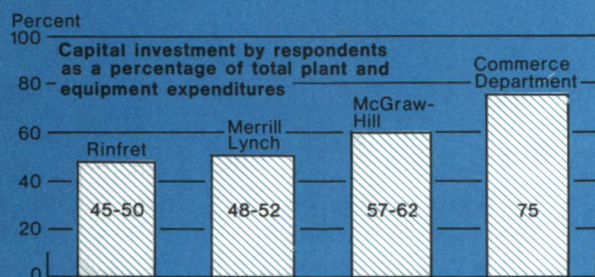
**Adjusting for reporting errors**

The Commerce and Rinfret surveys attempt to adjust for the systematic way in which respondents appear to miscalculate their estimates of future capital spending. Commerce found that historically industries dominated

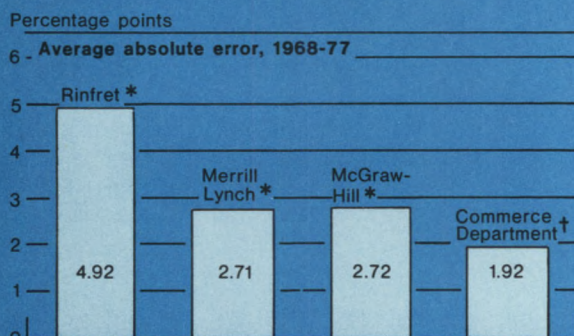
<sup>2</sup> Specific response rates to the Commerce and McGraw-Hill surveys are not available.



### The greater the coverage of the capital spending surveys . . .



### . . . the more accurate they tend to be.



\* Surveys conducted in the fall.

† Surveys conducted in January-February.

Sources: Department of Commerce, McGraw-Hill Publications Company, Department of Economics, Merrill Lynch Economics, Inc., and Rinfret Associates, Inc.

by small firms tended to understate future expenditures while industries dominated by large firms tended to overstate them. Based on a stable pattern of this sort, Commerce developed an adjustment procedure which has been applied to the raw data since 1958 (smaller adjustments were made to the 1957 data).<sup>3</sup> Rinfret, starting with its survey taken in the autumn of 1976, has also begun to make adjustments to eliminate systematic response errors.

Starting with the surveys of the late 1960's, the pattern of errors previously observed by the Commerce Department apparently changed. According to Commerce, industries dominated by small companies began underestimating spending plans to a lesser extent

<sup>3</sup> The quarterly estimates are also adjusted for bias related to the length of the planning horizon and bias due to systematic seasonal variation in the ratio of actual to expected expenditures.

than previously while industries dominated by large companies increased their overstatement of future plans. These shifts may be related to changes in the corporate planning process. In recent years, corporations have, on the whole, tried to improve their investment planning efforts, and one result may have been that many small firms are projecting with increased accuracy. The greater overstatement of investment plans by large firms may have two explanations. There has been some indication that divisional executives are augmenting their requests for funds, or are augmenting them to a greater degree than in earlier years, to ensure adequate capital appropriations from top management or boards of directors. The other possible explanation—and perhaps a more important one—is that in this era of inflation many large corporations, in making their investment plans, have been overestimating the inflation rate for capital goods.

Although the Commerce adjustment for systematic bias has, on average, improved the accuracy of the unadjusted data during the entire history of the adjustment, beginning in the late 1960's the unadjusted series has generally been the better estimate of actual plant and equipment spending. In fact, the adjusted series has overestimated the increase in capital spending in eight of the last ten years, presumably because of the changed pattern in the reporting behavior of firms. Since Commerce's adjustment is based on previous stable patterns of reporting, it takes time before a comparatively recent change in reporting behavior is fully reflected in the adjusted figures.

### Accuracy of the surveys

Of all the surveys, the Commerce Department's figures have provided the most accurate projections. This holds true even for its relatively new "advance annual" survey taken each December beginning in 1969. Since this survey is still so young, the following analysis of the historical accuracy of the surveys uses the results of Commerce's January-February survey rather than the December one.<sup>4</sup> While the records of the private surveys have not been as good as those of Commerce, they have improved considerably in the past decade. From the viewpoint of business forecasters, this is a positive development, since the private

<sup>4</sup> The results of the December survey have been very close to those Commerce has collected in January-February. The average absolute errors for the adjusted December and January-February surveys for the period 1970-77 were 1.71 and 1.86 percentage points, respectively, when used to forecast plant and equipment spending. Based on the unadjusted data, the comparable figures were 1.80 percentage points and 1.10 percentage points.

surveys taken in the fall are released about two months before Commerce's December survey and about four months before its next results—those of the January-February survey.

The historical record of changes in actual capital spending, compared with what the four surveys had forecast, is given in Table 1. (The comparison is based on data as originally published by the Department of Commerce.) The degree of error is calculated by subtracting the actual value from the values the surveys reported; overstatements therefore have a positive sign and understatements a negative one. A compilation of the average errors and average absolute errors of each survey is given at the bottom of the table. The calculation of the average error allows errors on the positive side in one year to be offset by errors on the negative side in another year. In contrast, the average absolute error takes into account only the magnitude of errors without regard to whether they are plus or minus. Accordingly, the average absolute error is the more meaningful statistic.

The reasons for the superiority of the Commerce Department's survey over the private surveys are clear. First, the Commerce estimate has a long history of adjustment for systematic bias, which helps its record during the years prior to 1967. Second, the Commerce survey used here is taken in January-February, while the private surveys are taken in the fall; the Commerce estimate thus has an advantage inasmuch as spending plans can change in the interim. Finally, the coverage of the Commerce surveys is more complete. The latter factor appears to be the most significant, for the Commerce surveys, even without adjustment for bias, have been more accurate than the private surveys. Furthermore, the January-February surveys of Commerce are more accurate than the private surveys taken in the spring.<sup>5</sup>

The accuracy of the McGraw-Hill and Merrill Lynch surveys has improved by about 50 percent in the last ten years. The average absolute error for the McGraw-Hill survey during the preceding ten years was 5.90 percentage points, compared with 2.72 percentage points for the subsequent ten. The comparable figures for Merrill Lynch were 5.14 percentage points, compared with 2.71 percentage points. The Rinfret survey has been taken only since 1968. As the newcomer to the group, it is not surprising that it had a somewhat larger absolute error—4.92 percentage points—than either Merrill Lynch or McGraw-Hill.

<sup>5</sup> The average absolute error for McGraw-Hill's spring surveys (1958-77) was 3.64 percentage points and for Rinfret's spring surveys (1968-77) was 4.79 percentage points, compared with 2.29 percentage points for Commerce (1958-77).

### **Inflation and capital spending surveys**

The surveys report spending plans only in nominal terms, that is, at the prices the respondents actually expect to pay. To estimate what the plans may mean in real terms, McGraw-Hill and the Commerce Department now obtain the respondents' expectations of the rate of increase in the prices of capital goods that they plan to buy. These two surveys also ask the companies in manufacturing industries to estimate the prices at which they expect to sell their products.<sup>6</sup>

Businessmen appear to have been unduly pessimistic in their forecasts of the inflation rates for plant and equipment (Table 2). In five of the last seven years their price expectations have been higher than actual price increases as measured by the deflator for business fixed investment; the exceptions were 1974 and 1975 when inflation was historically high.<sup>7</sup> After these two years of double-digit inflation, the overestimates have been especially large.

Manufacturers' expectations of the prices they will receive for their goods have followed a different pattern. These forecasts have generally fallen short of the actual increases as measured by the changes in the prices of manufacturers' shipments. Moreover, the manufacturers' forecasts of the increased prices they expect to receive have been consistently lower than the increased prices they expected to pay for capital goods. There appears to be no logical reason for this pattern. Actually, the prices for shipments of manufactures have risen more than those of capital goods in three of the last seven years. Furthermore, in only one of the years between 1971 and 1977 did the actual increase in the price of capital goods exceed the actual increase in manufacturing prices by more than 2 percentage points. Yet, forecasts of rises in capital goods prices exceeded forecasts of rises in manufacturing prices by 2 or more percentage points in almost every year starting with 1971.

### **Another measure of investment spending**

The Commerce Department plant and equipment spending series covers only about three quarters of total private fixed capital spending in the economy, as measured by the nonresidential (or business fixed) investment series in the national income accounts. In 1977, plant and equipment expenditures were \$137 billion as against business fixed investment of \$186 billion.

<sup>6</sup> McGraw-Hill asks the price questions in both its fall and spring surveys. Commerce asks them only in its December survey. Rinfret began asking for expected price increases in its fall 1976 survey.

<sup>7</sup> Since there is no precise price index to deflate the plant and equipment spending series, the deflator for business fixed investment as measured in the national income accounts is used.



Table 2

**Expectations of Inflation Rates in Plant and Equipment Surveys****Prices of capital goods**

Year	Actual percentage increases*	Expectations of Commerce surveys (percentage increases)†	Survey less actual	Expectations of McGraw-Hill surveys (percentage increases)†	Survey less actual
1971 .....	5.5	6.6	+1.1	7.0	+1.5
1972 .....	3.8	5.1	+1.3	5.0	+1.2
1973 .....	3.8	5.4	+1.6	6.0	+2.2
1974 .....	11.3	8.3	-3.0	7.0	-4.3
1975 .....	14.6	12.9	-1.7	12.0	-2.6
1976 .....	4.8	9.7	+4.9	9.0	+4.2
1977 .....	5.3	7.9	+2.6	7.0	+1.7

**Prices of manufactured goods**

Year	Actual percentage increases§	Expectations of Commerce surveys (percentage increases)†	Survey less actual	Expectations of McGraw-Hill surveys (percentage increases)†	Survey less actual
1971 .....	3.1	3.9	+ 0.8	4.0	+ 0.9
1972 .....	3.5	2.8	- 0.7	3.0	- 0.5
1973 .....	7.5	2.3	- 5.2	2.0	- 5.5
1974 .....	17.1	5.2	-11.9	5.0	-12.1
1975 .....	13.0	8.6	- 4.4	8.0	- 5.0
1976 .....	4.4	5.7	+ 1.3	6.0	+ 1.6
1977 .....	6.6‡	5.7	- 0.9‡	6.0	- 0.6‡

\* Implicit price deflator for business fixed investment.

† Commerce surveys taken in December; McGraw-Hill surveys taken in the fall.

‡ Estimated.

§ Implicit price deflator derived from manufacturing shipments in current and in constant dollars.

Sources: Computations based on data from the Department of Commerce and the McGraw-Hill Publications Company Department of Economics.

In addition to all the spending reported in the plant and equipment series, the broader measure includes capital expenditures by farm enterprises, nonprofit institutions, real estate operators, and independent professionals. The broader measure also includes oil-well drilling costs charged to current expense, certain expenditures on passenger cars used for business purposes, net purchases of used capital goods from government, and dealers' margins on the purchases of used capital.<sup>8</sup>

Despite their differences in coverage, the movements of the two series are similar. It is because

of this close relationship that forecasters can use the percentage changes in the plant and equipment spending surveys to project business fixed investment, even though the errors become somewhat greater. For example, using percentage changes in the Commerce Department's adjusted January-February survey to forecast percentage changes in business fixed investment spending for the period 1968-77 results in an average absolute error of 3.10 percentage points, compared with an error of 1.92 percentage points when forecasting plant and equipment outlays.<sup>9</sup> The compa-

<sup>8</sup> Genevieve B. Wimsatt and John T. Woodward, "Revised Estimate of New Plant and Equipment Expenditures in the United States, 1947-69: Part I", *Survey of Current Business* (January 1970), page 39.

<sup>9</sup> For Commerce's unadjusted series, the average absolute error was 2.75 percentage points when forecasting business fixed investment, compared with 0.93 percentage points when forecasting plant and equipment outlays.

able figures for Merrill Lynch and McGraw-Hill are 4.05 versus 2.71 and 4.34 versus 2.72. The Rinfret survey's record is 5.68 versus 4.92 percentage points for the period 1968-76.

### **The outlook for 1978**

The surveys' investment spending projections for 1978 lie within a fairly narrow range. The planned increases reported by the private surveys range from a high of 11 percent according to McGraw-Hill to a low of 9 percent according to Rinfret. The Merrill Lynch figure lies squarely in the middle with a 10 percent increase. The most recent Commerce survey, which was taken in December and published this January, also indicated a slowdown in the growth of investment spending to 10 percent. Based on the respondents' expectations of

the inflation rate for capital goods, the surveys suggest a real increase in plant and equipment spending of only about 2 to 3 percent in 1978, as against 8 percent in 1977. However, respondents may have again overestimated the inflation rate for capital goods. If instead prices rise as they did in 1977, the latest Commerce survey suggests a real increase in capital spending of about 4.5 percent for 1978.

Notwithstanding the reasonable accuracy of these surveys in the past, many forecasters project a somewhat greater increase in capital spending in 1978 than the surveys report. One factor behind these slightly higher estimates appears to be the expectation—which crystallized toward the end of the year—that 1978 will see some tax relief for business designed to stimulate capital spending.

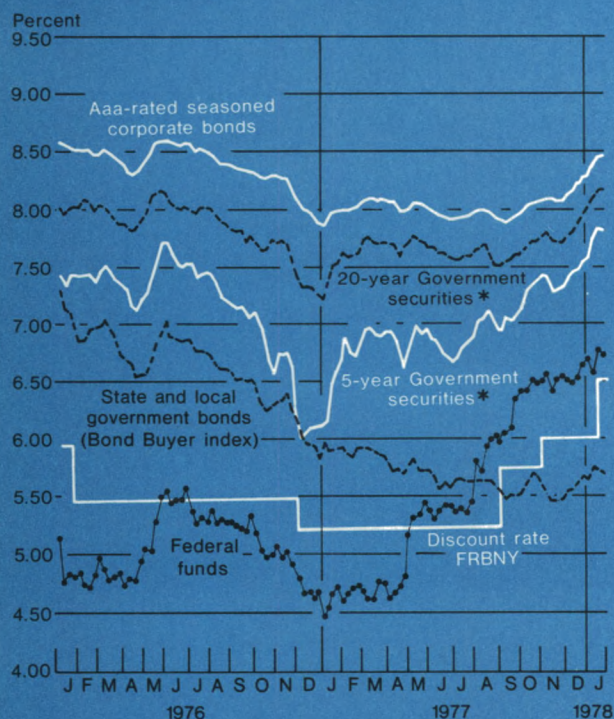
Karen Bradley and Avril Euba

# The financial markets

## Current developments

Chart 1

### Recent Changes in Interest Rates



\*These yields are adjusted to five- and twenty-year maturities and exclude bonds with special estate tax privileges.

Sources: Federal Reserve Bank of New York, Board of Governors of the Federal Reserve System, Moody's Investors Service, Inc., and The Weekly Bond Buyer.

In an environment of brisk credit demands, interest rates have moved up over recent months both in the money markets, where rates had been rising since the spring, and in the bond markets, where yields had been relatively stable during most of 1977. After the turn of the year, the markets reacted promptly to several actions by the Federal Reserve System that were designed to check speculation and reestablish order in the foreign exchange markets.

On January 4, the Board of Governors of the Federal Reserve System and the Treasury Department issued a joint statement announcing that the Exchange Stabilization Fund of the United States Treasury would be utilized actively, together with the \$20 billion swap network operated by the Federal Reserve System. (The monetary effects of Federal Reserve swap operations are discussed in the following article.) On January 6, the Board approved  $\frac{1}{2}$  percentage point increases in the discount rate to  $6\frac{1}{2}$  percent by this Bank and the Federal Reserve Bank of Chicago. (The other Federal Reserve Banks followed suit shortly thereafter.) In announcing its approval, the Board cited recent disorders in foreign exchange markets as a threat to the orderly expansion of the domestic and international economy. The Board expressed the hope that the need for the increase would prove temporary and indicated that domestic business conditions were sound and that credit supplies to sustain economic expansion should remain ample. A few days later, the System began to seek firmer money market conditions, and by mid-January Federal funds were trading at around  $6\frac{3}{4}$  percent, up from the  $6\frac{1}{2}$  percent level that had generally prevailed since mid-October.

Interest rates across the maturity spectrum rose quickly following the boost in the discount rate and



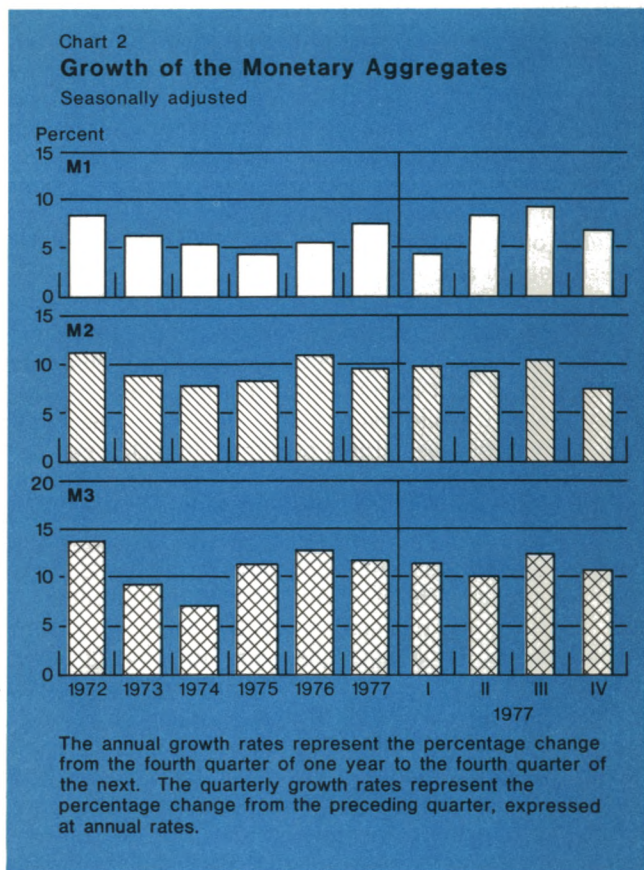
the increase in the Federal funds rate (Chart 1). The largest advances were registered in the money market—where some rates jumped by almost 40 basis points on January 9—but long-term yields moved upward as well. Subsequently, most money market rates retraced some of the increases, as market participants came to feel that the Federal funds rate would stabilize at its higher level rather than advance further over the near term.

Even before the System's most recent moves, most short-term interest rates had been gradually rising for almost a month. The prime lending rate, which typically lags movements in money market rates, rose  $\frac{1}{4}$  percentage point to 8 percent in early January, with major banks beginning to announce the increase prior to the Board's announcement of the higher discount rate. Long-term interest rates also began advancing in December after little change on balance since March. Contributing importantly to the higher rates in the latter part of the fourth quarter were expectations of continued strong credit demands.

System actions did influence money market rates near the start of the fall. In early October, the System sought to dampen a persistent pattern of stronger than desired monetary growth by fostering a modest tightening of money market conditions. The Federal funds rate firmed from around  $6\frac{1}{4}$  percent to  $6\frac{1}{2}$  percent. Toward the end of that month a further slight firming was sought for a short period, when it appeared that growth of the monetary aggregates was again becoming too rapid. Later on, information showed that the aggregates were advancing within the desired ranges and the objective for the Federal funds rate was returned to  $6\frac{1}{2}$  percent. The commercial bank prime lending rate increased in October in two separate steps by a total of  $\frac{1}{2}$  percentage point to  $7\frac{3}{4}$  percent following similar advances in commercial paper rates in late September and early October. With money market rates increasing relative to the Federal Reserve discount rate, member bank borrowing from the discount window began to rise in mid-October. On October 25, the Board approved actions by the Reserve Banks to raise the discount rate from  $5\frac{3}{4}$  percent to 6 percent.

The increases in short-term interest rates over 1977 were widely expected to reduce monetary expansion and, in the fourth quarter,  $M_1$  growth did slow to a 6.8 percent annual rate (Chart 2). Over the previous two quarters,  $M_1$  had advanced at an average annual rate of around 9 percent. Such a lag between a firming in money market conditions and a reduction in the pace of monetary expansion is not unusual.

While  $M_1$  growth finally slowed in the fourth quarter, for the year as a whole its increase of 7.4 percent exceeded the FOMC's range of  $4\frac{1}{2}$  to  $6\frac{1}{2}$  percent pro-



jected for that period a year before. In contrast, over the four quarters ended in the last quarter of 1976,  $M_1$  had advanced at a 5.6 percent rate which was slightly below the midpoint of its corresponding projected annual growth range. One of the main factors accounting for the acceleration of  $M_1$  growth in 1977 was a slowdown in the rate at which the public substituted income-earning assets for demand deposit balances. During 1975 and 1976, demand deposit growth was dampened partly because of such switching to newly allowed interest-earning deposit substitutes, including negotiable order of withdrawal (NOW) accounts in New England and savings accounts of businesses and state and local governments. Over 1977, corporate savings accounts showed much reduced growth while state and local government savings accounts actually declined. Available data for the first three quarters of 1977 indicate less NOW account growth as well.

Reflecting both the slower fourth-quarter advance in  $M_1$  and a moderate reduction in the growth of commercial bank time and savings deposits, the expansion of  $M_2$  in the final quarter eased to a 7.5 percent an-

nual rate. Small consumer-type accounts registered markedly slower growth, partly because of the advance in market interest rates to levels above ceiling rates on most maturities of commercial bank time and saving deposits. This was somewhat offset by a pickup in the expansion of the large time deposit component of  $M_2$ , which includes all large time deposits (over \$100,000) at commercial banks except negotiable certificates of deposit at large banks. These deposits are not subject to rate ceilings.

$M_3$  growth also slowed in the fourth quarter. Deposits at thrift institutions, which are added to  $M_2$  in deriving  $M_3$ , registered about the same expansion on a quarterly average basis, but monthly growth rates were successively lower. Despite rising market interest rates, thrift deposit growth was strong over the July-October period, when commercial banks—which have ceiling rates that are generally  $\frac{1}{4}$  percentage point lower than those at thrift institutions—may have had difficulty competing with the thrift institutions for maturing “wild card” deposits. (These certificates with maturities of four years or more were issued by banks and thrift institutions in the July-October period of 1973 when rate ceilings on them were temporarily suspended.) In the final two months of the year, thrift deposit growth diminished somewhat but was still not much below the pace recorded over the first half of the year when market rates of interest were lower. This suggests that thrift institutions did not experience significant disintermediation—that is, the substitution of money market instruments for thrift deposits—before the end of the year. More recently, though, deposit inflows to thrift institutions have slowed further.

During the fourth quarter, the Federal Open Market Committee (FOMC) continued its policy of gradually reducing the long-term growth ranges for the monetary aggregates. For the four quarters ending in the third quarter of 1978, both the upper and lower bounds of the projected growth ranges of  $M_2$  and  $M_3$  were lowered by  $\frac{1}{2}$  percentage point. For  $M_2$  the projected growth range covering this period was set at  $6\frac{1}{2}$  to 9 percent, while the range for  $M_3$  was set at 8 to  $10\frac{1}{2}$  percent. The new  $M_3$  range is consistent with a substantial inflow of savings to thrift institutions in the year ahead. In view of the uncertainties surrounding the recent behavior of  $M_1$ , the FOMC decided to maintain the 4 to  $6\frac{1}{2}$  percent growth range for this aggregate.

When the FOMC evaluates the financial health of the economy, the rate of credit expansion is always an important consideration. In 1977, credit demands were vigorous in most markets and at financial insti-

tutions, including commercial banks, finance companies, and thrift institutions. In the final quarter bank loan growth continued strong, although it remained somewhat below the peak rates of expansion during the preceding business recovery. In the closely watched business loan area, where activity throughout 1975 and most of 1976 was much weaker than at similar stages of past economic upturns, growth over the final quarter was also strong. However, business loans have yet to show any sustained growth at the large New York City banks, where they were essentially flat throughout 1977.

With strong overall loan demand and some slowing in the growth of consumer-type savings and time deposits, banks have met their needs for funds by liquidating United States Government securities and issuing large time deposits. Still, various measures of bank liquidity appear quite comfortable relative to past periods of strong credit demands. Among such indexes are ratios of loans to deposits and of liquid assets to liabilities. Loan-deposit ratios rose moderately at banks outside New York City in 1977 but were about unchanged at large New York City banks, where loan growth has been weaker. Ratios of liquid assets to liabilities actually increased quite strongly at the large banks in New York City while declining slightly on balance over the course of the year at weekly reporting banks outside New York City.

Borrowing in the capital markets also continued brisk in the fourth quarter. After remaining relatively stable during most of 1977, longer term interest rates began firming somewhat in early December. In the Government sector, yields on twenty-year securities rose about 25 basis points from the beginning of December through January 6 (when the Board announced the boost in the discount rate) and subsequently increased further by around 15 basis points by late January. Over the same two time spans the rate on seasoned Aaa-rated corporate bonds rose by similar amounts. After falling throughout most of 1977, tax-exempt yields also started to firm in December. The Bond Buyer index of twenty municipal bond yields rose 17 basis points from the end of November through early January and around 6 more basis points through late January. Even with these increases, yields on corporate and municipal securities were still below their levels reached at the start of the economic recovery almost three years ago, although long-term Government yields were a bit higher. In contrast, long-term yields had risen substantially during comparable periods of most previous economic recoveries.



# Monetary effects of Federal Reserve swaps

More visible and active intervention in the foreign exchange market by the Federal Reserve Bank of New York on behalf of the Federal Reserve System and the United States Treasury focused new attention at the start of 1978 on the impact of those policy actions. One question frequently asked about Federal Reserve swap operations is what effect they have on the United States money supply.<sup>1</sup> For example, if the Federal Reserve draws on the swap line with the German Bundesbank to finance a market sale of German marks, do member bank reserves,  $M_1$ , or any of the other monetary aggregates change? The answer is no, given current operating procedures. The reason is this: Although dollars are taken out of the banking system, and United States bank reserves are depleted, when the Federal Reserve sells marks for dollars, the same amount of dollars is automatically created as part of the swap transaction. These dollars almost immediately find their way back into the banking system, and into bank reserves, by routine procedures of the United States authorities. Thus, swap drawings to finance Federal Reserve exchange intervention do not affect the money supply.

## **What happens in a swap drawing?**

Suppose the Federal Reserve decides that intervention is appropriate to counter disorderly conditions in the exchange markets on a particular day. For instance, the dollar may be falling sharply against the German mark, the currency in which the bulk of System foreign exchange operations have been conducted in

recent years. Officers of the Foreign Department of the Federal Reserve Bank of New York, which operates for the System and the United States Treasury in the exchange market, telephone their counterparts at the Bundesbank in Frankfurt to discuss market conditions. They identify factors leading to a disorderly decline in the dollar against the mark, review the Bundesbank's operations in Frankfurt, and discuss possible System operations in New York. In such telephone calls the New York Fed's officers arrange for drawings on the System's swap line with the Bundesbank if they are needed to finance Federal Reserve sales of German marks in New York. System foreign exchange operations are mostly financed through swap drawings, although the Federal Reserve maintains some working balances of foreign currencies to finance relatively small operations.

Consider a simple example in which this Bank's foreign exchange Trading Desk sells \$10 million equivalent of marks in spot transactions. Two business days later—the normal settlement date for spot transactions—the Federal Reserve must pay \$10 million equivalent of marks to one or more commercial banks which bought the marks for dollars. The marks will be credited to accounts at commercial banks in Germany designated by the banks buying the marks. For their part, the commercial banks buying the marks are committed to pay a total of \$10 million to the Federal Reserve on that same value date. They normally pay the dollars by instructing the New York Fed to debit their reserve accounts or, if they are not members of the Federal Reserve System, to debit the reserve accounts of their New York member bank correspondents.

At the end of the day on which it intervenes, this Bank sends a cable to the Bundesbank formally requesting a drawing on the swap line on behalf of the Federal Reserve System. In this example, the request is to draw the equivalent of \$10 million in marks at

<sup>1</sup> The Federal Reserve swap network consists of reciprocal short-term credit arrangements with fourteen central banks and the Bank for International Settlements (BIS). It enables the System to acquire currencies needed for market operations to counter disorderly trading conditions. It enables the swap partners to acquire dollars they need in their own operations. The swap lines amount to \$20.2 billion.

the same exchange rate at which the Federal Reserve sold the marks in the New York market. The Bundesbank is instructed to (1) credit the Federal Reserve's account with that amount of marks on the value date two business days later, (2) debit that account, and (3) pay the marks to the purchasers' accounts at German commercial banks. In turn, this Bank will credit the Bundesbank's account with \$10 million. In crediting the Federal Reserve's account, the Bundesbank creates marks. In crediting the Bundesbank's account at this Bank, the Federal Reserve creates dollars. The two central banks agree to reverse the swap transaction three months later at the same exchange rate. Unless the swap is extended by mutual agreement, the Federal Reserve will repay the same amount of marks originally drawn on or before the maturity date and the Bundesbank will repay \$10 million, the dollar counter-value of the original drawing.

These are the mechanics of a swap drawing. In this example, the Federal Reserve buys marks in a spot foreign exchange transaction with the Bundesbank and simultaneously sells them back to the Bundesbank at the same exchange rate for a maturity date three months later. The latter is called a forward foreign exchange transaction. From the Bundesbank's point of view, it buys dollars from the Federal Reserve in the spot transaction and sells the dollars back in the forward transaction. The Federal Reserve needs the marks to meet commitments stemming from its intervention. The Bundesbank does not immediately need the dollars and so it invests them. Specifically, by prior agreement and by debit to its account, the Bundesbank's \$10 million is invested in a special non-marketable security of the United States Treasury. In the process, the Treasury's account at this Bank rises by the \$10 million.

### **Swap drawings and bank reserves**

The initial monetary effects of these various debits and credits of bank accounts here and in Germany all take place on the value date, two business days after the System's exchange market intervention.

In *Germany*, as soon as the Bundesbank debits the Federal Reserve's account and makes payments in marks for credit to the purchasers' accounts at German banks, it increases German bank reserves. By the same token, when the Bundesbank intervenes in Frankfurt to buy dollars, German bank reserves increase. Such increases can lead to an expansion in German monetary aggregates as well, unless special offsetting action is taken by the Bundesbank.

In the *United States*, the swap transaction produces two separate effects on member bank reserves and therefore on the money supply. One effect drains mem-

ber bank reserves. The other effect leads to an equal and offsetting increase in member bank reserves. Hence, the monetary effect is routinely neutralized. The net effect is zero.

This happens in the following way. The commercial banks buying marks from the Federal Reserve pay for them with dollars. More precisely, each pays by instructing this Bank to debit its reserve account or the reserve account of one of its New York correspondents. Looking just at this side, there is a definite drain of member bank reserves. They decline by the dollar equivalent of the marks the System sold.

But there is a second effect on member bank reserves that will neutralize this contractionary effect. Recall that in the swap transaction, the Bundesbank's account at this Bank is first credited by \$10 million and then immediately debited by the same amount as the Bundesbank acquires a nonmarketable United States Treasury security. The dollars are credited to the Treasury's account at this Bank. The Treasury may either disburse the money or hold on to it temporarily. If the money is spent, the dollars flow back into the banking system and member bank reserves immediately go back up by \$10 million, fully offsetting the initial drain. That is what happens in most cases.

On occasion, however, the Treasury may not immediately disburse the money. Then, its balance at this bank will temporarily be \$10 million higher than before. That increase is essentially the counterpart of the drain on bank reserves from the System's exchange intervention. An increase in the Treasury's balance is one of the factors that the management of the domestic Trading Desk takes into consideration in determining day-to-day open market operations. Other things equal, the domestic Trading Desk will react to an increase in the Treasury's balance as a signal to provide reserves to the banking system to achieve the objectives specified under the directive of the Federal Open Market Committee (FOMC).

To be sure, System swap operations represent only one of many variables which lead to daily fluctuations in the Treasury's account. And a change in the Treasury's account is but one of the factors that affect reserves. The impact of even relatively large swap drawings is normally swamped by other sources of variation in bank reserves. The Desk folds in a swap drawing's effect on the Treasury's balance with these other factors in deciding if action to influence reserves is needed. In practice, there will be no net effect on member bank reserves, and the monetary aggregates will not change as a result of System intervention in the exchange markets financed by a swap drawing.

When a swap drawing is reversed, the Federal

Reserve repays the marks it has drawn and the Bundesbank repays dollars. The Federal Reserve acquires marks needed to make repayments either by purchasing them in the market or through various nonmarket transactions. In recent years, acquisitions of marks to repay swap commitments have commonly been made in the market. In that case, the System purchases the marks with newly created dollars. By itself, this has an expansionary effect on member bank reserves. But that effect is offset through a process that is the mirror image of the one just described.

The Bundesbank repays its dollar commitment under the swap drawing from the proceeds of the maturing special nonmarketable United States Treasury security. Those funds are paid to the Bundesbank out of the Treasury's account at this Bank. If the Treasury's account is replenished, through borrowing in the market or receipts from other sources, member bank reserves decline. That directly offsets the expansionary effect on reserves of the System's mark purchases. If the Treasury's account is not replenished, the decline in its balance would be considered a factor increasing member bank reserves by the management of the domestic Trading Desk. The Desk would typically respond to appreciable declines in the Treasury's balance, or to other factors leading to increased reserve supplies, by absorbing member bank reserves. Such a response would neutralize the expansionary effect of the System's purchases of marks to repay swap commitments to the Bundesbank. Thus, swap repayments do not affect reserves or the monetary aggregates.

#### **Swap drawings on the Federal Reserve by foreign central banks**

From time to time, foreign central banks have drawn on their swap lines with the Federal Reserve either to finance intervention sales of dollars or to augment official reserves. For instance, the Bank of England, Bank of Italy, and Bank of Mexico all made swap drawings as recently as 1976. In an example in which a drawing was made to finance intervention, there would be an initial expansionary effect on member

bank reserves. It would occur as the foreign central bank's dollar account is credited with the proceeds of the swap drawing and then debited to make payments to one or more commercial banks in the United States. As a result, member bank reserves would rise, but that increase would also be neutralized, given the way the Desk operates. Another of the group of factors influencing reserves would have changed. In this case, the Federal Reserve's holdings of foreign currencies would have gone up, as the System is credited with the countervalue of the foreign central bank's drawing of dollars under the swap line. That factor represents an increase in member bank reserves. Other things equal, the domestic Trading Desk would respond by absorbing reserves. In this way, the initial expansionary effect on reserves of the foreign central bank's swap drawing would be offset and the monetary impact neutralized.

#### **Do dollar purchases by foreign central banks affect the United States money supply?**

When a foreign central bank buys dollars in its exchange market, banking reserves normally rise in its country. For example, when the Bundesbank buys dollars in Frankfurt, it creates marks and German bank reserves go up. The Bundesbank may or may not take special action to counteract the rise, depending upon its own domestic monetary objectives at the time. But, do the Bundesbank's purchases of dollars (or any other foreign central bank's, for that matter) influence the United States monetary aggregates? The answer is no. When the Bundesbank buys dollars, it receives them at its account with this Bank and member bank reserves decline. But the balances are immediately invested at the Bundesbank's instructions, generally in marketable United States Government securities such as Treasury bills or notes. As this Bank purchases such securities for the Bundesbank, dollars are put back into the United States banking system. In the end, member bank reserves and the money supply do not change when the Bundesbank purchases dollars in the exchange market.

Roger M. Kubarych

# The Market for Large Negotiable CDs

During the last fifteen years "liability management" has become accepted by large banks as a principal strategy for adjusting their lending capabilities. In tapping the domestic pool of short-term investable funds for the purposes of liability management, large negotiable certificates of deposit (CDs) are even more important to banks than trading in Federal funds or engaging in repurchase agreements (RPs) for Treasury bills. Because of the heavy bank reliance on the CD market, the monetary authorities have on numerous occasions used a wide variety of policy measures to influence bank use of CDs. In fact, since its introduction in 1961 no other vehicle for liability management has been subject to as many changes in regulations.

## The mechanics of CDs

As its name suggests, a certificate of deposit is simply a receipt certifying that a certain amount of money has been deposited at the bank issuing the certificate. The certificate also specifies the rate of interest to be paid and the date on which the principal and interest may be withdrawn (the maturity date). Large-denomination CDs, those in amounts of at least \$100,000, are the ones used in liability management. They are generally negotiable, *i.e.*, the owner may sell title to the deposit to another investor prior to the maturity date.

Because CDs are time deposits, they are subject to Federal Reserve Regulation D, which requires time deposits to have a minimum maturity of thirty days. Time deposits are covered by deposit insurance up to the first \$40,000 of principal, and this is usually

only a small fraction of the face value of large-denomination certificates. Therefore, investors must evaluate the likelihood of default by the issuing bank when considering purchase of a CD.

Since deposits cannot be accepted by a bank on a discount basis, CDs are issued at par and are traded on an interest-bearing basis. (Most other money market instruments, such as bankers' acceptances, commercial paper, and Treasury bills, are traded on a discount basis.) Should a CD be sold prior to maturity, the seller receives payment from the buyer for the principal—adjusted to current market value—and for all interest accrued from the original issue date to the date of the sale. If the buyer holds the CD to maturity, he of course receives both the principal and the full amount of interest indicated on the certificate.

Interest on CDs is computed on the basis of a 360-day year instead of the 365-day year used for bond yields. Issuing banks post rates for CDs of various maturities—30 days, 60 days, 90 days, etc.—but the actual rate is often negotiated between the issuer and the buyer (*i.e.*, the depositor) and is affected by the reputation of the issuing bank, the amount of funds it needs, the size of the CD, as well as its term to maturity. The new-issue market is called the primary CD market, and interest rates paid on newly issued CDs are primary rates. Transactions involving outstanding CDs take place in the secondary (dealer) market at what are termed secondary rates.

CDs are normally paid for in immediately available funds on the day of purchase, and they are redeemed in immediately available funds on the day they ma-

ture.<sup>1</sup> To facilitate settlement, CDs of many non-New York banks are often issued and redeemed through the issuer's correspondent bank in New York.

CDs are an attractive short-term, liquid investment for individuals, business firms, municipalities, and other organizations with large amounts of temporarily investable cash balances. Since CDs—unlike Treasury bills—are subject to at least some risk of default, they typically yield more than do bills of the same maturity. Thus, they are a tempting alternative for an investor willing to accept slightly more risk in return for a higher yield. Another advantage of CDs is that they may be issued for any desired maturity (of at least thirty days), whereas a Treasury bill maturing on a specific day, e.g., a tax-payment day, may be difficult if not impossible to locate. Also, legal restrictions on the investment powers of state and local governments force many to hold their temporarily investable funds in either government obligations or deposits in local commercial banks. Thus, these restrictions often make CDs the only instrument on which municipalities can obtain returns on short-term investments that are greater than those available on Treasury bills or other time deposits.

The present distribution of CDs among different types of investors is known only in broad outline. Some detailed information is available from surveys conducted in the early 1960's when there was only about \$10 billion of large CDs outstanding, compared with about \$70 billion at present. The results of those surveys, summarized in the table, showed that, as one would expect, business corporations were by far the largest original purchasers of CDs, while the remainder was bought, in about equal amounts by state and local governments, foreigners, and "others". The surveys also showed that smaller banks tended to sell relatively more of their negotiable CDs to individuals and to state and local governments and that these CDs were smaller on average than those issued to other types of investors.

The only recent source of information on the distribution of CD holdings is the breakdown of weekly reporting banks' outstanding CDs into those issued to individuals, partnerships, and corporations (IPC) and those issued to all others. In most recent years, the share of CDs issued to IPC holders has been about two thirds. This suggests that the proportion of CDs originally purchased by businesses and individuals has not changed much from that shown in the table.

In liability management, banks actively seek more

### Original Purchasers of Large Negotiable CDs

In percentage of total

Type of purchaser	December 5, 1962	June 30, 1964
Business .....	69	67
State and local governments .....	16	11
Foreign official institutions .....	6	} 12
All other foreign .....	1	
Individuals .....	3	2
Others .....	6	9
Total .....	100	100

Numbers may not add to totals because of rounding.

Sources: 1962: Board of Governors of the Federal Reserve System; 1964: American Bankers Association.

flexibility in expanding their lending capability in line with their profitable lending opportunities instead of adjusting their lending to deposits received more or less passively. Banks can do this by increasing their CDs when loan demand is strong and by allowing them to run off when loan demand turns sluggish. Only money-center and large regional banks have the ability to market their CDs effectively. The one hundred largest commercial banks with deposits in excess of \$1 billion account for about 90 percent of all large-denomination CDs issued.

On occasion, even a large bank may not issue all of its CDs directly to investors. For example, when a bank's liability management strategy requires it to market a large amount of CDs quickly, it may attempt to issue the CDs to dealers who are willing to purchase them for later sale or who are able to reach a broad array of potential investors quickly. When banks issue CDs into the secondary market in this way, the distinction between the primary (new-issue) and secondary (dealer) market becomes rather blurred.

CDs resemble other short-term money market instruments such as Treasury bills and bankers' acceptances in that they may be traded in a secondary market. The existence of such a market enhances their liquidity and makes them attractive relative to both non-negotiable instruments and negotiable instruments having poorly developed secondary markets. However, the secondary market rate generally exceeds the interest rate at which CDs are originally issued. The reason is that the CDs available in the secondary market may not match the maturities or be issued by the banks desired by investors, and investors have the option of buying CDs of any desired maturity of at least 30 days from preferred issuing banks. As a result,

<sup>1</sup> See "Federal Funds and Repurchase Agreements", this *Review* (Summer 1977), pages 33-48, for a description of immediately available funds.

yields in the secondary market must often be increased relative to primary yields to induce investors to purchase them.

Generally, the spread between rates bid and asked in the secondary market averages about 10 basis points for maturities in the three- to six-month range and is somewhat greater for shorter maturities. These spreads, however, are representative only for CDs of the top twelve to fifteen banks whose certificates are traded regularly by the handful of dealers who maintain markets in CDs; bid-asked spreads for CDs issued by banks whose CDs are less frequently traded are naturally somewhat wider.

Moreover, there is generally a tiering (differentiation) of market rates according to market perception of the strength of the issuing bank and of the liquidity of its CDs. Less favored banks must pay somewhat higher rates on their CDs than the most favored money market banks.

In addition to issuing CDs in the domestic market, United States banks with foreign branches have the ability to secure time deposits from holders of offshore dollar balances—Eurodollars. Funds deposited in branches can then be re-lent by them to their United States head offices or lent abroad. Like the CD market, the Eurodollar market is a wholesale market in which the average denomination of deposits is quite large. A further similarity between the Eurodollar and CD markets is that some London branches of United States banks issue London dollar CDs (*i.e.*, dollar-denominated CDs redeemable only at the London branch of the issuing bank), which trade in a secondary market much as domestic CDs do. Since large banks have the option of selling CDs or similar liabilities in either the United States domestic money market or in the Eurodollar market, they change their relative reliance on the two markets according to where effective costs are lowest.<sup>2</sup>

### **Beginnings of the CD market**

The negotiable CD came into prominence only seventeen years ago. The conditions that fostered a large market for CDs were the gradual rising trend of interest rates during the 1950's and 1960's as well as the related development of sophisticated money management techniques by corporate treasurers. Since banks were prohibited from paying interest on demand deposits and since most were unwilling to pay interest on corporate

time deposits, corporate treasurers actively began to use their temporarily investable balances to purchase short-term money market instruments. This investment strategy inhibited the growth of corporate deposits at large money market banks. In addition, the unavailability to banks of a flexible instrument with which to augment their conventional deposit sources meant that, in periods of monetary restraint, the share of bank credit in total credit flows to nonfinancial sectors (business, state and local governments, housing, and consumers) declined.

Responding to this state of affairs, the First National City Bank of New York (now Citibank) began to offer CDs to domestic business corporations, public bodies, and foreign investors in February 1961. The primary objectives were to increase corporate deposits and to allow banks greater discretion over their sources of funds, so that in a period of rising loan demand and increasing interest rates they could accommodate increases in short-term credit demands by expanding their CDs. Otherwise, they would have to turn down profitable loan applications or sell some of their investments, possibly at a substantial loss. The ability of banks to "buy" funds by paying market rates of interest added greatly to their flexibility and was the key element in their ability to shift to liability management.

CDs had existed in negotiable form for years prior to 1961, but they could not become an important source of funds for banks until they could compete with other short-term money market instruments. To do so, they had to be readily marketable and to pay a market rate of return. The crucial innovation in February 1961 was the secondary market for large negotiable CDs (provided initially by the Discount Corporation of New York, a dealer in United States Government securities). The secondary market made CDs a truly liquid money market instrument by establishing a means through which an investor could sell his holdings quickly and at low cost prior to maturity. Other large banks promptly began to issue CDs, and other dealers soon entered the secondary CD market.

The expansion of CDs in the early 1960's was rapid and steady (Chart 1). The smooth and impressive growth of outstandings from February 1961 through the middle of 1966 reflected increasing acceptance of this new money market instrument. However, the CD rates which member banks—virtually the only banks issuing CDs—could pay were subject to the interest ceilings of the Federal Reserve's Regulation Q. The 1 percent ceiling rate on time deposits of less than three months' maturity prevented CDs in this range from being issued. Moreover, the market for longer term CDs was affected in late 1961, when three-month

<sup>2</sup> Two important differences between Eurodollars and CDs are:

(1) Eurodollar deposits have no minimum term to maturity, while CDs have a minimum of 30 days, and (2) net Eurodollar borrowings of head offices of United States banks from their foreign branches currently are subject to a 4 percent reserve requirement, while CDs are subject to reserve requirements of 1 to 6 percent, depending on their original term to maturity.



Treasury bill rates edged upward and exceeded the 2½ percent ceiling rate in effect for three- to six-month CDs. At that point, only CDs of six-month or longer maturities on which the ceiling rate was 3 percent could be sold by banks, and these also became difficult to sell as the six-month Treasury bill rate approached 3 percent.

At the beginning of 1962, the Federal Reserve raised the ceiling rate for CDs of six- to twelve-month maturity to 3½ percent and that for CDs of twelve-month or greater maturity to 4 percent.<sup>3</sup> As a result of this change, banks were able once more to market CDs in the longer maturity range but were effectively prevented from issuing shorter maturities. A year and a half later, in July 1963, ceiling rates for CD maturities of three months and longer were fixed at 4 percent.

Meanwhile, the ceiling on one- to three-month CDs was deliberately held at an uncompetitive 1 percent level. This stimulated the growth of the secondary market which was then still in its infancy. The large

spread between ceiling rates on long- and short-term CDs allowed dealers and corporations to buy long-term CDs, to hold them until only a short term to maturity remained, and then to sell them in the secondary market without fear of being undercut by banks offering competitive rates on newly issued short-term CDs. In addition, since long-term CD rates generally exceeded short-term CD rates, while both remained relatively stable, dealers profited during the first half of the 1960's by buying long-term CDs, holding them in inventory, and then selling them as short-term CDs. As long as rates were stable, this investment strategy—called “riding the yield curve”—increased their total interest return by an amount depending on the spread of the long-term CD rate over the short-term CD rate.

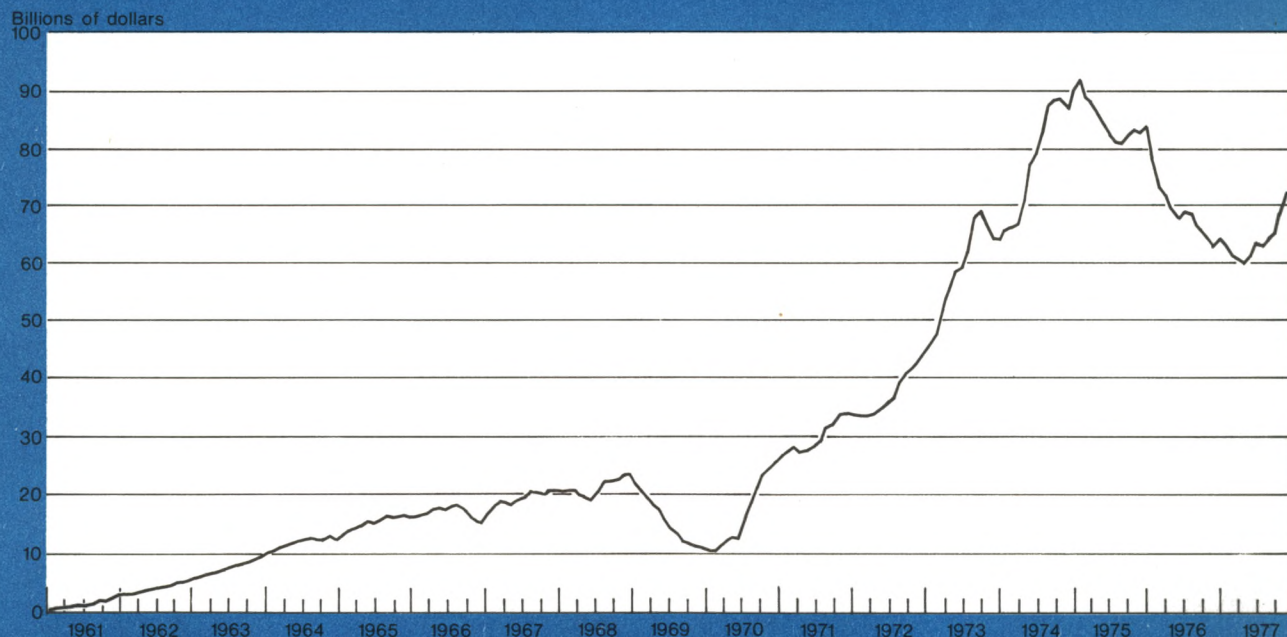
The artificially low Regulation Q ceiling on short-term CDs remained in effect until November 1964, when the maximum rate on CDs of 30- to 89-day maturities was raised to 4 percent, and the rate on longer term CDs was raised to 4½ percent. This change allowed banks to make competitive rate offers on CDs in the 30- to 89-day range for the first time. It thus put an end to the artificial stimulus to the growth

<sup>3</sup> In addition, time deposits of foreign official institutions were made exempt from Regulation Q interest rate ceilings in October 1962.

Chart 1

### Large Negotiable Certificates of Deposit Outstanding at All Commercial Banks

Not seasonally adjusted



Source: Board of Governors of the Federal Reserve System.

of the secondary market. From the end of 1963 to the middle of 1966, the value of CDs outstanding nearly doubled, reaching \$17.8 billion, while the daily average of gross dealer transactions changed little and remained at a modest level (Chart 2).

### First crisis: 1966

In response to rising interest rates, the existing Regulation Q ceiling rates were raised to a uniform 5½ percent for all CD maturities in December 1965 (Chart 3) in order to prevent banks from encountering difficulty when renewing (rolling over) their existing CDs. However, other market rates soon exceeded the new ceiling, and the CD market reacted immediately. Issuance of CDs began to slow, and outstandings started to fall.

Rates on CDs with longer maturities ran up against the ceiling in about the middle of 1966. Consequently, new issues of such maturities were greatly reduced, and the average maturity of outstanding CDs began a sharp decline (Chart 4). Shortly afterward rates on short-term CDs ran up against the ceiling, and new issues of short-term CDs also started to decline. The runoff of CDs from August to December 1966 reached a sizable \$2.9 billion (Chart 1), a decrease of about 16 percent from the August level. In the five years since the introduction of negotiable CDs, banks had never undergone a comparable experience.

The effects were also significant in the secondary market, where a rapid rise in rates—to which Regulation Q, of course, did not apply—resulted in considerable book losses for holders of outstanding CDs. Investors reacted by cutting back purchases of new CDs and holding to maturity the CDs already in their portfolios; thus market transactions as well as dealer positions were greatly reduced. Gross transactions in the secondary market declined to a level even lower than that observed in 1963, when data first began to be collected.

The pressures in the CD market caused by Regulation Q ceilings abated in December 1966, when interest rates started to decline rapidly. Pressures resumed in 1967 as rates on longer maturities again rose to the ceiling rate and made the average maturity of outstandings contract sharply. Early in 1968, when other market rates declined and the Regulation Q ceiling for longer term CDs was raised to 6¼ percent, pressures on the CD market were relieved once more.

During the 1966 “credit crunch”, banks found that CDs were a potentially unreliable source of funds. In reaction, some large banks began to develop alternative sources of funds, particularly Eurodollars, on which rates were not subject to regulation. A few United States banks had used Eurodollars prior to

1966, but in that year gross borrowings from foreign branches rose to about \$2 billion for the first time. It was also in the same year that the London dollar CD was introduced by the London branch of Citibank. The establishment of facilities for tapping the Eurodollar market during the 1966 credit crunch proved to be important during the 1969-70 crunch, when banks faced an even greater runoff of CDs.

In much of the postwar period, Regulation Q interest rate ceilings for member banks were set below the rates that thrift institutions specializing in housing finance were paying. In this way, *cross-intermediation*, —i.e., the shift of deposits from thrift institutions to commercial banks—was prevented. It was widely thought that preventing such a shift would encourage home building.

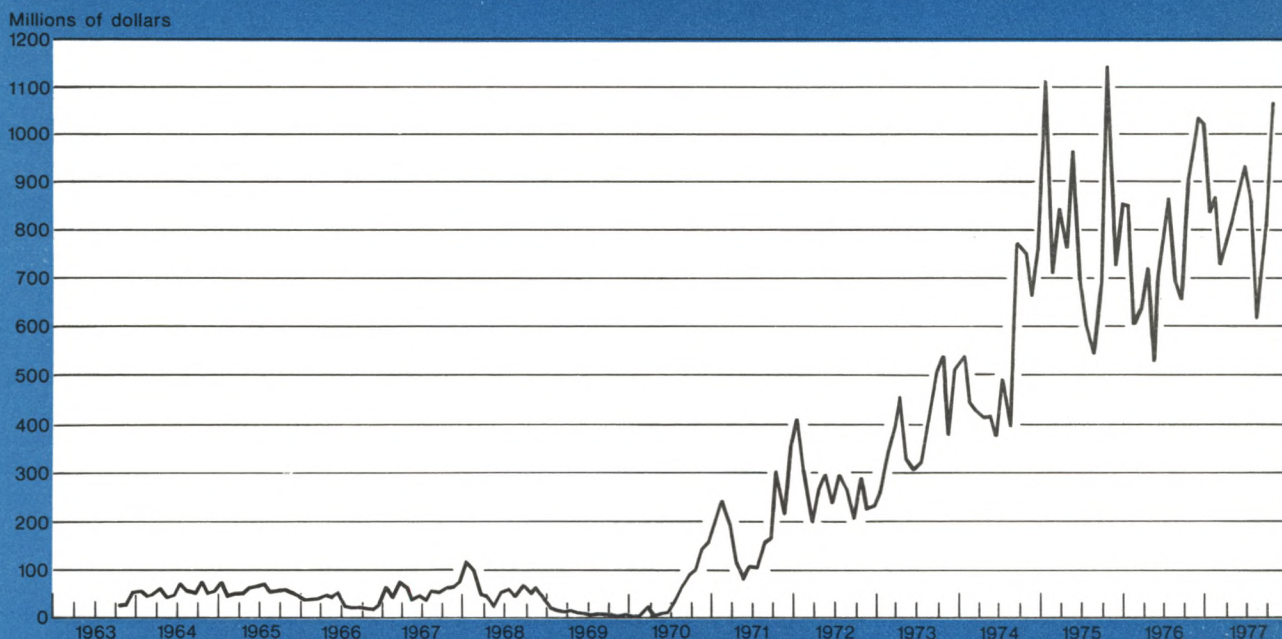
The increase in time deposit rates paid by commercial banks after the December 1965 adjustment of Regulation Q ceiling rates appeared to observers to have contributed to outflows of deposits from thrift institutions in 1966. Accordingly, the monetary authorities were in part blamed for the difficulties of the housing market in that year. In response, the authorities requested, and the Congress promptly passed, legislation permitting different ceiling rates for time and savings deposits according to their size and, for the first time, also extending ceilings to rates paid on time and savings deposits by thrift institutions. In September 1966, the ceiling rate on commercial bank time deposits smaller than \$100,000 was reduced to 5 percent while the ceiling rates for savings deposits and large negotiable CDs were left unchanged at 4 percent and 5½ percent, respectively. Although these actions may have reduced the threat of cross-intermediation, later events showed that rigid reliance on interest rate ceilings made both commercial banks and thrift institutions more susceptible to serious *disintermediation*—i.e., the withdrawal of time and savings deposits to purchase higher yielding money market instruments.

### Second crisis: 1969-70

Early in 1968, in response to rising market interest rates, Regulation Q ceiling rates were set at 5½ to 6¼ percent, according to maturity. However, despite the change in the ceilings, rates on new issues of CDs with shorter maturities were uncompetitive throughout most of 1968, and toward the end of that year the same happened to longer term CDs. In 1969, as monetary policy attempted to dampen inflationary pressures, market rates rose rapidly to the vicinity of 8 percent, which far exceeded Regulation Q rates. The ceilings were left unchanged, for the monetary authorities hoped that restriction of bank access to the CD market would both reduce the



Chart 2  
**Dealer Transactions in Large Negotiable Certificates of Deposit**  
 Monthly averages of daily figures; not seasonally adjusted



Source: Federal Reserve Bank of New York.

overall expansion of credit and cause banks to reduce the rate of their expansion of credit to business and thereby to lessen the financial squeeze on other sectors, such as housing and state and local governments. Consequently, between December 1968 and December 1969, banks were buffeted by the largest involuntary runoff of CDs ever, as investors sought more attractive returns available on other money market instruments. Outstandings declined by \$12.6 billion, a loss of more than 50 percent from December 1968. Thereafter, outstandings stabilized at a depressed level during the first half of 1970.

The CD runoff during 1969-70 would have been even larger had not banks begun to take advantage of the exemption of deposits of foreign official institutions from Regulation Q ceilings. During the second half of 1969 and the first quarter of 1970, banks were able to increase CDs issued to foreign official institutions by about \$2 billion, which offset some of the decline of CDs held by other investors.

The composition as well as the level of CDs was affected by the runoff. With the severe fall in new issues of CDs, the average maturity of outstandings actually rose sharply in the first half of 1970 (Chart 4)

as large amounts of short-term CDs matured without being rolled over. (Because of the large proportion of short-term CDs, a runoff increases the average maturity of outstandings.)

While banks faced an unprecedented drop in outstanding CDs, the secondary market virtually dried up. Average daily gross dealer transactions dropped to the lowest levels since the inception of the market and were practically zero during the second half of 1969 and the first part of 1970. At the same time, dealer positions were almost completely eliminated. Hence, any potential investors in CDs were doubly deterred: the interest rates on alternative money market instruments substantially exceeded rates permitted on primary CDs, and the liquidity that had contributed to the earlier attractiveness of CDs no longer existed.

To compensate for the heavy loss of CDs, banks sold government securities, restricted lending to business, and sharply cut back purchases of municipal obligations (large banks were actually net sellers of municipals during the second half of 1969). Although the rate of expansion of bank lending to business was substantially reduced, business spending was not commensurately curtailed because many large firms were

able to obtain funds by selling liquid assets and by utilizing sources of nonbank funds, e.g., by selling commercial paper.

### **Eurodollars—a substitute for CDs**

In addition to restraining lending and liquidating investments, banks also greatly increased their reliance on borrowings from their foreign branches. In fact, large New York banks, which had the best developed access to the Eurodollar market, were able to replace their CD losses almost dollar for dollar with such borrowings. As a result, Eurodollar borrowings from foreign branches soared in late 1968 and 1969; they reached an all-time high of \$15 billion in October 1969.

Eurodollar borrowings were a highly attractive source of funds just then. In contrast to CDs, which were subject to Regulation Q ceilings, Eurodollar rates were unregulated. United States banks could therefore secure funds to offset their CD losses if they were willing to pay high interest rates, and their access to funds was potentially more reliable for the same reason. In addition—and again in contrast to CDs—the cost of Eurodollar borrowings was reduced somewhat because they were not subject to reserve requirements.

In October 1969, a 10 percent reserve requirement was imposed on net borrowings of United States banks from their foreign branches that were above a reserve-free base, defined in a rather complicated way. In essence, the base was equal to at least 3 percent of a bank's total deposits less its deposits due to foreign banks in any current four-week period. For banks that had average Eurodollar borrowings in excess of the 3 percent formula in the four-week period ended May 16, 1969, the base was raised to the May average. However, the base was automatically reduced if average borrowings fell below the May average in any subsequent four-week period. But in no case could the base be lower than that given by the 3 percent formula. The 3 percent formula was intended to avoid discriminating against banks which had been slow to enter the Eurodollar market and consequently did not have large levels of borrowings. The reserve-free base was adopted in order to motivate banks to refrain from reducing Eurodollar borrowings abruptly. Some banks were thus undoubtedly induced to maintain their borrowings for longer than they would have otherwise, and the net liability of United States banks to their foreign branches remained flat in the latter part of 1969 and declined only gradually in early 1970.

Because reserve requirements now applied to borrowings from foreign branches, banks turned to other sources of funds. The most important of these was outright sales of loans to bank affiliates, which in turn gen-

erally sold commercial paper to pay for the loans. Loan sales to affiliates at large weekly reporting banks increased from about \$2.1 billion in May 1969 to \$3.0 billion by the year-end. In the first six months of 1970, loan sales doubled, and they reached an all-time high level of \$8.1 billion at the end of July.

Meanwhile, in January 1970, the Board of Governors of the Federal Reserve System raised Regulation Q ceilings somewhat. The action was designed to limit outflows of CDs and other time deposits from commercial banks, but its impact was very modest. Even though market rates declined slightly around that time, they were still well above the new ceilings.

### **Effects of the Penn Central crisis**

On Friday, June 19, 1970, efforts to induce the United States Government to grant emergency credits to the Penn Central Transportation Company collapsed. Two days later, on Sunday, June 21, Penn Central filed its bankruptcy petition. The railroad then had in excess of \$80 million of commercial paper outstanding, and the prospect of imminent default on this paper generated fears of a general liquidity crisis. For this reason, on Tuesday, June 23, the Federal Reserve took a variety of supportive actions, among which was suspension of the Regulation Q ceiling rate on CDs maturing in 30 to 89 days. The effect was to allow banks to reenter the short-term CD market, which they did with great alacrity. The massive acquisition of funds through new issues of CDs was crucial to banks' efforts to meet the financial needs of business. Many firms were unable to issue commercial paper during the weeks immediately after the Penn Central bankruptcy petition, and total commercial paper outstanding promptly contracted by about \$3 billion.

Restoration of banks' access to the CD market also reduced their need to sell loans to affiliates and to raise funds indirectly through commercial paper. Accordingly, loan sales declined slightly in August, and they began to fall sharply after September, when reserve requirements were placed on bank-related commercial paper used to fund bank lending. By the end of 1970, outstandings of loans sold amounted to only \$2.7 billion, well below the peak of \$8.1 billion.

As banks resumed issuing CDs, the average maturity of outstandings declined rapidly from the all-time high of more than four months in early 1970 to a more normal range of about three months. In addition, the secondary market recovered almost immediately, and daily average transactions and dealer positions soon attained levels far exceeding all previous ones. A significant longer term effect was that participants in the financial markets assumed that the suspension of Regulation Q ceilings on the shortest



Chart 3  
Interest Rates on Large Negotiable Certificates of Deposit

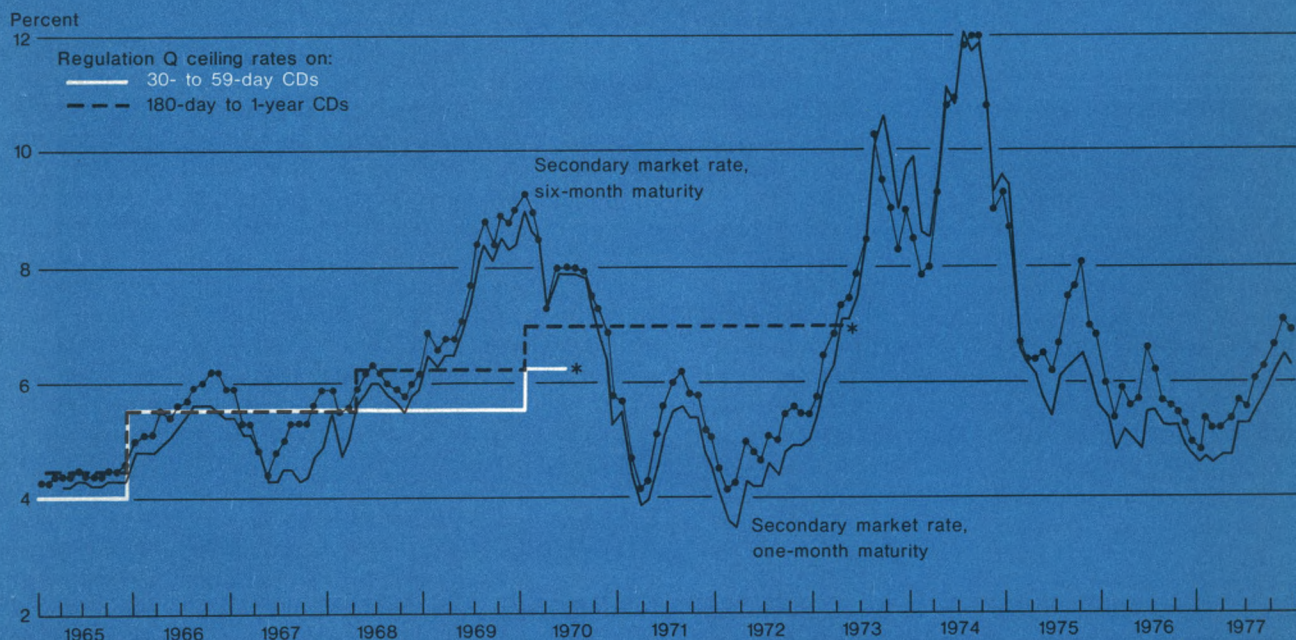
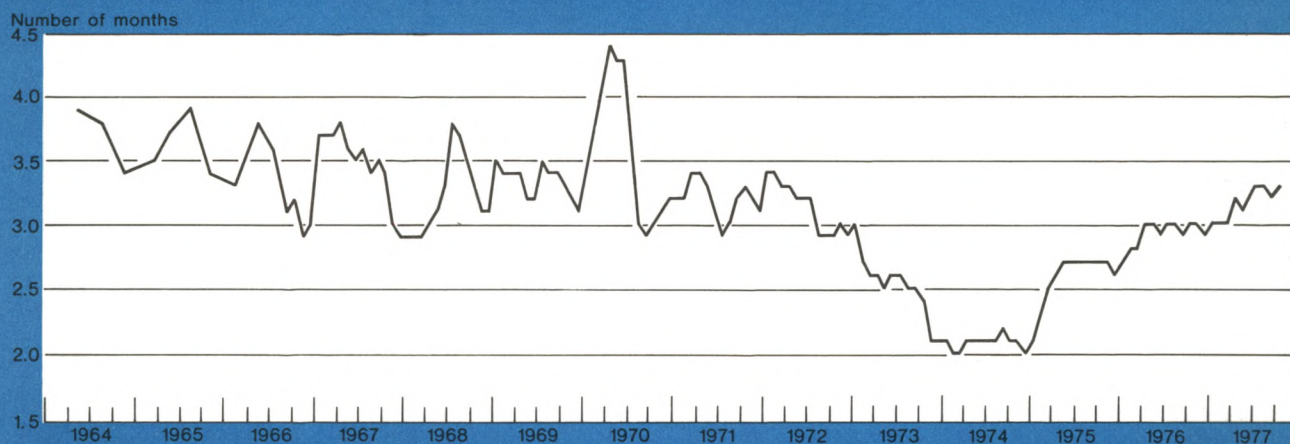


Chart 4  
Average Maturity of Outstanding Large Negotiable Certificates of Deposit  
Weekly reporting banks; not seasonally adjusted



Source: Board of Governors of the Federal Reserve System.

maturities meant that the Federal Reserve would no longer employ rigid ceilings on CD rates as a tool of quantitative credit control.

After the Regulation Q ceiling on short-term CDs was suspended, deposits at foreign branches were 2 to 3 percentage points more expensive than domestic CDs. Thus, it was no longer attractive to maintain existing levels of Eurodollar borrowings, and banks began to pay them down rapidly. The Federal Reserve Board raised the reserve requirement applying to net borrowings from foreign branches to 20 percent in January 1971. In addition, it announced that, if a bank defining its reserve-free base of Eurodollar borrowings as 3 percent of deposits reduced its borrowings below the reserve-free level, its base would be reduced accordingly. The intention was that the threat of higher reserve requirements on future borrowings would stimulate banks to maintain their current borrowings, thus counteracting the abrupt turnaround in international capital flows resulting from the reduction of borrowings from foreign branches. However, the inducement offered was evidently inadequate, since banks continued to repay them.

#### **The boom of 1973-74**

Credit demand began to revive in 1972, particularly demand for bank loans. Business loans increased rapidly during late 1972 and early 1973, in part because the prime rate was being held to a relatively low level under the influence of the Committee on Interest and Dividends in line with the price and wage control apparatus then in force. In May 1973, as interest rates on CDs with maturities of 90 days and more approached Regulation Q ceilings, these ceilings were suspended, an act that terminated Regulation Q ceilings on all large negotiable CDs. Thus the market's earlier assumption that, after the 1969-70 credit crunch, ceilings on CDs were no longer to be used as instruments of monetary policy turned out to be right. Had the ceiling on longer term CDs not been removed, the average maturity of CDs would have declined—an outcome that the authorities wished to avoid. As a result of their continued access to the CD market in 1973-74, banks were able—for the first time in the postwar period—to maintain their share in total credit flows to non-financial sectors during a period of monetary restraint.

In June 1973, the Federal Reserve attempted to slow the rapid rate of expansion of bank credit by introducing a marginal reserve requirement on CDs similar to the one applied earlier to Eurodollar borrowings. The existing 5 percent reserve requirement on a bank's base of CDs (defined as the amount of CDs outstanding on May 16, 1973) was continued. For CDs in excess of this base amount, the marginal reserve requirement

was increased to 8 percent by addition of a supplementary reserve requirement of 3 percent.<sup>4</sup> At the same time, the authorities reduced the reserve requirement on Eurodollar borrowings by head offices of United States banks to 8 percent and announced a gradual elimination of the reserve-free base. This put reserve requirements for CDs and Eurodollars on a roughly equal basis. In September 1973 the Federal Reserve attempted to counteract expectations of an imminent easing of monetary policy by announcing an increase in the marginal reserve requirement on CDs to 11 percent beginning October 4. The new reserve requirement, whatever its effect on market expectations, had little obvious effect on banks' utilization of CDs, for the volume of outstandings continued to increase. When strains on the credit markets temporarily eased in December 1973, the marginal reserve requirement was reduced to 8 percent again.

In September 1974, shortly after money market rates began to decline from their record highs, the authorities restructured CD reserve requirements by removing the 3 percent supplementary reserve requirement for CDs with an original maturity of four months or more. Thus, CDs in excess of the base amount that had an original maturity of less than four months continued to be subject to an 8 percent reserve requirement, while longer term CDs became subject to a reserve requirement of only 5 percent. This was the first time reserve requirements had been related to the maturity of CDs. The Federal Reserve wanted to induce banks to lengthen the average maturity of their CDs—by now reduced to an all-time low of slightly more than two months—by lowering somewhat the effective cost to banks of longer term CDs.

Other modifications to the reserve requirements came in December 1974. The marginal reserve requirement for CDs was eliminated, and reserve requirements were set at 6 percent for CDs with an original maturity of less than six months and at 3 percent for those with an original maturity of six months (180 days) or more. One problem with such a structure of reserve requirements is that banks may find themselves able to reduce their required reserves with adjustments of their CD maturities that leave the average maturity of CDs essentially unchanged. For example, issues of six-month CDs—which have a low reserve requirement—might be increased while issues of five-month CDs are reduced. This sort of change will reduce required reserves but will increase maturity only very slightly.

It is difficult to assess with precision the effect of these new reserve requirements on the maturity struc-

<sup>4</sup> This supplementary reserve requirement did not apply to banks with less than \$10 million of CDs outstanding.

ture of CDs. However, the timing of changes in the average maturity of CDs sheds some light on the question. The average maturity of CDs actually declined slightly following the September revision and increased rapidly beginning in early 1975. Since the December revision in fact weakened the incentive banks had to lengthen CD maturities, the abrupt increase in the average maturity in early 1975 seems primarily attributable to the sharp runoff of CDs which began at that time.

Moreover, the actual changes in the spread of the six-month CD rate over the one-month rate were far greater than could have been produced by the modifications to reserve requirements. Simple calculations show that, all other things being equal, the change should have been an increase of 25-30 basis points in the spread of the six-month rate over the one-month rate. However, the spread increased by about 125 basis points from late 1974 to the end of 1975 and then was in large part reversed by the end of 1976 (Chart 3). This roughly followed the pattern of changes in the structure of interest rates in other markets. The actual behavior of the spreads thus suggests that market forces have a determining influence on the structure of interest rates in the CD market, while the influence of the differential reserve requirements is difficult to isolate.

#### **A multitier market emerges**

Though the CD market underwent a variety of shocks during the 1973-74 boom, it performed quite well. Unlike earlier booms, when Regulation Q ceilings precipitated a runoff of CDs and a severe thinning of the secondary market, in 1973-74 banks were generally able to market their CDs successfully—though they had to pay quite costly interest rates—and no discernible transactions decline occurred in the secondary market. The principal change was the advent of a “multitier” market, in which the rates paid by banks on CDs were tailored according to investors’ perception of the riskiness of the issuing banks.

The collapse of the United States National Bank of San Diego in October 1973, followed by Herstatt in Germany and the Franklin National Bank in New York in 1974, had significant ramifications. For the first time since the 1930’s, the specter of possible failure of even major financial institutions arose, making investors more sensitive to relative risk in evaluating CDs issued by different banks. Accordingly, investors did demand noticeably higher rates on the CDs of banks viewed as less stable. Since the early years of the CD market, distinctions had typically existed between rates paid by banks then classified as prime and nonprime, but the multitier market introduced a rather more refined differentiation. For the most part, in the new tier struc-

ture, the larger banks pay lower rates.

Bank size affected rates paid on CDs in two ways. Liquidity considerations favored the CDs of the large money market banks, since the secondary market for them is the most developed. And banks that attempted to place issues of their CDs beyond the circle of regular customers who knew them well had to pay a premium. For both reasons, regional banks trying to tap new sources of funds with their CDs in 1974 generally had to pay higher rates than did large money market banks. In 1975, when public attention began to focus on the financial crisis in New York City, even some large New York City banks found their CDs being less favorably received by investors than before. That change in the structure of CD rate tiers has since moderated significantly.

The development of a tiered market in CDs may betoken the maturation of the CD as a money market instrument. The earlier, relatively crude differentiation between prime and nonprime CDs was a rather peculiar feature of the CD market. A refined structure of tiered borrowing rates has, for example, long been a standard feature of the bond and commercial paper markets. In response to the development of tiering in the CD market, some banks may very well have changed their approach to lending or investing funds obtained through CDs, thus giving more emphasis to asset management relative to liability management. It is probably safe to conclude that banks are now far more conscious of the impact of their incremental CD exposure on their total cost of purchased funds than they were prior to 1974.

Another indication of the maturation of the CD market is that, as banks on the whole faced sluggish loan demand from the beginning of 1975 until relatively recently, they allowed their CDs to run down. At the same time, they restructured their balance sheets by expanding their investment portfolios considerably. This is the first time since 1961 that banks in the aggregate voluntarily reduced their CDs to any significant extent; earlier contractions had occurred when market rates exceeded Regulation Q ceilings. At other times CDs were always growing, even when loan demand was sluggish. This altered behavior may mean that the rapid growth stage of CDs has ended. From now on CDs will probably expand and contract in step with the movements of loan demand.

Developments in borrowings of United States banks from their foreign branches were less dramatic during 1973-74 than in 1969. Such borrowings were subject to reserve requirements during 1973-74 and, since Eurodollar rates typically exceeded CD rates, Eurodollars were generally a more expensive source of funds for United States banks than were CDs. Equally

important, since the last remaining Regulation Q ceiling on CD rates was suspended in May 1973, CDs remained available—though they were extremely expensive—even during the tightest money market conditions in 1973-74.

Under these circumstances, banks relied very little on Eurodollars for domestic lending. In 1973, net borrowings from foreign branches remained in the neighborhood of \$1.5 billion-\$2 billion, far below the peak of over \$15 billion in 1969. An unexpected tightening of the money market in early 1974 led to a rapid increase to about \$3 billion, a level maintained through the summer. But a general weakening of demand for credit then became apparent, and starting in October net Eurodollar borrowings were rapidly repaid. Since February 1975, United States banks on balance have been net lenders to their foreign branches.

### **Lessons of the past and new developments**

The lessons of the seventeen-year history of CDs primarily concern experience with the two means employed by the monetary authorities to influence the CD market: Regulation Q interest rate ceilings and reserve requirements.

While Regulation Q interest rate ceilings did restrict bank lending to business somewhat during the 1969-70 period, overall credit extended to business was affected much less. The rigidly maintained CD rate ceilings succeeded in preventing deposits from flowing from thrift institutions to commercial banks, but as a result both suffered severe deposit losses which greatly increased uncertainty in domestic financial markets. The further evolution of the financial system since that time and the increased ability of borrowers to secure funds from outside the banking system make it even more doubtful that Regulation Q can be used constructively as a means of monetary control in the future.

As to the various forms of reserve requirements applied to CDs, there is little evidence that they have had any appreciable effect on the market. This holds true for the marginal reserve requirements as well as for the current reserve requirements that are differentiated according to original maturity.

Further alterations of reserve requirements do not appear to be a promising means of increasing the average maturity of CDs. The demand for long-term CDs is mainly affected by three factors: the short period of time for which many investors have funds available, the thinness of the secondary market for long-term CDs, and the spread of the long-term CD rate over the short-term CD rate. Current reserve requirements influence the latter factor by penalizing short-term CDs. Given the tendency of the other factors to favor the purchase of short-term CDs, it seems

likely that reserve requirements would have to incorporate a considerably greater differential to stimulate the issuance of long-term CDs. The legal limit on the range of reserve requirements that may be applied to time deposits, 3-10 percent, does not appear to allow much scope for creating such a differential.<sup>5</sup>

Of course, given the increased use of term loans in bank lending to business, there is a presumption that banks should lengthen the maturities of their deposits so as to maintain something of a balance between the maturities of their assets and their liabilities. In fact, the average maturity of CDs has recently tended to vary directly with the cyclical increase in the proportion of term loans in the portfolios of large banks. But, judging by the timing of maturity changes, very little of this variation appears to be attributable to the lowering of reserve requirements for long-term CDs in September and December 1974. The balancing of asset and liability maturities thus appears to take place over the business cycle independently of changes in reserve requirements.

The most interesting developments in the CD market in the last few years have been the innovations introduced by banks to extend the maturities of CDs. During early 1975 the variable-rate CD was introduced. It has a minimum maturity of 360 days, and its interest rate, pegged at a specified spread over the issuing bank's current rate on 90-day CDs, is adjusted every 90 days. With such an instrument an investor can increase his total interest return over that obtainable by successively renewing short-term CDs without being committed to a fixed rate. The attraction to the issuing bank is that, on average, the total interest paid on a variable-rate CD will be less than that on a conventional (fixed-rate) CD of the same maturity. The reason is that the investor and the bank in effect split the risk premium included in the spread of the long-term conventional CD rate over the short-term CD rate. It is impossible to determine how many variable-rate CDs have been sold. The amount cannot be very large, since demand for long-term CDs is restricted by the scarcity of long-term investable funds and the relative illiquidity of long-term CDs.

Another recent innovation has the potential of altering somewhat the character of the market as well as lengthening maturities. It is the rollover CD introduced by Morgan Guaranty Trust in late 1976. The rollover CD was designed to overcome the limitation on a bank's ability to issue long-term CDs, due to six months being about the maximum maturity traded regu-

<sup>5</sup> Reserve requirements for specific kinds of time deposits have recently been set below 3 percent, but a bank's reserve requirement for all of its time deposits must nevertheless be at least 3 percent.



larly in the secondary market. Investors are naturally reluctant to purchase long-term CDs if they in large part lack the liquidity provided for short-term CDs by the secondary market. The rollover CD attempts to deal with the problem by packaging a series of six-month CDs into a commitment to roll them over for a longer period of time, e.g., three years. Any one of the six-month CDs may be sold in the secondary market if the investor needs liquidity but, if he does so, he is nevertheless committed to roll over the CD by re-depositing equivalent funds at each maturity date.

The rollover CD allows long-term CDs to be structured so as to be able to take advantage of the existing secondary market. Still, it is not so liquid as a conventional six-month CD, since the investor cannot at present sell his rollover commitment in the secondary market and since the rate of interest is fixed for the entire term of the commitment. Even so, the innovation could enhance considerably the liquidity of long-term CDs. A disadvantage to the issuing bank of the rollover CD, compared with a conventional long-term, single-maturity CD, is that the bank takes the risk, however small, that an investor may default on his future commitment to roll over the six-month CD. The additional risk may well limit the attractiveness of rollover CDs to banks until experience indicates that the risk is negligible or that it can be reduced to reasonable levels through careful management. The future of the rollover CD is still uncertain, and only a moderate amount has been sold by Morgan Guaranty.

The Federal Reserve has continued to encourage banks to lengthen the average maturity of their CDs by lowering reserve requirements for time deposits (including CDs) with long original terms to maturity. For example, in October 1975 the reserve requirement applying to CDs with original terms to maturity of four years or longer was reduced to 1 percent from 3 percent.<sup>6</sup> Since only a minute fraction of CDs outstanding at present have this long an original maturity, the effect of the change on the average maturity of CDs was probably nil. In January 1976 the reserve requirement applying to time deposits with an original maturity of at least 180 days up to four years was lowered to 2.5 percent from 3 percent. It seems unlikely that this small change had any appreciable effect on the average maturity of CDs.

It appears that the structure of reserve requirements on time deposits could well be simplified by

eliminating different requirements for different maturities. As noted, it seems unlikely that these reserve requirements have had any significant effect on the average maturity of CDs, and they complicate considerably the calculation of banks' required reserves. There is also reason to question whether influencing the maturity structure of CDs is a desirable policy objective. If it is, consideration should be given to ways to encourage innovations such as the rollover CD; liquidity is likely to be more important to potential investors than the small extra return that might be created by low reserve requirements on long-term CDs.

Another possible policy initiative would be to eliminate the 30-day minimum maturity of CDs. It is difficult to point to any important purpose served by this requirement, and its removal would probably contribute modestly to the smooth functioning of the market. Although removal would require a change in the legislation governing time deposits, such action is not inconceivable in light of recent trends toward payment of interest on demand deposits (NOW accounts, telephone transfers, etc.).

The availability of very short-term CDs would make CDs more attractive in investors' portfolios relative to finance company commercial paper, which often has only a few days' maturity. Most investors would probably find very short-term CDs attractive at only a modest spread over the RP rate. Very short-term CDs would also give banks a somewhat more flexible instrument for short-term adjustment of reserve positions than RPs, which must be backed by Treasury securities if they are to be exempt from demand deposit reserve requirements. Elimination of the 30-day minimum maturity would thus remove the artificial stimulus to secondary market trading in CDs of less than 30 days remaining maturity, much as was done for 30- to 89-day maturities by the November 1964 increase in the applicable Regulation Q ceiling from its earlier uncompetitive level. Finally, the availability of very short-term CDs would considerably simplify the cash management policies of municipalities, whose legal investment alternatives tend to be few.

### Prospects for CDs

An assessment of prospects must recognize that the CD market probably has reached maturity. Rates have become tiered to reflect investor perception of the relative riskiness of issuing banks—a standard feature of other financial markets. Perhaps more revealing of market maturity is the banks' voluntary reduction of outstanding CDs beginning in 1975, the first sustained voluntary retrenchment ever. There is thus little likelihood that bank reliance on CDs will increase at anything like the steady rate observed during much of the

<sup>6</sup> Morgan Guaranty initially hoped that rollover CDs of four years and longer maturity would be subject to the 1 percent reserve requirement applying to conventional CDs of such a maturity. But a recent Federal Reserve ruling held that, for calculation of required reserves, a rollover CD is equivalent to a six-month CD and thus is subject to a higher reserve requirement.

1960's, when Regulation Q ceilings were not binding. The outlook, rather, is for CDs to behave much as they did in 1973-76; in that period, issues expanded in line with increased loan demand and contracted as loan demand declined.

Without a return to Regulation Q ceilings on CD rates or some other quantitative constraint on banks' liability management, United States banks' reliance on borrowings from their foreign branches as a source of funds will probably reflect primarily the relative cost of funds in the CD market and the Eurodollar market.

Unless Eurodollar rates should at times get to be abnormally low relative to United States CD rates, such borrowings from now on should chiefly provide a source of funds with maturities of less than 30 days. Substitution between domestic CDs and Eurodollar time deposits at foreign branches will most likely be of appreciably smaller importance than it was in the past. For this reason, borrowings from foreign branches will probably grow much less than CDs whenever banks seek to expand their discretionary liabilities in response to growing loan demand.

William C. Melton



# The Dealer Market For United States Government Securities

The market for United States Government securities occupies a central position in the nation's financial system. The market helps the Treasury finance the Government debt and provides the Federal Reserve with an effective means of implementing monetary policy. While the safety of Government securities is a fundamental feature, perhaps their most vital quality to investors is their liquidity—the ability to transform them into cash quickly and at low cost. The market is an over-the-telephone one in which dealer firms stand ready to buy and sell from a wide range of public and private participants. The dynamic interaction of all participants enhances the attractiveness of Treasury securities and the importance of the market itself.

The dealer market is an effective conduit for the distribution of new Government securities to investors. Treasury financing requirements have grown significantly in recent years, owing to a series of increased Government deficits and to the need for refinancing a heavy schedule of maturities. Since 1974, dealers have initially bought slightly more than 40 percent of the securities competitively auctioned to the public by the Treasury. Moreover, the active role that the dealers have taken in making a secondary market, *i.e.*, buying and selling outstanding issues, has enabled investors to use Government securities more readily in carrying out their portfolio strategies.

Federal Reserve open market operations are undertaken with dealers in the market to implement monetary policy. The Manager of the System Open Market Account buys and sells securities on a temporary or outright basis either to augment (through purchases) or to reduce (through sales) the reserves available to member banks. These operations, conducted at the Trading Desk of the Federal Reserve Bank of New

York (FRBNY), have an important bearing on overall economic activity. They help to determine the growth of monetary aggregates and the availability of credit, and they influence the trend of interest rates.

Open market operations are also used to counter sharp fluctuations in bank reserves, which arise from such factors as changes in the public's demand for currency or in the size of Treasury cash balances held at Federal Reserve Banks. The Federal Reserve serves as the fiscal agent for the Treasury and as agent for Government and foreign official institutions in the market, buying and selling Treasury securities for them. Activity at the Trading Desk has grown significantly in recent years, mainly in reflection of greater fluctuations in other factors affecting reserves and the increased participation of foreign central banks in the market. The expansion of this activity has also contributed to the growth and liquidity of the secondary market.

The Treasury and the Federal Reserve closely monitor developments in the market. The Trading Desk at the FRBNY conducts regular meetings with representatives of dealer firms and throughout the day remains in telephone contact with their trading rooms, receiving price quotations and assessments of the state of the market. Officials of the Treasury are also in frequent contact with these firms and often solicit their views on debt management. The FRBNY has recently stepped up its surveillance of dealer firms. In addition to obtaining statistical reports from them, it visits the individual firms to gain further insight into market practices and to evaluate the activities of the firms themselves.

The market has expanded sharply in the past few years, both in overall trading activity and in the

number of dealer firms. The growth of trading, outright buying and selling, reflects the greater short-run variation in interest rates in the 1970's as well as the large increase in Treasury debt. The Treasury's debt management policies, especially efforts to extend the maturity of the Government debt while meeting enlarged borrowing needs, have also contributed to the market's development. There has also been a growing willingness on the part of portfolio managers to seek to anticipate interest rate movements and thus to trade more actively in the short run.

The entry of a number of new dealer firms into the market has substantially reduced the concentration of trading activity—i.e., the share of trading activity accounted for by the largest firms—and has to some extent altered the trading relationships among the dealer firms. A more impersonal and even more competitive market atmosphere has developed. At times, participants, in seeking greater returns, may also have overreacted to events that could affect interest rates. This, combined with the active trading, could have contributed to short-run volatility in interest rates.

#### **Stock in trade: United States Treasury debt**

The Treasury increased its borrowing sharply following the onset of the 1973-75 recession. This mainly reflected the large increases in spending during the most severe business downturn in the post-World War II era. The public took on about \$130 billion net of marketable Treasury securities during 1975 and 1976, and the amount held outside the Federal Reserve and United States Government accounts rose by approximately 70 percent. The large increases in the debt in 1975 and 1976 caused the ratio of Treasury debt to gross national product to end a long downward trend and to rise for the first time since 1958. Still, the ratio of Treasury debt to GNP in 1976 was only about one-third as high as in the years following World War II.

The Treasury was able to float the bulk of the sizable increases in its debt without major disruptions to the financial markets, partly because the expansion of private credit demands and inflationary expectations both abated amid a more moderate pace of economic growth. At the same time, the Treasury adopted new techniques to aid its sales efforts. Initially, it concentrated debt offerings in the most liquid areas of the market, raising a substantial amount of new cash in bills during 1975. (For a discussion of the types and characteristics of Treasury debt, see box on page 37.) It then turned heavily to the coupon sector, particularly the two- to five-year area, and also issued long-term bonds as the Congress acted to ease existing interest rate constraints on new issues of these

securities. The greater reliance on the coupon sector helped make these securities more liquid by increasing the size and number of securities available for trading.

To facilitate its financing operations, the Treasury increased the amount of information provided to the public on the expected amount and characteristics of its financing each quarter. The Treasury began to expand the schedule of routine coupon offerings so that by 1976 it was holding monthly sales of two-year notes and quarterly sales of four- and five-year notes.<sup>1</sup> Mid-quarter refundings of maturing coupon securities generally contained offerings of a three-year note, an intermediate-term note, and a long-term bond. This evolving pattern helped to extend the maturity of the debt. Starting in 1970, the Treasury came to rely increasingly on auctions to sell its coupon issues, thus letting the market set the rate competitively. This technique makes pricing easier, because it allows market participants to adjust their bidding to incorporate evaluations of last-minute developments in the credit markets. Notable exceptions to this policy occurred in 1976, when on three occasions the Treasury used a fixed price and coupon subscription method that led to successful sales of very large amounts of seven- and ten-year notes.

#### **Investors**

The largest investors in Government securities are financial institutions who prefer to have very liquid and high-quality assets in their portfolios. Domestic commercial banks owned over \$100 billion of Government securities in mid-1977 (Table 1). Banks shape their portfolio decisions in response to pronounced seasonal and cyclical flows of funds. For example, bank holdings of Government securities increased substantially in 1975 and 1976 as an offset to cyclically weak demand for loans caused by a restructuring of balance sheets on the part of bank customers in the aftermath of the 1973-75 recession. The expansion in holdings of Government securities followed many years of little or no growth while customer loan demand was heavy. Other private financial institutions—such as thrift institutions, insurance companies, and pension funds—hold somewhat less than half the amount of Government securities held by commercial banks. While they keep Treasury issues in their securities portfolios, their needs for funds are generally more predictable than those of commercial banks. They typically hold a larger proportion of mortgages and other securities that offer

<sup>1</sup> In June 1977 and again in December 1977, fifteen-year bonds were sold rather than five-year notes. The Treasury has indicated that it will make such substitutions from time to time.

higher yields but are less liquid than Treasury issues.

The Federal Reserve System's holdings of Government securities rival the amount held by the commercial banks. These issues constitute the great bulk of the System's assets and they support its liabilities, primarily Federal Reserve notes which constitute most of the nation's currency in circulation, member bank reserves, and Treasury deposits. The principal reason for the growth of Federal Reserve holdings of Government securities has been the expansion of Federal Reserve notes and, to a lesser extent, the increases in

average Treasury cash balances at the Reserve Banks. Member bank reserves have expanded little in recent years, since the growth of member bank liabilities subject to reserve requirements has been offset by reductions in average requirements.

Other governmental units, both domestic and foreign, hold substantial amounts of United States Government securities because they are bound either by law or custom to hold the safest and most liquid securities available. Foreign and international investors, primarily official institutions, held about \$65 billion of marketable

### Characteristics of Treasury Securities

The Treasury sells two different kinds of marketable obligations: coupon-bearing securities and bills. The investor's return on a coupon-bearing security comes from semiannual interest payments plus any gain or loss in the price of the security from the time of purchase to maturity or sale if it is sold before it matures. Coupon-bearing securities are either notes or bonds. By law, notes have an original maturity of from one to ten years. Securities designated as bonds are permitted to have any maturity, but the Congress has restricted to \$27 billion the amount of bonds in the hands of the public that may bear coupons exceeding 4½ percent. As of June 30, 1977, only \$13½ billion of bonds with coupons over 4½ percent was in private hands, *i.e.*, outside the Federal Reserve System and official United States Government accounts. There is no comparable restriction on notes. In recent years, most coupon securities have been issued in minimum denominations of \$1,000, except for two- and three-year notes for which \$5,000 has been the minimum.

Coupon securities are usually sold through auctions in which bidders submit competitive bids expressed as annual yields to two decimal places—7.31 percent, for example. Noncompetitive bidders may submit tenders of up to \$1 million. The Treasury allots to the noncompetitive bidders first and then allots competitive bids, beginning with those at the lowest yield. When the issue has been fully allotted, the Treasury calculates the weighted average of the yields it has accepted and then establishes a fixed coupon to the nearest eighth percent, so that the average price is usually at par or slightly below par. For example, a security sold with an average issuing yield of 7.31 percent would have a 7¼ percent coupon and an average price slightly below par. A security is sold at par when the average yield is exactly equal to the coupon. All noncompetitive bidders pay the average issuing price, and competitive bidders pay the price associated with the

bids accepted by the Treasury.

Price quotations in the secondary market are expressed in points with par value equal to 100 points. Fractions of a point are expressed in 32nds. Thus, the price of a coupon security when it is below par might be expressed as 99 10/32, *i.e.*, \$993.12 for a \$1,000 bond. (When the price is above par, the quote might be 102 3/32, *i.e.*, \$1,020.94 for a \$1,000 bond.) The quoted price does not include any interest that has accrued on the security after the previous semiannual coupon payment date. The accrued interest is added to the quoted price the buyer agrees to pay the seller.

Bills do not carry coupons. They are initially sold and subsequently trade at a discount from par value. The investor's return is derived from the increase in value from the original discounted price at purchase to the par value at maturity. The Treasury auctions three- and six-month bills every week and 52-week bills every four weeks. Bills in the secondary market are quoted in terms of bank discount rates: the dollar discount is expressed as a percentage of par value computed at an annual rate until maturity (based on a 360-day year). The minimum denomination for a bill is \$10,000, and noncompetitive tenders are allotted in full up to \$500,000 each at the average auction price.

Another characteristic of Treasury securities is their marketability or nonmarketability. Marketable securities may be resold after issue, while nonmarketable securities are sold to designated purchasers who may not sell them to others. Official United States Government accounts hold slightly more than half the Treasury's nonmarketable securities. Among the most important accounts are the Federal employee retirement funds and the Federal old-age and survivors insurance trust fund. Savings bonds held by individuals constitute slightly less than one third of the nonmarketable debt. Other important holders of nonmarketable debt are foreign governments and state and local governments.

Table 1

**United States Treasury Debt**

In billions of dollars

	December 31, 1960	December 31, 1965	December 31, 1970	Amounts outstanding on December 31, 1975	June 30, 1977
Public debt					
<b>Gross public debt</b> .....	290	321	389	577	674
Nonmarketable debt .....	101	106	140	213	242
Marketable debt .....	189*	215	248	363	431
<b>Marketable by type of security:</b>					
Bills .....	39	60	88	157	155
Notes .....	51	50	101	167	233
Bonds .....	80	104	59	39	43
<b>Marketable by type of holder:†</b>					
United States Government accounts .....	6	12	17	19	15
Federal Reserve System .....	27	41	62	88	102
Commercial banks .....	62	61	63	85	102
Mutual savings banks .....	6	5	3	5	6
Insurance companies .....	10	10	7	9	14
Other corporations .....	19	16	7	20	24
State and local governments .....	19	23	28	33	39
Individuals .....	20	22	29	24	28
Foreign and international .....	10	11	13	44	65
Other investors .....	7	16	22	36	35

Discrepancies in totals are due to rounding.

\* Includes \$18 billion of certificates of indebtedness.

† Partially estimated.

Source: *Treasury Bulletin*.

Treasury issues in mid-1977.<sup>2</sup> The growth of foreign holdings of Treasury securities mainly reflected foreign central bank investments of dollars obtained in exchange market operations as well as substantial acquisitions by oil-exporting nations. State and local governments invest in short-term Treasury securities to bridge the gap between the timing of periodic tax receipts and Federal grants-in-aid and the more continuous flow of payments for goods and services.

Individuals hold a considerable volume of marketable Treasury issues even though there are several factors tending to inhibit purchases by small investors. The transactions costs for small purchases and sales, the cost of custody, and large minimum denominations for shorter term issues have tended to restrain purchases by individuals except in periods when market yields on Treasury securities moved substantially above those on alternative liquid investments, mainly thrift and savings deposits. (The major portion of the Treasury debt held by individuals consists of savings

bonds with small denominations. They are not marketable, but they are redeemable prior to maturity.)

**The dealer market**

The market for United States Government securities centers on the dealers who report activity daily to the FRBNY. The dealers buy and sell securities for their own account, arrange transactions with both their customers and other dealers, and also purchase debt directly from the Treasury for resale to investors. In the normal course of these activities, they hold a substantial amount of securities. In addition to the dealer firms, there are brokers that specialize in matching buyers and sellers among the dealers in the Government securities market.

The dealer firms include dealer departments of commercial banks (bank dealers) and all others (nonbank dealers). Bank dealers call upon the custodial and other facilities of the bank and frequently obtain a portion of the financing of their securities holdings from the bank. The bank dealer often acts to meet the needs of the correspondent banks of the parent. In

<sup>2</sup> Foreign investors also held about \$22 billion of nonmarketable Treasury securities in mid-1977.

addition to trading in Government securities, bank dealers are generally active in other money market instruments and in the market for tax-exempt general obligation securities of state and local governments. They are, however, proscribed by the Banking Act of 1933 (Glass-Steagall) from trading corporate equities and bonds, as well as tax-exempt revenue issues. The Glass-Steagall Act was intended to create a legal distinction between commercial banking and investment banking. Nonbank dealers face no such proscription, and most of them trade in these other markets, although a few firms concentrate their energies on Government securities and money market instruments such as bankers' acceptances, commercial paper, and large negotiable bank certificates of deposit.

At the end of 1977, there were thirty-six securities dealers that reported their transactions, financing, and inventories to the FRBNY daily; twelve were commercial banks and twenty-four were nonbank dealers. A firm is added to the reporting list when it demonstrates that it conducts a significant amount of business with customers as well as with other dealers, that it operates in size in the major maturity areas of the market, and that it is adequately capitalized and managed by responsible personnel. If a firm's performance meets high standards in these respects for some period of time, the Manager of the System Open Market Account will generally establish a trading relationship with it. Thus, not all firms on the FRBNY reporting list necessarily trade with the System Open Market Account.

In 1944, the Federal Open Market Committee (FOMC) entered into formal relationships with a limited group of dealers to facilitate its objective of pegging interest rates during World War II. The dealers, numbering about a dozen, were required to make vigorous efforts to find buyers for their excess securities before selling them at the established prices to the System Open Market Account. When this basis for the special relationship ended with the demise of pegged interest rates in the early 1950's, a subcommittee of the FOMC acknowledged the need to develop specific standards for inclusion on the list. Among the characteristics noted at the time were that dealers should make markets, take positions, and operate in volume in all segments of the market.

For a time the size of the list showed some tendency to expand, and by 1960, when the FRBNY began receiving detailed statistical reports from dealers daily, the list included eighteen dealers. The number hovered around twenty through the 1960's but has since expanded rapidly to its present size, largely because investment banking firms have sought to expand the range of their operations as activity in the intermediate- and long-term Treasury market grew.

Dealers trade actively among themselves as well as with customers. Brokers facilitate this interdealer trading because they bring buyers and sellers together; the interdealer brokers themselves do not make markets or hold securities for their own account. They charge a commission on each transaction, amounting to roughly \$78 per \$1 million of Treasury coupon issues sold. The commission on Treasury bill transactions is generally calculated in basis points: for example, the commission on three-month bills frequently is half of 1 basis point, approximately \$62 on a \$5 million trade. (A basis point is 1/100 of 1 percentage point in interest rate terms.) In many cases, brokers provide their services by displaying participating dealers' bids and offers on closed circuit television screens located in the dealers' trading rooms. Other dealers then may contact the broker, respond to the quoted price, and complete the transaction. Some brokers operate completely by telephone, contacting dealers to pass along bids and offers.

In the dealer market, practically all trading is transacted over the telephone. There is no formal centralized marketplace such as an exchange; instead, the market consists of a decentralized group of firms, each willing to quote prices for purchase or sale of Treasury securities. Each firm's traders quote prices and buy from, and sell to, their counterparts at other dealer firms directly or with brokers. The firm's sales personnel use the telephone to contact customers to learn their investment needs and to arrange trades with them. The price for each block of securities traded is negotiated, and many customers will typically canvass the market to find the dealer with the best price.

The over-the-telephone organization of the Government securities market parallels that of other fixed-income securities markets. In contrast, stock exchanges largely rely on brokers to funnel orders from customers to the floor of an exchange. There, brokers called specialists attempt to match orders with designated prices from buyers and sellers in an auction market. At times, the specialists are required to act as principals and to buy and sell securities, especially when there is an imbalance of buy and sell orders.

For the most part, the delivery of Treasury bills takes place on the same business day (called "cash" delivery) while coupon issues are generally delivered on the following business day (called "regular" delivery). Delivery and safekeeping of securities is in large part handled by a book entry system provided by the Federal Reserve Banks. At the beginning of 1977, four fifths of the Treasury's marketable debt was in the form of bookkeeping entries on computers at the Federal Reserve Banks; the remainder was in paper certificates. The computerized system eliminates physical



handling of certificates, since the securities can be transferred electronically from sellers to buyers through entries on the safekeeping accounts of commercial banks that are members of the Federal Reserve System and who act as agent for these transactions. When transactions are arranged between participants in different Reserve Districts, the securities transfer is carried over the Federal Reserve wire-transfer network. Book entries and wire transfers facilitate rapid and low cost transfers of securities, especially among dealers and customers who are separated geographically.

### The role of the dealer

The dealer firm makes markets by purchasing and selling securities for its own account. Dealers do not typically charge commissions on their trades. Rather they hope to sell securities at prices above the ones at which they were bought. Dealers also seek to have a positive "carry" on the securities they have in position, *i.e.*, they try to earn more interest on their inventory than they must pay on the funds raised to finance that inventory.

Dealers attempt to establish positions in the various maturities of Treasury securities in light of their expectations about interest rates and then trade around that position. But the initiative often rests with customers trying to undertake specific transactions, and the dealer must be willing to bid or offer at competitive prices to retain his customer base. When traders quote prices to customers and to other dealers, they continuously make small adjustments in relation to perceived prices elsewhere in order to maintain the firm's position, its inventories of securities, within the limits laid down by the firm's management. The management relies heavily on the traders' skills to enable the firm to change its position in various maturities whenever the outlook changes. A good trader is also expected to make money from the spread between bid and offered prices in a steady market.

The spread between bid and offered prices in general depends on a variety of factors. Two basic determinants are the current state of market activity and the outlook for interest rates. Spreads are narrower for actively traded issues, because the dealer is fairly certain about the price at which the issue can be purchased or sold. Spreads are narrowest of all on Treasury bills, because they are both actively traded and involve less risk of price loss than longer term securities. Spreads for three-month bills are often as small as 2 basis points on recent issues, *i.e.*, \$50 per \$1 million. The spread on an actively traded coupon issue might be 2/32 to 4/32, or \$625 to \$1,250 per \$1 million of securities. The spread is wider the longer the term to maturity and the smaller the size of a requested

transaction. Spreads also widen—sometimes dramatically—when new developments generate caution or uncertainty in the market.

A substantial increase in the short-run volatility of interest rates—and thus securities prices—in the 1970's has caused dealer firms to place great emphasis on position management. Sharp, unexpected price movements can lead to profits or losses on their net position, gross long positions minus gross short positions, that can easily outweigh the gains or losses arising from other sources.<sup>3</sup> Consequently, they manage their positions actively, frequently altering them in response to changing economic news, the perceived supply and demand conditions for Government securities, and other factors affecting the outlook for the securities markets. In the past, when rates were reasonably steady in the short run, dealers placed somewhat more emphasis on structuring their inventories to meet customer needs.

Dealer inventories are highly leveraged. More than 95 percent of the value of their holdings is typically financed with borrowed money; the dealer's own capital furnishes the remainder. Thus, the cost and availability of funds is an important consideration in a dealer's willingness to hold securities. When interest rates on the securities themselves are higher than the cost of the funds needed to finance the position, there is a "positive" carry. A dealer will tend to hold a higher inventory than in the opposite case when "negative" carry prevails. In all but a few periods in the last several years, interest rates have generally been higher on longer maturities—*i.e.*, the yield curve, the market yield at a specific time for each available maturity outstanding, is usually upward sloping. Thus, the cost of day-to-day funds is usually below the yield on all but the shortest term securities in the dealer's inventory. However, the full risk of any rise in interest rates falls on the dealer. Carry profits can quickly vanish.<sup>4</sup> The

<sup>3</sup> A dealer firm has a long position in a security when the firm is an owner of the security. The firm stands to gain if the price of the security rises. A firm establishes a short position by selling a security it does not own; it makes delivery to the buyer by obtaining temporary possession of the security, for example, by borrowing it from a third party. In this case, the firm stands to gain if the price falls because the firm can then purchase the security to return it to the lender at a price lower than the price at which it sold the security.

<sup>4</sup> Profits earned from positive carry can be rather small, compared with those resulting from buying and selling on the bid-asked spread or the profits and losses stemming from price changes. For example, a change of 1 basis point in the discount rate on a bill due in slightly more than three months is equivalent to the carry profits earned in one day if the financing cost of carrying the bill is 100 basis points (1 percentage point) lower than the rate on the bill itself. Moreover, positive carry rarely reaches magnitudes of 1 percentage point while a daily change of at least 1 basis point in bill rates is quite common.



amount of risk a dealer is willing to take by holding a longer term portfolio is one of the distinguishing characteristics of management style.

Searching out and obtaining financing at the lowest cost is a vital ingredient in making markets and the pursuit of profit. In doing so, the dealers provide temporary investment outlets for market participants with idle cash. In addition, dealers take in funds to provide them to others who are temporarily short of cash, in effect acting as intermediaries between short-term lenders and borrowers. (See section on dealer financing and the growth of intermediation on pages 45-46.)

Dealers also provide a service to their customers by giving their views about and advice on the market. Many dealer firms distribute market letters about recent and prospective market developments. The letters often contain assessments of Treasury financing needs, Federal Reserve actions, and prospects for the economy and interest rates. Salesmen discuss these subjects directly with participants and also seek to develop a familiarity with customers' investment objectives so that the firm's traders can provide the customers with buying and selling opportunities that mesh with their plans.

### The growth of trading activity

Trading activity has grown sharply in the last few years after many years of more modest expansion. Outright trading, the total of purchases and sales, amounted to nearly \$10½ billion on a daily average basis in 1976, roughly three times the level in 1974 (Table 2). In part, the growth of activity reflected the substantial outpouring of Treasury debt. But the efforts of all market participants in seeking superior returns on their portfolios have also been an important factor. Many investors, disenchanted by falling stock prices, have sought to obtain higher returns in the securities market by buying and selling more frequently in response to anticipated short-run movements in interest rates. Interdealer activity has expanded as well, particularly in the brokers' market.

While trading in bills has continued to dominate activity in the dealer market, trading in coupon securities has grown in relative importance. As recently as 1974, coupon trading accounted for 29 percent of total activity, but by 1976 it had reached 36 percent. The growing share of coupons resulted from the more rapid growth of coupon debt outstanding, and this growth in turn led to a more active secondary market for these issues. When measured by activity per dollar of debt

Table 2

### Transactions in United States Government Securities by Dealers Reporting to the Federal Reserve Bank of New York

Year	By maturity (in millions of dollars, daily averages)			By trading participant (as a percentage of total)		
	Due within one year*	Due in one year or more	Total	Dealers and brokers	Commercial banks	All others
1960†	994	379	1,373	31.5	44.0	24.5
1965	1,481	346	1,827	31.9	41.4	26.7
1970	2,032	481	2,513	42.7	37.0	20.3
1971	1,988	712	2,700	39.7	35.7	24.6
1972	2,259	671	2,930	Dealers 24.8 Brokers 14.0	34.1	27.2
1973	2,643	796	3,439	19.3 23.1	31.8	25.8
1974	2,800	779	3,579	18.2 27.0	27.9	26.9
1975	4,112	1,915	6,027	14.7 29.0	24.1	32.2
1976	6,886	3,565	10,449	13.0 32.6	23.2	31.2
1977‡	7,061	3,877	10,938	11.7 34.1	22.0	32.2

Discrepancies in totals are due to rounding.

\* Includes a small volume of transactions in coupon securities with less than one year to maturity.

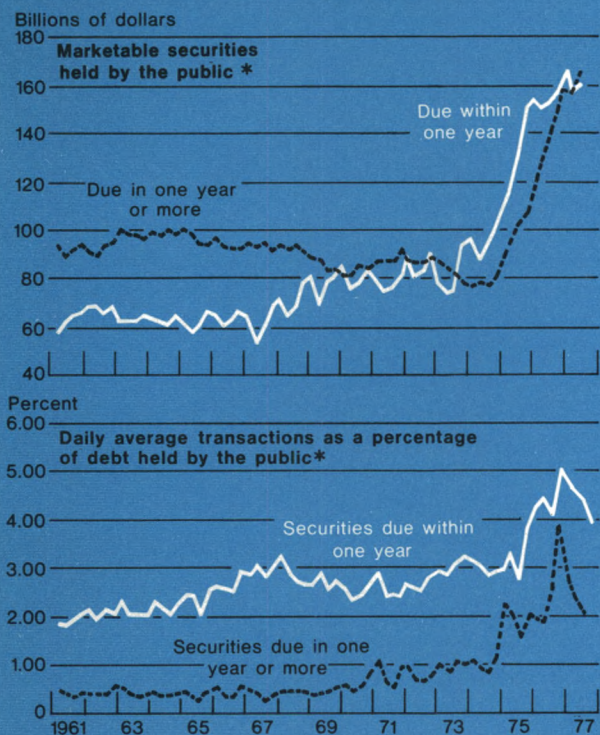
† Average for last four months of the year.

‡ Average for first nine months of the year.

Source: Federal Reserve Bulletin.



## Marketable Treasury Debt: Amount Outstanding and Trading Activity



\* Marketable debt not held by official Federal Government accounts or the Federal Reserve System.

outstanding in the hands of the public, the expansion of trading in longer term securities from 1974 to 1976 exceeded that for shorter term securities (chart).

The growing importance of the coupon sector also stems from the increased liquidity of these issues. For several reasons, participants can make desired portfolio changes more easily than in the past. The number of coupon securities outstanding has expanded sharply, and by mid-1977 there were nearly 100 different coupon issues, over 50 percent more than in 1974. Several maturity gaps were filled in, especially in the under-five-year area, thus facilitating adjustments to the maturity distribution of portfolios. Secondary market activity has been encouraged by an increase in the average size of coupon offerings from about \$1.5 billion in 1974 to about \$2.8 billion in 1977. Thus, dealers and other participants now have a greater variety of fairly sizable issues available with which to engage in hedge or arbitrage operations. A dealer, for example, may hedge to avoid market risk by matching a short sale in one

issue with a purchase of a similar issue whose price is expected to move by about the same amount as that on the security sold short. In an arbitrage operation, a participant would attempt to profit from what is expected to be a temporary disparity in the market's pricing of two issues by selling one and buying the other. He would then wait until the disparity is eliminated to reverse the transaction. If it is not eliminated, he might take a loss on the operation.

The dealers' customers, who account for slightly more than half of total dealer trading activity (Table 2), have expanded their trading substantially. Portfolio managers often seek to anticipate movements in interest rates and to lengthen or shorten the average maturity of their holdings to take advantage of expected rate changes. Changes in the outlook for interest rates over a day, week, or month now play an important role in portfolio decisions. In the past, such decisions were often tied to the investor's expectations of short- and long-run needs for liquidity. The profits generated by falling interest rates, *i.e.*, rising prices, in 1975 and 1976 also acted as an inducement to active trading. The annual growth in trading activity moderated through the first three quarters of 1977, compared with 1976, and trading per dollar of debt declined sharply from the highs posted at the end of 1976, as short-term interest rates rose and longer term rates fluctuated irregularly over a good part of the year.

Commercial banks account for over 40 percent of dealer trading with nondealer customers. In recent years, banks have come to rely on their securities holdings less as a secondary source of reserves, given their emphasis on liability management, and to use securities trading more as a means of maximizing profits. The more active approach to asset management has also meant greater variability in bank holdings of coupon issues. Banks have not been the only institutions that have adopted a more aggressive approach to portfolio management and trading. In fact, the activity of other customers, including state and local governments and nonfinancial corporations, has grown even more rapidly.<sup>5</sup> As a result, trading activity by dealers with customers other than banks grew from 35 percent to 57 percent of total trading with customers between 1970 and 1976.

Trading within the dealer community itself is conducted either directly between the firms themselves or indirectly through brokers. In the past few years, trading through brokers, who put together trades between dealers, has come to dominate interdealer trading; such brokering now accounts for nearly three quarters

<sup>5</sup> The available statistics separate banks from other customers but do not provide data on other customers by category.



of dealer trading with other dealers, compared with about one third in 1972 (the first year for which separate data on trading through brokers are available). Using a broker provides anonymity and allows a dealer to shield information about his activity and position from other dealers and market participants. Another factor contributing to the popularity of trading through brokers is the rapid transmission of quotes to other dealers, reducing the costs of canvassing a large number of dealers to collect that information.

Still, dealers continue to arrange a portion of their trades, slightly more than 10 percent of total activity, directly with other dealers. This activity reflects established interdealer trading relationships. A dealer firm specializing in one area of the market can sometimes meet customer needs by dealing directly with a firm primarily engaged in another area of the market.

The increased emphasis on position management has contributed to a tendency for total interdealer trading to assume a larger share of total activity, since dealers will typically look first to other dealers to find bids or offers for issues they want to sell or buy. Such trading has expanded from about one third of total activity in the early 1960's to about 45 percent recently. To some extent, this reflects an increase in the number of reporting dealers.<sup>6</sup> But over the longer run the expansion of the reporting list has probably not substantially distorted the measurement of the rising trend in activity. Many of the new entrants were not active in the Treasury market for very long before they became reporting dealers, and their trading volume was essentially nonexistent in the 1960's.

On the other hand, many of the newer firms are relatively more active in interdealer trading and have no doubt contributed to its measured rise. They have used trading with other dealers as a way of building up expertise and volume. (To meet the criteria for the reporting list, however, a firm must show a substantial volume of trading with customers.)

### Dealers' positions

Several important changes in the market have enabled dealers to conduct their operations with a lower level of inventories in relation to trading volume than in the 1960's and early 1970's. While dealers have placed greater emphasis on managing their positions actively, they can meet their customers' needs with inventories that are lower relative to sales than in the past. The

wider range of participants in the market, the growth in the activity of brokers, the greater ease in covering short positions (as is discussed below), and possibly more caution in exposing capital have contributed to this trend. Positions were sharply cut back—in the aggregate and in relation to sales—during the 1973-74 period of steep increases in interest rates. When money market pressures later abated and rate expectations changed, inventories expanded threefold to \$7½ billion by 1976 (Table 3), about the same as the expansion in trading activity. Even with the enlargement of inventory positions, however, dealer inventories were lower in relation to trading activity in 1976 than they had been during the years before the bear markets in bonds in 1973-74. The ratio of inventories to activity continued to fall over 1977 as a whole, when positions declined while growth of activity was rather modest.

The more performance-oriented approach of customers has generated a higher turnover of their portfolios. Dealers now find it easier to obtain issues to meet demands, especially for coupon issues. Moreover, the expansion of activity by brokers and the price quotations they provide almost continuously have probably bolstered dealers' confidence that particular issues can be found more readily than before.

The growth of the market for repurchase agreements

Table 3

### Inventories of United States Treasury Securities Held by Dealers Reporting to the Federal Reserve Bank of New York

In millions of dollars; daily averages

Year	Due within one year	Due in one year or more	Total
1960* .....	1,936	642	2,578
1965 .....	2,816	533	3,348
1970 .....	3,124	642	3,766
1971 .....	3,322	867	4,188
1972 .....	4,084	198	4,282
1973 .....	3,047	58	3,105
1974 .....	1,926	655	2,580
1975 .....	4,562	1,322	5,884
1976 .....	6,478	1,115	7,592
1977† .....	5,082	328	5,409

Discrepancies in totals are due to rounding.

\* Average for last four months of the year.

† Average for first nine months of the year.

Source: Federal Reserve *Bulletin*.

<sup>6</sup> A trade between a reporting dealer and a newly reporting dealer is an interdealer trade. Before the new dealer was added to the reporting list, that trade was classified as a trade with a customer. Also, because the new dealer is now a reporting dealer as well, the trade is counted twice—as is true for all interdealer trades.

Table 4

# **Sources of Short-term Financing of United States Government and Federally Sponsored Agency Securities for Dealers Reporting to the Federal Reserve Bank of New York\***

In millions of dollars; daily averages

Year	Total	Commercial banks in New York City	Commercial banks elsewhere	Corporations	Others
1960†	2,610	559	584	1,081	386
1965	3,546	956	782	1,336	471
1970	3,965	1,098	1,072	538	1,258
1971	4,658	1,364	878	789	1,627
1972	4,201	1,292	713	904	1,292
1973	3,604	1,227	659	467	1,252
1974	3,977	1,032	1,064	459	1,423
1975	6,666	1,621	1,466	842	2,738
1976	8,715	1,896	1,660	1,479	3,681
1977‡	9,947	1,412	1,982	2,233	4,320

Discrepancies in totals are due to rounding.

\* Includes both bank and nonbank dealers.

† Average for last four months of the year.

‡ Average for first nine months of the year.

Source: Federal Reserve *Bulletin*.

Table 5

# **Categories of Short-term Financing Arrangements by Nonbank Dealers Reporting to the Federal Reserve Bank of New York**

In billions of dollars; daily averages

Year	Collateral loans (1)	RPs (2)	Reverse RPs (3)	Matched RPs and reverse RPs (matched transactions) (4)	Funds provided to others through reverse RPs and matched transactions (3) + (4)	Funds retained (1) + (2) - (3)
1973	0.8	1.4	0.2	2.0	2.2	2.0
1974	0.8	1.6	0.8	2.5	3.3	1.6
1975	1.0	3.9	0.8	2.9	3.7	4.1
1976	1.4	5.1	1.8	3.4	5.2	4.7
1977*	1.7	7.0	4.9	4.8	9.7	3.8

RPs = Repurchase agreements.

\* First three quarters.

(RPs) and reverse RPs<sup>7</sup> has facilitated short sales—either to meet demands of customers or because of interest rate expectations. The availability of securities in this market has made it easier for a dealer to locate the particular issue he needs to deliver by acquiring the security under a reverse RP. In fact, a market for “specific issues”, with the party obtaining the securities specifying the particular issue, has developed in the RP and reverse RP markets and has become an alternative to borrowing securities. The older method of finding a holder willing to lend securities could be more costly and cumbersome. It often meant that a dealer’s positioning move became obvious to others and required the borrower to put up other securities as collateral. The growth of RP markets has enabled dealers to take larger short positions than they had before during periods when interest rates were expected to rise. In other periods, dealers on average have not enlarged their long positions by as much as they had previously.

Dealers may also have become more cautious about exposing capital by assuming large short or long positions. Year-end capital<sup>8</sup> relative to positions in Treasury securities at the nonbank dealers has moved somewhat higher in recent years, compared with the 1960’s and early 1970’s. However, capital which has reached the industry in part through the entry of additional firms did not grow so rapidly as trading volume.

#### **Dealer financing and the growth of intermediation**

Dealers have broadened their sources of funds significantly in recent years. Their greater participation in the money market has enabled them to reduce their reliance on borrowing from banks in money centers. The growth of the market for RPs reflects the changes in dealer financing patterns and the increasingly sophisticated cash management techniques used by many money market participants. Dealers typically raise more funds than they need to finance their positions in securities and have become important as intermediaries in the money market.

<sup>7</sup> See “Federal Funds and Repurchase Agreements”, this Review (Summer 1977), pages 33-48. In a repurchase agreement, the owner of a security sells it outright to the provider of funds and agrees to repurchase the issue at a specified future date and price. In a reverse repurchase agreement, the provider of funds purchases a security and agrees to sell it back at a specified future date and price. These terms, RPs and reverse RPs, are sometimes interchanged in market parlance, however, and RPs are often used to describe the usual transactions of an institution in the market—whether it is a provider or user of funds.

<sup>8</sup> The capital applied to trading in Government securities represents the sum of each nonbank dealer firm’s estimated allocation of its net worth to its activities in that market. Capital data are only an approximation of the capital employed, because it is likely that the various firms may use different and somewhat arbitrary methods of estimating their allocation of capital.

Commercial banks have remained the largest source of funds to dealers, but by 1976 the share they provided had slipped to about 40 percent from roughly 50 percent in most earlier years (Table 4). Large corporations once provided most of the rest, but insurance companies, savings institutions, Federally sponsored agencies, and state and local governments have become relatively more important. The Federal Reserve, through the RPs arranged by its Trading Desk, has also played a larger role in providing funds to dealers for short periods of time. The volume of RPs with the Federal Reserve has grown substantially since mid-1974, mainly because of the need to counter the effect on commercial bank reserves of enlarged fluctuations in Treasury cash balances at the Reserve Banks. As a result, the volume of funds provided by RPs with the Federal Reserve rose to about 15 to 20 percent of dealer financing in 1974 through 1976; in many earlier years it was only around 5 percent.

Dealers employ two basic methods of financing inventories: entering into RPs or furnishing securities as collateral for a loan. The rate of return on overnight RPs is related to the Federal funds rate but is typically below it, in part because the agreements are viewed as secured loans by many market participants. The interest rate on collateral loans to dealers by large banks in money centers is usually somewhat above the Federal funds rate since the banks view the latter rate as the cost of funding the loan.

Collateral loans have remained a significant source of dealer financing despite their higher cost. The banks are often residual suppliers of funds when money market conditions are tight and liquidity is scarce. Thus, collateral loans amounted to about one third of nonbank dealers’ financings through collateral loans and RPs combined in 1973-74 but that proportion declined substantially in 1975-76 (Table 5). Bank loans can be obtained late in the day—and often are—after dealers have searched out other sources of funds. They can be used when a dealer agrees during the day to take delivery that same day, say, in Treasury bills, or ends up with securities that were expected to be sold but were not. Dealer departments of commercial banks do not use collateral loans. They rely on RPs and on other forms of financing and often obtain funds from their own banks.

Dealers also obtain funds to provide them to others. A dealer may raise funds through use of RPs and provide them to others by arranging a reverse RP. The growth in holdings of Government securities by many institutions over the past few years has enabled them to sell their holdings temporarily through RPs to meet short-term cash needs as an alternative to raising funds in the commercial paper market or at

Table 6

**Dealers' Trading Activity in Government Securities, 1976**

Percentages by maturity and by trading participant

Dealers	By maturity		By trading participant			
	Due within one year	Due in one year or more	Dealers	Brokers	Commercial banks	Other
All bank dealers .....	72	28	13	35	20	32
All nonbank dealers .....	62	38	13	31	25	31
Nonbanks:						
Ten recent entrants .....	59	41	12	38	18	32
Older firms .....	64	36	14	27	29	30
Top five firms .....	68	32	12	26	27	35
Others .....	65	35	14	37	21	28

banks. In addition, corporations and financial institutions have also been willing to invest temporary cash surpluses in short-term RPs in preference to holding demand deposits which pay no interest.

Frequently the dealer acts as a middleman in these transactions, obtaining funds from one customer to provide them to another. While the dealers are principals in the transactions, some are essentially acting as brokers because they "match" the maturities of the RP and the reverse RP that they arrange with customers. When the maturities of such transactions are not exactly matched, the dealer shoulders some risk with respect to interest rates. There can also be some risk in that the dealer is dependent on the performance of one customer in order to ensure that he can fulfill his obligation to another customer. Dealers are often willing to finance the placement of funds under reverse RPs through a series of RPs with shorter maturities. The upward slope of the yield curve over the past few years has encouraged this pattern.

These money market activities of the dealers have grown substantially in recent years. The dealers' role as a financial intermediary rivals their use of the market to finance inventories. In 1976, nonbank dealers provided \$1.8 billion of funds (primarily raised through RPs) to others through reverse RPs on a daily average basis. In addition, they entered into matched transactions of \$3.4 billion. The total, \$5.2 billion, was somewhat more than the \$4.7 billion they retained for their own use—collateral loans plus RPs excluding reverse RPs (Table 5). In 1977, the intermediation function continued to grow while the volume of funds retained declined as inventories fell.

**The changing structure of the market**

The structure of the market has changed significantly since the early 1970's. At work have been a sharp increase in trading activity, the closer trading relationships that have developed between the Government coupon and other capital markets, and new entrants. The new entrants have been able to take on a significant portion of overall trading activity despite their recent entry. An increase in competition has led to narrower spreads between bid and offered prices—particularly for coupon issues—and it has reduced market concentration to some extent.

Eleven firms were added to the reporting list from early 1974 through 1976, including two firms that left the market in 1973 and 1974 but returned in 1976. Ten of the new entrants were nonbank dealers, many of whom were already active elsewhere in the capital market. They were attracted by the expansion of trading in the Treasury coupon sector and the opportunity to provide alternative investment outlets for their customers. The lackluster performance of the equities market was an added factor. As a group, the new entrants have concentrated more of their trading in the coupon sector, with 41 percent of their activity in the more-than-one-year maturity area compared with 36 percent for the older nonbank firms in 1976 (Table 6).

The nonbank entrants appear to have placed more emphasis on position management and arbitrage, in that they hold lower net positions in relation to trading volume than older active nonbank firms. In addition, they do not seem to have developed customer relationships to the same extent as the firms active earlier. In 1976 about 50 percent of their trading was with cus-



tomers, compared with 59 percent for firms in the market prior to 1974. Some of these characteristics were highlighted in early 1977 when trading volume sagged as prices declined. Trading activity at the new nonbank dealers fell by roughly 20 percent in each of the trading participant categories. The older nonbank firms experienced a 12 percent decline overall, but their trading in the brokers' market fell by somewhat more than their trading in those areas involving established customer relationships (direct trading with other dealers, with commercial banks, and with all other customers).

The sizable growth in the number of reporting dealers has contributed to a substantial decline in the concentration of trading activity. In the late 1960's and early 1970's, the five most active firms accounted for about half of total trading activity, but by 1976 the share of the top five firms had fallen to slightly more than one third. Concentration of trading activity had begun to diminish slightly in the early 1970's when participation in the market began to expand. Even so, the same firms have tended to remain in the most active group over the past ten years. Over the interval, four firms were always among the five most active firms each year, and four others were included at various times.

Even though their share of activity fell, the five most active firms continued to account for about half of dealers' net positions, on average. Their positions may have remained higher because of the firms' orientation toward meeting investor demands. About 60 percent of the trading activity by the five most active dealers was directly with customers, while for other dealers it was about one half (Table 6).

Growth in the number of dealers in recent years may have been stimulated in part by high profits earned in the industry in 1975 and 1976, although dealer ranks have also increased in 1977 when the profit picture was far less favorable. The years 1975 and 1976 were two of the most profitable ever for dealers, rivaling 1970 and 1971. The Treasury's large outpouring of debt, the larger than expected declines in interest rates from record highs, and positive carry contributed importantly to the upswing of total profits.<sup>9</sup> In 1977, against a back-

ground of fluctuating interest rates, market activity leveled off and profits shrank. The risks inherent in the business are demonstrated by the profit results from 1967 to 1974, for in three of those years dealers as a group reported before-tax losses in their operations in United States Government and Federally sponsored agency securities.

## Conclusions

Recent years have witnessed substantial growth in the Government securities market, both in terms of activity and in the number of dealer firms. The market has responded well to sizable increases in Treasury financing requirements and in Federal Reserve open market operations. The liquidity of Government securities, particularly coupon issues—the fact that they can be converted into cash more quickly than other assets of similar maturity—has been enhanced in the process. Consequently, participants can carry out investment decisions readily at competitive prices.

Increased activity has both contributed to and resulted from the greater efficiency and competitiveness of the market. The market's capacity to handle large Treasury financings and Federal Reserve operations smoothly has expanded in recent years. The market is also better able to weather surges in trading activity precipitated by shifts in participants' perceptions of the economic outlook. These expanded capabilities are due in part to the increase in the number of available maturities, the enhanced ability to establish long or short positions, and the wider variety of independent decision makers active in the market. Competition has been strengthened through the large increase in the number of dealers and the resulting reduction in market concentration.

The expansion in the market and in activity has not been an unmixed benefit, however. Trading has taken on speculative overtones at times, which may well have exacerbated the volatility of prices. Participants—in searching for information about the probable course of interest rates—have increased their focus on, and reacted more to, temporary phenomena. The emphasis on trading and performance may not always have been accompanied by adequate appreciation of the increased position and credit risks that derive from this approach. Experience in 1977 seems to have served as a pertinent reminder of these risks. The dealers in the market confront a new challenge to develop and maintain activity in the more cautious but increasingly competitive market environment with which 1978 begins.

Christopher J. McCurdy

<sup>9</sup> The profits reported by the firms to the FRBNY should be viewed as an indicator of the general trend rather than a precise measure of levels, as there are several conceptual problems in calculating the firms' profits on trading in Treasury and Federal agency securities. Among the problems are the separation of overhead and capital costs for firms that operate in other markets and the calculation, for bank dealers, of the cost of funds obtained from the parent bank.

# Treasury and Federal Reserve Foreign Exchange Operations

After the severe tensions in the exchanges of early summer, trading conditions tended to settle down during August and most of September. Nevertheless, market participants remained cautious in anticipation of possible actions to deal with divergent economic performances in several countries.

With regard to the United States, concern over the implications of the trade deficit (then running at an annual rate of \$30 billion), and how the United States would reduce it, had led to heavy selling pressure on the dollar and a decline in dollar exchange rates in July. But by early August the United States authorities had provided strong reassurances that a generalized decline in dollar rates was not an objective of United States policy. Officials stressed that the deficit reflected our increasing dependence on foreign sources of petroleum and the more rapid expansion of the United States economy relative to the growth performances of the other major industrialized countries. The Administration emphasized that its energy proposals then before the Congress, negotiations to liberalize trade in world markets, and economic recovery abroad were appropriate for adjusting imbalances in the international economy. Indeed, economic growth was failing to live up to expectations in industrial countries

with strong trade surpluses. In response, the governments of Japan and Germany reviewed official policies to consider means of bringing their respective economies closer to their growth targets for the year. Under these circumstances, the market expected interest rates abroad to remain steady or even to decline.

Meanwhile, in view of a sharp rise in the monetary aggregates, interest rates in the United States advanced in early August and, if anything, were expected to rise further over the near term. Thus the dollar firmed against many major currencies. With the dollar advancing, the Federal Reserve was able to buy German marks in the market and from correspondents to repay the full \$35.4 million of swap indebtedness to the German Bundesbank incurred in July and to rebuild working balances. Thereafter, dollar rates held fairly steady over the next several weeks. On August 24, when the New York market became briefly unsettled ahead of the release of United States trade figures for July, the Federal Reserve intervened and sold \$8 million equivalent of marks out of balances. Otherwise, with the markets generally more settled, the System refrained from intervention through late September.

In some exchange markets, however, the dollar remained on offer. The pound sterling, in particular, was in strong demand as a result of the swing toward surplus in the United Kingdom's current account, an influx of funds into British securities, and the expectation that sooner or later the United Kingdom authorities would allow the pound to rise. The Bank of England continued to buy dollars in volume to keep sterling from rising on an effective trade-weighted basis, and it

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permitted further declines in British short-term interest rates. Other currencies which a year before had also been under selling pressure, such as the Italian lira and the French franc, remained firm. In addition, the Swiss franc began to be bid up once again, not only against the dollar but against other European currencies as well.

During September, there were signs in the United States of some slowing in the pace of expansion but the growth of the monetary aggregates remained uncomfortably strong. At the same time, the Administration's energy proposals ran into difficulties in the Congress and representatives of several industries stepped up their efforts to obtain protection against foreign competition. Abroad, several governments announced new measures to stimulate their economies. But these measures were seen in the market as taking effect only over the medium term and not likely to generate an early trade adjustment. These developments reinforced market pessimism over the outlook for the United States trade account and for the dollar more generally.

Market conditions started to deteriorate during the International Monetary Fund-World Bank meetings in Washington on September 25-30. As financial officials gathered for the meetings, the discussions quickly centered on the slow economic growth of countries with current account surpluses. In the course of these talks, it was generally accepted that there was a need for greater growth in those countries and that the United States trade deficit would remain large until a strong energy program was adopted and as long as the United States economy continued to expand faster than those abroad. The Japanese, in particular, were urged by other governments to find a means of generating more growth at home and reducing their huge trade surplus, which was running at a \$17 billion annual rate. Following open discussion of Japanese policy, heavy demand for Japanese yen erupted in late September, driving up the yen rate.

The rise of the yen against the dollar had a spillover effect in other markets, and the dollar came on offer against most other currencies as well. As in other periods of exchange market tensions, the Swiss franc was bid up sharply and the German mark also began to rise. In the case of sterling, the Bank of England again intervened to hold the effective exchange rate within narrow limits. But the sterling counterpart to the Bank of England's dollar purchases became so great as to threaten to undermine domestic monetary objectives, and the British authorities ultimately permitted the pound to float more freely.

With exchange markets increasingly disorderly, central banks intervened more heavily. The Bundesbank

Table 1

### Federal Reserve System Drawings and Repayments under Reciprocal Currency Arrangements

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

Transactions with	System swap commitments, July 31, 1977	Drawings or repayments August 1 through October 31, 1977	System swap commitments, October 31, 1977
German Federal Bank ..	35.4	{ +181.1 — 35.4	181.1

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

Table 2

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

In millions of dollars equivalent

System swap commitments July 31, 1977	Repayments August 1 through October 31, 1977	System swap commitments October 31, 1977
705.4	—139.7	565.7

Data are on a transaction-date basis.

Table 3

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

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

Amount of commitments July 31, 1977	August 1 through October 31, 1977	Amount of commitments October 31, 1977
1,341.5	—89.7	1,251.8

Data are on a transaction-date basis.

bought sizable amounts of dollars to stabilize trading conditions in Frankfurt. In New York, the Federal Reserve intervened on each trading day between September 30 and October 4 and sold \$80.7 million equivalent of marks. Of this amount, \$35.8 million equivalent was drawn on the swap line with the Bundesbank and the remainder was financed from balances.

Although these operations helped to settle trading conditions temporarily, the dollar remained vulnerable, as market sentiment turned increasingly bearish. Traders ignored fundamental factors which would normally favor the dollar. These included release of statistics showing that the United States economic expansion remained solidly based, evidence that our inflation rate was still one of the lowest among the major industrialized countries, and a further rise in United States short-term interest rates. In this atmosphere, trading in dollars frequently became one way, and exchange rates moved abruptly. To the extent that the dollar suddenly came on offer in other markets, the respective central bank intervened to counter the disorder. When trading conditions became unsettled in New York, the Federal Reserve countered the disorder with occasionally sizable sales of German marks. Over the fourteen trading days spanning October 12 through 31, the Federal Reserve intervened on five days, selling a total of \$148.0 million equivalent of marks. Of this amount, \$145.4 million of marks was drawn on the swap line with the Bundesbank and the remainder was financed out of balances. This intervention in marks was accompanied by sales of Swiss francs in New York on behalf of the Swiss National Bank, which also continued to intervene in the Zurich market.

Over the three months August-October, the dollar declined a net 2 percent against the German mark, 6 percent against sterling, 7 percent against the Japanese yen, and 8 percent against the Swiss franc. The only major currencies that declined against the United States dollar were the Canadian dollar, which fell  $3\frac{1}{4}$  percent on balance, and the Swedish krona, which dropped a net  $7\frac{1}{2}$  percent following its withdrawal from the European "snake" arrangement in August.

In operations during the period, the Federal Reserve sold \$236.8 million equivalent of marks, financing these sales out of balances and with drawings of \$181.1 million equivalent under the swap line with the Bundesbank. These drawings remained outstanding at the close of the period. Otherwise during periods of dollar buoyancy, the System bought \$79.5 million equivalent of marks in the market and from correspondents and repaid \$35.4 million of swap drawings incurred in July.

In addition, the Federal Reserve and the United States Treasury continued to make progress in repaying Swiss franc indebtedness to the Swiss National Bank. The Federal Reserve liquidated \$139.7 million equivalent of special swap debt with the Swiss central bank, leaving \$565.7 million equivalent of indebtedness still outstanding as of October 31. These repayments were financed with francs purchased directly from the Swiss National Bank mainly against dollars, but also against marks and French francs. The United States Treasury's Exchange Stabilization Fund used Swiss francs purchased directly from the Swiss central bank to repay \$89.7 million equivalent of franc-denominated securities, leaving \$1,251.8 million equivalent of these obligations outstanding as of October 31.

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