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This Quarterly Review is published by the Research and Statistics Function of the Federal Reserve Bank of New York. Among the members of the function who contributed to this issue are ROBERT T. FALCONER *(on the minimum wage, page 3);* SHARON P. SMITH *(on Federal pay scales, page 7);* MARCELLE V. ARAK *(on indexation of wages and retirement income, page 16);* RONA B. STEIN *(on the economy of upstate New York, page 26);* CHARLES M. SIVESIND *(on noncompetitive tenders in Treasury auctions and savings flows, page 34); and* GENIE D. SHORT *and BETSY B.* WHITE *(on international bank lending, page 39).*

A semiannual report of Treasury and Federal Reserve foreign exchange operations for the period February through July 1978 begins on page 47.

Wages and Inflation

Wages play a crucial role in the transmission of inflationary impulses through the economy. This observation does not depend upon any particular theory of the causation of inflation. Rather, it rests upon the structure of productive processes: labor compensation accounts for about two thirds of total costs of production in the private business sector and more than half of total government expenditures for goods and services. Hence, any attack on inflation that does not rely exclusively on aggregate demand restraint must work more or less directly on wages.

Why not rely solely upon policies to restrain aggregate demand? To be sure, the case for demand restraint is overwhelming. After three and one half years of relatively rapid economic growth in the United States, most of the slack in the economy has been absorbed. Effectively full employment of experienced workers has been achieved, and shortages of certain skills have emerged. The growth of output during the past two years has continued to outstrip the growth of productive facilities, so that the rate of utilization of capacity in the manufacturing sector is now well above its long-run average. The pressure of demands for goods and services against limited potential for increased supplies is being reflected in a step-up in the underlying rate of inflation. Clearly, careful demand management is needed to avert unhealthy excesses and accelerating inflation.

But our inflation problem runs deeper than the recently emerging pressures of aggregate demand. Rapid inflation persisted throughout the severe recession of 1973-75 and the early stages of the subsequent recovery, when substantial excess capacity existed virtually throughout the economy. Such deeply imbedded inflation responds only slowly to restraint on demand. Most estimates indicate that it would take several years of slack in the economy—with high unemployment and sizable losses of potential output—to restore general price stability through demand management alone. Recognition of this predicament has given rise to searches for ways to hasten the return to price stability in the context of a prosperous and growing economy. The search has turned up various proposals for incomes policies such as wage and price guideposts or standards, use of regulatory and procurement policies to encourage moderation in wage and price setting, and tax-oriented incomes policies. The President's anti-inflation program incorporates elements of all these proposals, which recognize that wage moderation need not penalize labor, provided a competitive climate is maintained to hold profits in check.

In searching for ways to influence private-sector behavior in the interests of price stability, other steps the Federal Government can take to influence labor costs ought not to be overlooked. The following three articles touch on selected aspects of the wage-price problem and the Government's involvement in it. The first article provides a perspective on the minimum wage. Perhaps the most serious unintended side effect of the minimum wage is to restrict employment opportunities for relatively unskilled workers, especially youths. In addition, increases in the minimum wage raise costs of production and hence prices. It has been estimated that the initial effect of the 15 percent boost in the minimum wage at the beginning of 1978 was an increase of about ⅓ percent in the general level of

prices. A similar result is expected from the 9.4 percent boost in the minimum wage that is scheduled to take effect on January 1, 1979. Admittedly, that is not a large impact in the context of the nation's overall inflation problem. But the effect does not stop there. By helping to cement inflationary expectations, continual increases in the minimum wage work at cross purposes with policies to contain inflation. It seems clear that a prompt review of minimum wage policy is called for.

The Federal Government did take a step to foster an atmosphere of wage moderation in holding the October 1, 1978 increase in the General Service schedule for Federal white-collar workers to 5.5 percent (and in imposing a similar cap on pay increases for blue-collar workers). That was significantly below the 8.4 percent increase that the President's pay agent had found would be needed to maintain comparability with private-sector wages. Are Federal workers thus being asked to bear an unfair share of the burden of wage restraint? The second article in the collection reviews this issue. Using an analytical approach fundamentally different from that employed in establishing pay comparability, it marshals evidence that, at least through 1975, Federal workers on average were generously compensated, compared with workers having similar personal characteristics in the private sector. These findings certainly do not mean that all Federal workers are overpaid, but they do suggest that the Government's example of wage restraint will not penalize unfairly the average Federal employee.

There is one important qualification to the foregoing generalization. High-level professional and managerial positions in the Federal Government are not compensated comparably to those in the private sector. This situation could have an adverse effect on the quality of the high-level Federal work force. Good government requires a pay policy that enables the government to attract and to retain exceptionally qualified individuals for professional and managerial positions.

The third article deals with the automatic linking of wages and retirement income to the price level. Indexation of wages has become increasingly widespread with the persistence of rapid inflation in the United States, and many retired persons enjoy indexed government pensions or social security benefits. Such indexation at least partially protects the incomes of some from the ravages of inflation and mitigates some of the inequities inflicted by inflation. At the same time, however, indexation may tend to perpetuate or even aggravate inflation and to exacerbate inequities *vis-à-vis* those who are not protected by indexation. Moreover, indexation, by making inflation relatively painless for some, narrows the constituency for price stability.

If inflation continues unabated, pressures will grow for more widespread linking of wages, pensions, financial instruments, and taxes to prices. The pressure for indexation stems from an understandable quest for security in an uncertain world. But it would be far better to conquer inflation than to multiply devices to make inflation more palatable to some. The example of wage moderation shown by the Federal Government will be fruitless unless it can mark a step toward eventual price stability. Review of policy toward the minimum wage could be another auspicious step. Ultimately, of course, responsible fiscal and monetary policies are essential for inflation to be brought under control. Given that fundamental, the path to price stability can be smoothed by the exercise of wage moderation in the public and private sectors.

The minimum wage: a perspective

The Federal minimum wage was established in the depression conditions that gripped the United States economy in the late 1930's. Aimed at bolstering the paychecks of low-wage workers, the law not only has continued but has been expanded. Now, forty years after the initial legislation, the minimum wage provisions cover nearly two thirds of the nation's employees. More than 4½ million workers, or about one in every twenty workers, were directly affected by the 15 percent jump in the Federal minimum wage to $2.65 on January 1, 1978. While such increases in the legal wage floor have the beneficial effect of raising the earnings of particular segments of the working poor, they also entail certain social costs as well. Increases in the minimum wage contribute to raising the underlying rate of inflation. At the same time, because laws cannot mandate increases in worker productivity, a higher wage floor can exceed some employees' productivity so that employers cut back on their payrolls, creating unemployment for some. Recent research suggests that increases in the minimum wage serve to raise the joblessness of teenagers, particularly minority youths.

The minimum wage forty years later

The Fair Labor Standards Act (FLSA) of 1938 was designed to improve the working conditions of American labor. Among other features, the legislation introduced a minimum wage of 25 cents per hour that would serve as "a floor under wages". At first, the minimum wage was limited to employees in industries engaged in the production of goods for interstate commerce. It is estimated that initially the legislation covered about 11 million workers, or about 25 percent of total employment.

Over the ensuing forty years, various amendments and revisions raised the minimum wage (table). As a result of the 1977 amendments, the legal wage floor rose to $2.65 per hour and, on January 1, 1979, the wage floor is legislated to rise to $2.90 per hour. Subsequent increases are slated to bring it to $3.35 per hour at the beginning of 1981.

As the wage rate was raised over the years, the coverage of the legislation has been broadened to the point that coverage has expanded markedly in low-wage industries.[1] By 1976, some 56 million workers, or close to two thirds of total employment, were covered by Federal minimum wage legislation. The continued expansion of coverage of the minimum wage provision of the FLSA was reversed by a 1976 Supreme Court decision. In a ruling, referred to as the National League of Cities decision, the Court held that state and local government employees who are engaged in traditional governmental functions are not subject to the minimum wage provisions. As a consequence, an estimated 5 million workers were removed from the coverage of the legislation.

From the start, the FLSA allowed employers to apply the value of board, lodging, and other facilities traditionally furnished to employees toward meeting minimum wage requirements. In 1966, when the coverage of the minimum wage was extended to many workers whose compensation depended importantly on tips, the amendment permitted employers to count employees' tips as meeting up to one half of the minimum wage. In addition to raising the minimum wage, the 1977 amendment provided for a step-by-step reduction in this "tip credit" from the current 50 percent to 40 percent by 1980.

Coverage of the FLSA's minimum wage provisions

[1] As the coverage of the minimum wage has been expanded, the pay of newly covered workers has not been immediately brought into parity with the wages of those already covered. Instead, wage schedules have been established to bring the newly covered workers gradually into equality with the general minimum wage over a period of several years.

Chronology of Federal Minimum Wage and Worker Coverage, 1938-81

Effective date	Minimum wage ($ per hour)	Worker coverage (in thousands)
October 24, 1938	.25	11,000
October 24, 1939	.30	12,500
October 24, 1945	.40	20,000
January 25, 1950	.75	20,900
March 1, 1956	1.00	24,000
September 3, 1961	1.15	27,500
September 3, 1963	1.25	27,500
February 1, 1967	1.40	40,400
February 1, 1968	1.60	41,600
May 1, 1974	2.00	56,100
January 1, 1975	2.10	57,400
January 1, 1976	2.30	56,100
January 1, 1978	2.65	51,900*
January 1, 1979	2.90	†
January 1, 1980	3.10	†
January 1, 1981	3.35	†

* National League of Cities decision eliminated most state and local government coverage.

† Not available.

Source: United States Department of Labor, Employment Standards Administration.

has always varied with respect to industry and occupational groups. In many industries, such as manufacturing and transportation, the coverage is nearly complete. Institutions of higher education, as well as certain other employers of full-time students on a part-time basis, may offer wage scales at special rates below the minimum. In addition, in order not to burden small businesses, the Congress exempted retail and service firms with annual sales of less than $250,000 from the minimum wage. As a result of the 1977 FLSA amendments, this sales level was raised to $275,000 on July 1, 1978 and is scheduled to rise further, ultimately reaching $365,500 on December 31, 1981. With respect to occupations, executive, administrative, professional, and outside sales jobs, as well as casual baby-sitting and serving as a companion for the aged and infirm, are exempt from minimum wage legislation.

Hurting some it aims to help

Concern for the well-being of low-income Americans led the Congress to enact and to expand the minimum wage legislation. Underlying these Congressional actions was the view that any employed American should be able to enjoy a standard of living above the poverty level. There is little question that, for the majority of workers whose wages are close to the minimum, an increase in the minimum wage increases their paychecks and they are better off than they would be otherwise. But that is only one effect of an increase in the minimum wage. While lawmakers can raise *wage rates*, incomes may not necessarily increase since the higher wage will result in some workers being unable to find jobs or working fewer hours. The central problem is that laws cannot mandate increased worker productivity.

If the minimum wage is raised above the pay level consistent with a worker's productivity, employers respond by reducing their payrolls. Who will bear the burden of the higher minimum? It will be the least productive, low-skilled workers—those whose productivity is below the hourly wage floor. In the jargon of economists, they are the "marginally productive" workers, many of whom are teenagers and minorities, who lack experience and suffer handicaps that lower their productivity.

For the most part, economic theory has always recognized that imposing a wage floor creates unemployment for some. What economists were unable to answer was whether the unemployment effects were large or small. For many years, numerous studies tried to evaluate the impact of the legislated wage on unemployment, but the results were inconclusive. The problem centered on isolating the effects associated with the minimum wage from the myriad of influences that affect unemployment. More recently, however, the inconclusive evidence of the past has given way to research that has established a clear link between unemployment among youths, especially minority youths, and increases in the minimum wage. The econometric evidence offered by Gramlich, Ragan, and Mincer, among others, has clearly established that teenagers' employment is adversely affected by the minimum wage legislation.[2] Establishing this relationship meant using advanced statistical tools that were designed to distinguish between the effects of the minimum wage and the influence of other factors, such as economic activity.

Why does the minimum wage affect teenagers? The answer is simple: most young people are low-wage earners and, as a result, raising the minimum wage can be expected to have a more pronounced impact on them than on other workers. In mid-1977, the average

[2] Edward M. Gramlich, "Impact of Minimum Wages on Other Wages, Employment, and Family Incomes", *Brookings Papers on Economic Activity* (II, 1976); James F. Ragan, Jr., "Minimum Wages and the Youth Labor Market", *Review of Economics and Statistics* (May 1977); Jacob Mincer, "Unemployment Effects of Minimum Wages", *Journal of Political Economy* (August 1976).

teenager was paid $2.58 per hour, some 28 cents above the 1977 minimum and 7 cents below the 1978 minimum. Black youths were paid even less, on average.

Although the estimates of the effect of a raise in the minimum wage on youth joblessness differ, a reasonable estimate suggests that by itself raising the minimum wage to $2.65 per hour added about 1 percentage point to the unemployment rate of all teenagers and 3 to 4 percentage points to the jobless rate of black youths. In addition, on the basis of historical experience, the increase in the minimum wage may be expected to reduce substantially full-time employment of teenagers and to force many of them into part-time employment.[3] Although these youths will be denied full-time employment, they will be employed on a part-time basis and will not be included among the jobless.

With increases in the minimum wage serving to reduce job gains, teenage joblessness, especially among minorities, remains an important social problem. In September 1978, the teenage unemployment rate stood at 16.6 percent, remaining unrelentingly high. Among black and other minority youths, the official rate of joblessness hovered close to 35 percent in September 1978. Moreover, the official rate of unemployment probably *understates* the actual unemployment of youths, particularly among blacks and other minorities. This understatement is because many minority youths, faced with such limited prospects of finding employment, simply withdraw from the labor force by ceasing to look for work, and thus are no longer counted among the unemployed. The result is that a much smaller proportion of minority youths are in the labor market. For example, the participation rate of young black males is around 40 percent, compared with some 65 percent of white youths who are in the labor force.[4]

A high rate of joblessness among youths is not new, nor is it unique to the United States.[5] The rate of unemployment among young people should be expected to be greater than for adults. In part, this is because youths are not closely tied to the labor market and are also searching alternative job opportunities. But the current rate of joblessness is unacceptably high. What is particularly distressing is that early experiences in the labor market are likely to affect lifetime earnings and employment behavior. Thus, the lack of jobs means failing to gain on-the-job training, work experience, and the opportunity to develop work habits. Government programs such as the minimum wage inhibit the efficient functioning of the markets, tending to raise the rate of unemployment.

The "need" to limit low-paying jobs

One point made by some in support of the Federal minimum wage is that increasing the legal wage floor is a way of eliminating menial, or so-called "dead-end", jobs. Employers respond to the increase in wages by substituting capital for labor inputs. Such capital outlays serve to raise productivity, or output per man-hour, which means a higher standard of living for the nation. Advances in the nation's potential to produce are to be desired, but the unemployment associated with such changes as the replacement of manually operated elevators by automatic elevators is not necessarily welcome. Many of today's high school seniors, let alone the large number of dropouts from school, lack the basic reading, writing, or computational ability necessary to obtain entry to skilled jobs. In view of these realities, there is clearly a need for jobs to accommodate the many youths who have but limited skills.

In any case, labeling jobs as dead-end positions is unwarranted. Jobs that are so labeled can be an important opportunity for many disadvantaged youths. Unskilled jobs are entry-level jobs, positions from which individuals can progress and advance. These jobs offer a chance for many of the nation's disadvantaged youths to obtain some of the rudimentary skills that many lack.

Inflation and the minimum wage

In addition to affecting employment, increases in the minimum wage also increase prices, since the rise in the wage floor represents an important rise in employers' wage costs. The Department of Labor estimates that the 1978 increase directly added more than $2 billion to the annual wage bill of the economy. In addition to the nearly 5 million workers whose wages were directly affected, the minimum wage can also lead to a rise in the wages of others as the entire pay structure of many firms or industries is adjusted to the higher base pay.[6] With labor productivity growth unlikely to be affected in the near term, these higher wage costs mean increased unit labor costs. This, in turn, leads to

[3] On this point, see Edward M. Gramlich, "Impact of Minimum Wages on Other Wages, Employment, and Family Incomes", *Brookings Papers on Economic Activity* (II, 1976).

[4] The labor force participation rate is the proportion of the noninstitutionalized population 16 years of age and above in the labor force, *i.e.*, the proportion of the population of working age who are either employed or seeking employment. The participation rate can be determined separately for the population as a whole or for any particular demographic group. For more on this topic, see "The Changing Composition of the Labor Force" in this Bank's *Quarterly Review* (Winter 1976).

[5] For an overview of this important social ill, see Walter E. Williams, *Youth and Minority Unemployment*, a study prepared for the Joint Economic Committee, July 6, 1977.

[6] To some extent, this indirect effect could be offset by a lowering of wages in those sectors of the economy not covered by the legal minimum. This would be due to an inflow into those sectors of workers who were displaced by the higher wage.

increased pressure on prices as businesses act to pass on these higher costs to customers.

How much have prices risen? While precise estimates are beyond economists' abilities, the M.I.T.-Penn-Social Science Research Council econometric model provides a rough measure. This large econometric model contains about 200 equations that attempt to capture the behavior of various economic sectors. Based on historical relationships embodied in the model, the measurable direct and indirect effects of the 1978 increase in the wage floor resulted in an increase in the overall level of prices of about ⅓ percent. Price pressures are, of course, relatively greater in those sectors that make greater use of low-wage labor. Thus, for example, prices of food away from home show larger increases since reportedly 30 percent of the food service industry's payroll is composed of low-wage teenagers.

In addition to these inflationary impacts, the minimum wage legislation also works against reducing inflation in other ways. By helping to cement inflationary expectations into the wage structure, it reinforces the persistence of inflation. The legislated wage increases through 1981 represent close to a 10 percent annual rate of increase, well above the 7 percent private sector wage growth posted in recent years. By confirming the prospects of continued wage hikes, it becomes increasingly difficult to reduce the rate of inflation, as inflation is a dynamic problem in which the conditions inherited from the past feed the inflation process. The process becomes sustained when the expectations are deeply ingrained in society's thinking—in its contracts and laws.

The jump in the legal minimum is only one of several governmental influences that have exacerbated the rising cost pressures on businesses. The 1978 rise came at a time when important payroll taxes—namely, social security and unemployment insurance—were also increased. While the impact on prices of each of these increases separately may be small, taken together these government-mandated increases are likely to have added as much as 1 percent to labor costs, thus widening the gap between compensation and productivity. Looking ahead, the 9.4 percent increase scheduled for 1979, which will raise the wage floor to $2.90 per hour, appears to be less inflationary than this year's 15 percent hike. However, after taking into account the level of wages of affected workers in relation to the minimum wage floor, the impact on the aggregate wage bill in 1979 will be about the same as this year.

Conclusion

The Federal minimum wage law raises the income of millions of marginally productive workers. But the benefits of the minimum wage are not without social costs. Among these costs are higher rates of youth joblessness and greater inflation. The price of ignoring these negative influences is high—both for the economy and for society. Unquestionably, people who lack the ability to earn a decent living must be helped. The issue is whether the minimum wage is an effective tool with which to alleviate poverty. While research may never be able to provide a definitive answer, it seems that increases in the legal wage floor offer at best an imperfect solution to important social concerns, since remedying the ills of some poor people comes at the expense of others who are equally impoverished. Clearly, alternatives need to be explored in greater depth. Attempting to ameliorate some of the harmful effects of the minimum wage legislation by allowing a subminimum differential for teenagers or newly hired workers is one possible solution. Another alternative might be a wage subsidy program, whereby the government pays part of the wages of low productivity workers. In any case, efforts to raise the level of marketable skills by improving and expanding training and educational programs should be intensified.

Robert T. Falconer

Federal pay scales: how much is too much?

On October 1, Federal white-collar workers received a general pay increase of 5.5 percent. In a separate action, a similar 5.5 percent cap was placed on blue-collar wage increases as well. Were such limitations warranted to balance excessive increases in the past, or do they make the Federal work force a scapegoat in the fight against inflation?

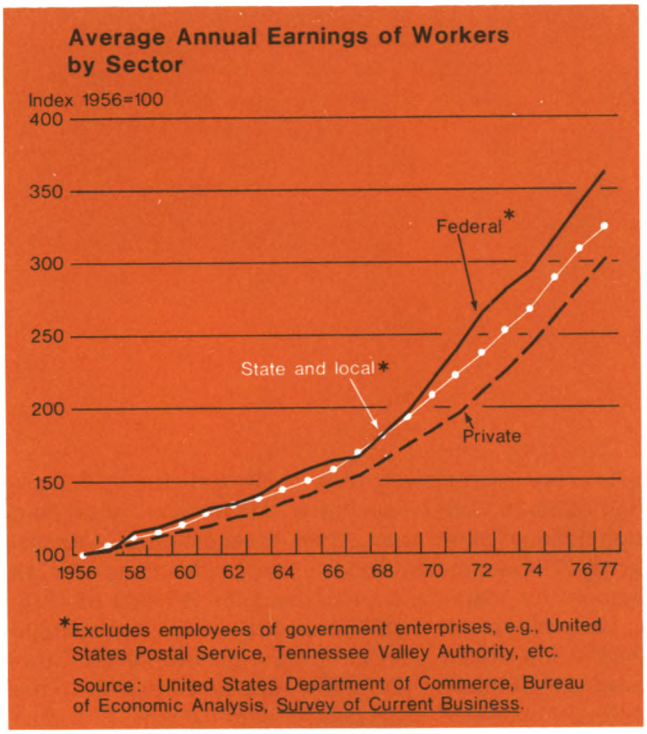
Between 1956 and 1977, average annual earnings in Federal civilian government grew 262 percent in contrast to a growth of 201 percent in annual earnings in all private industries (chart). The annual payroll cost for the Federal civilian work force of 2.8 million is now approximately $59 billion. Officials report that there are, on average, eleven applicants awaiting every Federal opening. Since 1962, major reforms have been implemented in the Federal pay-setting systems to assure that Federal workers receive pay comparable to that given private-sector workers performing similar work. The question then arises: were the pay increases accompanying these reforms necessary to bring Federal workers to comparability with their private-sector counterparts? Certainly, equity considerations require that Federal workers receive pay similar to what they could have in private employment. At the same time, however, efficiency considerations require that this be achieved at minimum cost to the Government employer. The purpose of this article is to consider whether these twin goals have been achieved. This is not intended to provide an alternative system of pay determination. Instead, it is meant as an independent evaluation of the present system. The approach used here—examination of the pay relationships between comparable Federal and private-sector workers—is entirely different from that used by the agencies charged with the task of setting Federal pay levels. Whereas this article compares pay levels for comparable individuals in the two sectors, the pay-setting agencies compare pay levels for comparable jobs in the two sectors.

The results reviewed here show that during the period 1960-75 Federal workers, on average, were paid significantly more than their private-sector counterparts.[1] The estimated Federal wage advantage was 15 percent for males and 21 percent for females in 1975. In part, this results from less discrimination in the public than in the private sector. In more general terms, however, this Federal differential appears to reflect the intrinsic nature of Government employment. It is also partially attributable to the problems associated with the pay reforms of the 1960's. These results relate to the bulk of Federal workers. They do not in any way contradict the well-known underpayment of upper level professional and managerial personnel in Government.

Federal pay systems

Federal civilian workers are paid under a number of different pay systems. Some of these are established by individual laws, while others are administratively determined. Although there are more than fifty separate pay systems, they fall into four principal categories. In 1977 (the most recent available data), approximately 56 percent of Federal civilian employees were paid under the General Schedule (GS). This statutory pay system covers most Federal white-collar employees. Approximately 19 percent of Federal workers were covered by the Federal Wage System. The employees covered under this administratively determined schedule generally are blue-collar workers or foremen or supervisors. Approximately 21 percent of Federal workers are covered by the administratively established schedules of the Postal Service in which wages are set through collective bargaining. The ap-

[1] For a full discussion of these results, see Sharon P. Smith, *Equal Pay in the Public Sector: Fact or Fantasy* (Research Report Series No. 122, Industrial Relations Section, Princeton University, Princeton, N.J., 1977).



proximately 5 percent remaining Federal workers are paid under a variety of plans—both statutory and administratively determined. These include pay plans for the Tennessee Valley Authority (TVA), the Central Intelligence Agency, the Foreign Service, top officials in the executive branch, etc.

Two broad characteristics of pay determination in the Federal Government (as well as in other government entities) distinguish it from the private sector and contribute to a Federal/private pay differential. The first characteristic is that, by the nature of government, there are neither incentives to maximize profits nor market pressures to affect wages. Thus, if the Federal Government pays its workers higher wages than comparable private-sector workers receive, it may obtain higher quality workers and queues may form for Government jobs. However, there is no *strong* force short of taxpayer revolt that will lower Federal wages or even vigorously resist further wage increases.[2] By contrast, if a competitive private-sector employer pays higher than comparable wages, he also may obtain higher quality workers. But, unless the quality differential at least equals the wage differential or the production process is more efficient, he will be at a competitive disadvantage and be unable to continue in business.

The second characteristic distinguishing the wage-determination process in Government is the presence of political considerations. The ultimate decision makers on questions concerning Government pay are elected officials who must consider the impact of their decisions on the votes they anticipate in the next election. Because information on legislative questions is not costless, it is expected that voters will obtain information only on questions of most concern to them. Consequently, since Federal workers are more likely to have and to express an opinion on Federal pay questions than voters and taxpayers who are not Government employees, the Federal employer may be expected to be relatively more responsive to pressure for wage increases than to suggestions for wage restraint. However, political activity among these other tax-paying voters will provide some check on the upward pressure on wages by Government workers.

Comparability principle

Given the existence of so many pay systems for Federal workers, is there one theme that unites all these systems? The pay reforms of the 1960's were an attempt to apply to all Federal workers the principle that Federal workers should receive pay comparable to that given to private-sector workers performing similar work. (Subsequently, this principle has been extended to the pay systems of many states and municipalities.) The comparability principle has been applied to Federal blue-collar workers since 1862 when these wages were required by law to conform "with those of private establishments in the immediate vicinity". However, prior to 1962, there was no provision for the regular adjustment of the wages of Federal white-collar workers to reflect labor-market conditions in the private sector. Indeed, the impetus for these reforms came from the difficulties the Government was experiencing in attracting professional and technical workers at that time.

Application of the comparability principle to Federal pay determination seems appropriate if Government and private-sector employers demand the same time and effort of their employees and provide the same benefits. Although the concept of comparability is simple, its implementation is complicated.

Comparability in practice

The mechanisms for determining comparable pay rates

[2] The recent passage of Proposition 13 in California suggests that "taxpayer revolt" is not the remote possibility it once appeared to be. Nevertheless, it remains true that reactions of this type are more probable at the lower levels of government, where the association between increases in government workers' salaries and taxes will probably be much more direct in the minds of taxpayers than at the upper levels of government.

vary by pay system. GS salaries are set annually on the basis of comparisons with private-sector pay from information in the National Survey of Professional, Administrative, Technical, and Clerical Pay—the PATC survey—conducted by the Bureau of Labor Statistics. Salaries under a number of other schedules (such as the Foreign Service schedules and the salary system for physicians, dentists, and nurses in the Department of Medicine and Surgery of the Veterans Administration) are also linked to the GS.[3] Policy requires that Federal pay rates satisfy both internal and external alignment criteria: that is, wages must not only be comparable to those paid for similar jobs in the private sector but must also maintain internal pay differentials in accordance with work and responsibility distinctions.

The results of the pay comparison process are reported to the President by the Civil Service Commission (CSC) and the Office of Management and Budget (OMB), along with the views of the Federal Employees Pay Council. On the basis of these reports, the President's pay agent—consisting of the Director of OMB, the Chairman of the CSC, and the Secretary of Labor—suggests a pay increase to maintain comparability. For fiscal 1979, this recommendation came to 8.4 percent.[4] However, at the President's recommendation and with the Congress not disapproving, the Federal white-collar general pay increase (which took effect October 1) was held to 5.5 percent as part of the fight against inflation.[5]

Prior to 1970, postal salaries were set by linkage with the GS. Since the establishment of the United States Postal Service in 1970, pay has been set through collective bargaining. Similarly, blue-collar employees of such Federal agencies as the TVA also have their wages set through collective bargaining.

All the above pay systems are national salary schedules. The Federal Wage System, by contrast, sets Federal blue-collar wages so that wages conform with the average prevailing private-sector wage in the local labor-market area. Area pay levels, like those for the blue-collar workers, would give a more accurate representation of the labor market for most lower level white-collar positions.

The comparability process of pay determination seems, in principle, to be "fair" to both Federal employer and employee. However, on closer examination, it appears that this principle has been insufficient to achieve these goals. There are both conceptual and technical difficulties that seriously undermine this pay process.

Shortcomings of the comparability process

Use of the comparability process to determine Federal wages implicitly acknowledges that the absence of profit considerations in Government eliminates the establishment of a market-clearing wage through competitive conditions. However, it does not necessarily follow that the prevailing private-sector wages reflect the free play of competitive forces. Instead, these wages may show the influence of licensing regulations, discrimination by race or sex, etc. These influences on wage rates will be carried over into the Federal sector through the comparability process.

In addition, it appears that in the application of the comparability principle there has been some confusion of goals. The original aim of this policy was to improve the efficiency of Federal pay determination by equalizing Federal and private-sector wages for similar jobs. However, in certain instances, this goal has been compromised because there has been, in addition, a normative concept of what Federal pay "should be", regardless of what prevailing private-sector rates are. This tendency may be reinforced by the political nature of the pay process and in particular by the relatively strong political influence of the employee.

A much greater conceptual difficulty with a pay system that equates pay in the Federal and private sectors is that jobs in the broadest sense may not be the same in both sectors—that is, they may differ with respect to job security, working conditions, social status, etc. If the nature of a job is different in the two sectors but tastes remain the same among individuals, then there should be compensating differentials between the sectors. Indeed, the view that there were greater nonpecuniary returns for working in Government had been a past justification for paying lower wages for Government jobs.

[3] Salaries of top executives in the Executive Branch (except the President), members of the Congress, and all Federal judges are adjusted in every Presidential election year on the basis of recommendations from the Quadrennial Commission on Executive, Legislative, and Judicial Salaries. Between March 1969 and February 1977, however, there was no general increase made in the Executive Schedule (except for a cost-of-living increase linked to the annual GS increase in 1975). The lowest level in the Executive Schedule sets a ceiling on GS salaries. As a result, salaries in the upper grades of the GS schedule have been compressed.

[4] This was an average percentage increase in the entire GS (of eighteen grades, with ten steps at each grade), though the specific recommended increase varied by grade, ranging in size from 6.15 percent at GS-1 to 13.27 percent at GS-15.

[5] This is a uniform increase for the entire GS (except at the upper grades where this increase would raise salaries above the ceiling level). There are two additional sources of pay increases for individual workers: the regular within-grade increase and the quality step-increase. Historically, 98 percent of all GS employees have received regular within-grade increases (the specified time for the increase varies by step from one year of service in steps 1 through 3 to three years of service in steps 7 through 9) while only 2 percent have received, in addition, quality step-increases each year.

Difficulties in effecting comparability

Among the technical shortcomings of the comparability process is the fact that comparisons are based on wages only, even though an increasingly important part of employee compensation consists of fringe benefits.[6] This approach was justified on the grounds that early studies indicated that the total benefit package was approximately equal in Federal and private sectors. In addition, the difficulties associated with collecting such data were judged to be overwhelming. However, more recent studies have pointed out that benefits (in particular, provisions for leave time and retirement programs) are higher in Federal employment. In addition, the steadiness of hours worked in Federal blue-collar jobs is probably greater than in the private sector since Federal workers are not subject to seasonal layoffs. Thus, if Federal and private-sector wages were equated, Federal workers would still enjoy an advantage in total compensation.

The entire process of comparability is based on a comparison of jobs in the two sectors. Although this approach is often used in private industry, it is a highly complex process, which can result in erroneous wage comparisons unless carefully administered and continuously monitored. For one, job matches must be properly established and then be constantly reassessed. Because matches are not made for every job in a grade level, the correct grade classification of Federal jobs is also of particular importance. This requires job evaluation systems through which jobs are ranked in importance according to their requirements and responsibilities.

The comparability process also requires that the jobs surveyed in the private sector be representative of the pay and employment conditions prevailing there. If the survey oversamples relatively high-paying employers, the resulting Federal pay rates will be excessive. It appears that the present surveys do suffer from these problems. All surveys exclude state and local government workers (this is a statutory requirement) even though, for many jobs, these are the Federal Government's principal competitors. The surveys also exclude nonprofit institutions and certain industries (a number of which are relatively low paying). All establishments below a specified minimum size likewise are not examined. Study of private-sector pay patterns has shown that there is a positive relationship between size of establishment and pay rate.[7]

The surveys used to set blue-collar wages in local labor-market areas often "import" wages from higher paying labor markets. This occurs because the underlying legislation—commonly referred to as the Monroney Amendment—permits Federal blue-collar wages to be determined on the basis of private-survey results from the nearest wage area most comparable in manpower, employment, population, and industry. This is allowed if there are no comparable private-sector jobs in the local labor-market area in question and if the inclusion of this other area's wages does not result in lower Federal wages. In practice, it has been observed that this procedure may raise the wages of all Federal blue-collar workers in the wage area, not just those for whom there are data problems. The Congressional Budget Office estimated that, as a result of "importing" wages from other areas, wages in 1976 for 17 percent of Federal blue-collar workers were as much as 25 percent higher than local private-sector wages.[8]

Federal pay rates must be maintained at levels sufficient to attract qualified manpower but, at the same time, be compatible with an internal structure. However, problems arise when this internal structure is not consistent with common practice in the private sector. For example, the pay system for Federal blue-collar workers defines a schedule of fifteen grades with five steps at each grade even though very few private-sector employers follow such multiple-step schedules. The wage at step 2 of each grade is set to conform with the average prevailing private-sector wage in the local labor-market area. However, estimates indicate that as of June 1977 nearly 80 percent of Federal blue-collar workers were above step 2. Thus, their pay was 4 to 12 percent above the prevailing private-sector rate average.[9]

Federal/private wage comparisons

What is the relative pay position of Federal workers? With all the problems associated with the job comparison surveys, an independent means of evaluating relative pay positions can provide some light on this question. The method used here is to study the wages of many *individual* Federal and private-sector work-

[6] This is also true of the comparability process at lower levels of government. An interesting exception is California where comparisons are made of "total equivalent compensation", which includes both salary and benefits. The CSC has developed and is testing a total compensation comparability process before the plan is submitted to the Congress.

[7] See Richard A. Lester, "Pay Differentials by Size of Establishment", *Industrial Relations*, 7 (October 1967), pages 57-67.

[8] Congressional Budget Office, *The Costs of Defense Manpower: Issues for 1977* (Government Printing Office, January 1977), page 111.

[9] Furthermore, Federal blue-collar workers are paid a night shift differential (a percentage of their regular wage, increasing with the lateness of the hour worked) which generally exceeds private-sector rates. For example, in 1976 in the Washington, D.C. area, the average Federal differential for the second shift was nearly twice as large as the average private differential.

Table 1

Estimated Gross Federal/Private Pay Differentials

Ratio of mean Federal- to mean private-sector wage

Year	Males	Females
1960:		
Whites	1.13	1.07
Nonwhites	1.30	1.23
1970:		
Whites	1.17	1.32
Nonwhites	1.28	1.35
1973	1.44	1.63
1975	1.39	1.46

Sources: Smith, *Equal Pay in the Public Sector: Fact or Fantasy*, pages 55, 59, 63, and "Government Wage Differentials", *Journal of Urban Economics* 4 (July 1977), page 260.

Table 2

Estimated Net Federal/Private Wage Differentials

Ratio of Federal- to private-sector wage for comparable workers

Year	Males	Females
1960:		
Whites	1.09	1.17
Nonwhites	1.20	1.27
1970:		
Whites	1.04	1.08
Nonwhites	1.15	1.15
1973	1.20	1.38
1975	1.15	1.21

Source: Smith, *Equal Pay in the Public Sector: Fact or Fantasy*, page 68.

ers.[10] Using detailed information on individuals employed in the two sectors and regression analysis, it can be determined whether comparable *workers* (not jobs) receive the same wage in the two sectors. (The number of individuals examined in this analysis varies according to the data source, ranging from nearly 40,000 to over 130,000.)

An examination of gross Federal/private wage differentials for these individual workers (the ratio of mean Federal to mean private-sector hourly wage rates) indicates that the average Federal wage has been consistently higher than the average private-sector wage (Table 1).[11] For example, in 1960, Table 1 shows that the average wage of white male Federal workers was 13 percent higher than the average wage of white male private-sector workers. However, this alone does not necessarily indicate that Federal workers are overpaid. Pay varies among individuals according to differences in qualifications as well as differences in many socioeconomic factors. Thus a more highly paid group of workers may simply be more qualified (for example, more highly educated). However, the same qualifications may pay different returns in different sectors: for example, a high school education may pay a higher return to an individual worker in the Federal than in the private sector. Thus, the key question is to determine what portion of the gross differentials reported in Table 1 is due to differences in the characteristics of Federal and private-sector workers and what portion is due to differences in the returns on these characteristics.

How is the breakdown done? The first step is to estimate for each sector the returns in wages an individual will receive, on average, for his qualifications (years of education and of work experience) and socioeconomic characteristics (such as marital status, number of children born, race, Spanish origin, veteran status, union membership, broad occupational category, geographic region of residence, city population-size of residence, health status, part-time status, dual-job-holding status).[12] Prior study has suggested that each of these factors may have an important effect on the wage rate an individual may receive. For example, being of Spanish origin may reduce an individ-

[10] To be complete, this examination should consider nonwage compensation, as well. This would give allowance for comparable workers receiving the same total compensation, but with different mixes of wage and nonwage items. However, because the data used for this analysis do not contain information on benefits, attention is limited to wage differentials.

[11] Because of the nature of the data used for this analysis, there is a time lag between the collection of the data, its availability for public use, and its availability for use in this particular analysis. Accordingly, the estimates presented here for 1975 are the most recent available. However, viewed in conjunction with the results for 1960, 1970, and 1973, they provide a consistent picture.

[12] This is done by estimating for each sector a pay structure which is a regression equation of the form $\ln P = XB$ fitted to detailed data on individuals, where $\ln P$ is the natural logorithm of the individual's pay (estimated hourly wages), X is a matrix of explanatory variables, and B is a vector of estimated coefficients. In an equation of this form, each B may be interpreted as the percentage effect of the associated explanatory variable on pay, that is, the return to that characteristic. The data used to estimate this model consist of representative samples of Federal and private-sector workers throughout the nation from the censuses of 1960 and 1970 and from the May Current Population Surveys of 1973 and 1975. For further discussion of this model and these data, see Smith, *Equal Pay in the Public Sector: Fact or Fantasy*, pages 35-49.

ual's anticipated wage rate because of both ethnic discrimination and language difficulties that reduce the worker's productivity.

At the same time, Federal and private-sector workers do differ in these qualifications and characteristics. Therefore, the second step in the analysis is to estimate the wage each group of workers would receive if the rewards for their qualifications were the same in both sectors. In this way, an estimate is made of the wage Federal workers would receive if the rewards for their qualifications were the same as in the private sector. This calculation shows that a part of the difference between the wage of Federal workers and the wage of private-sector workers is attributable to differences in the qualifications and characteristics of the workers in the two sectors. The remaining difference—the net differential that persists between workers of comparable characteristics—provides an estimate of the wage advantage Federal workers have because they work for the Federal Government.[13] It is true that the measure of the net differential is a residual: it is the portion of the gross differential remaining after accounting for differences in characteristics between workers. Thus some part may be due to characteristics that have not been considered. However, the net differential is primarily considered to be a return attributable to the individual's sector of employment.

Estimated net differentials for 1960, 1970, 1973, and 1975 are presented in Table 2. These estimates can be thought of as snapshots taken at different points during the fifteen-year period between 1960 and 1975. They indicate that Federal workers of either sex have consistently been paid more than private-sector workers of comparable qualifications, as here defined. The estimates range from a low of a 4 percent wage advantage for white males in Federal employment in 1970 to a high of a 38 percent wage advantage for females in Federal employment in 1973.

At every point in time considered, the wage advantage is least for the majority group: white males in 1960 and 1970, males in 1973 and 1975. These results suggest that the impact of both race and sex discrimination on wage rates is less in Federal than in private-sector employment. This may result from the use of open competitive examinations to fill many Federal jobs and from more effective affirmative action programs. Thus, a minority worker in the Federal Government enjoys a wage advantage over a comparable minority worker in the private sector. At the same time, however, it should be emphasized that further study has shown that white males in the Federal Government in 1973 and in 1975 also enjoyed a wage advantage over comparable white males in the private sector. Thus, the Federal net differential is not solely a reflection of relatively less race and sex discrimination in Federal wages.

The decrease observed in the net wage differentials between 1973 and 1975 is probably a consequence of the rapid inflation that occurred during this period.[14] One major group of Federal workers who have been unaffected by inflation in this way consists of Postal Service employees who have had a cost-of-living adjustment (COLA) in their contract since 1973 (see the article beginning on page 16). A separate examination of the Federal/private wage relationship for postal and for Federal nonpostal workers (using the same data sources) indicates that, while the wage advantage for these other Federal workers decreased somewhat between 1973 and 1975, the wage advantage enjoyed by postal workers over comparable private-sector workers remained fairly constant during this period. The observation of a significant wage advantage for postal workers is further confirmed in a recent study by Adie who observed that postal pay rates now exceed general pay levels by 35 percent.[15]

Thus, it seems that, on average, Federal workers of either sex have been paid more than comparable workers in the private sector both before and after the implementation of the pay reforms. However, this does not indicate that *each individual* Federal worker is

[13] This analysis of the gross Federal/private pay differential is done under two alternative assumptions: (1) that the estimated private pay structure would apply to all workers, or (2) that the estimated Federal pay structure would apply. Then, under assumption (1), the pay Federal workers would receive is obtained by multiplying the mean values of the explanatory variables for Federal workers by the estimated coefficients for private workers. The difference between this estimated wage variable for Federal workers and the mean of the observed wage variable for private workers is a measure of the wage differential attributable to differences in qualifications between workers in the two sectors. The remainder of the gross differential—the difference between the mean of the observed wage variable and the estimated wage variable for Federal workers—is a measure of the net differential, the wage differential between comparable workers. A similar analysis can be made under assumption (2). The net differentials that are presented in Table 2 represent the midpoints of estimates made under assumptions (1) and (2). It should be noted that these are proportional differentials, since they are antilogarithms of differences between wage variables expressed in logarithms.

[14] This decrease probably reflects the fact that, because of the set timing for increases under most of the Federal pay systems, these schedules respond to inflationary pressures with a lag. As a result of the inflation that occurred subsequent to 1975, the net wage differentials may have decreased further. However, the persistence of long queues awaiting Federal jobs suggests that some positive net wage differential remains.

[15] See Douglas K. Adie, *An Evaluation of Postal Service Wage Rates* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1977).

overpaid since variation is expected by occupation, region, sex, etc. To understand better these possible variations, the Federal/private wage relationship will be examined at more detailed subdivisions.

Occupational variation in the Federal wage advantage

With the growth of Government employment, there has also been an increase in the diversity of occupations represented. Indeed, in a study of Federal employment, one researcher found that out of nearly 15,000 occupational titles only one was missing from the Government: stripteaser. A structure of wage differentials by occupation may be observed in both Federal and private-sector employment. An examination of the Federal impact on wage structures in individual occupational categories provides information on whether the Federal wage advantage reported in Table 2 accrues only in certain occupations or exists across oc-

Table 3

Estimated Federal Wage Advantage by Occupational Group, 1975

In percent

Sex	Professionals	Managers	Clerks	Service	Craftsmen	Operatives	Laborers
Males	17	14	12	27	14	15	†
Females	12	36	21	25	*	†	*

* There were an insufficient number of Federal workers in this occupational category to estimate a Federal differential.

† Positive but not significantly different from zero in a statistical sense.

Source: Smith, *Equal Pay in the Public Sector: Fact or Fantasy,* pages 80, 81.

Table 4

Estimated Postal and Other Federal Wage Advantage by SMSA Population Size, 1975*

In percent

		Standard Metropolitan Statistical Area of				
Type of Federal employment	Non-SMSA	Less than 250,000	250,000 to 500,000	500,000 to 1 million	1 million to 3 million	More than 3 million
Males:						
Postal Service	13	†	†	†	12	†
Other Federal	17	11	22	13	22	†
Females:						
Postal Service	53	69	46	42	42	21
Other Federal	22	18	16	17	19	†

* In general, a Standard Metropolitan Statistical Area (SMSA) consists of a county or group of counties that contain at least one city which has a population of 50,000 or more plus the adjacent counties that are metropolitan in character and are economically and socially integrated with the central city. In this analysis, categories are differentiated according to the population size of SMSA in which the individual resides as follows: outside an SMSA, in an SMSA of less than 250,000 residents, in an SMSA of between 250,000 and 500,000 residents, in an SMSA of between 500,000 and 1 million residents, in an SMSA of between 1 million and 3 million residents, or in an SMSA of more than 3 million residents.

† Positive but not significantly different from zero in a statistical sense.

Source: Smith, *Equal Pay in the Public Sector: Fact or Fantasy,* page 100.

cupational categories (Table 3).[16]

These estimates indicate that, while there is considerable variation by occupational group, Federal workers in 1975 received at least the same wages as comparable private-sector workers (the occupations with this relationship are male laborers and female operatives) and more often enjoyed a substantial wage advantage. The largest Federal wage advantage for males and the second largest for females are observed in service occupations (27 percent for males, 25 percent for females).

These estimates do not appear to support observations made in other studies of wage disadvantages for upper level professionals and managers. Two factors probably account for this discrepancy. The first is that, since the data used here pertain to *all* professional and managerial workers (undifferentiated by level), there may be an insufficient number of observations at these upper grade levels in the data to observe these disadvantages. The second is that, if pay scales at these levels are too low, they may have influenced the more experienced and qualified Federal jobholders to seek private-sector positions comparable to the high-level Government jobs. Then a Federal wage advantage may still be observed for the upper grade levels if above a certain level of experience individuals shift to the private sector to earn the greatest return to their qualifications. The upper level positions in Government may be filled by less experienced individuals than comparable private-sector positions.

Location and the Federal wage advantage

Wages in the private sector have been observed to show substantial variation across labor-market areas, reflecting the effects of differences in cost of living and in pecuniary and nonpecuniary opportunities. However, while blue-collar Federal wages vary across labor-market areas, white-collar Federal pay is uniform throughout the nation. Accordingly, it is appropriate to consider how location affects the relative wage position of Federal workers.

The estimated wage advantage of postal and other Federal workers over comparable private-sector workers in 1975 did vary greatly according to the population size of the Standard Metropolitan Statistical Area (SMSA) in which the individual resides (Table 4).[17] However, there is no evidence that either group of Federal workers is paid *less* than private-sector workers of comparable qualifications. With only one exception (nonpostal workers residing in an SMSA with a population of more than 3 million), women working for the Federal Government enjoy a substantial wage advantage over their private-sector counterparts. By contrast, male postal workers in most SMSA sizes and nonpostal workers residing in the largest SMSA size receive approximately the same wages as their private-sector counterparts. Among both males and females, this wage advantage is largest in non-SMSAs. Thus, these results support the view that Federal wages should be set on an area basis for *all* workers to reflect local labor-market conditions, since present national salary schedules lead to wage advantages for Federal workers in certain areas.

Summary and conclusions

The estimates presented here have shown that during the period from 1960 through 1975 Federal workers, on average, received pay that was at least similar and usually superior to that of comparable private-sector workers. The net advantage has usually been greater for women than for men. In part, this reflects the fact that the impact of discrimination on wages is less in the Federal than in the private sector. Although, as expected by the national pay schedules, the estimated Federal wage advantage varied by place of residence, no evidence was found of a wage *disadvantage* for Federal workers. These net differentials are not solely the consequence of the comparability legislation of the 1960's but were present before these reforms were enacted. However, the legislation does appear to have helped reinforce the upward bias already present in Government pay. The net result was Federal wages that may be regarded as "too high", that is, higher than wages paid to comparable private-sector workers and higher than necessary to attract qualified manpower.

As previously indicated the results of this study do not imply that every *individual* employed by the Federal Government is overpaid. There are undoubtedly many individuals in Government service who could command larger compensation in the private sector. This is particularly true among upper level professionals and managers. Indeed, the findings of this study suggest that the Government may have to improve compensa-

[16] These estimates are obtained using a somewhat different equation form than that employed for the estimates reported in Table 2: here a wage structure is estimated for all workers (both public and private sector) in a particular occupational category. By including a variable for Federal employment, an estimate is obtained for the percentage wage advantage a Federal worker enjoys over a comparable private-sector worker.

[17] These estimates are obtained using an equation form similar to that employed for the estimates reported in Table 3: here a wage structure is estimated for all workers in each SMSA and separate variables are included for postal and nonpostal Federal employment.

tion at the upper levels in order to attract and to retain qualified personnel.

In a Government that is distinguished by its checks and balances, it is surprising that the system for pay determination for its workers did not show more checks on the accuracy of wage comparisons or more balances on the relatively greater political power of Government employees in the pay decision process. Unless such checks and balances are strengthened, Federal/private wage differentials will likely persist in the future, as will queues of workers awaiting Federal jobs. Moreover, the interrelationships of Federal- and private-sector pay setting through the comparability process suggest the possibility of spiraling wage increases, as workers in each sector seek to equal or to exceed the wage increases granted in the other sector.

The means to buttress the checks and balances in the pay process are available. The most important of these is to take into account another factor besides private-sector pay rates—manpower availability. If, for example, the comparability process suggests a pay increase for certain Government jobs, but there already are long queues of qualified individuals awaiting such jobs, the increase is unnecessary to attract the required manpower. This could act as a check to prevent the Government from paying higher wages than are necessary to attract qualified manpower as well as a balance against the relatively greater influence of Federal workers on lawmakers in these pay decisions.

It is in the interest of all that Government be assured of attracting and retaining necessary manpower. However, it is also in everyone's interest that this be done at least cost to the Government. Except for problems in filling upper level managerial and professional positions, the first of these two goals appears to have been achieved throughout most of the Federal Government. Attention should now be directed to the latter goal, as well.

Sharon P. Smith

Indexation of wages and retirement income in the United States

Should wages be automatically adjusted in line with the cost of living? Should pension benefits be tied to a price index? These questions have been debated at union meetings, labor contract bargaining sessions, and in the legislatures of local, state, and national governments. Economists, too, have examined indexation and raised some provocative questions about the desirability of indexation from the viewpoint of inflation and unemployment.

The idea of indexing income is more than two centuries old and has been used in many nations. During the American Revolution, Massachusetts linked soldiers' pay to an index composed of beef, corn, wool, and leather prices. In nineteenth century Britain, some firms offered wage scales which were tied to the prices of certain staple commodities. In Belgium, many wage indexation plans date back to the 1930's. Then, during the two decades following World War II, a large number of other European countries experimented with wage indexation of one form or another; Israel and Brazil also put extensive indexation programs into effect. In the United States, several major unions negotiated wage escalators during the 1950's. Over the past ten years, however, a new surge of interest in cost-of-living protection has developed in the United States, as the inflation rate accelerated sharply. Among unionized workers, escalator clauses have now become more common. As for the retired, social security benefits are now indexed, and many of those who worked for Federal, state, or local governments are entitled to price-linked retirement benefits.

Is indexation a desirable thing? Indexation may make the individual feel more secure about the purchasing power of income. But, under some circumstances, indexation of wages might make layoffs more common and actually reduce workers' well-being. As regards inflation, there is the question of whether indexation would make it easier to curb inflation or whether it would aggravate it.

What is the purpose of indexation?

Indexation ties the dollar size of a payment to an index of prices. For example, wage indexation typically provides for the hourly wage rate to rise automatically by 1 cent whenever the consumer price index increases by a certain amount. The basic purpose of this linkage is to provide an automatic mechanism for protecting the purchasing power of income if prices should rise. Its major use has been in long-term contracts, particularly long-term union contracts. Indexation is not so common in short-term wage contracts, since wages and salaries can adjust to changing prices without long delays.

In long-term union contracts, indexation is basically an insurance policy protecting the worker against unexpectedly high rates of inflation. Insight into the nature of wage indexation can be gained by considering the wage negotiations in two contracts which differ only in one respect—one has a cost-of-living adjustment clause or "COLA" and the other does not. In the wage contract without a cost-of-living escalator clause, the negotiating parties must *estimate* the likely inflation rate and provide for a wage pattern that reflects this inflation adjustment. For example, if prices are expected to rise at a 6 percent annual rate, and the parties decide on a real wage increase of 2 percent a year, annual wages would be slated to rise 8 percent in each year of the contract; 8 percent would allow a 6 percent "purchasing power adjustment" plus a 2 percent "real" increase. Consider next a contract with a cost-of-living clause which provides that the wage rate will increase by the same percentage as the cost of living. (The hypothetical escalator for this example gives 100 percent protection, whereas most

escalator clauses fall short of complete protection. See page 18.) For this wage contract, only the real wage increase of 2 percent per year would need to be specified; the COLA would provide whatever adjustment in the nominal wage rate that was necessary for an annual real wage increase of 2 percent.

In the contract without the COLA, the actual real wage increase depends upon the inflation rate. If prices rose at 6 percent per year over the duration of the contract, workers would get a 2 percent real wage increase. In contrast, if prices rose at a 7 percent annual rate, they would gain a real wage increase of only 1 percent per year (the 8 percent increase in wages less the 7 percent increase in prices), a full percentage point less than expected.

The importance of a COLA clause depends upon the duration of the contract. In a short contract without a COLA, say of one-year duration, the loss (or gain) would typically be small. For example, a 1 percent per year error in the price forecast would cost the worker a dollar amount equal to only ½ percent of annual wages over the course of a one-year contract. (The real wage falls short by a full 1 percent only at the end of the year.) The same incorrect inflation estimate over a three-year contract, however, would cost the worker a total of 4½ percent of annual wages: ½ percent in the first year, 1½ percent in the second, and 2½ percent in the third.

For employees whose expenses depend upon current prices, a COLA clause reduces the employee's uncertainty about the likely purchasing power of wages from his job over the ensuing contract period. Does it also reduce the uncertainty of the employer? If the employer's expenses and sales revenues were closely related to the general price level upon which the COLA is based, real profits might be more certain under a contract with a COLA: both the price of the goods sold and the wage rate paid would move together. In an alternative contract without a COLA, the employer could do better than one with the COLA, if prices rose at 7 percent, but might also do worse if prices rose at only a 5 percent rate.

Thus, under generalized inflation—all prices increasing at the same rate—indexation might insure both parties against unexpected loss. However, higher inflation usually absorbs some resources, detracting from the economy's productivity, so that it is rarely possible for everyone to remain as well off. Of great concern to the firm is the possibility that inflation will not proceed at the same pace in all sectors. If the prices of other goods rise more rapidly than expected while the price of the goods the firm is producing does not, the COLA clause would erode real profits.

Who has cost-of-living protection in the United States?

Escalator clauses of one form or another appear in a wide variety of circumstances today. According to the Bureau of Labor Statistics, about half of the United States population is affected in some way. Food stamp allotments are based upon an index of food costs, eligibility for some governmental assistance programs is based upon a poverty line linked to the price level, and business contracts for the delivery of goods and services may specify that payments depend upon the level of certain prices. The focus here is on two major concerns of the typical American worker—whether his or her wage rate keeps pace with inflation and what the outlook is for the purchasing power of retirement benefits.

Wage COLAs

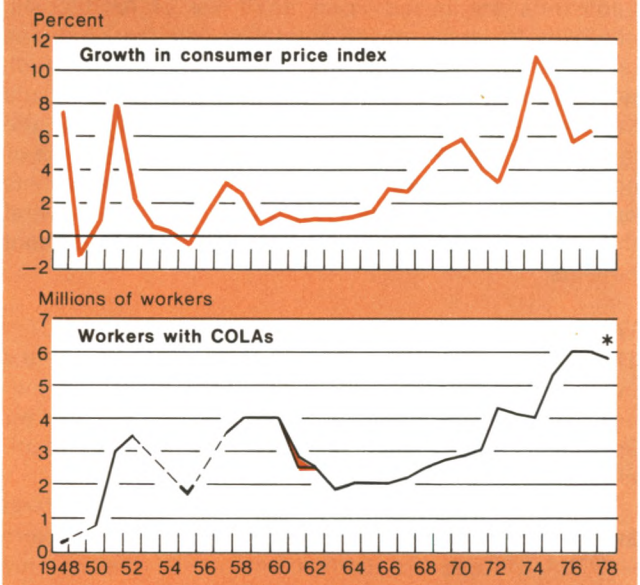
The union sector in the United States consists of 19.4 million workers. Of this group, more than 8½ million workers are covered by contracts that call for automatic adjustments of wage rates based upon changes in the cost of living.[1]

In "major" bargaining agreements—private nonfarm sector agreements which cover 1,000 or more workers—COLA clauses are fairly common. Of the roughly 10 million workers who are covered by such agreements, about 6 million currently have some form of escalator clause. The United Automobile Workers was the first major union to gain cost-of-living protection; its COLA with General Motors Corporation dates back to 1948. Since then, there have been ups and downs in the number of contracts containing COLAs. Periods of inflation typically have led to the adoption of escalator clauses, while periods of price stability have resulted in the dropping of such clauses (chart). After the run-up of prices associated with the Korean war several other major unions got COLAs, and by 1958 some 4 million workers covered by major agreements had cost-of-living provisions. Then, in the early 1960's several large unions, including the steel and communications workers, dropped the COLA from their contracts, and the number of workers covered by COLAs declined to below 2 million in 1963.

Beginning in the late sixties, however, accelerating inflation created renewed interest in cost-of-living provisions. The steel and communications workers had their COLA clauses reinstituted, and other large unions obtained cost-of-living provisions. Particularly noteworthy was the surge in COLA coverage between 1974 and 1976; 2 million workers covered by major

[1] A good review of wage escalator clauses may be found in an article by Nicholas S. Perna, "The Contractual Cost-of-Living Escalator", *Monthly Review* (Federal Reserve Bank of New York, July 1974), pages 177-82.

Inflation Rate and the Number of Workers Covered by Escalator Clauses (Private Nonfarm Agreements Involving 1,000 or More Workers)



*Preliminary for 1978.

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

agreements obtained COLAs, bringing the total to 6 million workers for this sector of the union work force. There are now many private-sector industries in which virtually all major labor contracts contain COLAs (Table 1).

As might be expected, unions with longer contracts are more frequently covered by escalators. In bargaining units with three-year contracts, for example, about 71 percent of workers were covered by COLAs in 1978, whereas in bargaining units with annual contracts only 9 percent of workers have COLAs.

COLA clauses have also been obtained by unions representing workers employed by state, county, and city governments. The Bureau of Labor Statistics surveyed the collective bargaining agreements of many of these governmental units in 1975.[2] About 25 percent of the state, county, and local government workers covered by the survey had wage escalators.

[2] *Characteristics of Agreements of State and Local Governments* (Bulletin 1947). The survey covered all states and those counties and cities with population of 100,000 or more but excluded agreements covering workers in public education.

Federal Government workers do not have a COLA clause for salaries, although since 1967 they have normally received an annual structural increase which was judged to be comparable to wage increases in the private sector. (See article on Federal pay scales beginning on page 7 of this issue.) However, the Postal Service, now a quasi-independent agency, does have a COLA clause in the agreements with four postal unions which represent about 570,000 employees.

What are the escalator clauses that cover American workers like? Although, in principle, an escalator clause could be designed to compensate the employee fully for rises in the price level, most escalators provide substantially less than 100 percent protection. One feature which leads to less than full compensation is the adjustment formula. This is usually specified as 1 cent per hour for each 0.3 or 0.4 percentage point rise in the consumer price index—over half the workers with escalators under major contracts have this type of formula. Another popular type of formula gives cost-of-living increases in the *base wage.* These types of formula seldom compensate high wage workers fully and usually do not compensate even the average worker fully for cost-of-living changes. For example, consider a worker with hourly earnings of $7.75 per hour in July 1977. Between July 1977 and July 1978 the consumer price index rose 7.7 percent. By the 1 cent per 0.4 percentage point formula, the COLA would be 35 cents, equivalent to a 4.5 percent wage increase. With the 1 cent per 0.3 percentage point formula, the worker would get a 47 cent COLA, equivalent to a 6.1 percent wage increase.

Second, many COLAs require that the rate of inflation exceed a minimum level (called the "trigger" level) before workers get any adjustment at all; others specify a range within which the usual escalator formula does not hold; and some escalators have "caps" or maximums on the size of the allowable cost-of-living adjustment. Almost 1½ million workers covered by major contracts in 1978 had capped escalators.

Finally, there is generally some time lag between the occurrence of inflation and the compensation for it. Of workers covered by major agreements, about 2½ million receive annual adjustments and 0.9 million receive semiannual adjustments; only 2.3 million get quarterly adjustments. If inflation accelerates, the time lag in receiving the corresponding wage adjustment causes some loss in real income. One analyst estimated that these features have restricted wage increases from escalator clauses to about 50 percent of the consumer price index rise.[3]

[3] H.M. Douty, *Cost-of-Living Escalator Clauses and Inflation* (Council on Wage and Price Stability, August 1975), page 28.

Another way that unionized workers with long-term contracts have tried to reduce price uncertainties is through "reopener" clauses which allow renegotiation during the contract period under certain circumstances. In fact, some contracts specify that cost-of-living increases greater than some amount permit reopening. Although in some circumstances the reopening will produce a wage adjustment similar to a COLA clause, other factors such as market conditions and firm profits may come into play when the wage discussion reopens. Because of this, reopener clauses may avoid some of the problems associated with COLAs. (See page 21.)

Table 1

Industries with Escalators Covering Over 50 Percent of the Workers

Collective bargaining agreements in the private nonfarm sector covering 1,000 or more workers

Industry	Workers covered by escalator clauses (in thousands)	(in percent)
Metal mining	51	97.5
Anthracite mining	2	100.0
Bituminous coal and lignite mining	120	100.0
Ordnance and accessories	25	74.3
Tobacco manufactures	28	94.9
Printing and publishing	37	58.1
Rubber and plastic products	86	89.8
Primary metal industries	555	96.1
Fabricated metal products	70	79.1
Machinery, except electrical	267	89.5
Electrical equipment	432	91.6
Transportation equipment	1018	94.8
Railroad transportation	472	100.0
Local and urban transit	115	97.6
Motor freight transportation	551	98.1
Transportation by air	101	62.3
Transportation services	2	100.0
Communications	679	93.7
Wholesale trade	44	61.8
Food stores	400	72.6
Finance, insurance, and real estate	51	65.1

Source: United States Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review* (January 1978).

Retirement income COLAs

Many retired workers receive social security benefits plus a pension from their previous employer. Old-age and survivors benefits provided by the social security system have been adjusted upward many times since 1965, and public-sector employees frequently do receive cost-of-living pension adjustments. However, private pension plans with COLAs are extremely rare.

Adjustments that have been made to the benefits of retired persons collecting social security are shown in Table 2. Until 1972, each of these increases required special legislation. Now, however, benefits are automatically increased annually to reflect cost-of-living changes. Belgium, Canada, France, Germany, Norway, and Sweden also provide automatic cost-of-living adjustments to social security payments. According to the United States Public Law 92-336, passed in 1972, automatic cost-of-living adjustments are paid in years when there is no legislation giving a general social security benefit increase.[4] Special legislation raised OASDI benefits in the years 1972-74; the first cost-of-living increase was effective June 1975. Cost-of-living adjustments were also paid in 1976, 1977, and 1978. A cost-of-living adjustment would be made only if the consumer price index were at least 3 percent higher than it was when the most recent adjustment was made.

In February 1978, about 18 million people were receiving retirement benefits from the social security system. Also, those qualifying for survivors benefits and disability benefits under OASDI—about 16 million persons—got similar cost-of-living adjustments. The social security system as a whole, therefore, is providing 34 million people with price-linked benefits in 1978. By 1985, about 40 million persons will be receiving such benefits, according to projections.

Because social security benefits were frequently changed prior to their indexing in 1972, there never was a long lag between inflation and an increase in benefits. What then was accomplished by indexing benefits? The price linking of social security benefits may prevent the temporary losses in real income of the retired that could occur when special legislation was required and may thereby make people feel more secure. In addition, it may save the United States Congress some time.

The situation regarding private pensions is very different: their purchasing power has been greatly eroded. Very few companies provide indexed pension benefits. Indeed, a 1972-73 Conference Board survey indicated that only 4 percent of the firms questioned provided

[4] The 1977 amendments to the Social Security Act corrected a feature that "double-indexed" newly retired people's benefits, giving payments which rose with wages *and* with prices.

Table 2

The Consumer Price Index and OASDI* Benefits for a Person Who Retired in 1959

Date	OASDI benefits*		Consumer price index	
	Percentage change	Cumulative‡	Percentage change	Cumulative‡
January 1965	7.0†	7.0	7.8†	7.8
February 1968	13.0	20.9	9.3	17.8
January 1970	15.0	39.0	10.8	30.6
January 1971	10.0	53.0	5.1	37.2
September 1972	20.0	83.5	5.8	45.2
March-June 1974	11.0	103.7	16.4	69.0
June 1975	8.0	120.0	9.4	84.9
June 1976	6.4	134.1	5.9	95.8
June 1977	5.9	147.9	6.8	109.1
June 1978	6.5	164.0	7.5	124.8

* OASDI = old-age, survivors, disability, and hospital insurance system under the Social Security Administration.

† Since 1959. There were no adjustments between 1959 and 1965.

‡ Because of compounding, exceeds the sum of the items in previous column. For example, (1.07) (1.13) = 1.209 which yields the 20.9 percent for the second item in column (2).

Sources: OASDI benefits: *Social Security Bulletin,* selected issues. Consumer price index for all urban consumers, seasonally adjusted: Bureau of Labor Statistics.

pension benefits that were price linked.[5] (However, 17 percent of the plans did allow some portion of the pension to be taken in the form of an annuity, whose annual payment would vary with an investment portfolio of stocks and bonds.) The tremendous erosion of pension purchasing power in recent years has led some firms to raise voluntarily the pensions of the already retired. However, such adjustments have been insufficient to maintain purchasing power. Few unions have expressed interest in obtaining indexed pensions. And those indexed pensions that have been negotiated typically provide only for new retirees.

There are two major exceptions to the general lack of price linking for pensions. One is the College Retirement Equities Fund (CREF), a nationwide plan for college teachers that was established in 1952 by the Teachers Insurance and Annuity Association of America (TIAA). Many United States colleges make pension contributions to this plan on behalf of their faculty, rather than provide their own pension plans. CREF invests pension money in common stocks and pays retirement benefits based upon the earnings of its portfolio. When it was established, economists believed that the stock market would keep pace with the cost of living so that CREF would in effect provide a price-linked pension. As it turned out, however, stock prices have not kept pace and CREF beneficiaries have not received dollar benefits sufficient to compensate for the cost of living. The pension plan for retired railroad workers is the second major exception to the general lack of price linking for pensions in the private sector; this plan did in fact provide a pension with price protection. Railway workers have been covered by special Federal legislation since 1937 and so in many respects are more similar to public employees than to private ones. According to the 1974 amendments to the Railroad Retirement Act, retired railway workers receive a substitute for social security, which provides identical price-linked retirement benefits, plus an added payment which is partially price linked.[6] About 1 million workers are receiving retirement benefits under this program.

In sharp contrast to the private sector, the public sector does provide extensive cost-of-living protection to retired workers. The first COLA for Federal pensions was legislated in 1962. However, no adjustment was called for in the years 1962, 1963, and 1964 under the original wording. The procedures were changed in 1965,

[5] Mitchell Meyer and Harland Fox, *Profile of Employee Benefits* (Conference Board, 1974).

[6] Prior to the 1974 amendments, many railway workers received both social security and a full pension from the railway retirement system.

1969, and again in 1976.[7] According to the 1976 legislation, increases based upon the June-December consumer price index change are given each March 1 and increases based upon the December-June change are given to retired civil service workers each September 1. Retired military personnel are also entitled to indexed pensions. About 2.8 million retired Federal civil service workers and military personnel and their survivors were receiving such pensions at the beginning of 1978.

At the state and local level, there is some indexation of pension plans, although considerably less than at the Federal level. A recent Bureau of Labor Statistics study of the municipal pension plans of twenty-seven large cities found that about one third of the plans provided benefits connected to movement in the consumer price index. However, most of these cost-of-living adjustments were limited to a maximum of 5 percent a year.

Why have private companies not indexed their pension plans, while the Federal Government and many state and local governments have indexed theirs? Perhaps this difference reflects the fact that retired persons are voters and so retain influence on Government decisions whereas their influence on the company and/or union ceases when they retire. The company management and union leadership may feel that it is not in their interest to distribute money to the retired that might instead be used to boost the pay of current workers.

The outlook for indexation

Because the union sector is relatively small in the United States, compared with many other industrialized countries, escalator clauses *per se* are unlikely to apply to the bulk of the work force. For example, there is a total of 19.4 million unionized workers, compared with a work force of 100 million. This comparison, however, understates the possible impact of wage indexation in the United States. For one thing, there is a tendency to maintain wage differentials by giving similar increases to nonunion employees in the firm and for some nonunion firms to give cost-of-living adjustments to keep in line with other firms' wages. Second, governmental units frequently award civil service workers increases comparable to those in the private sector. As for the future, there are some unions without COLAs who have expressed some interest and there are some groups who would like to tie the minimum wage to the general wage level. Further wage indexation may, therefore, occur unless inflation abates.

There is very little indexation of private pensions currently, and it is not apparent whether there will be much movement in this direction. The public sector, which had been fairly generous with providing price-linked retirement benefits, appears to be under pressure to cut costs. In addition, many localities have discovered that their pension plans are underfunded even under current provisions. Finally, there is new awareness of possible pitfalls in designing pension escalators; benefits were inadvertently indexed for both prices and wages, *i.e.*, "double-indexed", in the 1972 Social Security Act and there was a "kicker" in the 1969 civil service retirement amendments which overindexed pension benefits. These factors suggest that public pension plans will probably not move further toward indexation very fast in the near future. As far as private pensions go, there is relatively little movement toward indexation, although this may change if inflation continues at current high levels. There has already been an increased awareness of the possibility that pension benefits may become severely eroded. Combined with the rising average age of the work force, this may cause wider interest in pension indexation. On the other hand, if people work longer years because of the rise in the mandatory retirement age, erosion of pension values will be a less serious problem.

Consequences of indexation

Economists and policymakers, union leaders, and corporate representatives have all argued about the desirability of indexation. The differences in opinion arise not only from differences in their respective interests but also from certain implicit assumptions about how the economy works and what causes prices to change.

One important characteristic of indexation is that it speeds up the response of prices and wages to changes in the economy. In some circumstances this faster response may be desirable, but in other circumstances it is not.

Several economists, including Milton Friedman and JoAnna Gray, have argued that the fast response is desirable in the case where the money supply grows faster or slower than expected.[8] Without indexation, nominal wages are set to provide some compensation for expected inflation. If nominal wages have been set to provide for a large inflation adjustment, then a deceleration in money growth and in price inflation would

[7] The 1969 amendment (Public Law 91-93) gave an extra 1 percent each time there was an adjustment to compensate for the time lag. However, because this 1 percent became part of the base, there was overcompensation for the cost of living.

[8] See Milton Friedman's article "Using Escalators to Help Fight Inflation", *Fortune Magazine* (July 1974), pages 94-96, 174-76, and JoAnna Gray's article "Wage Indexation: A Macroeconomic Approach", *Journal of Monetary Economics* (April 1976), pages 221-35.

cause the real wage rate to rise. Under these circumstances, firms could no longer afford to maintain the same employment and output. In contrast, with indexed wages, a slowing of money growth and inflation would not have this effect on the real wage and employment. Therefore, the indexed wage scenario is less likely to produce changes in employment and output when the money supply shifts.

Friedman goes one step further, arguing that a tight monetary policy to curb inflation would be more palatable in an indexed economy, because a reduction in money supply growth would cause less unemployment. If money growth were reduced, the inflation rate might actually be lower under indexation. The Friedman argument is indeed intriguing, and there are some economists who agree with his argument and are in favor of wage indexing for just this reason. However, others point out that numerous political forces impinge on our policies toward inflation. If large well-defined groups who have strong lobbying power are protected against accelerations in inflation, the pressures to restrain it could be much moderated. Already, a large fraction of the union sector and a substantial portion of workers in the government sector have wage and salary protection. Moreover, through social security, many of the elderly receive price protection, and those who had government jobs commonly have indexed pensions. These groups who could contribute to an effective campaign against inflation no longer have a big incentive to do so.

A more fundamental difficulty with indexation is its affect on the economy's ability to adjust to changes in output, productivity, or international competitiveness —situations which usually require a change in the real wage rate. Consider, for example, the situation in 1973-74. Food prices skyrocketed in 1973, because world grain harvests were much smaller than normal. The price of petroleum, an important United States import, was doubled by the Organization of Petroleum Exporting Countries in the fall of 1973 and again in early 1974. As a result, the overall cost of living, which includes food and energy, increased much more than the price of domestic nonagricultural goods. United States producers of nonagricultural goods could not afford to maintain the same employment if workers insisted on wage increases commensurate with the overall cost of living. Yet, with wage indexation, wages increase automatically with the overall cost of living. This forces nonagricultural business to lay off workers, leading to more unemployment. Furthermore, if monetary and fiscal policy are more stimulative—to ease the unemployment problem—then there is much more inflation in this scenario of wage indexation.

The damage on the price front might be offset during periods when farm prices fall or when imported goods become cheaper. However, in the short run, indexation does make changes in the supply of certain goods and services much more painful for the economy, both in terms of unemployment and in terms of inflation. Indeed, Finland abandoned wage indexation in 1968, shortly after it devalued, to prevent some of these consequences.

The faster response of wages produced by indexation has led to criticism on other grounds. Some people argue that an economy without indexation has a second line of defense against rampant inflation. They postulate the following example: the demand for goods and services expands beyond the economy's ability to produce, and prices begin to rise. Clearly, one defense against this excessive demand situation is restrictive fiscal and monetary policies. But sometimes there are difficulties in sizing up the near-term situation, or there are delays in obtaining necessary legislation. (And, in some cases, political forces prevent the implementation of restrictive policies.) In these cases the redistribution of real income caused by inflation might help to curb it: If wages were not indexed, the price rise would lower the real income of workers who have wage contracts and raise the real profits of firms and the real tax revenue of the government. (The government gains both from inflation *per se* and from the fact that corporate profits are taxed at a higher marginal rate than the typical wage or salary income.) As a result of their real income loss, workers will cut their purchases of goods and services. But the gainers of real income—business firms and government—do not usually step up their purchases much when real income is higher than expected. The cut in spending by workers therefore exceeds the rise in spending by business and government and, on balance, total spending declines, helping to curb inflation.

Turning to a different perspective, some people argue that indexation permits the lengthening of union contracts, thereby saving on negotiation time and the danger of strikes. However, longer term contracts build in a real wage structure for the length of the contract that may turn out to be unsuitable. For example, suppose the demand for good A increases and that for good B declines. Typically, wages in industry A will increase, as the industry tries to attract workers, while wages in industry B fall relative to the average. A long-term contract tends to postpone the relative wage decline in industry B and may therefore lead to more layoffs and higher unemployment. Generalizing this phenomenon, changes in relative demand and supply for various goods could lead to more unemployment under a system of long-term contracts.

To the extent that escalator clauses provide only

partial cost-of-living compensation, all these problems may not be very serious at the present time. However, if indexation becomes more widespread and fuller price protection for those with escalators develops, the economy may have a higher unemployment rate and periods of more rapid inflation.

Problems with the consumer price index as the basis for COLAs

While the potential increases in inflation and unemployment have concerned the majority of analysts, some economists are concerned about the use of the consumer price index in escalator clauses. They point out that at least some of the other problems mentioned above could be either aggravated or mitigated by the particular price index that is used.

From the perspective of the consumer, the consumer price index fails to measure the true cost of living on a number of scores. One problem is that sales taxes and property taxes are treated as consumer prices; income taxes, on the other hand, do not affect the index. Therefore, if a state or local government replaced an income tax with an excise or property tax or vice versa, the index would change when in fact there was no change in the cost of living. Or, if a state or local government were to impose a new excise or property tax and undertake provision of some service that was formerly provided by the private sector, the index would rise, even though the consumers' true purchasing power at the current level of income is in fact unchanged. Thus, decisions that should be based upon efficiency considerations may be hampered; with indexing based upon the consumer price index, these decisions will have wage and price ramifications.

Perhaps more important are factors that cause changes in the consumer price index to overstate changes in the true cost of living. For one thing, the index uses the same market basket of goods and services to determine the price level at different times. But, other things being equal, people will try to substitute cheaper goods for the ones whose prices have risen more rapidly. Thus, the fixed market basket probably gives too much weight to items with rapid price increases.

Another source of upward bias is the way the cost of home ownership is calculated. When inflation accelerates and higher inflation is expected to continue, the mortgage interest rate, like other interest rates, tends to rise. As currently calculated, home-ownership cost reflects the rise in home prices and the entire rise in mortgage interest rates even though most of the interest rate increase is offset by the greater expected appreciation in home prices. Thus, the rise in the cost of home ownership is overstated. (The Bureau of Labor Statistics is currently working on a revised "user cost" of homes to correct for this problem.)

Turning to even tougher criticism, it is argued that price linking should not be based upon a cost-of-living index at all. A cost-of-living index will reflect import prices, but domestic producers are in a poor position to give wage increases based upon import prices. (More detailed arguments on this issue can be found on page 22.) Instead of a cost-of-living index, some economists propose that a price index of domestic goods and services be used. While this would have advantages from some viewpoints, there has been little enthusiasm on the part of workers when it was proposed in other countries.

Conclusion

The worsening of inflation in the United States over the past decade has sparked interest in the price linking of wages and retirement incomes. Many Americans are now favorably disposed toward indexation, regarding escalator clauses as a good protection mechanism against inflation. From an economywide perspective, however, the merits of indexation are questionable. In many circumstances, indexation could have undesirable effects on inflation and unemployment. There are some circumstances where it could protect the incomes of those who have escalator clauses with relatively few harmful ramifications for unemployment and inflation—in economywide inflation where all prices are rising in proportion. In such general inflation, however, there would be other groups who suffer inequities and certain economic costs that could not be avoided. Consequently, indexation will not make inflation either equitable or costless. Moreover, if indexation reduces the political pressures to curb inflation, price inflation could be worse in an economy with indexed wages. Faster inflation would, of course, be more costly for the nation as a whole.

Marcelle V. Arak

The business situation
Current developments

The widely expected slowing in the pace of the economic advance materialized in the third quarter. As measured by real gross national product, the growth of the nation's output of goods and services slowed to an annual rate of 3.4 percent from 8.7 percent in the second quarter (chart). Nevertheless, the economy continued to display impressive elements of strength in demands for consumer goods, housing, and capital goods. The rate of increase in the price level also slowed during the summer. Unfortunately, the relief on the price front largely reflected declines in some volatile agricultural prices following sharp increases earlier in the year. The underlying rate of inflation, as indicated by prices of nonfood goods and services, showed no signs of improvement.

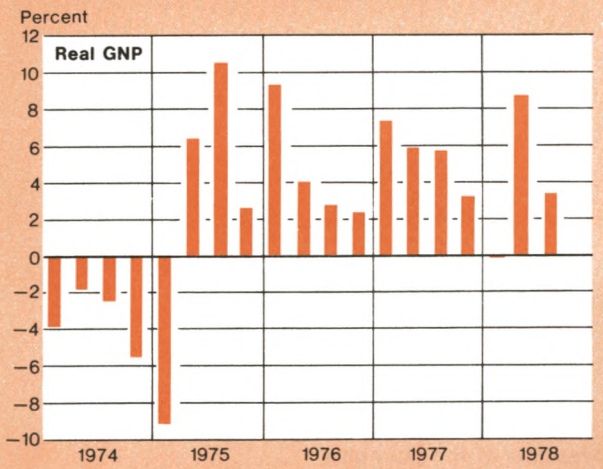
Consumer spending exhibited surprising strength in the third quarter. After dipping slightly in July, retail sales posted solid gains during August and September. Some of this buying undoubtedly was stimulated by anticipation of price increases in the future. Even as consumer buying was speeding up, the growth of personal income slowed appreciably in August and September as employment growth faltered. Personal saving in the third quarter amounted to only 5.1 percent of disposable income, significantly below the long-run average of about 6 percent. Unless the growth of personal income speeds up considerably, the growth of consumption is likely to slow down eventually as households seek to restore a more normal relationship of savings to income. The rapidly increasing share of consumers' incomes devoted to repaying instalment and mortgage debt may cut further into spending on goods and services.

Inflationary expectations also undoubtedly have played a role in the strength of demand for housing. For many households, real estate is the best—perhaps the only—available hedge against inflation. Consequently, historically high mortgage interest rates have done little to dampen the demand for housing. Private housing starts were running at an annual rate of nearly 2.1 million units in September, continuing the two million-plus rate of starts generally maintained since July of last year. The high rate of permits for new residential buildings issued in September suggests a continuation of brisk construction activity for a while longer.

There appears to be little evidence of speculative fever in the business sector. With memories of the painful recession of 1973-75 still vivid, most firms have continued to maintain a relatively cautious approach to investment decisions. Inventories have generally been well aligned with sales, except in some retail lines where stocks appear to have been on the high side through much of the summer. Characteristic of the current business expansion, orders were cut back quickly when the growth of retail sales slackened for a time in the spring. Hence, production of consumer goods barely inched upward from April through September.

Production of business equipment and defense and space equipment, by contrast, continued to rise strongly through the summer. Thus, even with very sluggish growth of consumer goods output, capacity utilization in the manufacturing sector as a whole climbed to 85 percent by September, well within the range that historically has stimulated substantial investment in new productive facilities. New orders for nondefense capital goods did rise sharply in August after fluctuating around a plateau for six months. Construction contracts for commercial and industrial buildings also are substantially above year-ago levels. On balance, it appears that capital spending will continue to be a source of strength to the economy for some time to

Economic growth continued in the third quarter, although at a slower pace.



Gross national product is expressed as annual rates of change in 1972 dollars, seasonally adjusted.

Source: United States Department of Commerce, Bureau of Economic Analysis.

come, but no real boom is in prospect.

Signs of the third-quarter slowing in the rate of economic growth were clearest in the labor market. According to the survey of households conducted monthly by the Bureau of Labor Statistics, there was virtually no net growth of employment from June to September, following the addition of 2.2 million persons to the employment rolls during the first six months of the year. Unemployment in September represented 6 percent of the civilian labor force. After peaking out at 9.1 percent in early 1975, the unemployment rate had fallen to 6 percent last April and has been fluctuating narrowly about that level ever since. While this rate is rather high by historical comparison, it is generally recognized that demographic and social trends, together with liberalization of various income maintenance programs, have tended to raise the overall rate of unemployment associated with any given degree of tightness in labor markets. In fact, reports of shortages of particular skills have been on the rise. The economic expansion appears to have entered the zone where inflation, formerly growing mainly out of structural and expectational factors, is now being sustained by aggregate demand pressures in some areas of the economy.

The news on the price front certainly has not been heartening. To be sure, the rate of overall price increase did slow during the summer as everyone had expected. The broadest measure of prices—the implicit price deflator for gross national product—rose at an annual rate of 7 percent in the third quarter, compared with 11 percent in the second. The improvement was centered in food prices. Retail food prices rose only slightly during the summer, after surging upward at an annual rate of 18 percent during the first half of the year. The relief for the consumer may well be only short-lived, however. Producer prices of finished food products rebounded sharply in September, and prices of both crude and intermediate food products also posted large increases. Outside the food sector, prices have shown little sign of moderation. Consumer prices of nonfood goods and services continued to rise in July and August at an annual rate in excess of 8 percent—in line with the experience of the first half of the year. And producer prices of crude industrial materials continued to soar at double-digit annual rates during the third quarter.

On the other hand, the rate of increase in wages may have slowed somewhat. Average hourly earnings of production and nonsupervisory workers in the private nonfarm business sector, adjusted to remove the effects of overtime in manufacturing and of shifts in employment among industries, increased at an annual rate of about 6½ percent in the third quarter, compared with 8½ percent during the first six months of the year. As stressed in the commentary that begins on page 1, a sustained moderation in the growth of wages would be highly auspicious for the outlook for controlling inflation. While there is room for optimism on this score, there are some imposing obstacles to moderation of labor costs. The price inflation that has already occurred will trigger automatic wage increases for millions of workers covered by cost-of-living agreements (COLA) in collective bargaining contracts (see the article beginning on page 16). Many more workers, both union and nonunion, who are not protected by a formal COLA will be granted wage increases in response to the ongoing rapid rise in the cost of living. The boost in the minimum wage scheduled to take effect on January 1, 1979 will push up the wage structure. The increase in the social security tax rate and base, also scheduled to take effect at the beginning of 1979, will further raise costs of production by increasing payroll taxes on employers. Perhaps most importantly, a number of major collective bargaining agreements will come up for renegotiation in 1979. The degree of moderation shown in these forthcoming settlements will figure heavily in the outlook for inflation over the next three years. The President's program is in large part aimed at this particular problem.

The economy of upstate New York

New York City's economy often tends to dominate perceptions of the entire economy of New York State. By many measures, however, the economy of upstate New York (which for purposes of this article is defined to include all New York State outside the city) is bigger than the city's. Indeed, it accounts for about 60 percent of the state's population and personal income. While many upstate communities face the same basic economic problems as New York City, including a high cost of living, burdensome taxes, and a deteriorating physical plant, overall business conditions in upstate New York have tended to mirror those of the nation more closely than those of New York City.

Economic downturns in the upstate economy have approximated those in the nation but, during upturns, recovery in upstate New York with its older, less efficient plants generally has not kept pace with national expansions. In the current economic recovery, the lag has been especially pronounced. As a result, joblessness in upstate New York is more severe than in the nation and activity in some major industries remains below pre-recession levels. In part, this sluggish revival reflects the belated turnaround in New York City's economy, since economic conditions in the counties surrounding the city are tied closely to those in the city. Despite these difficulties, the upstate economic recovery, although lagging, is firmly implanted. Unemployment is declining and business activity has been picking up. Additional impetus for the state's economic expansion may be provided by the state government's new initiatives in fostering private-sector growth. A stepped-up tourist campaign has been launched, and a series of tax cuts has been enacted which aim to make the business environment in New York State increasingly competitive with other states.

Overview of the economy

Business activity across upstate New York is diverse, ranging from agricultural to industrial and commercial activities. In some areas, concentrations of specific industries tend to dominate the local economic scene. Among the prominent features of the economic landscape in Buffalo, for example, are heavy industries such as primary metals and transportation equipment, while Rochester leads the nation in the manufacture of photographic and optical equipment. The Nassau-Suffolk region is noted for its aircraft, electronic components, and precision instrument manufacturing as well as for other defense-related industries. At the same time, scattered throughout the state are many large administrative and research facilities. Most notable among these are the nineteen headquarters of the nation's 500 largest industrial companies located in the upstate area. Largely clustered in the counties surrounding New York City, four of these corporate headquarters are in the city of White Plains—the same number as in Boston, a city whose population is more than thirteen times larger.

While corporate headquarters are prominent in the upstate region, a multitude of smaller service firms employ a growing proportion of the area's labor force. As in the rest of the nation, a decreasing proportion of the labor force is engaged in manufacturing. This trend away from manufacturing has also had a deep effect on the New York City economy. The city, however, is not so dependent on factory work as either upstate New York or the nation. Indeed, the overall distribution of employment activities upstate is much more akin to that of the nation than it is to the city's. Factory payrolls comprise one quarter of nonagricultural employment both in the nation and upstate, although in such areas as Binghamton and Rochester

the concentrations are even greater. There, manufacturing accounts for more than one third of employment. By comparison, factory employment in New York City is only 17 percent of total employment.

Upstate manufacturing facilities, moreover, tend to differ from those in New York City in that they are generally larger and employ many more workers. Based on data from 1975, two thirds of the factories in New York State employing 250 or more workers were located upstate although the area accounts for just one third of the total number of manufacturing establishments. In New York City, the manufacturing establishments average under thirty employees, less than half the average employment in upstate factories. Due to this larger plant size, an industrial closing in many upstate communities is more likely to create economic dislocations than one in metropolitan New York City. In 1976, for example, the Elmira region was adversely affected by the closing of an electronic components factory. It displaced 1,200 workers who represented 3 percent of total employment in the area. Thus this single closing sharply depressed the local job market and resulted in a high rate of joblessness.

The largest private nonmanufacturing sectors are trade and miscellaneous services (which include such diverse occupations as advertising, legal, and personal services). These sectors account for 22 percent and 19 percent, respectively, of total upstate employment, about the same proportion as in the nation. In New York City, trade is 19 percent and services 25 percent of total employment. The financial industries employ only a small segment of the total work force in both upstate New York and in the nation (about 5 percent). In New York City, the nation's leading financial center, they account for 13 percent of payroll employment.

In total, the private sector employs about 80 percent of all workers in upstate New York, with the remaining 20 percent in the public sector. This is about the same proportion as in the nation and slightly above the 16 percent in New York City. By far, the largest concentration of government workers is in the Albany-Schenectady-Troy region, the site of the state capital, where government accounts for nearly 30 percent of total payroll employees.

Because many people's perception of the state is dominated by an impression of corporate headquarters, heavy manufacturing, and large cities, the agricultural sector is often overlooked. Nevertheless, New York is an important agricultural area, ranking among the top ten states in the production of such diverse products as apples, potatoes, fresh vegetables, grapes, maple syrup, and milk. More than 100,000 workers are employed in agriculture in upstate New York, slightly more than in 1974.

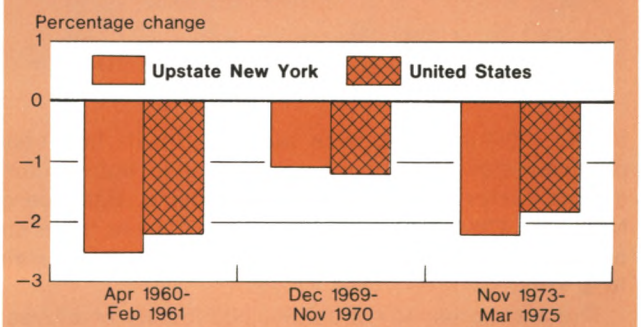
Jobs and the business cycle

Over the years, employment in upstate New York has roughly followed the pattern of national business cycles. During downturns, the contractions in upstate employment have been about the same proportionate size as the nation's. During national upswings, however, upstate recoveries have been less robust. Indeed, in each of the last three expansions, the gap between national and local employment growth has widened (Chart 1). Contributing to this slower growth is the loss of both large and small businesses from the area's older urban centers. The large number and high rates of business and personal taxes, and the high cost of living compared with other areas are among the problems faced by local businesses.

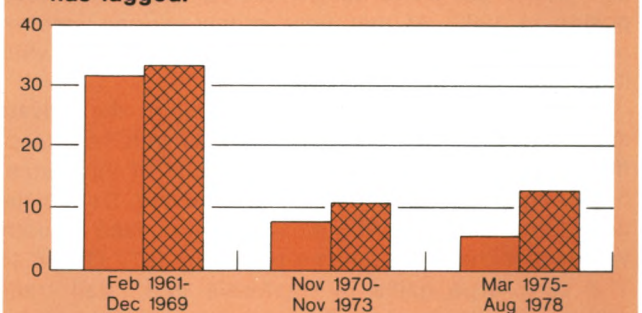
In this expansion, total employment in upstate New York—which began to recover in mid-1975, about the same time as in the nation—has risen at slightly less than half the national rate (Chart 2). More recently, increases in upstate employment have moderated

Chart 1

During recessions, employment in upstate New York has contracted at about the same rate as in the nation . . .



. . . while in recoveries, employment growth has lagged.



New York data are seasonally adjusted by the Federal Reserve Bank of New York.

Sources: United States Department of Labor, Bureau of Labor Statistics, and New York State Department of Labor.

Table 1

Nonagricultural Employment in Upstate New York

Not seasonally adjusted; thousands of persons

Sector	Average employment January-August 1978	Average employment January-August 1977	Change from 1977 to 1978
Manufacturing	932.2	911.9	20.3
Private nonmanufacturing	2,010.6	1,950.5	60.1
Construction	134.0	117.6	16.4
Finance, insurance, and real estate	166.0	162.8	3.2
Wholesale and retail trade	816.2	794.1	22.1
Transportation and public utilities	168.1	165.1	3.0
Services	721.6	705.3	16.3
Total private	**2,942.8**	**2,862.4**	**80.4**
Government	790.9	754.5	36.4
Federal	78.9	78.0	0.9
State	186.3	179.5	6.8
Local	525.8	497.0	28.8
Total nonagricultural	**3,733.7**	**3,616.9**	**116.8**

Because of rounding, figures may not add to totals.

Source: New York State Department of Labor.

further. Within the private sector, growth has been relatively slower, although jobholding in both factory and nonfactory positions has been rising. Because of New York City's many problems employment there did not stop declining until about two years after upstate New York.

There are presently about 950,000 factory employees in the upstate region, approximately the same number as in 1971 but some 100,000 below the record level posted in 1969. At that time, manufacturing employment represented 31 percent of total jobholding, while it now accounts for 25 percent.

Outside manufacturing, employment in the private sector has grown each year since 1969 with the exception of 1975, and all major components of this sector have edged upward in the latest recovery. During the first eight months of 1978, employment in each industry was higher than in the same period of 1977 (Table 1). The very large gains in wholesale and retail trade and in miscellaneous services may be partially attributable to a statewide upturn in tourist activity. Jobs for building trades workers have also risen, although construction employment remains about 30 percent below its 1973 peak; in both Albany-Schenectady-Troy and Rochester, it is closer to 40 percent below the 1973 area averages.

Local labor markets

Labor market conditions in upstate New York have improved in line with the growth of payroll employment. Unemployment among upstate residents has decreased, while the labor force has expanded moderately. Joblessness is still, however, more severe locally than nationwide (Chart 3).

Within each of the major labor market areas, the jobless rate has generally been lower during 1978 than at any time since 1974, although it still exceeds prerecession rates (Table 2). To be sure, because of the different industrial and commercial activities which characterize each labor area, both the degree of recovery and the rates of unemployment vary greatly throughout upstate New York. Joblessness during the first eight months of 1978 ranged from a low of 5.3 percent in Poughkeepsie to a high of 8.3 percent in Buffalo, which is still below New York City's 8.9 percent rate. The high level of unemployment in Buffalo is in part due to its dependence on heavy industry. The relatively sluggish performance of business fixed investment during this recovery unquestionably has served to constrain the Buffalo economy. This phenomenon, coupled with other problems facing American steel producers, has resulted in about 3,500 direct layoffs at one of the Buffalo area's large production

Table 2

Unemployment Rates in Major Labor Market Areas

Average of January-August data; not seasonally adjusted

	1974	1975	1976	1977	1978
Albany-Schenectady-Troy	4.5	6.9	8.3	7.8	6.0
Binghamton	4.5	7.4	8.0	7.7	6.5
Buffalo	6.5	10.5	11.1	10.0	8.3
Elmira	6.2	9.2	9.4	11.0	8.0
New York City	7.2	10.5	11.3	9.8	8.9
New York City suburban area*	5.7	7.9	9.3	8.8	7.0
Poughkeepsie	3.1	5.3	6.9	6.2	5.3
Rochester	3.7	7.1	8.6	7.6	6.2
Syracuse	4.7	8.8	10.0	8.7	6.8
Utica-Rome	5.7	9.0	11.0	10.4	7.3
Upstate New York	5.4	8.4	9.8	9.1	7.2
United States	5.3	8.8	7.9	7.4	6.3

* Nassau, Putnam, Rockland, Suffolk, and Westchester counties.

Sources: New York State Department of Labor; United States Department of Labor, Bureau of Labor Statistics.

facilities. While the important role of the steel industry in Buffalo's economy has thus far impeded its recovery, growing strength in other heavy manufacturing industries may offset some of this weakness. Expectations by automakers of continuing strong car sales have resulted in rising activity in the large transportation equipment sector. This, in turn, may provide a much needed fillip to Buffalo's lagging economy.

In the suburban counties surrounding New York City, the recovery has been gradual, with the rate of joblessness still hovering around 7 percent. In contrast to the rest of the upstate region where the fortunes of a particular manufacturing industry typically determine the economic well-being of the surrounding community, the economy of this area is not dependent on a few large production facilities—only 20 percent of its residents hold manufacturing jobs. Rather, the suburban counties are tied to the central city of New York as a major source of employment. Due to the sharp deterioration of New York City's economy in recent years, this dependency has slowed the area's recovery. Since 1969, the city has lost one payroll job in every six, about 600,000 in all. It was only in late 1977 that payroll employment in New York City stopped shrinking.

The greatest improvement in labor market conditions has occurred in the Utica-Rome area. There, the unemployment rate has averaged 7.3 percent thus far in 1978, 3.1 percentage points below what it was in the same period last year. In the past, the Utica-Rome area has tended to lag the rest of the state in its recovery largely because so much of its employment is concentrated in secondary manufacturing industries, *i.e.,* those dependent on expansion in other fields to spark their own activity. The area's recent improvement is due to an upturn in the manufacture of such products as pneumatic tools, transportation equipment, and machinery.

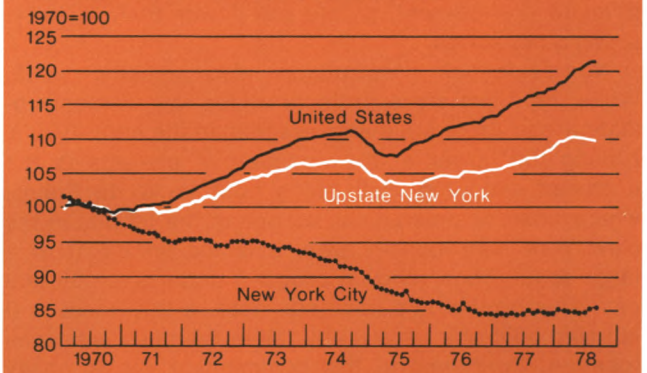
Construction activity

Employment among construction workers has been particularly slow in recovering, due to the continuing low level of building activity. After showing signs of a limited upturn in 1977, new construction this year has fallen. In 1977, the number of residential building permits issued—a key indicator of new housing activity—rose for the first time since 1972, although the number of permits issued was only about half the 1972 level. Over the first months of 1978, however, the number of permits declined a bit from what it had been in the same period in 1977. The current slackening has been concentrated in the four suburban counties surrounding New York City, while building activity in the more northern counties remains about level with last year.

Prominent among the possible explanations for the lagging revival in construction work is the state-

Chart 2

Employment in upstate New York began to rise in mid-1975, well before New York City's employment stopped declining.

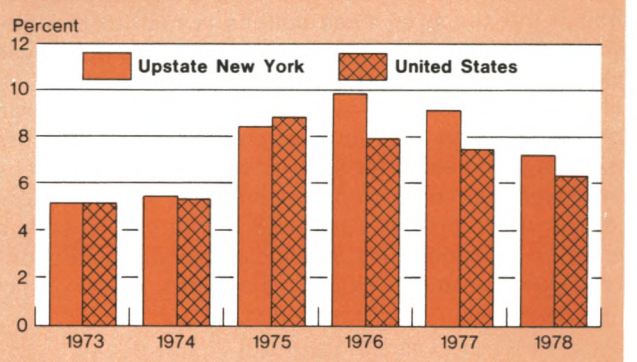


New York data are seasonally adjusted by the Federal Reserve Bank of New York.

Sources: United States Department of Commerce, Bureau of Labor Statistics, and New York State Department of Labor.

Chart 3

While the rate of unemployment in upstate New York has declined, it is still above the nation's.



The unemployment rate shown is the average of January-August data, not seasonally adjusted.

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

mandated ceiling on mortgage interest rates. While the interest rate on home loans has been rising nationwide, the 8½ percent limit in New York State is the lowest such ceiling imposed in the nation. The State Legislature, however, is presently considering a bill to raise the ceiling on conventional mortgages by 1 percentage point to 9½ percent, a rate still lower than in forty-seven other states.[1]

Nonresidential construction also remains weak. While there are some projects under way in most upstate areas, there are many less than in the early 1970's. Among the larger of the commercial projects is the enclosed shopping mall being built in White Plains, which when completed will be one of the largest in the New York metropolitan area. It is the final part of a large-scale urban renewal program undertaken by that city. This project is particularly noteworthy, because it is being built at a central city rather than at a suburban location. Furthermore, the commitment by so many major retailers to the mall provides some testimony to the strength of the area's sales prospects.

State government assistance

One of the most notable changes that has occurred in the state's economy is the increasingly active role being taken by the state government in promoting private business activity. Among the most visible of its new programs is a national marketing campaign aimed at strengthening the state's tourist industry. Based on the limited data available, this effort appears to have been successful. During the prime summer months of 1977, travel volume in New York was up almost 4 percent over the comparable period in 1976, when tourism was bolstered by the nation's bicentennial celebrations.

Besides promoting tourism, the state government has taken other steps to nurture private-sector growth, although the scope of these actions is restricted somewhat by the state's own budget limitations. Within these constraints, however, there have been important attempts to improve its reputation. Once better known for creating "red tape" and levying numerous business taxes at high rates, the state now is trying to reshape the governmental environment into one which is more conducive to private enterprise. Toward this end, a variety of business tax modifications and reductions have been enacted. These include the expiration of surcharges to the corporation franchise tax and the bank tax, lowering of the insurance tax, phasing-out of the unincorporated business tax, increasing the investment tax credit, and cutting the pari-mutuel tax rate. While it is too early to know to what extent these measures will stimulate business activity, any actions which bring the state tax burden more into line with that of other states can have only a positive impact.

Similarities to New York City

Upstate New York has performed better than New York City during the last decade. Nevertheless, there are many similarities between the two regions. Many upstate cities, and indeed the Northeast in general, suffer from problems similar to those of New York City and other older urban centers—a deteriorating physical plant, lagging job growth, burdensome taxes, and a relatively high cost of living. For example, the cost of living in the Buffalo metropolitan area for an intermediate-level family of four in autumn 1977 was estimated by the Bureau of Labor Statistics to be $18,298, nearly 5 percent or $800 above the $17,498 annual average of other metropolitan areas. In the New York-Northeastern New Jersey region, the same standard of living for a family of four would have cost $19,972 each year, an additional 14 percent or $2,474 more than the national urban average.

Local governments in the upstate region also suffer from financial problems which may be of smaller magnitude than New York City's but are nonetheless significant. In both Buffalo and Yonkers, the second and fourth most populous cities in the state, evidence of fiscal strain surfaced at about the same time as in New York City. Buffalo continues to grapple with the problems of budgetary imbalance and, in Yonkers, budgetary matters remain under the supervision of an outside monitor similar to that which oversees New York City's fiscal affairs.

Thus, although the upstate economy is different in both its composition and past behavior from New York City's economy, there are inescapable similarities. Upstate municipalities, like the city, will be affected by the success of the various measures adopted by the state government to promote private business enterprise. More important, however, is the course of the national expansion, now in its fourth year. As in the past, national economic conditions will continue to exert a strong influence upon the economy of upstate New York.

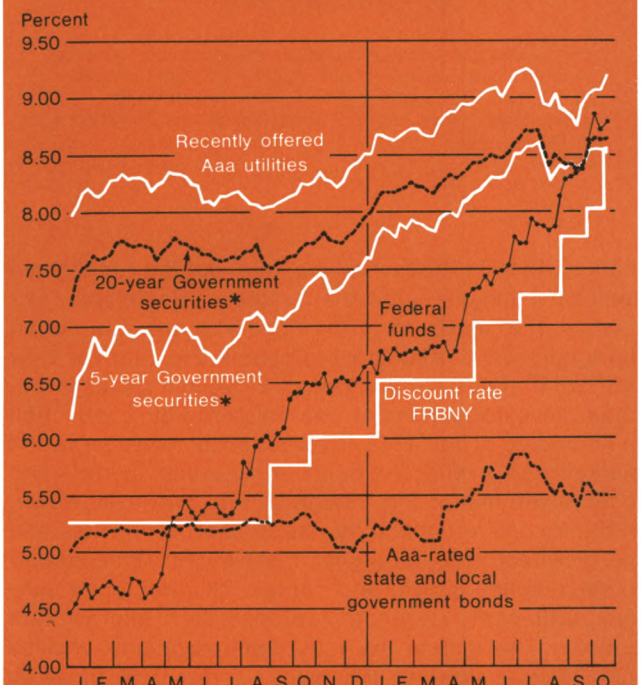
Rona B. Stein

[1] New Jersey imposes a 9½ percent upper limit, while in South Carolina there is a range of ceilings which begins at 9 percent.

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, and Moody's Investors Service, Inc.

The summer was a volatile period in the financial markets. Interest rates, particularly those on longer term securities, fluctuated more widely than they had in some time. Growth of the monetary aggregates, which for a while showed signs of moderating, was again quite rapid. Indeed, the broader monetary aggregates—M_2 and M_3—advanced at a faster pace than they had in nearly a year. An important contributing factor to this resurgence was the introduction of a new savings instrument—the six-month money market certificate of deposit—by commercial banks and thrift institutions.

As the summer began, interest rates across the maturity spectrum extended the rise that had resumed in April (Chart 1). Following the June 20 Federal Open Market Committee (FOMC) meeting the Federal funds rate increased from about 7½ percent to 7¾ percent, and during the next month it rose a further notch to 7⅞ percent, as the Federal Reserve pursued its efforts to moderate monetary growth. Over this period, other short-term rates generally moved up in line with the funds rate.

Toward the end of July there was a shift in market sentiment. Two successive weekly declines in the money supply data led market participants to believe that an additional firming move by the Federal Reserve could occur later than had been expected. Furthermore, a series of Government reports suggested that, after the sharp rebound from the weather- and strike-plagued winter, business activity was returning to a more sustainable pace. The adjustment to the new outlook caused rates on many money market instruments to decline by around 20 to 30 basis points within ten days, and they then remained relatively steady.

In mid-August, short-term interest rates turned up-

ward again. As it became evident that monetary growth was continuing above the Federal Reserve's longer run objectives, the System steadily tightened its policy stance and by the middle part of October Federal funds were trading around 9 percent. Other short-term rates advanced by a similar 1⅛ percentage points or a bit more during this interval.

The rise in money market rates, together with other domestic and international financial developments, led the Federal Reserve Banks to raise the discount rate on four separate occasions during the summer and early fall. The cumulative effect of these actions was to increase the rate by 1½ percentage points to a record level of 8½ percent. In announcing its approval of the latest change at nearly all Reserve Banks on October 13, the Board of Governors of the Federal Reserve System stated that the action was taken to bring the discount rate into closer alignment with increased short-term market interest rates and in recognition of continued high inflation, the recent rapid rate of monetary expansion, and current international financial conditions.

Yields on longer term instruments also varied widely during the summer, but for these securities there was little net change in the level of rates for the period as a whole. Evidence of a firmer Federal Reserve policy initially depressed the capital markets, but they soon recovered on the realization that the firming moves had been more modest than expected. Subsequently, a strong rally developed as there was a view in some quarters that bond yields might be nearing a cyclical peak. The buying rush gathered momentum as some investors sought to capture current high yields, while many participants scrambled to cover short positions. The effects of the improved market atmosphere were widespread. In the corporate sector, where the supply of new securities was light, yields on recently offered Aaa-rated utility bonds fell by approximately 50 basis points in the two-month period beginning in mid-July.

Slightly smaller, but still substantial, declines were recorded in the Treasury and tax-exempt markets. For example, over the same two-month interval Moody's index of yields on high-grade municipal bonds dropped from 5.85 percent to 5.40 percent. This decrease was particularly noteworthy, as a record volume of nearly $6 billion of new municipal securities was sold in August. The surge reflected an effort by state and local governments to bring issues to market in advance of rulings, effective September 1, tightening the regulations on the interest-arbitrage operations of borrowers in the tax-exempt bond market. These regulations were originally published by the Treasury in 1973 and have been amended several times since then.

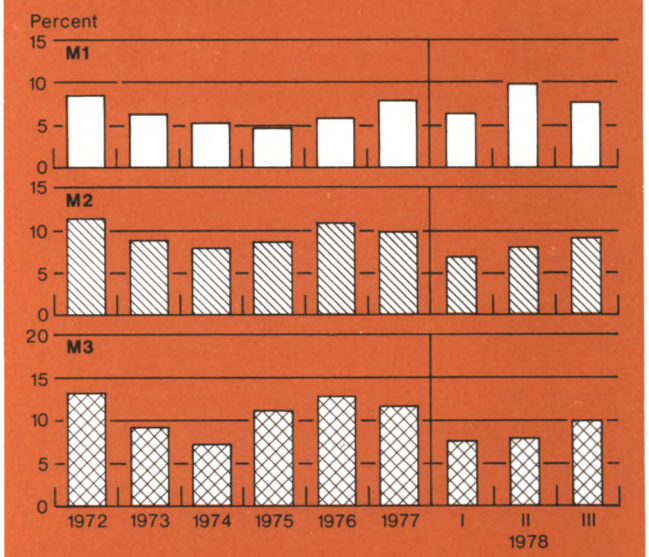
Not only did interest rates fall further in the capital markets than in the money markets, but the rally lasted somewhat longer—until the middle of September. For a while, the increases in the Federal funds rate during the latter part of August were compatible with the view that bond yields were close to a cyclical peak. In addition, investor sentiment was bolstered by a reduction in estimates of the Treasury's future borrowings in the market, partly reflecting sales of securities to state and local governments and foreign central banks. However, in the face of a continuing rise in short-term rates and the prospect that still higher rates might be necessary to slow money growth and contain inflation, bond market participants began to reassess their interest rate outlook. The end of the rally came suddenly, and by mid-October most of the gains, particularly those in the corporate and Treasury sectors, were erased.

Unexpectedly rapid growth of the monetary aggregates contributed to the turnaround in the bond markets. Growth of the narrow money stock, M_1, did ease some from its record second-quarter pace (Chart 2). Nevertheless, the slackening was less than some observers had expected and was at least partially offset by an upward revision in previously reported data.

Chart 2

Growth of Monetary Aggregates

Seasonally adjusted



The annual growth rates represent the percentage change from the fourth quarter of one year to the fourth quarter of the next. The quarterly growth rates represent the percentage change from the preceding quarter, expressed at annual rates.

Moreover, it came at a time when the broader money measures—M_2 and M_3—were accelerating.

On September 21 the Board of Governors announced revisions in the monetary aggregate data to incorporate benchmark adjustments based on the March 1978 call report for domestic nonmember banks and to correct for a cash items bias. The adjustment for the cash items bias related to certain transfers of funds by some agencies and branches of foreign banks in New York City. The principal effect of the revisions was to raise the growth rate of M_1 over the first two quarters of this year from 7.6 percent to 8.1 percent, which represents a slight acceleration from 1977. Initially M_1 growth appeared to be moderating significantly during the third quarter, but it picked up sharply near the end and for the period as a whole came to a 7.6 percent rate. While this is slightly less than the average growth rate for the previous six quarters, it remains above the 4 to 6½ percent range that the FOMC had projected for all of 1978 and for the year ending in 1979-II.

The September revisions also produced slight reductions in previous estimates of the growth of M_2 and M_3. However, any favorable impact this might have had on the credit markets was overshadowed by the third quarter's surge in these aggregates. During that period M_2 rose at a 9.0 percent rate, up 1½ percentage points from the advance over the first half of the year and at the top of the 6½ to 9 percent range projected by the FOMC for 1978 and for the year ending in the second quarter of 1979. The acceleration in M_3 was even sharper. The growth rate of this aggregate jumped from 7.7 percent in the first half of the year to 10.0 percent in the third quarter, which is at the upper end of the 7½ to 10 percent range projected by the FOMC for 1978 and for the 1978-II to 1979-II period.

With the growth of M_1 slowing somewhat, the pickup in the broader aggregates reflected a strong gain in time and savings deposits (other than large CDs) at banks and thrift institutions. The increase was particularly sizable at thrift institutions and to a very important extent was due to the favorable reception of the new six-month money market certificates of deposit. Effective June 1, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, and the Federal Home Loan Bank Board authorized their member institutions to begin issuing these certificates with ceiling interest rates on new deposits that vary with the average rate on new issues of six-month Treasury bills. In keeping with the existing differentials in deposit ceiling rates, savings and loan associations and mutual savings banks are allowed to pay ¼ percentage point more on the certificates than commercial banks.

At the time of their introduction, there was a question as to how effective the new instruments would be in maintaining the growth of consumer-type time and savings deposits. The available data indicate that thus far they have, indeed, contributed to this objective. In the four months before the money market certificates were available, deposits at savings and loan associations and mutual savings banks increased at an almost constant 6½ percent annual rate. In each of the four subsequent months, deposit growth steadily accelerated and by September was approaching a 16 percent rate.

One means of judging the attractiveness of the new certificates is to compare their growth with that of investments in money market mutual funds, which have been important substitutes for consumer-type time and savings deposits for some time. In the more than four years that shares in the money market funds have been actively sold, total assets of the funds have risen to about $8.5 billion. In contrast, sales of the six-month certificates have averaged $8.5 billion a month since their introduction.

Most of the certificates have been issued by thrift institutions where, as noted above, the ceiling interest rate is ¼ percentage point above that at commercial banks. In fact, savings and loan associations and mutual savings banks are estimated to have issued more than 70 percent of the nearly $34 billion of money market certificates outstanding at the end of September. So far it appears that the certificates have helped to maintain the flow of credit into housing. It remains to be seen, however, whether this effect will persist.

Noncompetitive tenders in Treasury auctions: how much do they affect savings flows?

At each Treasury auction investors may purchase securities through either competitive or noncompetitive tenders, a unique combination of bidding alternatives. Unlike competitive bids, noncompetitive tenders do not state a price or yield. Instead they are simply offers to buy a given amount of Treasury securities at a price which will be determined by competitive bidders in the auction.[1] This feature makes them attractive to many investors who are not regular participants in the dealer market for Government securities. The most obvious advantage is that buyers need not expend time and effort determining what the market rate is likely to be on a forthcoming issue. Moreover, bidders are protected against the risk of paying a price that is far above the market, yet are assured their tenders will be accepted in full. As market interest rates rise above deposit ceiling rates at banks and thrift institutions, investors begin to step up their purchases of all types of securities yielding market rates of interest. Noncompetitive bids for Treasury issues respond particularly strongly. In the first nine months of this year, investors submitted noncompetitive tenders for $32 billion in Treasury securities, $7 billion more than the amount submitted in the comparable period of 1977.

The convenience of noncompetitive tenders and the attractiveness of Treasury securities encourages a broad range of investors to participate at each auction. However, since the Treasury limits the size of noncompetitive tenders accepted from any bidder, institutional investors with large sums to place must purchase Treasury securities either through competitive bids at Treasury auctions or from dealers in the secondary market. In Treasury bill auctions, these ceilings were raised from $200,000 to $500,000 in June 1975. In coupon auctions, the maximum size of the noncompetitive tenders is announced each auction and is usually somewhat greater than the limit in the bill market; a ceiling of $1 million has been customary since October 1976. In contrast, the average size of *competitive* tenders submitted in one recent bill auction was $28 million, and many institutional investors submitted more than one tender.

Treasury securities are offered in minimum denominations, ranging from $10,000 for bills to $1,000 for many coupon issues. Investors are attracted to Treasury bonds and notes not only by the United States Government guarantee, but also because secondary markets in these instruments are much more active than secondary markets in municipal or corporate bonds, enhancing the liquidity of Treasury issues relative to other securities. Moreover, Treasury issues may be purchased without brokerage fees by tenders submitted directly to any Federal Reserve Bank or branch. The relatively small minimum denomination of Treasury securities has made them attractive to individuals, who have in the past faced somewhat limited options for direct investment in short-term money market instruments issued by the private sector, most of which are normally sold and traded in round lots of $100,000 or more. In addition to such minimum-size conventions, per-unit brokerage fees are typically higher on small orders, taking the form of fixed fees for orders below the standard trading size or price adjustments above quoted dealer spreads for odd-lot transactions.

[1] A competitive tender states the price (or yield) the bidder is offering for a stated amount of securities. The Treasury satisfies all noncompetitive tenders first and then fills the remainder of the offering from the competitive tenders proceeding from highest to lowest price until the issue is fully subscribed. Tenders submitted below the lowest accepted price, the stop-out price, are not filled. Noncompetitive tenders are awarded at the average price of accepted competitive tenders.

In recent years, however, financial institutions have developed to meet the needs of investors with smaller amounts of funds to invest. Money market mutual funds, municipal and corporate bond funds, and similar, more diversified investment vehicles have begun to offer small savers access to investments in financial instruments at transactions costs comparable to those available to large savers. These funds offer the additional advantage of broad risk diversification formerly available only to the largest institutional investors, and most offer fast redemption on shares in minimum amounts of only a few hundred dollars. These funds, as well as other institutional changes, allow smaller investors to purchase indirectly a wide variety of money market assets that are available directly to large-denomination investors. Recent regulatory changes also permit commercial banks and thrift institutions to offer six-month money market certificates at rates related to those of six-month Treasury bills. Since these certificates may be offered in minimum denominations of $10,000, they are well suited to the needs of many individual investors. Such institutional developments have allowed individual savers access to a variety of instruments that yield market rates of interest, reducing their reliance on noncompetitive purchases of Treasury issues.

Who submits noncompetitive tenders?

Noncompetitive tenders are submitted by all types of investors, ranging from individuals to bank and nonbank financial intermediaries and even to nonfinancial corporations. Since 1973, the Treasury has collected detailed data on the size of bids and types of purchasers of coupon securities.[2] Although comparable information is not collected for Treasury bills, the tenders submitted in the Second Federal Reserve District for the six-month Treasury bill dated July 20, 1978 were classified by size and type of purchaser. Analysis of noncompetitive tenders submitted in both bill and coupon auctions suggests that large-denomination tenders submitted by a variety of investors make up most of the dollar volume.

Individuals typically submit a large proportion of the total number of tenders, but other types of investors, who generally submit bids in larger denominations, account for a substantial amount of the dollar volume. For example, in the November 1, 1977 auction of the 7⅝ note of 1987, about 3,300 noncompetitive tenders were made by individuals, representing 78 percent of the total number of tenders submitted throughout the country (Chart 1).[3] Despite the large number of these tenders, individuals' bids accounted for only about one fourth of the dollar amount raised noncompetitively.

This disproportionately small share of the dollar volume reflects the smaller average bid size of individuals relative to other investor categories. Nonetheless, even among individuals, denominations below $10,000 are not particularly popular, although the Treasury often offers coupon issues in minimum denominations of $1,000 or $5,000. Usually the greatest number of individuals' tenders is submitted in the $10,000 to $24,000 category, closely followed by the $25,000 to $100,000 category in which the greatest dollar volume from individuals is generally raised. For the 7⅝ note, only 2 percent of the dollar volume of noncompetitive tenders was denominated below $10,000 and only about one fifth of the total dollar volume was denominated in the $10,000-$100,000 range. Most institutional investors, on the other hand, submitted larger bids. Overall, three fifths of the dollar volume of total noncompetitive tenders fell in the $500,000 to $1 million range.

Although individuals play a relatively more important role in noncompetitive bidding for Treasury bills than for coupon issues, denominations over $100,000 account for most of the dollar volume. Individuals in the Second Federal Reserve District submitted over 1,300 noncompetitive tenders for the six-month bill dated July 20, 1978, more than 85 percent of the District's total number of private noncompetitive tenders (Chart 2). Individuals' tenders accounted for 70 percent of the total dollar volume of noncompetitive bids, almost three times the percentage attributable to individuals in the long-term market. Among individuals' bids, the size distribution is particularly revealing—tenders for amounts of $100,000 or more made up 40 percent of the dollar volume. Many of these large-denomination tenders represent estates and personal trust accounts managed by commercial bank trust departments. Institutional investors, such as banks, insurance companies, and other corporations, who accounted for the remaining dollar volume, typically submit tenders in large-sized denominations as well.

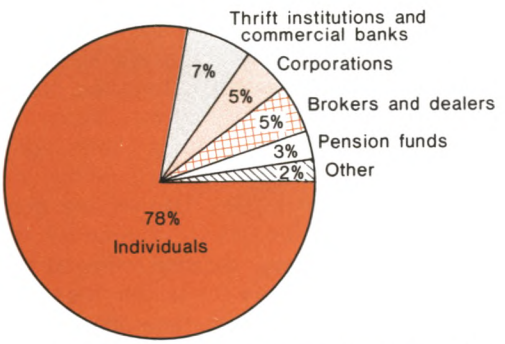
[2] These data classify tenders by twenty investor classes, bid size, and price or yield. Only tenders submitted for the investment and trading accounts of banks and reporting dealers are attributed to them; bids made by these agents for their clients' accounts are attributed to the final purchasers.

[3] The Federal Reserve may purchase securities noncompetitively in any quantity to replace maturing issues in its portfolio and the portfolios of foreign official institutions for which it acts as agent. Government agencies have similar privileges. Foreign central banks may also replace maturing issues or, at the Treasury's discretion, purchase additional 52-week bills, notes, and bonds through noncompetitive bids. Since this discussion focuses on tenders from the private sector, tenders submitted by these public purchasers were excluded.

Chart 1

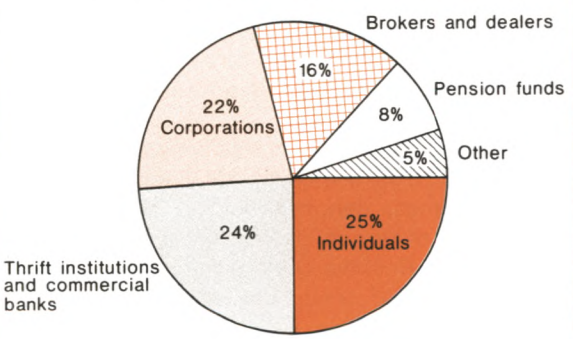
Although individuals submit the most tenders in coupon auctions . . .

Number of noncompetitive tenders



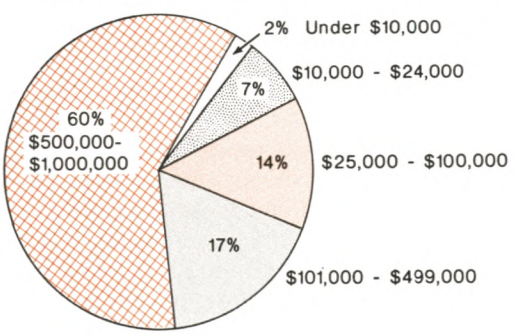
. . . other investors account for most of the dollar volume . . .

Percentage of dollar volume



. . . and large-denomination tenders play the major role.

Size of tender as a percentage of dollar volume



Total noncompetitive tenders for the 7 5/8 percent note of 1987, net of Federal Reserve and foreign official purchases.

Source: United States Department of the Treasury.

Noncompetitive tenders and disintermediation

During periods of high interest rates, sharp increases in the gross volume of noncompetitive tenders have coincided with slow growth, or outright declines, in savings deposits at banks and thrift institutions subject to interest rate ceilings. This led many analysts to assume that most noncompetitive tenders reflect direct switching from savings deposits into Treasury securities during high interest rate periods. To discourage depositors from substituting Treasury bills for smaller sized deposits and to limit the cost of small awards, the minimum tender size in bill auctions was increased from $1,000 to $10,000 early in 1970. It is difficult to assess the impact of this requirement. Even in coupon auctions where the minimum denomination is $1,000 to $5,000, only a small proportion of the total number or dollar volume of noncompetitive tenders submitted by individuals is denominated under $10,000. Thus, the total volume of deposit switching is likely to have been only marginally reduced by the $10,000 minimum for Treasury bills.

To discover how much of the deposit shortfall during high interest rate periods is attributable to noncompetitive tenders and to gauge the sensitivity of these tenders to movements in interest rates, gross tenders must be adjusted by subtracting maturing bills previously purchased noncompetitively to arrive at an estimate of net investment (Chart 3).[4] These estimates may then be summed over appropriate time intervals to compute changes in the outstanding stock of bills acquired noncompetitively.

High and rising bill rates stimulate noncompetitive investment in Treasury bills. These funds are quickly withdrawn as rates begin to decline, even when rates are still well above passbook ceilings and gross tenders are large by historical standards.[5] This rapid runoff suggests that many investors, who submit noncompetitive tenders when they wish to shorten the average maturity of their portfolios as rates rise, switch to longer term issues as rates begin to fall.

This cyclical investment pattern is illustrated in the early 1970's when interest rates declined from their

[4] This calculation is necessary since a constant rate of gross investment of, say, $100 million per week in three-month Treasury bills would result in an outstanding stock of $1.3 billion by the end of the thirteenth week. Since the initial stock of bills would have matured during this period, a constant level of gross investment may disguise either net investment or net disinvestment. After the thirteenth week, the same $100 million rate of gross investment would be sufficient only to maintain the $1.3 billion stock by just replacing maturing issues.

[5] Over the 120 months from February 1968 to February 1978 the correlation between net noncompetitive tender investment in short-term Treasury bills and the level of Treasury bill rates is .60. The correlation between net noncompetitive tender investment and the change in the Treasury bill rate from three months earlier is .72.

cyclical peaks and over the course of the 1973-74 cycle and its aftermath. Between February 1970 and February 1972, investors pulled nearly $7.8 billion out of short-term Treasury securities purchased through noncompetitive tenders, but as rates rose toward their record 1973-74 peaks the investment outflow was reversed. From August 1972 to the peak investment level in September 1974, there was a net investment of $9.2 billion in Treasury bills through noncompetitive tenders. As short-term rates fell sharply in the fourth quarter and then dropped steadily through 1975, investors again quickly withdrew these funds from the bill market. In the twelve months ended September 1978, increases in interest rates again encouraged investors to place an additional $2.1 billion in the bill market through noncompetitive tenders.

Total deposit growth has mirrored the movement of noncompetitive tenders to some extent, but the behavior of passbook accounts and time deposits has differed (bottom panel of Chart 3). Large-denomination passbook deposits appear to be particularly sensitive to interest rates, and analysts have often discussed how quickly these funds can be shifted when market rates rise above regulatory ceilings on passbook deposits at banks and thrift institutions.[6] The regulatory ceilings on these short-term, highly mobile accounts thus play a critical role in determining when funds at banks and thrift institutions will begin to be shifted into various instruments yielding market interest rates.

Passbook savings flows at commercial banks, mutual savings banks, and savings and loan associations turned into outflows through most of 1969, and there were only slight inflows in the 1973-74 period. In each period, savings flows remained sluggish until short-term bill rates fell close to the ceilings on passbook accounts. On the other hand, time deposits increased at a quarterly average of $11 billion in the 1973-74 period, owing to longer average maturities on time deposits, to higher ceilings on long-term deposits, and also to an estimated average increase of just under $4.5 billion per quarter in commercial bank time deposits over $100,000 (excluding negotiable certificates of deposit) which were not subject to interest rate ceilings.

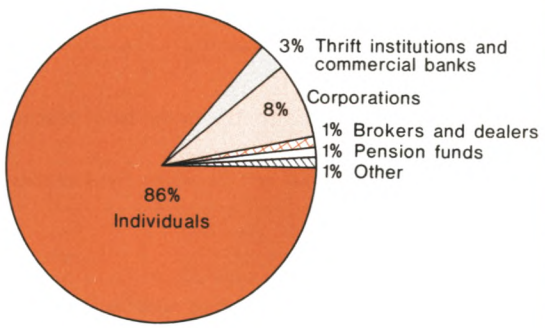
Although noncompetitive tenders increase during high interest rate periods, they account for only a fraction of the shortfall in time and savings deposit flows at banks and thrift institutions. For example, be-

[6] One study of California savings and loan associations in 1974 found the biggest disintermediation impact in accounts over $25,000. Most of the 1974 savings outflow at savings and loan associations nationwide was concentrated in a small number of large metropolitan areas where most deposits were in accounts over $10,000. See T.A. Goldman, "Disintermediation Under a Microscope", *Journal* (Federal Home Loan Bank Board, December 1975), pages 13-15, and D.L. Smith, "Regional Impact of Disintermediation", *Journal* (Federal Home Loan Bank Board, June 1977), pages 20-24.

Chart 2

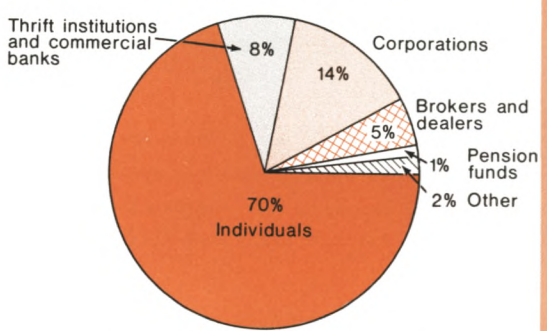
In bill auctions, individuals submit the most tenders . . .

Number of noncompetitive tenders



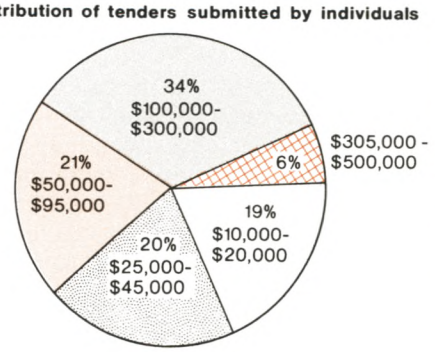
. . . and account for the most dollars.

Percentage of dollar volume



Even for individuals, large-denomination tenders dominate investment activity.

Size distribution of tenders submitted by individuals

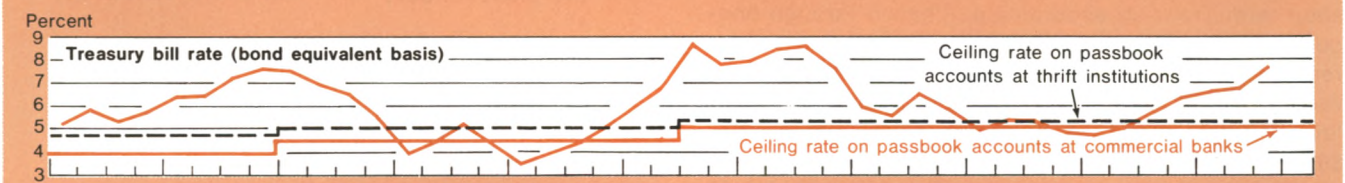


Noncompetitive tenders submitted in the Second Federal Reserve District for the six-month Treasury bill dated July 20, 1978, net of Federal Reserve and foreign official purchases.

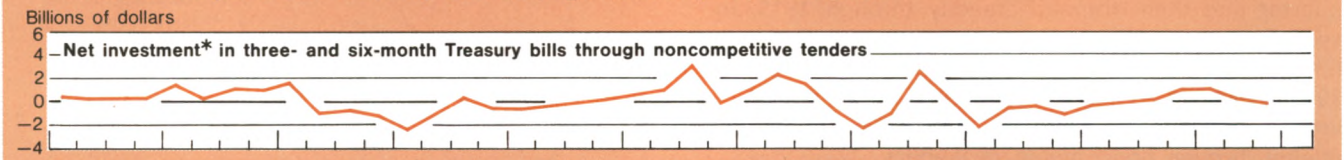
Source: Federal Reserve Bank of New York.

Chart 3

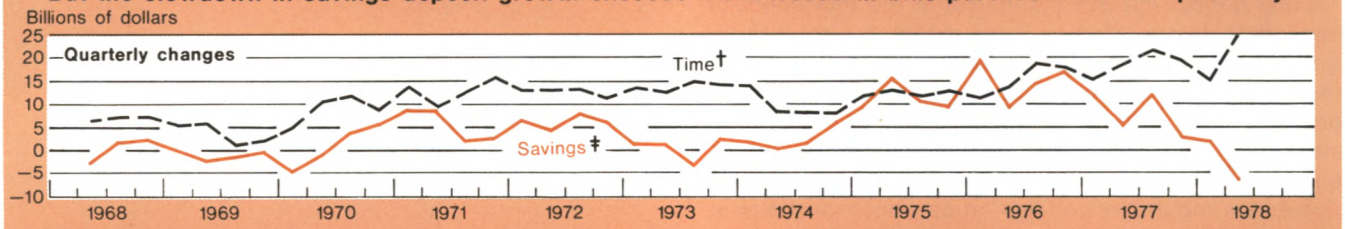
As interest rates rise . . .



. . . investors purchase Treasury bills through noncompetitive tenders.



But the slowdown in savings deposit growth exceeds the increase in bills purchased noncompetitively.



*Gross noncompetitive tenders for three- and six-month bills less maturing three- and six-month bills previously purchased noncompetitively.

†Total time deposits at thrift institutions and commercial banks excluding negotiable CDs at weekly reporting banks.

‡Total savings deposits at thrift institutions and commercial banks.

Sources: Board of Governors of the Federal Reserve System and Treasury Bulletin.

tween August 1972 and September 1974, time and savings deposit growth fell short of the increase posted over the previous two-year period by more than $36 billion, while net investment in Treasury bills through noncompetitive tenders increased $9.2 billion, only about one quarter of the deposit shortfall. Even this proportion probably overstates the deposit shortfall attributable to direct switching into three- and six-month bills, since a relatively small part of these noncompetitive tenders is submitted by the type of investors who also maintain nonnegotiable interest-bearing deposits at banks and thrift institutions.[7]

Noncompetitive tenders provide a means for a wide variety of investors to purchase securities yielding market rates of interest. The volume of these tenders is sensitive to changes in market rates of interest, and some of this volume reflects transfers of funds between Treasury securities and deposits at banks and thrift institutions. However, large-denomination tenders, which account for most of the dollar volume, probably do not result from such deposit switching. Moreover, since many alternative investment vehicles are available, changes in the volume of noncompetitive tenders are small, relative to deposit shortfalls, and offer few clues to current or future deposit flows.[8]

[7] In regressions relating net noncompetitive tender investment to changes in savings and time deposits, interest rates, and the three-month change in Treasury bill rates for February 1968 through February 1978, neither time nor savings deposits were found to be closely related to noncompetitive tenders. Indeed, a $1 billion decline in passbook deposits was estimated to produce only a $33 million increase in net noncompetitive tender investment. Of the two interest rate terms, the three-month change in interest rates proved to have a stronger impact on noncompetitive tender investment than the level of rates, confirming the view that tender activity in the bill market is related not only to the level of rates but also to the direction of current trends.

[8] For example, in regressions relating changes in savings deposits to the three-month Treasury bill rate, net noncompetitive tender investment, and a linear time trend over the February 1968 to February 1978 period, the estimated impact of noncompetitive tenders on deposit flows is not significantly different from zero, but a 1 percentage point increase in the bond-equivalent bill rate is estimated to reduce the monthly savings flow by about $700 million.

Charles M. Sivesind

International Bank Lending: A Guided Tour through the Data

The rapid growth of international bank lending over recent years has whetted the appetite of bankers, financial analysts, economists, and the public at large for more detailed and timely information on this activity. Comprehensive data are needed to come to grips with a wide range of important questions. Here are just a few examples:

- What is the volume of bank lending in world markets?
- How much of it is being done by United States banks?
- Do United States bank practices differ from practices of other banks?
- Are United States bank loans concentrated among a few borrowers?
- What is the exposure of United States banks in individual countries?

Interest in issues such as these naturally has been keen among government officials and bank supervisors both in this country and abroad. However, they have found that the available data series, which were developed to address particular problems in the past, were not fully adequate to deal with the broader scope of concerns that have emerged in recent years.

Consequently, considerable resources have been devoted to expanding and refining data sources. Progress so far has been encouraging, although there are still gaps in the data that make it impossible to answer every question a researcher might wish to ask. This article describes what kinds of information are now available and how they can be used.

Data on United States banks' foreign lending

The Treasury and the Federal Reserve have greatly increased the scope of their data on international banking activities over the last several years. Originally, the Treasury collected information on foreign lending by banks in the United States for the purpose of measuring the United States balance of payments. In April 1978 the Treasury changed the format of these data to improve their usefulness in analyzing bank behavior. Among the changes made by the Treasury the most important is the segregation of claims on foreigners held by banks for their customers from banks' own claims on foreigners.[1] Because that distinction was not made before, earlier data moderately overstate the volume of bank lending to foreigners. Treasury data, available back to 1934, are published in the *Treasury Bulletin.* (See box on page 40 for sources of data on international bank lending.) Changes in the Treasury international capital series are described on pages 612-13 of the July 1978 *Federal Reserve Bulletin.*

The Federal Reserve began in 1969 collecting monthly information on the activities of foreign branches of United States banks for supervisory purposes. These data are published monthly in the *Federal Reserve Bulletin.* In 1975, the Federal Reserve extended the coverage of branch activities to permit quarterly analysis of the geographic distribution of branch lending. These supplementary data are pub-

[1] The term "claims" is a more inclusive concept than "loans", which are one component of claims. Other components include acceptances made for foreigners, items in process of collection, demand and time deposits held by banks, certificates of deposit, promissory notes, and related assets.

lished in the *Statistical Release* E.11 of the Board of Governors of the Federal Reserve System.

By combining Treasury and Federal Reserve data, the researcher can analyze changes in the volume of foreign claims. But there are problems with this method. One has already been mentioned: until this spring, Treasury data have included customer claims on foreigners held in custody at United States banks. In addition, the Treasury numbers include the foreign claims position of foreign-owned agency and branch banks located in the United States. Consequently, the researcher cannot distinguish between lending by United States-chartered banks and other bank lending originating in this country.

Sources of Data on International Bank Lending

United States banks

(1) *United States Treasury Bulletin,* Tables CM-II-1 through CM-II-6: foreign claims of United States-located banks; monthly. Selected data also in *Federal Reserve Bulletin*, Tables 3.16-3.18.

(2) *Federal Reserve Bulletin,* Table 3.13: claims of overseas branches of United States banks; monthly.

(3) Board of Governors of the Federal Reserve System, "Geographical Distribution of Assets and Liabilities of Major Foreign Branches of U. S. Banks", *Statistical Release*, E.11: claims on foreigners by foreign branches of United States banks by country of borrower; quarterly.

(4) Board of Governors of the Federal Reserve System, "Country Exposure Lending Survey", *Press Release* (thus far, released on January 16, 1978 and June 8, 1978): foreign claims of United States-owned banks and their overseas affiliates.

(5) *Federal Reserve Bulletin,* "Announcements": assets of overseas branches of Federal Reserve member banks; year-end data available with a variable lag (usually six to nine months after the year-end).

Banks in major industrial countries

(6) Bank for International Settlements, *Annual Report:* external claims of banks in the Group of Ten countries, Switzerland, and branches of United States banks in the Caribbean and Far East; gross Eurocurrency claims by banks in Belgium-Luxembourg, France, Germany, Italy, the Netherlands, Sweden, Switzerland, and the United Kingdom (the European reporting area); estimated net uses of Eurocurrency funds by banks in the European reporting area. Selected data also reported in Bank of England *Quarterly Bulletin* and in Organization for Economic Cooperation and Development *Financial Statistics.*

(7) Bank for International Settlements, Monetary and Economic Department, "Euro-currency and Other International Banking Developments": greater disaggregation of data described in (6); quarterly.

(8) Bank for International Settlements, Monetary and Economic Department, "International Banking: External Positions of Commercial Banks in Group of Ten Countries, Switzerland, Austria, Denmark and Ireland and of Certain of Their Foreign Affiliates", July 1978: semiannual international banking survey.

(9) Bank of England, *Quarterly Bulletin:* foreign currency claims on foreigners of banks in the United Kingdom—detail on location of borrowers; distinction between bank and nonbank borrowers. Maturity analysis of foreign currency claims by type of United Kingdom-located bank *(e.g.,* American banks, consortium banks). United Kingdom contribution to recent BIS lending survey (Source 8).

(10) Deutsche Bundesbank, *Monthly Report of the Deutsche Bundesbank:* foreign claims of German banks—detail on asset type can be derived by subtracting internal assets from total assets.

(11) Deutsche Bundesbank, *Statistical Supplements to the Monthly Reports of the Deutsche Bundesbank,* Series 3: foreign claims of German banks—short-term vs. long-term; Deutsche mark-denominated vs. all others; claims on nonbanks vs. claims on banks. Some detail on location of borrower.

(12) Bank of Canada, *Bank of Canada Review:* foreign currency claims on foreigners by Canadian banks —some detail on location of borrower; distinction between bank and nonbank borrowers and between United States dollar-denominated claims and all other claims; monthly.

(13) Bank of Japan, *Economics Statistics Monthly:* short-term claims on foreigners by Japanese banks—distinction between yen-denominated claims and all other claims.

(14) World Bank, *Borrowing in International Capital Markets:* syndicated bank credits—detailed information about individual credits as well as summary data; quarterly.

Federal Reserve and Treasury data, moreover, were not designed for identifying the country exposure of United States banks. For one thing, exposure includes what are called contingent claims, binding commitments of banks to extend credit in the future. For another, a loan to a borrower in one country guaranteed by an institution in a second country is considered an exposure to the second country, not the first.

To deal with these problems, the Federal Reserve, together with the Office of the Comptroller of the Currency and Federal Deposit Insurance Corporation, developed the country exposure lending survey (CELS). This survey provides foreign lending information for United States banks on a consolidated basis, that is, for a bank's domestic offices plus all of its overseas affiliates including majority-owned subsidiaries. These data, available semiannually (but with certain modifications) from June 1977, provide detailed country-by-country information on the types of borrowers, the maturity distribution of claims on foreigners, the ultimate guarantor of borrowings (when applicable), and commitments by banks to lend to foreigners.[2]

Data published by the BIS

Although United States banks make up the largest group of market participants, banks from other industrial countries have played a major and growing role in international banking. Since the early 1960's, information on the foreign lending activities of banks in major industrial countries has been published by the Bank for International Settlements (BIS). Over the years, the scope and detail of these data have expanded greatly. Today, BIS figures, published in the quarterly "Euro-currency and Other International Banking Developments" and in the BIS *Annual Report,* cover banks in fourteen industrial countries and selected bank branches in the Caribbean area and Far East.[3]

As a source of information for analyzing the country exposure of banks, these BIS figures share many of the drawbacks of the Treasury international capital series and the Federal Reserve foreign branch data. No distinction is made among types of bank assets. Guaranteed credits and contingent claims on foreigners are not identified. Nor is there sufficient detail to distinguish, on a country-by-country basis, between claims on other banks and claims on nonbank borrowers. To remedy some of these problems, BIS reporting countries agreed to collect more detailed information.[4] The Federal Reserve's contribution to this effort evolved into the country exposure lending survey discussed above, which provides greater information on banking system exposure than does its BIS counterpart. The BIS international banking survey data are collected semiannually and reported under the title "International Banking: External Positions of Commercial Banks in Group of Ten Countries, Switzerland, Austria, Denmark and Ireland and of Certain of Their Foreign Affiliates". The initial survey covered bank positions at the end of 1977 and was published in July 1978.

Data published by other industrial countries

Although the BIS data provide the most comprehensive coverage of international bank lending activity, the level of aggregation hides important information. In comparing the activities of banks in different countries, it can be useful to refer to national data series. From these, the researcher usually can derive greater information on type and location of borrower, maturity and currency composition of claims, and asset types. Important sources of national data series are listed in the box, (9) through (13).

Data on syndicated bank credits

Bank lending takes many forms: straight loans, trade financing (*e.g.*, acceptances), deposits with other banks, purchases of corporations' commercial paper or promissory notes, acquisition of securities and certificates of deposit, and so on. One of the more popular lending vehicles in the international market has been the syndicated credit—a line of credit extended by a group or syndicate of banks rather than by a single bank. Participation in syndicated credits often is viewed by banks as a sign of international prestige. As a result, these credits are usually publicized in "tombstones" that appear in major financial newspapers and magazines. Several groups, including private banks and trade publications, compile tabulations on syndicated credits from such publicized information. Perhaps the most comprehensive tabulation on new syndicated credits is published by the World Bank in its quarterly

[2] For a more detailed discussion of this survey, see "A New Supervisory Approach to Foreign Lending", this *Quarterly Review* (Spring 1978), especially page 6.

[3] Reporters consist of banks in the Group of Ten Countries—Belgium-Luxembourg, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States—plus Switzerland, Austria, Denmark, and Ireland plus United States bank branches located in the Bahamas, Cayman Islands, Hong Kong, Panama, and Singapore.

[4] Reporters consist of banks in the Group of Ten countries, Switzerland, Austria, Denmark, and Ireland, as well as (a) all foreign affiliates (including branches) of United States banks, and (b) affiliates of other reporting banks (except those reporters in Belgium-Luxembourg) located in the Bahamas, Barbados, Bahrain, Bermuda, Cayman Islands, Hong Kong, Liberia, Lebanon, the Netherlands overseas territories, New Hebrides, Panama, Singapore, Virgin Islands, and other British West Indies.

Table 1

Bank Claims on Foreigners

In billions of dollars

Claims by banks in	Outstanding at Mid-1977	End-1977
United States*		
Treasury-Federal Reserve series	228.1	251.1
Country Exposure Lending Survey	164.2	194.6
Industrial countries		
BIS (quarterly)†	572.1	657.3
BIS (semiannual)‡	§	217.0

* Excludes intrabank claims.

† Reporters include banks in the Group of Ten countries and Switzerland and branches of United States banks in the Bahamas, Cayman Islands, Hong Kong, Panama, and Singapore. See (6) and (7) in the box on page 40.

‡ Reporters include those in above footnote as well as banks in Austria, Denmark, and Ireland and certain foreign affiliates in other countries. See (8) in the box.

§ Not available.

Borrowing in International Capital Markets. These data are available back to 1973.

Because syndicated credits are lines of credit, they reflect commitments to lend by the participating banks, not just actual disbursements. Further, numbers cited in tombstone announcements and in the World Bank publication represent *new* commitments rather than *total* credit commitments. For these reasons, figures on syndicated credits are not comparable to the bank claims data in other reports, such as the Treasury-Federal Reserve series, which cover total credit actually extended by banks.

Volume of bank claims

One frequently asked question about international bank lending is simply "How big is it?" Surprisingly, even with the improvement and refinement in data sources, that is not easy to answer definitively. As shown in Table 1, different data sources can provide different answers. This results from differences in coverage among them.

The two sets of figures on United States bank claims on foreigners differ by about $60 billion. Several differences in coverage that are only partially offsetting account for this large discrepancy. Figures in the country exposure lending survey cover overseas subsidiaries of United States banks and not just their overseas branches. They also include some holdings of long-term securities issued by foreigners, which are excluded from Treasury claims data. (Although purchases and sales of foreign securities are reported in the *Treasury Bulletin*, these data do not show bank activity separately.) However, these factors are more than offset by other differences in coverage. The exposure survey excludes claims on foreigners by United States-located agencies and branches of foreign banks, which are included in the Treasury international capital series. As noted, Treasury data prior to the 1978 changes also included bank-held but customer-owned claims on foreigners; these are excluded from the lending survey numbers. Finally, the exposure survey publishes only cross-border and cross-currency claims on unaffiliated foreigners. That means, for example, the cruzeiro-denominated claims of United States bank branches located in Brazil on Brazilians are not shown.

The difference between the two BIS data sets is even more striking than the United States data. However, almost the entire $440 billion difference between the quarterly BIS external claims figure and the semiannual BIS international banking survey number results from the exclusion in the semiannual data of bank claims on borrowers located in other reporting countries.[5] That means a loan by a British bank to a German resident is not picked up by the BIS international banking survey. Obviously, such activity accounts for a very large portion of total international lending.

The volume of bank lending to final borrowers

In addition to lending to foreign governments and corporations, banks also lend to each other. However, in analyzing international economic activity, the researcher is generally interested in the change in claims on final borrowers, such as individuals, corporations, and governments, and would wish to deduct claims on other banks from total bank claims. That adjustment is possible in varying degrees with the available data. Treasury-Federal Reserve data can be adjusted to exclude interbank activity using the Treasury data disaggregation presented in the *Federal Reserve Bulletin* as well as the overseas branch figures presented in

[5] Claims on borrowers in the following countries are excluded: Austria, Belgium-Luxembourg, Canada, Denmark, France, Germany, Ireland, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, the United States, the Bahamas, Barbados, Bahrain, Bermuda, Cayman Islands, Hong Kong, Lebanon, Liberia, Netherlands overseas territories, New Hebrides, Panama, Singapore, the Virgin Islands, and other British West Indies. There are many other differences between the quarterly and semiannual data, including differences in coverage among reporting banks. For a detailed discussion of these differences, see (8) in the box.

Table 2

Summary of Data on Foreign Claims of Banks in the United States and Other Industrial Countries*

Sources	Maturity breakdown (years)	Maturity determination	Borrower breakdown	Interbank activity	External guarantee†	Contingent claims and unutilized credits‡	Currency breakdown
							Attributes of United States bank claims
Treasury-Federal Reserve data (prior to April 1978)	0-1; over 1; Treasury data only	From date obligation incurred	Foreign officials; foreign banks; others; (only for *loans* in Treasury data)	Data available to exclude *intra*-bank activity	‖	‖	Dollars *vs.* foreign currency claims
Treasury-Federal Reserve data (available April 1978)	0-1; over 1; quarterly Treasury data only	Time remaining	Public borrowers;§ foreign banks (unaffiliated *vs.* affiliated); all others	Data available to exclude *intra*-bank and *inter*bank activity	‖	‖	Dollars *vs.* foreign currency claims
Country Exposure Lending Survey (CELS)	0-1; 1 to 5; over 5 (beginning December 1977)	Time remaining	Public borrowers;§ banks; all other borrowers	Excludes *intra*bank activity; data available to exclude *inter*bank activity	Externally guaranteed nonlocal currency claims on banks *vs.* all other borrowers	Available	‖
							Attributes of industrial countries' bank claims
Bank for International Settlements (BIS) counterpart to Treasury-Federal Reserve data	‖	‖	‖	Possible to net out *inter*bank within reporting area. Claims on nonbanks exclude central monetary authorities	‖	‖	Available for European reporting area only
BIS international banking survey	0-1; 1-2; over 2	Time remaining	‖	‖	‖	Available	‖

* For source references, see the box on page 40.

† "Guaranteed" claims are those claims of the reporting institution for which a third party formally and legally obligates itself to repay the reporting institution's claims on the direct obligor if the latter fails to do so.

‡ Contingent claims refer to binding contractual obligations to lend by the reporting institution.

§ The term "public borrowers" refers to central governments and departments of central governments and their possessions; central banks, stabilization funds and exchange authorities; corporations and other agencies of central governments; state, provincial, and local governments and their departments and agencies, and international or regional organizations or subordinate or affiliate agencies thereof.

‖ Not available.

that publication.[6] The technique is documented in the following example for May 31, 1978 (in millions of dollars):

1. Head office claims on foreigners *(Treasury Bulletin,* July 1978, page 95)	88,171
minus	
Head office claims on own foreign offices *(Federal Reserve Bulletin,* July 1978, page A62)	— 35,476
minus	
Head office claims on unaffiliated foreign banks *(Federal Reserve Bulletin,* July 1978, page A62)	— 28,153
equals	
2. Head office claims on final foreign borrowers	24,542
3. United States overseas branch claims on foreigners *(Federal Reserve Bulletin,* August 1978, page A56)	241,788
minus	
United States overseas branch claims on foreign banks *(Federal Reserve Bulletin,* August 1978, page A56)	— 91,960
minus	
United States overseas branch claims on other branches of parent *(Federal Reserve Bulletin,* August 1978, page A56)	— 52,722
equals	
4. United States overseas branch claims on final borrowers	97,106
5. United States banks' claims on final borrowers (2 + 4)	121,648

The netting-out of interbank claims can be performed on these data only for *total* bank claims; it cannot be done for claims on individual countries.

By contrast, the CELS figures were designed to provide a country-by-country breakdown of claims on public and private nonbank borrowers. The survey also includes separately claims on unaffiliated banks but excludes claims on affiliated foreign banking offices. In addition, the survey provides separate information on contingent claims on public and other borrowers to allow the analyst to derive potential, as well as current, bank exposure to a particular area.

[6] Prior to April 1978, only intrabank claims, that is, claims of one office of a bank on another office of the bank, can be excluded. To accomplish this, data provided in the *Federal Reserve Bulletin* on foreign branch liabilities to United States parent banks (a proxy for United States head office claims on own foreign offices) and foreign branch claims against sister branches should be subtracted from the gross Treasury-Federal Reserve foreign claims figures.

Information on lending to final borrowers by banks in the major industrial countries is provided in the BIS quarterly series. However, three *different* net claims concepts are provided, two of which overestimate and one of which underestimates lending to final borrowers. The first concept excludes interbank deposits or placements with other reporting banks from Eurocurrency claims *(i.e.,* claims denominated in a currency foreign to the country in which the lending bank is located).[7] However, interbank claims on nonreporting banks are included, overstating the actual volume of lending to final borrowers.

The second BIS measure of lending to final borrowers is similar to the first in that it excludes only interbank placements between reporting banks. However, it differs in two respects. It deals with external claims *(i.e.,* claims in *both* domestic and foreign currencies on borrowers residing outside the country in which the lending bank is located) rather than Eurocurrency claims. In addition, it covers lending by a larger group of banks than the first measure.[8] Again, because of the inclusion of claims on nonreporting banks, this concept overstates the size of lending to final borrowers.

The last BIS measure of lending to final borrowers is similar to the first in that it covers Eurocurrency claims by banks in eight European countries.[9] It differs from both of the other two measures in that it covers only claims on nonbanks, where "nonbanks" is defined to exclude central monetary authorities. Thus, to the extent that central monetary authorities borrow from Eurobanks, this concept underestimates lending to final borrowers.

Although the BIS semiannual international banking survey provides no information on interbank placements, it is the only source of contingent claims on foreigners by banks in industrial countries. As noted above, such data are useful in determining total potential bank exposure to a given country.

Finally, national data sources (e.g., (9), (11), and (12) in the box) provide additional detail on lending to nonbanks by banks in certain countries. However, the BIS data provide the most comprehensive coverage of banks in industrial countries as a whole.

[7] Reporting banks covered by this concept of net claims are those located in Belgium-Luxembourg, France, Germany, Italy, the Netherlands, Sweden, Switzerland, and the United Kingdom. These data are presented in the table "Estimated Sources and Uses of Euro-currency Funds" in (6) and (7) in the box on page 40.

[8] Here, reporting banks are those located in the Group of Ten countries and Switzerland and branches of United States banks located in the Bahamas, Cayman Islands, Hong Kong, Panama, and Singapore. These data are presented in the table "Estimated Lending in International Markets" in (6) in the box.

[9] See the table entitled "External Positions of Reporting European Banks in Dollars and Other Foreign Currencies" in (6) in the box.

The borrowers

Another frequent question about international banking is: "Who are the borrowers and where do they come from?" Recent improvements in data sources allow much more detailed answers to this question.

The Treasury has long published monthly information on the geographic distribution of foreign claims held by banks located in this country. The data for quarter-end months can be combined with the Federal Reserve's quarterly figures on the claims of United States banks' foreign branches. Together, these data show the magnitude of the United States banking system's foreign activity in about sixty countries and five regions of the world. Beyond the geographic breakdown, however, there is little detail on the characteristics of the borrowers in each country. For instance, the foreign branch data published by the Federal Reserve do not distinguish on a country-by-country basis between, say, public sector borrowers and private sector borrowers. Distinctions among broad classes of borrowers are important for several analytical purposes, most notably for assessing the different degrees of risk in international lending.

The information in the CELS provides some detail about the characteristics of the borrowers. Data on the country-by-country distribution of United States banks' foreign claims are divided into those on public, bank, and nonbank private borrowers. Comprehensive information is also provided on external guarantees, an important factor not covered by the other data series. The total amount of externally guaranteed direct credit extended to a country is reported separately. In addition, externally guaranteed claims on bank and nonbank borrowers are reported by country of ultimate guarantor. These figures are useful in identifying the country of ultimate credit exposure.

For banks in industrial countries, the BIS quarterly data and semiannual international banking survey data provide a breakdown of external claims by country of borrower.[10] The detail is sufficient to isolate claims on offshore financial centers—places like Singapore, Hong Kong, and the Bahamas, where international banks have established branches to funnel funds to other countries. Claims on those centers are typically on other banks. However, the BIS country-by-country data do not differentiate between public and private borrowers. They do not provide information about loans guaranteed by residents of a third country, either.

Data on external foreign currency claims of banks in eight European countries[11] provided by the BIS give a limited geographical breakdown in combination with a distinction between bank and nonbank customers.[12] The table "Estimated Sources and Uses of Euro-Currency Funds" in (6) and (7) in the box provides a limited geographical breakdown of Eurocurrency claims (excluding those on other reporting banks). Finally, some national data sources give bank claims by country or region of borrower, *e.g.,* (9), (11), and (12) in the box.

Characteristics of foreign lending

In addition to the volume of bank lending and the characteristics of the borrowers, available data can tell the researcher something about the maturity distribution as well as the currency and asset composition of bank claims on foreigners.

Maturities

Some information is available in the *Treasury Bulletin* on the maturity breakdown of the foreign claims of banks located in the United States. The new Treasury data series differentiates on the basis of time remaining to maturity between short-term (up to one year) and long-term (over one year) foreign claims. By comparison, in the Treasury data collected prior to April 1978, maturity is determined from the date the obligation was incurred. Beginning in December 1977, consolidated data on the CELS provide an additional breakdown—over five years. The BIS semiannual data provide a slightly different breakdown by time remaining to maturity from the United States survey. Claims are grouped into those maturing in one year or less, one to two years, and over two years. The only other reasonably comprehensive source on maturities is the Bank of England *Quarterly Bulletin* (see (9) in the box), but these data pertain to only United Kingdom-located banks (including United Kingdom branches of United States banks). Nevertheless, that particular disaggregation among maturities, between banks and nonbanks and between residents and nonresidents, is unsurpassed in detail.

Currencies and asset type

The Treasury figures differentiate claims payable in

[10] The *Annual Report* and "Euro-currency and Other International Banking Developments", in the table entitled "External Positions in Domestic and Foreign Currencies of Banks in Group of Ten Countries and Switzerland and of the Offshore Branches of U.S. Banks", provide year-end and quarterly data, respectively, on all external claims by banks in the Group of Ten and Switzerland and by United States bank branches in selected offshore financial centers. The semiannual BIS international banking survey figures present selected external claims by banks in fourteen countries and by certain of these banks' affiliates.

[11] Belgium-Luxembourg, France, Germany, Italy, the Netherlands, Sweden, Switzerland, and the United Kingdom.

[12] These data are presented in Tables 3 and 4 in "Euro-currency and Other International Banking Developments".

dollars and those payable in all other currencies. The foreign currency claims are not further separated by type of currency.

As for types of assets, there are major differences between the old and new Treasury international capital series. Prior to April 1978, separate data on short-term dollar-denominated loans, collections, acceptances, and all other short-term dollar claims on foreigners were published each month. Short-term claims payable in foreign currencies were broken down into three categories: bank deposits, foreign government obligations plus commercial and financial paper, and all other short-term claims payable in foreign currencies. In addition, long-term dollar loans and all other long-term claims were distinguished.

However, the new Treasury data do not include as much detail on asset types as the old Treasury series. Banks' own claims are not reported by asset types. However, quarterly data on customer claims provide information on dollar-denominated deposits, negotiable and readily transferable instruments, customer liabilities on acceptances, collections, and all other dollar claims. In addition, the foreign currency claims of domestic customers are split between deposit and all other types of claims.

Federal Reserve foreign branch data provide limited information on asset types. Branch claims by type of asset are published annually in the *Federal Reserve Bulletin* (see (5) in the box). However, these data do not provide separate information on currency denomination or maturity breakdown or on the type of borrower to which credit is extended.

The BIS *Annual Report* and "Euro-Currency and Other International Banking Developments" provide currency breakdowns only for banks in the European reporting area. Gross external foreign currency claims of these banks are given with a six-currency breakdown. External claims on nonbanks (excluding central monetary authorities) are disaggregated into dollar and "other" foreign currencies.

Limitations of the data

Examined separately, these sets of data provide only a partial picture of foreign lending by international banks. Used together a more complete overview can be fashioned of the international banking system as a whole and the United States banking system's international activity in particular.

However, despite all the improvement in the variety and scope of information on international bank lending, many questions still are unanswerable with today's data. Very little is known about the terms and conditions of lending to specific countries or borrowers. The World Bank provides information on interest rates and maturities on individual syndicated credits. However, such credits represent only a part of bank lending and, in addition, there are commitment fees and syndication charges that are rarely published. Nor is it possible from existing data to determine if and to what extent United States banks are offering different terms and conditions on loans than banks from other countries.

Another set of questions left unanswered concerns foreign borrowing by United States nonbank corporations. The available data do not tell how much of this borrowing goes on, either by the parent company or by foreign offices of United States multinationals.

The current data provide a great deal of information about country exposure. However, they do not classify corporate borrowers by industry. Do certain groups of banks have large industry exposure? The possible risk of this type of exposure was highlighted by the problems banks have experienced with tanker loans in recent years.

Finally, what forms does international bank lending take? The researcher has only limited information on the types of debt instruments used in the international banking market. What role does trade financing play? What proportion of new lending is extended through syndicated credits? To what degree do Eurobanks invest in international bond issues? These questions are left unanswered by today's data.

One final observation might be in order. It is always easier to ask questions than it is to collect data. Official agencies have to be careful not to ignore the reporting burden whenever launching a new data-collection effort or revising an existing series. In the area of international banking, however, the improvements in the scope and usefulness of the data have paid real dividends to the public and the authorities—not to mention to the reporters themselves who are eager to see how they stand in the market.

Genie Dudding Short and Betsy Buttrill White

February-July 1978 Semiannual Report
(This report was released to the Congress and to the press on September 6, 1978)

Treasury and Federal Reserve Foreign Exchange Operations

During the six-month period under review, the exchange markets remained in the grip of uncertainties over the outlook for major currencies as serious economic imbalances persisted among the industrial countries. These imbalances were reflected in the sluggishness of economic growth abroad relative to the strong expansion under way in the United States, the continuing current account surpluses in countries such as Japan, Germany, and Switzerland in contrast to our current account deficit, and the indications that inflation was still abating elsewhere while accelerating here. Determined efforts to correct the imbalances were under way in most countries with further actions taken over the course of early 1978. But by midsummer the process was far from complete. At the Bonn summit on July 16-17, Germany and Japan again committed themselves to take additional stimulative measures. For its part, the United States promised to curb inflation and to press ahead on legislation to reduce its dependence on imported oil.

Against this background, market sentiment toward the dollar remained very bearish in early 1978, leaving the dollar exposed to bouts of heavy selling pressure. This was particularly true in February and March, when the dollar declined across the board in frequently disorderly trading. Between late March and mid-May, the immediate pressures on the dollar eased, as market sentiment became more positive following a series of anti-inflation steps by the Administration and the Federal Reserve. The dollar thus rose on an unwinding of speculative short positions and the reversal of previously adverse commercial leads and lags. Nevertheless, in the late spring and early summer, bearish sentiment resurfaced in the absence of further progress on economic fundamentals, and by late July the dollar was again under widespread selling pressure.

In line with the more active intervention tactics adopted in early 1978, the United States authorities continued to respond forcefully at times when exchange markets became disorderly. As before, most United States intervention was in German marks. For the six-month period as a whole, the foreign exchange trading desk of the Federal Reserve Bank of New York sold a total of $1,511.0 million net of German marks, of which $843.5 million was for the account of the Federal Reserve and $667.5 million for the United States Treasury. Most of this intervention was carried out in February and March. On March 13, as part of a broader agreement between United States and German authorities, the Federal Reserve swap line with the German Bundesbank was doubled to $4 billion. By late March, the combined swap indebtedness of the United States authorities in German marks had reached a peak of $2,844 million equivalent, of which $1,844 million equivalent was drawn by the Federal Reserve and $1 billion equivalent was drawn by the Treasury on its facility with the Bundesbank. From the end of March through mid-July, the United States authorities were able to acquire substantial amounts of marks from

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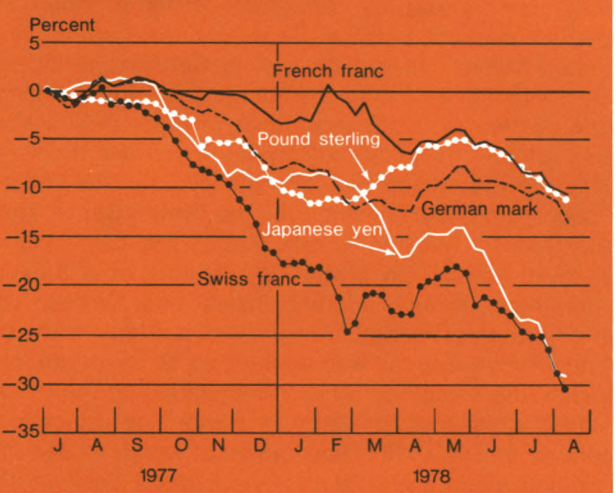
Table 1
Federal Reserve Reciprocal Currency Arrangements
In millions of dollars

Institution	Amount of facility July 31, 1978
Austrian National Bank	$ 250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	4,000*
Bank of Italy	3,000
Bank of Japan	2,000
Bank of Mexico	360
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	1,400
Bank for International Settlements:	
Swiss francs-dollars	600
Other authorized European currencies-dollars	1,250
Total	$22,160

* Increased by $2,000 million, effective March 13, 1978.

Chart 1
The Dollar Against Selected Foreign Currencies*



*Percentage change of weekly average of bid rates for dollars from the average rate for the week of July 5-8, 1977. Figures calculated from New York noon quotations.

correspondents and in the market to liquidate swap debt. By end-July the System's debt in marks had been reduced by $1,193.4 million to $650.5 million and the Treasury's debt had been cut by $803.0 million of marks to $197.0 million.

During the period, the Federal Reserve also intervened on a few occasions in Swiss francs, selling a total of $82.1 million equivalent. Of this amount, $50.1 million equivalent was sold in February, which was financed by drawings on the swap line with the Swiss National Bank, and was fully repaid by late May using francs acquired directly from the Swiss National Bank. The remaining $32.0 million equivalent of francs was sold in late June and July. Of this amount, a part came from balances acquired from correspondents and $22.9 million equivalent was financed by new drawings on the Swiss central bank.

On the repayment of swap debt incurred in 1977-78, the policy was to repay these drawings as soon as feasible in conformity with the short-term nature of the swap facilities. Since dollar rates did not recover fully to the earlier levels at which much of the debt was incurred, the repayment resulted in net realized losses on current operations during the first seven months of 1978. These amounted to $22.8 million for the System and $2.2 million for the Treasury.

Finally, during the period the Federal Reserve and the Treasury made further repayments to the Swiss National Bank of Swiss franc debt incurred prior to the suspension of gold convertibility for the dollar in August 1971. The System liquidated $191.2 million of its special swap debt, reducing the remaining total to $278.8 million. The Treasury repaid $267.6 million of foreign-currency-denominated securities, leaving $850.4 million remaining. Repayment netted losses to the Federal Reserve of $140.9 million and to the Treasury of $196.1 million in the first seven months of 1978.

German mark

In contrast to the strong expansion under way in the United States during 1977, economic recovery in Germany had been only moderate. To provide support to the domestic economy, the government had adopted a more stimulatory fiscal policy, undertaking to provide additional tax relief and government investment into early 1978. Monetary policy had also been accommodative. The German Bundesbank, which had intervened in the exchange markets to cushion the mark's rise, had temporarily accepted a sharp acceleration of monetary growth well beyond its target of 8 percent for the year. Interest rates, too, had fallen to the point that the central bank's Lombard rate—which forms the upper limit of the day-to-day money rate in the interbank market—was at a historical low of 3½

percent and yields on outstanding bonds had plummeted to their lowest levels since World War II. Meanwhile, in the exchanges a sharp rise in the German mark late in the year had threatened to present a severe obstacle to further growth of economic activity. The mark's appreciation had also set off a wave of anticipatory orders for German goods from abroad, in the event that the mark would strengthen even more. On balance, Germany ended the year with a trade surplus even larger than in 1976 and little change in its current account surplus.

More orderly trading conditions were established in the exchanges following the January 4 announcement of a United States Treasury-Bundesbank swap arrangement and the shift to a more open and forceful intervention approach by the United States. Once these operations, together with those of foreign central banks, restored a sense of two-way risk in the market, large interest rate differentials favoring the dollar began to show through. As a result, the mark eased back some 3 percent from its early-January peak to trade at $0.4740 by end-January. Official intervention in the exchanges was reflected in the $979 million increase in Germany's reserves during January to $40.7 billion. Meanwhile, swap drawings by the Federal Reserve and the Treasury were, by the month end, up to $1,251.2 million and $407.4 million equivalent of marks, respectively.

This respite was short-lived, however. Dealers were disappointed that no new measures to bolster the dollar were announced in the Administration's major policy addresses of late January. Talk in mid-February of a series of international meetings of high-level government officials served to remind the market of the continuing imbalances among the major industrial nations. Reports circulated of a renewed disagreement between the United States and Germany on the need for further stimulus in Germany. Coming at a time when the market was already caught off guard by an 8 percent devaluation of the Norwegian krone within the European Community (EC) snake, these reports spurred heavy bidding for marks around mid-February. As the mark's rise accelerated, rumors appeared that members of the Organization of Petroleum Exporting Countries (OPEC) had shifted substantial amounts of funds out of dollars and that the Federal Reserve and the Treasury were approaching their respective swap limits with the Bundesbank. With this talk spreading through the exchanges, both professional and commercial bidding for marks gathered force and drove the rate higher in late February. In response to these rapidly intensifying pressures, the Bundesbank stepped up its purchases of dollars. Also, the Federal Reserve Bank of New York operated on ten trading days between February 10 and February 28, selling a total of $714.5 million equivalent of marks net. These sales were split evenly between the Federal Reserve and the Treasury and were financed by drawings on their respective swap lines with the Bundesbank.

By late February, the mark had risen 5 percent. With the spot rate now approaching $0.50 (DM 2.00 to the dollar), some traders feared that a clear breach of that level would trigger adoption either in the United States or Germany of exchange controls, as Switzerland had

Table 2

Federal Reserve System Drawings and Repayments under Reciprocal Currency Arrangements

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

Transactions with	System swap commitments January 1, 1978	1978 I	1978 II	1978 July	System swap commitments July 31, 1978
German Federal Bank	800.1	+1,008.5	+35.2 −800.1	−393.3	650.5
Swiss National Bank	-0-	+ 69.0	+ 4.8 − 69.0	+ 18.0	22.9
Total	800.1	+1,077.6	+40.1 −869.1	+18.0 −393.3	673.3

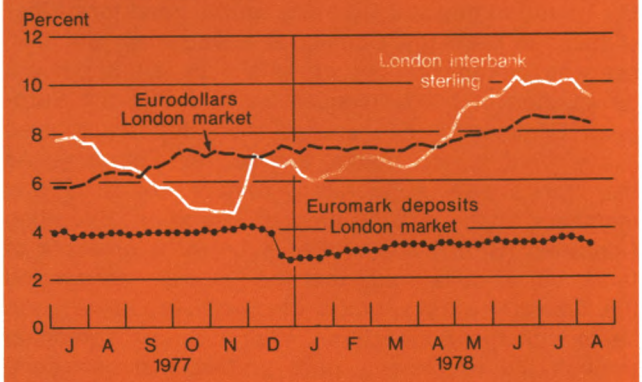
Because of rounding, figures may not add to totals.

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

Chart 2

Selected Interest Rates

Three-month maturities*

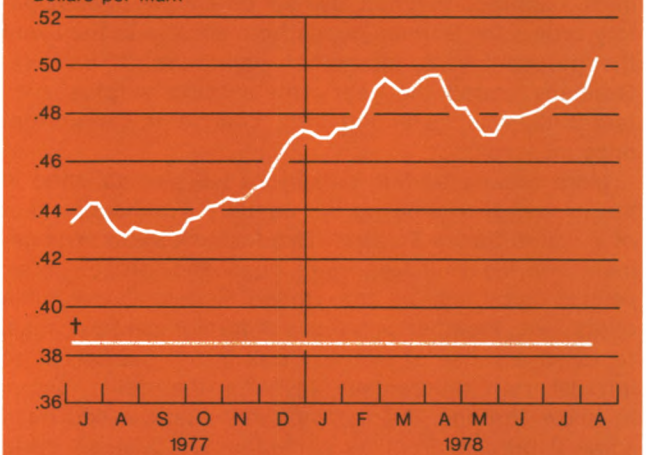


*Weekly averages of daily rates.

Chart 3

Germany

Movements in exchange rate*



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

†Central rate established on October 18, 1976.

just announced. To the extent that such measures might force a reversal of existing positions and thus a snapback in dollar rates, some dealers were hesitant to take on new positions at prevailing exchange rates while some others moved to cover their outstanding positions. Consequently, although the mark rate briefly rose above $0.50 in early March, it soon settled back without intervention by the United States authorities. Meanwhile, both President Carter and Chancellor Schmidt indicated that new consultations on economic and financial policy were under way between their two governments. With this sense of movement on the policy front, some selling of marks emerged.

Following their discussions, the United States and German authorities issued on March 13 a joint statement reaffirming that continuing forceful action would be taken to counter disorderly conditions in the exchange market and that close cooperation to that purpose would be maintained. To reassure the markets that ample resources would be available to finance United States intervention, the swap line between the Federal Reserve and the Bundesbank was doubled to $4 billion. Moreover, the United States Treasury announced that it was prepared to sell SDR 600 million to Germany and, if necessary, to draw on its reserve position at the International Monetary Fund (IMF) to acquire currencies that might be needed for intervention. The United States also indicated its commitment to conserve energy, to develop new sources of supply, and to press for Congressional approval of its energy bill. For its part the German government reaffirmed its commitment to support economic recovery at home. But, because output in the first quarter had been adversely affected by transitory factors including industrial disputes, the authorities were to wait to consider the need for new measures until a clearer picture of the state of the German economy would be available.

The market's initial reaction to this statement was one of disappointment. Most participants had been looking for a more far-reaching agreement that would have had an immediate impact on current payments flows. As a result the mark, which had declined to as low as $0.4788 just prior to the release of the communiqué, was bid up sharply, rising over 2 percent to as high as $0.4898 on March 13 in New York. In coordination with the Bundesbank, this Bank again intervened forcefully that day and the next, selling a further $372 million equivalent of marks financed through equal swap drawings by the System and the Treasury. After this intervention, the market came into better balance for a while. But then toward the month end, news of the United States record monthly trade deficit of $4.5 billion for February and a rush into Japanese yen brought the German mark again into strong demand, driving the rate up as high as $0.5031 by March 31. The German and United States authorities stepped up their intervention once more. The desk in New York intervened on two more trading days in late March, selling $120.2 million equivalent of marks. Of

that total, $98.7 million equivalent was financed by equal drawings by the System and the Treasury on their respective swap lines with the Bundesbank, and the rest came from System balances. These swap drawings raised the combined mark indebtedness of the United States authorities to a peak of $2,844 million equivalent, of which $1,844 million equivalent was drawn by the Federal Reserve and $1 billion equivalent by the Treasury. In Germany, official purchases of dollars in the exchanges contributed to a further $1.5 billion increase in Germany's reserves to $42.2 billion.

During April, the Federal Reserve shifted to a less accommodative stance in the domestic money market. Also, the Administration strengthened its efforts to moderate price and wage increases and to reach a compromise on the energy bill. These actions prompted an improvement in market sentiment toward the dollar. As a result, a heavy reflow of funds out of marks into dollar-denominated assets developed, a tendency that was encouraged by the exceptionally wide interest differentials favoring the dollar and a dramatic rebound of the United States stock market. These flows, together with the reemergence for the first time this year of long-term capital exports from Germany, triggered a fall in the mark which brought the rate down some 7 percent from its end-March levels to $0.4681 by mid-May.

During this time, the Federal Reserve and the Treasury took the opportunity of a declining mark to purchase marks to liquidate outstanding swap debt with the Bundesbank. These marks were bought mostly from correspondents, but a small amount was purchased in the market. Otherwise, the trading desk intervened on only four occasions, selling $95.9 million equivalent of marks from System balances and $1.6 million equivalent from Treasury balances. Overall, the Federal Reserve repaid by May 18 $493.4 million of drawings, reducing the amount the System had outstanding to $1,350.4 million equivalent. The Treasury also repaid $309.4 million equivalent, cutting its debt to $690.6 million equivalent. In addition, the Bundesbank sold dollars, particularly in connection with the conversion of foreign DM bonds but also at times when the spot mark was dropping rapidly.

In late May, however, the balance of market forces suddenly tipped in favor of the mark once more. Concern over the United States economic performance resurfaced as new data and forecasts were released, pointing to both a further widening of the United States current account deficit and an acceleration of our inflation rate. Moreover, the excessive liquidity in the German money market had been largely absorbed by the outflows of capital and by heavy borrowings, in excess of current needs, by the government and others taking advantage of low interest rates. As part of its efforts to provide liquidity, the Bundesbank announced it would terminate the 100 percent reserve requirement on the growth of commercial bank nonresident liabilities, effective June 1. But the withdrawal of this reserve requirement, which had been imposed to contain exchange market pressures in December 1977, as well as disclosure of dollar sales by several central banks, triggered a new wave of commercial and professional bidding for the mark. The rate jumped 3 percent, up to $0.4820, and to maintain orderly trading conditions the Bundesbank returned to the market as a buyer of dollars. The desk also intervened on two occasions, May 18 and May 31, selling $74.4 million equivalent of marks in the market, including $54.1 million equivalent out of System balances and $20.3 million equivalent out of Treasury balances.

These operations, together with the continued rise in United States interest rates and quarter-end considerations, helped steady the market in early June. Thereafter, dealers became cautious about moving into marks ahead of the EC summit in Bremen on July 6-7 and the summit of industrialized countries in Bonn on July 16-17. Indeed, since Germany's production figures showed growth to be still disappointingly slow, expectations developed that the Schmidt government might cut taxes to stimulate the economy before these meetings took place. With Germany's bond market already facing a heavy schedule of new issues by state and local governments, the need for financing an increased federal government deficit generated expectations of rises in German interest rates and triggered flows of funds out of German government securities to avoid capital losses. Moreover, talk of an expansion of the EC snake to include the currencies of all Common Market countries also tended to divert funds flowing out of dollars away from the mark and, in this case, into the French franc, the pound, and the Italian lira—the three major candidates for membership.

As a result, the mark lost some of its earlier buoyancy. Although the mark was well bid in early July following the passing of quarter-end constraints and news of the narrow decision by the Federal Reserve to raise the discount rate by ¼ percentage point to 7¼ percent, the rate generally lagged behind the rapid advances of other European currencies and the yen against the dollar through midsummer. After the Bremen and Bonn summit meetings, news that a new stimulatory package would be forthcoming intensified the strains in Germany's financial markets, and funds continued to be shifted out of German bonds into higher yielding sterling and French franc assets. But at times when the mark was caught up in the pressures surrounding the dollar's decline, the Bundesbank

bought dollars in the Frankfurt market. The Federal Reserve trading desk also intervened on five days in late June and during July, selling $132.4 million equivalent of marks. But, in addition, the desk continued to buy marks from correspondents, thereby reducing outstanding swap debt to the Bundesbank to $650.5 million equivalent for the System and to $197.0 million equivalent for the Treasury by July 31.

By the end of July the mark was trading against the dollar at $0.4919, up nearly 4 percent over the six-month period. Against the yen and the Swiss franc, however, the mark had fallen almost 19 percent and 10 percent, respectively. As of July 31, Germany's external reserves stood at $41.1 billion, down $1.1 billion from end-March levels but up $371 million for the period under review.

Japanese yen

Faced with a rapidly appreciating currency, a comparatively slow growth rate, and a further widening in an already large trade surplus, the Japanese authorities took further steps in 1977 to boost domestic demand and to turn around the balance-of-payments position. Following the introduction of two supplementary budgets late last year, the government was to provide for a further expansion of public works expenditures in the first half of the new fiscal year starting in April 1978. Interest rates in Japan were lowered, both to reduce the cost of capital to Japanese firms and to promote capital outflows that would offset at least to a degree Japan's continuing current account surplus. In addition, the Japanese government responded to threats of rising protectionism abroad by finding ways to open the Japanese economy more to foreign goods. In bilateral trade negotiations with the United States before the Tokyo round of multilateral negotiations, Japan agreed to reduce tariff and nontariff barriers, to raise import quotas on several products, to stockpile commodities, and to accelerate the purchase of some imports. Following these policy initiatives in Japan and the United States authorities' announcement of a more active intervention approach, the previously heavy, speculative bidding for Japanese yen tapered off during January and the spot rate eased from its early-January peak of $0.004228 to trade at $0.004140 (¥241.5) by the month end.

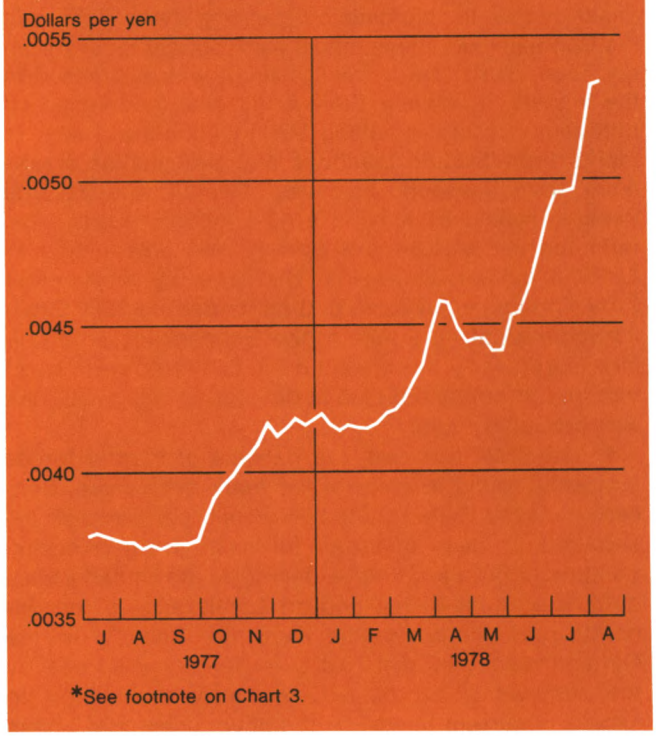
But concern over Japan's trade imbalance persisted. In fact, the 22 percent rise in the yen during 1977 so inflated Japan's export values through the improvement in the terms of trade that, even as the export volumes were beginning to level off, the surplus for 1977 as a whole reached $17.3 billion, up $7.4 billion from the previous year. Meanwhile, with private forecasters still skeptical that the government's fiscal 1978 target for real growth of 7 percent could be achieved, the market had little confidence that a "considerably reduced" trade surplus would materialize. Also, inasmuch as the rate of inflation in Japan's chief export market, the United States, showed signs of accelerating early in the year, Japanese exports were no longer so seriously threatened by the rising yen as once feared. In this atmosphere, the market remained highly sensitive to any new development that might touch off another increase in the yen. Although a better balance was restored in the market by early February, there was little unwinding of long yen positions or of nonresident holdings of "free" yen deposits and government securities.

Then, in mid-February, a general decline in the dollar on the exchanges triggered a renewed rise in the Japanese yen. At first, the yen moved in line with the rise in European currencies. But, in view of Japan's awesome trade surplus, talk spread in the market that the government would move to limit any further increase in Japanese exports. In response, exporters rushed to speed up their shipments abroad before the fiscal year-end in March and, as the yen

Chart 4

Japan

Movements in exchange rate*



*See footnote on Chart 3.

advanced, they scrambled to cover anticipated receipts partly in the forward market. As a result, the premium on forward yen increased, providing an arbitrage incentive to move funds into yen-denominated assets. Indeed, by early March the inflows into bonds and free-yen deposits had swollen to enormous proportions.

Concerned that a further rise in the yen would hamper economic recovery and delay even longer the needed reduction in the trade surplus, the authorities tried to counter the upward pressure on the currency by intervening heavily both in Tokyo and in New York through the agency of the Federal Reserve Bank of New York. In addition, the authorities announced new measures to reduce capital inflows, to stabilize the yen, and to give a further boost to the domestic economy. The Bank of Japan announced a ¾ percentage point cut in its official discount rate to a post-World War II low of 3.5 percent and a rise from 50 percent to 100 percent in reserve requirements on increases in nonresident free-yen accounts above the averages of daily levels for mid-February. In addition, the government announced a prohibition on sales to nonresidents of yen bonds issued by domestic entities with maturities of less than five years and one month.

Except for a brief respite following these announcements, the yen remained in heavy demand during the rest of March. To some extent, foreign funds sought outlets in longer term Japanese bonds and the Tokyo stock market, which were not subject to the new controls. Also, despite the cost of new reserve requirements on nonresident yen balances, banks were willing to attract these funds in order to build up deposits for the fiscal year-end. Moreover, by the end of March, the current account surplus ballooned to a seasonally adjusted annual rate of $22 billion for the first quarter. All in all, the pressure on the yen gained momentum toward the month end, pushing the rate up 7⅜ percent to $0.004445 (¥225.0) by March 28. The Bank of Japan continued to intervene heavily in the exchanges in Tokyo and New York. Largely as a result, Japan's official reserves rose $5.8 billion from end-January to $29.6 billion by end-March.

However, as the upward pressures on the yen began to subside, the Bank of Japan scaled down its intervention toward the end of March. Thereafter, the rate rose 3½ percent to as high as $0.004598 (¥217.5) in London on April 3, before easing back as the passing of the Japanese fiscal year-end led to a reduction in the covering activity by Japanese exporters and an outflow of foreign funds from free-yen deposits. Then, from early April to late May, the yen fell back from the record highs reached around the quarter end. Japanese exports declined sharply. The tightening of controls on capital inflows began to take hold. This development, along with the decline in Japanese interest rates and the rise in comparable rates in the United States money market, produced some easing of capital inflows to Japan. Moreover, yen borrowings by foreign governments and international financial institutions rose sharply during April. As a result, the yen declined with the other European currencies against the dollar, dropping as much as 5¼ percent to as low as $0.004354 (¥229.7) on May 23.

Meanwhile, the government continued to seek ways of achieving temporary reductions in exports and increases in imports until its expansionary fiscal and monetary policies had time to work through the economy and to generate an increase in consumer demand, investment, and imports. During April the authorities acted to restrain some exports through administrative guidance, to increase imports through commodity stockpiling, and to encourage a shift from dollar to yen financing by offering to refinance import settlement bills for the banks outside their regular rediscount ceilings. Also, industrial production and consumer demand picked up during the first quarter.

But Japanese trade and current account surpluses continued to mount, reflecting the relative price effects of the yen's appreciation since February and the continued adjustments of Japanese exporters to the higher yen values. As a result, exchange market participants concluded that the yen would appreciate further against the mark and other European currencies. The yen therefore was bid up strongly, beginning in late May, on a combination of renewed professional demand and the covering of forward receipts by Japanese exporters. Within six weeks it had appreciated over 14 percent, far outstripping the rise in other strong currencies. As the yen approached the ¥200 level and as exchange market participants focused in late June-early July on the Bremen and Bonn summit meetings, the yen's rise slowed temporarily. But, in the aftermath of those meetings, the talk of linking together all the major European currencies in an expanded joint float arrangement left the impression in the market that the yen was more vulnerable to upward pressure than those other currencies. Moreover, seasonal factors pointing to a large volume of exports in July led traders to anticipate that heavy commercial bidding for yen would persist for the next several weeks. Therefore, market professionals and Japanese exporters saw little risk on the downside for yen over the near term.

Against this background, the yen became the immediate focus of speculative pressure and the inflows into free-yen deposits swelled to large proportions, though not to the extent of March. Thus, the yen came into demand again in July and burst through ¥200 on July 21 in the midst of a swift exchange market reaction to

news that an OPEC special advisory panel had recommended pricing oil in terms of a basket of currencies. Thereafter, the yen was bid up to successive new highs each day, as the speculative surge in the rate continued to be reinforced by another rush of Japanese exporters to cover their forward receipts. Trading volume mounted, and the yen was bid up to a high of $0.005301 (¥188.6) on July 31. At this level the yen had advanced 28 percent against the dollar over the six-month period. Moreover, the yen had gained 23 percent against the German mark. To moderate this rise in the yen, the Bank of Japan continued to intervene both in Tokyo and in New York through the Federal Reserve Bank of New York, albeit to a lesser extent than in March.

Swiss franc

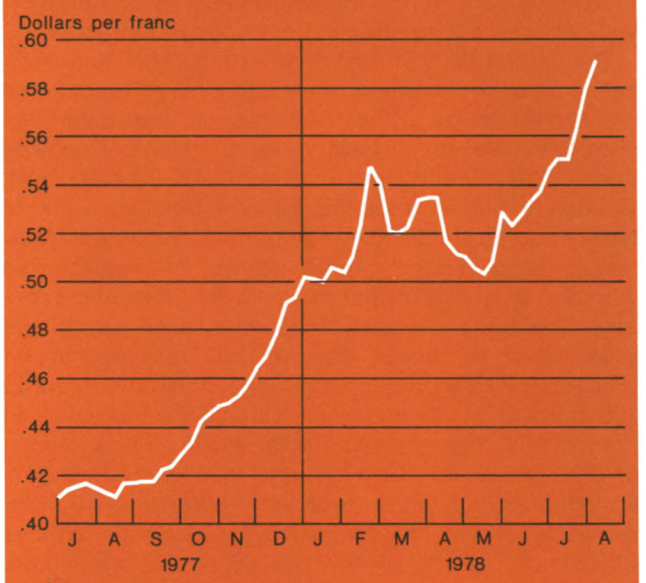
In the face of generalized tensions in the exchange markets, the Swiss franc came into increasingly strong upward pressure during 1977, rising by the year-end some 27¾ percent against the dollar and significantly against the German mark as well as other currencies. At least initially, Swiss firms were able to take advantage of Switzerland's low inflation rate—running slightly above 1 percent per annum—to maintain their competitive position in world markets. Thus the current account, bolstered by Switzerland's traditionally large earnings on overseas investments, remained in sizable surplus and provided the major contribution to growth in a domestic economy just pulling out of recession. But, by late winter, economic output flagged and the prospects for further economic recovery came into question when Swiss businessmen, responding to the uncertainties generated by the accelerating appreciation of the franc, began to curtail investment spending plans.

Meanwhile, in the exchange markets, the Swiss authorities had intervened forcefully and tightened up controls on capital inflows to counter the pressures on the Swiss franc. By late winter the cumulative intervention in Swiss francs had added far more liquidity to the domestic money market than was called for by the National Bank's target for monetary growth of 5 percent for the year. The central bank continued to absorb some of this liquidity by selling dollars to nonresident borrowers of Swiss francs under the official capital export conversion requirement. But the National Bank permitted a sharp expansion of liquidity in the short run to prevent money market strains from pushing up the Swiss franc even more, while recognizing that the persistence of such excess liquidity might generate troublesome inflationary pressures over time. Against this background, the market sought to test the authorities' resolve to avoid a renewed rise in the Swiss franc after

Chart 5

Switzerland

Movements in exchange rate*



*See footnote on Chart 3.

the announcement of more active intervention by the United States authorities in early January. Thus, the franc remained subject to bouts of buying that threatened to trigger broader unsettlement in the exchanges. Consequently, the Federal Reserve resumed intervention in Swiss francs during January, financing its franc sales with drawings of $18.9 million equivalent of francs that remained outstanding as of the month end.

In mid-February, when the dollar again came on offer generally, the franc came under a new wave of commercial and professional demand. Reports that multinational corporations were buying francs to repay Swiss franc loans gave further momentum to this rise, propelling the rate 12 percent above early-February levels to $0.5651 against the dollar and up 6¾ percent to SF 0.88 per mark by February 24. In response, the Swiss National Bank stepped up its intervention, not only in Zurich but also in New York through the agency of the Federal Reserve Bank of New York. The Federal Reserve also sold a further $50.1 million equivalent of francs on February 10-17 in New York, financing these sales with additional drawings on the swap line with the Swiss National Bank.

Toward the month end, the Swiss authorities took further steps to halt the rise in the franc. Effective February 27, the central bank cut by ½ percentage

point the official discount and Lombard rates to 1 percent and 2 percent, respectively, the lowest levels in the history of the National Bank. Also, the Swiss authorities further tightened controls restricting foreign inflows. In particular, they reduced the amount of nonresident Swiss franc deposits exempt from the negative interest charge, extended the negative interest charge to central bank holdings of francs (at maturity of current deposit), banned nonresident purchases in primary and secondary markets of Swiss franc securities issued by domestic entities, and restricted nonresident acquisitions of franc-denominated bonds issued by foreign entities to 35 percent of the total issue.

Following these measures, inflows of foreign funds tapered off. Moreover, the market became sensitive to the possibility that existing official franc holdings in time deposits might be liquidated as they matured and become subject to the negative interest charge. The franc, therefore, fell back sharply against both the dollar and the mark. Although it recouped some of these losses at the end of March and in early April in response to quarter-end liquidity pressures and news of the United States massive trade deficit in February, the franc resumed its downtrend in mid-April, when trading conditions in the exchange markets generally became more settled. By mid-May, the franc dropped 11½ percent from its early-March highs to $0.5002. Taking advantage of this slide in the rate, the Federal Reserve bought sufficient amounts of francs directly from the Swiss National Bank to liquidate in full the swap debt it had incurred with the Swiss central bank earlier in the year.

Meanwhile, an official forecast of a SF 9 billion current account surplus for the year, second only to Japan's, attracted market attention. Also, as the franc moved lower, selling became increasingly hesitant on the possibility that the authorities might take advantage of a more settled exchange market to relax some of the existing or newly imposed exchange controls. As it was, the Swiss National Bank sold more dollars under its capital export conversion program than it bought in the market. When the National Bank announced it had sold dollars in the market to mop up liquidity generated by the heavy intervention earlier in the year and, moreover, when figures were released showing a 16.7 percent increase in the monetary aggregate for the year ended in March, market participants began to question the authorities' willingness to intervene again should the franc strengthen.

Against this background, the Swiss franc soon came into strong demand again, beginning in late May when the dollar came on offer generally. In part, the demand was generated by traders anticipating another rush of nonresident covering of franc-denominated loans. After a rapid advance in late June, the franc leveled off as the authorities provided temporary quarter-end assistance to the domestic money market through swapping francs for dollars for short maturities. But during July the franc was bid up even more after news that an OPEC advisory panel had recommended oil pricing in terms of a basket of currencies and by further signs of a pickup in the United States inflation rate. In response to the franc's continued advance, the Swiss authorities adopted a more flexible limit for the expansion of central bank money and provided further assistance to relieve money market strains. But, over the course of the month, the flow of funds out of dollars and other currencies into francs gathered further steam, and the franc emerged as the lead currency in the advance against the dollar. By the month end, it had soared 15⅞ percent from mid-May levels to $0.5797 to close the six-month period as a whole up a net 15 percent against the dollar and 10¾ percent against the mark.

Under these circumstances, the Federal Reserve returned to the market, on six trading days in June and July, selling $32.0 million equivalent of Swiss francs to maintain orderly trading. Of this amount, $9.1 million equivalent came from System balances which had been replenished by purchases of francs from correspondents. The remaining $22.9 million equivalent of francs was financed by drawings on the swap line with the Swiss National Bank that remained outstanding as of the close of the period. The Swiss central bank also bought dollars against francs in the market both in Zurich and through the Federal Reserve Bank trading desk in New York.

During the period under review, the Federal Reserve and the United States Treasury continued with the program agreed to in October 1976 for an orderly repay-

Table 3

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

In millions of dollars equivalent

System swap commitments January 1, 1978	1978 I	1978 II	1978 July	System swap commitments July 31, 1978
506.5	−95.6	−95.6	−36.4	278.8

Because of rounding, figures do not add to total.

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

Table 4

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

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

Bank drawing on Federal Reserve System	Outstanding January 1, 1978	1978 I	1978 II	1978 July	Outstanding July 31, 1978
Bank for International Settlements* (against German marks)	-0-	+295.0 −295.0	-0-	+22.0 −22.0	-0-

Data are on a value-date basis.

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

Table 5

United States Treasury Drawings and Repayments under Swap Arrangement with the German Federal Bank

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

Amount of commitments January 1, 1978	1978 I	1978 II	1978 July	Amount of commitments July 31, 1978
-0-	+964.8	+ 35.2 −533.6	−269.5	197.0

Because of rounding, figures do not add to total.

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

Table 6

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

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

Amount of commitments January 1, 1978	1978 I	1978 II	1978 July	Amount of commitments July 31, 1978
1,168.9	−133.8	−133.8	−50.9	850.4

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

Table 7

Net Profits (+) and Losses (−) on United States Treasury and Federal Reserve Foreign Exchange Operations

In millions of dollars

Period	Net profits (+) and losses (−) related to current operations: Federal Reserve	Net profits (+) and losses (−) related to current operations: Exchange Stabilization Fund	Net profits (+) and losses (−) on liquidations of foreign currency debts outstanding as of August 15, 1971: Federal Reserve	Net profits (+) and losses (−) on liquidations of foreign currency debts outstanding as of August 15, 1971: Exchange Stabilization Fund
First quarter 1978	− 0.2	− 0.2	−58.7	−81.1
Second quarter 1978	−17.2	− 2.9	−60.6	−84.8
July 1978	− 5.4	+ 0.9	−21.6	−30.2

Data are on a value-date basis.

ment of pre-August 1971 franc-denominated liabilities. The Federal Reserve repaid $191.2 million equivalent of special swap indebtedness, while the Treasury redeemed $267.6 million equivalent of Swiss franc-denominated securities by the end of July. Most of the francs for these repayments were acquired directly from the Swiss National Bank against dollars. However, the Federal Reserve also bought francs from the National Bank against the sale of $70.1 million equivalent of German marks and $13.5 million equivalent of French francs, which were in turn either covered in the market or drawn from existing balances. By end-July, the Federal Reserve's special swap debt to the Swiss National Bank stood at $278.8 million equivalent, while the Treasury's Swiss franc-denominated obligations were reduced to $850.4 million equivalent.

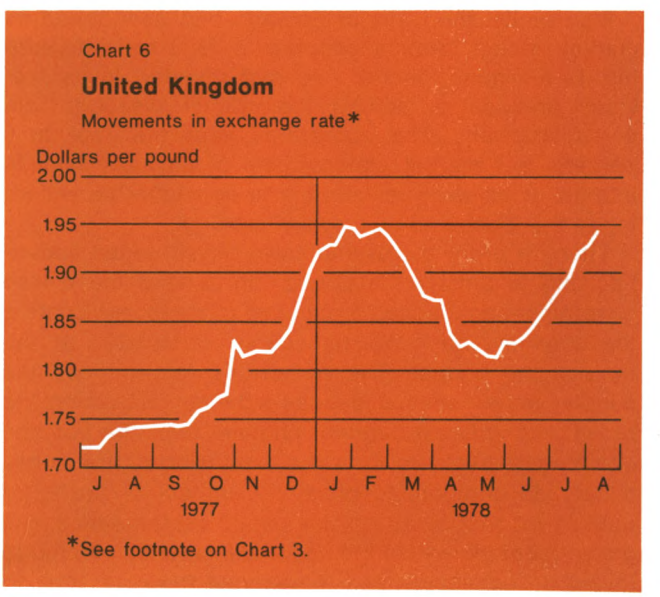
Sterling

By 1977, fiscal, monetary, and income restraints in the United Kingdom had produced positive results. During the second half of the year, retail prices rose by well under 10 percent per annum for the first time since 1973 and Britain's current account swung into surplus. In response to these improvements in Britain's financial position, the pound was in heavy demand, and the authorities at first took advantage of the favorable shift in market sentiment to build up official reserves by purchasing dollars in the market. But, when continuing inflows of funds threatened to undercut domestic monetary policy last fall, sterling was allowed to float upward. In view of the pound's strength in the exchanges, Britain was identified as one of those countries which could contribute to an improved economic performance worldwide by providing some stimulus to the domestic economy. Indeed, the government took advantage of a sharp drop in the public sector borrowing requirement, well below the level anticipated in Britain's standby arrangement with the IMF, to propose in October a modest tax reduction. Thus, by the year-end, private and official forecasters expected a strong pickup in economic activity this year. But, unlike previous British recoveries from recession, the current account surplus was expected to widen substantially in 1978, bolstered by a continued expansion of oil production in the North Sea. As a result, the pound soared to as high as $1.9930 on January 4, before settling back to around $1.9500 in late January. Meanwhile, the British authorities announced plans to repay and restructure external debt to reduce foreign obligations and to lengthen maturities.

During February, however, market sentiment over the outlook for the pound turned more hesitant. As the rise in retail prices slowed, the ensuing increase in real incomes together with the October tax cuts led to a faster than anticipated increase in imports, and the trade account showed a substantial deficit for January. Also, the tax cuts contributed to a rise in the monetary aggregates at a time when the slowdown of the inflation rates already appeared to be bottoming out. Against this background, concern surfaced over the competitiveness of British industry at prevailing exchange rates as well as over the prospects for a continuation of the pay restraint policy. Meanwhile, further reflationary measures were widely expected to be contained in the government's April budget.

Under these circumstances, the financing of the government's borrowing needs became more difficult as bond market participants, fearing a near-term jump in British interest rates, held off acquiring new government stock and shifted portfolio investments abroad. Consequently, sterling came under occasionally heavy selling pressure in February and March, falling by 4⅜ percent against the dollar to around $1.8650 and by 4.7 percentage points on an effective basis to 61.8 percent. The authorities intervened at times heavily to moderate the decline of the rate.

In April, the British government announced a budget that was only mildly expansionary but brought the public sector borrowing requirement up quickly to the maximum suggested by the IMF. To help finance that deficit while still containing monetary growth, the Bank of England's minimum lending rate was raised a full percentage point to 7½ percent. Even so, market participants were doubtful that further fiscal stimulus would be compatible with the new guidelines for monetary expansion, unless additional restrictive measures



were imposed. Data revisions suggesting further growth in Britain's monetary aggregates, combined with a continued advance of United States interest rates, deepened doubts that the government would be able to finance its debt at prevailing interest rates. In addition, the imposition by Parliament of tax cuts in excess of those proposed in the budget and prospects of an early general election made this task seem increasingly difficult.

In the exchanges, dealers were wary that nonresidents who had built up large-scale portfolios last year might liquidate their holdings should British interest rates rise further. Also, market participants had noted that Britain's trade figures, while fluctuating widely between deficit and surplus, were on average showing a much smaller surplus than had been implied in official forecasts, even after these forecasts had been scaled back substantially. Under these circumstances, sterling was subject to bouts of professional and commercial selling after mid-April. Against the dollar, spot sterling fell another 3⅛ percent from end-March levels to a low of $1.8057 by May 17, while also falling 0.3 percentage points on an effective basis to 61.5 percent.

To counter these selling pressures, the Bank of England sold fairly large amounts of dollars at times through early June. But at the same time the authorities proceeded to liquidate external debt while also renegotiating terms and stretching out maturities on some major loans to take advantage of more favorable borrowing conditions in the Eurodollar market. Reflecting in part the intervention support for the pound and net repayments of external debts of $600 million, Britain's external reserves fell over the four months by $4.1 billion to $17.3 billion as of May 31.

Meanwhile, the Bank of England had abandoned its market-related formula adopted in 1972 for determining its minimum lending rate and reverted to its previous practice of setting the official discount rate administratively. The authorities kept the rate at 9 percent, but market expectations of an early hike in interest rates were reflected in a considerable widening in the discounts on forward sterling.

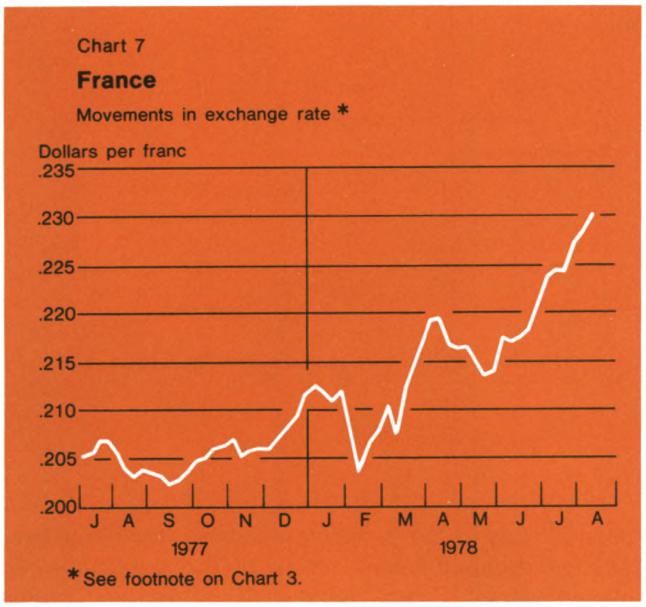
Then, in order to resume sales of gilt-edged securities and to bolster the pound, on June 8 the British government announced a package of measures to bring the economy back on the course anticipated at the time of the budget. The authorities reintroduced the supplementary special deposit scheme restraining the growth of interest-bearing eligible liabilities of the commercial banks to curb the expansion of the money supply. In addition, to offset the impact of the extra cuts in income taxes on the public sector deficit, the government increased the national insurance surcharge levied on employers and announced it would seek to limit wage increases even further in a fourth phase of voluntary pay policy to begin in July. Moreover, the authorities raised the official discount rate 1 percentage point to 10 percent. Finally, Chancellor Healey reaffirmed the government's commitment to keep the public sector borrowing requirement and the expansion of domestic credit within the limits agreed with the IMF.

Following these announcements, the pressures against sterling subsided. The ensuing tightening in the domestic and Eurosterling money markets helped attract funds from abroad. Moreover, the pound was buoyed by talk, ahead of the July 6-7 Bremen summit, of the possibilities of the pound's eventual inclusion in an expanded EC snake. The widespread press commentary over the various proposals for achieving some new form of joint floating arrangement frequently generated bidding for sterling by international investors shifting funds out of both the dollar, which was declining, and the German mark. Sterling thus advanced strongly with the other independently floating European currencies and the yen over the last two months of the period. By end-July the pound rose to $1.9310 against the dollar, almost 7 percent above its mid-May lows and just 1 percent down on balance from end-January levels. On an effective basis, the pound rose from a low of 60.9 percent in early June to 62.5 percent. Meanwhile, the Bank of England was able to add dollars to its reserves in June and July while continuing to repay and to prepay its external debts. Taking these liquidations into account, Britain's official reserves rose $292 million during the last two months of the period to $17.6 billion as of July 31, a net decline of $3.8 billion over the six-month period.

French franc

By the end of 1977, inflationary pressures in France were decelerating and France's current account had swung into surplus in response to more than a year of fiscal, monetary, and price restraints. The cost to the domestic economy had nevertheless been severe. Consequently, by September the government had taken advantage of its stronger external position to adopt selective measures to boost employment while still giving priority to the fight against inflation and to the maintenance of a sound balance of payments. Meanwhile, performance of the economy was a key issue in the upcoming elections scheduled for March 1978 and, by the time the period under review began, opinion polls were suggesting that a coalition of the Socialist and Communist parties was in a position to win a majority in the French Parliament.

Amidst uncertainty over France's economic and political outlook, the French franc at times had come under selling pressure in both the spot and forward



markets when adverse commercial leads and lags and speculative short positions built up against the franc. Such a spasm of nervousness broke out again in mid-January. As the franc came on offer, the spot rate fell to $0.2020 by February 6, while plummeting 5¾ percent to record lows against the German mark and Swiss franc. The Bank of France scaled up its official dollar sales and suspended its facility for rediscounting Treasury bills and other medium-term paper, thereby setting the stage for an abrupt upward adjustment in short-term interest rates. These actions helped steady the market, enabling the franc to rise somewhat against the dollar. But this advance was insufficient for the franc to keep pace with the German mark. In fact, just before the first round of balloting on March 12, the franc dropped to a record low of FF 2.3873 per mark, even as the Bank of France intervened in marks and dollars to moderate the decline.

Early reports indicating that the left-wing coalition had failed to make its hoped-for electoral gains in the first round prompted some quick covering of positions. At about the same time, the market learned of a further improvement in the French trade account and of a pickup in industrial output. Buoyed by this news and by an unexpectedly comfortable majority the government obtained in the final vote of the parliamentary elections, the franc moved up sharply. But market sentiment toward the franc remained cautious because of expectations that the new government would now shelve the austerity program in favor of more reflationary measures to reduce unemployment and to placate the growing unrest within French labor's rank and file. Thus, following a short-lived rally, the franc leveled off against other European currencies in late March while continuing to rise against an easing dollar.

Meanwhile, during the first quarter, the current account moved strongly into surplus. Industrial production was expanding and, with the elections over, investment demand and stock building were expected to spur output even more. At this point, President Giscard d'Estaing moved quickly to reaffirm his government's commitment to continue current policies, with Premier Barre heading the new government. Over the course of the next month, Barre announced the government's intention to reduce the growth of public financing needs and to channel more personal savings into business investment. These objectives were to be met by increasing charges for certain public services, relaxing gradually long-standing controls on industrial prices and providing some form of tax relief for capital gains. Although this program was expected to raise prices over the next few months, the market viewed the freeing-up of prices and the prospective slowdown in the public sector deficit as courageous moves. Moreover, news of a FF 1.2 billion trade surplus in March pointed toward further progress in redressing the external imbalance, even as the domestic economy began to recover.

Market confidence in the franc thus strengthened generally. With French interest rates remaining relatively high, the franc benefited throughout the rest of the spring from an unwinding of the adverse commercial leads and lags and speculative short positions that had been accumulated over many months prior to the elections. In addition, the exchange rate was aided by conversions of some foreign borrowings by French private corporations and by talk of a placement of a large amount of funds in francs by a major member of OPEC. As a result, the franc rose 8⅝ percent above its pre-election level to $0.2215 by early April. Then, as the dollar generally recovered, the franc eased back only slightly to $0.2127 during April and May, while gaining 3 to 5¾ percent against the mark and Swiss franc. Meanwhile, after mid-March the Bank of France bought sizable amounts of dollars and marks in the market. These operations were partially reflected in a $1.4 billion rise in France's foreign currency reserves over the three months to almost $6 billion by end-May.

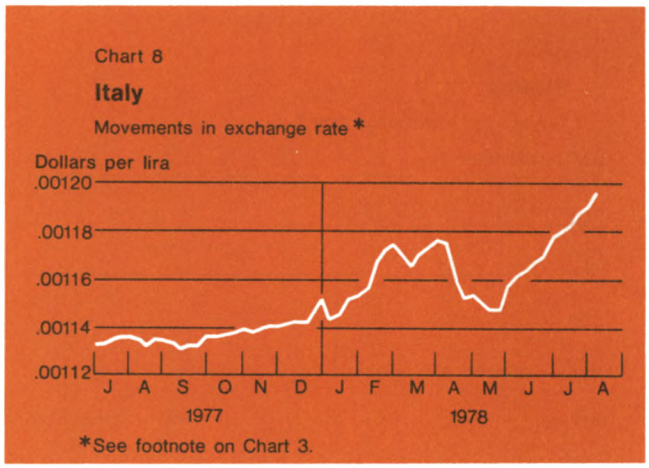
In early June, the franc remained well bid. With interest rates remaining high even after they had declined from pre-election levels, there continued to be large flows of interest-sensitive funds from abroad. Meanwhile, the market gradually became aware of the discussion, between French President Giscard d'Estaing and German Chancellor Schmidt, on ways

to reduce exchange rate fluctuations between European currencies. A late-June report from Luxembourg suggesting the possibility that France's rejoining the EC snake might be discussed at the EC summit meeting in Bremen on July 6-7 brought the franc quickly into demand, not only against the dollar but also against the mark. Although the French president denied the next day that the franc would reenter the snake as it was then constituted, talk of various proposals for some new joint floating arrangement kept alive the possibility that the franc might be linked to other EC currencies in some manner. As a result, a combination of speculative bidding and commercial demand to cover payments needs by the end of the half year pushed the spot rate up sharply against both the dollar and the mark. As expectations of a near-term agreement to link the franc with the other EC currencies faded following the Bremen summit, the franc edged back briefly against both the German mark and the dollar. However, when the dollar came under renewed selling pressure, the franc was climbing again as the period came to a close. Thus, by the end of July, the franc had risen 8¾ percent over the six-month period to $0.2293 and 4¾ percent on balance to FF 2.1452 per mark. Meanwhile, the Bank of France continued to buy dollars to moderate the franc's rise. These acquisitions were reflected in a $1.2 billion increase in France's foreign-currency reserves in June and July to $7.1 billion as of July 31, a net gain of $2.3 billion over the six-month period.

Italian lira

Following the implementation of a comprehensive stabilization program in Italy—one that had served as the basis for a new standby arrangement with the IMF—substantial progress was made during the second half of 1977 in turning around Italy's balance of payments and slowing the rate of domestic inflation. For the year as a whole, Italy's current account had strengthened sharply, swinging from a $2.8 billion deficit in 1976 to a $2.3 billion surplus for 1977. Moreover, the inflation rate had been brought down from 19 percent to 15 percent in just half a year. The completion of a stabilization program and restrictions on the availability of domestic credit had paved the way for more private external borrowing in 1977. Bolstered by both the current account and capital inflows, the lira thus rose gradually against the dollar in the exchange markets. In fact, the authorities were able to buy substantial amounts of dollars in the market so that, even after repayment of some official borrowings, Italy's foreign-currency reserves rose $4.8 billion in 1977 to nearly $8.0 billion by the year-end.

But these improvements resulted in a considerable slowing of the domestic economy. Industrial production dropped below levels of the previous year, unemployment rose, and with corporate profits squeezed by the high cost of borrowing funds the prospects for a strengthening of the labor market seemed dim. Consequently, by the year-end, pressure was building up for new action to stimulate the domestic economy now that progress had been achieved on the inflation and balance-of-payments fronts. At the same time, however, the public sector deficit exceeded the limit specified in the standby arrangement and subsequent discussions with the IMF. The minority government attempted to negotiate with the opposition parties and the trade unions new measures to increase public service prices and to reduce expenditures. But, when the fall of the government in January and subsequent political developments delayed the approval of the budget and the adoption of new measures, the budget deficit grew even larger, thereby playing an important role in stimulating economic activity in the early months of 1978.



These uncertainties overshadowed the market for the Italian lira early in 1978. During February, selling pressure on the French franc also spilled over to unsettle trading in lire. Flows of funds into Italy slowed, Italian banks repaid some of their external borrowings, and the lira came on offer. As a result, the lira lagged far behind the other currencies as the dollar declined generally. On occasion the Bank of Italy intervened forcefully, and these operations, together with the awareness of Italy's ample reserve position, helped keep the selling pressures from cumulating. By mid-February the lira was more nearly keeping pace with other currencies, and the Bank of Italy was able to buy dollars again.

Meanwhile, Italy's trade account remained in surplus

even through the normally adverse period of the year and despite a rapid recovery of economic activity. Unlike other periods of expansion, the recovery this time was not accompanied by a large buildup of inventories and hence of imports. Instead, imports were sluggish, because the recovery was expected to be only temporary in view of continuing discussion about the need to curb the public sector deficit. At the same time, exports continued to be buoyed by the existence of excess industrial capacity and by the competitive effects of the lira's previous decline against other European currencies. Looking ahead, the current account was expected to remain strong because of the bulge in tourist receipts over the spring and summer months. Moreover, by March, a compromise worked out between the two major political parties, in which the Communists would function as part of the governing coalition within the Parliament without actually being in the Cabinet, set the stage for renewed discussions on the government's economic policy. The strength of Italy's reserve position was further highlighted with the announcement of official repayments amounting to SDR 300 million to the IMF, $500 million of the gold-dollar swap to the Bundesbank, and a planned repayment of $350 million to the EC. In addition, an extension of ceilings for domestic bank credit signaled a continuation of the cautious monetary policy.

Against this background, the lira eased back against the dollar more gradually than other currencies during April and May. The relative strength in the lira rate, combined with the continued tightness in the domestic money market, generated a new rise in Eurodollar borrowings by Italian residents. Accordingly, the Bank of Italy bought steadily larger amounts of dollars in the market to repay external debt coming due this year.

During June and July, Italy's current account surplus became even stronger, generating expectations that it would exceed $3 billion for the year as a whole. At the same time the renewed selling of dollars enhanced the near-term prospects for lira stability and encouraged further capital inflows. Notwithstanding the continuing debate over ways of reducing inflation still further and of curbing the public sector deficit, the lira remained in heavy demand in the exchange markets. Thus the authorities were able to intensify their dollar purchases and continued to make substantial repayments of official debt to the IMF, the EC, and the Bundesbank. They also liberalized foreign exchange controls by removing the requirement that 25 percent of the financing of exports be done in foreign currencies. Even so, the lira advanced with the other European currencies against the dollar, rising 3¾ percent to $0.001189 (Lit 841.04) by July 31. At this level, the lira was at its peak for the six-month reporting period and at its highest level since October 1976. Over the six months, Italy's foreign exchange reserves increased $1.7 billion to $9.3 billion even after the authorities had liquidated $1.3 million net of external debt.

EC snake

Late in 1977 the sharp rise in the German mark pulled up the other four currencies in the EC snake against the dollar. At times, these currencies had been caught at the bottom of the 2¼ percent band, prompting the respective central banks to provide support through intervention and by tightening up on domestic liquidity. Following more forceful United States intervention in early 1978, the market became more settled generally and, as the mark eased back against the dollar, the pressures in the snake largely dissipated. The four currencies at the bottom of the band all moved above their lower intervention limits against the mark, thereby enabling all the central banks to buy marks in the exchange market to repay debt to the Bundesbank. In addition, the central banks of the Netherlands, Belgium, and Denmark took advantage of reflows into their currencies to buy back dollars as well.

Among the snake currencies, the Norwegian krone remained relatively weak, however. Norway's trade deficit had widened following Sweden's withdrawal from the snake in August 1977 and the subsequent rise in the joint float as a group against the dollar. To restore Norway's competitiveness, after a meeting of EC monetary officials on February 10, the Norwegian authorities announced an 8 percent devaluation of the krone against the other snake currencies. Immediately, the krone rose to the top of the newly realigned EC snake, and funds flowed back into Norway even as the krone was pulled up further against the dollar by the rise in the mark. But, by late March, the market was concerned that some of the competitive gains from the February devaluation against currencies outside the EC band were being eroded by the snake's rise against the dollar. As a result, reflows from abroad slackened and the krone dropped back to the bottom of the joint float, occasionally coming under light selling pressure.

Meanwhile, the Danish krone, whose parity in the joint float had remained unchanged in February, also initially experienced some difficulty in keeping up with the mark's advance and required support through sales of dollars and marks by the Danmarks National Bank. But tight restrictions on the expansion of domestic credit in Denmark prompted Danish companies to finance domestic credit needs by borrowing heavily abroad. Thus, the pressures on the krone soon eased, and the rate rose more or less on its own with the mark against the dollar during March. Then, once the mark started easing back against the dollar in April, both

the Norwegian and the Danish krone were bolstered by reflows of funds out of marks and reversals of previously adverse commercial leads and lags. The entire snake thus narrowed to a width of as little as 1 percent, and the Danish krone was propelled to the top half of the band, where it remained for the next two months while the Danmarks National Bank took dollars into its reserves.

By early May the Netherlands guilder and commercial Belgian franc eased lower in the joint float, partly in response to seasonal declines in domestic interest rates but also in reaction to growing concerns in the market over the performance of the Dutch and Belgian economies. Fueled by rising consumer spending, Dutch imports rose, exports sagged, and the Netherlands' current account surplus thus was eroded. In Belgium, the domestic economy remained stagnant, unemployment continued high, and some within industry were in favor of a depreciation of the franc as a means of stimulating business activity. These factors influenced market sentiment toward both currencies, and the snake widened out again in the late spring and early summer as the mark moved back up above its mid-May lows against the dollar.

By June, trading relationships within the EC snake were affected first by talk and then—following the July 6-7 EC Bremen summit—by a commitment to study the idea of bringing the currencies of all EC countries back into a new joint floating arrangement. On the one hand, currencies that were new candidates for membership—sterling, the French franc, and to a lesser extent the Italian lira—were buoyed by this possibility. On the other hand, present snake members were affected by talk that the rules governing the snake might be diluted. As a result, the Dutch guilder weakened somewhat further in the joint float and the commercial Belgian franc, which had already fallen to the floor of the snake, came more heavily on offer. Consequently, the National Bank of Belgium intervened forcefully to maintain the franc's intervention limits against the mark. In addition, both the Netherlands Bank and the National Bank of Belgium raised their official discount rates in mid-July to contain the pressures on their respective currencies. These pressures were moderated by the tendency of the mark to lag behind the advances of the independently floating currencies against the dollar until early August.

Canadian dollar

Following the buildup of severe inflationary pressures in the early 1970's, the Canadian government had adopted a medium-term and broad-based program of restraint that remained in force coming into the period under review. The modest stimulatory package of tax cuts, announced in October 1977, did not basically change the cautious stance of fiscal policy. The annual target for monetary expansion, also announced in October 1977, represented the second consecutive reduction—this year to a range of 7-11 percent. And, although Canada's wage-price program was approaching an end, the dismantling of controls was to be more gradual than originally expected and was taking place against the backdrop of clearly decelerating wage pressures.

But, after more than two years of this stabilization policy, the rate of economic growth in Canada slowed to a pace insufficient to absorb a rapidly expanding labor force, and unemployment continued edging up to new postwar highs. Even so, the inflationary excesses of earlier years had resulted in a deterioration of Canada's competitive position in world markets. For a time, Canada's sizable current account deficit was more than covered by large inflows of long-term capital. By 1977, however, the mounting debt service requirement added further strain to the current account. Also, capital inflows declined from the record levels of the previous year, partly because the cash-flow requirements of Canada's largest borrowers (the provinces and municipalities) were lower. Moreover, uncertainties arose in connection with political developments in Quebec, and a narrowing of favorable interest differentials *vis-à-vis* the United States reduced the incentive for Canadian borrowers to tap capital markets abroad. Thus, the Canadian dollar became exposed to downward pressure in the exchange markets. By end-January the spot rate, at $0.9031, was down by 12½ percent from its peak in October 1976. The Bank of Canada intervened to maintain orderly markets as the rate declined. But, since these operations resulted in large net dollar sales, they exerted a drain on Canada's reserves. Meanwhile, in response to the depreciation of the Canadian dollar, rising import as well as food prices aggravated price pressures in the domestic economy, keeping the rate of inflation around the 9 percent level.

The Canadian dollar remained on offer in February. With the drop in long-term placements abroad and an absence of a full calendar of new foreign issues, market participants were even more sensitive than usual to rumors about the timing of conversions of the few large borrowings that were known to have been done. A renewed tightening in the United States money market, which drove Eurodollar deposit rates above comparable Canadian interest rates, inhibited capital inflows even more. Reports that a major insurance company was thinking of moving its head office from Montreal to Toronto had also reinforced the market's concern about the possible political and economic consequences of

having in Quebec a government committed over the long term to establishing the province's independence. In this atmosphere, professional and commercial selling gathered force, driving the rate down still further. In response, the Bank of Canada stepped up its support, and Canada's reserves fell $700 million during February to $3.7 billion at the month end, the lowest level since 1970.

By this time, a succession of monthly trade figures pointed to a sharp improvement in Canada's net export position in response to the rapid growth of the United States economy and to the large effective depreciation of the Canadian dollar. The rise in the real trade balance, together with a modest pickup of consumer spending following the tax cuts of last fall, suggested some improvement in Canada's overall growth performance. But the continuing decline in the Canadian dollar was by now a serious political issue. Moreover, the most recent statistics showed sharp jumps in both wholesale and consumer price indexes. The wage and price control program was being phased out. Under these circumstances the impact of further depreciation on Canada's cost structure was threatening to undermine the government's efforts to achieve noninflationary growth for the Canadian economy.

The authorities, therefore, acted to shore up the Canadian dollar. To supplement the net inflow of capital, the government announced between late February and early April an activation of the standby facility arranged with Canadian banks last October, an increase in that credit line from $1.5 billion to $2.5 billion, and a new government $750 million bond issue in New York, its first external borrowing since 1968. Moreover, the Bank of Canada, judging that short-term interest rates could now be raised without prejudicing the achievement of an acceptable rate of monetary expansion, increased its discount rate in two successive ½ percentage point hikes to 8½ percent by April 4 to moderate pressures on the exchange rate.

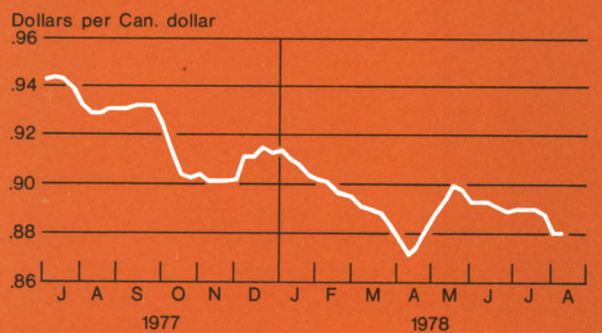
Nevertheless, market sentiment toward the Canadian dollar remained bearish. The impact of the announced government bond issue was undercut by the news of a similarly sized drop in official reserves for February. Moreover, market participants were expecting that, with unemployment stubbornly above 8 percent and a national election to be scheduled over the next year, the upcoming budget would generally be stimulatory. Thus, the Canadian dollar continued to come heavily on offer, with the pressures especially strong when United States corporations came into the market to repatriate funds to cover their quarter-end needs or mid-April tax payments. As the selling continued, the rate fell with increasing speed, declining virtually every day in early April until it hit a 45-year low of $0.8663 on April 14. At this level, the rate was 4 percent below early-February levels.

Meanwhile, Finance Minister Chrétien presented on April 10 a budget proposing a temporary cut in the sales tax and a modest increase in an already large budget deficit. But, with these measures less stimulatory than some in the market feared and in response to a resumption of foreign borrowings and conversions, the market for Canadian dollars came into better balance. The spot rate began to move off its lows. Around the end of April the Canadian government announced plans for three new medium-term mark placements,

Chart 9

Canada

Movements in exchange rate*

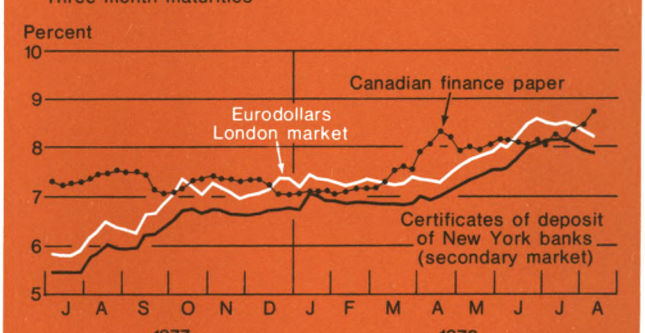


*See footnote on Chart 3.

Chart 10

Interest Rates in the United States, Canada, and the Eurodollar Market

Three-month maturities*



*Weekly averages of daily rates.

totaling over $700 million equivalent, and a $3 billion standby credit with a consortium of United States and other foreign banks. The announcement of these arrangements brought the total credits immediately available to the authorities to roughly $7 billion. In addition, the announcement of a Can.$840 million trade surplus for March indicated an underlying improvement in that account. These developments gave a boost to market sentiment, triggering the reversal of some short positions and previously adverse commercial leads and lags. The Canadian dollar thus advanced further to recover all its losses since end-January, moving back to as high as $0.9035 by mid-May. The Bank of Canada continued to intervene, buying dollars in May, thereby replenishing some of the reserve losses of earlier months.

But before long, in the face of unsettling news about prices and the Quebec issue, the Canadian dollar eased back from its mid-May peak. An unexpected drop in Canada's trade surplus in April also contributed to the market's skeptical attitude toward the Canadian currency. Moreover, the squeezing-out of interest rate differentials favorable to Canada continued as United States money rates rose further. Also, some United States corporations were again in the market to hedge their Canadian holdings ahead of the quarter end for tax purposes. In this atmosphere, the Canadian dollar eased back to $0.89 by end-June; the rate then fluctuated narrowly around this level through most of July.

The market became unsettled again in late July when, with the United States dollar coming under increasingly heavy selling pressure, participants came to expect that further increases in United States short-term interest rates would virtually eliminate the interest differential favoring Canada. Even after the Bank of Canada raised its discount rate another ½ percentage point to 9 percent on July 26, trading remained unsettled. The announcement that Canada's trade account fell into deficit during June (later revised to a small surplus) gave the market a further jolt. As a result, the rate declined to $0.8813 on July 31, down 2⅜ percent for the reporting period as a whole but still almost 2 percent above its mid-April lows. Meanwhile, the Bank of Canada intervened more heavily again, selling dollars in June and July. But, at the same time, since March it had drawn a total of $1.2 billion on its credit facilities with Canadian and foreign banks. Bolstered by these takedowns and the other external borrowings in marks and dollars, Canada's official reserves rose nearly $900 million net above end-February lows to $4.6 billion as of July 31, a net increase of $186 million for the period.

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