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This Quarterly Review is published by the Research and Statistics Function of the Federal Reserve Bank of New York. Remarks by THOMAS M. TIMLEN, *first vice president of the Bank, on the outlook for banking in the eighties, begin on page 1. Among the members of the function who contributed to this issue are* LEONARD G. SAHLING *and* SHARON P. SMITH *(on how regional wage patterns in New York compare with the rest of the country, page 5);* LEONARD G. SAHLING *and* RONA B. STEIN *(on co-op fever in New York City, page 12);* WILLIAM C. MELTON *(on graduated payment mortgages, page 21).*

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Remarks before the
midwinter meeting of the New York
State Bankers Association on
Thursday, January 24, 1980

The Eighties: The Outlook for Change

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Ever since Jim Murphy invited me to speak at this luncheon, I've been telling myself that I must avoid the obvious approach of talking about the past decade of the seventies and the new decade of the eighties. Despite all that talking to myself, I have decided to take the obvious path of looking backward and then forward.

The decade of the seventies was certainly a most unpredictable period for bankers—whether those bankers were commercial bankers or central bankers. From a personal standpoint, for most of the seventies I thought of myself first as the New York Fed discount officer and, second, a tired traveler.

Thinking back, the decade started for me with flying back from Rome, to be involved in the collapse of Penn Central and some very real problems in the commercial paper market. The decade ended, in a sense, with a flight back in October from London to attend an unusual Saturday meeting of the Federal Open Market Committee to vote on a significant tightening of monetary policy and a major change in the techniques of open market operations.

In between those two flights across the Atlantic—the first and the last years of the decade of the seventies—both commercial and central bankers, particularly those of us here in New York, coped with: the Lockheed loan guaranty; the Franklin failure; Herstatt; the deep recession of 1974-75; W. T. Grant; REITs; the oil embargo; a blackout and blizzards; the financial crises of UDC, New York City, and New York State; persistent turmoil in the foreign exchange markets; the policy measures of November 1, 1978 and October 6, 1979; the unprecedented high levels of interest rates and inflation; and, rounding it all out, the Iranian crisis, Afghanistan, and spectacular price movements in the gold and commodities markets.

I come from this experience of the seventies with one clear conclusion. Our banking system—commercial, as well as central—has shown its strength, resilience, and determination. These qualities are sure to be tested in the eighties and beyond. In the midseventies, a number of New York banks were coping with serious problems. Close attention to those problems by bank management, often with prodding by the regulators, has reduced those problems to dimensions that are not now of major concern. I don't want to suggest that we are about to return to the golf-course banking of the fifties, but bank managements seem now to be more in a position to do careful strategic planning as opposed to scrambling from crisis to crisis. With the high probability of major changes in banking in the eighties, that planning will be of major importance.

Although we are only three weeks into the eighties, it seems that the challenges of this decade will be even more varied and demanding than those of the seventies—and the crystal ball seems more clouded than usual as one tries to ponder the nature, dimensions, and timing of those events. The unusual and unexpected have become the norm.

Major international developments occur with a rapidity and immediacy that many of us are still not used to. Events like those in Iran and Afghanistan still seem to come as a surprise, despite some early warning signals that are read best by Monday morning quarterbacks. Political coups and new governments—some elected, some otherwise, some quite close to our borders—have become the order of the day. New relationships and sharp breaks with other countries are rather frequent—one need only point to China and Russia.

These overseas developments have important effects, both direct and indirect, for our banks, not only the large multinational but even the small country bank: frozen accounts, setoffs and attachments, renegotiated loans, handling college students' checks, financing a farmer's crop or a small exporter's receivables, and advising on loan and investment decisions against the likelihood of a major increase in defense spending.

In the field of legislation and regulation, much looms before us. One need only mention McFadden, the Douglas Amendment, the Glass-Steagall Act, Regulation Q, the membership bills, and the proposed International Banking Act regulations to get an idea of the dimensions for possible change. Further attention is to be given to the Edge Act regulations, and the proposal for an international banking facility here in New York is receiving another look.

These laws and regulations serve a variety of interests, and proposed changes raise even more numerous issues. It is my hope that the legislatures, the regulatory bodies, and the banking associations will perceive the interrelationships between these various laws and regulations so that changes in one area are carefully framed in terms of realities and anticipated changes in other areas. An isolated, piecemeal approach could pose real risks to individual institutions as well as industries. We in the Federal Reserve will continue to look to the officers of your association and your member banks for thoughtful commentary as the legislative and regulatory proposals are being shaped.

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Then there will be the technological changes of the eighties. Equipment will be smaller, quicker, and relatively speaking less expensive, both for internal back-office purposes as well as external telecommunications. The technology of the eighties may give many banks capabilities that they do not have today and the challenge to manage that capability competently and securely. In short—change, once again, seems certain.

Our planners tell us that, when things are most uncertain, planning is even more important. At the New York Reserve Bank, as I am sure at all other banks, we have been and are deeply immersed in looking at the eighties to discern the potential major influences and forces, to prepare for the most likely course of events, and to mold these events to the extent possible.

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We have just completed our objective-setting process for 1980 and have set as our first objective the development of a strategic plan based on those forces most likely to have a significant effect on the Bank in the eighties. It is an effort to identify better the role of the Bank and the dimensions and directions of the Bank's policy efforts in the eighties. I hope it will be an important tool for Mr. Solomon as he assumes the Presidency.

Let me be more specific and speak to a few of the issues I know we will be facing. First, we will be studying the future structure of banking. The Administration has a mandate under the International Banking Act to provide the Congress with a report and recommendations on the McFadden Act and its restrictions on banking within state boundaries. While the report has been delayed, its day in the sun cannot be too far off.

For many of us, McFadden has been considered a major encumbrance to the achievement of a modern, efficient banking system meeting the banking needs of big business and small borrowers alike in a strong, competitive environment. The recent grandfathering of the interstate banking operations of foreign banks points to the inequities United States banks face and counsels changes in McFadden. From another standpoint, I lived through the Franklin failure and know all too well the difficulties of looking to a domestic bank as a merger partner in an emergency situation. How is one to find a domestic bank within the confines of a state, capable of taking over another large bank without major antitrust difficulties?

Somewhere in the eighties—my personal preference is earlier rather than later—there will be legislation

permitting interstate branching. I don't picture that legislation as authorizing an overnight, free-for-all, coast-to-coast dash, as banks and street corners are gobbled up. I trust it will be a stage-by-stage process both geographically and in terms of time. I would trust too that, as a bank's proposed geographical span is broadened and the number of its offices increased, the bank regulators would continue to give careful consideration to the antitrust aspects as well as to management competence, the adequacy of the capital base, earnings performance over time, and the efficiency, security, and control of day-to-day operations.

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Permit me an aside. As the Federal regulators deal with the matter of changes in the banking structure, I hope they will review carefully their concepts of markets.

- There is the geographical marketplace, and it is difficult for me to comprehend that for some very large banks the marketplace stops at the state line.
- There are markets in terms of products. It is again difficult for me to comprehend, particularly here in the Northeast as thrift institutions gain new powers, that a commercial bank's share of the market is measured strictly in terms of other commercial banks, excluding the savings banks, savings and loans, credit unions, and other financial entities. For example, a medium-sized commercial bank, by my standards, can look misleadingly large in its market when the competing thrift institutions across the street are excluded from the numbers.

Since I'm with the Federal Reserve, I feel an obligation to say some words about monetary policy. As you all know, the October 6 package included the adoption of a new operating approach to monetary policy which focuses on the linkages between reserve paths and monetary aggregates. Levels of short-term interest rates are now de-emphasized. This new approach to open market operations has been tested over recent weeks and will be tested further and refined, as needed, over the months ahead.

Although it is too early for definitive conclusions, we think that the new approach is bringing about some desired results. These results include a reduction of the rate of growth of the monetary aggregates, and we've been seeing that. The new technique is probably contributing to that slowing, but the other tightening moves of October 6 probably also deserve some credit.

The domestic markets and the market analysts seem now to have a better grasp of our approach but that's not the case overseas. Our de-emphasis of short-term rates has occasionally led to a drop in the Federal funds rate, and foreigners view that as an easing of policy by the Fed even when they are told that is not the case. We have a major educational challenge in this respect.

In the monetary policy area, too, we are reexamining the role of the discount window and of the discount rate in the current policy environment. We are also reviewing the appropriate extent of access to the discount window by member banks and all other depository institutions, especially as we see the potential number of borrowers growing rapidly. While it is too early to tell what the reviews will lead to, my own sense is that the discount rate has had, and should not lose, its signal effect because it is an important, meaningful, and well-understood expression of the direction of monetary policy. At the same time, the discount window, in its classical sense, must be available to assure that the banking system has a source of liquidity in times of occasional market strains, or adverse deposit flows, as well as the knowledge that there is a lender of last resort.

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I have also been thinking of the money markets. As a discount officer in the midsixties, my focus—and that of most money desk managers—was the Federal funds market, and now, only fifteen years later, we all talk

of global funding, Eurodollar markets, foreign exchange markets, securities futures markets—and, of course, the perennial Federal funds market. In fifteen years, these markets have not only grown in dollar size, the volume of transactions has also increased dramatically, particularly in the New York foreign exchange market. In that market, we'll be doing another survey fairly soon to get a current fix on the numbers.

I often wonder as to the underlying economic justification of this ever-growing volume of transactions, and whether the economic justification outweighs the risks inherent in the sheer size and number of these transactions. I know that Herstatt and Franklin resulted in new internal controls, limits, and procedures. I hope that, with the passage of time, those new systems haven't become thought of as routine.

Additionally, I would share with you my concern as to the role rumors play in the foreign exchange and commodities markets, and with some growing spillover into the government bond market. I am reminded of the day shortly after the announcement of the Federal Reserve's October 6 package. It was a Friday and, first, the rumor was that Paul Volcker had resigned. Not satisfied with Paul Volcker's resignation, the next rumor was that he was dead. Whether the source of the rumor had a short or a long position, he was certainly trying to hedge his bet, and not in the most ethical of ways. Similarly, about a week ago there were rumors that the Russians had invaded Iran, and in no time at all the price of gold shot up through $800 an ounce.

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My last comments are on technology and computers. For the Fed and for all banks, the decade of the eighties will be a period of important change. We will see the nationwide replacement of the Federal Reserve Communications System. For the Federal Reserve, the change in technology is planned to accommodate the banking needs of the eighties, consistent with the Fed's bank service role. For example, we will see at the New York Fed, our old workhorse, the Sigma IX, replaced by a computer from the next generation. Throughout the banking system, there will be a move to real time accounting, with improvements in risk-management techniques but also with uncertain effects on financial markets, financial practices, and business relationships. At the New York Fed, we will continue to install new high-speed currency equipment as part of our efforts to improve the quality of currency in circulation.

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I've covered a number of topics this morning but feel I have left unmentioned others that will require our time and attention. It may well be that the developments of the eighties that we haven't even thought of will have the greatest impact on our lives as commercial or central bankers. At any rate, the decade of the eighties will test us all. I look forward to working with you as we analyze and master the challenges that face us.

Regional Wage Patterns: How Does New York Compare with the Rest of the Country?

Over the past several years, the regional patterns of wages in the large urban areas of the country have undergone a major shift. This article attempts to evaluate how wages in the New York area have behaved relative to wages elsewhere in the country. It does so by contrasting the wages of workers in the New York region with those of comparable workers having like qualifications and characteristics in other regions of the country, rather than by contrasting wage rates for specific jobs.[1] The coverage spans the bulk of the working population, although it may not provide a totally accurate representation of those at the high end of the income distribution. The results of this study suggest that, after allowing for regional disparities in the cost of living, New Yorkers are now on average among the lowest paid workers in urban America. As recently as 1973, however, both male and female workers in the New York area earned substantially higher money wages than comparable workers anywhere else in urban America. By 1978, the situation had changed dramatically. Money wages in the New York area had not increased as much as they had in every other region of the country. In fact, the money wages of male workers in the New York area were evidently lower than those of comparable individuals in all but one other region.

[1] Measuring regional wage differentials in terms of the wage rates for specific *jobs* is rather difficult. At a point in time, the qualifications of workers doing a specific job are likely to vary considerably in different parts of the country. Also, out of all the many different kinds of jobs there are, comparatively few can be defined *precisely* enough that they can validly be used in making meaningful wage comparisons across regions.

Why do wages differ across geographic areas?

The national labor market is really a composite of overlapping regional labor markets, each with its own specific wage structure. What matters to workers is their real wage, not the dollar amount. As long as each local labor market succeeds in disseminating information about economic conditions in neighboring markets as well as in itself, and as long as workers and companies are free to move wherever they choose, the real wage will tend to be the same for *comparable workers* —*i.e.*, comparable in terms of their qualifications and characteristics—throughout the country. Even if the real wages of comparable workers were the same everywhere, their money wages would still have to vary insofar as the cost of living differs across the country. In fact, the cost of living does differ substantially throughout the nation, not only between regions but also within each region.

How much an individual earns depends vitally on his or her qualifications. The more educated or experienced the worker is, the more productive and thus the greater his or her real wages tend to be. Accordingly, disparities in the average amounts of education or experience in the regional work forces will be reflected in corresponding differentials in average wages between regions.

Other characteristics also affect an individual's wages. For example, wages vary across occupations and industries, reflecting the differences in such things as the nonpecuniary aspects of work. Similarly, workers differ in terms of such personal characteristics as race, sex, marital status, or ethnic background; and each of these traits affects a worker's wages.[2] Consequently, differences in the composition of the regional work forces with respect to these characteristics will be reflected in corresponding differentials in the average regional wages.

Regional wage differentials are not solely due to differences in workers' qualifications and characteristics. Indeed, any economic development that affects the demand or supply of labor differently in one geographic locale than in another will result in transitory regional wage differentials. For example, the demand for a certain product manufactured exclusively in one region may boom or fade; a technological innovation may occur which affects only certain industries clustered in one particular region; or there may be a larger immigration from abroad of low-skilled workers into one area than into another.

Although local labor markets do interact, they are not perfectly synchronized. Thus, a change in conditions in one local labor market will not be immediately transmitted to the others, and comparable workers may *temporarily* earn different real wages across the country. In that event, however, workers will have an incentive to move to those areas where real wages are high. As workers relocate to take advantage of temporary differentials in real wages, the differentials will tend to be reduced, even as new wage differentials appear elsewhere.

At issue here are several interrelated matters: Do wages vary among comparable workers in different regions of the country? If wages do vary across regions, are the differentials only in money terms, or are they in real terms as well? If there are regional patterns in money and real wages, have they persisted over time in the same direction and at the same level of magnitude?

Whose wages are to be compared?

In this study, regional wage differentials are measured by comparing how much workers in the New York metropolitan area earn with what workers having similar qualifications and characteristics earn in other parts of the country. In addition to the "true" regional wage differentials, however, there is also a systematic tendency for wages to vary with city size. In fact, money wages tend to be higher, the larger the city, as measured by the population of the associated standard metropolitan statistical area (SMSA).[3] Thus, wages will vary between regions in part because of regional differences in city concentrations. To distinguish the "true" regional effect from the one involving city size, the focus of this study has been narrowed to those workers residing in twenty-nine of the fifty largest SMSAs, according to the 1970 rankings.[4]

By focusing on these twenty-nine SMSAs, the coverage of this analysis is restricted to those workers who live in the larger cities with populations of one million or more. Consequently, the area wage differentials that we estimate should then be attributable primarily to differences among regions and not to differences in city concentrations within those regions. The country is divided into five separate tracts.

- The New York metropolitan area, which consists of New York City, certain neighboring New York State suburban areas, as well as certain major urban areas in northeastern New Jersey.

[2] Such characteristics are generally unrelated to one's productivity in the work place, yet individuals possessing them may still earn different wages than other comparably qualified workers. This phenomenon is difficult to rationalize in strictly economic terms. It could be that employers prefer not to hire "minority" workers or that other workers prefer not to work with these "minority" people. In either event, if the work forces in different regions differ with respect to the incidence of personal characteristics, the average wage will vary across the country.

[3] This relationship is partly a consequence of differences by city size in the concentration of job opportunities. In addition, the relationship also reflects both the advantages and the disadvantages associated with cities of a specific size. Examples include such items as the level of public services provided, air pollution, water pollution, climate, incidence of environmental disease, and the incidence of crime. All these factors contribute in varying degrees to the "quality of life" of a particular area. In turn, the wages in different areas will reflect the varying qualities of life. At the same time, the cost of living also tends to vary with city size. For additional discussion of these matters, see the articles by Irving Hoch, "City Size Effects, Trends, and Policies", *Science*, 193 (September 1976); and Robert S. Goldfarb and Anthony M. J. Yezer, "Evaluating Alternative Theories of Intercity and Interregional Wage Differentials", *Journal of Regional Science*, 16 (December 1976).

[4] These twenty-nine SMSAs were chosen because they were the only ones of the fifty largest for which cost-of-living information was available. Arranged by size, these twenty-nine SMSAs are: New York, N.Y.; Los Angeles-Long Beach, Ca.; Chicago, Ill.; Philadelphia, Pa.; Detroit, Mich.; San Francisco-Oakland, Ca.; Washington, D.C.-Md.-Va.; Boston, Mass.; Nassau-Suffolk, N.Y.; Pittsburgh, Pa.; St. Louis, Mo.-Ill.; Baltimore, Md.; Cleveland, Oh.; Houston, Tex.; Newark, N.J.; Minneapolis-St. Paul, Minn.; Dallas, Tex.; Seattle-Everett, Wash.; Milwaukee, Wis.; Atlanta, Ga.; Cincinnati, Oh.; Patterson-Clifton-Passaic, N.J.; San Diego, Ca.; Buffalo, N.Y.; Kansas City, Mo.-Kan.; Denver, Col.; Indianapolis, Ind.; Fort Worth, Tex.; and Gary-Hammond-East Chicago, Ind.

In assigning cost-of-living indexes to certain areas, several SMSAs were sometimes combined. Thus, one cost-of-living index was available for the whole group of New York, Nassau-Suffolk, Newark, and Patterson-Clifton-Passaic (*i.e.*, the New York region); one for Chicago and Gary-Hammond-East Chicago; and one for Dallas and Fort Worth.

- The rest of the census Northeast, which consists of New England and the heavily urbanized areas of "upstate" New York, Pennsylvania, and southern New Jersey.
- The North Central, which encompasses the most urbanized areas of the Midwest.
- The South, which runs from the heavily urbanized areas of the South Atlantic states to as far west as Texas.
- The West, which includes the urbanized areas in both the Mountain and Pacific divisions.

The data used in this study cover 13,000 employed workers in May 1973 and another 13,000 in May 1978.[5] These workers represent a full range of occupations and industries in each of the five regions. Detailed information is given about each of these workers—for example, education, age, sex, race, place of residence, and marital status. With this information, comparable workers can be identified in the different regions and matched with respect to qualifications and characteristics. Because the data record where an individual lives but not where he or she works, it is assumed that each person both lives and works in the same SMSA.

In analyzing regional wage patterns, two different measures of wages are used. One is the actual amount of before-tax money wages of each worker. While it would have been preferable to have included fringe benefits along with wages, the survey data used in this study do not include information about nonwage benefits. The other measure is an estimate of the corresponding real wage which takes into account differences in the cost of living across the country. An index of the cost of living was obtained for each of the SMSAs; the price data on which they are based refer to autumn 1972 and autumn 1977. (Note that these cost-of-living indexes are only compiled once a year.) For example, as shown in Table 1, the cost of living in the New York metropolitan area in 1977 was 11.9 percent higher than the national urban average, and 20.6 percent higher than in Atlanta. As defined here, the cost-of-living index indicates how much it costs an urban family of four in a particular area to enjoy an "intermediate standard of living", exclusive of personal income taxes, compared with a national

Table 1

Regional Indexes of the Cost of Living*

Region	Autumn 1972	Autumn 1977
Urban United States	100.0	100.0
Northeast:		
Boston, Mass.	115.2	115.9
Buffalo, N.Y.	104.1	104.6
New York-Northeastern N.J.	113.1	111.9
Philadelphia, Pa.-N.J.	100.5	101.7
Pittsburgh, Pa.	96.1	96.6
North Central:		
Chicago, Ill.-Northwestern Ind.	104.7	102.4
Cincinnati, Ohio-Ky.-Ind.	96.1	97.8
Cleveland, Ohio	104.0	103.1
Detroit, Mich.	99.9	101.2
Indianapolis, Ind.	100.6	99.3
Kansas City, Mo.-Kans.	99.4	97.6
Milwaukee, Wis.	101.2	101.6
Minneapolis-St. Paul, Minn.	98.2	98.0
St. Louis, Mo.-Ill.	98.5	97.2
South:		
Atlanta, Ga.	93.0	92.8
Baltimore, Md.	96.6	97.7
Dallas, Tex.	93.9	94.0
Houston, Tex.	92.5	94.8
Washington, D.C.-Md.-Va.	101.0	102.6
West:		
Denver, Colo.	96.7	97.9
Los Angeles-Long Beach, Calif.	102.1	101.2
San Diego, Calif.	100.9	99.2
San Francisco-Oakland, Calif.	108.4	108.0
Seattle-Everett, Wash.	102.0	104.0

* Estimated as the annual cost of an "intermediate" budget for a four-person family, excluding total personal income taxes.

Source: Bureau of Labor Statistics.

[5] These data are from the Current Population Surveys (CPS) taken at these two times. Omitted from consideration were those workers who were unemployed or who worked less than ten hours per week. Also omitted were those individuals who were classified as farmers or as private household workers, since some of their wages accrues as income-in-kind that is usually unreported. Thus, these two groups of workers were excluded on the ground that their wages could not legitimately be compared with those of other workers.

The sample size of all paid workers covered in the CPS for the nation as a whole (except farmers and private household workers) amounted to about 40,000 people. The subsamples of 13,000 individuals used in this study refer to those workers who live in large urban areas. Just as the larger random samples for the CPS are representative of workers in the nation, so the subsamples used in this study are representative of those workers who live in the large urban centers of the country.

There is one unavoidable problem associated with the use of data from the CPS in analyzing wage differentials: Each worker's earnings are reported in such a way that his or her weekly earnings cannot exceed $999; workers who earned more than this are included in the survey, but with a reported income of $999 per week. The number of observations that fall into this category in the sample for either 1973 or 1978 is so small, however, that it is not anticipated that this problem will have much of an effect on the estimates presented here.

average for all urban areas.[6] For a given year, the real wage is derived by dividing each worker's before-tax money wage by the cost-of-living index appropriate to the specific SMSA in which he or she lives.

Does the average wage vary across regions?

Regional wage differentials can be calculated on a gross basis as the ratio of the average wage in one region to the average wage in another region—"gross" in the sense that these ratios do not take into account the systematic differences in the qualifications, characteristics, and industrial and occupational compositions of the regional work forces. The gross regional wage differentials for 1973 and 1978 are presented in Table 2 in both money and real terms. In computing these ratios, the mean wage for the New York area was always used as the numerator. Accordingly, the ratio is greater than one when wages are higher in New York than in another region, and less than one when wages are lower in New York.

Average wages were rather widely dispersed in 1973 (Table 2). For males, the average wage varied as much as 10 percent in money terms between regions. In fact, in 1973 the average money wage for males was *higher* in the New York area than in every other region; and, while money wages were lowest in the South, they were only slightly lower there than they were in the Northeast outside the New York area. However, in real terms, the average wage for males was actually lower in New York than elsewhere in the country. For females, the average wage varied as much as 18 percent in money terms between regions, and money wages were sharply higher in the New York area than in other regions.

The gross regional wage differentials for 1978 are much different from those for 1973. For both males and females, relative money wages in New York had declined noticeably in comparison with *every* other region of the country. That is, from 1973 to 1978, average money wages did not increase as much in New York as they did in other regions. Notice, too, that real wages declined less in New York relative to other regions than did money wages. This reflects the fact that, over this period, the cost of living rose less in the New York area than in other regions.

It is important to recognize, however, that the gross regional wage differentials in Table 2 are averages which do not accurately describe the relative wages of workers in particular occupations or industries. For instance, although wages were low on average for males in New York in 1978, those who were either service workers or salesmen fared better there than in other regions. Similarly, whereas wages for women were on average highest in New York, females employed in the manufacturing sector were the lowest paid in New York.

Do wages of comparable workers differ regionally?

The gross regional wage differentials are not so easy to interpret, as some of the disparities in average wages across regions simply reflect dissimilarities in the work forces. Does the relatively low average wage of men in 1978 in the New York area, for instance, mean that these men have less education and experience or that they are more concentrated in low-paying occupations and industries than men in other regions? Or do the wage differentials instead reflect disparities in the "market values" of comparable workers across the country?

Answers to these questions can be obtained by comparing the wages of workers who are alike in all respects except region of residence—that is, by comparing the regional wage differentials which are *net* of the effects of differences in the workers' characteristics.[7] Estimates are given in Table 3 for 1973 and 1978. As before, wages in the New York area always appear in the numerator of these ratios. Clearly, even after adjusting for the systematic dissimilarities in the characteristics of the regional work forces, substantial "net" wage differentials remain in both money and real terms in both years. These estimates, it should be emphasized, measure the wage differentials between comparable *workers*, rather than between comparable *jobs*.

Judging by these net wage differentials, there was indeed a shift in the regional wage patterns for urban Americans between 1973 and 1978. Over that period, the money and real wages of both males and females in New York slipped by varying degrees in relation to what comparable workers earned in every other part of

[6] Federal, state, and local personal income taxes were excluded because of the difficulties involved in measuring the quantities of public goods that consumers "buy" with these tax revenues as well as in measuring the specific amounts of the taxes paid by each individual in the data samples.

[7] The method used to calculate these net differentials is a multistep statistical exercise that is explained in detail in the appendix at the end of the text. Essentially, what it does is to determine how much each worker in region A would hypothetically earn in region B, given the prevailing wages in region B, and then to compute the ratio between these hypothetical wages and those that the workers actually earn in region A. Then, after calculating the corresponding ratio for the workers in region B, the two ratios are averaged to form one estimate of the *net* wage differential between these two regions. This measures the average wage differential between workers who are alike in all respects except region of residence.

Table 2

Estimated Gross Regional Wage Differentials 1973 and 1978

Worker Year	Rest of Northeast	North Central	South	West
	Ratio of the average money wage in New York to the average money wage in each of the above regions			
Males:				
1973	1.09	1.03	1.10	1.04
1978	1.01	0.96	0.99	0.95
Females:				
1973	1.18	1.13	1.12	1.07
1978	1.16	1.10	1.05	1.04
	Ratio of the average real wage in New York to the average real wage in each of the above regions			
Males:				
1973	0.99	0.93	0.93	0.94
1978	0.94	0.87	0.86	0.87
Females:				
1973	1.09	1.01	0.96	0.97
1978	1.09	0.98	0.91	0.95

Table 3

Estimated Net Regional Wage Differentials 1973 and 1978

Worker Year	Rest of Northeast	North Central	South	West
	Ratio of money wages in New York to wages of comparable workers in each of the above regions			
Males:				
1973	1.11	1.02	1.09	1.05
1978	1.03	0.96	0.98	0.94
Females:				
1973	1.15	1.10	1.15	1.07
1978	1.10	1.03	1.02	0.99
	Ratio of real wages in New York to wages of comparable workers in each of the above reigons			
Males:				
1973	1.01	0.92	0.92	0.95
1978	0.96	0.86	0.85	0.86
Females:				
1973	1.06	0.98	0.97	0.97
1978	1.03	0.93	0.89	0.90

the country.[8] These declines in New York's "net" relative wages, it may be noted, are generally larger than those observed in the gross regional wage differentials.

The changes that occurred between 1973 and 1978 in the regional differentials in money wages are the most startling of all, however. In 1973, New Yorkers on average earned substantially higher money wages than comparable workers in all other regions. By 1978, the situation was strikingly different. For women, average money wages were still higher in the New York area in 1978, but by much less than they had been five years earlier. The relative wages of women in 1978 were in fact higher in the West than anywhere else in the country including New York. At the same time, the average money wages of men in New York had fallen sharply in relation to the wages of comparable workers in all other regions—slipping to the point where, in 1978, men actually earned less in New York than in every other region except the rest of the Northeast.

It should be remembered, however, that the estimated regional wage differentials reported in this study are *averages*. There will be certain classes of workers, of course, whose wages are exceptions to these generalizations. For example, in the finance, insurance, and real estate (FIRE) industries, the money wages of men in New York are about equal to those of comparable workers in these industries elsewhere in urban America. For women employed in these FIRE industries, money wages are on average from 9 to 19 percent higher in the New York area than in the other regions of the country.

[8] Similar declines in the relative wages of workers in New York in comparison with those in the rest of the country show up in other wage measures, too. For instance, there are the area-wage surveys, prepared by the Bureau of Labor Statistics, which contrast wages for comparable *jobs* in different cities. From 1973 to1978, the wage rates in New York relative to those for comparable jobs in twenty-seven other large cities declined from 4 to 9 percent for three of the four major groupings of jobs. (It may be noted, however, that the average wage levels of three of the four major groupings remained higher in 1978 in New York than in the other large cities.) Similarly, according to the payroll data regularly collected by the Bureau of Labor Statistics, the average wage of nonsupervisory workers in the manufacturing sector fell 9 percent from 1973 to 1978 for the New York area in relation to twenty-four other large cities across the country.

Summary and conclusions

The regional wage patterns for urban Americans are remarkably flexible. From 1973 to 1978, the money wages of male workers in New York slipped on average between 6 and 11 percent in relation to the wages of comparable workers in other parts of the country, while the relative money wages of female workers in New York declined between 7 and 13 percent. By 1978, then, males actually earned lower money wages in New York than comparable workers in the rest of the country

outside the Northeast. Hence, these results indicate that, contrary to popular opinion, workers in the New York area on average no longer invariably earn higher wages than comparable workers in the rest of the country.

What accounts for such sweeping changes in relative wages? From 1969 to 1977, the New York area experienced sharp losses in employment. Indeed, in New York City, almost 600,000 private jobs were lost. To some extent, the changes in the relative wages between New York and the rest of the country reflected these massive movements of jobs. Thus, the recent declines in relative wages between New York and the other regions show that labor markets are operating efficiently in allocating workers to wherever they are in greatest demand. At the same time, these changes in relative wages suggest that the New York area is becoming a more attractive location for businesses.

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Appendix: Estimating Net Regional Wage Differentials

The net regional wage differential measures the average disparity between the "market values" or returns to the qualifications and characteristics of workers who are alike in all respects except for the region in which they live. Thus, if a worker were to move from one region to another, his or her wage would on average change by a proportionate amount equal to the net regional wage differential.

The procedure used to measure these wage differentials involves two steps. First, estimates are developed for each region of the returns in wages (money and real) that an individual would receive on average based on his or her years of schooling and of work experience and socioeconomic characteristics such as marital status, race, Spanish origin, veteran status, union membership, part-time status, and dual job-holding status.[1] The estimation also controls for broad occupational and industrial categories. Prior study has shown that each of these attributes affects the wages an individual may expect to receive. For example, belonging to a union may increase an individual's anticipated wage (relative to a comparable nonunion member) because of the ability of unions to induce employers to grant higher wages than they would have chosen to pay otherwise.

The second part of the analysis involves making pairwise comparisons of regions. Estimates are calculated of the wages that workers would receive in each of the two regions if the market returns to their qualifications were the same in both regions. For example, one of the estimates measures the hypothetical real wages that New Yorkers would receive if the returns to

their qualifications were the same as in the South. Using this information, an estimate can be formed of the portion of the gross wage differential that reflects differences in the characteristics of the work forces in the two locations. The rest of the gross wage differential is assumed to be due entirely to differences in the market returns to these characteristics. The latter, then, is the estimate of the net wage differential—*i.e.*, the differential in wages between workers who are alike in all respects except for their region of residence.[2]

By its very nature, however, this estimate of the net regional wage differential is a *residual*: It is the portion of the gross wage differential remaining after accounting for differences in the average characteristics of the regional work forces. If, in the statistical analysis of individual wage differences, any important characteristics have been overlooked, these net differentials will include their effects as well. Nevertheless, having taken into account those economic factors which have been found to have the most important impacts on individuals' wages, this estimate appears to be a reasonably accurate measure of the advantage or disadvantage attributable to the individual worker's geographic location.

[1] This is done by estimating for each sex and for each wage type (money and real) a wage structure which is a regression equation of the form $\ln W = XB + U$ fitted to detailed data on individuals, where $\ln W$ is the natural logarithm of the individual's estimated hourly money (or real) wage, X is a matrix of explanatory variables, B is a vector of estimated coefficients, and U is a vector of random disturbances. In an equation of this form, each individual element of the B vector may be interpreted as the proportionate effect of the associated explanatory variable on wages—that is, the market value or return to the characteristic. It should be noted that by estimating separate equations for each region we allow both the characteristics of the work force and the returns to any specific characteristic to vary across regions.

The econometric results are described in detail in a technical paper available on written request from the authors.

[2] Each of the pairwise regional wage comparisons is made under two alternative assumptions. For example, in comparing real wages in the New York region and in the South, these assumptions are (1) that the estimated New York real wage structure would apply to all workers, or (2) that the estimated Southern real wage structure would apply to all workers. Under assumption (1), the wages Southerners would receive are estimated by multiplying the mean values of the explanatory variables for Southern workers by the estimated coefficients for New Yorkers. The difference between this estimate and the observed mean wage for the New Yorkers measures the wage differential attributable to differences in the characteristics of the workers in the two regions. The difference between the estimated Southern wage and the observed mean wage for Southerners—that is, the remainder of the gross differential—measures the net differential that persists between comparable workers. This, then, reflects regional differences in the returns to workers' characteristics. Similar estimates can be made under assumption (2). The net differentials reported in Table 3 are the midpoints of estimates under assumptions (1) and (2). They are proportional differentials because they are antilogarithms of differences between wage variables expressed in logarithms. For details on this estimation technique, see Ronald Oaxaca, "Male-Female Wage Differentials in Urban Labor Markets", *International Economic Review*, 14 (October 1973).

Co-op Fever in New York City

Private cooperative apartment buildings have existed in New York City since 1909, but it was not until the mid-1960s that the market for these apartments came alive. Although this market has had its ups and downs since then, it has flourished in recent years. From 1976 until the end of 1979, co-op prices tripled and the number of co-op apartments increased sharply. Almost all the "new" co-ops have been converted from rental apartment buildings. This burgeoning conversion activity is all the more striking since other sectors of the city's housing market have been contracting. What makes co-ops so different? What explains their recent surge in popularity?

Overview of New York City's housing market

New York City's housing market has been in a state of upheaval for some time now. On the demand side, the total population of the city peaked at 8 million people in 1966 and since then has fallen by about 870,000 or almost 11 percent. The number of households has also dropped, but not so rapidly as the population because the size of the average household has been shrinking. Indeed, over the years, the number of single persons living in the city has grown sharply. Among those households renting apartments, which represented 73 percent of all occupied housing in the city during 1978, 37 percent were single persons—up about 10 percentage points from 1965. (The most recent housing data for New York City are those from the 1978 survey.) In Manhattan, single persons accounted for slightly more than half of all households renting apartments.

While the population of New York City stopped growing in 1966, the number of occupied housing units (*i.e.,* both houses and apartments) continued to rise until 1970. Since then, there has been a loss of some 260,000 units from the existing housing stock, with more than half of the loss occurring between 1975 and 1978. The recent decline was concentrated in rental units and is mainly the result of deterioration, abandonment, and demolition. At the same time, there has been only minimal new construction. From 1966 to 1977, about 19,000 new dwelling units were added each year to the city's housing stock—fewer than half the average number added in each of the previous ten years, and not enough to replace the existing units being abandoned or torn down. On balance, after peaking in 1970, the occupied housing stock in New York City experienced a *net* decline of 130,000 units, slipping to 2.66 million units in 1978 (Table 1).

Compounding the problems in the housing market are New York City's extensive rent regulations. In general, the larger apartment buildings erected before 1947 are covered under rent controls, whereas those

This study has benefited from the expertise of Arthur Cohen, Betsy Dean, Daniel Furlong, Austin Haldenstein, Brewster Ives, Leo Katz, Irwin Leimas, Harold Lubell, John Modrovsky, Edward Potter, Jay Rachmani, Patrick Rohan, and David Sweet, none of whom are responsible for errors or opinions stated herein.

Table 1

Occupied Houses and Apartments in New York City

In thousands

Year	Total occupied units	Renter-occupied units	Owner-occupied units	
			Total	Cooperatives*
1940	2,048	1,725	323	†
1950	2,358	1,908	450	†
1960‡	2,655	2,078	577	†
1965	2,720	2,077	643	76
1968	2,767	2,096	671	92
1970§	2,786	2,118	668	108
1975	2,719	1,999	720	143
1978	2,657	1,930	727	152

* This is the total of private and publicly assisted units. Also included are condominium units, which in 1975 numbered about 5,000 and represented less than 1 percent of the city's housing stock.

† Not available.

‡ In 1960, approximately 75,000 one-room units were included which were omitted in 1950.

§ The data for 1970 were made consistent with those for other years by adjusting the 1970 data to exclude approximately 55,000 units in such special places as jails and hospitals where large numbers of people dwell and which require different survey procedures from those used for private homes or apartments.

Sources: Adapted from Chester Rapkin, *The Private Rental Housing Market in New York City, 1965* (1966), pages 1-2; Paul L. Niebanck, *Rent Control and the Rental Housing Market in New York City 1968* (1970), page 55; Lawrence N. Bloomberg, *The Rental Housing Situation in New York City 1975* (1976), page 62; and Peter Marcuse, *Rental Housing in New York City, 1975-1978* (1979), pages 77-78.

built since 1947 are subject to rent stabilization.[1] Of the city's 1.93 million renter-occupied units in 1978, 872,000 were rent stabilized and 402,000 were rent controlled. While these regulations have been relaxed to some extent in recent years, they still depress actual rents on apartments below what they would otherwise be.[2] As a result, there is little incentive to construct new apartment buildings or to maintain older buildings.

In contrast to the shrinking rental market, the number of homeowners in New York City has been increasing in both absolute and relative terms for the last forty years. For a long time, the rise in homeownership mainly involved single-family homes. Since the mid-1960s, however, most of the growth has been in multifamily cooperative buildings.

Co-ops: facts and figures

In New York City, there are two kinds of cooperative apartments—private and publicly assisted. Although publicly assisted cooperative units have outnumbered private units for a long time, the gap narrowed noticeably during the 1970s. In 1975, the earliest year for which detailed data are available, there were roughly 83,000 publicly assisted cooperative units and about 60,000 private cooperative apartments in the city, some 52,000 of which had been converted from rental units.[3] Of the 35,000 "new" cooperative units added from 1970 to 1975, conversions accounted for about 16,000 units, while another 16,000 units comprised a single publicly assisted housing project.

Since 1975 the growth of private cooperative apartments in the city has accelerated, with almost all the "new" co-ops being conversions of existing rental units (Table 2).[4] Indeed, in 1979 alone, the number of conversions was more than twice as many as the year before, while in 1978 the number had exceeded the total for the four previous years. Altogether, from 1975 to 1979, the stock of private cooperative apartments grew by more than one third.

Co-op conversions thus far have been concentrated in relatively well-to-do neighborhoods, especially in Manhattan, with the newer and more desirable buildings converting first. Lately, however, conversions have

[1] A maze of regulations covers rental apartments in New York City. In broad outline, the two basic forms of rent regulation are rent control and rent stabilization. Rents on private rental apartments built before February 1, 1947 are subject to approval by the city's Division of Rent Control. Under current laws, the rents on these units are allowed to increase in stages until the established ceiling is reached. When controlled apartments are vacated in buildings of six units or more, their rents are allowed to rise to the going market rates and are then subject to rent stabilization; however, in buildings of fewer units, the rents in general are totally decontrolled.

The rent-stabilization program is administered by the Rent Guidelines Board. Under this program, rents in newly constructed buildings are negotiated between the landlord and tenant, and increases are thereafter determined by the Board in conformity with an index of operating costs. For the most part, these laws cover vacated rent-controlled units, as well as apartments in buildings of six or more units built after 1947.

[2] It has been estimated that, as a result of the rent-control laws, the total rental receipts for New York City housing in 1968 of $2.6 billion were from $500 million to $800 million lower than they would otherwise have been. The lower estimate is from Edgar Olsen, "An Econometric Analysis of Rent Control", *Journal of Political Economy*, 78 (November/December 1972); the higher one is from I. Lowry, J. Desalvo, and B. Woodfill, *Rental Housing in New York City*, Vol. II, *The Demand for Shelter* (New York City Rand Institute, June 1971).

In recent years, however, maximum legal rents have risen by fairly substantial amounts. Indeed, for leases coming due during the year beginning July 1, 1979, the city's Rent Guidelines Board has set maximum increases on the city's stabilized apartments of between 8.5 and 15 percent.

[3] These estimates are from *HUD Condominium-Cooperative Study* (Vol. II, Washington, D.C.: July 1975).

[4] These estimates, which are reported in Table 2 in the text, are compilations of the cooperative conversion plans accepted for filing in New York City. Most but not all these plans are realized.

been spreading to the other boroughs and into previously nonresidential areas of the city. Large loft areas in former manufacturing facilities as well as other commercial buildings are increasingly being turned into cooperative residences. Between 1977 and 1979, there were eighty-eight loft conversions registered with the state Attorney General, compared with a total of twenty-five from 1974 to 1976.

The legal basis for co-op conversions

Over the years, the New York State legislature has enacted a number of laws governing the conversion of rental buildings into cooperatives. One of the legislature's landmark bills was an amendment to the Martin Act passed in 1961. Under this amendment, every conversion offering for cooperatives located either within or outside the state had to be submitted to the Attorney General for approval if the offering or sale were made in or from New York State. All material facts had to be disclosed, including those pertaining to the financing of the offering, the background of the promoters, and any other relevant information as determined by the Attorney General.

Two kinds of co-op conversions were allowed under New York State law until 1974. One type did not require eviction and was known as an "outside-the-law" plan, even though it was perfectly legitimate. Under this plan, landlords waived their right to evict any nonconverting tenants but were still permitted to convert the building into a cooperative. Those tenants who elected not to convert remained subject to the existing rent-control and rent-stabilization laws. Although no minimum proportion of tenants had been legally mandated for these noneviction conversions, landlords usually sought to get consent of 15 percent of all apartments before proceeding.

The other method of co-op conversion involved eviction plans and required at least 35 percent of all tenants *in occupancy* to purchase their apartments. In those buildings with both rent-controlled and rent-stabilized apartments, the consent of 35 percent of each group of tenants was necessary. Alternatively, however, each group of tenants could be covered by a separate plan. In this case, an eviction plan required the consent of 35 percent of the group in question, while a noneviction plan needed the approval of only 15 percent.

To make it easier to achieve the minimum number of consents, some landlords began to "warehouse" their vacant apartments. That is, since the required minimum had been specified in terms of occupied units, landlords realized that they could expedite the attainment of this minimum by holding apartments vacant. Tenant groups complained about this practice, as well as about landlord harassment and building neglect.

In response to the numerous complaints, in 1974 the New York State legislature passed the Goodman-Dearie amendment to the Martin Act. Among the key provisions of this new amendment were those that eliminated "outside-the-law" conversions, imposed a two-year moratorium on the eviction of nonconverting tenants, outlawed the warehousing of apartments, and established a mandatory waiting period during which tenants could review proposed conversion plans.

The Goodman-Dearie amendment was allowed to lapse in mid-1977, whereupon New York's regulations governing co-op conversions reverted to the pre-1974 rules. Once again, both eviction and noneviction plans

Table 2

Cooperative Conversion Plans in New York City*

Year	Total number of projects involving: Ten units or less	Total number of projects involving: More than ten units	Total number of units	Location of projects: City total	Location of projects: Manhattan
1974	12	14	1,384	26	19
1975	18	12	704	30	27
1976	18	20	1,054	38	32
1977	35	44	1,757	79	68
1978	61	96	5,309	157	137
1979	104	145	12,578	249	196

* Counted here are the cooperative conversion plans which have been accepted for filing (*i.e.*, approved) by the state Attorney General; the apartments covered under these plans are available for sale.

Source: New York State Department of Law, Bureau of Real Estate Finance.

were permitted. (The legal requirements for evicting rent-controlled and rent-stabilized tenants are summarized in the appendix.) In mid-1979, several new state laws pertaining to co-op conversions were enacted. One of these was designed specifically to protect elderly tenants, while another was intended to discourage landlords from warehousing apartments.

Boom and bust: the 1960s and early 1970s

While co-ops have a long history in New York City, the first significant price boom did not occur until the latter half of the 1960s. At that time, buoyed by the expanding national economy and the rising stock market, the demand for co-ops burgeoned. As the available supply was limited, prices began to rise. Between 1966 and 1969, the asking price per room rose by almost 85 percent. After the economy peaked in 1969, the demand for co-ops waned and prices dropped precipitously. Asking prices fell by more than 33 percent, to about $11,500 per room between 1969 and 1972.[5]

In addition to the impact of the national recession, other factors unique to New York contributed to the weak co-op market of the early 1970s. Apparently there had been some overbuilding of luxury apartments in New York at that time, and apartment rents were comparatively low, providing little incentive for homeownership. Rents became even more relatively attractive by the quadrupling of fuel prices in 1973-74. Co-op boards quickly passed along these fuel increases in the form of higher monthly maintenance fees. In rental units, however, the rise in fuel costs had to be absorbed by landlords, at least temporarily, until existing leases expired. At the same time, New York City's economy continued to contract at an alarmingly fast rate. Amidst this decline, the city government's fiscal plight created uncertainties over prospective real estate taxes as well as over the quality and quantity of municipal services, further dampening incentives for personal investment in the city.[6]

During this protracted period of inactivity in the co-op market, several efforts were made to revive the market. In some instances, building owners themselves provided short-term financing to apartment buyers. Indeed, prior to 1971, the only other financing available to prospective co-op buyers was short-term personal loans from commercial banks. But, since these loans were for a maximum term of five years and were generally made at very high interest rates, they were largely limited to the well-to-do and thus did not spur the slumping market.

If prospective buyers did not have access to either of these loan sources, and most did not, then they would have had to pay cash for their co-ops. In an effort to eliminate this impediment to the buying and selling of co-ops, the New York State legislature in 1971 authorized thrift institutions and state-chartered commercial banks to make long-term, relatively low cost personal loans for co-op purchases. Yet this measure had little initial impact. In principle, this law broadened the public's accessibility to co-ops by providing them with an alternative means of financing. In practice, however, many buildings continued to require all-cash purchases, and financial institutions often were reluctant to make loans for either the maximum amount or the longest duration permitted.

Revival of the co-op market

In the mid-1970s, a combination of forces revived the co-op market. An upturn in the national economy began in early 1975. Soon afterward, New York City was aided by a three-year Federal emergency loan program that helped it avoid insolvency. Also, the city's economic health began to improve. Indeed, after bottoming out in 1977, private employment in New York City increased in 1978 for the first time since 1969.

As inflation worsened during the mid-1970s, co-ops and other real estate became increasingly popular as hedges against inflation as well as for their tax advantages. The ranks of prospective co-op purchasers were increased, moreover, by the newly available loans from financial institutions. With the five-year capping of the city's real estate tax rate beginning in July 1978, co-op owners were assured of stable property tax rates which were generally lower than those in the nearby suburbs. Furthermore, apartment rents were rising, owing to the cumulative effect of mandated rent rises. Additional impetus to co-op conversion activity has been provided by the energy problems which raised commuting costs and increased the fuel-cost advantage of multifamily over single-family dwellings.

Several new social and demographic developments coincided with those economic changes to add to the expanding demand for housing accommodations in the city. With the coming of age of the "baby-boom" generation and the growing number of single people living alone, the number of households has swelled. The rise in two-income families further increased the demand for higher quality, convenient living quarters. Also, the postponement of childbearing, together with smaller families, lessened the need for the traditionally larger homes of suburbia. Finally, the surge in inter-

[5] Douglas Elliman-Gibbons & Ives, Inc., *Newsletter* (Spring 1977).

[6] To this list of factors responsible for the slackening in co-op conversions, some observers would add the Goodman-Dearie amendment. However, there is no way to disentangle the individual influence of this law from the effects of the many other impediments then at work contributing to the slowdown in conversions.

national business activity in New York City has brought an influx of foreign residents, who are just as interested in buying co-ops as everyone else.

This multitude of forces resulted in an extended period of heightened activity in the market for co-op apartments. Demand, which began to pick up in mid-1976, sharply accelerated in 1977 and then continued to outpace the growth of supply throughout 1978 and 1979. Consequently, prices rose sharply (Chart 1). While the availability of price data is limited, it appears that co-op resale prices tripled between 1976 and 1979. Toward the close of 1979, however, this run-up in prices began to taper off, as interest rates surged and the availability of co-op financing was reduced.

Why Co-ops, and Not Condominiums?

Most owner-occupied apartments in New York City are organized as cooperatives, whereas those outside the city are generally set up as condominiums. The distinction between a co-op and a condominium is a legal one. A co-op is a corporation which issues stock; stock ownership entitles one to occupy a specific dwelling owned or leased by the corporation. In contrast, condominiums are much more like conventional houses. The owner of a condominium holds title to a specific apartment along with a part interest in the commonly shared facilities of the building or development.

Although the legal bases of co-ops and condominiums differ, the out-of-pocket costs to an apartment-owner are essentially similar. Each owner must pay a monthly maintenance charge covering the current operating costs of commonly shared facilities or services. Part of this payment in a co-op usually goes to cover the debt service on the building's blanket mortgage held by the corporation; in a condominium, however, there is no legal basis for a mortgage on the whole building because each unit is individually owned. In both cases, there is a board of directors made up of apartment owners elected by their fellow owners to run the building, including the setting of the monthly charges.

The tax advantages of co-ops and condominiums are also essentially the same. In 1931, New York State became the first jurisdiction to grant tax deductions to co-op owners for that portion of the monthly maintenance costs which covers real estate taxes plus the interest on the building's mortgage. Since then, these tax deductions have been extended to the Federal and New York City income taxes. Furthermore, when the purchase of either a co-op or a condominium apartment has been financed with a loan, the interest is also tax deductible.

Given the similarities between co-ops and condominiums, what accounts for the current popularity of co-ops in New York City? In large part, it appears to be a legacy of past eras. Co-ops have existed in the city since 1909, whereas the enabling legislation for condominiums was not passed in New York State until 1964. Thus, it may be that the predominance of co-ops in the city results from their long-standing familiarity to the public, lawyers, and lending institutions.

Another "advantage" of co-ops is that they give stockholders a degree of discretion over who is permitted to live in their building or development. When a co-op unit is being sold, the board of directors has the right to vote on whether it will allow shares in the corporation to be transferred to the prospective buyer. While potential purchasers cannot be barred for reasons which would violate the civil rights laws, there are legitimate grounds for exclusion. For example, co-op boards may prevent an actor or rock musician from buying stock in the corporation on the ground that his or her lifestyle would be disruptive to the other owners.

One other common form of exclusivity practiced by the boards of directors of co-ops involves their control over the downpayment—that is, the proportion of the purchase price which must be paid in cash. Prospective buyers are often required to make a downpayment of at least 50 percent on the co-op apartment. Indeed, many buildings in the city continue to require all

The economics of co-op conversions

To some degree, the recent co-op boom in New York is an extension of the real estate frenzy that has been sweeping the nation. Given the tax advantages, owning a co-op, like owning a condominium or a house, amounts to a practical, increasingly valuable tax shelter. Also, in general, real estate has lately come to be perceived as one of the most effective hedges against inflation. Sparked by these economic incentives, many people in New York City have decided that they would prefer to own rather than rent apartments.

This preference for ownership appears to be gaining momentum. In recent years, apartment buildings have been converted into co-ops at an increasingly rapid

Why Co-ops and Not Condominiums *(continued)*

cash. According to a poll taken in the summer of 1979 by Douglas Elliman-Gibbons and Ives., Inc., only one third of co-op apartment resales in the two hundred buildings surveyed were being financed with individual loans; and, in those cases where there was a loan, the buyer's downpayment averaged about 38 percent of the purchase price. Of course, these results may not be representative of overall co-op sales, as the buildings in this poll are probably among the more expensive ones in the city. In any event, when a condominium is sold, the other owners have neither the right to vote on prospective purchasers nor the right to control the proportion of the downpayment.

There are other incidental advantages of co-ops. Prominent among them is the relative ease with which co-op units can be resold in comparison with condominium units. When a co-op apartment is sold, the shares have to be transferred to the new owner, and a new occupancy agreement must be drawn up between the corporation and the new owner, but that portion of the blanket mortgage corresponding to the unit does not have to be refinanced. In contrast, when a unit is sold in a condominium, there are the costs of a new closing and title search as well as of the title transference. Whereas the actual closing costs on a co-op apartment may amount to $250 or less, they often run $1,000 or more for a conventional mortgage. Thus, the comparative ease, speed, and economy with which co-op apartments can be resold make them more attractive to highly mobile urban residents.

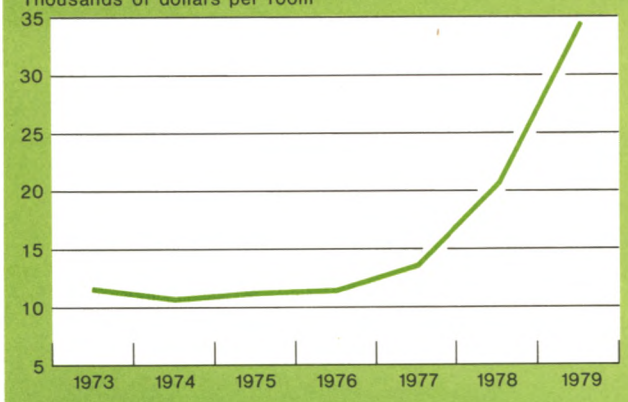
An additional benefit is that major repairs can be financed more readily in a co-op than in a condominium. Indeed, in a co-op, a blanket mortgage can be used to raise money for this purpose. In a condominium, such financing is unavailable, and each individual owner has to be assessed for his share of the cost of the repairs. The distinction is especially significant for those co-ops or condominiums which involve older buildings in need of major improvements.

Financial institutions in New York also have reason to prefer extending credit for financing co-ops rather than condominiums. State-chartered banks and thrift institutions are authorized to make co-op loans at an interest rate of 1 percentage point above the state's mortgage usury ceiling. (National banks can make these loans at an interest rate 1 percentage point above the Federal Reserve discount rate.) Alternatively, condominium loans are real estate loans which are subject to the state's mortgage usury ceiling. Thus, when market interest rates rise above this usury ceiling, the higher rate on co-op loans provides banks with an incentive to make these loans rather than the traditional mortgages needed by prospective condominium buyers.

Nevertheless, the sharp run-up in market interest rates since the Federal Reserve System's credit-tightening initiatives in October has severely curtailed the availability of co-op financing. While the situation has been ameliorated to some extent by Federal legislation effective in January which temporarily overrode mortgage usury ceilings in all states, the possibility that ceilings will be reimposed at the end of this three-month hiatus has left the short-term outlook for the co-op market in an unsettled state. In the long run, however, the strong economic and sociological underpinnings of the co-op market remain intact.

Chart 1

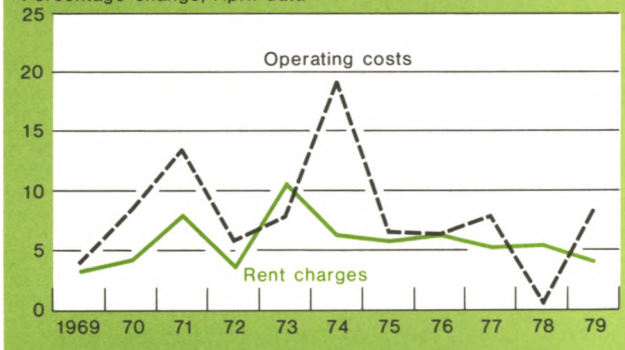
Average Selling Price in Resales of Cooperative Apartments



Source: Douglas Elliman-Gibbons and Ives, Inc.

Chart 2

Operating Costs and Rental Charges for Rent-Stabilized Apartments in New York City



Sources: United States Department of Labor, 1979 Price Index of Operating Costs for Rent Stabilized Apartment Houses in New York City (Regional Report 63, June 1979) and United States Department of Labor, "New York-Northeastern New Jersey Consumer Price Index", various issues.

pace. Indeed, the number of conversions in 1979 was almost seven times larger than in 1976. To a large extent, these co-op conversions appear to be the housing market's response to the intensifying cost pressures induced by the city's rent laws. Since the introduction of rent stabilization in New York City in 1969, the operating costs of rent-stabilized buildings have outpaced rents in all but two years (Chart 2). Over the ten years ended in April 1979, the rise in operating costs amounted to 122 percent whereas the increase in rental charges totaled 76 percent.

Landlords have reacted to the profit squeeze in several ways. Some have reduced their outlays for building upkeep and repairs; others have stopped paying their taxes; and a few have put up their properties for sale. Obviously, however, rental apartment buildings which are barely profitable do not command very high prices from prospective investors. In extreme cases where buildings are actually unprofitable, many landlords simply abandoned their buildings altogether.

Since the 1950s, builders have also been discouraged by soaring land prices and development costs. New zoning legislation adopted in the mid-1960s severely limited population density and further hampered the construction of multiunit dwellings. Therefore, available apartments have become increasingly scarce in the past few years. In fact, the rental vacancy rate in New York City was under 3 percent in 1978, an exceptionally low level considering that the vacancy rate for the nation has seldom been below 5 percent. Yet, because of the city's rent laws, actual rents are generally well below the "going market" rates.

The scarcity of rental apartments has had reverberations in the resale prices of co-ops. People looking for an apartment in the city basically have a choice between renting one or buying a co-op, and their decisions will be based on the relative costs. Accordingly, the price of a co-op apartment is usually no lower than the level at which the associated aftertax maintenance charge, the aftertax interest charge on the co-op loan (if there is a loan), and the foregone interest earnings on the downpayment are just equal to the *going* market rent for a comparable rental unit.

As the unfettered market prices of co-ops have risen in relation to rents, apartment buildings have become worth much more as cooperatives than as rental properties. Thus, many landlords have a strong incentive to convert their buildings into cooperatives. But, under the laws of New York State, landlords are not permitted to convert their buildings into co-ops under eviction plans unless at least 35 percent of the tenants agree to buy their apartments. In addition, a co-op owner is not entitled to use any portion of the monthly maintenance as a tax deduction unless 80 percent of the

income from the building accrues from co-op owners.

Tenants are often reluctant to buy for a variety of reasons. Some lack the financial resources, and others are afraid that their maintenance and mortgage payments as owners will soon exceed what they would otherwise have had to pay as rental charges. Typically, then, landlords will try to induce tenants into buying by offering them apartments at prices well below the cost to an outside purchaser. These discounts may amount to as much as 50 percent of the going market prices for co-op apartments. In effect, landlords and tenants share the capital gain that is realized when buildings are converted into cooperatives.

Co-ops—bane or blessing?

The growth which has occurred in co-op housing is generally viewed as a positive development for New York. Co-ops are playing an integral part in revitalizing decaying neighborhoods as well as in sustaining current residential areas. Co-op owners add cohesion and stability to city neighborhoods since they are not only less transient than renters but also more likely to be involved in community affairs. Indeed, as the purchase of a home is often an individual's largest lifetime investment, there is a strong financial motive in seeing to it that co-op housing units are as well if not better maintained than rental apartments.

Detracting from these benefits, however, is the concern that the recent flood of co-op conversions is exacerbating the scarcity of rental housing in New York City. Adding to the concern is the fact that private co-ops tend to be concentrated in just a few residential neighborhoods, and the more popular ones at that. Since New York City attracts a large, mobile population and encompasses many poor and elderly people, such a situation means inconvenience for some and outright economic hardship for others.

Yet the extent to which co-op conversions are *actually* contributing to the scarcity of rental housing in New York City is unclear. In large part, the current shortage can be traced to the city's rent laws which prevent rental receipts from rising apace with the operating costs of buildings. These rent regulations also greatly inhibit the construction of new multifamily buildings. Consequently, far from being the root cause of a scarcity of rental housing, co-op conversions are instead the housing market's reaction to the intensifying cost pressures induced by the city's rent laws. As such, co-op conversions are helping conserve and upgrade the city's stock of residential housing.

Despite the beneficial effects of co-ops, the planning boards in some neighborhoods have instituted zoning restrictions which limit changes in existing buildings. New York City, however, has not adopted a general moratorium on conversions, as has been done in some other metropolitan areas. Indeed, the productive value of moratoriums remains questionable since they themselves do not encourage new building or add to the total housing stock. These impediments to the working of a free marketplace may actually decrease the total stock because landlords who are not allowed to convert may then neglect and ultimately abandon their buildings.

On balance, co-ops may well represent a key ingredient in New York City's search for long-run economic health. Indeed, with co-ops as an option, the city's middle-class population no longer faces an either-or choice between the diverse appeals of city living and the lure of homeownership with its economic advantages. In view of the costs as well as the benefits of co-op conversions, it seems likely that New York's current policy of permitting the spread of co-ops while simultaneously safeguarding tenants' rights is the best strategy at this time.

Leonard G. Sahling and Rona B. Stein

Appendix: Eviction Requirements for Cooperative Conversions—1979

Rent-control tenants	Rent-stabilized tenants
(1) 35 percent of the rent-controlled tenants in possession when the plan is presented must purchase within six months of the plan's presentation.	(1) 35 percent of the tenants in occupancy when the plan is accepted for filing must purchase within eighteen months.
(2) Tenant has exclusive right to purchase for sixty days after the offering.	(2) Tenant has exclusive right to purchase for ninety days after the offering.
(3) After plan is effective, tenant has exclusive right to purchase for an additional thirty days on previously offered terms.	(3) No comparable provision.
(4) If tenant has not purchased and his apartment is offered for sale on terms more favorable than originally offered, tenant has the exclusive right for an additional fifteen days to purchase on these more favorable terms.	(4) If an apartment is sold within six months after the ninety-day exclusive period, that tenant has fifteen days to purchase on similar terms.
(5) If plan is effective and a nonpurchaser's apartment is sold, the purchaser has the right of eviction. However, two years must expire before the eviction can proceed unless 80 percent of tenants purchase, in which case a certificate of eviction may be issued immediately.	(5) No evictions are permitted until the latest of the following dates: one year after the offering is presented, the date on which the plan is declared effective, or the expiration date of the lease.
(6) Senior citizens over age 62 with gross income under $30,000 for whom the apartment has been the primary residence for the two prior years who choose to become nonpurchasers within ninety days after the plan is accepted cannot be evicted. In calculating the 35 percent minimum, one half the eligible senior citizens are excluded from the base.	(6) Same senior citizen protection against eviction. In calculating the base, all eligible senior citizens are excluded.
(7) If the plan is not declared effective, eighteen months from the date of presentation must elapse before another plan may be presented.	(7) No comparable provision.

Sources: "Chapter 432" of New York State's *Laws of 1979* and Edward Lehner and David Sweet, "Goodman-Dearie Expiration Leaves Coop Conversions Radically Altered", *New York Law Journal* (November 16, 1977).

Graduated Payment Mortgages

In the space of a few years graduated payment mortgages have achieved fairly widespread acceptance. They presently are the most rapidly growing category of Federal Housing Administration (FHA)-insured mortgages, and legislation has recently been enacted which could expand their use still further. Moreover, the private sector has begun to offer a novel form of mortgage loan which allows the lender to receive a stream of constant payments while the borrower makes graduated payments.

The need to come to grips with the problems which high rates of inflation create for the standard fixed payment mortgage (FPM) has provided the impetus for two basic modifications of the FPM. Variable rate mortgages provide for interest rate adjustments to share the risk of interest rate changes between borrower and lender, but otherwise employ the same schedule of constant monthly payments of interest and principal as the FPM.[1] In contrast, the graduated payment mortgage (GPM) retains the constant interest rate of the FPM, but lowers the monthly payments in the early years of the loan and increases them according to a predetermined schedule.

Fixed payment mortgages

The adoption of the fully amortizing, fixed rate, level-payment mortgage as the standard mortgage design owes a great deal to its ability to reduce mortgage defaults. Prior to the 1930s the fully amortizing loan contract—though apparently the most common form of mortgage loan—was nowhere nearly so prevalent as it is now.[2] Contracts often provided for no amortization or for only partial amortization of the principal amount prior to the maturity date. As a result, a "balloon" payment of principal often became due on maturity. Terms to maturity were frequently short, often only about five years. Common practice was for such loans to be renegotiated at maturity, with a new loan being made to refinance the part of the principal which the borrower did not pay down at that time.

This procedure entailed a number of risks, as became apparent during the depression of the 1930s. First, the short term to maturity, together with the balloon payment feature, meant that, if the borrower had not accumulated sufficient funds to repay the loan at maturity, he might be subject to foreclosure on his property unless he was able to negotiate a new loan for the unpaid balance of principal. Second, since a relatively small amount of amortization—or perhaps none at all—was required, the borrower's equity in the property did not necessarily increase significantly as time went by. As a result, in the event of a loss of income to the borrower or erosion of the value of the property,

This article would not have been possible without the assistance of Henry J. Cassidy, Chester C. Foster, Diane L. Heidt, and Warren Lasko, none of whom bear any responsibility for the views expressed herein.

[1] See William C. Melton and Diane L. Heidt, "Variable Rate Mortgages", this *Review* (Summer 1979), pages 23-31.

[2] Almost all mortgages held by savings and loan associations during the 1920s and early 1930s were fully amortizing, but other lenders held primarily partially amortizing or nonamortizing mortgages. Available data indicate that a variety of short-term mortgages, partially amortizing or nonamortizing, constituted slightly more than half of all mortgages in lending institutions' portfolios before the depression. For more details, see Henry J. Cassidy, "The Changing Home Mortgage Instrument in the United States", Federal Home Loan Bank Board *Journal* (December 1978), pages 11-17.

the temptation to default on the loan might be strong.

With the onset of the depression, loan defaults mushroomed, and many lenders were unable to roll over maturing loans, so that foreclosures surged to a massive rate. In response, the Congress took a variety of measures to reduce the short-term threat of foreclosures as well as to restructure the procedures of housing finance to avoid a recurrence.

Among these measures was Government mortgage insurance administered by the FHA. FHA insurance, begun in 1934, required that loans be long term and fully amortizing, with constant monthly payments. Similarly, Federally chartered savings and loan associations, first created in the 1930s, were limited almost exclusively to making mortgages with those characteristics, and many states passed legislation applying similar restrictions to mortgage lending institutions under their jurisdiction.[3] In addition, the Federal National Mortgage Association (FNMA), organized in 1938, restricted its secondary market mortgage purchases to Government-insured mortgages, thus giving still further impetus to the adoption of the FPM as the standard mortgage instrument.[4] As a result of these measures, by the early postwar period the FPM was by far the dominant residential mortgage loan contract.

The adoption of the FPM as the standard form of mortgage contract was successful in overcoming the major problems of the residential mortgage market which existed during the 1920s and the 1930s. Its weaknesses began to become apparent only during the 1960s and 1970s—a period of rapid inflation and historically high and variable interest rates.

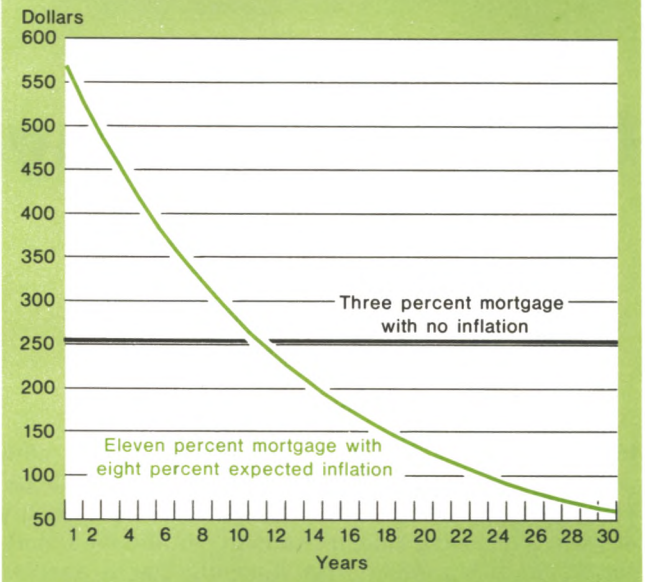
One of the FPM's most severe problems is the burden it creates for young families acquiring a home for the first time. Such families require housing services to accommodate their growing households, yet their current income—which is of major importance for determining the monthly mortgage payments they can afford—is often substantially less than their expected future income. Unfortunately, the FPM, by keeping monthly payments constant, does not allow such families to tailor their payments to their expected income growth. This "life cycle" problem exists even in an environment of stable prices.

Inflation causes an additional problem by making the burden of real mortgage costs in the early years of the loan term even greater relative to borrowers' current income than it would have been with no inflation. As inflation comes to be expected, nominal interest rates adjust upward to compensate lenders, at least in part, for the loss of purchasing power expected to occur during the term of the loan. Thus, if the rate of interest on mortgages were 3 percent in an environment of stable prices, it might rise to about 11 percent if an 8 percent rate of inflation is expected over the term of the loan. If the term to maturity of an FPM is not altered, this increased nominal interest rate raises the monthly payment. However, if the expected rate of inflation actually turns out to be correct, the increased rate of interest is approximately offset by the progressive reduction in the purchasing power of the interest and principal payments, so that the real cost of the loan remains essentially unchanged at about 3 percent per annum.[5]

Though the real cost—*i.e.*, the value of the monthly payments adjusted for price changes—is almost un-

Chart 1

Real Payments of Interest and Principal on Mortgages under Different Inflationary Conditions



Both mortgages are assumed to have a thirty-year term and a $60,000 original principal amount.

[3] With the exception of the recently authorized reverse annuity mortgages, Federally chartered savings and loan associations may make balloon residential mortgages with a maximum term of five years, but the value of the loan may not exceed 50 percent of the security (Federal Home Loan Bank Board, *Annotated Manual of Statutes and Regulations*, section 545.6-1). This regulation restricts balloon mortgages to the relatively few individuals capable of making a 50 percent downpayment on a home.

[4] In February 1972, FNMA broadened its mortgage purchase program to include conventional mortgages as well.

[5] This statement abstracts from considerations such as the tax treatment of interest expense which would reduce the real cost of the 11 percent mortgage relative to that of the 3 percent mortgage.

changed, its distribution through the term of the loan changes dramatically. Since inflation erodes the value of the higher nominal payments only gradually, the real cost is significantly higher in the early years of the term and is lower during the later years. For example, an increase in the expected rate of inflation from zero to 8 percent, reflected in an increase in the mortgage interest rate from 3 percent to 11 percent, causes the real cost of the first year's monthly payments on a $60,000 mortgage with a thirty-year term to rise from $253 per month to about $550 (Chart 1). By the eleventh year of the term, the real cost of the 11 percent mortgage has declined almost to the real cost of the 3 percent mortgage; afterward it is less.

Most individuals are highly sensitive to the timing of real payments during the term of their mortgages, because they must make mortgage payments out of their current incomes and still have sufficient income remaining to meet other expenses. Hence the "front-end load" created by the concentration of the real payments in the early years can be a major burden. While the level of monthly payments can be reduced by decreasing the size of the loan (and increasing the downpayment), this alternative is generally impractical for young, first-time home buyers. In addition, the burden of other expenses relative to income is also likely to be substantial in the early years of homeownership, when many younger persons are starting their families.

FHA-insured graduated payment mortgages

The development of GPMs was the outgrowth of the Experimental Finance Program of the United States Department of Housing and Urban Development (HUD), authorized by the Congress in 1974.[6] Section 245 of the National Housing Act as amended that year authorized HUD to initiate an experimental program to insure mortgages with "provisions of varying rates of amortization corresponding to anticipated variations in family income". The program was an effort to determine whether the problems of first-time home buyers could be alleviated within the framework of accepted mortgage lending practices. In 1977 the Housing and Community Development Act made the program permanent.

As their name suggests, FHA-insured GPMs have monthly payments which are low at first and rise gradually for a period of years before leveling off. Since they have a constant interest rate and a fixed term, the graduated payment feature means that the early monthly payments are insufficient to cover accrued interest. As the unpaid accrued interest is added to the principal balance of the loan, the outstanding loan principal increases; in other words, there is negative amortization in the early years of its term.

Like other FHA-insured loans, Section 245 GPMs are fully insured and intended to be made on an actuarially sound basis—*i.e.*, insurance premium payments are expected to be adequate to cover any losses. Originally, FHA-insured GPMs were subject to the same maximum loan-to-value ratio as FHA Section 203(b) FPMs and, since a GPM's principal increased in the early years, the minimum initial downpayment had to be greater than for an FPM. The Housing and Community Development Act of 1977 relaxed the requirement somewhat by allowing the principal amount of GPM loans to increase as high as 97 percent of the original estimated value.

Since the GPM program was new, HUD restricted it to five alternatives which differ according to the pattern of graduation of the initial payments. Three plans permit payments to increase at 2½, 5, and 7½ percent annually for five years, and two plans allow payments to increase at 2 and 3 percent annually for ten years. Monthly payments during each year are level; increases occur annually. After the final annual increase, the payments become constant for the remaining term of the loan. Payment schedules for an FPM and for Plan III and Plan V GPMs are illustrated in Chart 2. All the mortgages are assumed to have a thirty-year term and a $60,000 initial principal amount. The GPM payments are significantly less in the early years than those of the FPM. Indeed, during the first four years of the Plan III GPM, the total payments are $4,058 less than those for the FPM. Over the first six years of the Plan V GPM, total payments are $3,790 less than for the FPM. This early cost advantage is offset in two main respects. First, as noted earlier, the GPM plans require somewhat higher downpayments than the FPM. Second, when the GPM payments flatten out, they do so at a higher level than the FPM, owing to the negative amortization in the early years of the term.[7] The result is that, while payments of interest and principal total $213,905 over the thirty-year term of the FPM, they are $14,155 (6.6 percent) more for the Plan III GPM and $17,217 (8.0 percent) more for the Plan V GPM.

The GPM program got off to a slow start. Regulations in some states against collecting compound interest on residential mortgage loans prevented many

[6] The first kind of GPM authorized nationally was the "flexible payment mortgage" authorized by the Federal Home Loan Bank Board in February 1974. The idea behind it was to reduce the early monthly payments by omitting amortization in the early years of the term. However, since amortization constitutes only a small portion of the early payments for an FPM, the payment schedule for a flexible payment mortgage was not greatly different from that for an FPM, and the innovation never attracted much interest.

[7] There is a third small offset due to the insurance premium being larger for the increasing principal balance of the GPM than for the FPM.

lenders from offering them. This problem was resolved by the Housing and Community Development Act of 1977, which exempted FHA-insured GPMs from such restrictions. Another problem which has yet to be resolved is that GPMs with negative amortization like those in the Section 245 program can increase the tax liability of taxpayers who calculate their income on an accrual basis—which includes most financial institutions. The reason is that, while the unpaid interest on such a GPM is added to the loan principal and not received by the lender in the year it was earned (accrued), it does increase the lender's tax liability for that year. Other things equal, this feature makes GPMs a less attractive investment than a standard FPM.

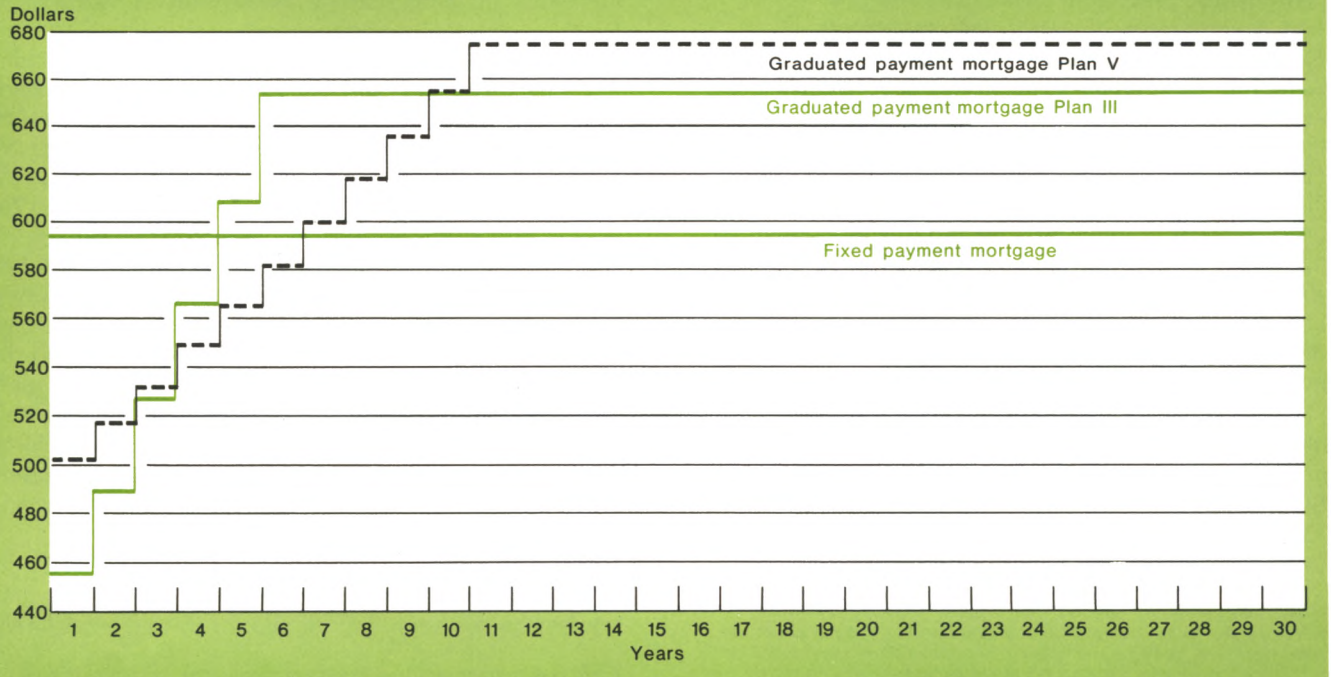
Expansion of the program was also slowed by the relative unattractiveness of the GPMs for the thrift institutions which originate most single-family mortgages. Since the low early payments of the FHA-insured GPMs initially produce less cash flow for lenders than do FPMs, they are not attractive to thrift institutions which rely largely on short-term sources of funds. The lack of enthusiasm on the part of thrift institutions, together with mortgage banks' traditional dominance of FHA originations, meant that mortgage banks accounted for almost all GPM originations. The statutory restriction of FHA single-family loans to $45,000—raised to $60,000 in 1977 and to $67,500 in 1979—also reduced the attractiveness of FHA financing in areas where housing prices are relatively high.

Since the GPM program was new, lenders also needed time to become familiar with the alternative designs, to make adjustments in their loan processing procedures, and then to market GPMs to potential borrowers. The result was that, out of a total of 321,118 FHA single-family mortgage insurance endorsements in 1977, only 331 were for GPMs. However, following the increase in the maximum FHA loan size, the Federal override of state laws barring collection of compound interest on residential mortgages, and the establishment of the Section 245 program on a permanent basis in late 1977, the situation changed dramatically. By December 1978, over 25 percent of total new single-family endorsements were GPMs. During 1979, about 27 percent of the total were GPMs.

The regional distribution of GPMs is highly uneven,

Chart 2

Monthly Payments of Interest and Principal for a Fixed Payment Mortgage and Two Graduated Payment Mortgages



A term of thirty-years and a contract rate of 11½ percent are assumed. Payments for mortgage insurance are not included.

with most activity taking place on the West Coast and in the southeastern part of the country. Indeed, by the end of 1979, California alone accounted for about a third of all GPMs in the country. This uneven pattern of introduction of GPMs is probably attributable to regional differences in the composition and strength of housing demand as well as state usury laws and other restrictions on the ability of lenders to offer them.

Two provisions of the Housing and Community Development Amendments of 1979, signed into law on January 4, 1980, may expand the GPM program significantly. First, the maximum loan size for single-family mortgages insured by the FHA was increased from $60,000 to $67,500. Second, the GPM program was modified to increase the permissible GPM loan size when the initial home value is below or slightly above the maximum loan size. The new GPM authorized in Section 245(b)—the previous Section 245 is now renamed Section 245(a)—is similar to the earlier GPM and, for both programs, the loan balance at no time can exceed 97 percent of the value of the house. However, for the earlier program this was the initial appraised value; in the new Section 245(b) program the value of the home is assumed to increase over time, thus relaxing the 97 percent limitation. In projecting the future home value, HUD is authorized to employ a maximum 2½ percent annual rate of price appreciation—a rate well below that observed in recent years.

Depending on how the new program is implemented, the Section 245(b) GPMs may allow GPM borrowers to increase substantially their initial loan size and thus to reduce their downpayments.[8] The smaller downpayment would increase the attractiveness of GPMs for many people. However, the Congress placed a number of restrictions on the program. First, to concentrate the Section 245(b) program on first-time home buyers, applicants must not have owned a home in the preceding three years. Second, the number of mortgages insured in any fiscal year is limited to 10 percent of the aggregate initial principal amount of all one- to four-family mortgages insured under Section 245(b) during the preceding fiscal year or 50,000 mortgages, whichever is greater. Nevertheless, there appears to be ample scope for the new program to expand.

Conventional graduated payment mortgages

The HUD program has given impetus to the development by the private sector of conventional—*i.e.*, non-FHA-insured—GPMs. First, the relatively low maximum FHA loan size, together with the rather demanding FHA construction standards and paperwork requirements, makes FHA loans of whatever form unattractive for many borrowers and lenders. Second, as noted earlier, the negative amortization in the early years of an FHA-insured GPM can create an increased tax liability and a cash flow pattern unattractive to many lenders. The former problem can be avoided through conventional financing. The latter problem has been alleviated through the development of a novel form of mortgage loan which allows the lender to receive a stream of constant monthly payments while the borrower makes graduated payments.

The loan is structured so that part of its proceeds is placed with the lending institution in a pledged savings account from which withdrawals are gradually made to supplement the borrower's early payments. The result is a loan with constant payments to the lender and graduated payments by the borrower. This means that the loan does not have the FHA-insured GPM's tax and cash flow disadvantages for lenders, who in addition acquire funds through the pledged account. Moreover, the pledged-account GPM circumvents many states' prohibitions against increasing monthly mortgage payments and the charging of interest on accrued interest—an important consideration, since the Housing and Community Development Act of 1977 overrode such state laws only for FHA-insured GPMs.

Finally, even though lenders typically pay only the passbook savings account interest rate on the pledged account, generally a tax saving will be realized which offsets or exceeds the loss of income created by borrowing funds at the mortgage rate and investing them at the passbook rate. The reason is that the borrower may deduct the withdrawals from the pledged account from his taxable income, since they are used to pay part of the mortgage interest. As a result, his deductible interest expense exceeds his actual out-of-pocket outlay for mortgage interest during the early years of the loan.

It is difficult to estimate the volume of originations of pledged-account GPMs. Since the loan is essentially an FPM from the standpoint of lenders, available data do not separate out the pledged-account GPMs from other mortgages. However, judging by the vigor with which they have been promoted, the volume of pledged-account GPMs may well be substantial.

GPMs in the secondary market

Additional impetus to GPM lending has been provided by the opening-up of the secondary mortgage market to FHA-insured GPMs. Initially, almost the only part of the secondary market in which FHA-insured GPMs were

[8] As of this writing, HUD has not yet determined whether the new program would operate in the same Plans I-V as the Section 245(a) GPMs or whether new graduation periods and rates would be created.

Who Borrows through FHA-Insured Graduated Payment Mortgages?

Data collected in a special survey conducted by the United States Department of Housing and Urban Development indicate that the GPM (Section 245) borrower is on average 29-30 years old—one to two years younger than the average FPM (Section 203(b)) borrower. Most borrowers in both programs are married, but there is substantial singles participation as well. As one would expect, considering their lower average age, GPM borrowers generally have slightly fewer dependents than do FPM borrowers. A large majority—three quarters or more—of borrowers under both programs are first-time home buyers. However, GPM borrowers are somewhat more likely to own a home which is being sold to finance the purchase of a new home. The income of GPM borrowers is on the whole not very different from that of FPM borrowers—though in some individual markets GPM borrowers have markedly lower average incomes.

Though nationwide comparisons of FPM and GPM borrower characteristics are complicated by the fact that California has accounted for a disproportionate share of GPM volume, it appears that GPM borrowers buy significantly more expensive homes which they finance with larger mortgages. Because of the low early monthly payments of the GPM, this results in only a slightly greater burden of first-year housing expense relative to income for GPM borrowers, compared with FPM borrowers. GPM borrowers also put down significantly larger downpayments—in part because the most popular Plan III GPM requires a larger downpayment, but also because in many cases the maximum FHA loan size is a constraint. As a consequence, GPM borrowers generally have a lower loan-to-value ratio than FPM borrowers.

Average Characteristics of FPM and GPM Borrowers

Characteristic	FPM borrowers	GPM borrowers
Sales price	$36,130	$48,996
Mortgage amount	$34,427	$44,557
Total annual family income	$22,167	$22,128
Loan-to-value ratio	92.6%	89.8%
Total housing expense/ net effective income	30.9%	32.3%
Total fixed payments/ net effective income	51.7%	50.9%

Data are for loans on existing single-family structures endorsed during the first quarter of 1979. Fixed payment mortgage loans (FPMs) are those endorsed under Section 203(b); graduated payment mortgage loans (GPMs) are those endorsed under Section 245.

Source: United States Department of Housing and Urban Development.

sold was the FNMA purchase program. Early in 1979, the Government National Mortgage Association (GNMA) expanded its pass-through certificate program to allow FHA-insured GPMs to be included in mortgage pools underlying the certificates.[9]

The GPM-GNMA certificates—familiarly referred to as "Jeeps"—provide an ownership interest in a pool containing mortgages with five-year graduation periods (Plans I-III). In practice, since the vast majority of GPM borrowers prefer Plan III, which has the steepest graduation schedule, the pools consist overwhelmingly of mortgages of this type. Because of the graduation feature, GPM-GNMAs have a slightly longer average maturity, or "duration", than do standard GNMAs. This is true both of the contracted term to maturity and also of the average maturity calculated on the basis of prior experience with prepayments of FHA mortgages. As a result, the price of a GPM-GNMA security should be slightly more volatile than that of a standard GNMA security.

Yields of GNMA securities—including GPM-GNMAs—currently are quoted on the basis of a twelve-year prepayment assumption.[10] This is convenient for standard GNMA securities, since in most cases the yield distortions are not large. However, the assumption is less firmly grounded in the case of GPM-GNMAs, since there is no prior experience on which to base an evaluation of the accuracy of the approximation. On the one hand, if GPM borrowers are more likely to consider their homes as permanent investments and are less inclined to move than other borrowers, the GPM prepayment experience will be slower than prior FHA experience. On the other hand, if GPMs are especially attractive to upwardly mobile families inclined to move

[9] For a description of the GNMA certificate program, see Charles M. Sivesind, "Mortgage-Backed Securities: The Revolution in Real Estate Finance", this *Review* (Autumn 1979), pages 1-10.

[10] For a description of the calculation of yields on GNMA securities, see Sivesind, *loc. cit.*

to a better house after a few years, then the GPM-GNMA prepayment rate could be faster than prior experience. In these circumstances, GNMA, for want of any better alternative, has applied the standard twelve-year prepayment assumption to yield calculations for GPM-GNMAs.

Trading in GPM-GNMAs has reflected the fact that the instrument is new, with few pools existing compared with standard GNMA securities. As a result of their less liquid market and their longer expected average term, GPM-GNMAs have traded at a discount of one to two points relative to level-payment GNMAs with the same coupon interest rate.

The number of GPM-GNMA pools has increased substantially—to 1,102 pools with an unpaid principal balance aggregating to $2.3 billion at the end of February 1980—and GNMA anticipates that the volume will expand in tandem with the growth of GPM originations. The liquidity of the market should improve in the future as the number of pools increases further.

Secondary market activity in pledged-account GPMs has been more modest. A number of sales of packages of GPMs carrying mortgage insurance provided by private mortgage insurance firms have occurred. Activity should be stimulated, however, when the Federal Home Loan Mortgage Corporation initiates its planned pilot purchase program.

Evaluation of graduated payment mortgages

As noted earlier, FHA-insured GPMs have expanded rapidly in the few years the program has existed. Though it is too early to make a definitive judgment, indications are that to some extent the expansion of Section 245 GPMs has been at the expense of Section 203(b) FPMs. If this pattern continues and also holds for conventionally financed GPMs, then the impact of continued growth of GPMs would not be primarily to expand the mortgage market, though some increase would occur, but rather to allow borrowers to arrange their housing finance more conveniently than at present.

The major unanswered question concerning the growth and development of GPMs is not, however, a matter of relative rates of expansion; it is the implications of GPMs for loan defaults in the years ahead. As noted earlier, a key benefit obtained from adoption of the FPM as the standard mortgage design was to avoid any recurrence of the enormous volume of mortgage defaults which was precipitated by the depression of the 1930s. To the extent that the FPM is modified, defaults might once again become a source of concern.

In the past, the most important determinant of mortgage defaults has been the amount of equity which the borrower has in his house. Since equity is lowest in the early years of the mortgage term, the incentive to default—and its observed incidence—is greatest then. To the extent that a GPM with negative amortization—such as the FHA-insured GPM—increases the balance of the loan in the early years of the term, the owner's equity relative to the original purchase price declines. Other things equal, this should increase his incentive to default. This effect could be offset, however, if the rate of appreciation of the home's value exceeds the rate at which the loan balance increases. The requisite rate of increase in value depends on the level of the interest rate but is generally quite modest, on the order of 1 percent or so per year during the first five years of the thirty-year term of a Plan III GPM. The loan balance of pledged-account GPMs decreases continuously, but the larger initial loan size means that an additional default incentive is created, compared with both an FPM and an FHA-insured GPM. Both kinds of GPMs reduce the front-end load in the time pattern of the real payments on the mortgage, and this will probably reduce defaults in the early years, though they might be increased later on.

While the short period of time during which the FHA GPM program has been in operation precludes firm generalizations about default rates, there have been some indications that Section 245 GPMs have default rates which are either the same as, or lower than, Section 203(b) FPMs. However, more than ordinary caution is needed in interpreting this performance. First, downpayments on FHA-insured GPMs frequently have been greater than required under the program, and this should reduce defaults. The most likely reason for the larger downpayments is that the FHA's loan size limitation required buyers of more expensive homes to increase their downpayments to qualify for FHA insurance. In addition, since FHA-insured GPMs have a slower cash flow than FPMs of equal maturity and interest rate, persons financing through GPMs should expect to pay more points than with an FPM.[11] This also would tend to restrict the availability of GPM financing to borrowers capable of making larger downpayments. Finally, some GPM borrowers may have a preference for low monthly payments—to such an extent that they would be willing to reduce their liquid assets in order to lower the loan size and thus the monthly payments. This approach can make sense when the mortgage interest rate is substantially higher than the savings account interest rate, as has been the case during the FHA program's existence.

[11] A point is 1 percent of the principal value of a mortgage note. Since the maximum FHA mortgage rate is generally held well below market levels, points are charged to raise to market levels the yield on the funds actually advanced. While sellers are legally obligated to pay any points charged on an FHA mortgage, they generally attempt to shift this cost to the buyer by increasing the sale price and thus the downpayment required of the buyer.

The absence of hard evidence concerning the default experience with FHA-insured GPMs raises the issue of precisely what an "actuarially sound" GPM is. The designers of the FHA program had in mind a mortgage contract in which the degree of graduation did not exceed the prospective rise in income of the borrower during the early years of the loan term. In fact, however, the available evidence suggests that income projections are not taken very seriously by GPM originators, with the result that Plan III—which has the steepest graduation rate—dominates all FHA's other GPM options. Now that the Congress has authorized the Section 245(b) GPM, in which an assumption is made concerning the future rate of price appreciation of the house, the evaluation of the soundness of GPMs has still less to do with actuarial methodology as usually understood. In the near future, continued inflation may ratify any such assumption and prevent the emergence of problems in the GPM program but, as inflation is brought under control, the validity of the assumption could be eroded. In such a case, as both inflation and mortgage interest rates declined, GPM borrowers—because of their larger loan sizes—would have an especially strong incentive to refinance their loans at lower interest rates. In addition, defaults and delinquencies might increase.

Outlook for graduated payment mortgages

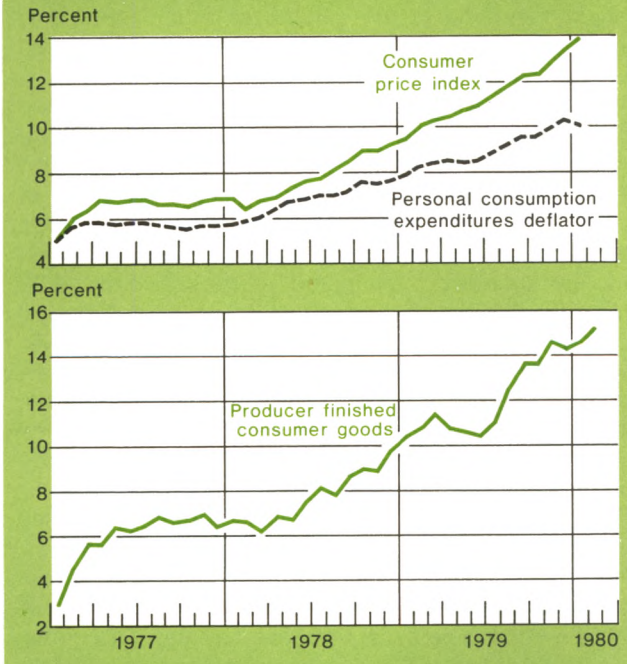
In the long run, the best way to deal with the front-end load induced in the real payments of an FPM is to reduce the rate of inflation. In the near-term, however, the GPM—whether FHA-insured or conventional—clearly has an important role to play in alleviating some of the problems created for many borrowers, especially young families, by exclusive reliance on the FPM as the standard mortgage design. GPMs will likely continue to expand at a brisk rate in the near future. Perhaps the principal obstacle to their doing so is the recent advent of single-family mortgages financed through issues of tax-exempt bonds. In areas where such programs have been actively employed, GPM activity has been very slight, for GPMs obviously are less attractive to house buyers than mortgages offered at below-market interest rates. Thus, the outlook for growth of GPMs will be influenced by the outcome of pending legislation to restrict issues of single-family mortgage revenue bonds.

In the longer term, even after inflation is brought under control, graduated payment mortgages are likely to remain an important innovation in the mortgage market, by virtue of providing greater flexibility in tailoring mortgage payments to anticipated income growth than does the fixed payment mortgage.

William C. Melton

The business situation
Current developments

Price inflation has worsened markedly in recent months.



Data are expressed as the percentage change from twelve months earlier.

Sources: United States Bureau of Labor Statistics and United States Department of Commerce, Bureau of Economic Analysis.

The distressing performance of prices dominated economic developments at the beginning of 1980. At both the consumer and producer levels, inflation accelerated sharply. Part of the acceleration was due to higher energy prices, which reflected the repeated increases in Organization of Petroleum Exporting Countries (OPEC) oil prices last year. In addition, fears of price controls also may have prompted some increases in posted prices. More generally, however, the virulence of the inflation appeared to mirror the demand pressures of an unexpectedly resilient economy.

As the actual price situation worsened, concern over future inflation intensified dramatically. This marked worsening in inflation expectations precipitated an unprecedented upward adjustment in long-term interest rates. In this atmosphere, in March the President announced a broad program of fiscal, energy, and credit measures aimed at moderating and reducing the growing inflationary forces. (For discussion of the Federal Reserve System's credit restraint program, see the article beginning on page 32.)

The recent consumer price statistics have made alarming reading. In January, the consumer price index spurted at an annual rate of 18 percent. This jump represented a sharp worsening from the less than 14 percent advance posted in 1979. While monthly changes in prices obviously are volatile, looking at the sources of inflation offers little hope for a near-term significant easing in the rate of increase in the consumer price index. The acceleration in recent months has been due largely to skyrocketing energy prices and mortgage interest costs. Although energy prices have jumped at dizzying rates, the full impact of the recent OPEC oil price increase has yet to be felt at the retail level. Gasoline prices, which

surged in January, apparently posted another sizable increase in February. In addition to spiraling energy prices, higher mortgage interest rates will continue to add to the upward pressures on the consumer price index. This index measures rates on mortgage closings. With rates on new commitments to lend substantially above rates charged on mortgages actually being closed, further rises in the housing finance component of the index are certain. More importantly, however, prices of nonenergy commodities are likely to escalate as the effects of higher energy prices are transmitted through the economy.

The sharp jump in prices is all the more discouraging in view of the recent slowdown in food prices. Consumer food prices were unchanged in January. At the same time, favorable weather conditions continued to bolster supplies of fresh produce, and producer prices for finished foods declined in February for the second consecutive month.

In contrast to the declines in food prices, the upward pressures on prices of nonfood commodities were acute at the producer level. The surge in producer prices in January and February was led by higher energy prices. But the acceleration was not limited to energy prices. Indeed, the run-up in prices was widespread. Prices of nonfood, nonenergy commodities rose sharply at the intermediate and crude stages of fabrication.

The recent acceleration in the price measures is disturbing. Careful examination of the consumer price index, however, leaves little doubt that it has tended to overstate the ongoing rate of inflation. The exaggeration is due to the index's treatment of energy and homeownership costs (for more on this point, see this *Review,* Winter 1979-80, page 49). The deflator for personal consumption expenditures, which avoids most of the problems of the consumer price index, also shows a worsening in inflation. However, the rate of increase recorded by the deflator is well below the rate of increase registered by the index. Still, while the degree of worsening differs dramatically according to the measure employed, inflation has accelerated by both measures. *E.g.* the lower rate of inflation captured by the deflator continues to point to a consumer inflation rate rarely exceeded in the postwar period.

In spite of the pickup in the rate of inflation, the pace of wage gains has not quickened. Indeed, in January and February, average hourly earnings rose at an annual rate of less than 7 percent, well below the increases posted in 1979. The slowing in the rise in wages is all the more remarkable in view of the increase in the Federal minimum wage. On January 1, 1980 the hourly wage of an estimated five million workers—which is more than the total number of workers covered by major collective bargaining agreements whose contracts are scheduled for negotiation this year—was raised from $2.90 to $3.10.

The flare-up of inflation has led to a sharp rise in interest rates. In the mortgage market, rates on new commitments to lend have jumped to record levels. In part, the rise reflected the temporary lifting of state usury ceilings, which resulted from Congressional action. In addition, some institutions have posted rates well above 15 percent in a conscious attempt to deter prospective borrowers. The run-up in open market rates over the past several years has narrowed the interest margins of thrift institutions. The profitability of thrift institutions has been further eroded by their increased dependence on high-cost sources of funds such as money market certificates and large-denomination certificates of deposit. Amidst these mounting financial pressures, thrift institutions are losing deposits and their liquidity is declining.

The further tightening in the mortgage market has led to a steep falloff in sales of existing homes as well as the continued decline in new home-building activity. Housing starts and permits to build in the future dropped sharply in the initial months of the year. The decline in the volume of thrift institutions' commitments to lend in the future presages continued weakness in home-building activity.

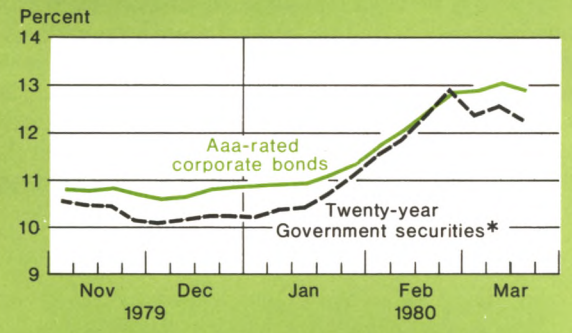
In contrast to the weakening in residential fixed investment, business capital spending so far offers little evidence of being affected by the record costs of financing. The latest Commerce Department survey of planned plant and equipment spending, which was taken in January and February, was little changed from the spending anticipated at the close of 1979. After adjusting for the impact of rising prices, capital spending is expected to rise about 1 or 2 percent over the course of this year. The robustness of the near-term barometers of capital outlays—shipments, orders, and backlogs of unfilled orders—all suggest that much of this prospective strength will occur in the early months of the year.

The record cost of financing has probably caused businesses to tighten further their rein on inventories. Barring a pronounced drop in sales, inventory stocks can be adjusted relatively quickly to the costs of borrowing by changing orders relative to sales. Of course, the pattern of inventory investment depends on factors besides financing costs, most importantly on sales and businesses' anticipation of sales. For the economy as a whole, inventories generally appear to be in balance with sales. The enormous inventory imbalance of automobiles has been pared back by production curtailments and price rebates. As a result, overall stocks of new cars have been brought into line with sales.

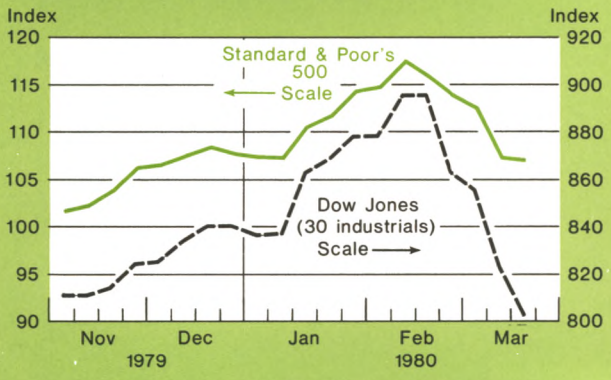
With the automobile inventory correction largely completed, new car production has been stepped up. Reflecting this higher output, industrial production posted a slight gain in February. Outside the motor vehicle industry, however, output was essentially unchanged. The slight output gain in February was reflected in labor market developments. Employment posted a very small increase, and the average workweek declined. Despite the apparent softening in demand for labor, the overall rate of unemployment dipped to 6 percent.

Reflecting the slowing in employment gains, personal income growth moderated. Personal consumption expenditures also slowed notably in February, after recording a large increase in January. The early experience of 1980 stands in sharp contrast to developments during most of last year. In 1979, households continued to spend in the face of declining real incomes, and the savings rate dropped precipitously. At least in the beginning months of 1980 the savings rate appears to have stabilized—albeit at a historically low rate. Most certainly, consumer behavior is a key determinant of the future gains in business activity and the inflation outlook.

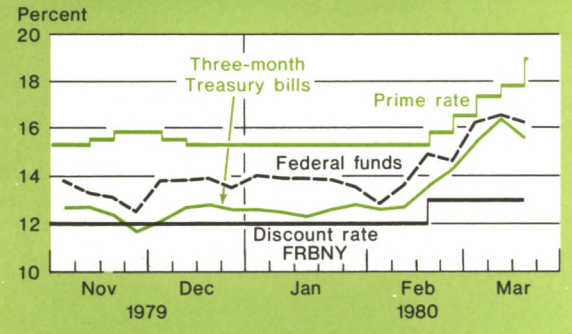
Reflecting expectations of accelerating inflation, long-term bond yields increased sharply . . .



. . . while the stock market rallied briefly amid signs of continued economic strength but quickly retreated . . .



. . . and short-term rates rose as market participants reevaluated the prospects of a tighter monetary policy.



*This yield is adjusted to twenty-year maturities and excludes bonds with special estate tax privileges.

Sources: Federal Reserve Bank of New York, Board of Governors of the Federal Reserve System, Moody's Investors Service, Inc., Dow Jones and Company, Inc., and Standard & Poor's 500.

The financial markets Current developments

In the face of burgeoning credit demands and worsening inflationary expectations, President Carter announced a broad program in mid-March designed to reduce the price pressures plaguing the economy. As part of this anti-inflation effort, the Federal Reserve System instituted on March 14 a series of steps intended to restrain credit growth.

- The Board of Governors has asked that leading financial institutions voluntarily restrain the growth of their domestic lending. Special efforts will be made to ensure the flow of credit to farmers and small businesses. Cooperation will be closely monitored by each Federal Reserve Bank.
- Steps were taken to moderate the growth of consumer credit. Under Presidential authority granted by the Credit Control Act of 1969, the Federal Reserve System introduced for all lenders a special deposit requirement of 15 percent on increases in covered, primarily unsecured, consumer credit.
- A 15 percent special deposit was also introduced on increases in assets of money market mutual funds.
- The marginal reserve requirement on managed liabilities that had been established last October was increased from 8 to 10 percent. In addition, the base under which the reserve requirement is computed was reduced, and the scope of the requirement was broadened to include nonmember banks.
- A 3 percent surcharge above the basic discount rate (established at 13 percent in mid-February) was imposed on certain discount window borrowings by large member banks.

- Finally, the Board imposed interest rate ceilings under Regulation Q on certain debt instruments issued by bank holding companies.

Prior to the new initiatives, the nation's securities markets had been besieged by turmoil and almost complete demoralization. Bond prices crumbled in successive waves of selling, as investors revised their expectations of future inflation sharply upward. From January through mid-March, prices plummeted as much as 15 percent. In the process, the secondary market for long-term debt virtually dried up at times, as investors retreated to the sidelines. In this fragile market environment, numerous issues were postponed, partly because borrowers were reluctant to lock in high long-term credit costs but also because many were concerned that their issues could not be sold at all to final investors. From a broader perspective, serious doubts inevitably arose about the capital market's ability to function if inflation continued to accelerate.

As a result of the severe turbulence in the long-term bond markets and the consequent postponement of new issues, there was a sharp increase in credit demands in the commercial paper market as well as at commercial banks. Nonfinancial commercial paper outstanding had increased on average at about a 10 percent annual rate in October and November, but then surged to annual growth rates over 90 percent in December and January. Similarly, the growth of commercial and industrial loans (excluding bankers' acceptances) accelerated to a 20 percent seasonally adjusted annual rate in January, after holding steady in November and inching up in December.

This vigorous bidding for short-term funds catapulted short-term interest rates to unprecedented levels. For example, the rate on 90- to 119-day prime dealer-placed commercial paper rose from around 13 percent in mid-January to almost 17 percent by mid-March. Bank prime rates for commercial loans, after holding steady at 15.25 percent until mid-February, shot up to 19 percent by mid-March. However, there were few signs that even these record high interest rates were significantly deterring many borrowers.

In response to the strong credit demands and rapid inflation, the Federal Reserve initiated the new measures on March 14 to complement and reinforce the System's continued application of restraint over the growth of money and credit. That policy is designed to keep money growth within the monetary targets for 1980 announced by the Federal Reserve in mid-February. These targets were set in terms of new definitions of the money supply, adopted by the Board of Governors earlier this year.

The redefined monetary aggregates consist of M-1A and M-1B, which replace M-1, and new concepts of M-2 and M-3 (Table 1). M-1A is much the same as the previous M-1 definition (currency in circulation outside banks plus demand deposits) except that demand deposits held by foreign commercial banks and by certain foreign official institutions at domestic banks are excluded. As a result, M-1A represents a better measure of funds available for domestic transactions than the previous M-1 definition. The FOMC (Federal Open Market Committee) target for M-1A was set at 3.5 to 6 percent for the four quarters of 1980. During 1979, M-1A expanded at a rate of 5.5 percent, down about 2 percentage points from the growth posted in 1978. An estimated 1 to 1½ percentage points of this slowing resulted from a shift out of demand deposits into ATS (automatic transfer service) accounts nationwide and NOW (negotiable order of withdrawal) accounts in New York State. This shift is not expected to continue in 1980. Thus, the M-1A target relative to 1979 growth is more restrictive than the figures suggest at first glance.

The second measure of the narrow money stock—M-1B—consists of M-1A plus NOW accounts, credit union share drafts, savings subject to automatic transfer, and demand deposits at thrift institutions. M-1B is designed to capture all "checkable" deposits at banks and thrift institutions. For 1980, the FOMC set a target of 4 to 6.5 percent for M-1B. M-1B grew at an annual rate of 8 percent in 1979, well above the upper limit set for the upcoming year. The 1979 growth rate, however, was augmented by a shift of funds from sources other than demand deposits into NOW accounts and ATS accounts. In setting the 1980 targets, it was assumed that such shifts were pretty much completed.

The broader aggregate—M-2—is the sum of M-1B and small time and savings deposits at banks and thrift institutions, certain overnight Eurodollar deposits, overnight RPs (repurchase agreements) at commercial banks, and money market mutual fund shares. The redefined M-3 measure includes M-2, term RPs, and large time deposits with minimum denominations of $100,000 or more whether negotiable or nonnegotiable. The 1980 targets, respectively, for the redefined measures of M-2 and M-3 are 6 to 9 percent and 6.5 to 9.5 percent. The *upper limits* of these targets were set about in line with the 1979 growth rates of these aggregates. All in all, the monetary objectives for 1980 signal a continuation of the objective of gradually winding down monetary growth and the rate of inflation.

The redefined monetary aggregates differ from the previous definitions in two major ways. (1) The new measures, for the most part, are aggregated consistently across financial institutions. That is, in the new

definitions similar deposits are included in the same monetary aggregate regardless of whether they are the liabilities of commercial banks or thrift institutions. (2) The new definitions also incorporate money-like assets that result from recent financial innovations and regulatory changes in the financial system. These innovations, including RPs, money market mutual fund shares, and certain Eurodollar deposits, are incorporated in the new M-2 and M-3 definitions, whereas in the former definitions these items had not been incorporated. "Checkable" deposits resulting from regulatory changes permitting NOW accounts, savings subject to automatic transfer, and credit union share drafts are included in M-1B as well as in the broader measures.

Since these financial innovations and new types of deposits resulting from regulatory changes have become important only in recent years, the long-run trends of the new monetary definitions were in many respects similar to the behavior of their earlier counterparts (first four columns of Table 2). From the early 1960s to the early 1970s, the growth rates of M-1A and M-1B, like M-1, accelerated gradually. However, since the velocities (measures of how many times during the course of a year a dollar of money turns over) of

Table 1

Definitional Comparison of Previous and Redefined Monetary Aggregates

Components	M-1 Previous	M-1A Redefined	M-1B Redefined	Previous	M-2 Redefined	Previous	M-3 Redefined*
Currency in circulation	X	X	X	X	X	X	X
At commercial banks:							
Demand deposits†	X	X	X	X	X	X	X
NOW accounts			X	X	X	X	X
Savings subject to automatic transfer			X	X	X	X	X
Other savings accounts‡				X	X	X	X
Small time deposits				X	X	X	X
Large time deposits§				X		X	X
CDs¶							X
Overnight repurchase agreements					X		X
Term repurchase agreements							X
At thrift institutions:							
Demand deposits			X		X		X
NOW accounts			X		X	X	X
Other savings accounts‖					X	X	X
Small time deposits					X	X	X
Large time deposits						X	X
Credit union share drafts			X		X	X	X
Term repurchase agreements							X
Other items:							
Money market mutual fund shares					X		X
Overnight Eurodollars held by United States residents at Carribean branches of United States banks					X		X
Traveler's checks (when data available)			X		X		X

* In addition to the four redefined monetary aggregates, a broad liquidity measure (L) was introduced. It consists of new M-3 plus other Eurodollar holdings of United States nonbank residents, bankers' acceptances, commercial paper, savings bonds, and marketable liquid Treasury obligations.

† The definition of demand deposits differs between the previous and redefined aggregates in that deposits held by foreign commercial banks and certain foreign official institutions at domestic banks are excluded in the new definitions.

‡ Excluding negotiable order of withdrawal (NOW) accounts and savings subject to automatic transfer.

§ $100,000 or more.

¶ Negotiable certificates of deposit in denominations of $100,000 or more issued by large weekly reporting banks.

‖ Excluding NOW accounts.

Table 2

Comparison of Redefined and Previous Monetary Aggregates

Averages of quarterly growth rates; seasonally adjusted annual rates in percent

Monetary aggregate		1960-64	1965-69	1970-74	1975-79	1960-79 Recoveries	1960-79 First year of recoveries	1960-79 Recessions
M-1	Growth rate	2.6	4.9	6.1	6.0	5.3	4.9	3.9
	(Growth of velocity)*	(2.9)	(3.0)	(2.5)	(4.7)	(3.7)	(5.6)	(0)
New M-1A	Growth rate	2.7	4.8	6.0	6.0	5.2	5.0	3.9
	(Growth of velocity)	(2.8)	(3.1)	(2.6)	(4.7)	(3.8)	(5.4)	(0.1)
New M-1B	Growth rate	2.7	4.8	6.0	6.8	5.5	5.0	3.9
	(Growth of velocity)	(2.8)	(3.1)	(2.6)	(3.9)	(3.5)	(5.4)	(0)
M-2	Growth rate	5.4	7.1	9.0	8.9	8.0	8.6	6.8
	(Growth of velocity)	(0.2)	(0.8)	(−0.4)	(1.8)	(1.0)	(1.8)	(−2.7)
New M-2	Growth rate	7.1	6.7	8.8	10.5	8.8	11.2	6.1
	(Growth of velocity)	(−1.5)	(1.2)	(−0.2)	(0.2)	(0.2)	(−0.8)	(−2.1)
M-3	Growth rate	7.1	6.9	9.6	10.2	8.9	10.6	7.1
	(Growth of velocity)	(−1.6)	(1.0)	(−1.0)	(0.5)	(0.1)	(−0.2)	(−3.0)
New M-3	Growth rate	7.7	6.8	11.2	10.4	9.4	10.6	8.1
	(Growth of velocity)	(−2.1)	(1.2)	(−2.5)	(0.3)	(−0.3)	(−0.3)	(−3.9)

* Velocity is the ratio of GNP to a monetary aggregate.

these three aggregates increased at a moderate and fairly constant pace over this period, the more rapid growth of these narrow monetary measures seemed generally in tune with the overall expansion in the economy after allowing for a gradual increase in the efficiency of money management. In contrast, over the latter half of the 1970s, the velocity growth of these three aggregates increased markedly, that is, there was considerably more rapid growth of nominal gross national product (GNP) relative to the growth of the monetary aggregates. Of the three narrow measures, the velocity of M-1B increased the least, suggesting that part of the acceleration in the growth of the velocities of M-1 and M-1A was due to expanding usage of NOW accounts, credit union share drafts, and savings deposits subject to automatic transfer. These items are included in M-1B but not in M-1 or M-1A. The broader aggregates also have shown some tendency for more rapid velocity growth in the last half of the 1970s, although the magnitudes involved are difficult to evaluate because of the greater variability over the preceding fifteen-year period.

Velocity growth has also tended to vary over the business cycle. Movements of the velocities of M-1A and M-1B during recessions and recoveries were quite similar to the behavior of velocity of the previous M-1 definition (last three columns of Table 2). Velocity growth of all three aggregates slowed significantly in recessions, compared with periods of economic expansion. In addition, velocity growth of these three aggregates has been very rapid during the first year of economic recoveries. The cyclical patterns of velocity growth for the broader aggregates were less clear. However, substantial declines tended to occur during recessions, compared with little or no growth during periods of expansion.

While the new money definitions differ conceptually from the earlier aggregates, their long-run behavior has been similar to the previous definitions in many respects. However, as increased emphasis is placed on managing money efficiently, and as other institutional changes occur—such as the phase-out of Regulation Q currently being considered by the Congress —these new money definitions may show markedly different behavior relative to economic activity than in the past. Moreover, as the financial system continues to evolve, it may be necessary to consider redefining the monetary aggregates again in the future.

August 1979-January 1980 Semiannual Report
(This report was released to the Congress and to the press on March 4, 1980.)

Treasury and Federal Reserve Foreign Exchange Operations

The October 6 measures by the Federal Reserve had a profound effect on exchange markets for the United States dollar. In addition to a rise in the discount rate and the imposition of a marginal reserve requirement on managed liabilities, the Federal Reserve announced that it would place greater emphasis on the supply of bank reserves and less emphasis on the Federal funds rate in seeking to moderate the growth of money and credit in the United States economy. These measures alleviated many of the concerns that had built up in the market and helped the dollar weather the numerous political and economic shocks that occurred over the rest of 1979 and early 1980.

Previously, the dollar had come under very heavy selling pressure as market psychology became increasingly bearish. Last year's upsurge in international oil prices was already adding massively to our oil import bill, slowing the progress in improving our trade and current account balances and exacerbating domestic inflation. Many other prices were also advancing, and speculative buying pressures had erupted in many commodity and real estate markets on the expectation of more inflation to come. As the demand for money had increased in the United States, the Federal Reserve had acted to raise interest rates, but the growth of the monetary aggregates remained uncomfortably high and market participants were concerned that more restraint might be needed. Nevertheless, since the United States economy was widely believed to be moving into recession, market participants openly questioned whether the Federal Reserve would be in a position to continue to tighten monetary policy further in order to deal with inflationary expectations.

By contrast, the monetary authorities of other countries were believed to have scope to tighten further. Economic activity was expanding more rapidly in most other countries, and monetary policies were becoming increasingly restrictive in response to buoyant domestic credit demands and to inflationary pressures arising out of the escalation of international oil prices. With interest rates rising in nearly all industrial countries, market participants began to fear that the monetary authorities of major countries were in competition with each other in pressing for even higher interest rates. In addition, market participants became concerned that the authorities of some countries might act to blunt the effects of higher oil prices on domestic price levels through promoting appreciations of their currencies against the dollar. The swiftness of the authorities of many countries to intervene in support of their currencies, even those which had appreciated sharply in earlier months, reinforced this view. By September, market participants questioned whether central bank cooperation in the exchange market might have broken down. Market concerns

A report by Scott E. Pardee. Mr. Pardee is Senior Vice President in the Foreign Department of the Federal Reserve Bank of New York and Manager of Foreign Operations for the System Open Market Account.

about the outlook for international monetary stability were reflected in the run-up of prices in gold and other commodities.

In fact, the central banks were in close consultation throughout that time in an effort to determine what could be done individually and jointly to relieve the strains that had built up in the exchange markets. When selling pressure increased on the dollar in September, the United States authorities at first intervened heavily, operating mainly in German marks but also in Swiss francs. The German and Swiss central banks, as well as others, also bought sizable amounts of dollars in their markets. When speculative pressures erupted within the EMS (European Monetary System), central banks participating in that arrangement increasingly used currencies other than the dollar in support operations so as not to aggravate pressures on the dollar. By late September, however, it became clear that the dimensions of the flows of funds out of the dollar were too large to be contained by intervention alone. The United States authorities scaled back their intervention, while new measures to combat inflation in the United States were being discussed and while senior United States officials reviewed the matter of policy coordination with their counterparts in other major countries. Although the dollar continued to decline against most major currencies through the end of September, the market began to sense that something was in the works, and early in October selling pressure on the dollar evaporated on expectations that major policy action by the Federal Reserve was imminent.

The October 6 measures were followed by strong expressions of support by major foreign central banks. Although interest rates continued to advance in several other countries, in few instances did they rise by as much as the increase in market rates in the United States over the next few weeks. Moreover, as the dollar gradually firmed, foreign central banks sought to avoid the impression that they would, at that critical juncture, impede its recovery. In the exchange markets, traders reacted cautiously at first but were soon influenced by the sharply higher interest rates that emerged in the domestic and Eurodollar markets, providing for more favorable interest differentials. Basically, the dollar had become a much more attractive medium for investment and a very expensive currency in which to carry a short position.

The pull of interest rates, coupled with the market's generally favorable response to the Federal Reserve's new policy approach, helped shield the dollar against the various political shocks that soon followed. On November 4, Iranian militants seized the United States Embassy in Teheran and held its diplomatic personnel hostage. On November 14 the Iranian authorities threatened to withdraw funds from United States banks and to repudiate debts. In response, the United States blocked Iranian official assets in United States banks. Then late in the year the Soviet Union intervened militarily in Afghanistan. There were worrisome economic developments as well. With the domestic economy proving much more buoyant than expected, inflation in the United States continued to increase. There was a further run-up in OPEC (Organization of Petroleum Exporting Countries) oil prices and a mind-boggling surge of prices in the markets for gold, silver, and other precious metals.

As these various uncertainties piled up over the year-end, bearish sentiment toward the dollar deepened once again, and dollar rates began to decline. But selling pressures on the dollar did not cumulate, as before. In part, traders remained cautious in the face of rapid-fire and unpredictable events. Moreover, on those occasions in late 1979 and early 1980 when selling pressures threatened to build, the United States authorities, in close coordination with the German and Swiss central banks, intervened forcefully and quickly to restore two-way trading. By early 1980, the very fact that the dollar was weathering so many uncertainties began to be taken as a positive sign. The market then focused greater attention on other countries' problems, including adverse shifts in their trade and current account balances, sharply rising prices, and dangers to them arising out of the Iranian and Afghan situations. By the month end, dollar rates were firming against major currencies.

On balance for the six months, the United States dollar declined a net 1½ to 5 percent against the German mark and currencies linked to the mark in the EMS, by 1¾ percent against the Swiss franc, and by 1 percent against the pound sterling. By contrast, the Japanese yen declined against the dollar by 9 percent. The Canadian dollar advanced by 1 percent against the United States dollar.

In intervention during the six-month period, the Federal Reserve and the Treasury sold a total of $5,415.8 million of German marks and $67.0 million of Swiss francs. System operations entailed drawings under the Federal Reserve swap lines in the amount of $2,296.0 million equivalent of marks from the German Bundesbank and $67.0 million of Swiss francs from the Swiss National Bank. The drawings on the Bundesbank started at a level of $2,053.3 million in early August, reached a peak of $3,746.0 million on October 4 and were reduced to $2,630.9 million by January 31, 1980, with repayments throughout the period stemming from mark acquisitions from correspondents. Use of the swap line with the Swiss National Bank was more sporadic, with peak drawings of $44.2 million on

Table 1

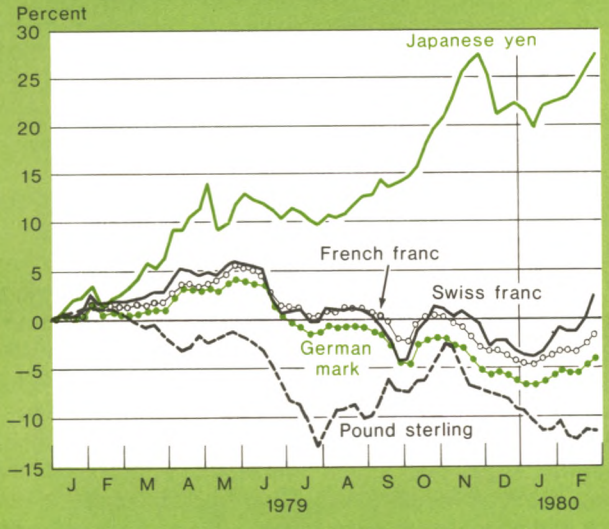
Federal Reserve Reciprocal Currency Arrangements

In millions of dollars

Institution	Amount of facility January 1, 1979	Increase effective August 17, 1979	Amount of facility January 31, 1980
Austrian National Bank	250		250
National Bank of Belgium	1,000		1,000
Bank of Canada	2,000		2,000
National Bank of Denmark	250		250
Bank of England	3,000		3,000
Bank of France	2,000		2,000
German Federal Bank	6,000		6,000
Bank of Italy	3,000		3,000
Bank of Japan	5,000		5,000
Bank of Mexico	360	340	700
Netherlands Bank	500		500
Bank of Norway	250		250
Bank of Sweden	300		300
Swiss National Bank	4,000		4,000
Bank for International Settlements:			
Swiss francs-dollars	600		600
Other authorized European currencies-dollars	1,250		1,250
Total	29,760	340	30,100

Chart 1

The Dollar Against Selected Foreign Currencies

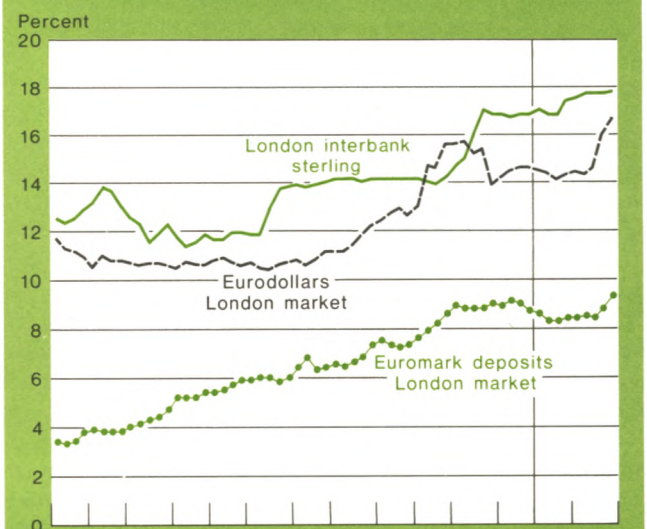


Percentage change of weekly average of bid rates for dollars from the average rate for the week of January 2-5, 1979. Figures calculated from New York noon quotations.

Chart 2

Selected Interest Rates

Three-month maturities*



*Weekly averages of daily rates.

October 1; all drawings in Swiss francs were repaid by January 31, 1980.

United States Treasury intervention in marks was financed out of previously acquired balances. The Treasury's $337.7 million equivalent drawing and repayment on the Bundesbank swap line early in the period reflected temporary financing, while Treasury holdings of German government securities were being liquidated. To augment balances, the United States Treasury on two separate occasions issued medium-term mark-denominated notes in the German capital market. The first in November, with maturities of 2½ and 3½ years, was for $1,118.9 million equivalent of marks. The second, in January, also with maturities of 2½ and 3½ years, was for $1,168.0 million equivalent.

Also during the period, the Federal Reserve's reciprocal swap arrangement with the Bank of Mexico was increased by $340 million to $700 million.

As indicated in Table 6, the Federal Reserve recorded losses on current operations and on the valuation of balances. The Treasury recorded profits on balances and losses on the valuation of balances.

German mark

Coming into the period, the upturn in the German economy was in full swing. Strong consumption, a surge in business investment, and a boom in construction made it likely that the government's 4 percent growth target for 1979 would be met, if not exceeded. But progress in achieving faster growth was accompanied by escalating inflation. The explosion in imported oil and raw materials prices, together with the strength of the domestic recovery, had generated a sharp rise in wholesale and consumer prices. At the same time, the current account surplus had virtually disappeared as higher oil import costs and the fast pace of economic activity led to a sharp expansion of imports. To contain inflationary pressures, the German authorities progressively tightened monetary policy, leading to a substantial increase in domestic interest rates, which outpaced increases in the United States and elsewhere. As the exchange market focused on monetary conditions in Germany relative to conditions in other major industrial countries, the mark came into strong demand, particularly in June and July. Heavy intervention by the United States and German authorities blunted the mark's rise against the dollar and was partly reflected in an increase in the Federal Reserve's outstanding swap debt with the Bundesbank to $2,053.3 million equivalent of marks as of July 31.

In August, the exchange markets settled down and the mark eased off its highs to trade around DM 1.83 against the dollar. The German authorities then moved to absorb some of the liquidity generated by the summer's intervention, lest it aggravate inflationary pressures at a time when domestic credit expansion was increasing sharply. The Bundesbank introduced quantitative limits on commercial banks' Lombard borrowings, engaged in foreign exchange swaps against dollars, entered into open market purchases of marks against shares of United States Treasury bills held at the central bank, and otherwise signaled its intention to bring down the growth of central bank money to its 6-9 percent target range. These various operations provided a further boost to German interest rates. Moreover, inasmuch as a substantial reflux of funds out of marks back into dollars had not materialized, many in the market interpreted the Bundesbank's actions as indicating an unwillingness to let the mark depreciate should the dollar come into demand. By contrast, in the United States the monetary aggregates were expanding rapidly and inflation continued to accelerate at double-digit annual rates. The Federal Reserve increased the discount rate to 10½ percent and moved the Federal funds rate higher. Nonetheless, in view of considerable talk of an impending recession in the United States, market participants increasingly questioned whether monetary policy would be tightened sufficiently to contain strong inflationary forces.

By early September the mark was again in strong demand against the dollar. Bidding for marks also gained momentum against European currencies amid fears that the currencies of most other EMS members, who might find it difficult to match the tightening of monetary policy taking place in Germany, would be unable to keep pace with the mark's rise. Market participants therefore came to expect that the mark would be revalued within the EMS as part of an upcoming technical review of the new joint float. The Bundesbank and other participating central banks sold progressively larger amounts of marks to maintain exchange rate limits within the EMS. Even so, the demand for marks was sufficiently powerful to pull up EMS currencies as a group against the dollar.

In these circumstances, the United States authorities intervened forcefully once again, selling substantial amounts of marks almost daily during September, largely in the New York market. The Bundesbank also intervened as a buyer of dollars in Frankfurt. On September 19, the Federal Reserve raised the Federal funds rate further and hiked the discount rate ½ percentage point to 11 percent. But the fact that the Board of Governors had approved the discount rate increase by a 4-3 split vote did little to alleviate the market's concern about the United States resolve to combat inflation, and pessimism toward the dollar deepened.

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, 1979	1979 I	1979 II	1979 III	1979 IV	1980 January	System swap commitments January 31, 1980
German Federal Bank	4,434.2	+334.2 −1,762.8	+790.8 −3,020.8	+3,024.0 −292.4	+448.5 −913.4	+200.6 −742.1	2,630.9*
Bank of Japan	106.5	−106.5	-0-	-0-	-0-	-0-	-0-
Swiss National Bank	786.3	+74.1 −860.5	+36.2	+63.5 −67.9	+12.5 −44.2	+22.7 −22.7	-0-
Total	5,327.0	+408.4 −2,729.8	+826.9 −3,020.8	+3,087.5 −360.2	+461.0 −957.7	+223.3 −764.8	2,630.9*

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 January for value after the reporting period.

* Outstanding commitments as of January 31, 1980 also include revaluation adjustments resulting from swap renewals, which amounted to $130.1 million for drawings on the German Federal Bank renewed during 1979 and January 1980.

Table 3

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, 1979	1979 I	1979 II	1979 III	1979 IV	1980 January	Outstanding January 31, 1980
Bank for International Settlements* (against German marks)	-0-	-0-	+31.0 −31.0	-0-	+39.0 −39.0	+49.0 −49.0	-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 4

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

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

Amount of commitments January 1, 1979	1979 I	1979 II	1979 III	1979 IV	1980 January	Amount of commitments January 31, 1980
889.4	−878.2*	-0-	+337.7 −337.7	-0-	-0-	-0-

Because of rounding, figures do not add to total. Data are on a value-date basis.

* Repayments include revaluation adjustments from swap renewals, which amounted to $11.3 million for drawings on the German Federal Bank renewed during the first quarter.

In this environment, the upward adjustment of the mark by 5 percent against the Danish krone and by 2 percent against other EMS currencies over the September 22-23 weekend relieved tensions within the joint float, but not the pressures against the dollar. Meanwhile, spot oil prices were again vaulting upward, and several oil-producing countries raised their official sales prices above limits set by OPEC last June. With the dollar declining again, fears mounted that the oil producers would abandon dollar oil pricing in favor of a basket of currencies, including the mark, or even demand payment for oil in currencies other than the dollar. More broadly, all commodities markets were hit by a speculative fever as asset holders shifted from "paper" currencies into tangible assets—particularly into gold, whose price soared to $447 per ounce early in October. Corporate treasurers, investment managers, and central banks, all seeking to diversify their portfolios, shifted a massive amount of funds into the mark from the dollar. With the strength and diversity of these pressures raising concerns about international financial stability, the United States authorities scaled back their intervention operations in late September while policy discussions were being held. By October 2, these pressures had propelled the mark to DM 1.7250—near its record highs, about 6 percent above early-August levels and some 11 percent above the levels of mid-June.

In the period from early August through early October, the Trading Desk sold $4,169.0 million equivalent of marks, shared about evenly between the Federal Reserve and the United States Treasury. Most of the Federal Reserve's mark intervention was financed by drawings of $1,844.1 million equivalent on the swap line with the Bundesbank, bringing total drawings to $3,746.0 million after allowing for further repayments of $177.9 million and revaluation adjustments from swap renewals. The remainder of the System's mark sales and all the Treasury's intervention were financed out of balances. The Treasury's $337.7 million equivalent drawing and repayment on the Bundesbank swap line reflected temporary financing, while Treasury holdings of German government securities were being liquidated. Meanwhile, net purchases of dollars together with the sizable intervention in EMS currencies boosted Germany's foreign exchange reserves $3.7 billion from end-July to $47.0 billion by the end of September.

With the mark now approaching the levels reached just prior to the November 1, 1978 United States policy package, the exchange markets were alive with rumors of a new support program for the dollar. In the days surrounding the Hamburg meeting between United States and German officials and the annual meetings of the IMF (International Monetary Fund) and the World Bank in Belgrade, Yugoslavia, there was increasing discussion of the need for improved monetary policy coordination between the United States and Germany and, in particular, for the United States to take more effective action to bring its inflation under control. When the market learned of Chairman Volcker's early return to Washington from Belgrade, the mark rate dropped back 1¾ percent from its peak to DM 1.7555 on expectations of dramatic new policy action, and the United States authorities had no further need to intervene.

On Saturday, October 6, the Federal Reserve announced wide-ranging policy measures aimed at bringing the growth of money and credit under better control and thereby dampening inflationary forces. The actions included a 1 percentage point increase in the discount rate to 12 percent and the imposition of an 8 percent marginal reserve requirement on increases in managed liabilities. In addition, the System announced that it would place greater emphasis on the supply of bank reserves in its open market operations and less emphasis on the Federal funds rate in seeking to reach its monetary aggregate objectives. Interest rates in the United States and Eurodollar markets moved up sharply in the days following these measures. Although the exchange markets were initially unsure about the implications of the new policy procedures, participants reacted positively on balance to the change in United States monetary policy and to the rise in dollar interest rates. In fact, the dollar firmed and the mark fell back to trade for several weeks around DM 1.79-1.80 without intervention from the United States or German authorities.

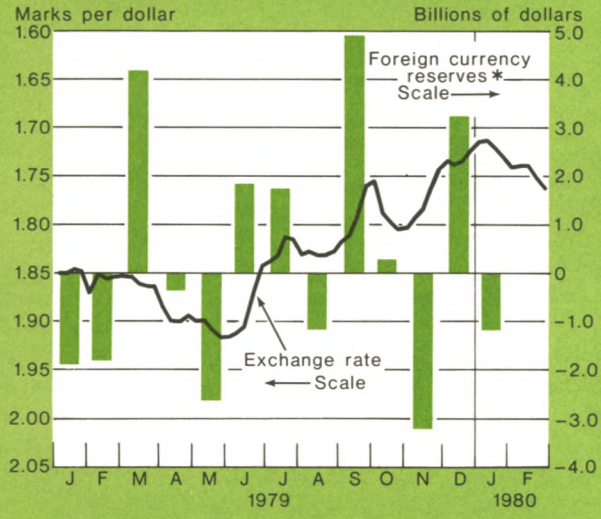
Meanwhile, with the German economy continuing to expand even more rapidly than expected, money market rates had again risen rapidly. On October 31, the Bundesbank raised both the discount and Lombard rates by 1 percentage point to 6 and 7 percent, respectively, so as to eliminate distortions in the banking system and bring official rates in line with those prevailing in the market. But, although the authorities also increased rediscount quotas by DM 4.4 billion to prevent liquidity from tightening too far, short-term German market interest rates moved higher, eroding part of the increased interest differential favorable to dollar-denominated assets. With respect to fiscal policy, the government's draft 1980 budget also moved toward restraint. The central government's net borrowing requirement was cut to less than DM 30 billion in 1980 through a virtual freeze on real spending coupled with higher tax revenues.

After mid-November, new shocks emanating from the revolutionary upheaval in Iran upset the tenuous balance in the exchange markets. The seizure by Iranian militants of American diplomatic personnel at

Chart 3

Germany

Movements in exchange rate and official foreign currency reserves



Exchange rates shown in this and the following charts are weekly averages of noon bid rates for dollars in New York. Foreign currency reserves shown in this and the following charts are drawn from IMF data published in International Financial Statistics.

*German foreign exchange data include adjustments for gold deposited with the European Monetary System and for foreign exchange swaps.

the United States Embassy in Teheran produced a crisis in United States-Iranian relations, with adverse implications for the already fragile world oil market. The Iranian government announced plans to withdraw its foreign exchange reserves from United States banks, threatened to repudiate its foreign debts, and called on OPEC members to abandon the dollar as a reserve and transactions currency. Accusations that the United States was involved in the attack on the Grand Mosque in Mecca, Saudi Aradia, incited violent anti-American demonstrations in Pakistan and Libya, and the Ayatollah Khomeini remained adamant in calling for the Shah's return to Iran before releasing the United States hostages. During all of this, the United States Government sought in various ways to resolve these challenges without the use of force and, to assure that claims of the United States and its citizens on Iran would be protected, President Carter blocked all official Iranian assets in United States banks, their foreign branches, and subsidiaries.

In the face of these developments, sentiment toward the mark turned bullish. The exchange markets focused on the dangers to the strategic and financial position of the United States in the Middle East and on the dangers to the dollar's role as a reserve asset. Concern over international oil prices was further heightened when OPEC members, at their semiannual meeting in Caracas on December 17, raised official sales prices another 30 percent, bringing the oil price increase over the year to about 100 percent. So sharp a rise in the price of oil was particularly damaging for a country as heavily dependent as Germany on imports for its energy needs and was likely to drive the current account deeply into deficit. But, given the prevailing market psychology, the OPEC decision was interpreted bearishly for the dollar since it reinforced the market's pessimism about the United States inflation outlook. Nonetheless, a sustained surge of buying pressure on the mark did not materialize, in part because traders became increasingly reluctant to assume new positions in such an unpredictable political atmosphere, particularly ahead of the year-end. As a result, the market was thinner and less resilient than normally, and the mark tended to ratchet unsteadily upward. At times commercial sales, for instance, by large United States multinationals repatriating funds slowed the mark's rise. On other occasions when upward presssure on the mark threatened to gather momentum, the United States and German authorities intervened. Nonetheless, by the year-end the mark had advanced 4¼ percent from mid-November levels back to DM 1.7250.

After mid-November the United States and German authorities resumed intervening once again, but their operations were relatively modest, compared with previous months. In the six weeks through end-December, the Trading Desk sold $716.5 million equivalent of marks, including $396.1 million equivalent for the System and $320.4 million equivalent for the Treasury. The System's mark sales were largely financed by drawings of $251.3 million equivalent on the swap line with the Bundesbank. However, between early October and the year-end, the System was also able to repay $939.6 million equivalent of mark swap debt through purchases from correspondents so that total drawings outstanding on the swap line with the Bundesbank stood at $3,126.4 million equivalent at the year-end. The Treasury's intervention was financed out of ESF (Exchange Stabilization Fund) balances which were augmented by the proceeds of a new Treasury issue of mark-denominated securities floated on the German capital market on November 12, 1979. The issue comprised $451.0 million equivalent of 2½-year securities at 8.55 percent and $667.9 million equivalent of 3½-year securities at 8.5 percent.

Coming into the new year, the buildup of sentiment favoring the mark was reinforced by the Soviet Union's military intervention in Afghanistan. The shift in the Middle East strategic balance against the United States raised the possibility that, with the Soviet Union better positioned to exploit instabilities in the vital Persian Gulf area, Middle Eastern holders of dollars would accelerate their purchases of marks and other currencies. Moreover, with oil prices still rising even after the substantial OPEC price hike in December, there was little hope for a near-term reduction of United States inflation. All of this contributed to an unsettling rise in the price of gold to $660 an ounce at the onset of the month and led to widespread demand for the mark, propelling the rate to as high as DM 1.6996. But as soon as trading had resumed in the new year, and on several occasions thereafter, the United States and German authorities intervened swiftly and forcefully to steady the rate in their own markets and overnight in Hong Kong and Singapore.

This open and coordinated intervention had a strong impact on market psychology and cast doubt on the mark's continued appreciation. At the same time, the implications of the Afghanistan invasion were reassessed in a way that was less favorable for the mark. The continuing deterioration in great power relations underscored Western Europe's exposure in case of further Soviet aggression. These uncertainties led to a further rise in the price of gold to a record $875 an ounce. But, in the exchange markets, portfolio shifts into marks slowed. Indeed, some capital started to flow out of Germany as market participants sought safer havens for their funds, with a substantial part of this flow coming into dollars. Moreover, the recent round of oil price increases, retroactive to January 1, generated some transactions demand for dollars on the part of several oil companies. In these circumstances, the swing of the German current account into a DM 9 billion deficit for 1979 began to show through in the exchanges, and traders found they had fewer outlets than previously for the marks they had accumulated. As dealers moved to cover their positions, the mark moved lower to around DM 1.7250 by midmonth.

In the final weeks of January, as the exchanges became more settled, market participants focused more closely on changing economic conditions in Germany. Inflation was accelerating rapidly just ahead of key wage negotiations. Moreover, with the oil import bill continuing to swell and with the German economy slowing less rapidly than the economies of its major trading partners, there were expectations that the current account deficit would widen further this year. These concerns began to weigh on the mark at a time when the dollar was being supported by expectations that United States interest rates would move higher. Increased defense expenditures in the President's budget, new evidence that the United States economy had not weakened as expected, and statements by United States Administration officials before the Congress, as well as by Chairman Volcker, that United States interest rates would not come down before inflation declines all supported this view. As a result, the mark edged lower to close the period at DM 1.7414, for a net gain of 5¼ percent over the six-month period under review.

During January, the United States authorities inter-

Table 5

United States Treasury Securities, Foreign Currency Denominated

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

Issues	Amount of commitments January 1, 1979	1979 I	1979 II	1979 III	1979 IV	1980 January	Amount of commitments January 31, 1980
Government series:							
Swiss National Bank	600.4	− 597.2	−3.2	-0-	-0-	-0-	-0-
Public series:							
Switzerland	-0-	+1,203.0	-0-	-0-	-0-	-0-	1,203.0
Germany	1,595.2	+1,351.5	-0-	-0-	+1,118.9	+1,168.0	5,233.6
Total	2,195.6	− 597.2 +2,554.5	−3.2	-0-	+1,118.9	+1,168.0	6,436.6

Data are on a value-date basis.

vened to sell $290.5 million equivalent of marks for the System, financed in part by drawings of $200.6 million equivalent on the swap line with the Bundesbank, and $239.9 million equivalent of marks for the Treasury. Meanwhile, the Trading Desk took advantage of further opportunities to buy marks through nonmarket transactions with correspondents, which were used to repay swap debt. Thus, by end-January, the System's outstanding swap indebtedness to the Bundesbank declined some $495.5 million equivalent net over the month to stand at $2,630.9 million equivalent after allowing for revaluation adjustments from swap renewals. The Treasury financed its mark sales out of balances, which were further replenished during January through the placement of $1,168.0 million equivalent of mark-denominated bearer bonds in the capital market in Frankfurt, comprising a $560.6 million equivalent 2½-year security at 8.5 percent and a $607.4 million equivalent 3½-year security at 8.45 percent. Reflecting the repayment of swap debt by the United States authorities and by the Bundesbank's partners in the EMS, as well as the conversion of capital exports by the Bundesbank, Germany's foreign exchange reserves declined $1.2 billion during January to $46.2 billion by the month end. However, for the six-month period as a whole, Germany's reserves rose $2.9 billion on balance.

Swiss franc

With the Swiss franc no longer appreciating in the exchanges during 1979, rising international oil and raw materials prices were quickly transmitted to the domestic economy. Inflation in Switzerland accelerated rapidly. The rise in oil prices also boosted imports at a time when export growth was virtually stagnant, leading to a narrowing of the current account surplus. Moreover, economic activity remained sluggish, in sharp contrast to the buoyant economic picture in Germany, and domestic interest rates did not keep pace with the rise in interest rates abroad or with the pickup in domestic inflation. In these circumstances, the franc tended to come on offer in August as it had in earlier periods during the year, especially against the German mark, trading at SF 1.6550 early in the period. The Swiss authorities took advantage of the relative stability of the dollar to sell sizable amounts of dollars, thereby avoiding a depreciation in the franc that would exacerbate inflationary pressures, while also absorbing excess liquidity in the domestic market. Meanwhile, the Federal Reserve bought francs mostly from the Swiss National Bank to repay the remaining $31.7 million equivalent of swap debt incurred earlier in the summer.

During September the sharp deterioration in sentiment toward the dollar was reflected in upward pressure on the Swiss franc. But, with interest differentials against the franc having widened, participants shifting funds out of dollars moved more heavily into currencies like the German mark that appeared to have greater upward leeway and offered a higher rate of return. Even though the franc did not lead the generalized rise in the European currencies against the dollar, the Swiss National Bank intervened forcefully both in Zurich and in New York through this Bank as agent to moderate the franc's advance. In addition, during September and early October, the Federal Reserve sold $44.2 million equivalent of Swiss francs, financed by drawings on the swap line with the Swiss National Bank. Largely reflecting these operations, Switzerland's foreign exchange reserves, after declining in August, rose during September to $14.7 billion, up $1.2 billion from end-July levels. By October 2, the franc spot rate had risen 7¾ percent above the range of early August to a high of SF 1.5410. At this point, as rumors of a dollar support package began to spread through the exchanges, many participants started covering their long franc positions, and in subsequent days the franc slipped back to around SF 1.5750.

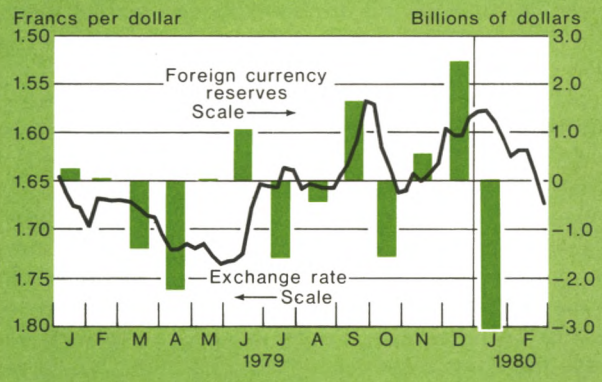
Following the October 6 announcement of policy measures aimed at curbing United States money and credit expansion, the Swiss franc fell back more rapidly against the dollar than the mark. The rise first in dollar-based interest rates and then in German money market rates widened the already adverse interest differentials against franc-denominated assets. Moreover, the public authorities were having difficulty borrowing on the Swiss capital market at the prevailing low level of long-term interest rates. Expectations developed that Swiss interest rates would also firm, and, as the capital market weakened, the incentive increased for bondholders to shift funds out of Switzerland to avoid prospective capital losses. By end-October the franc declined another 5¾ percent to SF 1.67 against the dollar and 2¼ percent *vis-à-vis* the mark. During this time, the Federal Reserve was able to acquire sufficient Swiss francs from correspondents to liquidate outstanding swap debt with the Swiss National Bank.

The Swiss authorities were concerned about the decline of the franc in the exchanges. Inflation had quickened to 5 percent on a year-on-year basis, a dramatic upsurge for a country where, for previous years, price increases had been close to 1 percent per annum. Domestic money supply growth remained worrisome, and there were some fears over a pickup in wage inflation. Pay raises during the winter wage round —already clouded by a shortage of labor in the construction sector—threatened to escalate sharply if

Chart 4

Switzerland

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

Table 6

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

In millions of dollars

Period	Federal Reserve	United States Treasury: Exchange Stabilization Fund	United States Treasury: General Account
First quarter 1979	+ 0.7	+ 5.7	+ 17.3
Second quarter 1979	+30.8	+ 4.6	+ 21.7
Third quarter 1979	−12.3	+ 63.4	+ 37.0
Fourth quarter 1979	−29.8	+ 20.8	+ 7.5
January 1980	−22.1	-0-	+ 61.2
Valuation profits and losses on outstanding assets and liabilities as of January 31, 1980 ...	−16.3	−375.0	−296.3

Data are on a value-date basis.

industrial workers' demands to be fully compensated for the rising price of oil were successfully negotiated. Even so, the Swiss authorities held off intervening in the exchanges to avoid jeopardizing the dollar's recovery following the October 6 monetary measures. Instead, the Swiss National Bank allowed foreign exchange swaps executed in the third quarter to mature, thereby draining liquidity from the Swiss money market. The central bank then followed up by raising, on November 2, its discount and Lombard rates by 1 percentage point to 2 and 3 percent, respectively, and further liberalized restraints on capital inflows by reducing the negative interest charge on nonresident deposits from 10 to 2.5 percent per quarter.

But with foreign interest rates still on the rise, particularly in Germany, interest differentials remained highly adverse to franc-denominated assets, and the franc spot rate continued to weaken. In response, the authorities removed entirely the negative interest charge on nonresident franc deposits on December 1, supported the franc in the exchanges by selling German marks in the forward market against receipts coming due in 1980 and 1981, and provided a smaller than usual amount of liquidity to the commercial banks at the month end. These measures provided a boost to the franc, which rebounded in early December to trade around SF 1.59 against the dollar.

Meanwhile, the international crisis touched off by the Iranian seizure of American hostages at the United States Embassy in Teheran was creating confusion and uncertainty in the exchanges. At times, the franc benefited from expectations that certain Middle Eastern oil producers would diversify heavily out of dollars. But these inflows did not cumulate. Moreover, in the midst of turbulent events, most traders were hesitant to take positions that would affect their year-end accounts. As the market thinned out during December, the franc responded mainly to the ebb and flow of commercial orders. On balance, sell orders mainly from United States and German corporations repatriating dividends ahead of the year-end outweighed the demand for francs by Swiss corporations, and the franc eased lower toward the year-end.

Early in January, the franc was caught up in a wave of demand as part of the market's initial response to the Soviet invasion of Afghanistan. In response, the Federal Reserve sold $22.7 million equivalent of Swiss francs, financed by drawings on the swap line with the Swiss National Bank, while the Swiss authorities bought dollars in Zurich and in New York through this Bank as agent. This intervention helped blunt the franc's rise. Moreover, the continuing increase in Swiss inflation was still of concern, and market participants were keenly aware that interest differentials adverse to the franc had widened further. Once the mark started to ease against the dollar, the franc declined even faster to end the six-month period under review at SF 1.6325, up 1¾ percent on balance against the dollar. Against the German mark, however, the franc declined 3½ percent over the six-month period. By

end-January, the Federal Reserve was able to liquidate in full its swap debt with the Swiss National Bank, using the proceeds of interest earnings on franc-denominated balances as well as some francs acquired in the market. Switzerland's foreign exchange reserves declined $1.6 billion from September levels to $13.1 billion as of January 31.

Japanese yen

Over the course of 1979, the previous efforts by the Japanese authorities to boost domestic demand and to reduce excessively large trade and current account surpluses took hold. A strong revival in consumer spending and an upsurge in business investment promoted a far more rapid rate of growth, at 8 percent or more, of industrial production in Japan than in any other major country. It also generated a sharp upturn in all types of imports, at a time when the prices of oil and other imported commodities were mounting rapidly. Moreover, export and import volumes continued to respond to the earlier appreciation of the yen and to various administrative programs designed specifically to reduce the trade surplus. As a result, the current account swung from a record $16.5 billion surplus in 1978, to near balance in the first half of 1979, and into progressively deeper deficit thereafter. The large deficit on the capital account also continued during the first half of the year. Moreover, the implication of the oil shortage for Japan weighed on the yen. The exchange markets reacted to these developments in the spring and summer, and from the beginning of the year to end-July the yen declined a net 10½ percent against the dollar. During that time the Bank of Japan had intervened in substantial volume and foreign exchange reserves plummeted by $8 billion to $21.0 billion.

By the opening of the period under review, the thrust of Japanese economic policy was shifting from stimulus to restraint. The authorities were concerned that the yen's depreciation and the sharp rise in oil and other imported commodities prices were adding to inflationary pressures, particularly on the wholesale level. Consequently, government investment expenditures—the main force sustaining the domestic expansion in earlier years—were trimmed back to ease capacity constraints in the construction sector and to combat the growth of the budget deficit. Moreover, monetary policy turned less accommodative as signaled by a full percentage point increase in the Bank of Japan's discount rate to 5¼ percent in late July. These actions, particularly on the monetary front, helped bring the exchange market into better balance, and the yen rate traded quietly between ¥216 and ¥218 during most of August.

Beginning in late August, however, the yen came under renewed selling pressure, as concern over Japan's vulnerability to oil-supply disruptions resurfaced. In the face of disarray in the world oil markets, importers in Japan, as elsewhere, sought to anticipate future oil needs. In the process, spot oil prices began rising sharply once again and the demand for dollars to pay for oil weighed on the exchange market for the yen. Exchange market participants came to fear an even more massive oil import bill for Japan than previously expected. Consequently, the yen resumed its decline, prompting other Japanese importers to hasten to cover their future needs while exporters held off converting their dollar receipts.

Meanwhile, the combined force of the depreciation of the yen and the rise in petroleum and other imported commodities prices had an explosive effect on the wholesale price index, which accelerated to an annual rate of 18 percent by September. Steps to deal with these problems were widely discussed, but action was postponed through early October, largely because Japan was in the throes of an election campaign. Even after the election, on October 7, the market was concerned that the unexpectedly small majority for the ruling Liberal Democratic Party and intense strains within that party would leave little scope for decisive action on the part of the Japanese government. The upward trend in interest rates abroad, punctuated by the jump in interest rates in the United States following the Federal Reserve's October 6 measures, led to a heavy outflow of capital from Japan.

To blunt the yen's decline in the late summer and early fall, the Japanese authorities intervened heavily in the exchanges. Most of these operations were conducted in Tokyo, but some were carried out in New York through the Federal Reserve Bank of New York as agent. In October the Japanese authorities also initiated restraints on capital outflows, closely monitoring foreign borrowing in the yen bond market as well as foreign currency syndicated lending on the part of Japanese banks and other financial institutions. On November 2 the Bank of Japan raised its discount rate 1 percentage point to 6¼ percent. By that time, Prime Minister Ohira had mended important political fences so that attention could be turned to the variety of economic problems facing the government.

International events nevertheless continued to weigh on exchange market sentiment toward the yen. Skyrocketing spot oil prices and leapfrogging of official prices by OPEC members were seen as especially ominous for Japan. The crisis in United States-Iranian relations exacerbated these concerns, since some 10 percent of Japan's oil imports had come from Iran. Market sentiment toward the yen, therefore, remained bearish, and the yen continued to decline through late

November. By November 27, the yen had dropped to as low as ¥251.50, some 13 percent below the late-August levels. Reflecting the heavy intervention by the Japanese authorities, official reserves declined $4.8 billion to $16.2 billion by end-November.

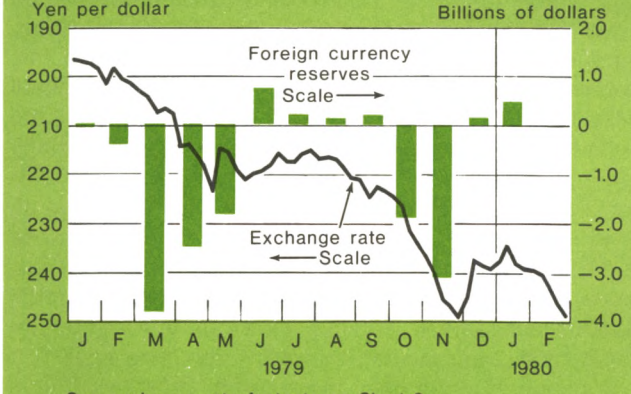
On November 27 the Finance Ministry and the Bank of Japan jointly announced a series of measures to support the yen. The authorities suspended the import settlement scheme providing Japanese commercial banks with low-cost yen import financing, decided to increase ceilings on the amount of foreign currency convertible into yen by banking institutions (both domestic and foreign), and tightened reporting requirements on the foreign exchange dealings of banks and major trading houses. At the same time, to counter domestic inflationary pressures, the Ohira government initiated major restraints on already scheduled public works expenditures, substantially slashing the amount of such outlays for the January-March 1980 quarter. The Bank of Japan followed up on these measures with forceful intervention in the exchanges. These various actions helped settle the market, and the yen began to firm somewhat. Beginning in early December, capital outflows tapered off sharply and the yen came into demand by some countries seeking to diversify their reserves.

In this generally more balanced atmosphere, the yen weathered the uncertainties arising out of the inconclusive OPEC meeting in Caracas in mid-December and the generally heightened world tensions as a result of the Soviet invasion of Afghanistan. The yen rate firmed through mid-December and advanced to as high as ¥230.90 in early January. The yen's rally was not sustained, however. Final figures for 1979 showed a current account deficit of $8.6 billion, and there was little expectation in the market of any early reversal in view of the unfavorable outlook for Japan's oil import bill, particularly as a further round of official oil price increases was precipitated by OPEC members. The continuing upsurge of wholesale prices also remained a concern, and market participants noted the continuing unfavorable interest rate differential between investments in yen and placements in most other major currencies. By end-January, the yen had settled back to around ¥239, some 5 percent above its November lows. Japan's foreign exchange reserves showed little further change in December and January, ending the period at $16.8 billion as compared with $21 billion at end-July.

Chart 5

Japan

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

Sterling

From early in 1979, sterling had advanced sharply as the positive implications of Britain's near self-sufficiency in oil and the pull of high interest rates more than offset concern about Britain's domestic inflation. The markets were further impressed by the tough anti-inflationary measures taken in June by the new Conservative government headed by Margaret Thatcher. By mid-July, sterling had been bid up to as high as $2.3324 before dropping back to $2.2480 at the month end. The pound had also advanced in trade-weighted terms to as high as 74 before closing at 72.7 percent of its Smithsonian parities. From the beginning of the year, Britain's foreign currency reserves had risen by $2.3 billion to $19.2 billion as of July 31.

In August and September, sterling lost some of its buoyancy. During August, the market reacted adversely to a jump in consumer prices to a rate of 15.8 percent per annum which, however, partly reflected the government's decision to raise the value-added tax as an offset to a cut in personal income taxes. Moreover, there was some concern that the gradual easing of exchange controls, announced as part of the Conservative government's budget message, might lead to heavy outflows of funds. But, with the domestic money market remaining tight, sterling held fairly firm until early September.

In September, key elements of the Thatcher program were coming under challenge as organized labor showed signs of increasing restiveness. The latest pay settlements showed that wage inflation was still accelerating, with even larger wage demands still to be negotiated. Domestic uncertainties were thus viewed in the market as limiting the pound's upside potential for the time being, and sterling declined against the dollar.

Meanwhile, the German mark had come into heavy demand against both the dollar and the other currencies within the EMS that were linked by formal intervention limits. Sterling is not part of that intervention arrangement. But some traders shifted funds out of the pound into the mark on the possibility that sterling might be brought into the EMS at a depreciated rate. A formal adjustment of the currencies linked to the mark within the EMS on the weekend of September 22-23 relieved the immediate strains among those currencies as well as on the pound's relationship to the mark. Over the next weeks the pound joined in the broader swings of European currencies against the dollar, rising as the dollar weakened through late September, dropping back in response to the tightening measures by the Federal Reserve in early October before settling in around the $2.15 level toward midmonth.

By this time, however, the British authorities were facing an important policy dilemma. Domestic economic growth had virtually stalled, and many analysts were projecting a downturn in 1980. Nevertheless, the case for stimulus was weakened by several facts: inflation was still accelerating; the international trade and current account deficits were still large; the demand for credit was very strong, both by private companies and by the public sector; and the monetary aggregates continued to rise sharply. Unlike rates in most other countries, interest rates in the United Kingdom, while still high by international comparison, had not risen since June. As a result, favorable interest differentials had progressively narrowed. In late October, the authorities took the calculated risk of eliminating the remaining exchange controls on resident outflows of funds. Although the actual movement of funds was not large, market participants expressed concern that the potential for outflows added to the downside risk for sterling. Spot sterling dropped back to as low as $2.0580 on November 2, with the Bank of England intervening to smooth the decline. On balance, from August through October, Britain's foreign currency reserves declined by $1.1 billion.

Sterling steadied over the next days, as traders began to trim positions in anticipation of a hike in interest rates in the United Kingdom. Such a move was widely expected in view of the growing difficulty facing the authorities in placing gilt-edged securities at current rates. When the action came, it exceeded market expectations. On November 15, the Bank of England's minimum lending rate was jumped by 3 percentage points to a record 17 percent. This move was accompanied by a strong statement by the authorities that they would not accommodate the recent surge in monetary growth. In addition, the supplementary special deposit scheme, the "corset", was extended for a further six months; banks were subsequently asked not to avoid the corset by recourse to the Euro-sterling market. After the announcement of these new measures, the government was able to resume financing its deficit, selling large amounts of gilt-edged securities. The higher interest rates prompted renewed bidding for sterling, which advanced to $2.1920 at the end of November.

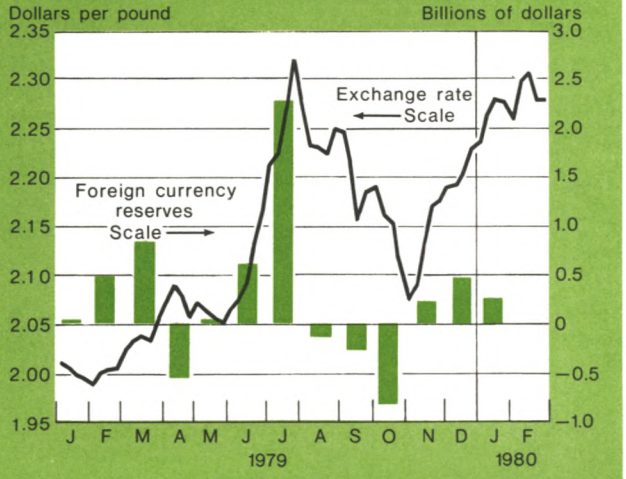
By that time also, the political crisis in Iran and the United States freeze of Iranian assets had generated fears that oil supplies would be cut off, that Iran would decide to take payment for oil in currencies other than the dollar, and that funds would move out of the dollar. Individual OPEC members announced new increases in the price of oil, and this leapfrogging continued even after OPEC's semiannual meeting in Caracas. Among the industrial countries, the United Kingdom was seen in the market as especially able to protect itself in view of the following considerations: an asssured supply of oil from the North Sea, an oil-pricing policy linked to current world prices, close traditional relationships with many OPEC members currently piling up reserves, capacious money and capital markets available to foreign investors, and higher interest rates than available almost anywhere else.

Consequently, during the period of international tensions in late 1979-early 1980, heavy flows of funds

Chart 6

United Kingdom

Movements in exchange rate and official foreign currency reserves



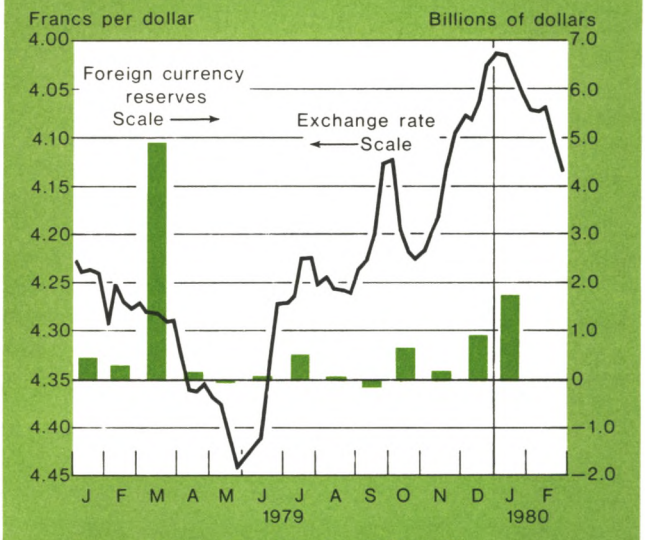
See exchange rate footnote on Chart 3.

came into sterling from the Middle East, Europe, and the United States. As the spot pound began to rise, commercial leads and lags swung in favor of sterling, adding to the upward pressure on the rate. The Bank of England intervened to smooth the rise in the rate but did not meet the market's full demand for sterling lest more substantial intervention might undercut the authorities' domestic monetary policy objectives. As funds continued to flow into sterling, market professionals sensed more upward potential in sterling than in other European currencies. As a result, even though the dollar firmed somewhat against other European currencies in January, sterling continued to advance across the board to as high as $2.2950 by midmonth. The rate dropped back on concerns that the outbreak of a national steel strike could lead to a major challenge to the government's wage policies. The influx of hot money funds nevertheless continued, and the spot rate closed firm at $2.2715 on January 31. Both against the dollar and on a trade-weighted basis, sterling rose almost 1½ percent over the six-month period. Largely reflecting the intervention late in the period, the United Kingdom's foreign currency reserves moved back up to $18.9 billion as of January 31, for a $300 million decline on balance.

Chart 7

France

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

French franc

By the time of the formal inauguration of the EMS in March 1979, the French franc was trading comfortably in the middle of the new joint floating arrangement and, against the German mark, around levels prevailing at the time the EMS had first been proposed. The relative buoyancy of the franc reflected in part an improvement of France's economic performance after several years of stabilization policies aimed at curbing inflation, securing a strong balance of payments, and improving the competitiveness of French industry. France's current account had swung into surplus. Also the rate of inflation, after a brief upsurge in response to the government's relaxation of long-standing price controls, had fallen back to around 9 percent by early 1979. In addition, the franc was bolstered by relatively high interest rates at home that reflected a continuation of the rather restrictive monetary policy directed to narrowing France's remaining adverse inflation differentials *vis-à-vis* its key trading partners, particularly Germany.

Around midyear, however, market participants began to question whether the franc could maintain its relative firmness. Inflation in France as elsewhere picked up considerably in response to the upsurge in international oil prices. The government's increase in public utility charges and household rents, part of its longer term strategy of decontrolling prices and reducing public-sector financing needs, also contributed to the overall rise in domestic prices. Meanwhile, unemployment was high and increasing again, even as economic growth remained reasonably strong, partly because of the rapid growth of the labor force and partly because of the shift in policy emphasizing a shakeout of inefficient labor to moderate unit labor costs and to increase competitiveness. Traders became concerned that the French authorities might not have as much scope as those in Germany and elsewhere to tighten monetary policy in response to the rekindling of inflationary pressures. The authorities in fact allowed domestic money market rates to rise, thereby maintaining interest differentials favorable to the franc. Moreover, to the extent that the franc came under selling pressure within the EMS, the Bank of France intervened increasingly through sales of German marks rather than exclusively in dollars, so as not to aggravate pressure on the dollar at the time. As the exchange markets became more settled in early August, the franc steadied within the EMS and traded around FF 4.25 against the dollar. With the impact of the intervention more than offset by valuation adjustments, especially those associated with the French entry into the EMS, official foreign exchange reserves rose to $14.5 billion by end-July.

By September, however, concerns about the pros-

pects for the French economy intensified. Efforts to improve upon business profitability had failed to generate a strong revival in private investment, as hoped for. Consequently, economic growth tapered off, as consumption began to slow under the influence of rising inflation, increased social security contributions, and sluggish real wages. Also, the current account surplus was being eroded by a sharp swing of the trade account back into deficit. The favorable impact of the franc's appreciation during 1978 on France's terms of trade had run its course. Moreover, a buildup of stocks and inflation-induced anticipatory purchases underpinned a more rapid growth of import volume, while markedly higher oil prices bloated import values. As these developments brought the government's economic policies under growing domestic criticism and cast doubt on the durability of the Barre government's austerity program, market confidence in the franc weakened just as the technical review of the EMS approached. Expectations grew that the franc, along with the other EMS currencies, would be adjusted downward against the German mark, which again was rising rapidly against the dollar in the exchanges. Adverse commercial leads and lags and speculative short positions built up against the franc. Thus, the French currency fell toward its lower limit against the mark within the joint float even as it gained 2½ percent against the dollar to trade around FF 4.15. As selling pressures intensified, the Bank of France once again intervened forcefully, selling substantial amounts of marks almost every day during September.

Over the September 22-23 weekend, as part of an overall realignment within the EMS, the parity of the franc was cut by 2 percent against the mark. Meanwhile, the authorities had presented their policy proposals for 1980, reflecting a continued commitment to fight against inflation while boosting employment largely through selective measures. The Bank of France reinforced the cautiously restrictive stance of monetary policy by maintaining, in the face of higher inflation, the 11 percent target for monetary growth in 1980. The government's draft budget projected a slight reduction of the government's borrowing requirement to 1.5 percent of GNP (gross national product) as a result of some tax increases and stricter limits on current expenditures. At the same time, investment expenditures were increased and youth employment programs were expanded. These actions helped clear the air. Once the speculative pressures in the exchange market dissipated, following the October measures of the Federal Reserve, the selling of francs dried up. Indeed, as French interest rates continued to rise, thereby preserving the favorable interest differential on franc-denominated assets *vis-à-vis* mark-denominated instruments, funds began to flow back into the franc and previously adverse leads and lags started to be unwound. These reflows provided sufficient support to the spot rate that it held steady around FF 4.20 through late October-early November even as the current account surplus narrowed further.

In the aftermath of the sharp deterioration in United States-Iranian relations and the United States freeze of Iranian assets in mid-November, demand for the franc gathered momentum. France's traditionally good relations with the Middle East benefited the franc in two ways. Part of any anticipated increase in OPEC's dollar sales was expected to gravitate into the franc and, in fact, some inflows from the Middle East did materialize. In addition, market participants felt that the impact of potential oil supply disruptions resulting from the Iranian crisis would be less severe for France than for most other major economies. In this atmosphere, French residents accelerated their spot and forward franc purchases, while nonresidents increasingly covered short positions taken up earlier. Consequently, the franc moved to the top of the EMS in mid-November. These inflows tapered off after the passing of the year-end, but somewhat more favorable figures on output, employment, and prices moderated some of the earlier concerns about prospects for the French economy. The franc then recovered, trading at the close around FF 4.07 against the dollar, and rebounded to the upper end of the joint float.

During the last 2½ months of the period, the Bank of France on occasion intervened both to moderate the rise in the rate and to keep the franc within the obligatory 2¼ percent EMS margin. These operations, which more than offset earlier intervention sales, together with revaluation adjustments, contributed to a $3.3 billion rise in France's foreign exchange reserves over the six months to $17.8 billion as of January 31.

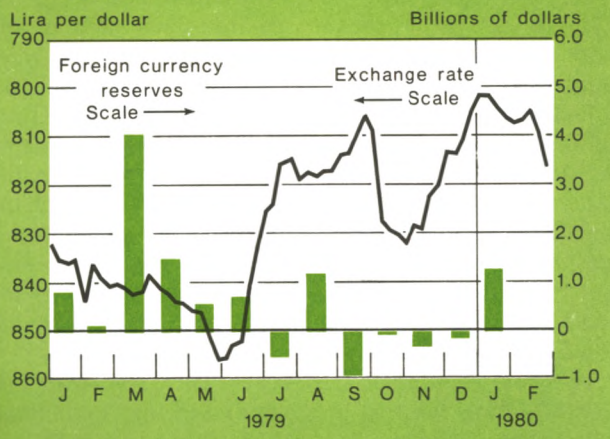
Italian lira

Following the implementation of the EMS in the early spring of 1979, the Italian lira moved quickly to its 6 percent upper limit and traded for several months at the top of the new joint float. Underpinning the lira was Italy's current account position which, after registering a $6.4 billion surplus in 1978, remained in sizable surplus even as the economy expanded through the early spring. In addition, the lira was buoyed by high domestic interest rates and restrictions on domestic credit expansion, which encouraged Italian commercial banks and companies to satisfy their financing needs through external borrowings. With the lira in heavy demand, the rate moved up to LIT 818.70 by July 31. Meanwhile, the authorities bought substantial amounts of dollars, increasing Italy's foreign ex-

Chart 8

Italy

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

change reserves to $17.6 billion by July 31 even after repayment of some official debt.

By summer, Italy's inflation performance was again a major cause for concern. Prices had accelerated to 14-15 percent per annum, largely in response to increased economic growth and rising import prices, and were expected to reach 17-18 percent by the year-end once the dramatic rise in international oil prices worked its way through the economy. An unsettled political situation ahead of the elections in June had prevented Parliamentary approval of the longer range stabilization program, which aimed at diminishing the size of the government deficit in relation to GNP while also orienting expenditures increasingly toward productive investment. Indeed, capital projects had been delayed and the public-sector borrowing requirement was taking up an even larger share of GNP. Moreover, major wage contracts already signed pointed to sizable pay raises above and beyond the comprehensive cost-of-living increases provided under the scalamobile. The June election resulted in a loss for the Communist Party and its return to opposition and produced a coalition minority government headed by the Christian Democrats.

To moderate inflationary pressures, the authorities absorbed surplus liquidity by placing government bonds with the banks and, increasingly, with the general public. Also, the government continued to use some of the increase in foreign exchange reserves to repay outstanding official debt. With respect to interest rates, however, the authorities faced a dilemma. Given the acceleration of inflation, interest rates appeared low from a domestic standpoint. But the current account surplus was already creating excess demand for the lira in the exchanges, and the central bank was already intervening and facing the associated risk of a renewed burst in money supply growth. Consequently, Italian interest rates were kept fairly stable through the summer. Even so, with tourist receipts exceptionally strong, the lira appreciated more rapidly against the dollar than most European currencies and was trading at LIT 812.00 in early September.

During September when strains developed within the EMS, the lira continued to trade at the top of the joint float. It was nonetheless adversely affected by the continued firming of interest rates abroad, which narrowed differentials in favor of lira placements. As earlier capital inflows dried up and even began to be reversed and as tourist receipts tapered off, the lira began to decline within the EMS and the Bank of Italy sold some dollars to support the rate. Then, following the realignment of the currencies within the joint float, which included a downward adjustment of 2 percent for the Italian lira against the German mark, the lira emerged well away from the upper intervention point. The authorities, therefore, had greater scope to raise interest rates to counter increasing domestic inflationary pressures. On October 8 the discount rate was hiked 1½ percentage points to 12 percent. But, in view of the sharp advance in foreign interest rates, particularly Eurodollar rates, Italian banks and companies continued to repay previously uncovered Eurocurrency debts and the lira declined more rapidly than other European currencies against the dollar. By mid-November the lira had fallen to the middle of the EMS band, while dropping off 2½ percent to LIT 832.50 against the United States currency.

Meanwhile, the less buoyant economic outlook for other countries diminished Italy's export prospects in the months ahead. Consequently, the government's 1980 draft budget sought to provide some stimulus through tax relief, to alleviate the risk of an abrupt economic slowdown. Concern developed, however, in view of the already massive fiscal deficit, the public's growing reluctance to buy long-term government debt, the already high rates of domestic inflation, and the renewed rise in international oil prices which was only likely to exacerbate inflation further.

On December 6, the Bank of Italy again acted to tighten monetary policy, by hiking the discount rate 3 percentage points to 15 percent and by tightening credit ceilings. Initially, the boldness of these initiatives was undercut by the lag in Italian short-term interest rates behind the official rate increase. Also, Saudi

Arabia's decision to suspend oil deliveries in the wake of reported irregularities in the arrangement of a major oil supply agreement prompted fears that Italy would soon be faced with an oil shortage. By the year-end, however, domestic liquidity had become exceedingly tight, and Italian money market rates, after adjusting more fully to the rise in the discount rate, increased to 18 percent or more. Moreover, the government moved unexpectedly to curb energy demand by raising domestic prices of gasoline, heating oil, and electric power. In view of these developments, sentiment toward the lira improved somewhat. Consequently, as the dollar firmed in the final weeks of January, the lira eased back somewhat less than the German mark and most other European currencies. In fact, by the month end the lira was again trading nearly at the top of the EMS and, at LIT 807.50, was 1⅜ percent higher against the dollar over the six-month period under review. Meanwhile, Italy's foreign exchange reserves increased to $18.5 billion as of January 31.

European Monetary System

After having been launched in March, the EMS, with intervention arrangements among seven of the member currencies of the European Community, experienced some tugging and pulling among exchange rate relationships but no major strains. The authorities had initially planned to review some of the technical features of the EMS mechanism after the first six months of operation. As this review approached in September, some strains began to build within the array of currencies in the joint float in view of disparities in economic performance, current account positions, and inflation rates among the participants.

Even though the German mark's sharp rise against the dollar pulled up all the EMS currencies and helped reduce inflationary pressures in the member countries, serious questions remained about whether all the currencies could keep pace with the mark. Belgium and Denmark in particular faced widening current account deficits even though their economies were sluggish and unemployment remained high. The Dutch current account was also in deficit, although the gap was reduced by large exports of natural gas. Increases in the price of oil widened the payments imbalances of all joint float members. But the market remained fearful that many countries with large deficits would be unable to attract sufficient capital inflows to maintain existing parities within the joint float.

During September, while European monetary officials were engaged in their scheduled six-month review of the new currency arrangement, exchange market participants began to speculate on a change in parities within the joint float. By late September, funds were flowing heavily into the mark out of other member currencies, which then fell toward the bottom of the joint float. In response, the respective central banks intervened heavily, mostly by selling marks against their own currencies.

On September 23, the EMS currencies were realigned, with a 5 percent upward adjustment of the mark against the Danish krone and a 2 percent upward adjustment against all other member currencies. This adjustment, together with the Federal Reserve's October 6 announcement of new measures to restrain monetary growth, reduced the immediate strains within the EMS. The mark moved back toward the center of the realigned joint float, while the lira, the French franc, and the krone traded toward the top. The Irish pound and the Dutch guilder fluctuated in the middle of the band, while the Belgian franc remained near the bottom.

The EMS currencies traded in a fairly well-balanced market during the rest of October and into November. But flows of funds back out of the mark remained modest. Meanwhile, the current account deficits of all member countries continued to widen, and in late November strains reappeared in the markets for the currencies of these countries.

The Dutch authorities responded by raising interest rates sharply and squeezing domestic liquidity. As short-term interest rates snapped higher, the guilder rebounded to trade firmly in the upper half of the joint float by mid-December. The French and Italian authorities responded in a similar fashion, and the French franc and Italian lira strengthened within the EMS. In Ireland, interest rates had remained firm throughout the period, and the Irish pound traded comfortably in the joint float through the end of January.

By contrast, on November 30 the Danish authorities announced a further 4.76 percent downward adjustment in the krone's parity against other EMS members. This move was linked to the government's announcement of a new economic program, combining stiff wage and price restraint with heavier taxation. Following these actions, the krone rose briefly to the top of the joint float before moving back toward the bottom where it required further official support in January.

The Belgian franc also came under persistent selling pressure within the joint float. These pressures reflected a widening of the Belgian current account deficit to $3 billion in 1979, linked to an increasing budget deficit. The Belgian authorities reacted to these pressures by intervening heavily and raising domestic interest rates. But political and social difficulties reduced the government's ability to deal forcefully with the country's underlying payments imbalances. The increases in Belgian interest rates were not sufficient to

prevent capital outflows as foreign interest rates rose even more sharply. Moreover, the two downward adjustments in the Danish krone left the franc even more exposed. In response, the Belgian authorities sold large amounts of dollars and other EMS currencies, financing this intervention mostly out of the foreign exchange proceeds of government borrowings. The franc thus stayed above the floor of the joint float through the end of January.

Canadian dollar

Through early 1979, exchange market sentiment toward the Canadian dollar had been pessimistic. Canada's trade and current account positions had not improved as rapidly as had been hoped, leaving a gap of some $5 billion-$6 billion to be financed by capital inflows. Moreover, international borrowings by Canada's provincial and municipal corporations tapered down. This left the Canadian dollar dependent on interest-sensitive capital flows and other potentially volatile sources of funds to cover the current account deficit. But the strain in international oil markets over the course of the year changed the market atmosphere for the Canadian dollar. Canada's wealth of natural resources sheltered it from the uncertainties facing other industrial countries regarding energy supplies and even afforded it the opportunity to increase its exports of natural gas. In addition, interest rates in Canada had risen to levels that attracted funds from abroad. As a result, the Canadian dollar bottomed out in early February and, though it had been higher during the spring, the spot rate was still up on balance by 2¾ percent at Can.$1.1700 by the end of July. Net intervention purchases of United States dollars during that recovery plus the dollar proceeds of medium- and long-term borrowings in Swiss francs and Japanese yen enabled the Canadian authorities to make large repayments on outstanding drawings under the standby facilities with commercial banks. Foreign exchange reserves stood at $2.1 billion through the end of July.

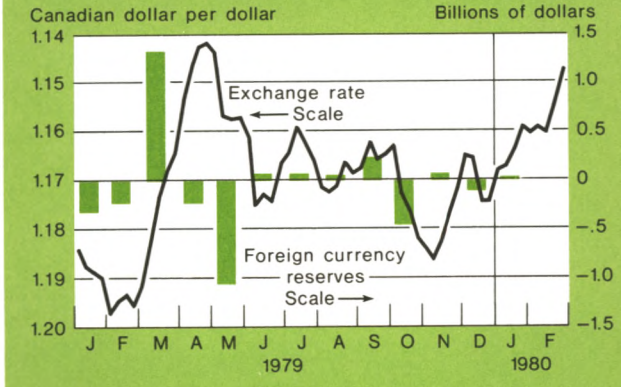
In August and early September, the Canadian dollar nevertheless was again vulnerable to bouts of selling pressure. The most recent figures suggested that Canada's trade performance remained disappointing. Production was running up against capacity restraints in key export industries, and import substitution in response to the previous decline in the exchange rate was proceeding surprisingly slowly. In addition, inflation was accelerating, the budget deficit was already large, and the fiscal gap was likely to widen further if domestic energy prices were not soon brought up to international levels. Moreover, the continuous rise in interest rates in the United States and Western Europe was squeezing out the interest differentials favorable to Canada. As a result, the Canadian dollar came on offer from time to time.

On September 10 the Bank of Canada raised its discount rate ½ percentage point to 12¼ percent, a move which was well received in the market, and

Chart 9

Canada

Movements in exchange rate and official foreign currency reserves

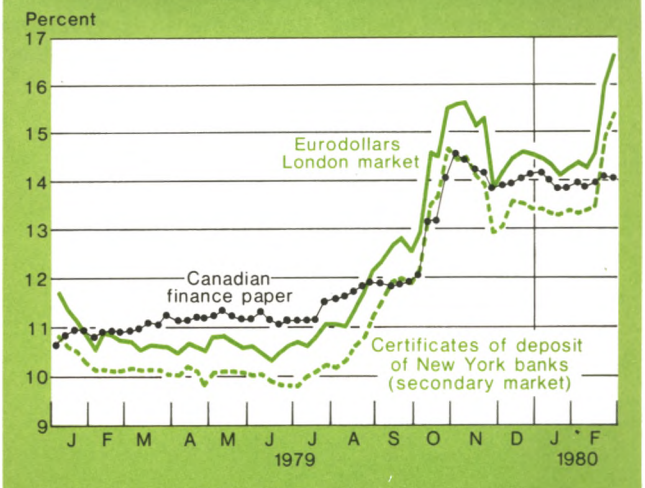


See exchange rate footnote on Chart 3.

Chart 10

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

Three-month maturities*



*Weekly averages of daily rates.

restored favorable interest differentials for a time. Later in the month, inflows from Europe and the Middle East in advance of another OPEC meeting helped push the Canadian dollar up to as high as Can.$1.1563 by September 28. Also, the Canadian dollar was bid up by conversions of external borrowings of some government agencies and private corporations. But this buoyancy was short-lived in view of the substantial increase in interest rates in other countries, particularly in the United States following the Federal Reserve's October 6 measures. Selling pressure on the Canadian dollar resumed. On October 9, Canada raised its discount rate a further ¾ percentage point to 13 percent. But commercial leads and lags moved heavily against the Canadian dollar, and the rate dropped some 2½ percent to as low as Can.$1.1881 by October 23. The Bank of Canada responded to these pressures by intervening to moderate the decline in the rate. On balance, Canada's official reserves declined a net $183 million to $1.9 billion in the three months ended October 31.

By early November, however, the outlook for the Canadian dollar began to improve. The Bank of Canada had moved further in the direction of monetary restrictiveness by raising its discount rate again, this time by a full percentage point to 14 percent on October 25. Export figures for the year to date were revised upward, which led forecasters to scale back their estimates of the 1979 current account deficit, eventually to $5 billion. The crisis in Iran shifted much of the market's focus back to concerns about energy. Traders therefore moved to cover short positions, and some adverse commercial leads and lags were unwound. Moreover, the reappointment of Bank of Canada Governor Bouey and Deputy Governor Lawson to new seven-year terms was welcomed in the market as signaling a continuing policy of restraint. In this environment, expectations grew that the government's budget, to be announced in mid-December, would tilt cautiously toward restraint. By early December the Canadian dollar had risen to Can.$1.16.

As expected, the December 11 budget message focused on the need to cut Canada's fiscal deficit and to raise domestic energy prices. Two days later, however, the Clark government lost a vote of confidence on its budget proposals, forcing a national election. Although the Canadian dollar initially came on offer, a net influx of funds continued in response to Canada's attractive interest rates and favorable energy availability. The spot rate soon bounced back, and by January the Canadian dollar was in strong demand. Following news of a 30 percent increase in natural gas export prices as well as of a larger than expected November trade surplus, the rate rose to as high as Can.$1.1566 on January 24.

By that time, concerns that the general election to be held in mid-February might result in another minority government began to dampen demand for Canadian dollars. Moreover, another advance in United States interest rates, including a particularly sharp rise in bond yields, weighed on the Canadian dollar which drifted back to Can.$1.1574 on January 31. On balance, over the six-month period, the Canadian dollar rose by 1⅛ percent.

Meanwhile, the Bank of Canada's United States dollar purchases over the last three months of the period, together with sales of more than 250,000 ounces of gold at market prices (well above book value), were used to repay remaining drawings under the short-term credit facilities with Canadian commercial banks. The short-term revolving standby facilities with Canadian banks and with foreign banks remained available to the government of Canada. Canada's foreign exchange reserves changed little during the last three months of the period and stood at $1.9 billion as of January 31, down $199 million net over the six-month period.

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