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The Quarterly Review is published by the Research and Statistics Function of the Federal Reserve Bank of New York. Among the members of the staff who contributed to this issue are JAMES R. CAPRA, PETER D. SKAPERDAS, *and* ROGER M. KUBARYCH *(on an analysis of the problems of social security, page 1);* WILLIAM J. GASSER *and* DAVID L. ROBERTS *(on the problems and prospects of bank lending to developing countries, page 18);* DAVID C. BEEK *(on rethinking tax-exempt financing for state and local governments, page 30);* EDWARD J. FRYDL *and* WILLIAM A. DELLALFAR *(on the shifting balance in the world oil market, page 41);* WILLIAM W. GREER *(on the effects of suburbanization on employment growth in New York and New Jersey, page 48).*

A semiannual report of Treasury and Federal Reserve foreign exchange operations for the period February through July 1982 begins on page 53.

Social Security
An Analysis of Its Problems

The social security retirement system as it exists today is fundamentally flawed. The most immediate symptom of the problem is that right now the assets of the retirement fund are too low for it to pay benefits on time. This has happened even though only five years ago the largest tax increase in U.S. history was enacted to avoid just such an eventuality. Public recognition that something is wrong has led to the formation of a special commission that will make recommendations to the President and the Congress.

Sadly, most characterizations of the social security crisis that are available are inaccurate or incomplete. Unless misconceptions about the magnitude and even the nature of the problems are corrected, it is hard to foresee how a consensus can be built to solve them. The purpose of this article is to present facts and analysis that can help correct some of these misconceptions.

The standard time profile of social security suggested by many analysts and accepted by many public officials goes like this. Currently, there is a temporary solvency problem that has been caused by uncontrollable economic factors, especially the current recession. In the medium term, no problem appears to exist, primarily because scheduled future tax increases in 1985, 1986, and 1990 will guarantee an extended period of solvency. In the long run, there is a potential solvency problem caused by uncontrollable population or demographic factors.[1]

This time profile logically would carry with it an implied framework for consideration of policy alternatives. What would be required is a mix of temporary measures, such as moving forward the tax increases scheduled for 1985, 1986, and 1990 to earlier years, and of some long-range changes that need not take effect too quickly, such as gradually raising the retirement age. Under the standard profile, it might even be argued that action on long-range changes should be delayed for a few years until the outlook becomes clearer.

The analysis in this article challenges the standard profile of the social security problem and its implied policy framework. Instead, this article maintains that:

- The difficulties of the social security retirement system are more fundamental than the standard profile implies. The basic problem is that, as the program is currently structured, average retirees both now and in the future can expect to receive benefits that, by any measure, are far in excess of lifetime contributions (the payroll taxes they pay during their working years). For example, the average 65-year-old retiree in 1982 (with a nonworking spouse) recovers his

The authors would like to express their appreciaton to William Cohen for his assistance in the derivation of the figures in this article.

[1] An address by Robert M. Ball, "The Financial Condition of the Social Security Program", April 1982, may be considered a typical example of this characterization.

Table 1

Annual Surplus or Deficit (−) of Social Security Trust Funds

By fiscal year; in billions of dollars

Fiscal year	OASI*	DI†	HI‡
1975	2.1	−0.1	2.0
1976	−2.0	−1.3	1.0
1977	−1.7	−2.2	0.2
1978	−4.4	0.1	0.7
1979	−3.2	1.3	1.6
1980	−3.2	2.1	1.1
1981	−0.7	−4.3	3.6

* Old Age and Survivors Insurance Trust Fund.

† Disability Insurance Trust Fund.

‡ Hospital Insurance Trust Fund.

Source: 1982 Annual Reports of the Board of Trustees of the Federal Old Age and Survivors Insurance, Disability Insurance, and Hospital Insurance Trust Funds.

Table 2

Projected Balances (Assets) of the Social Security Trust Funds

As of the end of the calendar year; in billions of dollars

	"Intermediate" economic assumptions			
Year	OASI	DI	HI	Combined balance
1982	16.8	1.6	15.9	34.3
1983	− 2.6	8.6	16.5	22.5
1984	−26.6	18.0	14.4	5.8
1985	−50.5	33.9	10.3	− 6.3
1986	−78.4	52.8	6.2	−19.4

	"Pessimistic" economic assumptions			
Year	OASI	DI	HI	Combined balance
1982	17.5	1.6	14.4	33.5
1983	− 6.4	7.9	14.1	15.6
1984	− 41.0	16.0	9.9	−15.1
1985	− 78.9	30.5	2.3	−46.1
1986	−126.0	48.3	−7.8	−85.5

Source: 1982 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance, Disability Insurance, and Hospital Insurance Trust Funds.

lifetime contributions within nine months after retiring. According to actuaries, he or his wife are expected to receive benefits for twenty-five years, so that his family's benefits exceed the taxes he paid by a vast amount. The difficulties of social security are almost entirely the result of the fact that a self-financed system cannot continue to pay out subsidies forever.

- An important consequence of this basic weakness in the current system is that the program is extremely vulnerable to uncontrollable economic and demographic factors. Thus, the risk is substantial that a medium-term surplus will never develop and that the long-term outlook is much worse than assumed.

- An appropriate framework for evaluating social security policy alternatives is first to ask whether or not a proposal addresses the fundamental problem by altering the return on contributions. Ultimately, that change is unavoidable if the system is to remain self-financed. For those proposals that do address this problem, the next question is whether they magnify or reduce the imbalance between the high return for the current generation of retirees and the far lower return for the next generation. That answer dictates who will pay for correcting the flaws in the social security retirement system as currently structured.

The National Commission on Social Security Reform is scheduled to make recommendations to the President and the Congress in the near future. It is not the purpose of this article to conjecture about which of the many social security alternatives that have been suggested by scholars over the years will be recommended by the Commission. But the article will go through several frequently proposed alternatives to illustrate the use of the analytical framework suggested for evaluating proposals.

What does it mean to say social security is "going bankrupt"?

The general term *social security* actually relates to three different Federal Government funds which pay out benefits and for which payroll taxes are collected: Old Age and Survivors Insurance (OASI), Disability Insurance (DI), and Hospital Insurance (HI). For convenience (and to spare the reader from having to cope continuously with often confusing acronyms), old age and survivors insurance will usually be referred to as the retirement fund, even though a small

fraction of the benefit payments are made to survivors under the age of 65. This fund, which is the oldest and largest of the three, will pay out over $135 billion in benefits in calendar year 1982. That compares with about $18.5 billion for disability insurance, and $35 billion for hospital insurance. These benefits are financed by payroll taxes or by running down surpluses accumulated in social security's early years when the number of workers contributing to the program was many times the number of beneficiaries.[2]

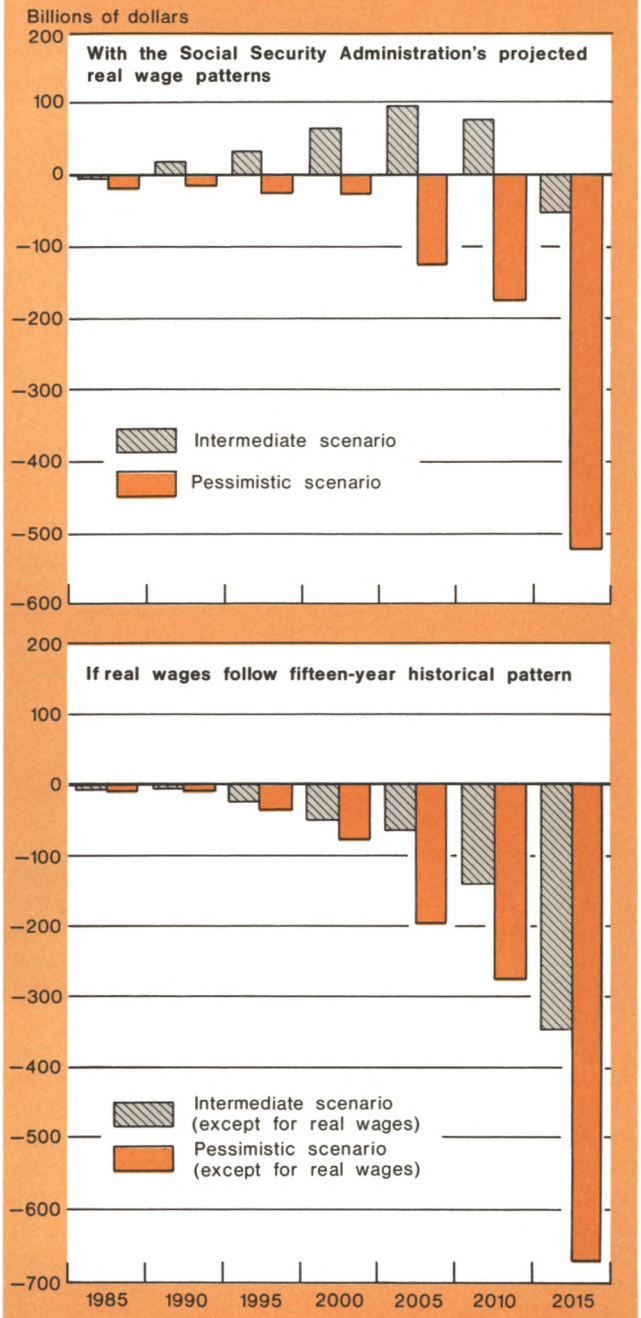
Social security is treated as a part of the Federal unified budget. In that sense, benefit payments represent a major part of Federal outlays, and payroll taxes represent a major part of total revenues. However, a key feature of the program since its inception has been that it is self-financed. In other words, social security payroll taxes cannot be used to pay for other general government expenses. Likewise, other Federal Government revenue sources, such as income taxes, cannot be used to pay for social security benefits.[3] The option of what is called "general fund financing" has been discussed from time to time and may be considered again in the future but, to date, has always been rejected by the Congress.

In theory, each trust fund's operations are separate and self-contained. So, formally, the 6.7 percent payroll tax rate levied on employers and on employees in 1982 is made up of a 4.575 percent OASI tax, a 0.825 percent DI tax, and a 1.3 percent HI tax. The taxes collected for each trust fund, together with assets accumulated over the years, are supposed to pay for the benefits. The taxes paid by an individual worker have never been directly linked to his benefits in the sense that they are set aside for when he retires. Rather, most if not all of a given year's taxes have been used to pay current beneficiaries. Consequently, bankruptcy has generally been defined on a cash basis—when current taxes plus accumulated assets are insufficient to pay benefits.

Strictly speaking, bankruptcy for social security occurs when any one of the funds is unable to make its payments on time. In practice, full separation of the trust funds has not been maintained in recent

Chart 1

Social Security Annual Surplus and Deficit*



*Retirement and disability funds only. Does not include Hospital Insurance Fund which will be in deficit after 1990.

[2] Some characterizations of the social security system also include the Supplemental Medical Insurance program (medicare part B). It is omitted from this analysis because unlike OASI, DI, and HI it is not self-financed. Instead, it is partially financed by premiums paid by retirees and mostly financed by Federal general revenues.

[3] As a practical matter, the Treasury issues the benefit checks, collects the taxes, and on a day-to-day and month-to-month basis is unable to distinguish withheld income taxes from withheld payroll taxes. Consequently, each month the taxes collected for each of the trust funds are only estimated. A final reconciliation of the estimates and actuals is usually completed about six months after the end of the fiscal year.

Chart 2

Real Wage Growth and Unemployment Rate

Source: Social Security Administration.

years. As shown in Table 1, in every year between 1976 and 1981 the retirement fund ran operating deficits, the disability fund ran deficits in about half the years, and the hospital insurance fund ran surpluses. The retirement fund deficits have eaten up the assets that the fund had accumulated in its early years. In 1980 and 1981, the Congress temporarily reallocated the retirement fund and disability fund tax rates, so that more taxes were channeled to the retirement fund. In addition, under legislation enacted last year, OASI has begun to borrow from the accumulated surpluses of the disability and hospital insurance trust funds. Without expansion or renewal of that authority by the Congress, this temporary borrowing will be insufficient to guarantee the timely payment of benefits past June 1983. Thus, interfund borrowing and tax-rate reallocation imply that an alternative (and more realistic) characterization of bankruptcy is when the combined assets of the three trust funds are exhausted.

In the following sections the near- and long-term outlooks for the social security system and the size of future shortfalls will be discussed. The impact that economic and demographic trends have had is also reviewed. Working through the estimates is necessary to get some sense of the immediacy and magnitude of the problems on an aggregate basis. Nevertheless, this numerical analysis should not obscure the basic principle involved: namely, no private insurance or retirement system can avoid bankruptcy if it continually awards benefits that are *on average* well in excess of contributions plus interest. Social security is no exception.

The near and medium term

Under the narrow definition, the retirement fund is nearly bankrupt right now. Using the broader definition of bankruptcy, the entire social security system is estimated to run out of funds by late 1984 or 1985 (Table 2). Under the Social Security Administration's so-called "intermediate" economic assumptions, the disability and hospital insurance funds would not be able to offset accumulated retirement fund deficits by the end of 1985. Bankruptcy would occur one year earlier under the "pessimistic" assumptions.[4]

Most discussions of social security focus on a near-term crisis and a long-term problem that peaks early in the twenty-first century. By then, the large number of persons born during the period from the end of World War II through the early 1960s will reach retirement age. It is generally assumed that the near-term crisis extends to 1990. At that time, an already scheduled tax-rate increase combined with rising wages of covered workers could result in annual surpluses for the retirement and disability funds that might extend until about the year 2015 (Chart 1).

Two serious shortcomings of the medium-term projections of solvency need to be emphasized. The first is that they are incomplete. They omit the projections for the hospital insurance fund. Under the Social Security Administration's intermediate economic assumptions, deficits of the hospital insurance fund will more than offset projected surpluses of the retirement and disability funds. Substantial and growing system-wide deficits are projected throughout the 1990s and into the next century.

At present, hospital insurance fund surpluses are being used to cover retirement fund deficits. The projections clearly show that this will not be possible in the future. Changes in hospital insurance taxes or benefits will be needed if that program is to remain self-financed. The problems of the hospital insurance

[4] 1982 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds.

fund are very serious. The fact is, however, that these problems, driven as they are by the rapid escalation in medical care costs for the economy as a whole, are somewhat different from the problems of the retirement fund. The remainder of this article will focus primarily on the retirement fund. But this does not signify that projected hospital insurance deficits are less important than the problems of the retirement fund. It just means that the problems of escalating medical care costs are outside the scope of this analysis.

A second shortcoming of the medium-term projections of solvency for the retirement and disability funds is that the estimates may be highly inaccurate since they are very sensitive to the economic asssumptions. Differences in demographic assumptions do not have a significant effect on medium-term projections. As shown in Chart 1, if the pessimistic economic scenario came about instead of the intermediate one, it would turn the medium-term surpluses into increasingly large deficits.[5]

The most important economic assumption from the standpoint of projections of the future status of the funds is the growth rate of average real wages. That is defined here and by the Social Security Administration as the growth of nominal wages for workers covered by social security minus the growth of the consumer price index. Projections, especially the near- and medium-term ones, are extremely sensitive to the assumption about real wage growth. Higher real wages translate into higher payroll taxes almost immediately. On the other hand, the effect on disbursements of the retirement fund, which is transmitted by raising average wages used in the computation of initial benefits for new retirees, develops much more slowly. A second important variable is the assumed unemployment rate. Lower unemployment rates mean more people are contributing payroll taxes to the system.

Real wage growth and unemployment rates for the Social Security Administration's intermediate and pessimistic scenarios are compared in Chart 2. Under the intermediate assumptions, the real wage growth averages 1.2 percent per year versus 0.4 percent for the pessimistic alternative. For the unemployment rate, the intermediate scenario projection is 1 percentage point lower on average than the pessimistic scenario. Also shown in Chart 2 are historical averages for real wages and unemployment for the past five, ten, and fifteen years.

The striking point about the comparisons in Chart 2 is that the pessimistic scenario is not altogther implausible. The historical record of real wage growth is worse than even the pessimistic scenario. Real wages in covered employment have declined, especially in recent years.

For the unemployment rate, the pessimistic scenario projects a higher average level than in the past. By comparison, the level projected under the intermediate scenario is about equal to the fifteen-year average but lower than the average for the more recent periods. Not depicted in the chart, but important, is the fact that the projected rate decreases significantly over time from its current high level under both the intermediate and pessimistic assumptions. Yet the actual rate has risen sharply over the past fifteen years, and many economists and public officials believe that the level of unemployment that represents the lowest attainable rate may also have increased.

Overall, it would appear that the historical economic record is at least as bad as, if not worse than, what is being called pessimistic by the Social Security Administration. In other words, it would be possible to construct a set of assumptions that were both plausible and much less favorable, in terms of the outlook for social security, than the so-called pessimistic scenario.

The potential risks to the medium-term social security outlook are very great if even *one* assumption turns out badly—specifically, if real wage growth turns out less favorably than assumed. To demonstrate this,

Table 3

Long-Term Projections of Cost Rates for Retirement and Disability Programs

By calendar year; in percent

Year	Cost rate:* Intermediate	Cost rate:* Pessimistic	Scheduled tax rate
1985	11.70	12.40	11.4
1990	11.64	12.85	12.4
1995	11.42	12.97	12.4
2000	11.03	12.82	12.4
2005	10.95	12.97	12.4
2010	11.53	13.92	12.4
2015	12.82	15.76	12.4
2020	14.44	18.17	12.4
2025	15.97	20.70	12.4
2030	16.83	22.63	12.4
2035	17.02	23.94	12.4
2060	16.81	28.49	12.4

* The cost rate is defined as annual outlays as a percentage of taxable payroll, or the tax rate needed to avoid a deficit.

Source: Social Security Administration.

[5] The projected deficits are only illustrative, since under current law social security cannot borrow to finance them.

Table 4

Lifetime Employee Contributions to Old Age and Survivors Insurance

By calendar year, new retiree aged 65 in January 1982

Year	Tax rate employee only (percent)	Maximum taxable income (dollars)	Maximum tax possible (dollars)	Average wages in covered employment (dollars)	Tax for average wage earner (dollars)
1937	1.000	3,000.00	30.00	1,137.96	11.38
1938	1.000	3,000.00	30.00	1,053.24	10.53
1939	1.000	3,000.00	30.00	1,142.36	11.42
1940	1.000	3,000.00	30.00	1,195.00	11.95
1941	1.000	3,000.00	30.00	1,276.04	12.76
1942	1.000	3,000.00	30.00	1,454.28	14.54
1943	1.000	3,000.00	30.00	1,713.52	17.14
1944	1.000	3,000.00	30.00	1,936.32	19.36
1945	1.000	3,000.00	30.00	2,021.40	20.21
1946	1.000	3,000.00	30.00	1,891.76	18.92
1947	1.000	3,000.00	30.00	2,175.32	21.75
1948	1.000	3,000.00	30.00	2,361.64	23.62
1949	1.000	3,000.00	30.00	2,483.20	24.83
1950	1.500	3,000.00	45.00	2,543.96	38.16
1951	1.500	3,600.00	54.00	2,799.16	41.99
1952	1.500	3,600.00	54.00	2,973.32	44.60
1953	1.500	3,600.00	54.00	3,139.44	47.09
1954	2.000	3,600.00	72.00	3,155.64	63.11
1955	2.000	4,200.00	84.00	3,301.44	66.03
1956	2.000	4,200.00	84.00	3,532.36	70.65
1957	2.000	4,200.00	84.00	3,641.72	72.83
1958	2.000	4,200.00	84.00	3,673.80	73.48
1959	2.250	4,800.00	108.00	3,855.80	86.76
1960	2.750	4,800.00	132.00	4,007.12	110.20
1961	2.750	4,800.00	132.00	4,086.76	112.39
1962	2.875	4,800.00	138.00	4,291.40	123.38
1963	3.375	4,800.00	162.00	4,396.64	148.39
1964	3.375	4,800.00	162.00	4,576.32	154.45
1965	3.375	4,800.00	162.00	4,658.72	157.23
1966	3.500	6,600.00	231.00	4,938.36	172.84
1967	3.550	6,600.00	234.30	5,213.44	185.08
1968	3.325	7,800.00	259.35	5,571.76	185.26
1969	3.725	7,800.00	290.55	5,893.76	219.54
1970	3.650	7,800.00	284.70	6,186.24	225.80
1971	4.050	7,800.00	315.90	6,497.08	263.13
1972	4.050	9,000.00	364.50	7,133.80	288.92
1973	4.300	10,800.00	464.40	7,580.16	325.95
1974	4.375	13,200.00	577.50	8,030.76	351.35
1975	4.375	14,100.00	616.88	8,630.92	377.60
1976	4.375	15,300.00	669.38	9,226.48	403.66
1977	4.375	16,500.00	721.88	9,779.44	427.85
1978	4.275	17,700.00	756.67	10,556.03	451.27
1979	4.330	22,900.00	991.57	11,479.46	497.06
1980	4.520	25,900.00	1,170.68	12,513.46	565.61
1981	4.700	29,700.00	1,395.90	13,594.27	638.93
Total			11,346.16		7,209.00

estimates were made of retirement and disability fund deficits if real wages between the years 1982 and 2000 perform as they did over the past fifteen years. As shown in Chart 1, even with an average unemployment rate of 6.3 percent as in the intermediate scenario, the medium-term surpluses that were projected under that scenario would turn out to be substantial deficits.

To sum up, the record of economic performance of the past decade or so may be improved upon over the long term. But social security planners cannot take it for granted that significant improvements will occur. The system, as now structured, is extremely vulnerable to unexpected economic developments, because it is a cash system with a relatively small margin of reserves and because it promises to give more to retirees in the long term than they contributed. Consequently, policy alternatives that rely on a faster growing economy to produce retirement and disability fund surpluses between 1990 and 2015 run a substantial risk—that is, the risk of encountering a new "near-term" social security crisis several years from now, regardless of what happens to the hospital insurance fund.

The long term

Long-term problems for the social security retirement system are not in dispute. By the year 2035, there will be only 1.5 to 2.0 contributing workers per social security retiree, compared with 3.3 workers in 1980 and 5.0 in 1960. Why this shift is so important can be readily appreciated. Under the current benefit structure, average benefits are scheduled to equal approximately 35 percent of average wages. This means that the 2.0 workers each will have to contribute 17.5 percent of their wages to support one retiree. If there are only 1.5 workers per retiree, it will take a payroll tax of 23.3 percent just to support retirement and disability benefits. (This does not include the taxes to support hospital insurance.) By comparison, the currently scheduled tax rate for the retirement and disability programs in 2035 is 12.4 percent.

The projected decline in the number of workers per retiree is the result of several factors. First, the postwar baby-boom generation, which is now in its prime working years, will begin retiring between the years 2010 and 2015. However, the baby-boom generation is itself having fewer children than previous generations, so that there will be fewer workers per retiree twenty-five years from now.

A second important factor is that retirees are living longer. The life expectancy of a person, age 65, has risen at an average rate of one year per decade since 1940. The changes that have already taken place, together with further projected improvements, will contribute to a steady increase in the number of retirees relative to the size of the work force.

Finally, part of the decline in the number of workers per social security retiree to date has to do with expansions in social security coverage during the 1950s. Each time coverage was extended in 1950, 1954, and 1956, it meant that initially many more tax-paying workers entered the system than retirees, since eligibility for benefits depends on prior experience in covered employment. It takes a couple of decades for this transitional effect of the extension of coverage to dissipate. But, eventually, individuals who were employed at the time that coverage was first extended will begin to retire.

The Social Security Administration's long-term projections are shown in Table 3. They are expressed in terms of what is called the "cost rate" for the retirement and disability programs. This rate is defined as annual outlays as a percentage of taxable payroll. Under the intermediate scenario, the period of medium-term surpluses would end in about 2015, as shown by the fact that the cost rate would be higher than the tax rate. The cost rate would continue rising to about 17 percent in the 2030s.

As with the medium-term projections, the long-term estimates under the intermediate scenario are incomplete and may be highly inaccurate. They are incomplete because they do not include the cost rate for hospital insurance. Under the intermediate scenario, the cost rate for this program alone would be about 12 percent of taxable payroll by 2035. Yet the scheduled hospital insurance tax rate is only 2.9 percent. In other words, under the intermediate scenario, the combined payroll tax rate in 2035 would have to be 29 percent (17 percent to pay for retirement and disability and 12 percent to pay for hospital insurance).

The potential dangers to the medium-term projections of the economy not performing as well as assumed under the intermediate scenario can be extended to the long-term projections. An additional risk in the long-term outlook is the possibility of errors in the demographic assumptions. While these are not a major factor in the medium-term outlook, they can significantly alter the long-range projections. For example, the intermediate scenario assumes an increase in fertility rates to about 2.1 children per woman by the year 2005 from the 1980 rate of 1.84. Suppose, instead, the fertility rate were to decline to 1.7 children per woman. Then the cost-rate projections under the intermediate scenario for the 2030-60 period would be 3 percentage points higher.

Overall, projections of cost rates under the Social Security Administration's pessimistic economic and demographic scenario, shown in Table 3, provide an

example of the potential understatement of the long-term problem. These show cost rates for the retirement and disability programs rising to 24 percent of taxable payroll by 2035 and to almost 30 percent by 2060. (Including hospital insurance, costs could raise the total social security cost rate to about 45 percent of taxable payroll.) It is worth bearing in mind that even the pessimistic scenario projections may turn out to be hard to attain. The pessimistic scenario is based on an assumption of improved labor productivity and real wages over the long term. That is reasonable. But, if real wages were to follow the pattern of the past fifteen years, the financial status of the social security system would be still worse than under the pessimistic scenario.

Fundamental problems

The financial status of the social security trust funds outlined in the previous sections has been discussed extensively in the past few years. The true situation has often been oversimplified by ignoring the medium-term risks and understating the long-term problem. But, overall, the general public appears to realize that the system is in jeopardy. Notwithstanding this public awareness, there is considerable uncertainty or perplexity about how the financial position could be deteriorating so rapidly despite repeated payroll tax increases.[6]

The standard profile of the social security problem states that the near-term crisis is a result of the fact that benefits per person increased much more rapidly than average wages during the past few years. This phenomenon is explained in terms of distortions in the consumer price index to which benefits are indexed,

[6] This uncertainty can be seen in a survey conducted by the Gallup Organization for the U.S. Chamber of Commerce and reported by the Chamber in April 1982.

Chart 3

How Long Does It Take a Retiree to Recover His Lifetime Contributions?

Retiree	Average wage earner	Maximum wage earner
	"1982" retiree	**"1982" retiree**
Single retiree (or married with a working spouse)	13 months	16 months
Married with nonworking spouse	9 months	11 months
	"2010" retiree	**"2010" retiree**
Single retiree (or married with a working spouse)	23 months	34 months
Married with nonworking spouse	16 months	23 months

Chart 4

Other Measures of Social Security Retirement Costs and Benefits*

Measure	1982 retiree	2010 retiree
Time to recover lifetime contribution (employer-employee taxes)	2 years 2 months	3 years 10 months
Time to recover lifetime contributions (employer-employee taxes) *plus* interest	5 years 4 months	12 years 5 months
Ratio of present value of benefits to contributions with interest	2.7	1.3

* Estimates computed using the Social Security Administration's intermediate economic and demographic assumptions for a 65-year-old retiree with average lifetime earnings, who is single or has a working spouse who qualifies for benefits based on her own earnings record.

an unforeseen decline in labor productivity, and higher than expected rates of unemployment over the business cycle. The standard profile continues by attributing the long-term problem to demographic factors, especially the increase in the number of retirees after 2010 compared with the number of workers. These explanations, documented extensively in recent annual reports of the Social Security Administration and in analysis by outside experts,[7] are technically correct (as far as they go) but incomplete. They omit or at least fail to emphasize the fundamental element that underlies the near-term crisis, the medium-term problem, and the potential long-term collapse of the system—namely, the benefits of retirees are disproportionately large when measured against their lifetime contributions.

A new retiree in January 1982 who had reached age 65 and earned average wages during the 45-year period from 1937 through 1981 would have made lifetime contributions to the retirement fund of $7,209 (Table 4). That retiree would qualify for an initial benefit of $535 per month if he were single and $803 per month if he had a nonworking spouse who was also age 65. Consequently, within thirteen months he will recover his lifetime contributions if he is single. If he has a nonworking spouse he would have already recovered his lifetime contributions by September 1982, nine months after retirement.

The *maximum* amount that a new retiree could have paid into the OASI retirement fund over the forty-five years since the start of the system is $11,346.16. This fact may come as a surprise to those who are more personally aware of the rapid rise in social security taxes in recent years. However, as shown in Table 4, the maximum annual tax was only $30 for thirteen years. It was less than $300 as recently as 1970. And it exceeded $1,000 for the first time only in 1980. For a retiree who always paid the maximum tax, it takes slightly longer to recover lifetime contributions—sixteen months for a single retiree and eleven months for a retiree with a nonworking spouse. This is because benefit payments are slightly progressive. Examples are shown in Chart 3.

Regardless of how much in social security payroll taxes a retiree has paid, he and/or his spouse can expect to receive benefits for a long time. The life expectancy of a retiree at age 65 is approximately 16.6 more years. So, although a single retiree receives his contributions back on average within thirteen months, he is expected to receive tax-free benefits for a total of 16.6 years. For a retiree with a nonworking spouse, at least one of them is expected to receive benefits for 25.6 years.[8]

How does the payback period for current retirees compare with what future retirees can expect? As shown in Chart 3, the time it takes a new retiree to recover lifetime contributions will rise over time under the current benefit tax structure. This steady increase will occur simply because taxes paid by an individual are scheduled to increase over the next thirty years, while in the past the rates and taxable maximum were left unchanged for many years at a time. As the social security retirement system is now constituted, the payback period for the retiree in 2010 would be about twice the length of that for the current retiree. This may understate the future increase in the payback period, however, since changes will have to have been made for social security to survive until the year 2010.

The discussion that follows introduces several refinements into the calculation of the return on contributions, such as including the employer's contribution and accumulated interest and discounting the value of future benefits to their equivalent present value. However, no matter what refinements are introduced, the conclusion first suggested by simply looking at the payback period and life expectancy is inescapable —current retirees will receive in benefits many times what has been contributed, regardless of the measure.

Refinements in the measurement of returns to retirees

Analyzing the length of time it takes to recover lifetime contributions gives a useful first approximation of the relationship between contributions and benefits for retirees. But refinements are needed to get a more precise estimate of the financial imbalances of the current system and to see by how much the returns to future retirees are scheduled to decline.

First, there is a debate over who bears the burden of the employer's share of the payroll tax. Some economists believe that the employer tax is actually borne entirely by the employee through lower wages than would be paid otherwise. Others believe that the employer tax is by and large a fixed cost of production, although it may affect some marginal decisions about employment. If these higher costs show up as

[7] A. Haeworth Robinson, *The Coming Revolution in Social Security* (Security Press, 1981); Alicia Munnel, *The Future of Social Security* (Brookings Institution, 1977); Michael J. Boskin, ed., *The Crisis in Social Security* (Institute for Contemporary Studies, 1977); Robert J. Myers, *Social Security* (Irwin for McCahan Foundation, 1975).

[8] For a couple, each age 65, the expected number of years until the first death is 13.2 years. During that period the couple would receive 150 percent of the retired worker's basic benefit. After that, the life expectancy of the survivor is 12.4 years, during which that individual would receive 100 percent of the basic benefit.

higher prices or lower profits, they will only indirectly affect employees. The incidence of the employer's social security tax is an interesting public policy question. But regardless of who ultimately pays, from the standpoint of carefully measuring the financial soundness of the current benefit and tax structure, it is clear that the employer's tax should be included in total contributions.

A second refinement is needed to account for the interest earned (or the interest that could have been earned) on social security contributions. Simply accumulating lifetime contributions without including potential interest earnings understates the value of those contributions today. Thus, an alternative measure is taxes paid plus accumulated interest.

Third, even though future benefits will have been indexed to inflation, they will be worth less in today's dollars. The time value of money will erode the value of a benefit received at a later date. The usual way to account for this is to compute the present cash value of a future benefit—that is, to discount a future benefit by an assumed interest rate. For example, at an assumed interest rate of 10 percent, a benefit of $100 to be received one year from now would have a present value of approximately $90.60. (Looked at another way, if a person had $90.60 today, it would grow to $100 by one year from now assuming an interest rate of 10 percent and quarterly compounding.) A measure of the value of an individual's expected social security benefits is the sum of the present values of each of the monthly benefit payments he would receive over the remainder of his life.

Just as taxes paid plus the interest that would have been received represent the current cash value of lifetime contributions, the present discounted value of an individual's expected benefit stream represents the current value of his benefits. If the ratio of the present value of benefits to the present value of contributions (that is, lifetime contributions plus interest) for the average beneficiary is approximately 1.0, then it means that the social security system is on average providing beneficiaries with their "money's worth" on the taxes that have been paid. If the present value ratio exceeds 1.0, then benefits have a value that exceeds the value of contributions and the system is, on average, providing a subsidy. Looked at from another perspective, assuming the calculation of interest earnings and the discounting of future benefits are done with market rates, a present value ratio of 1.0 suggests that the system provides a return on contributions that is approximately equal to what could have been obtained by investing in market instruments.

The refinements in the measurement of the relationship between benefits and contributions are reflected in Chart 4. First, concentrate on the case of the average 1982 retiree. As discussed earlier, it takes a single retiree thirteen months to recover his lifetime contributions. When the matching employer contributions are included, the recovery period is doubled to two years and two months. Including accumulated interest on the employee-employer contributions makes a significant difference. It increases the time it takes to recover the contributions to five years four months. This is still less than one third the life expectancy of the 65-year-old retiree. Finally, the ratio of the present value of expected benefits to accumulated contributions plus interest is 2.7. That is, on a present value basis, the system will provide benefits to the average 65-year-old single retiree that are almost three times the value of his contributions. (Not shown in the chart is the fact that the present value ratio is over 5.0 for the average retiree with a nonworking spouse—a situation more common today than it will be in the future when more women will qualify for benefits based on their own earnings records.)

Turning next to the 2010 retiree, note that the returns under the current tax and benefit structure are much smaller than those for the 1982 retiree but still generous. The 2010 retiree's twelve-year five-month recovery is more than double the recovery period for the 1982 retiree. But, it is well below the life expectancy for a person of age 65. The 2010 retiree's ratio of the present value of benefits to contributions plus interest is less than half the ratio of the 1982 retiree, but greater than the 1.0 value that would be associated with equivalence between the value of benefits and contributions.

Two conclusions can be reached from the figures in Chart 4. The first is that ultimately the benefit and tax structure that lies behind the numbers will have to be changed or the self-contained characteristic of social security will have to be abandoned. A system that on average provides benefits with a value in excess of contributions cannot sustain itself indefinitely.[9] If for a period of time people receive benefits that are on average worth more than the value of contributions, at some point others will on average have to receive less than the value of their contributions (unless, of course, the system were to draw resources from other than payroll tax contributions, such as from income taxes). The second conclusion that can be drawn is

[9] Technically the "day of reckoning" could continue to be postponed if the working population were to grow faster than the retired population—something that is considered now by experts to be impossible, given the decline in birth rates in the last twenty years. One explanation for the current imbalance between taxes paid and benefits received is that policymakers had previously anticipated a continuation of the high population growth of the 1950s.

that there is a large imbalance built into the current benefit and tax schedule between the ratio of the value of benefits to the value of contributions for the current generation of retirees and the ratio for future generations. Current retirees obtain a much greater return. The important public policy question is whether changes to insure the survival of the system will aggravate that imbalance or improve it.

Bad luck and long-range demographic trends

What about the standard profile's explanation of the near- and long-term problems in terms of economic and demographic "bad luck"? How is it related to the discussion in the previous section showing that the current benefit and payroll tax structure is fundamentally unsound?

It is true that distortions in the consumer price index, to which benefits have been indexed since 1975, and declines in worker productivity have caused benefits per person to rise more rapidly in recent years than the wages on which contributions are based. If the indexed benefit increases had been equal to the increase in average wages since the beginning of automatic indexing, the OASI trust fund balances would be $20-25 billion greater in 1982. This would probably not have been enough to alleviate the need for a reallocation of the retirement and disability fund tax rates in 1980 and 1981 or enough to avoid interfund borrowing. But it probably would have been sufficient to postpone system bankruptcy until the early part of the twenty-first century, assuming the economy in the 1990s performs as well as projected in the intermediate scenario.

The wage and price history of the past few years simply accelerated the onset of financial insolvency that was made inevitable by benefit changes between 1964 and 1975. From the early years of social security, it was recognized that there would be some phase-in problems and that the benefit-cost ratios would be generous for individuals who had worked prior to 1937, when the payroll tax was first imposed.[10] This disproportionate return to retirees was supposed to have disappeared by the time the system reached maturity, sometime in the 1980s. By then, most new retirees would have spent their entire working careers paying social security taxes. However, the enactment of general benefit increases of 104 percent (25 percent in real terms) between 1965 and 1975,[11] together with what has proven to be a faulty system for indexing benefits to the true cost of living for retirees (due to an upward bias in the consumer price index), has meant that the current tax and benefit structures would prolong generous benefit-cost ratios for retirees forever, an impossible outcome for a self-financed system.

Even if the inflation-wage record of the past few years had been better, the benefits of new retirees today and in the near future would still have far exceeded their lifetime contributions. The 1977 amendments "intentionally left the program in an unsound long-range position" according to a 1981 Senate Finance Committee staff report on social security financing.[12] The amendments implicitly acknowledged that the near-term costs of these benefits would prevent the system from building up the surplus it would need to pay the retirement benefits of the post-World War II baby boom. The real benefit increases of the previous decade, combined with automatic indexing made the system vulnerable to economic bad luck. Although the tax increases in the 1977 amendments were unprecedented in size, they were not large enough to counter that vulnerability.

Just as the near-term crisis in social security has been attributed to uncontrollable economic forces, the long-range problem has been blamed on uncontrollable demographic factors. However, the retirement of the baby-boom generation, starting in about 2010, is not a valid explanation for the long-term problem. What it does is set a time limit on how long the current system can be prolonged. If the baby boom had not been followed by a "baby bust", it would have been possible to push forward somewhat the responsibility for paying for the excess of benefits over contributions.

The retirement of the baby-boom generation does not have to be a serious problem. The system could be building up large surpluses now during the prime working years of the postwar baby-boom generation to pay for their retirement benefits. If this were done, relatively small benefit reductions or tax increases would be needed to put the system on a sound finan-

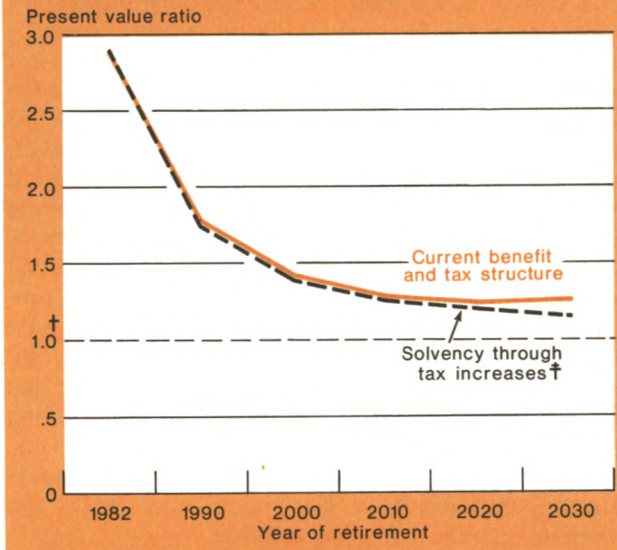
[10] The awareness dates back at least to the Social Security Act Amendments of 1939, the first of many subsequent changes to the Social Security Act and possibly to the original 1935 act. See Martha Derthick, *Policy Making for Social Security* (Brookings Institution, 1979), page 214.

[11] Another way of characterizing the benefit expansions in this period is to compare net replacement rates—that is, the initial social security benefit as a percentage of net monthly earnings after income taxes, payroll taxes, and work expenses. Prior to 1965, the net replacement rate for a single 65-year-old retiree with average wages was 44.3 percent, according to the Social Security Administration. It rose to 74.1 percent after the 1975 amendments. Changes made in the 1977 amendments have reduced net replacement rates to 54.7 percent. As things stand right now, net replacement rates are 17 percentage points higher than they were as a result of the 1950 amendments—a frequently used benchmark for measuring replacement rates.

[12] Senate Committee Staff Report on Social Security Financing, September 17, 1981.

Chart 5

Ratio of Present Discounted Value of Benefits to Lifetime Contributions Plus Interest*



*Estimates computed using the Social Security Administration's intermediate economic and demographic assumptions for a 65-year-old retiree with average lifetime earnings, who is single or has a working spouse who qualifies for benefits on the basis of her own earnings record.

†When ratio is 1.0, the present value of expected benefits equals accumulated employer-employee contributions plus interest.

‡This is determined by annual solvency rates which equal the OASI cost rate if that cost rate is greater than currently scheduled future tax rates. Otherwise, the solvency rate is set equal to the currently scheduled future tax rate. The curve falls below 1.0 by 2050.

cial basis. As shown earlier, under the current benefit and tax structure, for retirees in the year 2010 and beyond, the present value of lifetime contributions approaches the present value of expected benefits.[13] Thus, the system is now designed in such a way that it could cope with the long-term demographic changes—if it were not for the fact that the contributions of current workers are being used to pay an extremely large subsidy to current retirees.

The dimensions of the problem can be expressed in another way. Chart 5 plots the present value ratio for an average 65-year-old retiree between 1982 and 2030. (Recall that this is the ratio of the value of expected benefits to accumulated employer-employee contributions plus interest.) The present value ratio declines over time but levels off at approximately 1.25. In other words, under the current benefit and tax structure, average retirees (depending on when they retire) would get back benefits that have a value which is from 25 to 170 percent greater than contributions plus interest. But the present value ratio under the current benefit and tax structure will have to be lowered if the system is to remain self-financed.

Suppose this were done by exempting current retirees from cuts and raising payroll taxes or reducing benefits for future retirees only. Then, the present value ratio for all future retirees would be lower than that projected under current law (Chart 5). By 2050 the ratio will be slightly less than 1.0; by 2075, it will fall to less than 0.9.

By contrast, cuts in the benefits to current retirees would improve the imbalance depicted in Chart 5. However, in the absence of drastic cuts in current benefits or a change in the self-financed character of the program, it is unlikely that there is any way of preventing the benefits for a future generation of retirees from ultimately falling below the value of the contributions made by themselves and their employer on their behalf plus interest.

Alternative solutions to the financial problems facing the social security retirement system

Numerous proposals for changing the social security retirement system have been made over the years. Lately, most of them have been directed at the solvency problems highlighted by what has been referred to as the standard profile in the earlier discussion. Table 5 shows the near-term and long-term deficits that most proposals try to alleviate *via* increasing revenues or reducing disbursements. Estimates are included for the retirement fund by itself, as well as for the combined retirement and disability funds. Notice that, since the disability fund is projected to remain in surplus, solvency needs are lower if permanent interfund borrowing or a reallocation of tax rates is assumed.

In the near term (1983-86), the retirement fund is projected to need revenue increases or spending cuts that will total $75-120 billion, cumulatively, over the four-year period. The lower figure is for the intermedi-

[13] This discussion is not meant to suggest that the system has to operate like a personal security account where each individual receives a market return on his contributions—no more or no less. The history of the program clearly indicates that social adequacy—providing some minimum floor of income—to the elderly has been a goal of policymakers over the years. This means that the returns on contributions to low-income individuals would be higher than the returns to upper income individuals. The analysis in this article is not questioning the social adequacy goal. It is merely stating that, when low-income and high-income individuals are averaged, the value of benefits cannot exceed the value of contributions if the system is to remain self-financed.

ate scenario. The higher estimate is for the pessimistic scenario. If disability fund surpluses are allowed to offset retirement fund needs, the required combined trust fund savings are reduced to $35-80 billion for the four years. (In theory, hospital insurance surpluses could also be used. But, this is unlikely since hospital insurance is projected to start running massive deficits of its own late in the 1980s.)

The standard profile assumes that there would be no medium-term problem. The retirement and disability funds would run surpluses between 1990 and 2010. Under the Social Security Administration's intermediate scenario, these surpluses would allow substantial balances to be accumulated. Beyond 2015, though, demographic trends will lead to increasingly large deficits which would consume the balances built up in previous years. Under this scenario, the funds would be bankrupt by 2025. (Recall that, under the pessimistic scenario, surpluses do not emerge at all during the medium term.)

Policy alternatives that are designed to rectify the long-term problem posed under the intermediate scenario generally focus on reducing deficits between 2015 and 2025. Table 5 shows how large those deficits would be and consequently by how much revenues would have to be increased and/or benefits reduced. The figures are expressed as a percentage of taxable payroll, for both the intermediate and pessimistic scenarios. By 2025, deficits would be between 3.6 percent and 8.5 percent of payroll.

Selected proposals for change

The set of proposals to be discussed here is by no means complete. But it does contain changes in coverage and in benefit and tax formulas which, to date, have been suggested most frequently.[14] The set includes:

- *Universal coverage of Federal Government employees under the social security system.* At present, Federal Government workers are covered by the civil service retirement system and not social security. Universal coverage would be designed to bring either current and future workers or just those in the future from the Federal Government into the social security system.[15]
- *Moving social security payroll tax increases scheduled for future years up in time.* One such proposal is to move tax increases presently scheduled for OASI and DI in 1985 and

[14] In the discussion that follows, it is assumed that each proposal, if adopted, would go into effect in 1983 unless otherwise indicated.

[15] Workers in nonprofit organizations and roughly 15.0 to 20.0 percent of state and local workers are not covered under social security either. A universal coverage proposal could be modified to include these workers as well. There are, however, complicated legal issues surrounding the ability of the Federal Government to impose an "employer" tax on state and local governments. This issue will have to be resolved before universal coverage can include state and local workers. Extending mandatory coverage to workers in nonprofit organizations would have a very small effect on the savings.

Table 5

Fiscal Year Solvency Requirements for Old Age, Survivors, and Disability Insurance Using Standard Profile*

Scenario	Near-term solvency needs (billions of dollars) 1983	1984	1985	1986	1983-86	Long-term solvency needs† (percentage of taxable payroll) 2015	2025
Intermediate scenario‡							
Old age, survivors, and disability trust funds	−6.0	−12.9	− 9.3	− 8.0	− 36.2	0.4	3.6
Old age and survivors trust fund	−6.6	−21.7	−23.4	−26.0	− 77.7	0.9	4.1
Pessimistic scenario‡							
Old age, survivors, and disability trust funds	−7.7	−23.1	−22.6	−25.5	− 78.9	3.4	8.3
Old age and survivors trust fund	−8.0	−30.6	−35.3	−42.3	−116.2	3.6	8.5

* Figures are based on currently scheduled benefit levels and tax rates.

† Long-term solvency needs are defined as the difference between projected costs as a percentage of taxable payroll and the tax rate scheduled for that year.

‡ Does not assume near-term borrowing from hospital insurance.

Source: Social Security Administration.

the tax increase for hospital insurance in 1986 up to 1984. A second proposal is to move the 1985 and 1986 tax increases as well as the 1990 OASI and DI tax increases up to 1984. This latter proposal would result in the single largest increase in the combined payroll tax rate since the inception of social security.

- *Altering the manner in which retirement and disability benefit COLAs are indexed to inflation.* The aim of this type of proposal is to reduce the vulnerability of the system to unexpected shocks to the consumer price index, such as occurred in 1978-81, which may not have a significant bearing on the cost of living for retirees. In addition, these proposals try to prevent the rate of increase in benefits per person in the future from being substantially higher than the rate of increase in the wages which support those benefits. To accomplish this, benefit COLAs (cost-of-living allowances) could be indexed to a fraction of the rate of change in the consumer price index instead of the full rate. Alternatively, benefit COLAs could be indexed to the change in average wages minus some constant figure like 1.5 percent. This would have the effect of locking in the real wage differential (the difference between the growth of wages and social security COLAs) that was assumed in the intermediate scenario. Furthermore, the financial status of the retirement trust fund would be less vulnerable to the pessimistic scenario economic projections.
- *Placing a temporary freeze on retirement and disability benefit COLAs.* This has been proposed to correct for the rapid increase in benefits relative to wages and salaries in the rest of the economy between 1978 and 1981. Alternatives include a one-year freeze for 1983 and a two-year freeze for 1983 and 1984.
- *Raising the retirement age.* This has been proposed to have the retirement age reflect past and projected increases in life expectancy. A number of proposals in this category have been suggested. The common element to each of them is that raising the retirement age should be phased in gradually so as not to alter drastically the retirement plans of workers now approaching age 65. Of these plans, raising the retirement age to 68 (and the age for reduced benefits to 65) by one month every four calendar months beginning in 1990 would phase in the higher retirement age in the least amount of time.[16] Hence, its peak savings level would be realized in the least amount of time relative to other proposals of this type.
- *Taxing all retirement benefits in excess of employee contributions.* In this case, benefits in excess of employee contributions would simply be included in a retiree's taxable income. (Retirement benefits received by dependents and survivors could be exempt from taxation.) This is precisely the tax treatment of all other retirement programs, ranging from private pension plans to civil service retirement.

The savings generated by each of the proposals outlined above are given in Table 6. Aside from raising the retirement age to 68, at least one version of each proposal listed has the capacity to provide substantial near-term savings. While none of them individually would yield savings sufficient to offset the projected near-term retirement fund deficits in Table 5, certain combinations of proposals would do so.

In the long term, universal coverage, indexing benefit COLAs to 60 percent of the rate of increase in the consumer price index, raising the retirement age, and taxing benefits will each continue to yield savings which will at least partially offset projected long-term deficits. A combination of proposals could yield enough savings to offset the long-term deficits but, under the solvency needs of the intermediate scenario, the combination would have to include either taxing benefits or holding COLAs to 60 percent of the increase in the index. Under the pessimistic scenario, COLA restraint would have to be included to satisfy the solvency needs.

The financial crisis in the OASI trust fund: which proposals address the fundamental cause?

An alternative way of examining social security proposals is to see what, if anything, each would do to the average returns to beneficiaries on their lifetime contributions. This makes it possible to determine whether a proposal is significantly affecting the fundamental problem of the social security retirement system—its excessively large return on contributions. Also, by comparing the returns over time, it will be possible to ascertain whether an alternative widens or narrows the gap between the high return on contributions for the current generation of retirees and the

[16] The age for reduced benefits is the early retirement age, currently set at 62. Workers who retire at this earlier age receive only 80 percent of their full retirement benefits for as long as they continue to receive benefits. It is also the age at which a worker's primary insurance amount (PIA) is first calculated.

Table 6

Savings to the Old Age and Survivors Insurance Trust Fund Generated by Alternative Proposals*

Proposal	Near-term savings (by fiscal year; in billions of dollars) 1983	1984	1985	1986	Total 1983-86	Long-term savings (as a percentage of taxable payroll) 2015	2025
Universal coverage							
Current and future workers	3.8	5.6	6.2	6.9	22.5	0.3	0.3
Future workers	0.2	0.6	1.2	1.8	3.8	0.3	0.3
Moving scheduled future OASI tax increases to 1984							
1985	0.0	4.2	1.5	0.0	5.7	†	†
	(0.0)	(4.1)	(1.5)	(0.0)	(5.6)	(†)	(†)
1985 and 1990	0.0	12.6	13.9	13.6	40.1	†	†
	(0.0)	(12.2)	(13.7)	(13.6)	(39.5)	(†)	(†)
Indexing benefit COLAs							
60 percent of CPI-W	0.8	3.9	7.2	11.6	23.5	4.7	7.0
	(1.0)	(5.5)	(12.5)	(21.1)	(40.1)	(6.9)	(10.9)
Average wages minus 1.5 percentage points	0.2	0.9	0.9	0.8	2.8	†	†
	(0.7)	(5.2)	(11.4)	(18.7)	(36.0)	(2.8)	(4.4)
Freezing benefit COLAs							
One-year freeze	1.9	7.9	8.5	9.2	27.5	†	†
	(2.4)	(10.9)	(11.5)	(12.9)	(37.7)	(†)	(†)
Two-year freeze	1.9	9.7	15.6	16.8	44.0	†	†
	(2.4)	(14.5)	(26.4)	(29.7)	(73.0)	(†)	(†)
Raising the retirement age to 68	0.0	0.0	0.0	0.0	0.0	1.93	1.61
Taxation of retirement benefits in excess of employee contributions‡	6.6	9.1	9.8	10.6	36.1	2.7	3.4
	(6.3)	(8.6)	(9.7)	(10.6)	(35.2)	(2.1)	(2.5)

* Estimates are under the Social Security Administration's intermediate set of assumptions. When the estimates under the pessimistic assumptions are different, they are shown in parenthesis.

† Long-term savings are negligible.

‡ The estimates for the near-term savings from taxing retirement benefits in excess of employee contributions are based on a proposal which would exempt the retirement benefits received by dependents and survivors from taxation. If those benefits were also taxed, the near-term savings estimates would be roughly 18.8 percent, or up to $2.0 billion, higher. There would be no appreciable effect on the long-term savings figures.

much lower return for future retirees (Charts 4 and 5). This will give an indication as to which generation of retirees will pay for the disproportionately high level of benefits relative to contributions received by other generations of retirees.

The estimated change in the return on contributions to retirees (measured in terms of payback periods and the ratio of the present value of lifetime benefits to taxes accumulated with interest) is presented in Chart 6 for each of the proposals. Only the two universal coverage proposals fail to alter appreciably either payback periods or present value ratios for any generation of retirees. These measures of returns are not affected because no changes would be made to the current schedule of benefits and taxes.[17] The overall effect of universal coverage on the financial status of the retirement trust fund is to raise revenues now and in the future by expanding the payroll tax base, and to increase disbursements primarily in the future by increasing the number of covered beneficiaries. The near-term savings in Table 6 are due almost entirely to

[17] Technically, average future returns would be lowered very slightly by universal coverage. This is because the average wages of Federal workers are higher than average wages in the rest of the economy. Since the retirement benefit structure is somewhat progressive, the returns to Federal workers would be lower than for the average non-Federal wage earner. What this means is that the returns to the combined Federal/non-Federal work force would be slightly lower than the returns to the non-Federal work force alone. But the difference is extremely small.

Chart 6

Effects of Alternative Proposals on Current and Future Generations of Retirees*

Expressed as the change in payback periods and present value ratios under currently scheduled benefits and taxes

The effect each proposal has on the present imbalance in the return on contributions:

Reduces | Increases | No major effect

Proposal	1982 Retiree		1984 Retiree		2010 Retiree		2025 Retiree	
	Payback period	Present value ratio	Payback period	Present value ratio	Payback period	Present value ratio	Payback period	Present value ratio
Currently scheduled benefits and taxes . .	**5yr., 4mo.**	**2.7**	**6yr., 7mo.**	**2.3**	**12yr., 6mo.**	**1.3**	**13yr., 1mo.**	**1.2**
Changes due to								
Universal coverage:								
Current and future workers	0	0	0	0	0	0	0	0
Future workers	0	0	0	0	0	0	0	0
Moving scheduled future OASI tax increases to 1984:								
1985	0	0	0	0	†	†	†	†
1985 and 1990	0	0	0	0	+2mo.	†	+2mo.	†
Indexing benefit COLAs:								
60 percent of CPI	+1yr., 7mo.	−0.4	+4mo.	−0.4	+9mo.	−0.2	+9mo.	−0.2
Average wages minus 1.5 percentage points	+4mo.	−0.1	+4mo.	−0.2	†	†	†	†
Freezing benefit COLAs:								
One-year freeze	+5mo.	−0.1	+6mo.	−0.2	0	0	0	0
Two-year freeze	+10mo.	−0.3	+10mo.	−0.3	0	0	0	0
Raising the retirement age to 68	0	0	0	0	+9mo.	−0.1	+1yr., 1mo.	−0.2
Taxation of retirement benefit in excess of employee contributions	+1yr., 11mo.	−0.7	+1yr., 5mo.	−0.6	4yr., 6mo.	−0.4	+4yr., 9mo.	−0.3

* Calculations used employer-employee old age and survivors insurance tax contributions accumulated with interest. Figures are for an average wage earner under the intermediate set of assumptions. Under the pessimistic scenario, individual estimates would be slightly different, but the relationships between the effects on current and future retirees would be the same as under the intermediate scenario.

† The effect is to increase the payback period or to reduce the present value ratio by an extremely small amount.

the fact that the additional workers this proposal brings into the social security system would not be scheduled to retire for sometime. Eventually, however, they will retire. In the long term, then, universal coverage leads to an increase in the number of beneficiaries who will ultimately take more out of the retirement system than they pay into it.[18] This is precisely the effect expanding coverage in the 1950s had.

Moving scheduled future payroll tax increases up to 1984, freezing COLAs, and indexing benefit COLAs to the rate of change in average wages adjusted for labor productivity would each alter the return on contributions to at least one generation of retirees. Despite the fact that each of them addresses the fundamental cause of the retirement fund's financial problems, none of them will be able to generate increasing amounts of savings relative to taxable payroll over the medium and long term. This is because each of them has only temporary effects on the returns received by beneficiaries from the retirement trust fund.

An important difference among these three policy options is the effect they have on the imbalance between the high return from OASI contributions for the

[18] In spite of this, there are two factors which enable the universal coverage proposals to provide some slight long-term savings. Both are due to the fact that the social security benefit structure is redistributive. The first is that savings will be generated from eliminating dual beneficiaries—this primarily includes workers who retire from civil service jobs, work the minimum required number of quarters to qualify for coverage under social security as lifetime low-income earners, and then receive both civil service and social security retirement benefits. The second is that government workers as a whole, particularly at the Federal level, tend to be higher than average wage earners (as described in the previous footnote).

current generation of retirees and the lower return for the next generation. This can be seen by comparing the change in the present value ratios and payback periods for current retirees relative to future retirees for the three proposals. Moving scheduled future tax increases to 1984 increases the payback periods of retirees in 2010 and 2025 by two months without altering payback periods for retirees in 1982 and 1984.[19] This widens the intergenerational gap between the returns to current and future retirees. Freezing benefit COLAs and, to a lesser extent, indexing benefit COLAs to adjusted wages narrows the gap.[20] Each increases the payback period for current retirees without altering them for future retirees. Also, each represents a large enough change to alter the present value ratio for current retirees relative to future retirees.[21] Consequently, although moving up tax increases, freezing COLAs, and changing the indexing formula have very similar effects in terms of the standard profile in that they generate substantial near-term savings, they are very different in terms of which generation of retirees would ultimately pay for that savings.

[19] Moving up the scheduled future tax increases has too small an effect to alter relative present value ratios appreciably.

[20] Freezing benefit COLAs will lower the returns for retirees after 1984 as well. This is because PIAs for a worker who retires at age 65 are calculated at age 62—the first year of eligibility for retirement benefits. After that the PIA is adjusted for whatever COLAs current retirees receive. This results in the initial monthly benefit a worker will receive upon retirement. For example, the PIA for a worker who retires at age 65 in 1984 will be calculated in 1981. It will be adjusted for the 1981 COLA, the 1982 COLA, but not for the 1983 COLA if there is a COLA freeze in that year. As a result, the worker's initial monthly benefit will be lower than it would have been without the freeze, leading to higher payback periods and lower present value ratios. Under the one-year COLA freeze, then, retirees in 1983 through 1986 will have lower initial monthly benefits than they would have received without the freeze. For the two-year COLA freeze, initial monthly benefits for retirees from 1983 to 1987 will be affected. This assumes that there will always be a COLA in years for which no freeze is scheduled.

[21] Dividing the present value ratio for a 1982 retiree by the present value ratio for a 2010 retiree under currently scheduled benefits and taxes yields a quotient of 2.1. Under a one-year COLA freeze or the wage indexation proposal this quotient would fall to 2.0, and under a two-year freeze it would equal 1.8. The results are similar for 1984 retirees relative to retirees in the future.

Raising the retirement age to 68 results in no near-term savings and in gradually increasing medium-term savings. In the long term, savings as a percentage of taxable payroll peak in 2015, decline for the next fifteen years, and then increase through 2040 where they stabilize at approximately 1.7 percent. Savings are generated by increasing a worker's lifetime contributions to the trust fund and by reducing total benefits received after retirement. Under this proposal, in the year 2002 and beyond, a worker will have paid OASI taxes for three more years and, given life expectancies at age 68, can expect to receive benefits for three fewer years. As a result, the intergenerational imbalance in returns from OASI contributions is aggravated.

Indexing benefit COLAs to 60 percent of the rate of increase in the consumer price index and taxing retirement benefits in excess of an employee's share of OASI contributions differ from the other proposals discussed thus far in two respects. First, each generates savings which, as a percentage of taxable payroll, continue to increase from the near term through the long term. Second, these savings are generated at the expense of all generations of retirees. Each generation's payback periods are higher and their present value ratios are lower. However, neither proposal significantly alters the present value ratio of the current generation of retirees relative to that for future generations. In this sense, current and future retirees each pay for restoring near-term and long-term solvency to the retirement trust fund.

While this is by no means an exhaustive list of options for resolving social security problems, it demonstrates that fixing the system will require reducing the excess of returns over contributions to one or more groups of retirees (assuming the program is to remain self-financed). Identifying which groups would bear this burden, measured in terms of a lower return on contributions, is the analytical task that this article has attempted to facilitate. Choosing among options, once their implications have been identified, represents the difficult but important challenge that faces public policymakers.

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Bank Lending to Developing Countries

Problems and Prospects

The current account deficits of developing countries are narrowing.[1] This is true for all countries combined, for important subgroups of countries, and for most important individual countries as well. Unfortunately, some of this decline is being forced by financial constraints, and not all of this forced decline is proceeding smoothly. The problems of Argentina, Bolivia, Costa Rica, Mexico, Poland, Romania, Sudan, and Zaire, among others, are well publicized. Often overlooked, however, is the progress being made by most developing countries in reducing their deficits in a period of worldwide economic difficulty. While some individual countries will continue to face difficult adjustment problems even as global economic activity picks up, large numbers of other developing countries already are taking measures that will greatly strengthen their ability to compete in world markets in the 1980s. There is some risk at present that the adverse publicity given to the debt-servicing problems of a few countries may spill over onto other reasonably creditworthy borrowers. Thus, reduced credit availability could force unnecessarily sharp adjustments by these countries. The result would be to prolong the world recession and generally to intensify payments problems for developing countries and for their creditors.

This article reviews the progress of developing countries in adjusting to the present world environment. It concentrates on those countries that have chosen to develop their economies by borrowing from private banks as well as on the behavior of banks, particularly in past instances of payments interruptions. The main findings are:

- Most LDCs have sharply slowed their own import growth to adapt to higher oil prices, higher interest rates, and weak world demand for their exports. These world conditions are now beginning to turn favorable for most countries.
- Developing country external deficits are falling and, relative to their exports, are already about in line with past trends.
- But LDCs have suffered a recession about as steep as that in industrial countries.
- And most developing countries are much less liquid than they were three years ago. Their debt is larger, more is on market terms and short maturity, and their international reserve cover is down.

[1] The term developing countries, or LDCs for short, is used broadly to include all countries except those classified as "industrial" or "oil-exporting" countries by the International Monetary Fund. Oil-exporting countries are principally the members of the Organization of Petroleum Exporting Countries (OPEC). The analytic and regional subgroups also follow IMF classifications. Data on bank lending exclude those countries defined as "offshore financial centers" in Bank for International Settlements (BIS) and Federal Reserve statistical releases. Poland and Taiwan, which are not IMF members, are considered developing countries when reviewing bank behavior.

Table 1

Developing Countries' Current Account*

In billions of dollars

Components	1978	1979	1980	1981	Projection 1982	Projection 1983
Exports	195	250	317	327	340	380
(Oil exports)	(7)	(13)	(23)	(27)	(29)	(30)
Imports	−228	−298	−388	−402	−405	−430
(Oil imports)	(−26)	(−39)	(−63)	(−67)	(−67)	(−70)
Trade balance	**−33**	**−48**	**−71**	**−75**	**−65**	**−50**
Service receipts	55	69	83	94	100	105
(Interest receipts)	(9)	(12)	(15)	(19)	(17)	(17)
Service payments	−75	−99	−120	−140	−150	−160
(Interest payments)	(−22)	(−32)	(−44)	(−64)	(−66)	(−66)
Net private transfers	14	19	21	22	25	30
Balance on services and private transfers	**−6**	**−11**	**−16**	**−24**	**−25**	**−25**
Net official transfers	**8**	**11**	**12**	**13**	**14**	**15**
Current account balance	**−31**	**−48**	**−75**	**−86**	**−76**	**−60**

Because of rounding, figures may not add to totals.

* Excludes members of the Organization of Petroleum Exporting Countries but includes southern and eastern European countries classified as "developing" by the International Monetary Fund.

Sources: International Monetary Fund, *World Economic Outlook* on historic data. Federal Reserve Bank of New York projections and estimates of oil trade, official transfers, and interest payments and receipts.

- Lending by banks, the major source of funds for developing countries, already appeared to be slowing early this year. The interrupted payments by two of the largest LDC borrowers will slow overall lending further.
- In the past, total bank credit to a country generally declined once payments interruptions began. Usually, these payments delays have persisted for several years and overall bank lending to the country concerned has not recovered until normally scheduled payments were again being met.
- The extent and duration of the slowdown in bank lending to LDCs will depend in part on the willingness of countries to meet market terms when restructuring their debt and on their decisiveness in addressing the particular economic problems they face.

The current account—performance and prospects

The combined current account deficit for all developing countries not members of OPEC appears to be narrowing from about $85 billion in 1981 to around $75 billion this year (Table 1). A further narrowing is projected for 1983. This narrowing is most pronounced for those developing countries that export manufactured goods.[2] As a group, these countries account for over half the bank lending to developing countries. Most other LDCs that are important for international banks export oil. These countries, which account for another third of bank credits, are only beginning to reduce their deficits this year.[3] Most of the adverse external factors

[2] Countries classified as "major exporters of manufactures" by the IMF. In their order of borrowing from banks in industrial countries, they are Brazil, Singapore, Hong Kong, Argentina, Korea, South Africa, Yugoslavia, Greece, Portugal, and Israel.

[3] Countries classified as net oil exporters by the IMF are Mexico, Bahrain, Peru, Ecuador, Egypt, Malaysia, Tunisia, Bolivia, Trinidad and Tobago, Syria, Gabon, and the Congo.

that gave rise to the bulge in 1979-81 deficits are now turning around, and most developing countries already have sharply slowed their imports to adjust to the unfavorable external environment.

External conditions are improving

The softer world oil market is helping oil-importing LDCs. Spot market prices, at which most developing countries import oil, have fallen about 20 percent since late 1980. Although prices remain nearly 2½ times their 1978 average levels and the volume of LDC oil imports has grown since then, the total cost of oil imports to LDCs has leveled off at around $70 billion a year. To be sure, there is always a risk of disruptions that could suddenly tighten conditions in the oil market. But, in the absence of a shock, prospects are very good that oil payments by oil-importing LDCs will not rise substantially over the next year or so.[4]

By contrast, the decline in spot prices has seriously hurt the dozen non-OPEC developing countries that export oil. Most of the OPEC members, which have experienced the volatility of world oil markets in the past, have built large reserve asset positions against such swings. But some of the newly emerging LDC oil exporters, and a few of the OPEC members, were caught generally unprepared for weakening oil prices.

A mild recovery in the industrial world is anticipated next year. This should boost LDC export receipts. This year the volume of exports from the developing world is growing only about 3 percent, less than half the trend rate over the past fifteen years. Despite this slowdown, most developing countries are still increasing their penetration of world markets, given that overall world trade may show no growth at all this year. This relatively strong performance reflects exports to OPEC, growing trade among LDCs, and the stronger performance by a few exporters of manufactured goods, especially countries in Asia—Korea, Hong Kong, Singapore, and Taiwan. While recovery in the industrial world is likely to be slow in getting under way, a number of developing countries are well placed to take advantage of any increased demand. Export volume growth of about 5 percent for LDCs appears possible for 1983, even if industrial economies only grow about 2½ percent in real terms.

Moreover, as industrial activity picks up, primary commodities prices should also begin to recover somewhat. The prices received by developing countries for their commodities exports have fallen more than 20 percent since late 1980 and have reached the lowest level in more than twenty-five years relative to the prices of manufactured imports. The recovery in industrial countries is likely to be mild, and it appears that there will be an abundant supply of most commodities in world markets. But continued easing of interest rates on average will reduce the cost of carrying commodities inventories, so that an average increase of 5 percent or more in prices for commodities exports next year appears possible. Most of this increase is likely to be concentrated in primary metals—copper, for example—where the interest rate and industrial demand will have the largest effect.

The easing of world interest rates now under way will help developing countries directly by reducing the interest burden of their debt. Total interest payments of developing countries rose from around $20 billion in 1978 to over $65 billion in 1982, as the effective interest rate these countries paid nearly doubled and their debt grew more than 80 percent.[5] A greater share of the debt came from banks, and the six-month dollar London interbank offer rate (LIBOR), on which much of this debt is based, rose from 9.1 percent on average in 1978 to 16.5 percent last year. The return LDCs earned on international reserves and other foreign assets also rose about $10 billion over this period to offset partially their increased interest payments. But, on either a gross or a net basis, interest payments present a substantial drain on developing countries. Interest payments for the group as a whole rose from under 10 percent of their exports of goods and services in 1978 to over 15 percent last year.

The more than 3 percentage point decline in LIBOR from last year's average to 13 percent by end-September will ensure a substantial drop in borrowing costs for 1982 as a whole, even though the spreads over LIBOR facing most developing countries are widening to reflect lenders' increased perceptions of risk.

There are, of course, wide variations between the average interest rates paid by LDCs and dollar LIBOR rates. Some debt is denominated in other currencies, some is based on U.S. prime rates, and some is based on international agreements between governments. Moreover, the effect of lower rates will not be seen in LDC interest payments immediately, but only as their debt matures and is renewed or as rollover dates are reached. Nevertheless, interest rates are clearly down from last year's peaks and, given reductions of underlying inflation for most countries whose

[4] For a discussion of the world oil outlook, see Edward J. Frydl and William A. Dellalfar, "The Shifting Balance in the World Oil Market", this *Quarterly Review* (Autumn 1982), pages 41-47.

[5] These estimates are much larger than those made by the IMF (*World Economic Outlook*, 1982, page 58) because the interest on short-term debt is included.

currencies are important in denominating LDC debt, rates are likely to continue to be lower on an annual average basis. Thus, most developing countries should see a decline in the effective rates they pay. Their continued new borrowing will about offset the lower rates, so that an absolute decline in total interest payments is not expected. Relative to export revenues, the size of these payments, however, will certainly decline for all countries combined as well as for most individual countries.

The sensitivity of interest payments to changing rates varies widely among different groups of developing countries. The major exporters of manufactures and some oil-exporting LDCs were particularly vulnerable to the rise in interest rates and should benefit most as rates come down. Over two thirds of their longer term debt is from private sources, compared with less than one half for all non-OPEC developing countries. Most low-income countries and a few net oil exporters, such as Egypt, have relied primarily on official source borrowing at fixed rates and were less directly affected by rising market interest rates.

Developing country imports have slowed

While the external factors are only now turning favorable, most LDCs have themselves been making a serious effort to adjust to the world economy over the past two years. Imports grew only 3½ percent in volume for the group as a whole in 1980 and 1981 and appear to have stopped growing entirely this year, in contrast to a more than 6 percent growth trend from 1968 to 1978. The constrained real import growth has kept developing country trade deficits in check, even as their terms of trade deteriorated nearly 10 percent between 1979 and 1982. With even a modest improvement in the terms of trade, the lower import volume should produce a more than $10 billion improvement in the combined trade balance. Continued import restraint should lead to an even greater improvement next year as their terms of trade turn more favorable.

This slowing of imports has come at considerable cost to the developing countries. Real per-capita economic growth for all non-OPEC developing countries together has come to a virtual standstill in 1982, and little overall improvement can be expected next year. Comparing growth on a per-capita basis provides a sense of the cost that the world recession brings to these countries whose populations and work forces are still expanding rapidly. In these terms, the recession has been at least as severe in developing countries as in the industrial world (Chart 1). The extent of the slowdown is even more striking when compared with trends over the previous decade. The sharp fall in growth below rates to which people had become accustomed gives a sense of the frustrated expectations that the recession has brought.

The recession is especially pronounced in those countries that are exporters of manufactured goods (Chart 2). They began to contract, by and large, early in the cycle, and some recovery is already apparent in 1982 for this group. Further recovery is projected for 1983, but growth is likely to remain well below the trend and negative in per-capita terms.

The oil-exporting developing countries who are not members of OPEC did not feel the full effects of the world recession until the oil market began to soften last

Table 2

Developing Countries' Current Account Deficits

As a percentage of exports of goods and services

Country groups*	Average 1967-78	Peak 1975	1979	1980	1981	1982
All developing countries	**−17**	**−29**	**−15**	**−19**	**−21**	**−17**
Exporters of manufactures	−12	−25	−15	−17	−16	−12
Oil exporters	−16	−33	−12	−12	−23	−21
Others	−19	−23	−17	−22	−24	−21

* Country groups are classified by the IMF. Major exporters of manufactures are Argentina, Brazil, Greece, Hong Kong, Israel, Korea, Portugal, Singapore, South Africa, and Yugoslavia. Net oil exporters are Bahrain, Bolivia, the Congo, Ecuador, Egypt, Gabon, Malaysia, Mexico, Peru, Syria, Trinidad and Tobago, and Tunisia.

Sources: International Monetary Fund, *World Economic Outlook* on historical data. Federal Reserve Bank of New York projections and estimates of oil trade, official transfers, and interest payments and receipts.

Chart 1

Real Output Growth per Capita

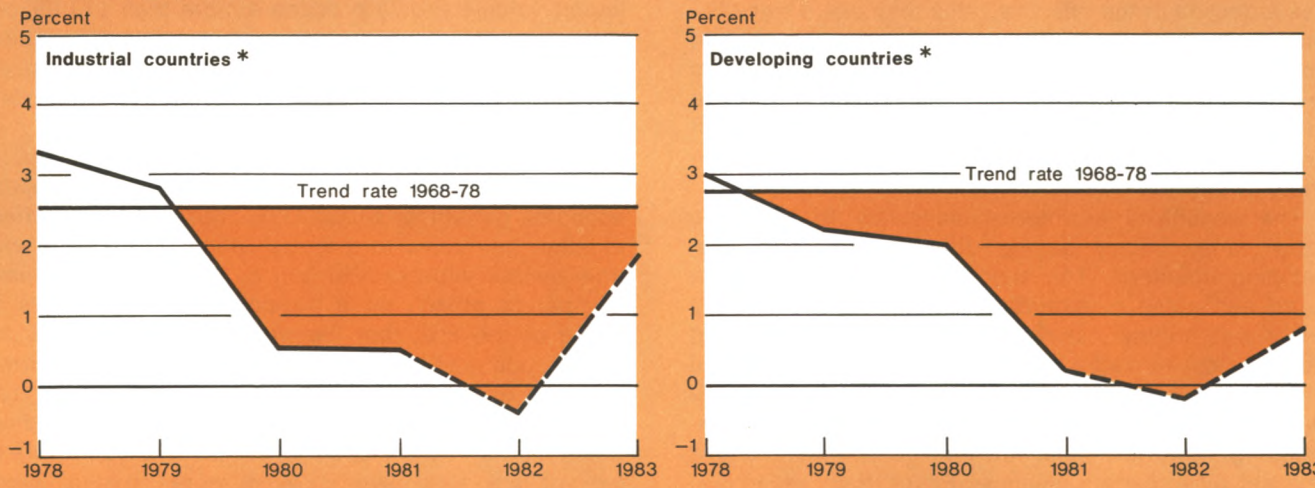
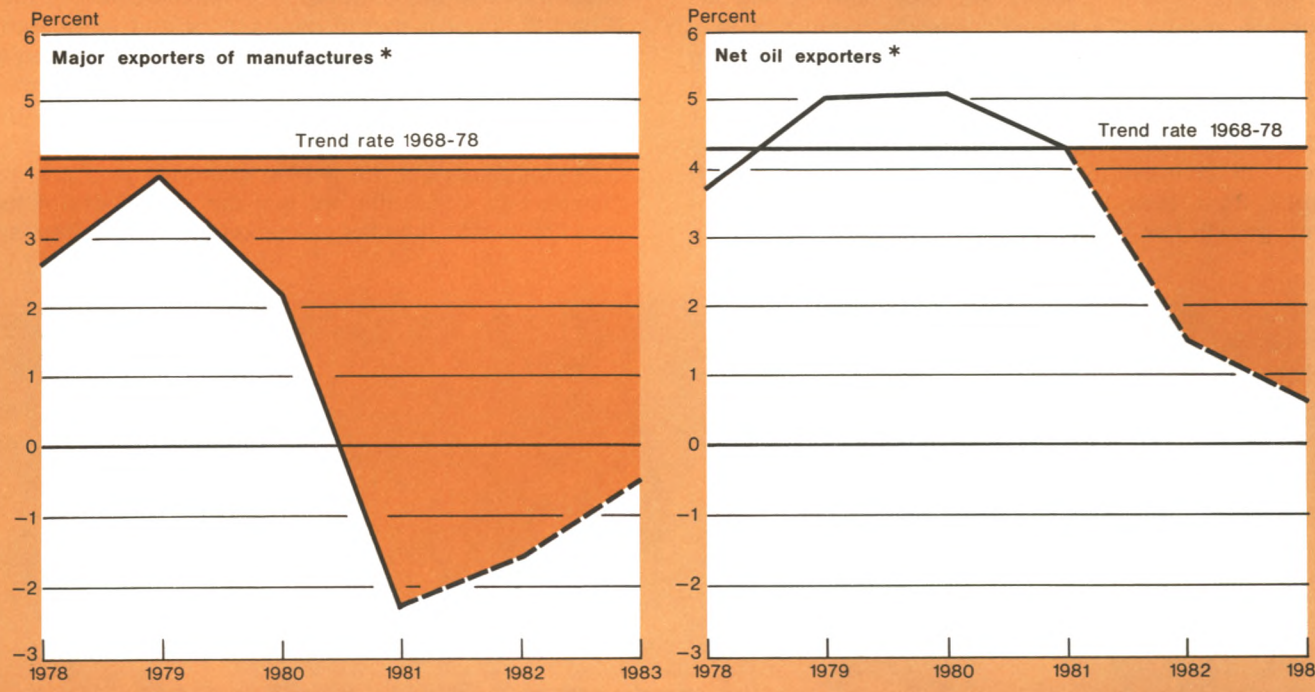


Chart 2

Real Output Growth per Capita in Groups of Developing Countries



*Groups of countries are as classified by the International Monetary Fund.

Sources: International Monetary Fund, World Economic Outlook (1982); World Bank, World Development Report (1981); Federal Reserve Bank of New York staff projections for 1982 and 1983.

year (Chart 2). Their domestic recessions are just beginning, and their real economies are likely to be still more depressed next year.

Deficits are in line with past trends

The decline in economic growth has kept the external deficits in check. The combined developing country current account deficit this year should be about back to its average level of the past dozen years relative to exports of goods and services (Table 2). Comparing the deficit to exports as both grow over time removes the effects of inflation and scales the size of the deficit to the growth of trade.

For 1981, the combined deficit came to 21 percent of exports, much below the 29 percent peak in 1975 during the last major recession in industrial countries. For many developing countries, the current account deficits never reached their 1975 peaks during the more recent cycle and their adjustment already has been considerable. Further reductions by individual countries and in the combined total are expected next year. Projections suggest that next year's combined deficit will be well below its 17 percent average of the dozen years prior to 1979, relative to combined exports.

The aggregation of all the more than 100 individual developing countries hides important differences between countries, regions, and categories of countries. The major exporters of manufactured goods—Brazil, Korea, Greece, and Yugoslavia among them—have clearly brought their current account deficits, expressed as a proportion of exports, back into line with earlier trends. Several Asian countries, Taiwan and Korea, for instance, in fact had significantly higher deficits relative to their exports prior to 1970 than at their peaks in the 1979-81 period. By slowing their imports quickly when world conditions began changing, these countries have adapted to the higher oil price, higher interest rate, and slower growth world environment even more readily than most industrial countries.

The oil exporters, on the other hand, have not managed their economies as prudently as they might. Mexico accounts for more than half the weight in this subgroup, but several other oil exporters—Peru, Egypt, and Ecuador, for instance—also face large deficits and more stringent adjustments this year and next. Earlier, their imports grew even more rapidly than oil receipts and have not fallen as quickly. But these countries exported little or no oil during the previous price run-up so that their deficits in 1981 and 1982 are still well below the earlier peaks, when scaled by exports.

Deficits in the remaining developing countries have not come down as quickly in the 1979-82 recession as they did in 1974-75. These countries mainly export primary commodities, so that their terms of trade have worsened much more over the last three years than the average for developing countries. They are only this year getting their real deficits back down close to the peaks reached in 1974-75. Colombia, Chile, and the Philippines are major borrowers from commercial banks in this group.

The financing problem

While the deficits for developing countries as a group and for many individual countries are decidedly falling into line with past trends, developing countries are faced with continuing financial strains. They have more debt outstanding. A larger proportion is coming due in the short term. And reserves are already relatively low. Consequently, most of these countries are much less liquid than they were three years ago.

Banks provided most finance

From 1979 to 1981 commercial banks loaned more than $125 billion to developing countries (Table 3). This amounted to about 60 percent of the cumulative current account deficit of LDCs during the period. Official lending directly by governments of industrial and OPEC countries and indirectly through the World Bank, IMF, and similar institutions has been critical for individual countries and for smoothing the adjustment process. But it has amounted to less than $70 billion in the past three years, under one third of the cumulative deficit and just over half the rate of bank lending. Direct investment, totaling $33 billion, has also been a significant source of finance, particularly for several of the manufactured goods exporters. In addition, suppliers credit, bonds, and other private sources have provided funds.

The total identified sources of finance exceeded the cumulative current account deficit. Part of the difference is accounted for by private capital outflows. In a few countries capital flight—reflecting lack of confidence by the country's own residents—has obviously been significant, although its magnitude generally goes unrecorded. Another part of the difference took the form of increased international reserves. In aggregate, reserves grew more than $19 billion over the period but the growth rate slowed each year and, for a number of countries, reserves fell. There is little room for some countries to draw down international reserves further. A substantial decline in bank finance, therefore, could force larger cuts in imports and reductions of gross national product, particularly for those countries most dependent on the banks.

More debt is short term

The combined external debt of developing countries will have grown from $340 billion at the end of 1978 to

Table 3

Developing Country Finance

In billions of dollars

Uses and sources	1978	1979	1980	1981
Uses of funds				
Current account deficit	31	48	75	86
Growth of official reserves	16	12	5	2
Sources of funds				
Official lending*	17	17	25	26
Bank lending†	29	39	43	45
Direct investment	7	9	10	14
Residual‡	−6	−5	2	3

* Includes long-term bilateral government credits, loans by multilateral development banks, and IMF or other reserve-related official credits.

† Growth of outstanding claims of banks in selected industrial countries, as reported through the BIS, adjusted for currency valuation changes.

‡ Net of capital outflows other than official reserve flows, suppliers credit and bond inflows, and errors and omissions in current account data.

Sources: International Monetary Fund, *World Economic Outlook*; Bank for International Settlements, *International Banking Developments*; Federal Reserve Bank of New York staff estimates.

Table 4

Developing Countries' External Debt Summary

In billions of dollars

Type of debt	1978	1979	1980	1981	Projection 1982
Total debt	**340**	**400**	**480**	**570**	**640**
Long-term debt	**276**	**324**	**375**	**437**	**480**
Public and guaranteed debt	224	266	307	352	390
Of which from:					
(Official sources)	(117)	(133)	(156)	(176)	
(Financial institutions)	(75)	(101)	(117)	(139)	
(Other sources)	(32)	(32)	(34)	(37)	
Nonguaranteed debt	52	59	69	85	90
Short-term debt	**60**	**80**	**100**	**130**	**160**
Memorandum items					
BIS-reported bank claims	151	193	244	277	
(Less than one-year residual maturity)	(63)	(79)	(108)	(133)	

Because of rounding, figures may not add to totals.

Sources: International Monetary Fund, *World Economic Outlook*; World Bank, debtor reporting system; Bank for International Settlements, *Maturity Distribution of International Bank Lending*; Federal Reserve Bank of New York staff estimates for short-term debt and projections for 1982.

about $640 billion by the end of this year (Table 4). These estimates include short-term and private-sector debt which have become increasingly important, both as a source of finance and as a potential problem when incomplete or delayed external adjustment is suspected by lenders. The interest on the increase in debt alone amounts to nearly $30 billion this year, so that increasing shares of exports are required to pay for the services of funds borrowed earlier. And these funds may not always have been productively invested, particularly if the borrowing was used to sustain consumption rather than to invest for future output.

In addition to its larger absolute size, an increasing share of the debt was undertaken on market-related terms, from banks, and at short maturity. The share borrowed from banks rose from 44 percent in 1978 to 49 percent at the end of last year. The disruptive potential of short-term debt is significantly greater than debt due in five or ten years. And the share of short-term debt in the LDC total has risen from 18 percent in 1978 to about 23 percent in 1981. The problem of short-term debt is of special concern because individual lenders often assume that they can withdraw quickly should problems emerge. In fact, when attitudes about countries change rapidly, the attempt by any lenders to withdraw adds to the problem. Borrowers and lenders both frequently underestimate the size of their potential problems because information on short-term and private-sector debt is usually inadequate, even for the authorities in the borrowing country. There is a tendency to focus on data that include only long-term interest and amortization schedules, which may lead to inadequate policy adjustments in crisis situations.

Finally, the liquidity position of developing countries has been eroded by falling levels of international reserves. For the group as a whole, international reserves cover less than 17 percent of 1982 imports, down a full 10 percentage points from 27 percent in 1978.

Most countries are more vulnerable

The general erosion of liquidity in developing countries can be seen on a quick "vulnerability" indicator (Table 5). This indicator combines the effects of rising imports (including interest payments), increasing short-maturity bank debt, and falling reserves. All are scaled by export receipts. Larger values indicate less liquidity and more sensitivity to unexpected shocks. The indicator is not intended to measure the probability of interruptions in payments. A country's economic management and ability to make necessary adjustments when shocks occur are critical and cannot be captured in a simple indicator. Moreover, the indicator does not measure the likelihood of unforeseen shocks that would impair the payments positions of these diverse countries. Rather, the vulnerability indicator provides a rough summary measure of the reduced freedom most developing countries now have to delay their response to changing circumstances.

The relatively strong current account positions of industrializing countries in Asia are reflected in the low vulnerability indicator for the region. But even here liquidity positions have eroded. In Latin America, where commodities (including oil) play a larger role, the real current account adjustment is less complete and the delay in adjustment by oil-exporting countries has led to a more serious erosion in liquidity. But, even in Latin America, countries such as Colombia have been able to minimize their vulnerability to shocks by building reserve positions and limiting short-term borrowing. In nonindustrial Europe, current account deficits have been reduced and the liquidity position has remained fairly constant. The averages here are helped considerably by Turkey's improved liquidity position as a result of debt rescheduling. The relatively low index for Romania shows that countries can be adversely affected by a sudden erosion of market confidence, even though their liquidity positions are no worse than average. In Poland the vulnerability indicator is still growing rapidly as arrearages on interest and principle are added to debt due within a year.

Prospects for bank lending

The major determinants of current accounts—oil and commodities prices, interest rates, industrial country demand, developing country imports—seem to point toward a narrowing deficit this year and next. Even so, unless sufficient finance is available, further cuts in the deficit may be forced. Tight budget policies in industrial countries and falling OPEC surpluses mean that official financing will not grow rapidly. The IMF has sufficient funds for the present and discussions are in progress to enlarge its resources, but many countries remain reluctant to accept IMF conditions. In any case, IMF lending has never accounted for more than a small proportion of the overall deficit. Similarly, direct investment and other financing sources are likely to rise only modestly. Thus, although there is not a strict correspondence between bank lending and the size of the deficits, sharply reduced bank lending could further constrain current account deficits this year and next.

Slower overall lending in 1982

Net new bank lending to all LDCs rose $45 billion, or nearly 20 percent, last year. Based on evidence available through early October, the overall growth could slow to 8-12 percent or around $25-35 billion this year. This rate of bank financing would be barely adequate

Table 5

Developing Countries' Vulnerability Indicator*

Regions and countries	1978	1979	1980	1981	1982
All developing countries	**115**	**121**	**124**	**132**	**135**
Asia	**102**	**109**	**115**	**117**	**125**
Korea	108	132	142	145	140
Taiwan	89	104	111	103	90
Thailand	117	134	133	138	135
Latin America	**133**	**131**	**141**	**157**	**160**
Argentina	73	92	121	166	200
Colombia	77	70	83	94	90
Mexico	188	170	166	196	200
Europe	**150**	**152**	**149**	**152**	**150**
Romania	132	142	156	137	125
Turkey	238	258	263	179	150
Poland	193	188	191	205	225

* The vulnerability indicator consists of imports of goods and services plus bank claims maturing within one year less international reserves, weighted by exports of goods and services. The indicator is given for regions as defined by the IMF and for selected countries within a region.

Sources: International Monetary Fund, *World Economic Outlook* and *International Financial Statistics*; Bank for International Settlements, *Maturity Distribution of International Bank Lending;* Federal Reserve Bank of New York staff estimates for Poland and projections for 1982.

to finance even the smaller current account deficit of $75 billion we have projected, although with little cushion for unforeseen events. There remains considerable uncertainty, however, about the level of financing over the remainder of this year and in 1983. Given the increased vulnerability of most developing countries to financing strains, a fall in lending to much below $30 billion could force further sharp cuts in imports for many countries. Firm and responsive actions by those countries with payments problems would improve their own access to credit. Moreover, prompt actions would help reduce the strains on other borrowing countries.

A slowdown in bank lending was already apparent in data reported through the BIS for the first quarter of 1982. For all reporting banks, claims on developing countries rose $5 billion in the first quarter of this year (after adjusting for the valuation effects of dollar appreciation). While lending typically tends to be slow early in the year, this $5 billion increase was half that in the same period of 1981 and substantially below the $7 billion first-quarter average of the past three years. For U.S. banks alone, lending to all developing countries slowed sharply in the first half of this year. U.S. bank claims on LDCs rose less than $5 billion in the first half, down from their nearly $9 billion in the same period last year.

Events in Argentina and Mexico very likely reduced overall bank lending to developing countries even further after the first quarter of this year. These two countries alone accounted for $3 billion, or 60 percent, of the $5 billion increase in net new lending to all developing countries reported by banks in the first quarter. For U.S. banks alone, where data are now available through June, Mexico accounted for more than half the increase in claims on all LDCs over the first six months, while U.S. bank claims on Argentina began to fall in the second quarter. By itself, the inability of these two countries to raise substantial additional funds from banks once payments interruptions threatened would reduce the overall rate of lending. Moreover, the payments problems of these two countries have heightened lenders' perceptions of the risks in all countries, particularly the political uncertainties. One result of these developments will be higher risk premia in international lending rates, especially for countries that are similarly situated —economically, politically, and perhaps even geographically—as those in difficulty. Thus, it is unlikely that the developing countries as a group will find it attractive or perhaps even possible to borrow as much as they have in the past.

The behavior of the syndicated international loan market supports this view of a generalized slowdown in lending to developing countries and increased per-

ception of risk, even before Mexico's problems overshadowed the interruptions in Argentina's debt-service payments.[6] The total value of reported syndicated loans to LDCs was down 7 percent in January through September over its 1981 level. The fall would have been steeper without a sharp rise in Mexican syndications in the first half of the year. The July-through-September rate of syndications to all LDCs was more than 25 percent below the similar period in 1981. Spreads on syndicated loans have also increased over the first nine months of 1982, indicating reluctance on the part of lenders. Countries could be substituting other types of bank credit for syndicated credits, but the behavior of the syndicated loan market is consistent with the projected slowdown for lending in general over the year, even before the recent events in Argentina and Mexico.

Past payments interruptions reduced lending

Past behavior of banks toward countries that do not promptly meet their contractual commitments suggests that the lower rate of lending to countries with payments difficulties could persist for some time. Comparison with past experience must remain somewhat tentative, since comprehensive information on bank lending was not available before 1977, and banks do not behave uniformly toward all problem countries. Even so, some patterns seem clear.

In general, banks reduce their outstanding claims on a country significantly when payments interruptions appear. The reduction is most pronounced for claims that are not covered by guarantees by a third party, such as a government agency in the country of the lending bank. U.S. banks, for which data can be adjusted for these external guarantees, typically reduce their adjusted claims 10 to 20 percent within a year or two after significant payments problems surface. Among the selected countries with well-publicized payments problems (Table 6),[7] this tendency is most clear in Costa Rica and Poland, where U.S. bank claims fell 14 percent and 18 percent, respectively, in 1981. In these countries, as in Turkey, Bolivia, and other countries, banks slowed their lending a year or more before the problems surfaced. Mexico and Argentina may prove to be important exceptions. Bank lending to both of these countries appears to have been exceptionally strong right up to the point where payments were interrupted.

Interruptions have tended to persist

Once problems in a borrowing country become sufficiently serious for widespread payments delays to occur, they are likely to persist for some years. Out of nineteen countries the IMF reported to have had payments arrears in 1978, fifteen were still in arrears at the end of 1981. For those countries that reschedule their private debt, the first rescheduling usually is completed at least one or two years after payments interruptions surface. For example, Costa Rica stopped payments on bank debt in August 1981 and still has not completed a rescheduling. Poland stopped payments in March of last year and took nearly twelve months to comply with the first year's rescheduling agreement.

Multiple reschedulings are frequent, as the experiences of Turkey, Jamaica, Nicaragua, and Bolivia indicate. Multiple reschedulings may occur when the country is not able to keep to the terms of the original rescheduling. Each rescheduling may deal only with certain classes of debt or with debt coming due over a short period. In any case, an agreement to reschedule cannot be taken as a sign that the country's problems are near a resolution.

After problems appear, the banks provide very little new money and often withdraw funds until there is evidence that the economic and financial situation has substantially improved. Out of the five publicized countries listed on Table 6 that interrupted their payments to banks in the late 1970s, four had a net decline in bank claims in the three years following generalized payments interruptions. Peru is the only one of these countries that has raised net new funds from U.S. banks since 1978, and this lending did not begin to grow until late 1980, more than three years after payments interruptions began. Peru is also the only one of these countries that managed to turn around its economic deterioration fairly quickly and revert to its original payments schedule.

Restructuring has been slow and costly

The large number of banks with outstanding loans in countries now delaying payments and the large amounts of loans involved may complicate the process of refinancing or rescheduling their debt. There are clearly more banks involved in international lending now than in the mid-1970s. While this diversity is useful in providing new sources of finance and spreading the risks, it also means that debt restructuring must be coordinated among a large and diverse group of creditors.

From 1977 to 1981, the nine largest U.S. banks reduced their share of total bank lending to all devel-

[6] Syndicated Eurocurrency loans, which are publicized and provide the most-up-to-date information on lending, constitute only part of bank lending to developing countries. Moreover, many of these loans replace maturing credits, so that these data provide only a very rough idea of the rate of net new bank lending.

[7] Tables 6 and 7 refer to countries that are known to have interrupted payments to banks since 1977 when comprehensive data became available and for which dates of interruptions and reschedulings can be reasonably determined.

Table 6

Changes in Adjusted U.S. Bank Claims on Selected Countries*

In percent

Countries	1978	1979	1980	1981
All developing countries	**12**	**20**	**27**	**23**
Countries with payments problems appearing in 1981-82				
Costa Rica	— 2	39	8	—14
Poland	— 2	16	3	—18
Romania	34	16	—10	— 3
Argentina	8	81	51	17
Mexico	— 5	9	40	39
Countries with payments problems appearing in 1977-80				
Turkey	4	—10†	4	— 3†
Nicaragua	1	—27	11†	— 5†
Bolivia	34	— 6	—18†	— 7†
Peru	—13†	—13	23	13
Jamaica	— 5†	— 1	— 9	2†

* Outstanding claims are adjusted for guarantees by residents of other countries.

† Year in which a private bank debt rescheduling agreement was signed with commercial bank creditors.

Source: U.S. Federal Financial Institutions Examination Council, *Country Exposure Lending Survey.*

Table 7

Nine Largest U.S. Banks' Share of U.S. Bank Claims and Commitments*

In percent

Countries	1977	1978	1979	1980	1981
All developing countries	**66**	**67**	**67**	**66**	**64**
Turkey	67	60	68†	65	66†
Nicaragua	61	60	56	62†	64†
Bolivia	74	72	69	68†	69†
Peru	60	58†	66	62	57
Jamaica	87	91†	86	87	82†

* Outstanding claims and commitments to advance funds, adjusted for guarantees by residents of other countries.

† Year in which a private bank debt rescheduling agreement was signed with commercial bank creditors.

Source: U.S. Federal Financial Institutions Examination Council, *Country Exposure Lending Survey.*

oping countries from 31 to 23 percent. These banks were early participants in the market, so that a declining share would have been expected as more banks entered. Moreover, major banks in the United States apparently resisted the decline in spreads over LIBOR that prevailed in the late 1970s on loans to developing countries. In some LDCs, their exposures were already large relative to their capital base so that they allowed new entrants to take on a large part of the additional loans. In any case, international lending to developing countries is now a good deal larger and more widely distributed among banks than in the mid-1970s.

Once an agreement to reschedule has been reached, the major banks' involvement tends to stay constant or increase (Table 7). This can be seen in the largest U.S. banks' behavior toward Turkey, Bolivia, Peru, and Jamaica. The large banks' share of total U.S. bank lending tends to rise in the years during which private bank reschedulings have occurred and to remain above average for several years. Even though overall lending to these countries slowed or declined, these major banks effectively took over part of the interests of smaller banks. Their larger stake and longer term interests in continuing relations with a potentially viable borrower may explain this behavior. Smaller banks tend to participate in loan syndications and to finance the foreign business of domestic customers. Their concern with the borrowing country is more related to current yield than long-term prospects.

Rescheduled loans have not been particularly attractive on the basis of current yield whatever the longer term outlook for the country. The more widespread exposure of countries now undergoing payments interruptions and the large size of the major banks' existing exposure may preclude rapid resolution of the problems. Clearly the more attractive the terms of restructured or rescheduled debt, the more willing will be the participation of all banks and a reasonably early resumption of lending will be more likely. For a bank, the contracted schedule of payments is violated by a payments interruption. The bank loses the opportunity to invest its portfolio in the most advantageous ways, even though in all likelihood debt servicing will eventually resume. The time and resources needed to negotiate a rescheduling agreement are also considerable. For the country, the short-term gain of lowering its debt-service payments may be outweighed by the heavy loss in income over the extended period when bank lending falls and the domestic economy is forced to contract.

Conclusions

We find that most developing countries have made serious efforts to adapt to the world recession and that,

in the aggregate, current account deficits are improving. But most LDCs have seen their liquidity position deteriorate substantially over the past four years as a result of higher world interest rates, their rising external debt, and greater reliance on short-term borrowing. The payments interruptions this year by two of the most important borrowers from commercial banks will certainly slow the growth of overall bank lending to developing countries. In the past, banks have withdrawn funds from those countries that have disrupted payments. Even sharply reduced lending to two countries that accounted for more than 40 percent of the net bank lending in the recent past would in itself slow the overall growth. Moreover, the sudden payments interruptions by countries that were previously well regarded have heightened the perception of risk on loans to other countries.

Our current account projections of a $75 billion combined LDC deficit in 1982 and $60 billion in 1983 assume bank lending will grow $25-35 billion each year, down anywhere from 15 to 40 percent below the average over the past three years. The midpoint of this range in bank lending, with some pickup in official flows and a greater drawdown of assets by developing countries, would finance the projected deficits. The upper end of the range of bank lending would allow some rebuilding of foreign exchange reserves and improve their liquidity position. But lending scaled back to the lower end of this range could increase the risk of payments disruptions by otherwise sound countries. The current account projections do not anticipate a generalized withdrawal of banks from most developing countries. Despite the similarity of problems that these countries have faced, LDCs differ greatly in their abilities and willingness to face up to their problems. Most lenders recognize these distinctions, but the projected outcome is not certain. New initiatives from the borrowing countries, from their commercial bank creditors, and from the international economic community at large may be needed to prevent more widespread payments interruptions to ease the present liquidity strains and to assure orderly adjustment.

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Rethinking Tax-Exempt Financing for State and Local Governments

During the past three years, the cost of financing state and local debt has risen for all levels of government. State and local governments are paying significantly higher interest rates on their long-term borrowings than in the past. This means that they are incurring higher costs at a time when they have been experiencing sharp cutbacks in Federal aid, significant slowdowns in tax revenues, and large needs to rebuild public structures. At the same time, by not taxing the interest income on municipal bonds, the Federal Government is foregoing substantial revenues during a period when it is facing sizable deficits. About half of the increase in the cost of financing state and local debt reflects the general increase in all interest rate levels over the past few years. However, half of it has been caused by factors that have had an adverse impact on the municipal bond market itself.

Between 1979 and early 1982, yields on new issues of long-term state and local debt rose nearly twice as much on a percentage basis as yields on long-term corporate and Treasury debt. This deterioration in the long-term tax-exempt market, compared with the market for taxable securities, has focused attention on a problem that predates the high rates of recent years, *i.e.*, the implicit subsidy of Federal tax exemption for interest on long-term state and local debt is not so effective as it could be. In particular, the rise in relative yields indicates that a significant and growing part of the subsidy is going to purchasers of long-term state and local bonds rather than the issuers. By way of contrast, rates on short-term state and local debt have tended to move with rates on taxable issues and the subsidy appears to be quite effective.

The purpose of this analysis is to explore the dimensions of the problem in the long-term market as well as reasons why it exists. Historical data show that the Federal subsidy has consistently been significantly less effective than might be expected. This is primarily because of the limited demand by investors in high marginal tax brackets for tax-exempt issues relative to the existing and new supplies of municipal securities. A logical extension of the analysis is a set of policy alternatives that could result in significant improvements in the market from the standpoint of state and local issuers and the Federal Government. These include:

- Instituting a taxable bond option,
- Shifting some long-term borrowing into the short end of the market, and
- Restricting the volume of revenue bonds either on a voluntary basis by states and localities or through Federal legislation.

An analysis of the problem

Yields for municipal securities are expected to be lower than those for Treasury and corporate issues of comparable maturity. This is because the interest income is exempt from Federal income taxes. Investors are able to obtain the same or higher aftertax return on tax-exempt securities as on taxable issues even though the nominal tax-exempt yields are lower. For individual investors, the break-even point between municipal and taxable securities will depend on their tax brackets. The higher the marginal tax rate the lower the tax-exempt yield must be relative to

the taxable yield for an investor to receive an equivalent aftertax return. This basic fact is true for both individuals and institutions.

The relationship between tax-exempt and taxable yields is usually stated in terms of yield spreads or yield ratios. The yield spread has the advantage of showing the actual yield difference; however, it has the drawback of being sensitive to the level of interest rates. For illustrative purposes, suppose an investor faces a 50 percent marginal tax rate. A yield spread of 5 percentage points would result in an equivalent aftertax income to the investor from either a taxable or a tax-exempt security when taxable rates are 10 percent, but a spread of 6 percentage points is needed when taxable rates are 12 percent. In contrast, the yield ratio is insensitive to rate levels. It is usually a more useful measure of the relationship between tax-exempt and taxable yields, especially during a period of volatile rate changes. In the above example, the yield ratio consistent with the equality of the aftertax income from taxable and tax-exempt investments is 0.50, regardless of whether taxable rates are 10 percent or 12 percent.

It can be easily shown that, for an individual investor, equivalent aftertax income is obtained from taxable and tax-exempt securities of comparable duration and risk when the yield ratio equals 1.0 minus the marginal tax rate. This means that the higher the marginal tax bracket of an investor the lower the yield ratio that would result in equivalence between the aftertax returns from taxable and tax-exempt securities. For example, for an investor in a 46 percent marginal tax bracket, the break-even yield ratio would be 0.54.

Benchmark yield ratios

To determine what yield ratio to expect in the market (as opposed to the ratio for an individual investor), it is necessary to know who owns state and local bonds and their marginal tax brackets. At present, most tax-exempt securities are purchased by three groups of investors: commercial banks, property and casualty insurance companies, and individuals. Less than 10 percent is owned by a variety of other firms and organizations, including dealers and brokers, life insurance companies, and state and local pension funds (Table 1). Suppose that the individuals and firms in the tax-exempt market all were in the highest marginal tax brackets to which they can be subject under the Federal individual and corporate income tax laws. What would be the yield ratio that might be expected, given the maximum tax rates of current market participants?

At present, commercial banks and property and casualty insurance companies face a maximum tax rate of 46 percent. The maximum tax rate for individuals is 50 percent (70 percent prior to January 1, 1982). The remaining participants face slightly lower maximum tax rates. Overall, the weighted average of the maximum tax rates for current market participants is about 45 percent today and was about 50 percent prior to January 1, 1982. Keeping in mind that for individual investors the break-even yield ratio is 1.0 minus the marginal tax rate, the yield ratio consistent with the maximum tax rates for current market participants is about 0.55 and was approximately 0.50 prior to 1982.[1]

Yield ratios of about 0.55 currently and 0.50 in prior years would represent hypothetical benchmarks for measuring the effectiveness of the tax-exempt subsidy if the tax-exempt and taxable issues were of the same duration and risk. Given the mix of investors, the interest rates paid by state and local governments (and the revenue loss to the Federal Government) would, in theory, be minimized at these yield ratios.

Benchmark yield ratios and credit risk

The benchmark yield ratios represent a theoretical relationship between taxable and tax-exempt yields. What that relationship will be in practice depends on several factors. The most important of these are the perceived riskiness of tax-exempt bonds and the effectiveness of the tax-exempt subsidy.

First, the benchmark yield ratios assume that the tax-exempt and taxable issues are completely equivalent except for the tax treatment. In practice, this is seldom the case. For example, prime municipal securities are generally perceived as carrying greater credit risk than Treasury securities of comparable duration. The added risk premium for municipal issues would cause the actual yield ratios to be greater than the benchmark levels. (Also, the risk premium may vary over time, depending on the state and local fiscal outlook and the occurrence of well-publicized problems like the New York City and Cleveland fiscal crises.)

A method, which uses the information embedded in corporate yields to adjust upward the prime municipal-Treasury yield ratio, concludes that the benchmark yield ratios should be increased by 5 percent. That is, the current benchmark should be raised from 0.55 to 0.60 and the pre-1982 benchmark increased from 0.50 to 0.55. This adjustment represents 50 to 75 basis points when yields on state and local bonds are between 10 and 15 percent. This may appear like a rather small adjustment. However, it is important to recall

[1] Technically, in a perfect market, the market's yield ratio would equal 1.0 minus the marginal tax bracket of the marginal investor, *i.e.*, the one with the lowest marginal tax rate. This would imply that the yield ratio consistent with a market comprised of commercial banks, property and casualty insurance companies, and high-income individuals would be 0.54—a figure close to the numbers used in the text.

Table 1

Owner Distribution of Outstanding State and Local Government Obligations

Levels in billions of dollars; shares in percent

Year-end	Commercial banks		Property and casualty insurance companies		Households*		Other holders†		Total holders	
	Level	Share	Level	Share	Level	Share	Level	Share	Level	Share
1968	58.9	47.8	14.4	11.7	37.6	30.5	12.3	10.0	123.2	100
1970	70.2	48.6	17.0	11.8	46.0	31.9	11.2	7.8	144.4	100
1972	90.0	51.0	24.8	14.1	48.4	27.4	13.3	7.5	176.5	100
1974	101.1	48.7	30.7	14.8	61.9	29.8	14.0	6.7	207.7	100
1976	106.0	44.2	38.7	16.1	70.6	29.5	24.2	10.1	239.5	100
1978	126.2	43.3	62.9	21.6	75.4	25.9	26.8	9.2	291.3	100
1980	149.2	41.8	80.5	22.6	100.9	28.3	26.3	7.4	356.9	100
1981	154.2	39.6	84.5	21.7	124.3	31.9	26.8	6.9	389.8	100

* Including mutual funds. Growth of holdings by mutual funds since 1975 was as follows:

Year-end	Billions of dollars
1975	nil
1976	0.5
1977	2.2
1978	2.7
1979	4.0
1980	6.4
1981	9.3

† Other holders, at end-1981

	Level	Share
Nonfinancial corporate businesses	3.5	0.9
Savings and loan associations	1.3	0.3
Mutual savings banks	2.3	0.6
Life insurance companies	7.2	1.8
State and local government general funds	7.3	1.9
State and local government retirement funds	4.1	1.1
Brokers and dealers	1.2	0.3
Total other	26.8	6.9

Source: Board of Governors of the Federal Reserve System, *Flow of Funds.*

that the municipal bonds that are being compared with Treasury securities are the highest rated, with respect to credit risk, of the state and local issues. The premium required for lower quality issues would be much larger.[2]

A second reason why benchmark yield ratios may be lower than those actually found in the market is that the tax-exempt subsidy may be less effective than it could be. This reason will be discussed further after a review of some of the historical data on yield ratios.

Yield ratios actually observed and their effects

As shown in Chart 1 and Table 2, the yield ratio for long-term bonds was consistently much higher than the 0.55-0.60 benchmark level that would be expected using maximum marginal tax rates and adjusting for credit risk. In the mid-1970s, the yield ratio between thirty-year prime municipals and Treasury bonds generally fluctuated between 0.70 and 0.80. In 1978 and 1979, the market improved somewhat during the economic recovery

[2] An analyst is faced with the problem of what to compare tax-exempt yields against. There is a range of securities to choose from, but commonly municipal yields are compared with Treasury or corporate utility yields. The yield ratio will vary for each set of comparisons because of differences in credit risk, tax treatment, and other factors. In this article, the relatively arbitrary judgment to use Treasury securities was chosen.

It is often thought that municipal and corporate utility securities have similar credit risk. This may be so for municipal power and corporate utility issues, which respond to similar energy, regulatory, and political developments, but this often does not hold for other revenue and general-obligation bonds. Moreover, municipal and corporate bond yields are not strictly comparable, since corporate bonds are subject to state and local taxes whereas municipal bonds are generally exempt from the taxes of the state in which they are issued.

(*Footnote 2 continued*)

An advantage of using municipal and Treasury yields is that they are both generally exempt from state and local taxes. A more important advantage is that it is not necessary to adjust for short-term changes in market or risk factors affecting corporate utility yields. However, since Treasury and municipal bonds differ in terms of perceived credit risk, it is necessary to compute a normal risk premium for municipal issues. One way to compute this risk premium, while avoiding the problem of short-term variations in the risk premium on the utility issues, would be to use the average of corporate utility yields over a period of several years as a proxy for municipal bond yields. The comparison suggests that a normal risk premium for municipal securities would be about 5 percent.

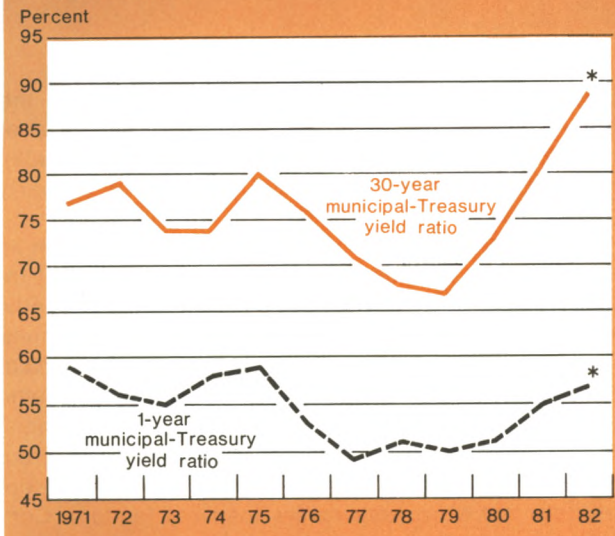
and the ratio fell below 0.70. Since then, the tax-exempt market has deteriorated sharply relative to the taxable market and, in early 1982, the thirty-year yield ratio rose as high as 0.94. In January 1982, tax-exempt borrowers paid only 86 basis points less on thirty-year bonds than the U.S. Treasury and only 155 basis points less on twenty-year issues.

The recent rise in the long-term yield ratio occurred during a period when interest rates in general were near an all-time high. Consequently, municipal bond issuers were hit doubly hard, first by the general rise in rates and then by the relatively steeper increase in tax-exempt yields. Municipal bond yields increased 75 percent between 1979 and 1981, while Treasury bond yields rose 45 percent (Chart 2).

As a result, states and localities paid substantially more in interest expense on their new borrowings in 1981 than they did several years earlier. In 1978, for example, they issued $46 billion in long-term securities at an estimated average rate of 5.5 percent. In 1981 they issued the same amount of bonds at 10.6 percent, nearly double the 1978 rate. In dollar terms, states and localities will pay approximately $2.3 billion more in annual interest costs on the debt they issued in 1981 than on the same amount of debt they issued three years earlier. Over a twenty-year period, this will cumulate to additional interest costs of $46 billion.

Chart 1

Tax-exempt Yields as a Percentage of Taxable Yields for Short- and Long-term Maturities



* January-September 1982.

Source: Salomon Brothers, An Analytic Record of Yields and Yield Spreads.

Roughly half of the cost increase to states and localities was the result of a general rise in rates, while the other half was caused by a sharper increase in tax-exempt bond yields, *i.e.,* by a deterioration in the tax-exempt market relative to the taxable market. If the ratio of tax-exempt to taxable yields had been 0.60 in 1981 (5 percentage points above the adjusted benchmark ratio), the savings in annual interest costs on bonds issued in that year would have been $1.1 billion per year, or $22 billion cumulative over the approximate twenty-year life of the bonds.

The indirect costs to the U.S. Treasury also rose substantially between 1978 and 1981. By not taxing the interest income on municipal securities, the U.S. Treasury will lose approximately $1½ billion per year in tax revenue on those bonds issued in 1978 but $2½ billion per year on those issued in 1981. This amounts to a $50 billion cumulative revenue loss over the twenty-year life of the bonds issued in 1981. More than three quarters of the Treasury's foregone revenue on bonds issued in 1978 will accrue to the state and local borrowers in the form of lower interest costs. But, because of the increase in the yield ratio, only about one half of the implicit Federal subsidy on the 1981 issues will benefit the borrowers. The other half will accrue to investors who will receive substantially higher aftertax returns on municipal bonds purchased in 1981 than on comparable taxable issues acquired the same year.

These costs continued to be exceptionally large during the first nine months of 1982, as tax-exempt rates remained high and municipal bond issuance strong. Between January and September, long-term yields on municipal bonds averaged 11.6 percent while those on Treasury issues were 13.7 percent. Despite these high yields, long-term borrowing by states and localities rose to $65 billion at an annual rate during the first nine months of 1982; this was 40 percent higher than the 1981 level. Consequently, the implicit Federal subsidy on the 1982 issues grew to a $3½ billion annual rate, or a cumulative total of $70 billion over the estimated life of the bonds. With the yield ratio rising further, the investors' share of the subsidy rose to over $2 billion annually while the states' and localities' share fell to $1.4 billion of the total.

The situation is very different in the short-term market. There, the yield ratio has typically fluctuated between 50 and 60 percent until a year ago, when the average level rose to the top of the range. Yield ratios in the short-term market have consistently been very close to the benchmark levels, especially after adjustment for risk differentials. Thus, the Federal sub-

Table 2

Comparison of Yields on Treasury and Municipal Securities

By terms to maturity

Date	Municipal yields					Treasury yields					Yield spreads (Treasury-municipal)					Yield ratios (Municipal-Treasury)				
	Terms to maturity (in years)																			
	1	5	10	20	30	1	5	10	20	30	1	5	10	20	30	1	5	10	20	30
Average:																				
1973	3.95	4.25	4.45	5.00	5.20	7.24	6.76	6.73	6.97	6.99	3.29	2.51	2.28	1.97	1.79	0.55	0.63	0.66	0.72	0.74
1974	4.75	4.90	5.15	5.70	5.90	8.23	7.73	7.31	7.93	7.98	3.48	2.83	2.16	2.23	2.08	0.58	0.63	0.70	0.72	0.74
1975	3.91	4.83	5.44	6.29	6.59	6.65	7.61	7.42	8.04	8.21	2.74	2.78	1.98	1.75	1.62	0.59	0.63	0.73	0.78	0.80
1976	3.12	4.15	4.82	5.69	6.02	5.92	7.20	7.53	7.86	7.94	2.80	3.05	2.71	2.19	1.92	0.53	0.58	0.64	0.72	0.76
1977	2.91	3.88	4.35	5.16	5.45	5.94	6.91	7.36	7.62	7.68	3.03	3.03	3.01	2.46	2.23	0.49	0.56	0.59	0.68	0.71
1978	4.15	4.65	4.93	5.50	5.75	8.20	8.23	8.33	8.42	8.42	4.05	3.58	3.40	2.92	2.67	0.51	0.57	0.59	0.65	0.68
1979	5.30	5.37	5.45	5.95	6.18	10.54	9.40	9.34	9.24	9.20	5.24	4.03	3.89	3.29	3.02	0.50	0.57	0.58	0.64	0.67
1980	6.14	6.40	6.84	7.82	8.15	12.07	11.43	11.38	11.29	11.23	5.93	5.03	4.54	3.47	3.08	0.51	0.56	0.60	0.69	0.73
1981	7.89	8.51	9.43	10.57	10.81	14.45	14.17	13.88	13.69	13.42	6.56	5.66	4.45	3.12	2.61	0.55	0.60	0.68	0.77	0.81
1982:																				
Quarter 1 ..	7.83	9.42	10.75	12.15	12.42	13.88	14.03	14.04	14.09	13.76	6.05	4.61	3.29	1.94	1.34	0.56	0.67	0.77	0.86	0.90
Quarter 2 ..	7.67	9.33	10.50	11.62	11.67	13.64	13.94	13.89	13.68	13.46	5.97	4.61	3.39	2.06	1.79	0.56	0.67	0.76	0.84	0.87
Quarter 3 ..	7.33	8.83	9.97	10.97	11.23	12.50	13.59	13.57	13.41	13.24	5.17	4.76	3.60	2.44	2.01	0.59	0.65	0.73	0.82	0.85

Source: Salomon Brothers, *An Analytic Record of Yields and Yield Spreads.*

sidy on short-term maturities appears to be effective, with nearly all of it going to the states and localities rather than to the investors. In 1981, states and localities paid $1.3 billion less on their short-term borrowings than they would have if they had paid taxable yields. However, unlike long-term borrowing, the savings are relatively small. Short-term debt accounts for only 5 percent of total tax-exempt debt outstanding.

Reasons for the limited effectiveness of the subsidy in the long-term market

In the long-term market, the magnitude and volatility of the observed yield ratio are the result of a relatively small and narrow demand for tax-exempt securities in relation to the volume of state and local debt. In recent years, commercial banks, property and casualty insurance companies, and high-income individuals held 93 percent of all municipal securities outstanding. These groups of investors find tax-exempt bonds especially attractive because they can be subject to the highest income tax rates, 50 percent in the case of high-income households (70 percent prior to 1982) and 46 percent for commercial banks and property and casualty insurance companies.

In contrast, most other financial institutions, such as pension funds, life insurance companies, and thrift institutions, pay relatively low or no taxes. Consequently, they find taxable securities more attractive than municipal bonds. The same is true for nonprofit organizations, foreign investors, and many retired people, who also pay relatively little or no U.S. taxes. Nonfinancial corporations may find the tax exemption attractive, but they have little surplus funds to invest as they are generally net borrowers rather than net lenders. Consequently, the tax exemption—which is the reason why municipal yields are expected to be below taxable yields—is of little or no value to large segments of the investment and business community.

If the only purchasers of long-term state and local bonds were individuals and institutions in the maximum marginal tax brackets, then the yield ratio of tax-exempt to taxable issues would be at or near the adjusted benchmark of 0.60 currently and 0.55 in prior years. However, when states and localities find themselves having to issue large amounts of new debt, regardless of cost considerations, then they may have to offer the debt at sufficiently high yields to attract investors with lower marginal tax rates. These higher yields are generally available to all investors—even those in top tax brackets who in theory might be willing to accept lower returns. Thus, part of the subsidy of Federal tax exemptions goes to these high-income investors.

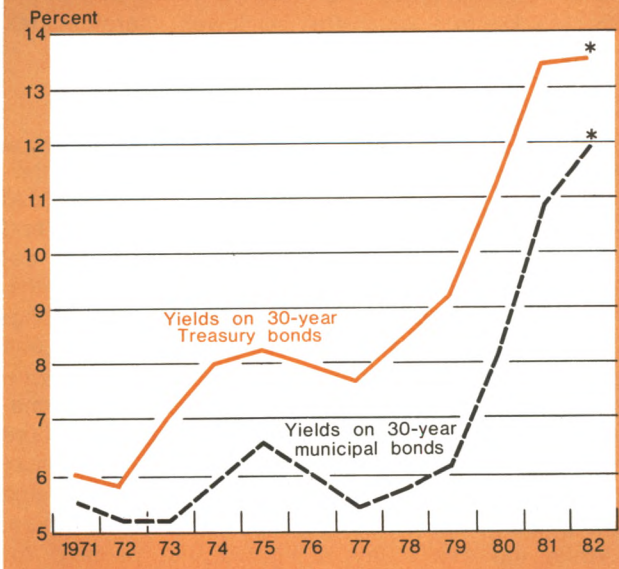
While demand for municipal bonds by individuals and institutions in the top tax brackets has lagged, the volume of tax-exempt issues has remained sizable and even increased, especially in 1982 (Chart 3). Long-term borrowing by states and localities roughly doubled from $24 billion annually in 1972-75 to $46 billion in 1978-81. Recently, it has risen sharply to a $65 billion annual rate in the first three quarters of 1982. Against that background, yield ratios for long-term debt have remained well above the benchmark range of 0.55-0.60.

The growth of the total volume of new issues masks an interesting and important change in the composition. General-obligation bonds which have traditionally been used to help fund capital improvements and, to a lesser extent, operations demonstrated little growth between 1972 and 1981. In contrast, issuance of tax-exempt revenue bonds quadrupled during the same period. These bonds fund quasi-private activities such as hospital construction, power generation, housing construction, and industrial development (Table 3). The volume of new issues of revenue bonds is less sensitive than those of general obligation to changes in interest rates, since private developers and other users of tax-exempt funds find that the umbrella of tax exemption will always make it possible to finance at rates that are attractive, compared with those in the taxable market. Also, unlike general-obligation securities, revenue bonds are normally not subject to voter approval. Thus, there is relatively little constraint on their expansion.

While the supply of tax-exempt securities has expanded rapidly, several factors on the demand side have also contributed to a high yield ratio. To begin with, the maximum corporate tax rate was trimmed from 48 to 46 percent in 1978 and the maximum

Chart 2

Long-term Tax-exempt and Taxable Yields

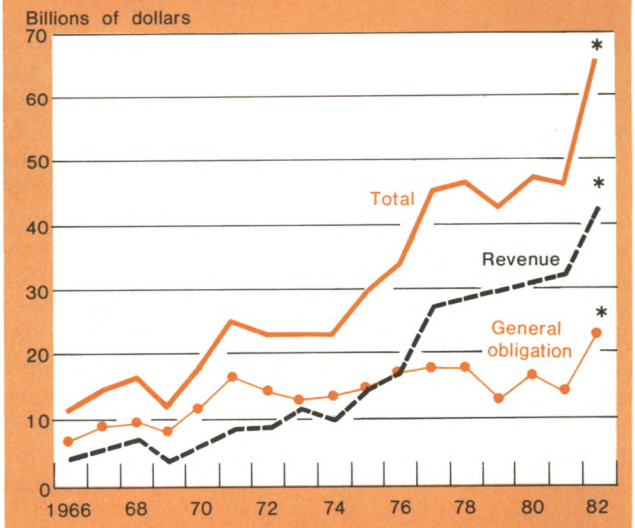


*January-September 1982.

Source: Salomon Brothers, An Analytic Record of Yields and Yield Spreads.

Chart 3

New Long-term Municipal Borrowing by Type of Security



* January-September 1982, at an annual rate.

Source: The Bond Buyer.

Table 3

Municipal Bond Sales by Use of Proceeds, 1981

Level in billions of dollars; share in percent

Activity	Level	Share
Social welfare	**12.06**	**25.9**
Public housing	(5.93)	(12.7)
Hospital and other	(6.13)	(13.2)
Utilities	**10.03**	**21.6**
Electric and gas	(6.25)	(13.4)
Water and sewer	(2.85)	(6.1)
Other	(0.93)	(2.0)
Industrial aid	**7.65**	**16.4**
Pollution control	(4.32)	(9.3)
Other	(3.33)	(7.2)
Education	**4.54**	**9.8**
Elementary and secondary	(2.18)	(4.7)
Higher education and other	(2.36)	(5.1)
Transportation	**3.45**	**7.4**
Ports and airports	(1.68)	(3.6)
Roads, bridges, and other	(1.77)	(3.8)
Recreation, public services, and miscellaneous	**1.57**	**3.4**
Unclassified	**7.22**	**15.5**
Total	46.52	100.00

Source: Public Securities Association.

individual tax rate was cut from 70 to 50 percent in 1981. As discussed earlier, these changes raised the yield ratio at which tax-exempt and taxable securities yield equivalent aftertax returns. Other provisions of the Economic Recovery Act of 1981 lowered the effective tax rates for individual and institutional investors. For example, easier leasing requirements, larger depreciation allowances, faster development cost write-offs, and larger investment tax credits helped lower effective tax rates for many institutions. (Even before the expanded leasing provisions of the 1981 tax act, commercial banks had begun to look more toward leasing arrangements as a means of sheltering income from taxes.) The expansion of individual retirement accounts and the offering of all savers certificates expanded the scope of alternative tax shelters for households with high tax rates.

Another factor cited in the recent rise in the yield ratio is that property and casualty insurance companies have had to reduce their purchases of tax-exempt securities in response to a sharp increase in their underwriting losses. Finally, some individual and institutional investors in high tax brackets have withdrawn altogether from long-term markets (taxable and tax exempt) because of the volatility of long-term yields.

The effect on recent yield ratios of the imbalance between the relatively large supply of municipals and relatively weak demand by high-income investors may have been exacerbated by changes in perceived credit risk. Cutbacks in Federal Government grants to state and local governments and the effect of the recession on state and local revenues and transfer payments have caused a reduction of the accumulated surpluses of state governments and a deterioration in the fiscal status of local governments. Tax-reduction movements, such as those in California and Wisconsin, may also have been an important factor in the changed state and local fiscal outlook. Against this background, it is clearly possible that the risk premium on even high-grade municipals may have increased. On the other hand, the apparent success of New York City in working its way out of its well-publicized fiscal crisis may have been a factor working in the opposite direction.

Even with an allowance for some increase in risk premiums, it still appears that, during the past few years, the demand for long-term tax-exempt securities by individuals and institutions in the maximum tax brackets has not kept pace with the increase in the supply of new state and local issues. This has meant that, to finance their debt, states and localities increasingly have been offering yields that would attract investors who are in lower marginal tax brackets.

The short-term market

The situation in the short-term tax-exempt market is very different. There, tax-exempt yields are appropriately low compared with taxable yields. Of the $390 billion in outstanding tax-exempt securities at the end of 1981, only $20 billion consisted of short-term securities, with an average maturity of about six months. There is an additional $15 billion, approximately, of long-term securities that have a remaining maturity of one year or less; however, most of these are retained by investors and not traded in the market. In contrast, the maturity structure of taxable securities is heavily weighted toward the short term (Chart 4). For example, Treasury bills held by the public at the end of 1981 totaled $245 billion, while Treasury bonds totaled $100 billion.

While the availability is limited, the demand for short-term issues is strong among commercial banks and tax-exempt money market funds. Commercial banks exhibit a strong preference for shorter term maturities, as indicated by the maturity structure of

their taxable holdings. Of the $110 billion of government securities held by commercial banks at the end of 1981, an estimated 92 percent had a remaining maturity of five years or less and 52 percent had a remaining maturity of one year or less. In addition, over the last several years, the tax-exempt money market funds have bid actively for an increasing share of the short-term issues. Currently, their assets total $11 billion, equivalent to over one half of total short-term tax-exempt securities outstanding.

Possible solutions

The preceding discussion suggests that the Federal tax exemption of state and local debt is not working as well as it could, at least from the point of view of the governments involved. Although tax-exempt yields have declined somewhat in the past few months, as have yields in other credit markets, the yield ratio remains well above the adjusted benchmark level of 0.60. A considerable part of the Federal tax-exemption subsidy continues to elude the grasp of state and local issuers and falls to investors in high marginal tax brackets. This section outlines some alternatives that would make the Federal subsidy on state and local debt more effective while, at the same time, lowering the revenue loss to the Federal Government.

One possibility would be to attempt to broaden the market for state and local debt. Since the potential demand for long-term tax-exempt bonds by investors in the highest tax brackets is limited, states and localities could be encouraged to issue taxable securities in exchange for a direct subsidy from the U.S. Treasury. Another alternative could be to reduce the supply of long-term tax-exempt securities by shifting some borrowings from the long to the short end of the market, where currently the supply is small relative to potential demand. Finally, supply could be limited by some restrictions (either voluntary or Federally mandated) on the volume of new issues of tax-exempt debt for low-priority projects.

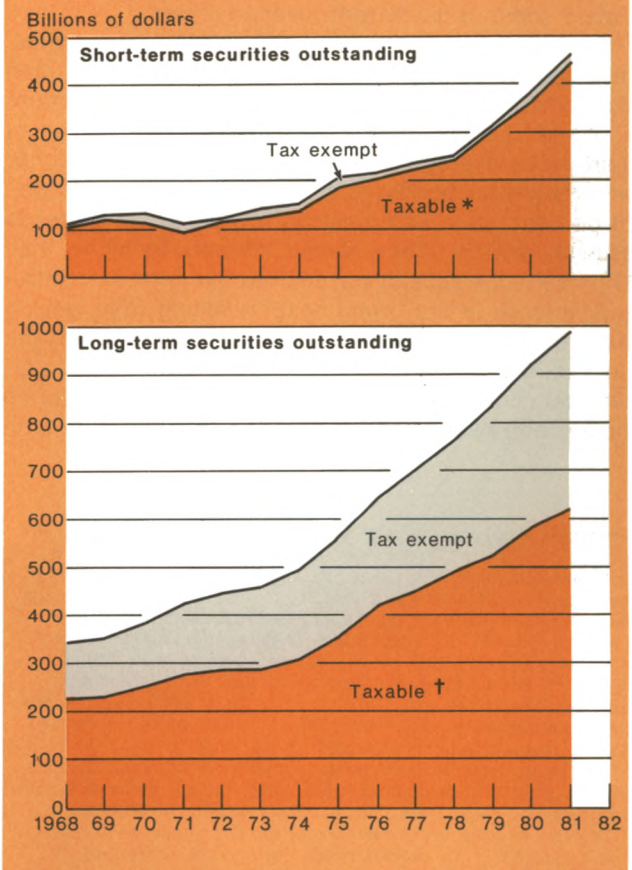
Taxable bond option

Since state and local borrowers receive the benefit of only a portion of the tax revenue foregone by the U.S. Treasury, an alternative method of subsidizing their borrowings might be appropriate. One option would be for the borrower to issue only taxable bonds and for the U.S. Treasury to return to the states and localities part or all of the additional Federal taxes collected on the interest income. This way, the net cost to the Federal, state, and local governments would be less than under the current system, since investors would no longer be receiving part of the foregone revenue. Complete elimination of Federal tax exemption by new Federal legislation might raise constitutional questions about the separation of powers between Federal and state levels, and it might cause opposition from state and local officials jealous of their independence. To circumvent these obstacles, a taxable bond option has been widely proposed as a means of achieving the same objective but on a voluntary basis.

With a taxable bond option, the state or locality would have the choice of issuing a tax-exempt security, as at present, or a taxable one. If it issued a taxable bond, the U.S. Treasury would reimburse the state and

Chart 4

Supply of Tax-exempt and Taxable Securities



* Short-term Treasury securities and open market paper held by domestic private sector.

† Long-term Treasury securities and corporate bonds held by domestic private sector.

Source: Board of Governors of the Federal Reserve System.

locality for the higher interest cost with a direct subsidy equivalent to some fixed proportion, say 40 percent, of the taxable yield. Therefore, if the ratio of tax-exempt yields to taxable yields rose above 60 percent, it would pay the borrowing state or locality to issue taxable securities; if it dropped below 60 percent, it would be more advantageous for the borrower to issue tax-exempt bonds.

The maximum interest reimbursement rate that would leave the U.S. Treasury no worse and no better off than before would be 40 percent, according to our estimates. This is the midpoint of the weighted averages of maximum marginal tax rates for holders of tax-exempt and taxable securities.[3] If the rate were set higher than 40 percent, the U.S. Treasury would pay more in interest subsidies to states and localities than it would collect in additional revenues from investors. If it were set less than 40 percent, the Treasury would recoup some of its current revenue losses.

Similarly, under current market conditions, the minimum reimbursement rate that would leave state and local borrowers no better and no worse off than before would be roughly 20 percent. This is based on recent yield ratios averaging 80 percent or somewhat higher on twenty-year bonds. If the rate were set lower than 20 percent, state and local borrowers would prefer to issue tax-exempt bonds instead. If it were set higher than 20 percent, the subsidy payment would more than offset any increase in borrowing costs resulting from issuing taxable instead of tax-exempt securities. Since the yield ratio declines as the maturity shortens, a 20 percent reimbursement rate would not be adequate to induce borrowers to replace short- and medium-term tax-exempt securities with taxable ones. However, except for money market notes and serial bonds, most tax-exempt securities are long-term bonds with maturities of twenty to thirty years.

Therefore, there is a band of possible interest reimbursement rates ranging from 20 to 40 percent under present conditions. Within this range, the U.S. Treasury and the bond issuer would share any net benefit. At 30 percent, for example, the U.S. Treasury and the state or local borrower would split the benefit equally.

Under current market conditions, a taxable bond option could result in substantially lower costs for all levels of government. According to our estimates, the Federal, state, and local governments combined would gain $2.2 billion per year in net benefits or a cumulative amount of $44 billion over the life of the securities. This is based on data from the first nine months of 1982. During that time, twenty-year taxable yields averaged 13.7 percent and tax-exempt bond issuance averaged $65 billion, at annual rates.

The taxable bond option was proposed in 1977 and 1978 by the Carter administration. But the proposal was shelved, primarily because of opposition by state and local governments. It is not clear that these governments would still be opposed. First, in 1977 and 1978 the long-term yield ratio was declining (Table 2) to the 0.60-0.65 range. It has now been above 0.80 for over a year. Thus, the option would clearly benefit state and local governments currently.

A second objection to the earlier proposals was that they included provisions that would have made certain types of revenue bonds taxable. Although a Federal subsidy would have been provided in the place of tax exemption, there would have been no option on these bonds. This was opposed by state and local governments at the time. But since then the Congress has passed some restrictions on new issues of certain types of revenue bonds. Therefore, today taxable bonds with a subsidy may be an attractive alternative to issuers of revenue bonds, compared with a further tightening of restrictions that would include no subsidy.

Finally, previous proposals were thought to contain a risk that at some point the Congress would cut off the direct subsidy after a state or local government had issued a taxable bond. These governments were not anxious to give up the indirect subsidy of tax exemption, which they had automatically, for a direct subsidy of comparable size that was subject to the ups and downs of the Federal budget process. Although it was not discussed at the time, the Congress could insulate the Federal Government's direct subsidy payments from the annual appropriations process. For example, at the time the taxable state and local bond

[3] Although it is not possible to determine with certainty what the break-even point for the U.S. Treasury would actually be, some boundary estimates can be made. In the simple case, if all municipal securities that became taxable were purchased by current holders of tax-exempt securities, the break-even point would be 45 percent. On the other hand, if they were distributed proportionately among current holders of Treasury and corporate issues, the break-even point would be 35 percent. However, the latter assumes that all current owners of tax-exempt securities would shift to other tax shelters, such as real estate and leasing arrangements. This is unlikely to be the case. A more realistic assumption would be that some current holders of tax-exempt securities would shift to other tax shelters but that the remainder would invest in taxable securities. Thus, it seems most likely that the break-even point would fall between 35 and 45 percent.

The shift to other tax shelters might cause an increase in taxable and a decline in tax-exempt yields. As taxable yields rose, the Treasury's borrowing costs would rise, but its revenues would also increase as taxable interest income rose on private as well as Government securities. Moreover, as yields on tax shelters fell, foregone revenue by the Treasury would decline. It is possible that all of the municipal securities that became taxable would be purchased by tax-exempt organizations, such as pension funds or nonprofit organizations. However, so long as their share of investable funds did not increase, it would have little effect on net Treasury revenues, since they would merely be shifting from one type of taxable security to another.

is issued, the Treasury could issue some form of security to the state or local government that would carry a coupon equal to the subsidy.

Shift to short-term borrowing

The significantly lower yield ratio for short-term securities suggests that state and local governments could save substantial interest expense by shifting their borrowings toward the short end of the maturity spectrum. This would have the additional advantage of reducing supply and lowering yields in the long end of the market. Although there are some risks inherent in such a strategy, they could be limited through maintenance of contingency reserves and use of the futures market.

An approximation of the interest savings that such a shift would produce can be obtained by examining recent borrowing and interest rate figures. In 1981, state and local governments issued $46 billion of long-term securities at an estimated average rate of 10.6 percent and a maturity of twenty years. Consequently, these borrowers will pay nearly $5 billion per year in interest expense over the twenty-year life of the bonds. If they had been able to issue these same securities at the one-year rate of 7.9 percent, they would have saved $1¼ billion in interest expense during the first year. It would be neither feasible nor desirable to shift all long-term borrowing to the short-term; however, if a reasonable amount were shifted, a significant reduction of relative long-term yields might be achieved as well.

A shift to short-term borrowing would pose some risks for states and localities. One risk would be that the borrower might have difficulty rolling over the short-term debt, especially if it came due during a period of extreme tightness in the financial market or uneasiness over the borrower's political or economic situation. The rollover risk could be avoided by issuing bonds with a long-term maturity but with a variable coupon rate. The coupon rate could be tied to a short-term money market rate and adjusted periodically, similar to what is done with adjustable-rate mortgages. In this case, state and local issuers could probably expect to obtain part of the yield advantage on short-term municipal securities.

The use of variable-rate securities would still leave the borrower exposed to the risk of large changes in future interest costs. This could be handled, at least partially, in several ways. The simplest would be for the borrower to establish an interest-reserve fund for such contingencies. Alternatively, the borrower could use the futures market to hedge against near-term changes in interest rates, although the futures market would not allow a hedge further out than several years.

Restrictions on use of tax exemption

A third alternative would be to restrict tax-exempt financing to specific purposes or amounts. This would produce the favorable effects of limiting the supply of outstanding issues and lowering the long-term ratio of tax-exempt to taxable yields. It would also reduce borrowing costs on qualifying projects and restrain the growth of Federal revenue losses.

Currently, most revenue bonds involve little or no liability on the part of the general public, in terms of either general revenue being pledged or public property being mortgaged to guarantee debt-service payments. At the same time, the tax-exempt benefit is usually passed on to the user of the fund rather than retained by the issuer of the bond. Since states and localities normally incur little if any risk with revenue bonds, there is a tendency for local officials and the general public to view tax-exempt revenue bonds with indifference. It is often thought that revenue bonds allow the user of the funds to benefit at the expense of the U.S. Treasury.

Past tendencies to use tax-exempt financing to meet social needs have contributed to the present poor market conditions. Fifty years ago, tax-exempt bonds were used mainly to finance the traditional functions of state and local governments, such as schools, streets, and sewers. Beginning in the 1930s, the Congress allowed states to set up "authorities" and issue tax-exempt bonds to finance power systems and housing complexes. These are activities that were largely in the private sector previously but received public priority during the great depression. This concept was expanded in the 1950s and 1960s to include a wide range of economic activities, such as industrial development, hospital construction, pollution control, mortgage financing, and higher education. As a consequence, state and local debt multiplied more than tenfold from roughly $30 billion in the early 1950s to $390 billion at the end of 1981. Moreover, the share of revenue bonds rose from one fifth to two thirds of tax-exempt debt during the same period.

The rapidly rising cost of financing state and local debt has brought into question the appropriateness of continuing these policies. Many of these activities no longer have the same high public priority that they once did. Moreover, many of the benefits accrue to private individuals or select groups. Since this large volume of debt increases borrowing costs on general-purpose and high-priority debt, it may be in the mutual interest of the states and localities to restrict future supplies of lower priority revenue bonds. It might also be less costly for the Federal Government to subsidize high-priority projects with targeted assistance rather than with general tax exemption.

One possibility would be to reduce or to eliminate tax exemption for projects that have low social priority or that benefit mainly the private sector. This approach was followed when the Congress restricted the use of tax exemption for large industrial revenue bonds in 1968 and single-family mortgage bonds in 1980. Use of tax exemption for small industrial development bonds has also been widely criticized in recent years, since the benefits accrue largely to the private sector.

Another possibility would be to put dollar limits on the amount of tax-exempt bonds that any state or locality could issue. These caps could be based on population, economic need, or some other criteria. As an example, 1981 per-capita figures could be used as a starting point. Long-term borrowing by state and local governments in the country as a whole was $46 billion or approximately $195 per capita in 1981, while the total of long-term bonds outstanding at the end of the year was $370 billion or about $1,575 per person. If a national cap were established and then allocated on a state-by-state basis, each state could allocate the amount of tax-exempt bonds allowable according to self-established priorities. For example, New York might choose to use a relatively large part of its share for mass transportation and public housing, while Arizona might prefer to allocate a larger portion for water and power development.

Finally, it might be desirable to eliminate tax exemption for revenue bonds altogether but to retain it for general-obligation bonds. Currently, general-obligation bonds account for only one third of new municipal bond issues. However, this probably understates the amount of general-purpose borrowing. In recent years, there has been a tendency to replace general-obligation with revenue bonds. Often this is done to bypass the referendum process, which is usually required before general-obligation securities can be issued; it has also been done to maintain a state's or a locality's credit rating by limiting the amount of its general-obligation debt. In some cases, revenue bonds are even used to finance facilities that are clearly general purpose in nature, such as public school or municipal buildings. For example, after construction, the facilities may be owned by a separate authority and leased back to the school board of a city agency, with the lease payments pledged for making debt-service payments on the bonds.

At least some of the activities currently financed by revenue bonds would revert to general-obligation financing if tax exemption were eliminated for revenue bonds. Therefore, limiting tax exemption to general-obligation debt would still provide states and localities with adequate latitude to finance general-purpose activities. Moreover, the Federal Government could continue to subsidize high-priority, revenue-generating projects with direct aid rather than tax exemption.

Conclusion

The Federal subsidy to state and local government debt financing is much less effective than it could be. State and local debt-servicing costs and Federal revenue losses under the current structure of Federal tax exemption are large and increasing. More and more of the Federal tax-exemption subsidy is being gathered in by the purchasers of long-term municipal securities rather than the issuers.

The analysis in this article has attempted to highlight some of the important reasons for the limited effectiveness of the current subsidy. The supply of long-term tax-exempt securities is too large relative to the demand by those institutions and individuals that are in the maximum tax brackets. To market their debt, states and localities have to offer higher rates that then make it possible to attract funds from individuals and institutions in lower marginal tax brackets. Bonds issued in 1981 alone will cost state and local governments $1.1 billion more per year (about $22 billion cumulatively) than they would have cost if the ratio of tax-exempt to taxable yields had not been inflated by a combination of heavy supply and weak demand by high-tax-bracket investors. A considerable part of this $1.1 billion represents an unnecessary revenue loss to the Federal Government. In 1982, the situation has deteriorated even further. States and localities have issued much more long-term debt than ever before and changes in the tax laws have reduced marginal tax rates for practically all investors. Thus, the ratio of tax-exempt to taxable yields has risen to new heights.

If a significant part of the problem in the long-term tax-exempt market is an overload of new issues relative to the demand by investors in maximum tax brackets, then alternatives that would allow the market to shed some of that load would appear to be worth considering. Some of the load could be put onto the long-term taxable market through a taxable bond-direct subsidy option. Some could be put onto the short-term tax-exempt market, where yield ratios are now low. Finally, voluntary or Federally mandated restrictions on tax-exempt revenue bonds for low-priority projects could contribute to a better balance in the overall tax-exempt market as well.

David C. Beek

The Shifting Balance in the World Oil Market

The balance of forces in the world petroleum market has tilted in favor of the consuming countries. Recently both demand and supply changes have put downward pressure on oil prices. While the world recession has been an obvious factor behind the weakness of demand, the impressive energy savings of the big oil users are less widely appreciated. The rise in retail product prices was faster and more sustained following the second oil crisis than after the first price shock in 1974. Governments in the major countries took steps to promote conservation by raising taxes on oil consumption or by removing price controls. On top of these longer run factors, stocks of crude oil and petroleum products held in the industrial countries declined from their high levels reached in the wake of the oil market disruptions of 1979-80 and thus added to available supplies.

The squeeze on prices stemming from recession, conservation, and destocking was aggravated in recent months by increased sales into an already weak market from some Organization of Petroleum Exporting Countries (OPEC) members. Over the near term, the market is likely to remain soft. Excess capacity among OPEC producers is high. For many oil exporters, prospects of worsened payments positions are generating pressures to raise revenues through expanded sales.

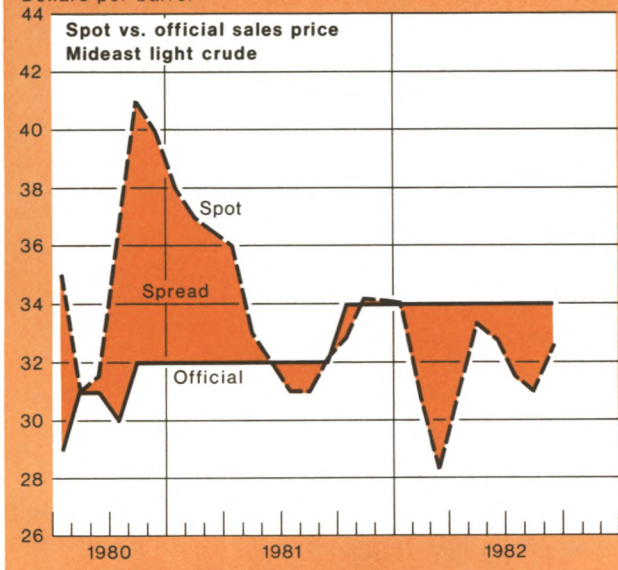
Recent market conditions

Oil prices began their retreat from heady levels late in 1980, as business activity in the industrial economies weakened and consumers pushed their efforts to conserve on petroleum use. By the middle of 1981 the spread that spot market oil commanded over OPEC official prices had disappeared (Chart 1). Despite this, OPEC members still saw an improvement in their terms of trade in 1981, as a rising dollar in the exchange markets more than offset slipping premiums on oil prices. This terms-of-trade strengthening, together with higher interest earnings on assets, helped oil exporters mitigate the payments effects of lower oil sales volumes.

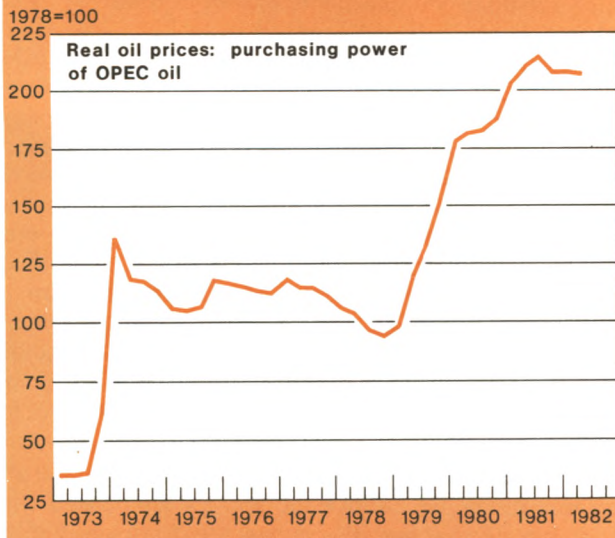
By the start of 1982, however, rundowns of oil stocks in the industrial nations added to the downward demand pressures of continuing recession and conservation. The slump in production and sales worsened, and large discounts appeared in the spot market. Faced with an oil market glut, OPEC ministers met in emergency session last March 19 and agreed to production limits with a ceiling on total OPEC output of 17.5 million barrels per day. Spot prices did firm in April and May but, to achieve these gains, producers led by Saudi Arabia had to keep output well below the ceiling levels. This success was short-lived. Some oil exporters facing payments problems began to increase oil sales to raise revenues. By June and July, OPEC output had reached the 18½ million barrels per day range, well above the agreed ceiling and over 2 million barrels per day above the April production level (Chart 2). With demand in the consuming states still weak, this surge in output kicked off renewed price slides. Spot market discounts in August approached the levels of early 1982 before firming a bit most recently, as Saudi Arabia again cut back production.

Chart 1

Market prices for petroleum have fallen sharply over the past two years . . .



. . . but oil exporters were spared a decline in their terms of trade because of the strength of the dollar in the foreign exchange markets.



Index represents the production-weighted average of dollar contract prices for OPEC oil, divided by a weighted average of wholesale prices in dollar terms (OPEC import share weights) for the seven major trading countries: United States, Germany, Japan, Canada, United Kingdom, France, and Italy.

Conservation: twice burned, finally shy?

Efforts to save on energy use have been an important factor behind the shifting balance in the petroleum market. Decreases in oil demand because of a weak economy or inventory declines are cyclical changes that will reverse as business recoveries unfold. Reductions of demand that stem from conservation in the use of oil, however, are a more lasting feature of adjustment. The energy savings (measured by the ratio of total consumption of petroleum products to real gross national product) in the industrial countries following the second oil shock are, therefore, a heartening sign (Chart 3). Such conservation gains also occurred after the OPEC price hikes in 1974, but the recent economies in petroleum use differ in two ways. First, they have come about in part because consuming-country governments were more willing this time to pass increased oil costs on to final users, particularly in the form of higher retail gasoline prices, than they were earlier (Chart 4). Second, recent conservation gains appear to be more widespread across consuming countries and of the same size or even slightly larger than previous energy savings, despite a smaller percentage OPEC price jump in 1979 than in 1974.

The mechanisms for passing higher oil costs onto consumers varied across countries. Still, a relatively quick response in retail oil prices was true for all the major countries, both those having a basically free market approach and those having price controls on petroleum products. The United States accelerated the pace of oil price decontrol, freeing prices completely by early 1981. France and Italy use a system of administered petroleum prices, but these were raised faster in the period following the second oil price rise than after the earlier shock. In Canada, the National Energy Policy of 1981 permits "new" oil prices to rise quickly in line with market prices. Japan still has administered price ceilings, but there is an effort to phase these out.

Some countries reinforced the rise in market prices with tax increases on petroleum use, notably in transportation (Chart 5). Taxes are a large part of the final price of gasoline in European countries. And these countries generally raised gasoline taxes more forcefully since 1979 than they did after the first OPEC price rise. Tax increases were most evident in the United Kingdom and in Italy, which has one of the highest gasoline user taxes in the world. On the other hand, in the United States, the largest oil consumer, gasoline taxes have not changed and have declined sharply as a proportion of final price.

Price incentives to conserve on gasoline use have been supplemented by tightened fuel-efficiency stan-

dards for automobiles. These standards are mandatory in the United States and Japan, while voluntary guidelines are in place in Canada, Germany, and the United Kingdom.

The outlook

The recent actions of governments to pass higher oil costs through to motorists mark an important change in conservation efforts. But adjustments to the OPEC challenge encompass more than savings on oil use in transport. Most countries have financial incentives or quantitative standards to promote the insulation of buildings, fuel switching, and the development of alternative energy sources. These efforts to conserve on oil use and to encourage new energy sources will work to restrain world oil prices in the early stages of economic recovery.

In the near term, supply conditions will tilt in the same direction. Excess capacity among oil producers is large enough to absorb most of the likely supply disruptions. For example, idle capacity for OPEC producers outside the Gulf area exceeds 3 million barrels per day. That amount basically covers the current output of Iran and Iraq, where continuing warfare raises a constant threat of upsetting oil industry operations. Furthermore, the worsening payments positions of most oil exporters, both within and outside OPEC, will spur sales of crude as a quick way to raise cash. The recent advance purchase of Mexican oil for the United States Strategic Petroleum Reserve highlights this point.

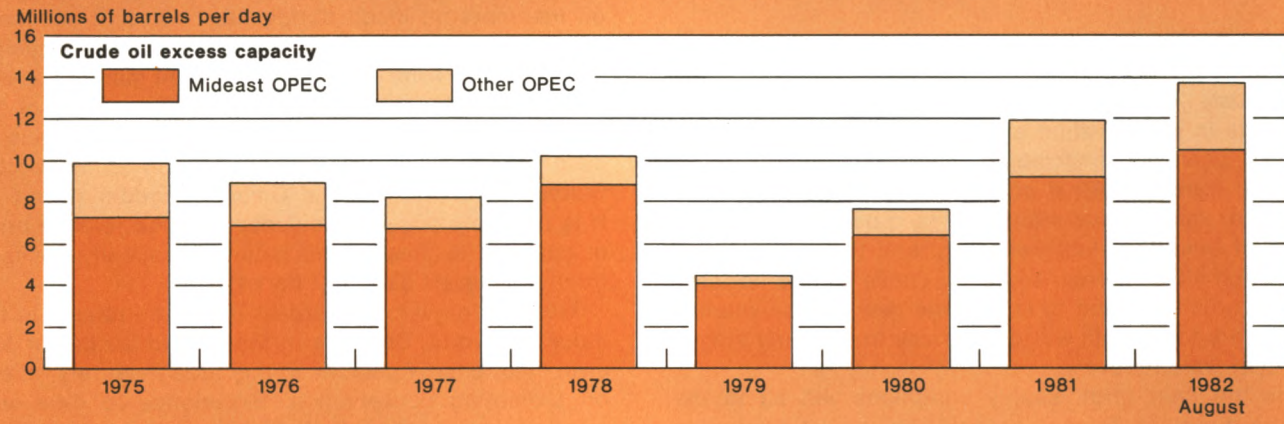
But the success of adjustments to expensive oil cannot be correctly judged by the state of the market near the trough of an international recession. The big jumps in oil prices in late 1973 and 1979 happened at points near the peaks of world economic activity. To minimize the chances of yet another shock, still more savings in oil use must be made during the course of economic recovery. While the medium-term outlook is promising, success is far from assured; the current market balance can hardly be considered a permanent feature of the world oil market. In fact, conservation gains seem to have slowed down or leveled off lately in the United States, Germany, and the United Kingdom (Chart 3). It is probably not a coincidence that the relative price of gasoline in these same countries recently declined from peak levels as well (Chart 4).

Transportation is the largest use of petroleum in the industrial world. Because of the limited scope for fuel switching, energy policies in this area must rely chiefly on promoting conservation. Experience to date with price incentives and fuel-efficiency standards shows that conservation can bite in the transport sector. And more savings are in store as the large stock of older, less fuel-efficient cars is replaced by newer models. However, a good portion of the hard-won gains in oil usage could be lost if cyclical declines in world oil prices are passed on too quickly to the retail level, setting the stage for a swing back in oil market balance later when the industrial economies are more fully utilized. This possibility argues for serious consideration of more policy efforts by consuming-country governments—in particular, increased gasoline taxes by low-tax countries and mandatory fuel-efficiency standards by countries that now lack them.

Edward J. Frydl and William A. Dellalfar

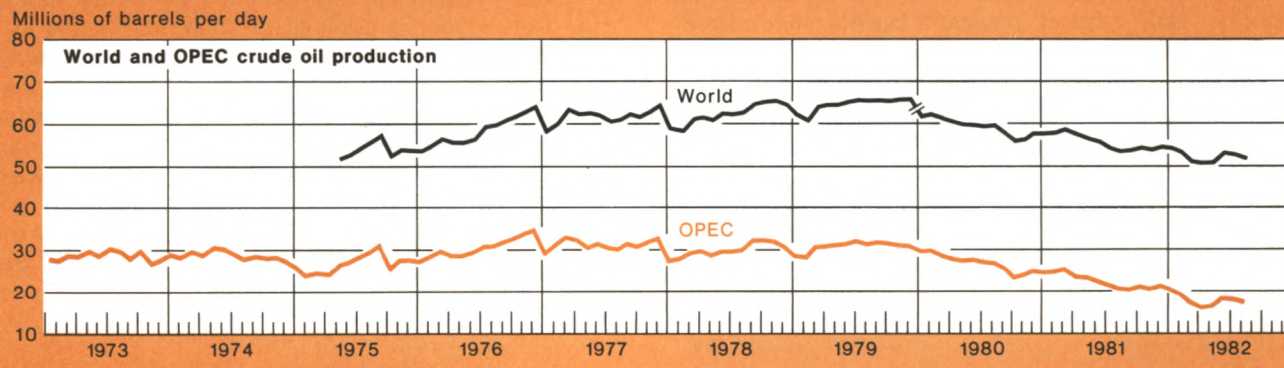
Chart 2

Excess capacity among OPEC producers has grown considerably, however . . .



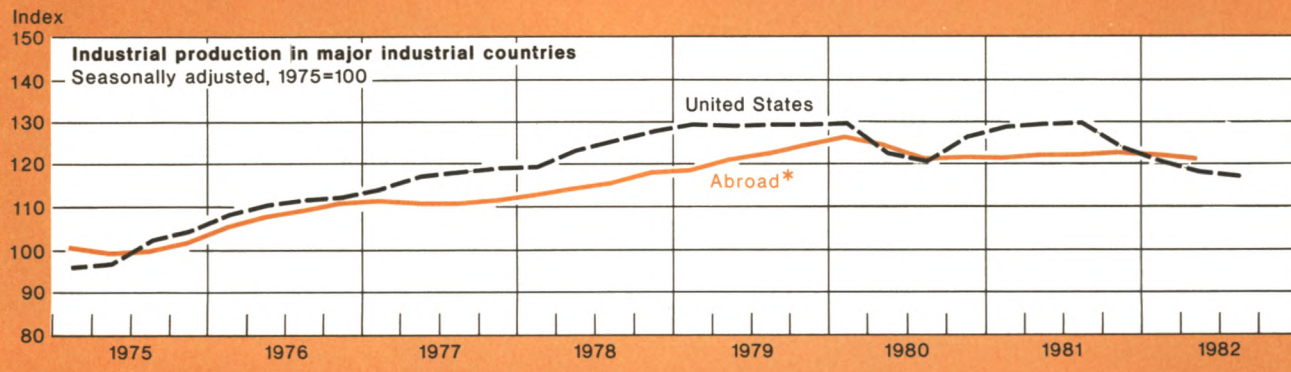
Source: Petroleum Intelligence Weekly.

. . . as worldwide demand for petroleum has fallen.



Sources: Petroleum Economist; Petroleum Intelligence Weekly.

The recession in the industrial world has, of course, been a factor behind the weakness of demand in the oil market . . .



*Weighted average for Canada, France, Germany, Italy, Japan, and the United Kingdom.

Chart 3

Oil Consumption in Industrial Countries, 1973-82

Ratio of total consumption of petroleum products to real GNP or GDP; four-quarter moving averages

. . . but conservation has also played an important role. All the major industrial economies show impressive savings in petroleum use since the 1979 oil crisis. In some countries, however--the United States, Germany, and the United Kingdom, in particular--conservation gains appear to have leveled off recently . . .

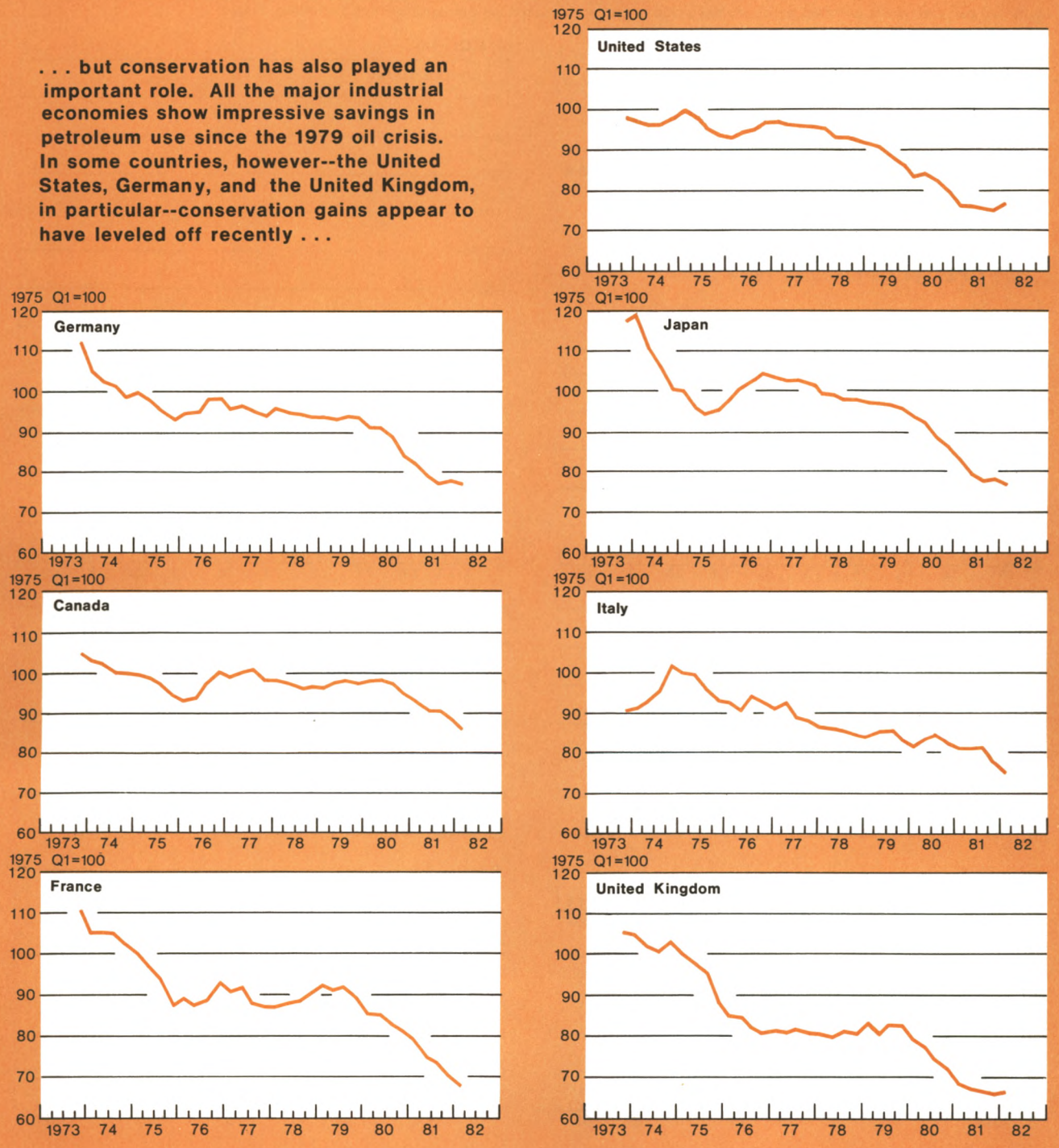


Chart 4

Real Retail Price of Gasoline in Industrial Countries

Retail gasoline price deflated by consumer price index; not seasonally adjusted except for United States

. . . In these same countries, real gasoline prices have recently come down from their peak levels. Nevertheless, after the second oil shock, governments in the consuming countries did not shelter motorists from higher oil costs as they did following the OPEC price hikes in 1974 . . .

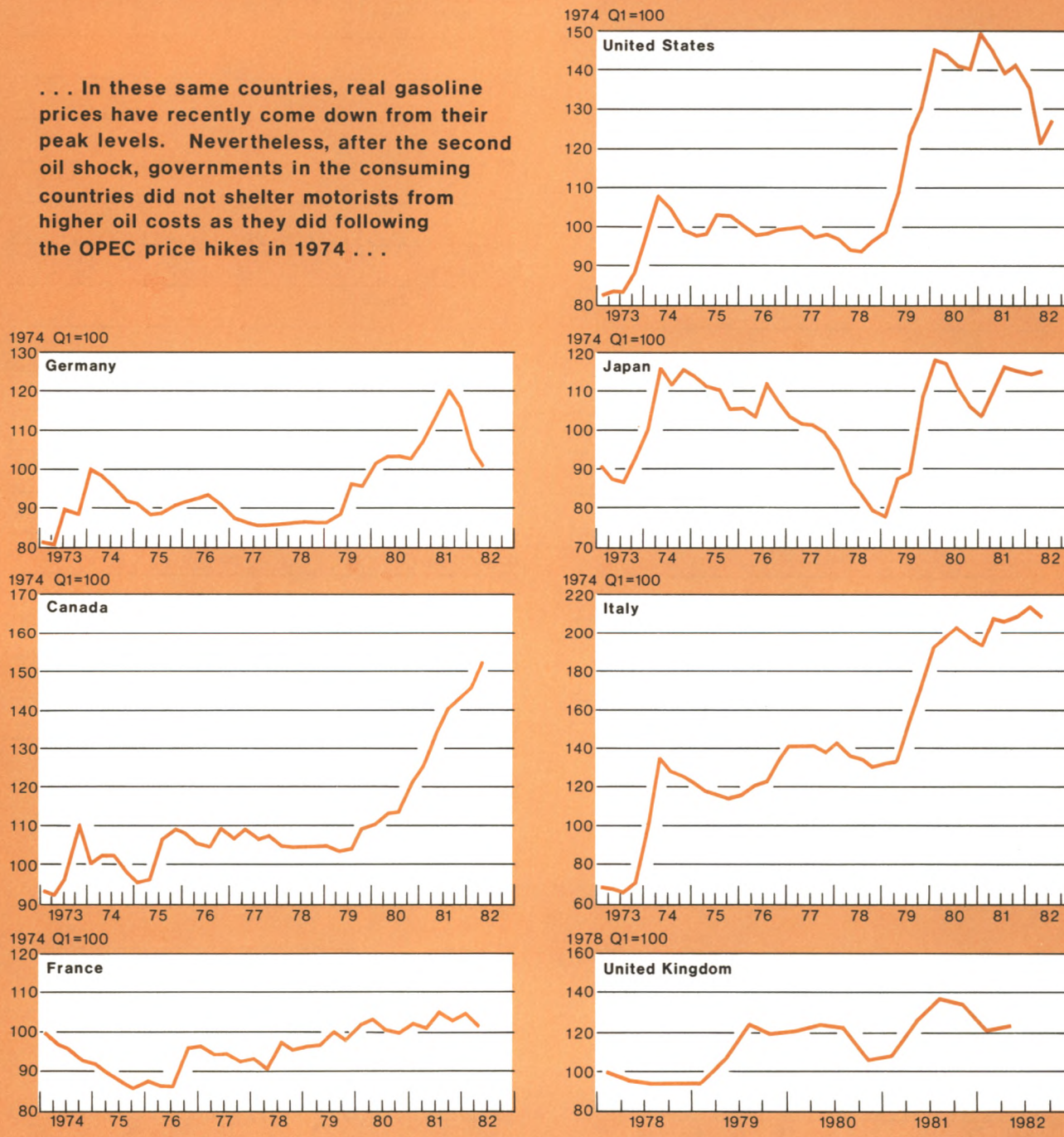


Chart 5

Retail Gasoline Prices and Taxes in Industrial Countries

In domestic currency units per gallon; shaded area represents tax component of price

. . . In fact, a number of countries have significantly raised the tax component of retail gasoline prices, a step that they generally did not take after the first oil shock. In the United States, the increase in gasoline prices represents the elimination of price controls rather than higher sales taxes.

Note: Prices in each year are for the month of July, unless otherwise noted.

Sources: Department of Energy and national sources.

Employment Growth in New York and New Jersey
The Effects of Suburbanization

In New York and New Jersey, as well as in many other states across the country, comparisons of aggregate economic growth have been used as indicators of states' competitive positions relative to one another. Those states in which economic growth has been rapid are believed to have held a competitive edge as a result of lower wages, taxes, and regulatory requirements.[1] In contrast, states with less vigorous economies are thought to have had high costs, causing a competitive disadvantage.

This logic, plus a simple reading of the data, has led many observers to conclude that New Jersey has offered an economic environment generally more hospitable than New York. Over the past three decades, total employment in New Jersey expanded much faster than in New York during periods of both prosperity and decline. For the whole thirty-year period from 1950 to 1980, total nonagricultural employment grew 85 percent in New Jersey but rose only 29 percent in New York (Table 1). During the 1950s, New Jersey's employment growth was double that of New York. Employment gains increased in both states during the 1960s, but New Jersey's expansion remained twice as large as New York's. In the 1970s, employment growth slowed in both states; New York hardly gained any jobs, while employment in New Jersey expanded by only 17 percent.

The trouble with using comparisons of aggregate growth to assess states' relative competitive positions, however, is that this approach ignores nationwide phenomena that could themselves cause substantial disparities in states' economic growth rates. In New York and New Jersey, a key factor was the suburbanization of economic activity, a process that has been occurring throughout the nation over the past three decades. This redistribution of economic activity from central cities to suburban areas has had a very different effect on economic expansion in each of these states and accounts for the disparity in their growth. When the differential effects of suburbanization are removed by disaggregating growth on a geographic basis, comparisons between similar types of areas in the two states do not reveal any differences in growth that would indicate an overall competitive edge for New Jersey.[2]

[1] Although these items have received a great deal of attention in the literature, economists have not reached a consensus on how important such factors are in determining a state's economic growth. For extended discussions of the issues involved, see Michael Kieschnick, *Taxes and Growth: Business Incentives and Economic Development* (Washington, D.C.: Council of State Planning Agencies, 1981), and Richard K. Vedder, *State and Local Economic Development Strategy: A "Supply Side" Perspective* (Washington, D.C.: U.S. Government Printing Office, 1981).

[2] Another national trend that has been mentioned as a source of differences in growth rates is the shift from a goods-producing to a service-oriented economy. The impact of this shift depends on the mix of industries in each state. This national trend, however, has had little impact on the relative rates of aggregate employment growth in New York and New Jersey.

Comparing New York City suburbs in the two states

One comparison that allows for the effects of suburbanization is between the New York and New Jersey suburbs of New York City. For the past three decades, economic activity in the New York City region, as well as in the rest of the nation, has been shifting to suburban areas. Many factors, including improved transportation, better communications, less expensive land, and greater availability of labor, stimulated the redistribution of employment to the suburbs.

Since New York City is situated along the border of the two states, suburban areas of New York and New Jersey competed with one another during this suburbanization process. If New Jersey offered any overall economic advantages, as suggested by statewide growth, New Jersey would be expected to have attracted a disproportionately large share of the economic expansion in the suburban areas around New York City. On the other hand, if there were no competitive differences, employment in suburban areas in all directions from New York City—*i.e.*, in suburban areas of both New York and New Jersey—would be expected to have grown at approximately equal rates.

An examination of growth rates in the suburbs around New York City does not support the view that New Jersey has had a competitive edge.[3] Within the New York City metropolitan region, as defined by the eighteen-county New York-Northeastern New Jersey Standard Consolidated Area (SCA), the New York suburbs actually grew slightly faster than the New Jersey suburbs.[4] Between 1960 and 1980, employment in the New York portion of the SCA excluding New York City jumped 89 percent, compared with a 78 percent gain in the New Jersey portion excluding the major New Jersey cities in the SCA which were losing jobs (Table 2).[5] During the 1960s, the growth of the New York City suburbs in New York State was 53 percent whereas the New York City suburbs located in New Jersey grew 43 percent. In the 1970s, the growth rates in the suburbs of the two states were practically equal, 24 percent in New York and 25 percent in New Jersey.[6]

[3] This analysis is based on employment data. Population data present a similar picture. See the box.

[4] According to the Bureau of Labor Statistics (U.S. Department of Labor) definition, the SCA contains the New York counties of the Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, and Westchester, and the New Jersey counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, and Union.

[5] The major New Jersey cities in the SCA—Elizabeth, Jersey City, Newark, and Paterson—are excluded because they suffered, rather than benefited, from suburbanization. Their omission tends to favor New Jersey in this comparison, since the New Jersey suburbs were attracting employment from these cities as well as from New York City.

[6] Both the New York and New Jersey growth rates are based on establishment data but rely on data sources which differ slightly in coverage. The New York data are total nonagricultural employment. The New Jersey data are private employment covered under the Federal Insurance Compensation Act (FICA).

Table 1

Employment Growth in New Jersey and New York, 1950-80

Percentage change from beginning to end of decade

	Percentage change in nonagricultural employment				
Area	1950-60	1960-70	1970-80	Total 1950-70	Total 1950-80
New Jersey	22	29	17	57	85
New York	11	16	1	28	29
Six largest cities:					
New Jersey	−11	− 8	*	−18	*
New York	0	− 4	*	− 4	*
Rest of state:					
New Jersey	33	31	*	75	*
New York	38	28	*	77	*

* Not available.

Sources: Statewide growth is based on location of the employer. The sources are the establishment surveys of the U.S. Department of Labor, Bureau of Labor Statistics. Since establishment data are not available for New York's cities, growth of the six largest cities and the rest of each state is based on residence of the employee. The sources are the decennial *Census of Population and Housing* of the U.S. Department of Commerce, Bureau of the Census. Employment data from the 1980 Census are not yet available.

Table 2

Employment Growth in the New York-Northeastern New Jersey Standard Consolidated Area, 1960-80

Percentage change from beginning to end of decade

Area	Percentage change in nonagricultural employment 1960-70	1970-80	Total 1960-80
New York-Northeastern New Jersey Standard Consolidated Area (SCA)	17	0	17
New York portion excluding New York City	53	24	89
New Jersey portion excluding major cities*	43	25	78

* Elizabeth, Jersey City, Newark, and Paterson.

Sources: SCA and New York data are total nonagricultural employment based on establishment data. The source is the U.S. Department of Labor, Bureau of Labor Statistics. New Jersey data are private employment covered by the Federal Insurance Compensation Act (FICA), based on establishment surveys. The source is the State of New Jersey, Department of Labor.

Employment growth inside and outside the major cities of New York and New Jersey

The economic performance of the major cities within both New York and New Jersey has been much worse than that of the rest of each state. Reflecting the national redistribution of economic activity from central cities to suburban areas, the major cities in both states have suffered employment declines since 1950, while outside the cities the number of jobs has soared.[7]

Looking at the major cities alone, New York actually fared somewhat better than New Jersey between 1950 and 1970. (Comparable data from the 1980 Census are not yet available.) The six largest cities in New York lost only 4 percent of their employment between 1950 and 1970, while the six in New Jersey shrank 18 percent (Table 1).[8] In the 1950s, employment was virtually unchanged in New York's cities but declined 11 percent in New Jersey's cities. During the 1960s, New York's cities also lost jobs, but the 4 percent employment decline was only half the drop in New Jersey's cities.

Outside the major cities, employment gains were roughly equivalent in the two states between 1950 and 1970, 77 percent in New York versus 75 percent in New Jersey (Table 1). New York led New Jersey somewhat during the 1950s but trailed slightly during the 1960s.

The data for the 1970s, though incomplete, also fail to indicate a definitive edge for New Jersey. No employment data are yet available for individual cities in New York State other than for New York City.[9] Nevertheless, judging by what little evidence there is, the cities in New York State seem to have fared considerably better than those in New Jersey over the decade. New York City's loss of 12 percent between 1970 and 1980 was less than the decline of 25 percent in New Jersey's cities. The five other major New York cities would have had to lose over 90 percent of their employment during this period for the aggregate drop in the six New York cities to have matched the decline in the major cities of New Jersey. On the other hand, New Jersey appears to have grown markedly faster than New York outside the cities. Employment in New Jersey excluding the six largest cities expanded 33 percent, compared with a 15 percent increase in New York excluding New York City.

Why suburbanization caused the disparity in aggregate growth

With similar types of areas growing at roughly equal rates for much of the past thirty years, the question remains why aggregate growth for New York and New Jersey diverged so sharply. The explanation appears to lie in the region's geography, which caused the suburbanization of economic activity to have very different overall impacts on the two states.

As an integrated economic region, the development of downstate New York and northern New Jersey centered around New York City. With New York City alone accounting for about half of New York State's employment, 67 percent of the state's jobs was concentrated in its six largest cities in 1950. In contrast, New Jersey contained substantial parts of two large metropolitan areas whose dominant central cities lay just outside the state, namely, New York City and Philadelphia. This geographic configuration lowered the proportion of New Jersey's economic activity located in its major cities. In 1950, only 27 percent of New Jersey's employment was in its six largest cities.

[7] Major cities are defined as those with populations exceeding 100,000 in 1970, of which there are six in each state. The six in New York are Albany, Buffalo, New York City, Rochester, Syracuse, and Yonkers. The six in New Jersey are Camden, Elizabeth, Jersey City, Newark, Paterson, and Trenton.

[8] Employment within and outside each state's major cities are from the U.S. Department of Commerce, Bureau of the Census, *Census of Population and Housing* (1950, 1960, and 1970) and are based on residence of the employee.

[9] The data on New Jersey cities are available from the New Jersey Department of Labor which reports local private employment based on FICA records. The New York State Department of Labor does not provide comparable data.

Population Gains Parallel the Patterns of Employment Growth

Population data provide another measure of growth in New York and New Jersey. Population and employment growth are interdependent, with households migrating in pursuit of job opportunities and employment rising to service the needs of an expanding population.

The patterns of population growth in New York and New Jersey over the past three decades closely resemble those of employment growth. At the statewide level, New Jersey outpaced New York (Table 3). The former state's total population jumped 52 percent between 1950 and 1980, while New York's grew 18 percent. During the 1950s and 1960s, New Jersey's population expanded twice as fast as that of New York. In the 1970s, New Jersey population growth slowed to a 2 percent increase for the decade as a whole, while New York lost 4 percent of its population.

A comparison of suburban growth around New York City, however, exhibited the opposite pattern with the better performance on the New York side of the border (Table 4). Between 1950 and 1980, the population of the New York portion of the New York-Northeastern New Jersey Standard Consolidated Area (SCA) excluding New York City expanded 126 percent, compared with a 53 percent increase in the New Jersey portion excluding the major cities.* In the 1950s, New York's gains were more than double those of New Jersey, and a wide gap remained in the 1960s. New York's edge was much smaller in the 1970s, when its suburbs in the SCA grew 2 percent, while the New Jersey suburbs lost 2 percent of their residents.

As with employment, the cities lost substantial numbers of their residents while the population in the rest of each state soared (Table 3). But for the 1950-to-1980 period as a whole, as well as during each decade, New York's cities retained their population better. The cities' declines over the three decades were 13 percent in New York and 22 percent in New Jersey. Outside the cities, population gains were similar in the two states between 1950 and 1980, with New York growing 71 percent and New Jersey growing 77 percent.

* These cities are Elizabeth, Jersey City, Newark, and Paterson. See also footnote 5 in text.

Table 3

Population Growth in New Jersey and New York, 1950-80

Percentage change from beginning to end of decade

	Percentage change in population			
Area	1950-60	1960-70	1970-80	Total 1950-80
New Jersey	26	18	2	52
New York	13	9	— 4	18
Six largest cities:				
New Jersey*	— 6	— 5	—12	—22
New York†	— 2	0	—11	—13
Rest of state:				
New Jersey	37	24	5	77
New York	38	19	4	71

* Includes all cities with populations exceeding 100,000 in 1970: Camden, Elizabeth, Jersey City, Newark, Paterson, and Trenton.

† Includes all cities with populations exceeding 100,000 in 1970: Albany, Buffalo, New York City, Rochester, Syracuse, and Yonkers.

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Population and Housing* (1950, 1960, 1970, 1980).

Table 4

Population Growth in the New York-Northeastern New Jersey Standard Consolidated Area, 1950-80

Percentage change from beginning to end of decade

	Percentage change in population			
Area	1950-60	1960-70	1970-80	Total 1950-80
SCA	14	10	— 6	18
New York portion excluding New York City	75	27	2	126
New Jersey portion excluding major cities*	32	18	— 2	53

* Elizabeth, Jersey City, Newark, and Paterson.

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Population and Housing* (1950, 1960, 1970, 1980).

The redistribution of economic activity from central cities to suburban areas therefore hit New York particularly hard. Since the cities contained such a large proportion of New York's jobs, their losses severely depressed that state's overall employment gains, even though their rate of decline was somewhat less than that of New Jersey's cities. The location of New York's largest city along the two states' border compounded the impact of the redistribution. A sizable part of the economic activity shifting out of New York City moved to New Jersey simply because of that state's proximity, depressing New York State's overall employment gains further.

New Jersey was in an opposite position and consequently fared rather well during the redistribution to suburban areas. Since the bulk of New Jersey's employment was located outside its cities, the cities' losses did not pull down its aggregate growth rate to a great extent. And the suburbanization of economic activity across state lines—from New York City in the north and from Philadelphia and, to a lesser degree, Wilmington and Allentown-Easton in the south—inflated New Jersey's employment gains.

Conclusion

When employment data in New York and New Jersey are disaggregated to control for the effects of suburbanization, a comparison of growth rates reveals a pattern very different from the wide gap in overall job gains. In the New York City metropolitan area, the New York suburbs grew more rapidly than the New Jersey suburbs over the past two decades. New York's major cities performed better than New Jersey's, and growth outside the cities was roughly equivalent in the two states for the bulk of the 1950-to-1980 period. New York's slower aggregate employment growth could indeed have resulted simply because the national redistribution of economic activity from the cities to suburban areas had such an adverse impact on the state.

Thus, New Jersey's greater aggregate employment gains since 1950 do not provide sufficient evidence to conclude that New Jersey has possessed a net competitive advantage over New York. Moreover, while the analysis in no way refutes the contention that the overall business climate or individual factors, such as taxes, have significantly influenced the economic growth rates in the two states, it raises serious questions about the use of aggregate growth differentials to support that proposition. For New York and New Jersey, substantial differences in economic environments may have existed, but the disparity between their overall growth rates cannot clearly be attributed to such differences.

William W. Greer

February-July 1982 Semiannual Report
(This report was released to the Congress and to the press on September 15, 1982.)

Treasury and Federal Reserve Foreign Exchange Operations

The dollar was generally strong during the February through July period of this review. It climbed irregularly through the first half of the year, reaching by early July levels against several currencies not seen in many years. Although the dollar eased back from its highs during the last weeks of July, it closed on balance between 4 and 16 percent higher against major foreign currencies.

For much of the period, market participants focused on monetary policy developments here and abroad, though the movement of interest rate differentials had less impact on dollar exchange rates than in many earlier periods. In the United States, money growth was strong even as the economy contracted and an unexpectedly large bulge in the monetary aggregates in January pushed M-1 growth above its targeted range. Market participants anticipated that the Federal Reserve would tighten up on the availability of banks' reserves, thereby restraining the growth of money and credit even though concern was mounting over recession in the United States. Also, the prospect of continued large U.S. fiscal deficits, even after the economy was projected to emerge from recession, put pressures on the financial markets. Abroad, monetary authorities faced even more prolonged weakness of their domestic economies than experienced in the United States as well as persistent inflationary pressures and structurally large fiscal deficits. Pressures to stimulate demand and to lower record or near-record rates of unemployment were intense. Expectations developed in the market that foreign authorities not only would be reluctant to raise their interest rates but would also take advantage of opportunities to relax their financial policies, at least in some measure.

In general, interest rate developments tended to confirm these expectations through the first half of the year. With the Federal Reserve restraining the growth of bank reserves, short-term U.S. interest rates were bid up sharply in March and again in June in anticipation of a renewed expansion in the monetary aggregates. When dollar interest rates rose, interest rates for assets denominated in other currencies barely increased. On those occasions when the demand for money and credit subsided and U.S. interest rates eased, such as in late February and late April-early May, interest rates abroad also tended to soften and some foreign central banks reduced official lending rates. Moreover, in view of improvements in inflation and balance-of-payments performances, some countries, notably Germany and the Netherlands, were prepared at times to see a lowering in their domestic interest rates even without comparable declines in U.S. interest rates. As a result, there was a tendency through June for actual and expected interest rate differentials favoring the dollar to widen when U.S. interest rates moved higher by more than the differentials narrowed when U.S. rates moved lower.

A report by Sam Y. Cross. Mr. Cross is Executive Vice President in charge of the Foreign Group of the Federal Reserve Bank of New York and Manager of Foreign Operations for the System Open Market Account.

Table 1

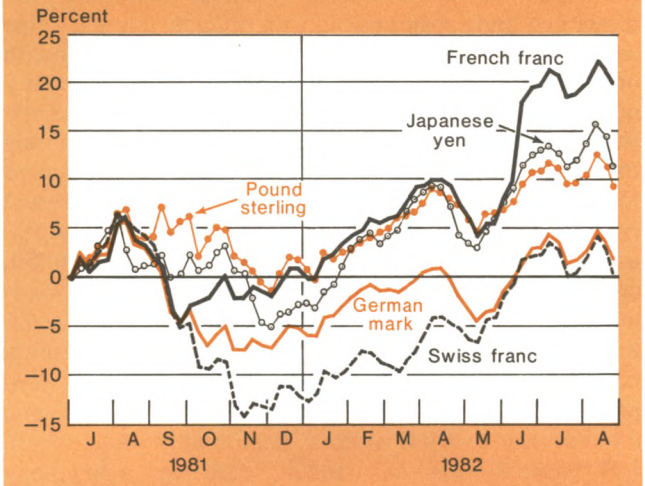
Federal Reserve Reciprocal Currency Arrangements

In millions of dollars

Institution	Amount of facility July 31, 1982
Austrian National Bank	250
National Bank of Belgium	1,000
Bank of Canada	2,000
National Bank of Denmark	250
Bank of England	3,000
Bank of France	2,000
German Federal Bank	6,000
Bank of Italy	3,000
Bank of Japan	5,000
Bank of Mexico	700
Netherlands Bank	500
Bank of Norway	250
Bank of Sweden	300
Swiss National Bank	4,000
Bank for International Settlements:	
Swiss francs-dollars	600
Other authorized European currencies-dollars	1,250
Total	30,100

Chart 1

The Dollar Against Selected Foreign Currencies



Percentage change of weekly average bid rates for dollars from the average rate for the week of June 29-July 3, 1981. Figures calculated from New York noon quotations.

Meanwhile, several other factors supported the demand for dollars. Underpinning the dollar was growing evidence that inflation was receding in the United States. To be sure, market participants had concerns about the stance of fiscal policy, including fears that pressures would arise on the Federal Reserve to relax monetary policy prematurely and thereby dissipate the hard-won gains in the anti-inflation fight. But, for the time being, market participants were generally impressed by the commitment to reduce the role of government in the private sector, by the steadfastness of the U.S. monetary authorities in sticking with restrictive policies, and by the results achieved so far. Wage settlements proved surprisingly moderate, with some unions accepting pay cuts to prevent or cushion declines in employment, and many union settlements actually suspended or otherwise modified even the principle of cost-of-living increases. Forecasters anticipated that, even if food and energy prices were to increase again, the overall U.S. inflation rate would decelerate substantially for the year as a whole. Inflation in this country was therefore moving well below that of most U.S. trading partners and was rapidly converging toward the performance of traditionally "low inflation" countries, such as Germany, Japan, and Switzerland.

Also, the deepening international recession, an abrupt stagnation in the volume of world trade, and a buildup of pressures for protectionist measures affected the United States less adversely than many other countries. Confounding expectations of a swing into deficit, this country's current account remained in surplus. Import volumes, particularly of crude oil, declined sharply in response to the recession in the economy and continued reaction to previous oil price increases, while agricultural exports and the performance of services, most notably net investment income earnings, remained strong. Also, a softening of most commodities prices and the strengthening of the dollar led to an improvement in the terms of trade which helped hold down the total cost of imports. At the same time, further improvements in the current accounts of Germany and Japan were stalled by the weakening global demand for manufactured goods, as well as the slowdown of previously buoyant markets in Asia and in Organization of Petroleum Exporting Countries (OPEC) member states. Indeed, the more pessimistic outlook for growth of world trade heightened competitive pressures particularly for those countries in which trade is a major component of gross national product (GNP).

In addition, the United States continued to prove attractive to foreign investors. For one thing, economic policies of the United States embodied a clear anti-regulatory posture and a strong commitment to private

enterprise which, combined with a relatively flexible structure of management-worker relations, served as an inducement to foreign direct investment in the United States. The domestic political and economic climate in many other parts of the world, including continental Europe and Canada, was often more uncertain for business and financial investment. In the first six months of 1982, foreign direct investment in the United States continued to exceed U.S. direct investment abroad. For another, the United States increasingly came to be viewed as a safe haven for investors seeking outlets for funds at a time of mounting international insecurity. Instability in Eastern Europe and open hostilities in the Middle East were thought to have more serious economic and political implications for many countries abroad than for the United States. These international tensions posed difficult policy issues for authorities already grappling with divisive domestic problems, underlining in the market's view the difficulties foreign leaders confronted in dealing with the numerous challenges before them. These uncertainties therefore prompted sizable net flows of long-term portfolio capital into the United States that, to some extent, had their counterpart in outflows from Germany and Japan.

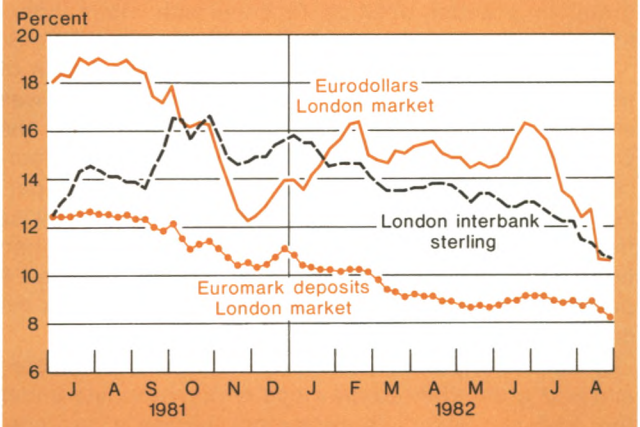
Several of the factors underpinning the dollar coalesced in early June. Hostilities in Lebanon intensified, other developments in the Middle East were temporarily unsettling, the financial markets in the United States were wary of a renewed bulge in the monetary aggregates, and market speculation built up that competitive pressures would soon force a realignment of the European Monetary System (EMS). In the event, the EMS was realigned over the June 12-13 weekend, following an earlier adjustment of parities in February. This time-intense bidding pushed the dollar up, not only against the currencies that had been devalued German mark which had just been revalued and against in the joint float, but also and unexpectedly against the non-EMS currencies as well. With the dollar rising sharply in unsettled markets, the U.S. authorities intervened on June 14 in an effort to restore orderly trading conditions. Operating through the Trading Desk, they bought $21 million equivalent of German marks and $9 million equivalent of Japanese yen. This operation provided resistance to the rapid run-up in dollar rates and helped restore more orderly trading conditions.

In July dollar interest rates dropped sharply. The domestic economy was proving far weaker than expected, with worrisome declines in production and increases in unemployment. Though corporate balance sheets remained generally strained by the burden of short-term debt, overall credit demands slackened in response to the continuing stagnation in demand and

Chart 2

Selected Interest Rates

Three-month maturities*



*Weekly averages of daily rates.

output. Moreover, the growth of the monetary aggregates, for the first time in 1982, slowed sufficiently to bring M-1 into target range and, with short-term interest rates softening, the Federal Reserve twice announced cuts in its discount rate of ½ percentage point from 12 to 11 percent by end-July. Abroad, interest rates did not decline by nearly as much. The process of winding down inflationary pressures had stalled. Although economic conditions generally had deteriorated further as the recession deepened, only in a few countries such as Great Britain and France did the authorities continue the earlier trend toward an easing of monetary policy, and short-term interest rates in most foreign industrial countries were either unchanged or moved somewhat higher. Thus, interest rate differentials narrowed dramatically, for example, from 7½ to 4 percentage points *vis-à-vis* the German mark and from 9½ to 5¾ percentage points against the Japanese yen.

The dollar weakened only slightly, however. Market participants recognized that there continued to be important reasons other than interest rates for buying and holding dollars. In addition, by this time market participants were shoring up their liquidity positions in dollars as a precaution against any funding difficulties that might arise in the wake of the deteriorating financial positions of major private and public-sector borrowers. Some problems had arisen affecting U.S. banks and other financial concerns, as in the cases of Drysdale Securities and Penn Square Bank, as well as private institutions abroad. Still other difficulties re-

lated to the sovereign debts of various countries including major borrowers in Eastern Europe and Latin America. Among market participants the feeling prevailed that, while individual U.S. institutions were vulnerable to serious financial strains, they were as a group in a better position to cope with international financial pressures than nondollar-based institutions.

By end-July the dollar was off the highest levels of the period. Compared with end-January levels, it was still about 4½ percent higher on balance against the Canadian dollar and the German mark, nearly 7 percent higher against pound sterling, and about 11 percent higher against the Japanese yen and the Swiss franc. Against the currencies within the EMS that had been devalued, the dollar rose on balance between 9 percent and 16 percent. On a trade-weighted basis the dollar rose nearly 10 percent.

During the period, the Bank of Mexico requested and was granted three drawings on its swap line under the Federal Reserve's reciprocal currency arrangements. The drawings were made at end-April, end-June, and end-July, each for one-day maturity.

On May 12 and July 26 the U.S. Treasury redeemed further maturing German mark-denominated securities equivalent to $1,011.6 million. After these redemptions, the Treasury had outstanding $3,069.1 million equivalent of the foreign currency notes, public series, which had been issued in the German and Swiss markets with the cooperation of the respective authorities in connection with the dollar-support program of November 1978. Of the notes outstanding as of July 31, 1982, a total of $2,610.6 million was denominated in German marks and $458.5 million was denominated in Swiss francs. The maturity dates for those securities range between September 1, 1982 and July 26, 1983.

In the seven months through July 1982, the Federal Reserve had no gains or losses on its foreign currency transactions. The Exchange Stabilization Fund (ESF) gained $15.7 million net in connection with sales of foreign currencies to the Treasury general account which the Treasury used to finance interest and principal payments on foreign currency-denominated securities. The Treasury general account gained $133.1 million net, reflecting $137.3 million of profits on the redemption of German mark-denominated securities partially offset by $4.2 million of losses as a result of annual renewals at current market rates of the agreement to warehouse with the Federal Reserve Swiss-franc proceeds of Treasury securities. As of July 31, 1982, valuation losses on outstanding balances were $617.4 million for the Federal Reserve and $1,382.2 million for the ESF. The Treasury general account had valuation gains of $722.2 million related to outstanding issues of securities denominated in foreign currencies.

German mark

By late 1981-early 1982 Germany's economic situation had improved in major respects. Germany's export sector was enjoying boom conditions aided by improved competitiveness, which partly reflected the mark's prolonged depreciation against the dollar, and by exceptional buoyancy in OPEC markets. Meanwhile, import demand was sluggish, reflecting stagnation in the domestic economy. This combination generated a surplus in the current account in the fourth quarter of 1981 and, for the year as a whole, produced a dramatic narrowing of the deficit from DM 30 billion to DM 17 billion. Inflation, after peaking at an annual rate of 6.7 percent in October 1981, slowed markedly in response to softer international commodities prices, a flattening-out of unit labor costs, and the impact of economic slack on wage-price behavior. Greater progress by Germany than by most other countries in gaining balance-of-payments equilibrium and in the fight against inflation had for some time kept the mark strong within the EMS. Therefore, even as the German currency declined against the dollar to trade around DM 2.3420 at end-January, it tended to stabilize in effective terms. The authorities felt able to begin a cautious easing of monetary policy without incurring highly adverse exchange rate consequences and, beginning October 1981, lowered the Lombard rate three times from 12 percent to 10 percent by late January. Looking ahead, many exchange market participants expected the authorities would gain more room for maneuver, particularly once U.S. interest rates dropped from their high levels and large interest differentials adverse to the mark began to narrow.

Despite these achievements, however, major economic problems persisted and were reflected to a large extent in the weak performance of the capital account. Domestically, nonwage labor costs remained high and the role of the government in the economy expanded despite efforts to consolidate the fiscal deficit. These trends were thought to imply a loss of private initiative and decision making. They also generated worries in the private sector about Germany's medium-term growth prospects in view of the potential need for future increases in taxes and the growing burden of social benefit programs. Internationally, there were heightened tensions in Poland, especially following the imposition of martial law, a general deterioration in East-West relations, and renewed hostilities in the Middle East as well as in some of the world's other trouble spots. Many of these developments generated important disagreements at the policy level and drew attention to divisions within the ruling coalition government. In an environment of political and economic uncertainty, large net flows of private direct investment and

long-term portfolio capital moved from Germany to other countries, particularly the United States. The pressure of long-term capital outflows intensified when, contrary to expectations, U.S. money growth accelerated early in the year even as the U.S. domestic economy was contracting. As short-term U.S. interest rates moved higher, opening up interest differentials adverse to the mark to about 6½ percentage points by mid-February, capital flowed out of Germany more heavily than before.

Meanwhile, Germany's current account performance in January and February suffered a serious setback. The services balance reverted to sizable deficit, partly as the result of growing investment income outflows and mounting interest payments on public-sector borrowings. Also, the trade surplus narrowed substantially, underscoring the many risks to sustained, rapid export growth which had begun to develop. There were constraints presented by the financing problems of Eastern European countries, the decline of the OPEC surplus and oil revenues placed limits on previously expanding markets, and many large industrial economies were becoming locked into a pattern of domestic stagnation. By comparison, in the United States, recession-induced declines in import demand kept the current account in surplus when a deficit was expected, and forecasters began to assess the outlook for U.S. balance-of-payments performance more favorably. In view of the unexpected deterioration relative to the United States in both Germany's current and long-term private capital accounts, the mark declined against the dollar, moving lower almost without interruption through mid-April.

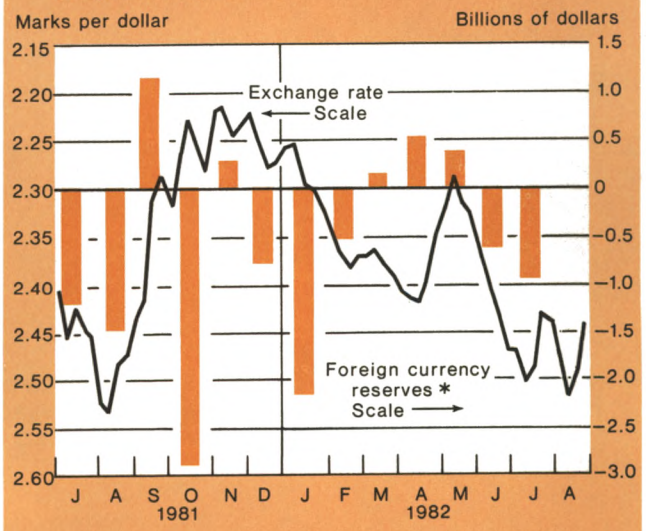
Within the EMS, however, the mark remained firm. In fact, following the realignment of the joint float on February 21, in which the central rates of the Belgian franc and the Danish krone were adjusted downward by 8½ and 3 percent, respectively, the mark was quick to move to the top of the newly aligned band. Germany's superior inflation performance in relation to other EMS member states and the authorities' established policy record of combating inflationary pressures brought the mark into renewed demand, as traders and investors accelerated the shift of short-term funds into the mark at the expense of other EMS currencies whose prospects were less promising. The renewed strength of the mark within the EMS served to mitigate conflicting pressures on domestic monetary and exchange rate policies. To be sure, outflows of long-term capital from Germany to the United States showed no signs of abating and the mark continued to weaken against the dollar. But, with the German currency firm within the EMS, the effective exchange rate held steady, thereby tempering the rise in Germany's import prices. In addition, oil and other dollar-denominated commodities that loomed large in Germany's import bill and that had contributed previously to the phenomenon of imported inflation were declining in price. Furthermore, the outlook for domestically generated price rises improved when, early in the wage round, the pacesetting metals industry agreed on annual wage increases of only 4.2 percent, compared with about 5 percent a year earlier.

Altogether, these considerations provided greater insulation than before between developments in U.S. and German markets. The authorities were concerned, however, about the magnitude of the long-term outflows of funds. While resisting calls for the imposition of capital controls, the Bundesbank reached a new gentleman's agreement late in February, with large commercial banks limiting the size of individual foreign mark-denominated bond and note issues. On March 19

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.

*Foreign exchange reserves for Germany and other members of the European Monetary System, including the United Kingdom, incorporate adjustments for gold and foreign exchange swaps against European currency units (ECUs) done with the European Monetary Fund.

Table 2

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, 1982	1982 I	1982 II	1982 July	Outstanding July 31, 1982
Bank of Mexico	-0-	-0-	+800.0 −600.0	+700.0 −200.0	700.0

Data are on a value-date basis.

Table 3

United States Treasury Securities, Foreign Currency Denominated

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

Issues	Amount of commitments January 1, 1982	1982 I	1982 II	1982 July	Amount of commitments July 31, 1982
Public series:					
Germany	3,622.3	-0-	−451.0	−560.6	2,610.6
Switzerland	458.5	-0-	-0-	-0-	458.5
Total	4,080.8	-0-	−451.0	−560.6	3,069.1

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

Table 4

Net Profits (+) or 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 1982	-0-	+ 15.9	− 4.2
Second quarter 1982	-0-	+ 1.5	+ 78.5
July 1982	-0-	− 1.7	+ 58.8
Valuation profits and losses on outstanding assets and liabilities as of July 31, 1982	−617.4	−1,382.2	+722.2

Data are on a value-date basis.

the central bank lowered the special Lombard rate ½ percentage point to 9½ percent. The Bundesbank also provided additional liquidity to the domestic markets but proceeded with considerable caution. The authorities feared that too abrupt or rapid an easing of monetary restrictiveness would undermine the progress achieved in reducing inflation and inflationary expectations. They also wished to avoid pushing the growth of central bank money beyond the top of the 4-7 percent annual growth target.

The reduction of German interest rates was followed immediately by interest rate cuts in several other European centers, so that interest rate relationships within Europe were largely unchanged. By this time, interest differentials among EMS states were widely seen as inadequate compensation for divergent inflation prospects and performance, so that the pressure of large money flows into Germany persisted and kept the mark pinned to the top of a fully stretched EMS band. The Bundesbank and other EMS central banks absorbed part of the pressure through purchases of EMS currencies against the sale of marks. Meanwhile, unlike interest rates in Europe, those in the United States had begun to rise again, ahead of the anticipated bulge in money growth in April and against the background of large U.S. budget deficits overhanging the credit markets. In these circumstances, the mark continued to decline against the dollar, falling to DM 2.4225 by April 15, a drop of 3½ percent from late-January levels. The Bundesbank provided little intervention resistance to the mark's descent, partly not to aggravate strains within the EMS and partly because the authorities felt unable to provide through the mechanism of intervention a lasting and effective counterweight to the pressure of long-term capital outflows. Between end-January and end-March, Germany's foreign currency reserves declined only moderately from $37.5 billion to $37.1 billion.

After mid-April, market sentiment shifted for a time in favor of the mark, as traders reacted to Germany's record monthly trade surplus announced for March and to evidence of continued moderate pay settlements in the 1982 wage round. Moreover, U.S. interest rates turned suddenly downward as prolonged weakness of the U.S. economy encouraged expectations of a rapid unwinding of the April money bulge. Thus, the mark rose against the dollar in the exchanges. The Bundesbank, while welcoming the advance of the mark particularly for its favorable implications for inflation, remained concerned about the weakness of the domestic economy. Hopes for an improvement in domestic demand were disappointed by the continued slump in capital investment, the lack of consumer confidence, and the persistent rise in unemployment. In these circumstances, the authorities acted further to lower domestic interest rates. On May 6 the Bundesbank closed the special Lombard facility and reintroduced regular Lombard credit at 9 percent, ½ percentage point lower than the special lending rate. Bundesbank President Poehl stated that the abolition of the special Lombard had symbolic meaning: it signified success in decoupling monetary policy in Germany from that of other countries and signaled generally easier credit conditions that would foster economic recovery. Following the reduction of the Lombard rate, German money market rates moved lower, but comparable U.S. rates declined even more, so that the adverse interest differential against the mark narrowed to 5½ pecentage points. The mark thus continued to rise against the dollar and reached DM 2.2770 by mid-May, up 6 percent from the lows touched a month before.

However, the mark was unable to consolidate these gains, since again U.S. interest rates rebounded and market participants found reason to question the strength of the underlying fundamentals of the German economy. For example, Germany's trade surplus declined in April while the U.S. trade account registered impressive gains, raising new questions about the extent to which current account trends would benefit the mark. In addition, Germany's governing coalition was seen increasingly as threatened by protracted difficulties in reaching agreement on proposed spending cuts to reduce the 1983 federal budget deficit and financing requirement. Unsettling geopolitical developments, such as the Israeli invasion of Lebanon and the conflict between Iran and Iraq, were also thought to have more serious adverse consequences for Germany than for the United States and to a lesser extent the United Kingdom, considered less vulnerable to a disruption of internationally traded oil.

The mark's weakening tendency against the dollar contrasted with continued strength within the EMS, where speculation of another realignment kept the German currency in heavy demand throughout the spring against weaker currencies, particularly the French and the Belgian francs. In the event, shortly after the Versailles economic summit the EMS was again realigned. Over the June 12-13 weekend the mark and the Dutch guilder parities were adjusted upward by some 7 percent and 10 percent against the Italian lira and French franc, respectively, and 4¼ percent against other participating currencies. That same weekend, international concerns, which for some time had supported the dollar in the exchanges, intensified with the death of King Khaled of Saudi Arabia and the extension of fighting in Lebanon among Israel, Syria, and the Palestine Liberation Organization.

When trading resumed after the realignment on Monday, June 14, the mark emerged at the bottom of the newly aligned band and funds flowed as anticipated from the revalued EMS currencies into the currencies of the joint float that had been devalued. But a portion of the unwinding of long EMS currency positions was reflected in heavy bidding for dollars in unsettled trading conditions. The mark declined sharply and unexpectedly against the dollar first in Europe and then in New York. At this time the U.S. authorities intervened to purchase modest amounts of German marks, as well as Japanese yen. Operating on behalf of the Federal Reserve and the U.S. Treasury, the Desk acquired $21 million equivalent of marks. It was publicly announced that the U.S. authorities had conducted some intervention, the first since March 1981, in accordance with stated U.S. policy of intervening to counter disorderly conditions. In subsequent days and weeks, talk spread in the market that concerted action was likely by the U.S., European, and Japanese authorities to halt the continuing run-up in dollar rates. While the European authorities did on occasion operate in a concerted fashion to restrain the decline of their currencies against the dollar, the intervention operations were relatively modest in amount. For their part the U.S. authorities did not again intervene during the period under review.

Between mid-June and mid-July the mark was pushed downward against the dollar, as exchange market participants grappled with several sources of concern that worked in the direction of further undermining confidence in the German currency. One such concern centered on the budget. Within the governing coalition, public disagreement over the persistence of large budgetary deficits was often intense and each party suffered heavy losses in local elections early in the summer. A compromise on the 1983 budget was finally reached in July, reducing the federal government's projected net borrowing by DM 6 billion to DM 28.5 billion. But, partly because the budget rested on economic growth assumptions which private analysts generally regarded as highly optimistic, many questioned whether the actual budget outcome would conform to the compromise.

Financial concerns, too, worked against the German currency. West German banks, of all Western banks, were the most heavily committed in Eastern Europe and therefore had the most to lose if Polish debt-rescheduling negotiations, which had already dragged on for months, failed to reach a successful conclusion. Unease about the risks to the German economy of its deep international involvement was also underscored by the U.S. decision to ban the sale of U.S. goods and technology, even if produced abroad under license, to the Soviet Union's gas pipeline project. Furthermore, the combination of restrictive monetary policy and slack demand generated in Germany, as in several other countries, liquidity strains in the private sector.

These various problems dragged the mark sharply lower, particularly as demands for dollar liquidity accelerated in late June-early July. At that time, banks bid aggressively in the money markets to lock in their funding to finance the heavy rollover of six-month credit coming due in the Euromarkets and to meet precautionary demands on the part of financial market participants laboring under the awareness of increased risk in international lending. On July 7 the mark dropped to as low as DM 2.52 in European trading, a decline of about 10½ percent from the high reached in May.

Subsequently, U.S. interest rates began to decline rapidly, narrowing the dollar's interest rate advantage over the mark. The growth of the U.S. monetary aggregates had slowed sufficiently to bring M-1 back into target range (for the first time in 1982) and, with short-term interest rates softening, the Federal Reserve twice announced cuts in its discount rate of ½ percentage point, thereby reducing the rate from 12 to 11 percent by end-July. But, even as interest differentials adverse to the mark narrowed to 4 percentage points, demand for the mark in the exchanges was muted. In part, this lack of enthusiasm reflected uncertainty in the exchange markets that the downtrend in U.S. interest rates would be sustained. Participants were mindful of frequent reversals in the past and focused on the threat of significantly higher interest rates posed by uncommonly large U.S. Government deficits projected for fiscal year 1983 and beyond. In addition, sentiment toward the mark remained adversely affected by the numerous challenges to German policy and leaders presented by financial, trade, and political problems and by worries that policies might not be adopted to deal with these problems effectively.

By midsummer the weakness of the mark against the dollar had become more of a constraint on the German authorities' policy options, even though on a trade-weighted effective basis the German currency remained steady. German policymakers hoped to lower domestic interest rates further to support the economy, which was stagnating far longer than expected. With foreign orders trending sharply downward and compounding persistently slack domestic demand, industrial production dropped sharply and unemployment climbed over 7 percent. But the authorities were reluctant to take action that would risk further undermining the mark in the exchanges. The nation's inflation rate, after decelerating to 5 percent year on year in March,

was headed higher, in part owing to the continuing weakness of the mark against the dollar and to administrative price increases. Moreover, the outflows of capital in the long-term sector—which reached nearly DM 13 billion in the first five months of the year—were being augmented by short-term outflows, as previous speculative inflows were for the most part unwound following the EMS realignment. There was concern lest these outflows gain momentum, particularly since the mark was trading at or near the bottom of the joint float and, following up on the February agreement with the commercial banks to limit the volume of individual mark Eurobond issues, the Bundesbank asked to be notified of any direct foreign credits of DM 50 million or more. At the same time, the authorities pointed to an erosion of confidence in the domestic bond markets where large financial requirements of the public sector appeared to hamper further reductions of long-term rates. For these reasons the Bundesbank did not further relax domestic monetary conditions as U.S. interest rates declined but rather left its credit policies unchanged at its Council meeting late in July.

At the end of July the mark was trading at DM 2.4430, up about 3 percent from its lows but down about 4¼ percent from end-January levels. Between April and July, Germany's foreign currency reserves were subject to diverse tendencies. At times, particularly in June, the Bundesbank was active in the market as a seller of dollars in support of the mark. The German authorities, along with others in the EMS, acted as sellers of marks to alleviate strains within the joint float. After the June realignment of the EMS, some of these mark sales were reversed. On balance, therefore, Germany's reserves showed little further change to stand at $36.5 billion at end-July, down about $1 billion over the six months under review. During the period, the U.S. Treasury paid off $1,011.6 million equivalent of its German mark-denominated securities. These redemptions, which occurred on May 12 and July 26, left the Treasury with $2,610.6 million equivalent of mark-denominated notes (public series) outstanding.

Swiss franc

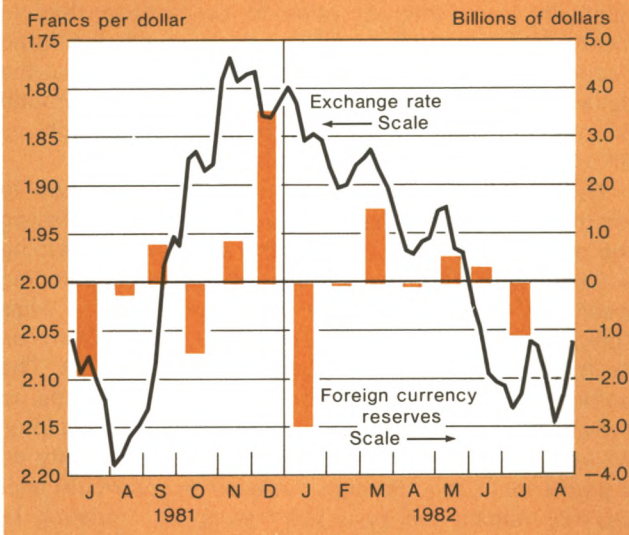
Early in 1982 the Swiss economy, while lagging behind the downturn in demand and output in most industrialized countries, was showing clear signs of weakness. Domestic consumption was declining, while previously buoyant investment in plant and equipment leveled off and construction activity slackened in response to the higher cost of credit. The stagnation in the economy was cushioned to some extent by resiliency in the export sector despite the strong appreciation of the franc, as export contracts received last year when foreign demand was stronger were filled. But the sluggishness of demand on the part of Switzerland's major customers, Germany in particular, coupled with the lagged effect of the rise in the franc, was expected to cause export volumes to stagnate in the months ahead. At the same time, inflation decelerated to about 6 percent at an annual rate from peaks of some 11 percent in the autumn. The improved price performance stemmed from the slowdown in domestic economic activity, a substantially tighter stance of monetary policy in 1981, and lower import costs—reflecting both the weakness of international commodities prices and the sharp rise of the franc on the exchanges.

Switzerland's encouraging progress on the inflation front, combined with its climate of political and social stability, made the franc an attractive asset, especially at a time when serious economic problems and political uncertainties undermined investor confidence in several other European currencies. Indeed, short-term funds flowed into the Swiss franc, keeping it relatively firm against other European currencies even as it weakened against the dollar. By end-January the franc was trading at SF 0.80 against the German mark, not far below its historical peaks, even as it had fallen back to SF 1.8680 against the dollar. In the weeks surrounding the late-February realignment of the EMS

Chart 4

Switzerland

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

joint float, these inflows intensified. The inflows, together with the demand for the franc arising from Switzerland's current account surplus, more than offset the impact of longer term, interest-sensitive capital outflows, as international borrowers took advantage of relatively lower interest rates in Switzerland than in most other industrial countries. As a result, the franc declined less rapidly than other currencies against the dollar in late February-early March to trade around SF 1.88 against the U.S. currency and as high as SF 0.7855 against the German mark.

With inflation moderating, the authorities hoped to maintain a relatively neutral monetary policy, pursuing the anti-inflation fight while at the same time providing sufficient liquidity to avoid exacerbating the developing weakness of the economy. Accordingly, the Swiss National Bank aimed to keep central bank money on its 3 percent targeted average growth for 1982. The authorities made use of foreign currency swaps to provide the domestic market with temporary liquidity, while also working in various ways to add liquidity on a permanent basis. Foreign currency swaps would necessarily remain the principal means of regulating liquidity in the short run. But, over the longer run, the authorities planned to expand open market operations in domestic assets. As the markets in Switzerland responded to the increase in liquidity, domestic interest rates in both the money and capital markets moved progressively lower, falling more rapidly than interest rates in other European centers. The Swiss National Bank confirmed this trend on March 19 by reducing the discount rate by ½ percentage point to 5½ percent. Almost immediately thereafter, four major Swiss banks cut their interest rates further on large time deposits.

The drop in Swiss interest rates was considerable, shifting out three-month interest differentials adverse to franc-denominated assets to 3½ percentage points against the German mark and 9½ percentage points against the dollar. Consequently, foreign official and corporate borrowers placed heavier demands on Switzerland's capital market and converted the proceeds of their Swiss franc-denominated borrowings in the exchanges. At the same time, market participants reportedly unwound speculative positions assumed earlier against weaker currencies within the EMS. The buildup of capital outflows was such that new foreign Swiss-franc bond issues in the first quarter of 1982 increased by 50 percent over the corresponding months of 1981. The pressure of these and other capital outflows offset demand for the franc arising from the current account surplus, which itself was proving unexpectedly large. Tourism receipts and investment income remained strong. Moreover, the traditional deficit on trade actually narrowed, principally reflecting the impact on imports of declining world oil prices and weakening domestic demand. But, in addition, exports slackened only moderately because exporters accepted declining profit margins to maintain market shares and because less price-sensitive, high-technology goods, which figure large in Switzerland's export basket, continued to find outlets in major foreign markets. Even so, exporters were thought to be facing the limits of their ability to compensate through decreasing profitability for the recent strong appreciation of the franc, and there were concerns that any further erosion in competitiveness would begin to cause problems.

In the event, however, declining Swiss interest rates induced large and rising net capital outflows which brought the franc under selling pressure in the exchange markets during the spring. Market participants sensed that the Swiss authorities were not intervening or otherwise taking measures to support the exchange rate and were not uncomfortable with a gradual decline of the currency. As the Swiss central bank continued, as planned, supplying generous amounts of liquidity to the domestic markets, Swiss interest rates and the exchange rate fell rapidly lower. On May 6, however, the Swiss authorities did not join other European authorities in reducing official interest rates. At that time, the Bundesbank suspended its special Lombard loan facility while the Netherlands Bank lowered its rate on discount borrowings and the rate on special advances. The Swiss authorities stated that, in leaving the discount and Lombard rates unchanged, they wished to discourage the view from developing in the domestic markets that monetary policy was directed toward interest rates rather than toward the monetary aggregates. The authorities also found it desirable to keep official lending rates at relatively high levels, compared with market interest rates, to discourage excessive commercial bank borrowing from the central bank, particularly at the month end. But, even as official rates held steady, market rates continued to ease so that by late May three-month interest differentials adverse to Swiss franc-denominated assets widened to about 10½ percentage points *vis-à-vis* the dollar and nearly 5 percentage points *vis-à-vis* the mark. In the exchange markets, the franc declined to around SF 1.9960 against the dollar and SF 0.8501 against the German mark at end-May.

By June, market participants sensed that the Swiss authorities might have less leeway than before to continue as forcefully with the comparatively easier monetary policy approach adopted early in the year. The rate of inflation had begun to move back up, largely owing to the rapid depreciation of the franc in the spring. There was concern that, if the increase

in prices went too far, it might reignite inflationary expectations, while also becoming embedded in domestic costs through the process of wage indexation. Moreover, the growth of central bank money, which in May grew at 2.4 percent year over year, began to approach the authorities' target. Thus, when the liquidity provided through foreign exchange swaps was not fully replaced, expectations developed that conditions in the domestic money market would be less liquid than before.

At the same time, broader concerns weighed on many other European currencies and worked to the advantage of the Swiss franc. The Swiss government continued to exercise tight control over federal finances, particularly on the expenditure side, and the budget deficit was expected to remain under 1 percent of GNP in 1982 even as economic activity stalled. Equilibrium in Swiss public finances stood in contrast to developments in other countries, most of which were experiencing serious difficulties in trying to hold their deficits to levels which, relative to GNP, already far exceeded that in Switzerland. Growing worries internationally about the risks of sovereign lending and concerns over developing liquidity strains posed less of a threat to the financial health of major institutions in Switzerland than to institutions elsewhere. In addition, political tensions, particularly the dangers of expanding warfare in the Middle East, underscored the role of the Swiss franc as a safe haven for international investors attracted by Switzerland's political stability.

For all these reasons, the franc became increasingly attractive to traders and investors during June and July. The spot rate steadied against the German mark, rather than weakening as before, and the franc moved in line with stronger EMS currencies against the dollar. At end-July the franc was trading at SF 2.08 against the dollar for a decline of about 11 percent since end-January and at SF 0.85 against the German mark, for a decline of about 6½ percent over the six months under review. Between end-January and end-July, Switzerland's foreign exchange reserves rose from $10.5 billion to $11.8 billion, principally in response to foreign currency swap operations and interest earnings on outstanding reserves. Intervention operations in the exchanges were both infrequent and limited in scale.

Japanese yen

By early 1982, Japan had succeeded in reducing its inflation rate to the lowest among the major industrial countries and had recorded a huge swing in its current account back into solid surplus. Economic growth, however, was falling short of the targeted 4 percent rate for the year ended March 1982, and there were but limited choices available to the authorities to generate economic recovery. Though stimulative measures had been taken in 1981, domestic demand remained stagnant and gains in output were almost entirely concentrated in the foreign sector. Looking ahead, the contribution of exports to further growth appeared problematic. Further increases in Japan's penetration of foreign markets in a recessionary environment threatened to exacerbate tensions between Japan and its trading partners. Also, with slackening demand abroad, it began to appear that export growth might well be much weaker than expected in 1982 even if heightened trade tensions were avoided. On the domestic front, a relatively restrictive government budget had been announced in December for the fiscal year to start in April 1982, in pursuit not of short-run expansion but of the medium-term goal of further reducing the government's deficit as a proportion of GNP. As a result, monetary policy was left with the burden of providing stimulus to the economy—a decision that had taken account of Japan's success in curbing inflation and of its strong current account position. The Bank of Japan had reduced its discount rate and relaxed its "window guidance" for commercial bank lending in order to spur demand and announced that first-quarter growth of its main monetary aggregate (M-2 plus certificates of deposit) was expected to continue at the relatively expansive rate of about 11 percent.

Following this shift in Japan's economic policy, interest rates in Japan eased when yields on dollar investments were rising once more. The further widening of rate differentials already unfavorable to the yen prompted Japanese investors to step up the flow of long-term capital abroad and encouraged foreigners to float Samurai bonds. The yen was thus under downward pressure in the exchange markets in December, and even more so after the new year. Despite the authorities' expressed determination to limit the easing of Japanese interest rates in order to protect the yen, market participants saw little scope for action to counter a sharp upward trend in foreign interest rates given the weakness of the Japanese economy and the policies then in force. Although the Bank of Japan sold dollars in the exchange markets to moderate the yen's decline, the exchange rate by the end of January 1982 had fallen to ¥ 230.00, 8 percent below the high reached at the end of November. In relation to the German mark the yen's decline was smaller, at about 1½ percent, bringing the cross rate on January 29 to ¥ 98.21. At that point, Japanese foreign exchange reserves stood at $24.6 billion, down about $400 million from end-November levels.

The yen declined further during the first half of February, as interest rate differentials favoring dollar over yen investments widened more than 2 percentage points to over 10 percentage points. Long-term investment overseas by Japanese residents continued large while short-term capital inflows tapered off. Japanese individuals purchased nearly $1 billion of the innovative "zero-coupon" bonds being offered in the Euromarkets during January and February, reflecting the attraction of these issues partly due to a proposed tightening in Japan of tax reporting of interest income on domestic bank deposits. Under these conditions the yen fell below ¥ 242 per dollar by February 15. Then, from mid-February to early March the yen gyrated widely with some net upward trend largely in response to reports that the Japanese authorities had intervened aggressively in the Tokyo market and were considering actions to limit the export of capital overseas. By early March the Bank of Japan permitted a slight rise in interest rates for call money to defend the exchange rate. The authorities asked Japanese securities companies to refrain temporarily from selling zero-coupon bonds (as of March 4), while the Ministry of Finance made public its intention to establish reporting requirements for holders of these securities to limit Japanese income tax avoidance. These developments lent support to the yen in the exchanges and by March 8 the yen had recovered to ¥ 232.25 in the Far East, almost 4 percent above the level of three weeks earlier.

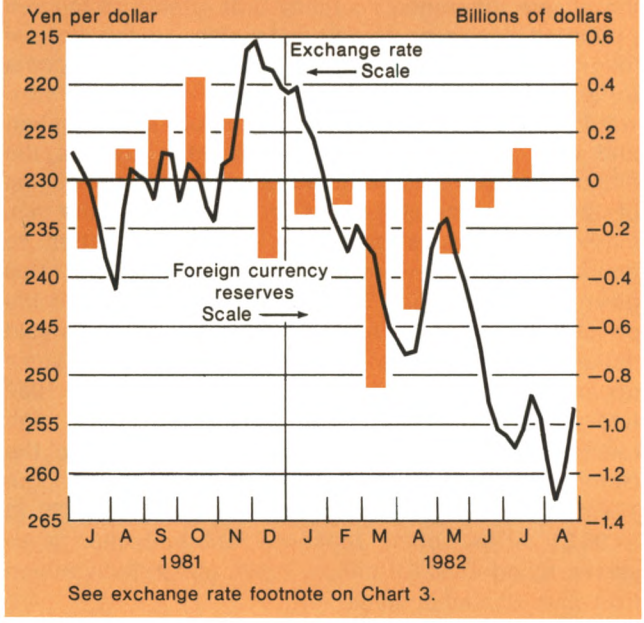
From that time through the middle of April the yen drifted lower in the exchanges. Foreign interest rates, especially those in the United States, failed to decline as expected and at home new indications of weakness appeared in the domestic economy. Publication of Japan's fourth-quarter GNP figures made a particularly strong impression, since they showed a sharp decline in net exports and resulted in the first quarterly decline in Japanese real GNP in nearly seven years. Prices began to drop sharply on the Tokyo stock exchange, partly in response to foreign sales of Japanese securities, reportedly including sales by important OPEC investors. These events in combination served to focus market attention once again on the difficult choices facing the Japanese authorities. In this climate, debate intensified over ways through which the government might help the domestic economy. With inflation running about 3 percent and the annual spring wage settlements promising to come out at a relatively moderate 7 percent average increase, it seemed that domestic considerations argued in favor of reductions of Japanese interest rates. Also depressing sentiment toward the yen were trade disputes with both the United States and European Community countries, as the latter announced their intention to file a formal General Agreement on Tariffs and Trade complaint against Japan's export practices. Trade figures for February showed that exports had declined by enough to turn that month's current account back into deficit.

In early April, some fiscal measures were taken to boost the domestic economy but they were milder than had been anticipated. While not increasing the government's overall net expenditures planned for the fiscal year just beginning, the government announced that it would accelerate the schedule of public works expenditures and housing loan approvals as it had done in the previous fiscal year. A shortfall of about 10 percent in the previous year's government tax revenues was also announced, adding to the government's borrowing requirement for the 1982-83 fiscal year. At the same time, the monetary authorities announced that yields on the government's current issue of long-term bonds would be lowered about ¼ percentage point—less than had been anticipated. They also acted to keep money market rates firm and to dispel expectations of a seasonal easing of rates, in part through a program of large-scale sales of Treasury bills, with a view toward preventing any further widening of the adverse interest rate differentials and containing the effects on domestic prices of the recent

Chart 5

Japan

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

decline of the yen. Furthermore, the Bank of Japan approved a scaling-back of second-quarter lending plans of commercial banks to an overall increase of 17.6 percent, and later announced its expectation that this would support a somewhat slower monetary growth rate of 10 percent. These announcements alleviated concern in the exchange markets that Japanese interest rates might ease, and trading in the yen came into better balance in the exchanges. In the two weeks after these measures the yen declined only slightly, reaching a low on April 15 of ¥ 248.15 against the dollar and ¥ 102.44 in terms of the German mark. The Bank of Japan, as in earlier months, sold substantial amounts of dollars at times when the yen was dropping most rapidly in the exchange markets. These sales were reflected in a $900 million decline in foreign exchange reserves during March. When, in addition, U.S. and Eurodollar interest rates eased in mid-April, the yen briefly recovered. Also at this time, actions were taken to postpone foreigners' access to the Japanese capital market and to tighten approval procedures for yen-syndicated loans to foreign borrowers. The authorities regarded these actions as temporary departures from their longer term policy of liberalizing capital flows.

By mid-May the yen had moved back up to about midwinter levels. Several times thereafter, Bank of Japan Governor Mayekawa reaffirmed the authorities' determination to keep interest rates high in order to support the yen, and the central bank backed that announcement with large-scale Treasury bill sales. Yet market participants still worried that long-term interest rates would have to be held down to assist the government's coming bond flotation. Speculation also arose that the Japanese authorities might be moving to facilitate, rather than contain, capital outflows following the announcement in May of long-term liberalization measures affecting the purposes for which Japanese banks could grant syndicated loans in yen to foreigners. In addition, U.S. interest rates were firming once more and interest differentials favoring dollar investments widened. In this atmosphere, the yen declined steadily after mid-May. Expectations of an agreement at the Versailles summit to lower dollar interest rates were widespread in the Tokyo market, and the yen came under renewed selling pressure after that meeting ended in early June without any such announcement. The outbreak of fighting in Lebanon also made the dollar seem more attractive as an investment medium, compared with the yen and other currencies. Then, when the U.S. dollar rose strongly against all currencies following the EMS realignment during the June 12-13 weekend, the yen once again came on offer. The rate dropped rapidly during the New York trading session on Monday, June 14, falling below ¥ 250 before the New York Desk entered the market to buy $9 million equivalent of Japanese yen in order to restore more orderly conditions. Nevertheless, the currency resumed its fall, despite support from the Bank of Japan. By June 28, the rate had reached a 27-month low of more than ¥ 259 per dollar and ¥ 104 in terms of the German mark, and Japanese reserves had declined by more than $1 billion since the end of May to stand at $21.7 billion.

In early July, the yen began to rise in response to declining U.S. interest rates. The yen climbed above ¥ 250 on July 23, just before the Federal Reserve cut its official discount rate by ½ percentage point, but its tenuous recovery soon faded. Abroad, the better than expected current account performance of the United States and the deceleration of inflation globally tended to erode some of the benefits of Japan's earlier and superior economic performance. Within Japan, public criticism of the government's economic policies focused on the failure to reduce the government deficit as quickly as planned and interest rates rose on the government's long-term bonds trading in the secondary market. In these circumstances difficulties in setting an attractive enough yield for the government's own flotation of long-term bonds resulted in cancellation of the issue scheduled for July. The yen's decline, once started, received an additional push when participants on the International Monetary Market (IMM) rushed to liquidate very large long yen positions, producing some of the busiest trading ever of yen futures contracts and bringing large offers of yen into the forward interbank market. The yen thus fell back nearly to the ¥ 259 level before recovering some of its lost ground following the announcement of a second Federal Reserve discount rate reduction on the last day of the period.

The yen closed on July 30 at ¥ 255.60, down 10 percent from six months earlier and ¾ percent below the low point reached nearly a year earlier. The yen also declined against the German mark to close at ¥ 104.63, nearly equal to the lowest level reached in the previous year although still far above the cross rates prevailing before 1981. The Bank of Japan's periodic sales of dollars while the currency was declining reduced foreign exchange reserves by a total of $2.8 billion for the six-month period, so that reserves stood at $21.8 billion at the end of July.

Sterling

Early in 1982 sterling held steady in the exchange markets, trading on January 29 at $1.8670 and 91.8 on the trade-weighted, effective index. The authorities in the United Kingdom were generally seen as adhering to policies of monetary and fiscal restraint, despite the

pressures of large-scale unemployment. Public-sector borrowing had gone down as a percentage of GNP both through increased taxes and the containment of expenditures, as the public-sector wage bill was brought under control. While the actual growth of sterling M-3 exceeded the 7-11 percent annual growth range, innovations in financial institutions and behavior appeared to have diminished the usefulness of the targeted aggregate as a guide to monetary conditions. Other indicators such as short-term interest rates, as well as the substantial decline in inflation itself, suggested continued monetary stringency.

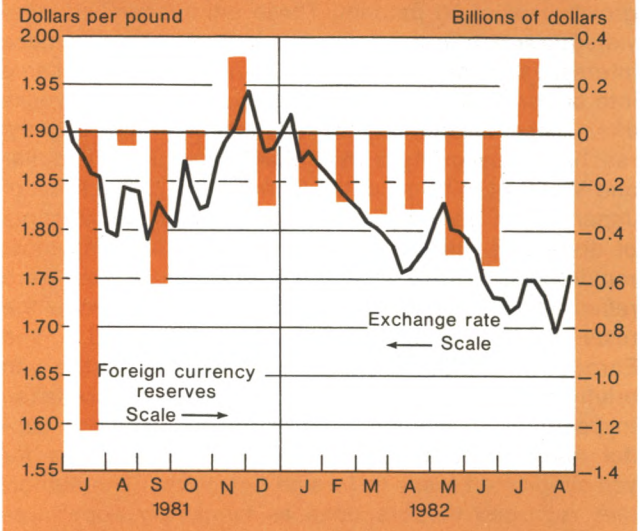
Meanwhile, however, developments in the United Kingdom economy generated discussion about the desirability of some easing in the restrictiveness of policy. To be sure, the economy showed signs of recovery from the prolonged recession, as the previously rapid reduction of inventories slowed and as some types of investment began to revive. But unemployment continued rising, and there was reason to question whether the upturn in investment was sustainable without some policy stimulus to demand, a reduction of taxes, or other action to improve company profitability. At the same time, rapid gains in productivity, moderate wage settlements, and the earlier depreciation of sterling in 1981 improved the ability of British industry to compete internationally. The gains in competitiveness, however, only partially reversed the severe losses of the previous two years, so that the level of costs remained high in relation to Britain's major trading partners. Consequently, the surpluses on the trade and current accounts were expected to be eroded, even without a pickup in the economy.

Within the United Kingdom, several types of stimuli came under scrutiny. Lower interest rates, for example, would be expected to boost investment, particularly stockbuilding and construction. A depreciation of the exchange rate would improve competitiveness and enhance exporters' profit margins. Public works measures would provide the greatest number of jobs. A cut in indirect taxes would reduce costs. Among exchange market participants it was feared that, whatever the specific measures, any significant policy change aimed at restoring economic growth would jeopardize the hard-won progress already made in controlling inflation and inflationary expectations. As a result, sterling came under downward pressure during February amid market nervousness ahead of the government's statement of policy in the forthcoming 1982-83 budget. At this time, also, United Kingdom short-term interest rates eased lower, extending the softening trend established in autumn 1981, and major clearing banks lowered their base lending rates ½ percentage point to 13½ percent. These cuts coincided with a softening of interest

Chart 6

United Kingdom

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

rates in the United States but were not matched, as in previous months, by lower interest rates elsewhere in Europe, so that selected interest differentials moved against sterling-denominated assets. Moreover, against the background of weakening world oil prices the British National Oil Corporation cut its price for North Sea oil, thereby reducing projected domestic government revenues as well as the contribution of oil earnings to the balance of payments. Sterling therefore eased back to $1.83 and 90.4 in effective terms in early March.

On March 9 the government presented its 1982-83 budget, addressing the two principal elements of its medium-term financial strategy: the public-sector borrowing requirement and the growth of money. Personal tax allowances and excise taxes were increased about in line with inflation, while the national insurance surcharge paid by employers was reduced 1 percentage point to 2½ percent. On the expenditure side the share of resources claimed by the public sector was cut back. Altogether, the public-sector borrowing requirement was projected to decline from £ 10½ billion to £ 9½ billion, or from about 4½ percent to 3½ percent of GNP. With respect to the broad monetary aggregates, the government noted several factors boosting the growth of sterling M-3 above target. The civil service

dispute had postponed tax payments; the public had increased its demand for liquid assets as a medium for saving; other structural changes, such as a shift in housing finance away from the building societies, had enhanced the role of the banks in financial transactions. Taking account of these developments in the budget, the authorities raised the target range for sterling M-3 growth to 8-12 percent and also applied this growth range both to the narrow money supply (M-1) and to broad private-sector liquidity. In restating its financial strategy, the government recognized explicitly the usefulness of the exchange rate as an indicator of financial ease or stringency.

The budget was well received and was seen by the markets as compatible with a slowing of inflation to below 10 percent per annum and with a continued easing in short-term interest rates. On March 11, in fact, the clearing banks announced another ½ percentage point reduction of their base lending rates to 13 percent. Meanwhile, heavy official sales of public-sector debt to the nonbank public continued to be larger than needed to fund the public-sector borrowing requirement. The program of debt sales, begun in the winter, aimed at reducing the banks' cash holdings and thereby restraining the growth of broadly defined money. In effect, the authorities sought to reverse a part of the increased intermediation through the banking system that had swollen the growth of sterling M-3. The combination of heavy sales of debt and massive tax payments—reflecting the normal tax-gathering season as well as the ongoing reflux of revenue delayed earlier by the civil service dispute—put pressure on the domestic market's cash position. To relieve the shortages, the authorities acquired sizable amounts of commercial bills mainly through outright purchases. Even so, Britain's money markets remained comparatively tight at a time when many interest rates on the Continent were falling. With market sentiment also encouraged by the government's steadfast policy stance, sterling traded firmly in the exchange markets. Thus, the strong rise in the dollar at this time was reflected less in movements of sterling than in other currencies so that, even as the pound fell to as low as $1.7780 in late March, it remained quite stable around 91.0-91.4 in effective terms.

On April 2, Argentina invaded the Falkland Islands, initiating a crisis that in varying degrees kept the sterling money and exchange markets off balance through mid-June. At first, the pound came under severe selling pressure, dropping to as low as $1.7465 and in effective terms to 89.5 amid fears that the crisis could force the resignation of the Thatcher government and end its conservative economic policies. But the Bank of England reacted quickly, supporting sterling in the exchanges to prevent sharp, disorderly movements from cumulating and acting to stabilize the gilt-edge market as well. Thereafter, the authorities continued to stabilize the markets which alternated between fears of prolonged fighting and hopes of an early peaceful settlement. Sterling traded mostly within an effective range between 89 and 91, and for the most part between 90 and 91, despite the markets' vulnerability to news and rumors concerning the Falklands. Against the dollar, the pound fluctuated more widely, rising to as high as $1.8360 in early May when U.S. interest rates dropped back sharply but falling again to around $1.77 by mid-June.

Meanwhile, during the Falkland crisis, underlying sentiment toward the pound improved. There was evidence of subdued monetary growth, with recent statistics showing that the monetary aggregates, including sterling M-3, were growing within the government's 8-12 percent target range. Inflation decelerated both on the wholesale and on the retail levels. Manufacturing pay settlements averaged some 7 percent in the current wage round, compared with more than 20 percent only two years previously, improving prospects for inflation to remain below double-digit rates. Moreover, public-sector borrowing in 1981-82 unexpectedly turned out to be nearly £ 2 billion less than the official target, and preliminary indications suggested that the public-sector borrowing requirement would fall short of the £ 9½ billion projection for fiscal 1982-83. In addition, data on the balance of payments showed that, while the current account surplus was shrinking, the deterioration was less rapid than anticipated. To be sure, imports, particularly of semimanufactured goods, posted large increases but the volume of United Kingdom nonoil exports registered sizable growth as well.

After mid-June, when the United Kingdom regained military control of the Falkland Islands and the pressures of the crisis passed, favorable developments within the United Kingdom economy showed through decisively and benefited sterling in several respects. Domestically, optimism that progress on inflation would endure helped short-term interest rates resume their decline and lent support to the rally that had earlier developed in common stocks and gilt-edge instruments. In the exchange markets, participants expressed confidence in the resolve of the authorities to maintain steady and stringent financial policies over an extended period. Moreover, the perceived ability of British policy to meet stated goals stood in contrast to market doubts about policy coherence and credibility in many other industrial countries. At the same time, other aspects of the international environment favored the pound. There were growing worries

over potential disruptions to the flow of oil from the Middle East as the result of fighting in Lebanon and between Iran and Iraq. In an environment where large banks and nonfinancial institutions in other countries were experiencing severe liquidity problems, traders and investors became increasingly concerned about the creditworthiness of counterparties and the safety of their assets. In these circumstances, both Britain's oil self-sufficiency and the favorable reputation of London's financial system made sterling a relatively attractive and secure asset. As funds flowed into the United Kingdom, sterling held up better than most other major currencies against the surge of the dollar in the exchanges. Although the pound declined to as low as $1.7065 early in July, it nonetheless remained steady on an effective basis, trading around 91.2.

During July, attention turned decisively to the state of the economy. Growing evidence confirmed that after bottoming-out in mid-1981 the economy had shown little growth. In key areas of British industry the outlook for a sustained recovery deteriorated badly. Private forecasters and major international organizations, such as the Organization for Economic Cooperation and Development, revised downward their growth forecasts for 1983. Deep disappointment about the prospects for expansion in the economy and the continued rise in unemployment prompted renewed calls for some easing in government policies. By this time, however, the feeling had developed in the exchange markets that declines in inflation, in the public-sector borrowing requirement, and in the growth of the monetary aggregates were all consistent with some easing in interest rate policy and should not damage confidence in the pound. In the event, the Bank of England steadily lowered its money market intervention rates, and United Kingdom interest rates fell more rapidly than those in the United States. By end-July, United Kingdom bank rates reached the lowest level since November 1978 and interest rate differentials moved against sterling-denominated assets. Even so, the pound gave up comparatively little ground in the exchange markets.

At the month end the pound traded at $1.7475 against the dollar for a 7 percent decline over the six months under review. On an effective basis, the pound closed the period at 91.5, down about ¼ percent. Between end-January and end-July the foreign exchange reserves of the United Kingdom declined from $12.6 billion to $10.9 billion. The loss of reserves reflected only in small part the authorities' intervention operations in the exchange market, particularly in the wake of the Falkland Islands crisis. For the most part, the decline in reserves reflected the revaluation losses of gold and dollar swaps against European currency units (ECUs) done with the European Fund for Monetary Cooperation (FECOM) and other factors, such as the repayments and accruals of external public-sector borrowings.

French franc

Early in 1982 the French franc traded comfortably in the exchanges even as market sentiment remained skeptical about the currency's longer term outlook. Supporting the franc was a combination of foreign exchange controls, conversions of public-sector foreign borrowings, and short-term capital inflows by investors taking advantage of higher nominal interest rates in France than in many other EMS countries. The franc therefore remained in the upper portion of the joint float in the early weeks of 1982, while trading against the dollar at FF 5.9600 at end-January. In the background, however, market participants expressed worry that French policies had placed insufficient emphasis on curbing inflation since the October 1981 realignment, thereby allowing the benefits of the franc's depreciation to erode. The government appeared committed to its original strategy of economic expansion aimed at boosting jobs and absorbing the rapidly growing labor force. However, the stimulus provided to consumption had not been accompanied by a pickup in domestic investment and employment. Rather, the boost to demand was reflected primarily in higher domestic prices, burgeoning imports, and a worrisome increase in the government's budget deficit. At the same time, export growth was hampered by depressed economic conditions in most foreign markets. As a result, France's trade and inflation performance deteriorated in relation both to earlier trends and to several other industrial countries, particularly those like Germany that had chosen to follow economic policies of greater restraint.

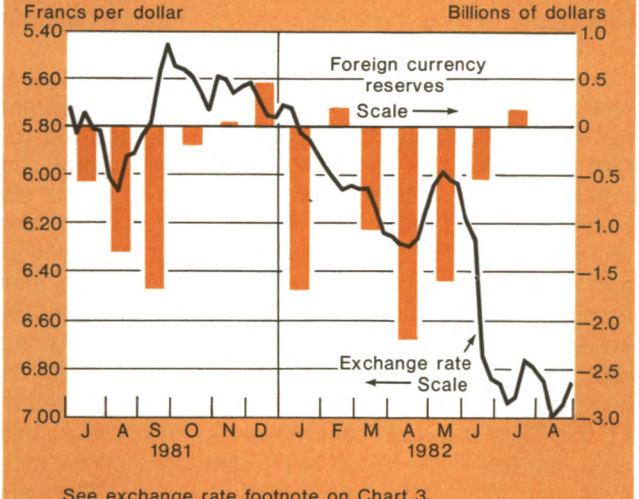
These concerns found little reflection in exchange rate movements so long as official parities within the EMS could be expected to hold. But, unexpectedly, on February 21 the Belgian franc and the Danish krone were devalued by 8½ percent and 3 percent, respectively, *vis-à-vis* the French franc and all other EMS currencies. Almost immediately, market participants began to question the durability of the new parities in view of concern, in private as well as official circles, that the exchange rate relationships for the franc did not accurately reflect the relative competitiveness of the French economy and the divergence of French economic policy from that of other EMS countries. Speculation thus developed that the French currency would soon be devalued in the context of another and more extensive realignment of the EMS and, amid heavy outflows of capital, the franc dropped to the bottom of the joint float arrangement by end-February.

The French authorities were concerned about the weakness of the French franc, but the top priority remained providing stimulus to the domestic economy—particularly to avert heavy social and political costs of growing unemployment. Consequently, the authorities sought to stem the selling pressures on the franc without major revisions in domestic economic programs. They also urged other countries to begin relaxing their policies of restraint, believing that policy stimulus elsewhere, particularly in the monetary sphere, was important to promote a general decline in international interest rates, a recovery of the sagging world economy, and some improvement in the overall employment situation. Meanwhile, to defend the franc the Bank of France during March raised domestic interest rates, moving call money rates for example to some 18 percent from about 14 percent. These actions reversed the previously easier tendency in domestic interest rates, while also moving counter to the downtrend in interest rates in most other European centers. The central bank also intervened heavily in the exchanges as a seller of foreign currencies to keep the franc trading within the required 2¼ percent band against the German mark and Dutch guilder. Moreover, the government tightened exchange controls. Henceforth, exporters were required to repatriate the proceeds of sales abroad within two weeks rather than one month as previously. French investments abroad in excess of FF 1 million were to be financed totally abroad rather than up to 75 percent from foreign sources as before. Approval from the Bank of France was required in more cases than before for financial transfers of funds abroad. At the same time, Finance Minister Delors spoke out strongly against a devaluation of the franc.

Chart 7

France

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

These actions were seen in the market as strong signals of the government's determination to avoid a devaluation of the franc and prompted nonresidents to begin covering their short currency positions. The purchases of franc balances coincided with a tapering-off of special factors that had also weighed on the franc, such as compensation payments to nonresidents for their ownership share in nationalized industries. Selling pressures on the franc therefore abated, particularly once the long Easter weekend passed without a realignment of the EMS. As a result, the French currency moved from the bottom to the middle of the joint float even as it weakened further against the dollar, declining to FF 6.2950 around mid-April.

But, otherwise, with respect to objectives for the domestic economy, the French government experienced difficulties. Heavier spending in the public sector, enlarged by the nationalization of twelve industrial groups, did not lead as expected to an improvement in business conditions. In fact, investment activity remained weak, particularly in the private sector where industry faced increased payments for imported materials and had to shoulder the growing costs of domestic reforms. The introduction of a shorter working week and in some sectors a longer vacation period, with no accompanying decrease in compensation, together with higher taxes to finance additional social benefits, exerted a considerable squeeze on corporate profit margins. Meanwhile, consumer demand—the main factor sustaining the economy in the latter part of 1981—began to falter, further removing incentives to capital expenditure. Consequently, in the first quarter of 1982, industrial production and real GNP declined, and unemployment rose further, approaching the two million level.

Disappointment over the economy's performance prompted the French authorities to introduce several measures in the spring. For selected investments, the government provided loans at below-market interest rates. It also reduced employers' social security contributions in hard-hit industries as well as in those pledged to maintain a certain level of investment or employment. In May the government proposed a supplementary 1982 budget, authorizing FF 5 billion in expenditures for the purpose of supporting nationalized companies, reducing selected business taxes, and extending tax incentives to the agricultural sector. To

contain the rise in the budget deficit, the government reduced certain expenditures and raised taxes. Specifically, expenditures by the Social and Economic Development Fund were cut back. With respect to revenues, the authorities boosted the value-added tax, effective July 1, by 1 percentage point to 18.6 percent, increased taxes on banks and other financial and public-sector institutions, and requested banks to provide equity financing and participation loans of about FF 6 billion to nationalized firms to strengthen their capital base. Meanwhile, to minimize the monetary impact of these measures and to help keep the monetary aggregates from growing beyond the targeted 12½-13½ percent annual range, the government began selling floating-rate Treasury bills. The new bills were designed to attract institutional investors, such as insurance companies and pension funds, previously reluctant to invest in fixed interest rate paper.

Exchange market participants welcomed the authorities' move toward some tax relief for business but worried that, unless basic elements of the overall strategy were changed, France would move increasingly out of step with its competitors regarding inflation, balance of payments, and budgetary developments. They noted that France's inflation rate had accelerated to 14 percent, compared with only 5 percent in Germany. The cumulative trade deficit widened to FF 81 billion at an annual rate in the first four months of the year, compared with a FF 50.8 billion deficit for all of 1981 and FF 62.4 billion in 1980. And the budget deficit, officially projected to rise to FF 95 billion, about 3 percent of GNP, was privately forecast to exceed FF 100 billion. Moreover, differing views among industrial countries about the appropriate policy approach to deal with stagflation in the world economy persisted, and thus few market participants counted on policy convergence at the international level to bring France into closer alignment with its competitors.

Speculation therefore mounted that the franc would be devalued as part of an EMS realignment or would be withdrawn from the joint float altogether—perhaps even before the seven-nation economic summit in Versailles. Between late April and early June the franc came under repeated bouts of selling pressure particularly before weekends. The Bank of France again raised domestic interest rates and intervened heavily in the exchanges. But market participants, sensing the magnitude of the support operations, viewed the authorities as having only limited resources to maintain the franc within the mandatory EMS limits and so the selling pressures remained intense.

Over the June 12-13 weekend the French franc was devalued within the EMS. Against the German mark and Dutch guilder, which were revalued against all other currencies within the EMS, the franc was in effect devalued by some 10 percent. Against currencies whose official parities were unchanged, the franc was adjusted downward by 5¾ percent. Against the Italian lira, itself adjusted downward by 2¾ percent against all participating currencies, the franc was in effect depreciated by some 3 percent. To support the devaluation and to help promote a convergence of inflation rates between France and other EMS countries, the government introduced a four-month wage-price freeze to be followed by a system of guidelines designed to slow inflation to 10 percent in 1982 and to 8 percent in 1983. The government also pledged to restrain the growth of the government budget deficit to no more than 3 percent of GNP this year and next, largely through cutbacks in current expenditure.

In the exchange markets the French stabilization plan was seen as a compromise between the desired policy of stimulus to respond to the unemployment problem and the pressures for restraint to deal with mounting inflation and the weakness of the franc. Participants adopted a cautious attitude, wondering whether the government would gain acceptance for its program which in some respects, *e.g.*, stiff wage controls, appeared tougher than anti-inflation measures imposed by its more conservative predecessors. Initially, at least, French unions—a major source of political support for the Socialist government—objected to the loss of purchasing power implicit in the wage freeze and were reluctant to give up the nearly automatic system of wage indexing that for years had helped wages keep pace with inflation. Industry, for its part, objected to the price freeze. For, despite the government's move after the devaluation to lower domestic interest rates, the rebuilding of profit margins was thought still to be difficult, all the more so without improvements in productivity.

As a result of the wait-and-see attitude in the exchange markets, international investors were hesitant to reconstitute franc-denominated assets, and the reflux of funds that developed immediately after the realignment soon tapered off. Nonetheless, in the six weeks to end-July the franc traded comfortably in the upper part of the EMS and the Bank of France was able to enter the market as a purchaser of currencies in order to begin repaying debt and rebuilding reserves. Against the dollar the franc weakened along with other major currencies, falling to FF 7.00 on July 8 before recovering somewhat to trade at FF 6.8025 in the New York market at end-July. At this level, the franc was about 14 percent lower on balance over the six-month period under review. France's foreign exchange reserves declined from $18.3 billion

at end-January to $13.3 billion at end-July. In part, the decline reflected intervention support for the franc by the Bank of France, financed through reserve holdings and very short-term borrowings within the EMS. The drop in reserves also reflected revaluation losses on gold and dollar swaps against ECUs done with FECOM.

Italian lira

The Italian lira was trading firmly at the top of the EMS early in 1982, although it had fallen back to Lit 1,250 against the rising U.S. dollar. The lira's strength in the EMS partly reflected its two devaluations within that currency arrangement during 1981. Also, there had been some recent improvement in the Italian external balance and domestic inflation rate, and substantial inflows of capital had been attracted by high Italian interest rates. The Bank of Italy had taken advantage of the lira's relative strength to rebuild its foreign currency reserves to a level of $17.8 billion at the end of January 1982.

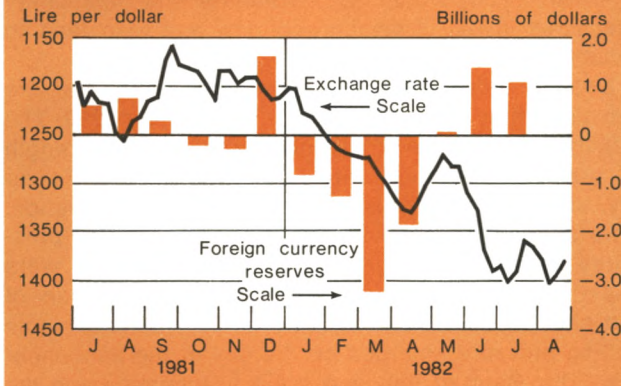
The Italian inflation rate had begun to slow in 1981 and moderated further in January 1982. In part, this progress reflected falling world prices of oil and other raw materials, those price movements stemming from deepening recession in most industrial economies. Moreover, price increases were slowing in Italy as the restrictive monetary policy of the Bank of Italy began to dampen domestic inflationary pressures. The lira was also supported at this point by improvement in the Italian current account deficit, which had contracted from a $10 billion annual rate early in 1981 to a $3 billion rate by the year-end. The improvement derived from both strong growth of export volume and declines in imports. The gains in exports reflected the 1981 devaluations of the lira within the EMS and a surge in orders from those OPEC nations that developed large current account surpluses after the 1979-80 oil price increases. At the same time, Italian imports had declined due to the weak domestic economy and the import deposit scheme which had been adopted in May 1981. (The deposit scheme required that a percentage of the foreign exchange value of imports be placed in a noninterest-bearing account with the Italian central bank. Initially the deposit was set at 30 percent, but the ratio had been gradually reduced to 15 percent by end-January 1982.)

The markets remained concerned that the recent Italian gains on inflation and external account would be difficult to sustain. OPEC current account surpluses had begun to contract, threatening to limit further expansion of Italian exports, while failure to make additional gains on domestic inflation and wage increases was thought likely to result in declining competitiveness of Italian exports to industrial economies. Moreover, any upturn in domestic incomes would be likely to spur imports. In contrast to the favorable performance of the trade balance, the surplus on the invisibles account deteriorated during 1981, as increased borrowing abroad and the high level of international interest rates sharply pushed up the cost of servicing Italy's external debt—a drain on the current account not likely to be relieved substantially in 1982.

Chart 8

Italy

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

The inflation outlook was also clouded by the longstanding problems of the huge government deficit and steeply rising wage costs. The government had proposed an official ceiling of Lit 50 trillion for the 1982 public-sector borrowing requirement, slightly below last year's actual result. But, in 1981, the outcome had exceeded the original ceiling of Lit 37.5 trillion by some Lit 17 trillion. Thus, market participants were skeptical that such an ambitious goal for 1982 was feasible and worried that fiscal stimulus would contribute to renewed inflationary pressures. On the wage front, the government had begun negotiations with business and labor in the middle of 1981 to modify Italy's *scala mobile*, which provides for automatic quarterly adjustments in pay to offset inflation. Into 1982, however, no significant progress had been made in these negotiations.

Finally, the Italian economy had weakened in the last half of 1981, with real GNP declining for the year as a whole for only the second time since World War II. The softening of the domestic economy had contributed to slower price increases in the short run but

had led to calls for an easing of the strong anti-inflation stance of monetary policy, which had held nominal Italian interest rates well above those of Italy's major trading partners into 1982. Many market participants remained concerned that any easing of monetary policy would quickly release new inflationary pressures in the domestic economy and also tend to reduce capital inflows.

Despite these concerns about the future, the lira remained firm within the EMS into February 1982. The Italian authorities took advantage of the lira's strength to suspend the import deposit scheme in early February, about a month ahead of its scheduled termination. This action was taken to minimize speculative pressures in the exchange market that otherwise were expected to result from the market's anticipation of the change at the end of the month. Although some selling pressure emerged on the day of the announcement, the Bank of Italy was quick to intervene and the lira soon steadied.

In the EMS realignment on February 21, the lira, like the French franc, was left unchanged. The realignment focused the market's attention on the question of the future competitiveness of Italian exports and domestic economic problems. In addition, Italian market interest rates were easing, fostering rumors that the Bank of Italy would lower its discount rate either independently or in cooperation with the monetary authorities in Germany and France. In these circumstances, the lira became caught up in speculation over another EMS realignment, and residents scrambled to purchase foreign currencies and to repay mark-denominated debt. As a result, the lira, which had traded around the middle of the new EMS band immediately after the realignment, declined faster than other Continental currencies against the dollar during March. At times, it traded at or near the bottom of the joint float despite heavy intervention by the Bank of Italy, including its first sales of marks in six months. Italian foreign currency reserves declined $4.5 million during February and March.

During April and the first part of May, the lira generally remained under downward pressure in the exchanges. The latest balance-of-payments data, including the report of a record February trade deficit of Lit 2.9 trillion, confirmed the market's worry that export growth might stagnate, mainly as a result of the dwindling OPEC surplus and the increased financing difficulties of certain less developed countries which limited the scale of their imports. Also, Italian imports had surged in the wake of the elimination of the import deposit scheme, mostly to rebuild domestic inventories. At home, inflation remained considerably higher than that of Italy's major trading partners, despite having slowed somewhat further, while market concern increased over the deepening crisis within the government. Sharp divisions over economic policy, particularly between the Christian Democrats and the Socialists, threatened to impede Parliamentary adoption of a proposed austerity budget and to bring down the Spadolini coalition government.

The market thus came to view the lira as a candidate for devaluation within the EMS, generating adverse movements in leads and lags and prompting Italian residents to repay foreign currency loans and to borrow lire. In order to curb the leading and lagging of payments, the Foreign Trade Ministry moved to tighten foreign exchange controls. In addition, residents were no longer permitted to repay foreign currency loans borrowed from Italian banks prior to maturity. Subsequently, the Bank of Italy announced it would increase its progressive penalties on lira credit extensions in excess of its established ceilings to counteract the widespread substitution by Italian borrowers of home currency for foreign currency financing. In addition, the Bank of Italy intervened frequently in the exchanges to resist the decline in the rate, and it kept Italian interest rates high and steady even though rates abroad tended to ease. Nonetheless, the selling pressures on the lira persisted, and late in April it slipped below the 2¼ percent limit required for its partner currencies in the EMS, even though it remained well within the broader 6 percent band applying to the lira.

By late May, however, foreign currency inflows from the start of the tourist season, together with the earlier exchange control measures, helped bring trading into better balance. In these circumstances the view developed in the market that a devaluation of the lira might be put off at least until after the Versailles summit in June and perhaps through the summer. The Bank of Italy was able to scale back its support operations considerably and, on occasion, even purchase dollars to rebuild reserves. Nonetheless, foreign currency reserves fell another $1.8 billion during the two months.

Over the June 12-13 weekend the lira's central rate within the EMS was adjusted downward 2¾ percent against those currencies in the system whose central rates remained unchanged, as part of a realignment involving the French franc. In effect, the lira was devalued by about 7 percent against the German mark and Dutch guilder, each of which was revalued 4¼ percent. In public statements following the realignment, Prime Minister Spadolini asserted that the lira was devalued solely to protect the competitiveness of Italian exports in the face of the devaluation of the French franc and not because the move was necessary in the short run. At that point, Italy expected an influx

of funds during the tourist season by then well under way. The government also announced the devaluation would be followed up with a package of austerity measures.

Following the realignment, the lira traded above the 2¼ percent limit required for other participating currencies. The Bank of Italy took advantage of the lira's comfortable position within the EMS to rebuild reserves and to ease short-term domestic interest rates. Nonetheless, Italian rates remained high in relation to interest rates abroad and continued to attract capital inflows, particularly with a lira devaluation no longer a near-term prospect. The relative strength of the lira also enabled the Italian authorities to relax foreign exchange controls on export-related credit. Against the strong dollar, however, the lira fell back to a record low of Lit 1,401.50 in European trading.

Despite the firmness of the lira within the EMS, the market remained concerned over several issues. Impatience over the lack of progress in negotiating ways to modify the *scala mobile* had prompted first the private- and then the public-sector employers' associations to announce they would withdraw from the 1975 agreement with labor unions on wage indexation when it expires in February 1983. Employers were seeking a number of reforms to the system, including the exclusion of indirect taxes and externally generated cost increases from the calculation of wage increases, a more flexible escalator which would allow firms to differentiate among various wage and salary categories, and adjustments in wages every four or six months rather than every three months. Although many labor leaders accepted the need for some modification of the agreement, the unions were sharply divided over the nature and extent of any changes. The breakdown of negotiations to change the wage indexation system was a serious setback to the government's efforts to forge a social pact and to limit wage increases in 1982 to 16 percent, and it raised the possibility of protracted strikes by the unions. Also, the outcome of the three-year wage contract negotiations, which had not yet begun in earnest even though some of the contracts had expired the previous December, had been thrown into greater doubt.

Meanwhile, after months of fractious debate, the Italian cabinet finally approved a major stabilization program designed to hold the increase in the state borrowing requirements in 1982 to a level well beyond the original proposed ceiling of Lit 50 trillion but lower than the estimated Lit 70 trillion that would result if no action were taken. However, even after this action, the state borrowing requirement would exceed that of most other industrial countries and pose a threat to the progress already made on the inflation front. Furthermore, the program still awaited final Parliamentary approval.

By end-July the lira was trading at Lit 1,367.00 against the dollar, down 9¼ percent over the six-month period under review and down 5 percent against the German mark. Meanwhile, Italy's foreign exchange reserves stood at $13.9 billion, an increase of $3.9 billion over the period.

European Monetary System

In early 1982 most countries participating in the EMS joint float arrangement had been pursuing generally restrictive macroeconomic policies for about two years to counter inflationary pressures arising from the second round of international oil price increases. Some had made considerable progress in reducing inflation and in limiting the impact of higher oil prices and depreciating exchange rates on domestic wages and costs. Meanwhile, the dramatic softening of previously tight conditions in the world oil market and the weakening of economic activity in the EMS (and among industrial countries more generally) helped erode many of the larger payments imbalances that had emerged in the aftermath of the oil shock. But there were major problems as well. Rigidities in economic and social structures—which in varying degrees characterize all industrial countries—hampered the implementation of restrictive policies in individual EMS member states or meant that success in the battle against inflation was achieved only at considerable cost. Restrictive policies proved costly in terms of output losses and unemployment, and the prospects for growth appeared more pessimistic than expected earlier, even for countries that had chosen to adopt policies of greater stimulus. Also, while the progress on inflation was achieved through tight monetary policies and high interest rates, the outlook for maintaining a durable reduction of inflation was being undermined by the persistence of unacceptably high government deficits. Within individual countries the listless state of domestic demand generated efforts by domestic firms to sell in external markets, competitive pressures among member states were strong, and protectionist tendencies were growing. Moreover, underlying the more balanced pattern of payments positions were substantial disparities in competitiveness.

Within the joint float arrangement, the Netherlands guilder, French franc, and Italian lira traded at the top while the German mark, the Belgian franc, Danish krone, and Irish pound traded in the middle and lower portions of the band. The upper group contained currencies which were vulnerable on fundamental economic grounds but nonetheless remained firm, benefit-

ing from a combination of relatively high interest rates, exchange controls, and expectations in the market that official parities established in October 1981 would hold at least in the near term. At the bottom, requiring persistent intervention support, was the Belgian franc. Structural problems in the Belgian economy were reflected in mounting public-sector fiscal deficits, in excess of 15 percent of GNP, and current account deficits which for some years had been financed through government-arranged loans in dollars and in other currencies. The external public debt which was practically nil in 1977 had risen by end-1981 to more than 10 percent of GNP.

Like governments in other small, open economies, the government of Belgium had for some time rejected devaluation of its currency, arguing that the benefits of such action would be quickly eroded in view of the large role of international trade in total GNP and the high degree of domestic wage indexation. But, because of the mounting gravity of the situation, the new government that came to office after the November 1981 election had been granted special powers by Parliament, including authority to constrain the growth of wage increases. Consequently, a change in the official parity of the Belgian franc seemed more likely than before. Meanwhile, Denmark and Ireland, which had also relied heavily on foreign borrowings to finance large fiscal and current account deficits, found the inflows of private capital had slowed. To maintain balance in the foreign exchange market, Ireland continued to place reliance on foreign exchange controls. In Denmark, concern developed that the exchange rate for the krone did not reflect the deterioration that had occurred in the economy's external competitive position.

On February 21, the Belgian franc was devalued by 8½ percent and the Danish krone by 3 percent against all other participating currencies. In connection with the realignment, the Belgian authorities introduced measures aimed at stimulating private investment while reducing the government borrowing requirement. They included a limited price freeze, the temporary suspension of wage indexation, and selected tax reductions for business and industry. Immediately after the realignment, the Belgian franc and Danish krone rose to the top of the newly aligned band, the Netherlands guilder traded around the middle, and the German mark, French franc, Italian lira, and Irish pound moved to the lower portion of the EMS band.

Exchange market participants were skeptical that the new parities would stick, citing concerns about relative competitiveness, unresolved structural problems, and continued policy divergences. It was known in the market that the governments of Belgium and Denmark had requested larger depreciations of their currencies than had been agreed to by other member states, and participants therefore questioned whether the realignment was sufficient to rectify the various imbalances that had already emerged. At the same time, the realignment appeared too narrow in scope. It was seen in the market as failing to address differences between currencies of countries benefiting from improving current account and inflation performances, such as the German mark and the Netherlands guilder, and currencies of countries where the outlook was decidedly less favorable, such as the French franc and the Italian lira. With respect to structural issues, Belgium and Denmark were not alone in facing problems of large and growing budget deficits and rigid wage bargaining systems. In general, market participants felt that there was additional need in those and other countries—France and Italy in particular—to contain wage demands, to reduce government expenditures, and to alleviate the pressures of deficit financing on the financial markets and ultimately on the growth of money. Looking ahead, participants expressed worry that divergences in economic policy would compound existing differences in economic performance. They noted that not all countries maintained equal vigilance in the fight against inflation. In the case of France, emphasis continued to be placed on expansionary programs to curtail unemployment.

These concerns generated renewed tension within the joint float and, as speculation mounted that another realignment was inevitable, the German mark and the Dutch guilder moved to the top of the system, while the Danish krone weakened, falling for a time to the middle of the band. Meanwhile, the Belgian franc dropped to the bottom of the joint float where it alternated with the French franc. The Irish pound traded in the lower portion of the band. The Italian lira, trading in its wider 6 percent margin, fell below the currencies in the narrow 2¼ percent band. On March 19 and again on May 6—with the EMS fully stretched—the central banks of Germany and the Netherlands reduced their official lending rates. The authorities in the Netherlands had room to provide some stimulus to stagnant domestic demand, owing to the favorable external position of the Netherlands. Indeed, with domestic demand weaker than in most other EMS countries, competitiveness improving, and natural gas export revenues boosted by earlier price hikes, the Dutch current account posted a surplus estimated around 4½ percent of GNP.

The reduction of interest rates in Germany and the Netherlands provided only temporary relief to the weaker currencies. The psychology of the market grew increasingly pessimistic, as skepticism intensi-

fied about the willingness and ability of the authorities in the weaker currency countries to correct imbalances in their economies. Adverse social reaction within Belgium provoked by the post-February devaluation program and by specific problems in the steel sector (including demonstrations and strikes) cast doubt on the durability of the government's austerity measures. Elsewhere, institutional arrangements, coupled with the pressures of high and rising unemployment, appeared to make a tightening of financial policies very nearly untenable, particularly in Denmark and Ireland where domestic budget deficits widened sharply. To defend existing parities, the authorities of Belgium, Ireland, and France raised official interest rates while money market rates in Denmark moved higher. France and Italy also tightened exchange controls. And, in all cases, intervention sales of dollars and of stronger EMS currencies became heavier and more frequent.

Over the weekend of June 12-13, the EMS was again realigned. The central parities of the German mark and Dutch guilder were revalued by 4¼ percent, while those of the French franc and Italian lira were devalued by 5¾ percent and 2¾ percent, respectively, against the other participating currencies. The bilateral central rates of the Belgian franc, Irish pound, and Danish krone were otherwise left unchanged. In subsequent days and weeks, the Italian lira and French franc traded at the top of the newly aligned band, the Irish pound and Danish krone moved near the top, while the Belgian franc traded in the middle of the band. The German mark and Netherlands guilder traded at the bottom of the new alignment. The new exchange rate structure and the relaxation of tensions enabled several EMS countries previously constrained from easing monetary conditions to reduce domestic interest rates. France, Denmark, and Ireland permitted money market rates to ease, while Belgium lowered official lending rates. The tendency of interest rates to ease occurred largely during July, when U.S. interest rates were registering sharp declines from the high levels that prevailed in previous months.

However, the reduction of European interest rates lagged behind the cuts in the United States. The weakness of the EMS currency bloc as a whole against the rising dollar made the authorities reluctant to take actions that could contribute to a further depreciation of their currencies. In addition, within the EMS the reflux of funds from revalued currencies into those that were devalued was comparatively modest both in scale and in duration, owing to the cautious reaction of the market to the newly established parities. To be sure, participants appreciated that greater efforts than earlier in the year were being made to harmonize economic policies, particularly in view of restrictive policy measures in France and Italy that accompanied the realignment. Nonetheless, participants awaited the evolution within various EMS countries of the proposed austerity and budget-tightening programs, sensing that political and institutional difficulties would make it hard for many governments to carry out intended remedial measures. In these circumstances, part of the unwinding of speculative positions occurred not within the EMS between revalued and devalued currencies but *vis-à-vis* the dollar instead. This meant that, while the EMS mechanism operated free of strains during the balance of June and July, individual member states had less leeway than after previous realignments to relax monetary policy or to enter the exchange market as buyers of currency in order to repay debt or to rebuild international reserve positions.

Canadian dollar

The Canadian dollar was declining against the U.S. currency at end-January 1982, having fallen nearly 2 percent since November to U.S.$0.8342 (Can.$1.1988), a level about 3 percent above its fifty-year low of August 1981. The Canadian economy was in a deepening slump in early 1982, but little apparent progress had yet been made on Canada's persistent double-digit inflation rate or the high rate of new wage settlements. Because of the inflation problem and the risk it would be worsened by further declines in the exchange rate, Canadian monetary and fiscal policy remained anti-inflationary. But the policy had been widely criticized in Canada in a debate which appeared to intensify each time new evidence appeared of declining productive activity and worsening unemployment. The Canadian dollar tended to weaken in the exchanges at such points, mainly reflecting concern that interest rates would be lowered to stimulate the economy and would trigger additional capital outflows. In fact, Canadian interest rates had lagged behind the rapid rise of U.S. rates during December and January, and by the end of the month the favorable differential had narrowed by as much as 5 percentage points and had been reversed for some maturities.

Downward pressure on the Canadian dollar also reflected the earlier worsening of Canada's external position and the closely related controversy over energy policy. Despite the weakening domestic economy, Canada's balance-of-payments position had deteriorated progressively through the first three quarters of 1981, mainly because of climbing external debt-service costs but also because declining demand abroad cut into Canadian exports. The deficit on current account widened just as massive net investment outflows de-

veloped in connection with the "Canadianization" of ownership in energy-related industries. If anything, Canadian energy policy became even more controversial because of the deteriorating financial position of Canadian energy companies. Falling world energy prices and declining demand stretched the cash flows of those companies at the same time that debt-service costs were climbing as a result of buyouts of foreign equity interests. Moreover, the ownership goals of the national energy program had not been reached, raising the specter of further large capital outflows even though the Canadian government was thought prepared to accept a further slowing of the rate of buyout because of financing difficulties and pressure on the exchange rate.

Reflecting this background, sentiment toward the Canadian dollar was decidedly bearish as the period opened. Large sales on Chicago's IMM pushed the rate through the psychologically important U.S.$0.83 level (equivalent to Can.$1.2057 in the interbank market) on the first day of February, and the rate declined through most of the month as interest rate differentials adverse to the Canadian currency opened up. Highly publicized criticism of the government's anti-inflation policies during a conference of the ten provincial premiers contributed to nervousness in the exchanges, despite Prime Minister Trudeau's strong reaffirmation of the government's policy stance. Then, three major private participants withdrew from the Alsands development project in Alberta, drawing attention to the problems being encountered in the government's long-term program for Canada's energy development. In all, the Canadian dollar fell another 2½ percent during February to U.S.$0.81 (Can.$1.2346). Official operations moderated pressures in the exchanges and Canadian foreign currency reserves declined nearly $800 million during the month.

From late February through early May, the Canadian dollar fluctuated between about U.S.$0.81 (Can.$ 1.2346) and U.S.$0.825 (Can.$1.2121). During early March the Canadian dollar firmed in the exchanges, following actions by the Bank of Canada to push interest rates sharply higher and reestablish an interest rate differential favorable to the Canadian dollar. Market participants were reassured by these actions and the accompanying statement by the Bank of Canada which reaffirmed the policy of maintaining a positive interest rate spread relative to the United States sufficient to attract needed capital inflows. Also, Canada's trade surplus had increased significantly in late 1981 and had jumped to a U.S.$1.3 billion surplus in January, the largest in a year. In fact, the Canadian trade surplus remained large, subsequently underpinning the currency for the remainder of the period under review.

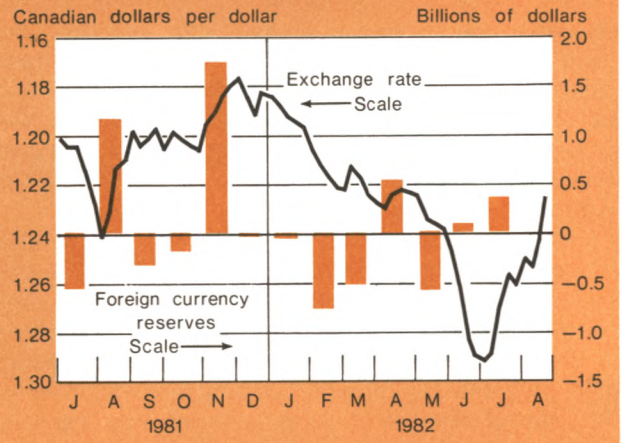
This recovery for the Canadian dollar proved brief, as selling pressure against the Canadian dollar reemerged by the middle of March. U.S. interest rate increases outpaced those in Canada, partly eroding the positive interest differentials which had opened up, while evidence of the Canadian economy's weakness continued to cumulate. The Canadian currency thus declined during the rest of March but met resistance when it approached the technically important U.S.$0.81 (Can.$1.2346) level. Through early May, the exchange rate fluctuated just above this level, responding mainly to modest variations in Canadian-U.S. interest rate differentials and participating only slightly in the general rise and then fall of foreign currencies against the U.S. dollar which took place.

Market participants remained preoccupied with the state of Canadian economic policy. Their concerns gained new emphasis from the news that unemployment had risen to 9 percent in March, while consumer prices had registered their second consecutive monthly increase of more than 1 percent. Rumors developed in the market, and were confirmed by an announcement on May 1, that the Alberta oil sands development project would be abandoned following withdrawal by all its private participants. The Bank of Canada was a net seller of U.S. dollars during March, recording a drop of approximately $500 million in reserves, but during April its net reserve position remained about

Chart 9

Canada

Movements in exchange rate and official foreign currency reserves



See exchange rate footnote on Chart 3.

unchanged as the central bank drew $500 million on its credit lines with U.S. commercial banks to bolster reserves.

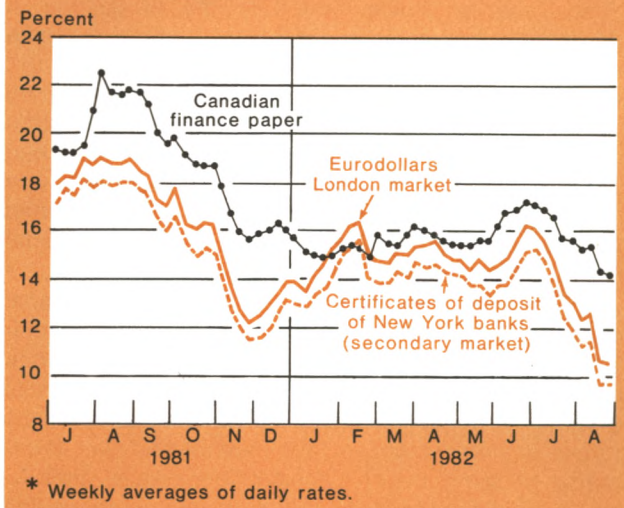
The Canadian currency's relative steadiness since late February ended abruptly in early May, and a sustained slide began which took the Canadian dollar to record levels below $0.77 (Can.$1.30) by the third week of June. In a sudden wave of selling, the exchange rate plummeted through the U.S.$0.81 level on May 12 for the first time since August 1981. While market participants were encouraged by another large trade surplus in March, this good news was swamped by an April jump in the unemployment rate to 9.6 percent and by an article published in a leading Toronto newspaper which suggested that the Canadian authorities might be considering a shift in policy toward stimulating the economy and allowing the currency to depreciate. Government officials were quick to refute this suggestion. Still, the Canadian dollar dropped nearly 1 percent that day to close at U.S.$0.8059 (Can.$ 1.2408). The Bank of Canada provided exchange market support and acted to tighten cash reserves of the banking system. Following a ¼ percentage point rise in the central bank's discount rate and the Prime Minister's statement assuring Parliament that there would be no devaluation or imposition of exchange controls, market participants were reassured that, for the moment, policy would not be changed. Announcement of modification to the export licensing criteria for natural gas also helped the currency.

Market sentiment deteriorated further in June, however, on news of another decline in industrial production and a record 10.2 percent unemployment rate in May, prompting more public calls for lower interest rates. In addition, greater concern developed about the financial strains affecting Canadian corporations and even some large Canadian banks. In this environment, news which otherwise might have been favorable to the exchange rate, such as better trade figures and a higher Bank of Canada discount rate, only served to confirm the likelihood of further weakening of the economy and thereby deepened the mood of pessimism about prospects for the Canadian currency. Then, following the close of the Versailles summit meeting, Prime Minister Trudeau indicated that Canada might take independent action if U.S. interest rates did not fall by mid-July, suggesting to the market the possibility of a change of heart by the authorities about accepting the consequences of currency depreciation. Heavy speculative sales occurred in an increasingly bearish atmosphere, particularly after the announcements of a further acceleration of consumer price inflation during May and an 8 percent decline at an annual rate in real GNP for the first three months of the year.

Chart 10

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

Three-month maturities*



* Weekly averages of daily rates.

The exchange rate thus fell to a historic low of U.S.$0.7683 (Can.$1.3016) on June 22.

At these levels, the Canadian dollar met resistance to further declines, steadied through early July, and began a recovery which coincided with the rapid declines in U.S. interest rates and a softening of the U.S. dollar through the end of the period. Corporations took advantage of the historic low rates to meet their needs for Canadian currency, while professionals began taking profits on their very large short positions. A new budget was announced on June 28 and the main feature was a proposal for a two-year national effort to brake inflation. The program included a cap on salary increases of government employees, limits on price increases in federally regulated sectors of the economy, some temporary deindexation of personal income taxes and social security payments, and new measures to assist those most severely affected by the recession. Market reaction to the budget announcement was primarily negative, focusing on the Can.$9 billion increase to nearly Can.$20 billion in the government's estimated total deficit for the current fiscal year, a change which resulted from the low level of actual economic activity, compared with what had been assumed in the previous budget. On the positive side, market participants were relieved that government policy remained firmly anti-inflationary. Thus, the exchange rate fluctuated without significant gains.

Canadian gross foreign exchange holdings declined some $500 million through May and June, even after additional drawings on the credit lines with Canadian and foreign banks amounting to $300 million in May and $1.4 billion in June.

The Canadian dollar firmed in the exchanges in July, initially supported by technical factors, as some widely used statistical models gave strong "buy" signals and participants on the IMM began turning their large short positions. U.S. interest rates also began a decline which was not immediately matched by equivalent cuts in Canadian rates, and there was speculation in the market that the authorities planned to tap foreign credit markets again to bolster official reserves. These supporting factors were reinforced by a continued strong trade performance, seasonal inflows from tourism, and an unusually heavy schedule of foreign borrowing conversions, which in combination appeared to swamp any negative impact on sentiment from the report of yet another increase in June unemployment to 10.9 percent and the downgrading of some major Canadian borrowers' debt issues by an American bond-rating service. Some selling emerged later in the month when wage talks between Prime Minister Trudeau and the Canadian Labor Congress ended in disagreement, but this pressure soon abated and the Canadian currency continued to firm despite a temporary rise in U.S. interest rates toward the end of the month. The Canadian dollar thus closed the period at U.S.$0.7987 (Can.$1.2520) on July 30, 4½ percent lower than six months earlier but still nearly 4 percent higher than its lowest level reached in June. As the Canadian dollar reversed strongly during July, the Bank of Canada made substantial net purchases of U.S. dollars and repaid $750 million of its drawings on commercial banks, while adding about $400 million to official foreign exchange reserves. During the six months as a whole, Canada's official foreign exchange reserves fell some $800 million to $2.1 billion and $1.65 billion of the borrowings on commercial bank credit lines remained outstanding as of the end of July.

Mexican peso

By early 1982, the Mexican peso was widely seen by market participants as significantly overvalued in the exchange markets, reflecting the accumulated effects of a high and accelerating domestic inflation rate, a nearly fixed exchange rate against the U.S. dollar over a period of several years, and to an extent the appreciation of the U.S. dollar after the middle of 1980. Dating from early 1977 and increasingly after 1979, the Mexican authorities had followed an aggressive policy of industrialization and expansion of domestic employment, based on rapidly expanding oil production and exports, and a program of borrowing abroad in order to finance the import of industrial capital goods. These policies succeeded in their major objectives, with real output expanding in Mexico at an annual rate of over 8 percent in the four years through 1981 and with commensurate effects on employment.

At the same time, however, signs of strain appeared on both the domestic and international fronts. Domestically, fiscal deficits climbed to approximately 15 percent of gross domestic product by 1981, money supply expansion held steady at about 33 percent per annum for four consecutive years, wage increases climbed, and in consequence the rate of inflation accelerated in 1980 and 1981 to nearly 30 percent. On the international front, the relatively stable peso exchange rate and rising domestic prices combined to spur imports of consumer goods and to depress Mexican nonoil exports, and worsened a trade deficit already deepened by expanding capital goods imports and recession in the industrial world. Meanwhile, the rapid growth of external indebtedness and historically high international interest rates led to rapidly climbing debt-service costs. Indeed, by the end of 1981, Mexican public and private foreign currency debt reached an estimated $75 billion, with debt-service costs virtually absorbing total oil revenues in that year. The oil price jump of 1979-80 had worked initially to increase Mexican foreign currency earnings sharply, but the high prices by 1981 produced an opposite effect, cutting deeply into world oil demand and thereby halting the rapid rise in Mexican oil production as well as lowering export earnings below what had been expected. Moreover, late in 1981, the Mexican authorities announced a 1982 public-sector budget clearly intended to continue the rapid expansion of the economy—a policy which intensified fears of even more inflation and a peso devaluation, particularly in view of the deterioration in the external account. Despite these developments, the peso late in 1981 was trading at about Mex.$26 ($0.038), in nominal terms only about 15 percent below its level five years earlier but in real terms substantially higher.

The authorities initially responded to the growing pressure on the peso by accelerating the gradual depreciation of the currency in the exchanges to about a 17 percent annual rate by the end of 1981. Nevertheless, there were frequent rumors of an impending maxi-devaluation—such as had occurred in 1976—prompting bursts of foreign currency purchases by Mexican residents and an erosion of Mexico's foreign currency reserves, which at the end of 1981 were reported at $3.7 billion. Then, on February 17, 1982, the Banco de Mexico announced that, in view of the exter-

nal situation, it would temporarily withdraw intervention support from the peso, so that the peso could find an equilibrium level in the market. The Mexican authorities saw the problem primarily as one of external balance and stated that an exchange rate adjustment would make it possible to continue efforts to industrialize Mexico and to expand employment. Accordingly, such corrective measures as were announced to go along with the floating exchange rate were addressed mainly to external considerations and to cushioning the domestic effects of the devaluation. Public spending was to be reduced, with the savings used to cushion the incomes of the workers from the effect of currency devaluation and to cover the increased peso costs of servicing the public-sector external debt. Price controls were announced, and domestic interest rates were to be kept high, but measures were also taken to ensure adequate credit flows to critical sectors of the economy.

On the external side, the Mexican authorities expected that the decline in the peso exchange rate would substantially restore Mexico's competitive position in nonoil exports, sharply reduce nonessential imports, and halt the capital flight. The expected swing in the Mexican trade account was in turn thought likely to reduce Mexico's need for external borrowing through 1982. In addition, import licensing was to be tightened. Immediately following the announcement, the peso dropped in the exchanges from Mex.$26.74 to Mex.$38.0 and in the next two weeks fell to about Mex.$45, a devaluation of about 40 percent from the February 17 level. Once trading settled down, some capital reflows occurred, enabling Mexico to buy back some of the reserves lost earlier. Through March and much of April, an uneasy peace existed in the exchange markets. The peso first climbed somewhat and then drifted lower amid some resident selling, with market participants increasingly concerned whether the February policy actions were sufficient to correct the external imbalance.

But it soon became clear that much if not all of the potential benefit of the devaluation would be lost in a burst of inflation brought on by actions taken by the government aimed at cushioning the domestic impacts of the devaluation. The main issue concerned wages. The government agreed in late March with the trade unions for increases ranging from 10 to 30 percent, increases which followed a 34 percent boost in the minimum wage on January 1, 1982. Employers then contended that the wage increases could not be absorbed without adjustments on the price front, leading the government to announce a number of tax concessions, and promises of a sympathetic review of requests for increases in controlled prices. In the wake of these developments, estimates in the market of 1982 Mexican inflation were revised sharply higher, some predicting a rate near 60 percent. In consequence, the peso again came under sustained downward pressure in the exchanges and capital flowed out of Mexico. The terms of Mexico's new international borrowings, which had begun to harden even before the February devaluation, hardened further. In mid-April the peso stood at about Mex.$46, and was being allowed to decline in the exchanges at an annual rate of about 22 percent.

Then, on April 21, the government of Mexico announced a stabilization program, prompted by the deteriorating external situation but in this instance including a major domestic austerity program designed to facilitate improvement in the external account. The seventeen-point program was aimed at sharp reduction of government spending and the fiscal deficit, largely through increases in prices of public-sector goods and services, a tightening of monetary policy, and substantial further reductions of imports which in turn would reduce the need to borrow abroad. This program, if implemented as announced, was thought by market participants likely to result in a virtual cessation of Mexican economic expansion in 1982 and thus was taken as a more concerted attempt to deal with the external situation than the February program. The announcement of such a program only about two months before national elections was also taken by the market as an indication that the Mexican authorities viewed the situation as increasingly serious. At the end of April, the Federal Reserve received and granted a request from the Banco de Mexico for a $600 million drawing on the swap facility to meet month-end liquidity needs.

In the weeks that followed, market concerns focused on two closely linked issues. First, whether the stabilization program would be implemented aggressively enough to redress the serious internal and external imbalances and, second, whether Mexico would be able to borrow enough on the international capital markets to bridge the gap until the program had time to work. With respect to the first issue, there was concern that political pressures ahead of and even following the July 4 national elections would force postponement of key program elements, particularly the sharp price increases in domestic energy and critical foodstuffs.

Through the late spring and early summer, it became increasingly clear that Mexico was encountering considerable difficulty in rolling over maturing foreign currency credits and raising needed new cash. A "jumbo loan" of $2½ billion was floated in late May, about half of which was new cash used to bolster for-

eign exchange reserves. The terms of the loan called for higher interest rate spreads above LIBOR (London interbank offer rate) than had existed only a few months before, but loan participations were slow to sell outside the lead underwriting syndicate despite the higher interest yield. A few weeks later, Mexico successfully floated a Eurobond issue but only by offering a record interest yield on such issues of 18½ percent. At the same time, private-sector borrowers also were experiencing difficulties, particularly Grupo Industrial Alfa, the large Mexican industrial conglomerate, which earlier had suspended payments on its international obligations. And again, at the end of June, the Banco de Mexico requested and was granted a $200 million drawing on its swap line with the Federal Reserve to meet a temporary liquidity need, with the funds taken down on June 30 and repaid on July 1.

As the period drew to a close, there were signs that the April economic program was beginning to take effect, although at the same time many came to question whether the program was sufficient to restore external and internal balance even if fully implemented. Imports had come down sharply, partly in consequence of the February devaluation but also reflecting the April import control program. While non-oil exports had been sluggish to respond, oil exports on a daily basis had rebounded to nearly the levels originally targeted for all of 1982. On the domestic side, limitations on peso credit were showing up in continuing interest rate increases. By late July, rates on most short-term deposits had climbed from just over 30 percent in February to about 50 percent, high by historical standards in Mexico but still well below the expected rate of inflation. But the government expenditure reductions and price increases were proceeding less rapidly than called for in the April program, suggesting that the reduction of the fiscal deficit in 1982 would be at best only about two thirds of the amount targeted in April.

Capital flight apparently tapered off somewhat through late June and July, although downward pressure on the peso in the exchanges continued. However, with estimates of the inflation rate progressively revised upward, market participants came to expect an acceleration in the gradual peso depreciation or another major devaluation, and concern remained over the possibility of a renewal of significant speculative pressure. Thus, it was clear that more time and continued forceful government action would be required before economic balance could be restored, with the implication that liquidity pressures would continue to be serious for some time. At the end of July the peso had declined to about Mex.$49 to the U.S. dollar. And, on the final day of the period, Mexico again drew on its swap line with the Federal Reserve to finance a short-run liquidity need, taking down $700 million on July 30 and repaying the amount in full the following business day.

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