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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* PETER D. SKAPERDAS *(on an assessment of the financial position and fiscal policies of state and local governments, page 1);* AARON S. GURWITZ *(on twelve improvements in the municipal credit system, page 14);* ALLEN J. PROCTOR *and* KATHLEENE K. DONAHOO *(on commercial bank investment in municipal securities, page 26);* DANIEL E. CHALL *(on neighborhood changes in New York City during the 1970s, page 38); and* SHAFIQUL ISLAM *(on currency misalignments—the dollar and the yen, page 49).*

*Other staff members who contributed to In Brief—Economic Capsules are* M. A. AKHTAR, A. STEVEN ENGLANDER, *and* CORNELIS A. LOS *(was the 1980-82 inflation slowdown predictable, page 61);* M. A. AKHTAR, CORNELIS A. LOS, *and* ROBERT B. STODDARD *(surveys of inflation expectations: forward or backward looking, page 63);* CARL J. PALASH *(initial claims: a reliable indicator of unemployment, page 66);* SANDRA C. KRIEGER, *(NOW accounts and the seasonal adjustment of M-1, page 67); and* MICHAEL D. ANDREWS *(FASB 52: corporate response and related foreign exchange market effects, page 69).*

*An interim report of Treasury and Federal Reserve foreign exchange operations for the period August through October 1983 starts on page 71.*

# State and Local Governments
## An Assessment of their Financial Position and Fiscal Policies

State and local governments are at a crossroads in fiscal planning. The sector as a whole finished 1983 with a budget surplus of $15 billion, the highest ever. The surplus could be even larger in 1984. Nevertheless, most state and local policymakers are taking a cautious view toward their financial outlook. Their concern has raised two issues. The first is the degree of austerity state and local governments should maintain as they formulate their budgets for fiscal 1985 and lay the groundwork for 1986. The second, at a broader level, is the impact the mix of policies they select will have on the economy over the course of future business cycles.

The caution being exercised by state and local governments in ordering their priorities for reducing taxes, increasing spending, and retaining large surpluses is understandable. During the past three years, a record number of them faced annual budget crises, and in 1982 the sector had a deficit of $2 billion. Over the course of 1983, three factors accounted for the $17 billion improvement in their financial position. One was the strength of the recovery which began early in that year. The other two, starting in 1981 and escalating through 1983, were a series of tax increases and a determined effort to restrain the growth of spending. Neither of these were easy steps to take.

The budget decisions facing state and local governments are further complicated by the fact that several of the circumstances which set the stage for their earlier financial troubles are prevalent once again. One is the projected large Federal budget deficits. Another is the combination of state and local surpluses, their relatively high level of taxes, and their low levels of real spending.

Under similar situations from 1978 to 1980, the Federal Government slowed the growth of intergovernmental transfers, and states and localities enacted the largest tax cuts in their history. These two courses of action, especially the second one, significantly contributed to the severity of their subsequent financial problems. If they were pursued vigorously again today, it could leave state and local governments more financially vulnerable than they appear to be now.

The concern over the potential macroeconomic impact of state and local fiscal policies is also based on recent experience. During business cycles prior to 1980, state and local government policies had an effect similar to that of a shock absorber, working to cushion recessions and to dampen recoveries. In doing so, their policies tended to support the automatic stabilizing effects of Federal fiscal policies. This was not the case during the two recessions between 1980 and 1982. As the analysis in this article shows, the state and local sector had only a very slight moderating impact on the 1980 recession and tended to aggravate the recession from mid-1981 through the end of 1982.

The effect state and local governments have had on past economic cycles follows in part from the manner in which they plan their budgets. Most of them forecast revenues over a one- or two-year horizon and then

The author would like to express his appreciation to Marie A. Chandoha for her econometric assistance.

specify their spending levels accordingly. But, during a recession, tax receipts are likely to fall short of their projected levels. If the downturn does not last too long, though, the intended level of expenditures can still be financed by drawing down previously accumulated balances. In a recovery, the growth of tax receipts will accelerate, spending can increase at the planned rate, and surpluses are built up once again. In both instances, the net effect of state and local fiscal policies is countercyclical.

Between 1980 and 1982, however, the budgetary process which enabled state and local governments to moderate earlier downturns was not effective. In particular, their accumulated balances prior to the 1980 and the 1981-82 recessions were already at low levels following their own tax cuts and the reduction of Federal grants. Throughout the last two recessions, then, in contrast to previous ones, states and localities were forced to maintain or to fortify their surpluses by reducing the growth of spending, raising taxes, or both.

The consequences on the overall economy of states and localities having to rebuild their surpluses in a recession became especially apparent in the most recent downturn. During the 1981-82 recession, the Economic Recovery Tax Act of 1981 (ERTA) is estimated to have cut total Federal taxes by $39 billion. At the same time, however, this article shows that approximately 37 percent of that reduction was offset by discretionary tax increases at the state and local level.

The state and local surplus in the current recovery is indicative of a policy mix which is, once again, a moderating influence. If pressures should build to reduce this surplus through lower taxes, increased spending, or reduced Federal aid, then the reinforcing impact the state and local sector had on the last recession may not prove to be a fluke. The outcome could be critical from the standpoint of coordinating fiscal policies across all levels of government.

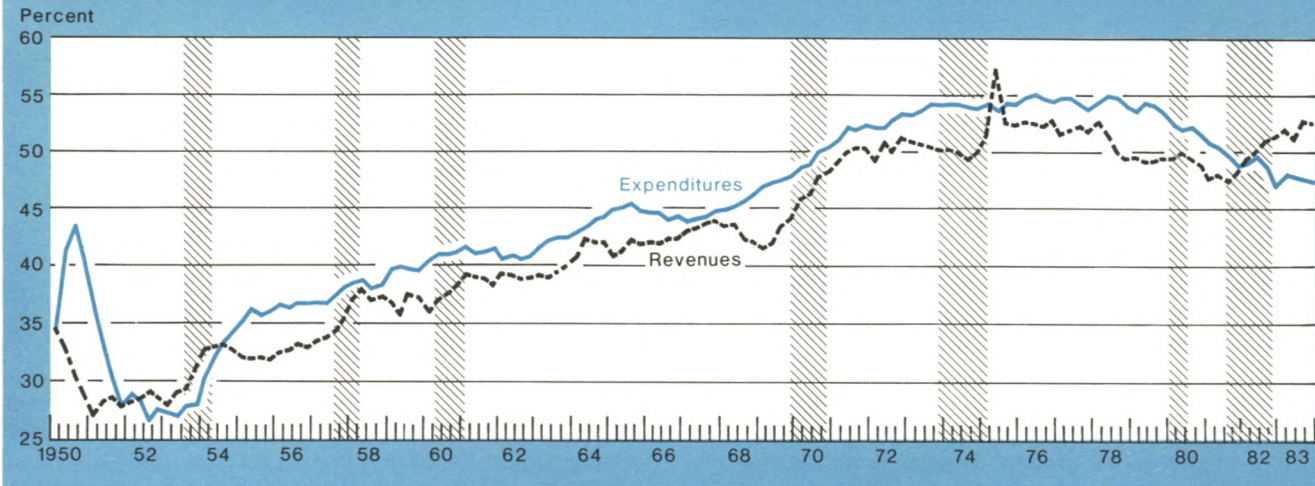
The fiscal planning situation in which state and local governments now find themselves did not come about overnight. It is the outcome of a series of events which continually reshaped the economic activities of state and local governments and their interrelationships with the U.S. economy and the Federal Government. The purpose of this article is to analyze these events and to shed light on the decisions facing state and local policymakers.

**Fiscal profile of state and local governments**

At the outset of this analysis, it is useful to review the concept of financial status for state and local governments. Ideally, one measure of that status would be

Chart 1

**State and Local Revenues and Expenditures as a Percentage of Total Government Revenues and Expenditures***




All figures are on a national income and product account basis. Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research.

*Social insurance revenues and expenditures are excluded.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

suitable for quantifying changes in financial conditions for individual state and local governments, for the sector as a whole, and for the sector with respect to the rest of the economy. Unfortunately, no such single measure exists.

The national income and product accounts (NIPA) provide a basis by which the state and local sector can be analyzed as a component of the overall economy. However, this concept of the sector's budget surplus or deficit can give a very different impression of financial conditions than one obtained by looking at the budgets of state and local governments. There are several reasons for this.

First, the NIPA definition of surplus and deficit includes capital expenditures such as those for schools or roads on the spending side of the state and local sector's budget. But it does not include the funds borrowed to finance those projects on the revenue side. Most states and localities, though, in contrast to the Federal Government, have a capital budget which is separate from their current operations budget. This means that, if a sufficiently large amount of capital expenditures were financed by issuing debt, the NIPA measure could show a deficit, even though state and local governments had surpluses in their current operations budgets.

Second, the NIPA budget measure does not include accumulated balances which state and local governments can carry over from the previous fiscal year into the current year. Yet, states and localities consider these balances when assessing their financial outlook and when planning their budgets. For example, a state which had ended the previous year with a large accumulated balance, could run a small operating deficit in the current year and, by its method of accounting, still end the year with a surplus.

Finally, it is important to separate, as the NIPA do, the state and local sector's social insurance funds (primarily pensions) from its current operations budget. The surplus in the social insurance fund, which amounted to more than $36 billion in 1983, is an important component of credit markets in the United States. However, the surplus is reserved for future pension obligations and cannot be used to finance the current operations of state and local governments.

When social insurance programs are excluded, states and localities in the United States account for about half of the economic activity for what is commonly referred to in other countries as the general government—Federal, state, and local governments combined (Chart 1). Of course, in terms of their fiscal operations, state and local governments differ from the Federal Government in a number of areas.

*Budget requirements*

Unlike the Federal Government, all state and local governments (except Vermont) are required by law to enact balanced operating budgets.[1]

There are three implications of the balanced budget requirement. First, a deficit is not the only budget outcome that can constitute a potential problem. Projections for a small surplus or a balance at the beginning of the fiscal year could also be cause for concern. If unanticipated revenue shortfalls or additional spending needs were to arise, it could necessitate further legislative measures during the year in order to avoid an end-of-year deficit. For this reason, most governments prefer to design their budgets so that their projected balance at the end of the year equals 5 percent or more of expected outlays.

Second, without deficit spending, state and local governments cannot be so responsive to deteriorating economic conditions as can the Federal Government.

Third, the level and composition of Federal grants can have a decisive effect on state and local taxing and spending decisions. When assessing the impact of the state and local sector on economic cycles, then, it is important to distinguish the effects due to its own discretionary actions from those due to changes in Federal aid.

*Policy objectives*

For the most part, state and local governments are concerned with providing the desired level and distribution of services for their constituents without creating an unfavorable tax climate. The desire of a state or locality to increase its spending must be weighed against the risk of losing business and household income to other jurisdictions, given that it may also have to raise taxes.

*Revenues*

State and local revenues can be divided into two categories. The first—own-source receipts—is comprised of taxes, charges, and fees and currently generates just over 80 percent of the sector's revenue. In 1983 this amounted to nearly $360 billion, or 13.1 percent of aggregate personal income in the United States. In contrast, Federal taxes excluding social insurance contributions amounted to about 15 percent of personal income. The remainder of the state and local sector's total revenue is provided by the Federal Government in

[1] If a deficit should arise during the fiscal year, it can be financed by drawing down accumulated balances, raising taxes or accelerating their collection, and reducing or postponing expenditures. To avert cash-flow problems during the year, states and localities can issue short-term debt in the form of either tax or revenue anticipation notes (TANs or RANs).

the form of grants. Federal aid was just over $86 billion during 1983.

The primary contributors to state and local own-source receipts are sales taxes and the property tax. Together they presently account for about 56 percent of the total. Next in order of magnitude are taxes on individual income (17 percent) and corporate income (5 percent).[2] Other components of own-source receipts include estate and gift taxes, severance taxes, hospital and health charges, rents and royalties, user fees, and licenses.

State and local governments administer two types of sales taxes. One is the broad-based general sales tax which is specified as a percentage of the price of a product or service. The other is made up of selective sales taxes—sometimes referred to as excise taxes—which are levied on a unit of output. The principal sources of revenue in the latter category are taxes on motor fuels, tobacco products, and alcoholic beverages.

An important trait of the state and local tax system is that it does not obtain nearly so much revenue from income-based taxes as the Federal Government does. Currently, taxes on individual income and corporate income generate about 21 percent of state and local own-source receipts but over 85 percent of Federal revenue (excluding social insurance tax receipts). The significance of this disparity is that income-based taxes tend to be more elastic than other taxes. Of the major taxes at the state and local level, only the individual income and corporate income taxes have elasticities with respect to inflation which are greater than one.[3] Because of this structural difference in tax systems, state and local own-source receipts are less responsive to changing economic conditions than Federal revenues are.

Two points are often overlooked in regard to the second source of state and local revenue, Federal grants. The first is that almost half goes for direct transfer payments to individuals, such as Aid to Families with Dependent Children (AFDC) and medicaid benefits. Although they are measured as state and local expenditures, the primary role of these governments is to administer the programs. For the most part, they have little or no discretion as to how or where the funds should be spent. Second, while roughly 75 percent of total Federal grants goes to state governments, much of this is eventually passed down to local governments. Therefore, localities depend more heavily on intergovernmental aid than states do.

*Expenditures*

In 1983, state and local governments spent over $430 billion. The single largest category of expenditure is education. After that comes income support and welfare, health and hospitals, and transportation. Over 95 percent of their total spending goes to purchases of goods and services, including wages and salaries.[4] In contrast, only about one third of all Federal expenditures go to purchases of goods and services as over half of all Federal outlays now go to benefit payments to individuals, *e.g.,* social security and medicare, and to interest payments on the debt.

Since virtually all state and local expenditures are for purchases, the spending side of their budgets is not automatically affected by cyclical changes in economic activity to the same extent as the Federal Government. When considering all categories of Federal expenditures, many types of transfer payments, such as social security benefits, are likely to have automatic cost-of-living adjustments (COLAs). The level of interest outlays is also directly affected by economic fluctuations, because nominal interest rates adjust to higher or lower rates of inflation. Purchases, however, are usually not automatically indexed or as responsive to changes in inflation.

**Trends**

The fiscal profile of state and local governments has changed considerably over the postwar period. This has been evident in their financial position as well as in the types of public services they provide and how they fund them. Three general phases in the sector's economic activity have occurred since 1950. Each one is identified by the rate of expansion for the sector in relation to the Federal Government and to GNP and by the changing role of states and localities in the U.S. federalist system of government.

In the first phase, from 1950 through 1971, the state and local sector grew considerably faster than either the Federal Government (Chart 1) or GNP (Chart 2). During this period, it also absorbed a continually larger share of the economy's income and real resources. For instance, in 1950 state and local own-source receipts were about 8 percent of aggregate personal income. By the end of 1971, they had risen to 13.4 percent. Since most of this went for purchasing goods and services, the sector provided a strong stimulus for economic growth. In real terms, its purchases increased from about 10 percent of GNP in 1950 to 13 percent in 1971.

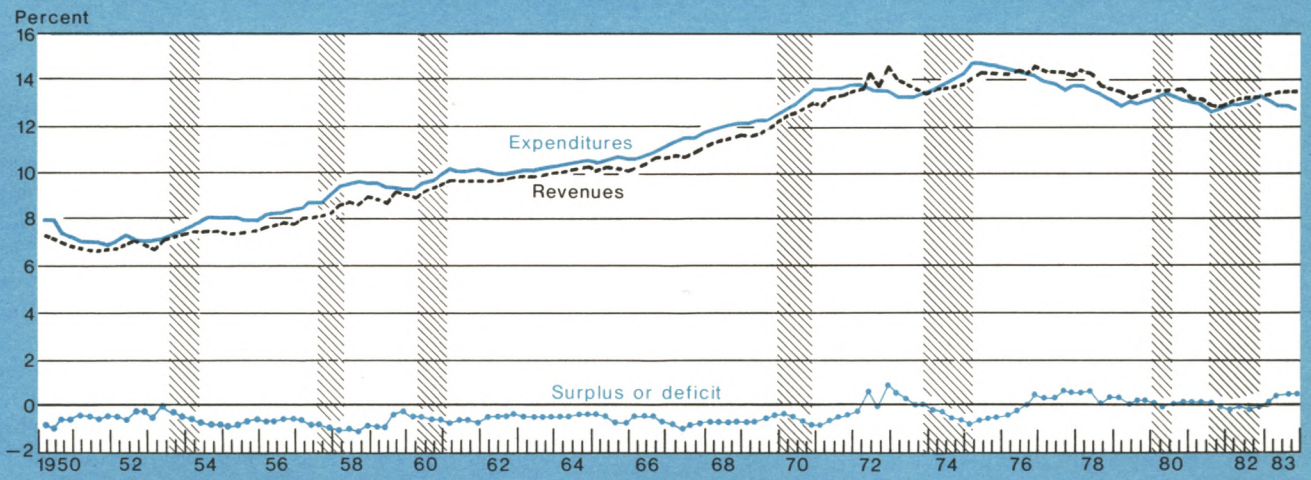
[2]Within the state and local sector, roughly 85 percent of the sales tax receipts, 90 percent of the individual income tax receipts, and virtually all of the corporate income tax receipts are collected by state governments. Over 95 percent of total property taxes are paid to local governments.

[3]This means that, if inflation increased by 1 percent, tax receipts will grow by more than 1 percent.

[4]As defined in the NIPA, purchases of services include employee compensation. This convention is used throughout this article.

Chart 2

**State and Local Expenditures, Revenues, and Surplus or Deficit as a Percentage of GNP***




All figures are on a national income and product account basis. Shaded areas represent periods of recessions, as defined by the National Bureau of Economic Research.

*Social insurance revenues and expenditures are excluded.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

By contrast, over the same period, Federal tax and nontax receipts fell from 19.4 percent of personal income to 16.7 percent, and real Federal purchases grew from 8.8 percent of real GNP to only 9.2 percent.

The rapid growth of the state and local sector was, in part, the natural consequence of shifting economic, demographic, and political conditions. Some of the contributing factors were the effect of the baby-boom on school enrollment, the construction of the interstate highway system, the growing need for other forms of infrastructure due to population migration, and the increased demand for income support and public welfare programs.

The capacity of state and local governments to respond to each of these conditions was enhanced by the proliferation of Federal grants. As shown in Table 1, grants rose sharply in current and constant dollars throughout the period. More importantly, perhaps, Federal aid as a percentage of state and local revenue nearly doubled, reaching over 20 percent in 1971. This meant that, although state and local governments were providing a broader range of goods and services, their ability to do so was becoming increasingly dependent on Federal budgetary policy.

Throughout the 1950s and 1960s, the state and local sector ran a continual deficit (Chart 2). However, this was not an indication of fiscal distress. Rather, it was due both to the fact that states and localities were borrowing to finance capital projects and to the method by which this is accounted for in the NIPA.

There were several changes worth noting in the composition of state and local expenditures and revenues during this phase. Most of them took place toward the end of the period and had a bearing on the direction of state and local fiscal policies during the decade that followed.

On the spending side, the major development was the growing emphasis on outlays for income support and welfare between 1965 and 1971 (Table 2). Prior to that, the share of state and local expenditures for education had grown the fastest. Throughout the period, the portion of outlays for transportation declined as the interstate highway system neared completion. These developments were augmented by similar modifications in the composition of Federal grants (Table 3).

On the revenue side, starting in 1965 and continuing through 1971, there was a concerted effort by states to broaden their tax bases. In that time alone, seven states adopted the individual income tax and eight added the general sales tax. Furthermore, in 1971 especially, a number of states that already had one or both of these two taxes raised their rates.

The move by states toward broad-based taxes was due in part to the fact that they are more elastic and, particularly in the case of the individual income tax, more progressive. Their adoption, as well as the subsequent tax rate increases in 1971, was also motivated by the desire to supply local governments with additional revenues while providing their constituents with relief from the property tax. As the role of state and local governments in providing goods and services expanded, they could rely more on economic growth for the necessary additional revenues rather than on discretionary tax increases.

The state and local tax reforms had a significant impact on the level and composition of their own-source receipts. The period from 1968 to 1971 saw the sharpest sustained rise in own-source receipts in relation to Federal revenues (Chart 1) and personal income (Chart 3) in the postwar era. Almost all the increase was accounted for by sales taxes (primarily the general sales tax) and the individual income tax.

The second phase, starting in 1972, brought about a slowdown in the average rate of expansion of the state and local sector. A principal reason for the deceleration was that the pressure from demographic factors that led to the rapid growth in the 1950s and 1960s, subsided in the 1970s. For example, the enrollment of school-aged children from kindergarten through high school peaked in 1971.

Table 1

**Federal Grants to State and Local Governments***

| Calendar year | Current dollars (billions) | Constant dollars (billions) | Grants as a percentage of total state and local revenue† |
|---|---|---|---|
| 1950 | 2.4 | 4.4 | 11.6 |
| 1955 | 3.2 | 5.2 | 10.6 |
| 1960 | 6.5 | 9.5 | 14.0 |
| 1965 | 11.1 | 14.9 | 15.8 |
| 1970 | 24.5 | 26.8 | 19.4 |
| 1971 | 29.0 | 30.2 | 20.3 |
| 1972 | 37.5 | 37.5 | 22.4 |
| 1973 | 40.6 | 38.4 | 22.3 |
| 1974 | 43.9 | 38.2 | 22.3 |
| 1975 | 54.6 | 43.4 | 24.7 |
| 1976 | 61.1 | 46.2 | 24.6 |
| 1977 | 67.6 | 48.2 | 24.5 |
| 1978 | 77.3 | 51.4 | 25.5 |
| 1979 | 80.5 | 49.3 | 24.8 |
| 1980 | 88.7 | 49.7 | 24.9 |
| 1981 | 87.9 | 45.1 | 22.8 |
| 1982 | 83.9 | 40.6 | 20.8 |
| ‡1983 | 86.5 | 40.1 | 19.4 |

*On a national income and product account basis.

†Total revenue equals tax and nontax receipts plus Federal grants. Social insurance contributions are excluded.

‡Federal Reserve Bank of New York estimates.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

By the end of 1977, state and local expenditures and revenues were about the same as they had been six years earlier in terms of either the general government (Chart 1) or GNP (Chart 2). The composition of expenditures also did not change by much (Table 2). Although the level of state and local own-source receipts remained fairly stable with respect to personal income, the wave of tax reforms at the end of the first period had altered the composition. The contribution of the individual income tax to total own-source receipts doubled (lower half of Chart 3). At the same time, the share accounted for by the property tax fell.

The slowdown in state and local economic activities occurred despite the continued growth of Federal aid (Table 1). By 1977, grants had reached record levels in both nominal and real terms, and they accounted for nearly one quarter of state and local total revenues.

There were two important changes in Federal grant policy during this period. One was the advent of Federal revenue sharing in late 1972. It gave state and local governments more of a voice in deciding which social service and welfare programs should be provided for and the extent to which they should be funded. This is evident in Table 3 where a sharp drop in Federal aid for income support and welfare in 1973 was more than offset by the increase in grants going to the "other" category. The second was a 24 percent surge in Federal grants in 1975. This time, much of it went to specific programs in the areas of social services and medical care.

Perhaps the most important budget developments at the state and local level in this period were the fluctuations in the sector's financial position (Chart 2). The fluctuations were mainly the products of discretionary policies at all three levels of government. However, state and local budgets had also become more responsive to changing economic conditions after the tax reforms of 1965 to 1971.

There were three swings in the status of state and local budgets between 1972 and 1977. The first was a peak in aggregate surpluses during the recovery between the 1970 and the 1973-75 recessions. Besides the healthier economy, the Federal revenue-sharing funds and a number of state tax increases accounted for the buildup. The surplus soon turned to a deficit, however, as a result of the 1973-75 recession, a series of state and local tax cuts, and an acceleration in their expenditures. The third swing started after the second quarter of 1975. Own-source receipts were bolstered by the recovery, the second large increase in Federal

Table 2

## State and Local Expenditures*

| Calendar year | Total expenditures (billions of dollars) | Education | Transportation | Income support and welfare† | Housing and community services | Health and hospitals | Other |
|---|---|---|---|---|---|---|---|
| | | (As a percentage of total expenditures)‡ | | | | | |
| 1952 | 24.9 | 33.3 | 18.5 | 13.7 | 5.2 | 9.2 | 20.1 |
| 1955 | 32.2 | 37.0 | 18.9 | 12.1 | 3.7 | 8.4 | 19.9 |
| 1960 | 48.7 | 37.8 | 18.3 | 11.5 | 3.9 | 8.2 | 20.3 |
| 1965 | 73.5 | 41.0 | 16.5 | 11.0 | 3.7 | 8.0 | 19.9 |
| 1970 | 131.2 | 41.5 | 13.2 | 14.6 | 2.8 | 8.4 | 19.6 |
| 1971 | 147.9 | 41.0 | 12.4 | 15.5 | 2.6 | 8.7 | 19.9 |
| 1972 | 162.1 | 40.9 | 11.7 | 15.9 | 2.3 | 8.7 | 20.6 |
| 1973 | 178.3 | 41.2 | 11.2 | 16.0 | 2.5 | 8.8 | 20.3 |
| 1974 | 200.9 | 40.7 | 11.6 | 15.1 | 2.7 | 9.2 | 20.7 |
| 1975 | 228.5 | 40.7 | 10.2 | 15.5 | 3.0 | 9.0 | 21.5 |
| 1976 | 247.3 | 40.6 | 8.9 | 15.9 | 3.0 | 9.0 | 22.6 |
| 1977 | 265.6 | 40.5 | 8.4 | 16.0 | 3.0 | 9.2 | 22.8 |
| 1978 | 293.0 | 39.9 | 8.7 | 15.5 | 3.6 | 9.4 | 22.9 |
| 1979 | 317.9 | 40.4 | 9.0 | 15.2 | 3.6 | 9.6 | 22.2 |
| 1980 | 352.8 | 40.2 | 9.2 | 15.5 | 3.6 | 9.8 | 21.8 |
| 1981 | 381.1 | 39.9 | 9.0 | 15.7 | 2.9 | 10.0 | 22.4 |
| §1982 | 406.0 | 39.9 | 9.1 | 16.0 | 3.3 | 10.2 | 21.5 |
| §1983 | 430.5 | 39.8 | 9.2 | 16.2 | 3.6 | 10.4 | 20.8 |

*On a national income and product account basis. Data for state and local expenditures by category are not available on a NIPA basis prior to 1952.
†Includes medicaid. ‡Figures may not sum due to rounding.
§Federal Reserve Bank of New York estimates.

Table 3

## Composition of Federal Grants to State and Local Governments*

| Calendar year | Total grants (billions of dollars) | Education | Transportation | Income support and welfare† | Housing and community services | Health and hospitals | Other‡ |
|---|---|---|---|---|---|---|---|
| | | (As a percentage of total Federal aid)§ | | | | | |
| 1952 | 2.7 | 7.5 | 18.5 | 57.8 | 0.3 | 4.4 | 11.5 |
| 1955 | 3.2 | 8.0 | 22.9 | 55.8 | 1.2 | 3.1 | 9.0 |
| 1960 | 6.5 | 6.3 | 38.7 | 40.2 | 2.1 | 4.7 | 8.1 |
| 1965 | 11.1 | 7.5 | 35.1 | 37.7 | 4.4 | 6.4 | 8.9 |
| 1970 | 24.5 | 15.0 | 19.4 | 42.1 | 7.4 | 5.3 | 10.7 |
| 1971 | 29.0 | 13.5 | 17.9 | 44.5 | 7.9 | 4.9 | 11.3 |
| 1972 | 37.5 | 11.8 | 13.8 | 44.2 | 6.8 | 4.0 | 19.4 |
| 1973 | 40.6 | 9.7 | 12.2 | 35.9 | 6.9 | 5.1 | 30.2 |
| 1974 | 43.9 | 11.3 | 12.9 | 35.5 | 8.7 | 5.6 | 25.9 |
| 1975 | 54.6 | 10.2 | 12.8 | 37.5 | 8.6 | 4.7 | 26.2 |
| 1976 | 61.1 | 7.4 | 12.1 | 39.1 | 9.7 | 4.5 | 27.2 |
| 1977 | 67.6 | 8.1 | 11.2 | 38.2 | 9.6 | 4.2 | 28.8 |
| 1978 | 77.3 | 7.9 | 11.1 | 36.9 | 8.1 | 3.8 | 32.3 |
| 1979 | 80.5 | 9.0 | 12.7 | 38.2 | 9.7 | 3.6 | 26.9 |
| 1980 | 88.7 | 8.9 | 13.6 | 40.5 | 10.0 | 3.7 | 23.3 |
| 1981 | 87.9 | 9.0 | 13.3 | 45.4 | 9.4 | 3.9 | 19.0 |
| ‖1982 | 83.9 | 9.4 | 13.0 | 47.4 | 10.7 | 4.1 | 15.4 |
| ‖1983 | 86.5 | 9.1 | 13.5 | 49.6 | 11.5 | 3.9 | 12.4 |

*On a national income and product account basis. Data for Federal grants by category are not available on a NIPA basis prior to 1952.
†Includes medicaid. ‡Includes revenue sharing. §Figures may not sum due to rounding.
‖Federal Reserve Bank of New York estimates.
Sources for Tables 2 and 3: U.S. Department of Commerce, Bureau of Economic Analysis.

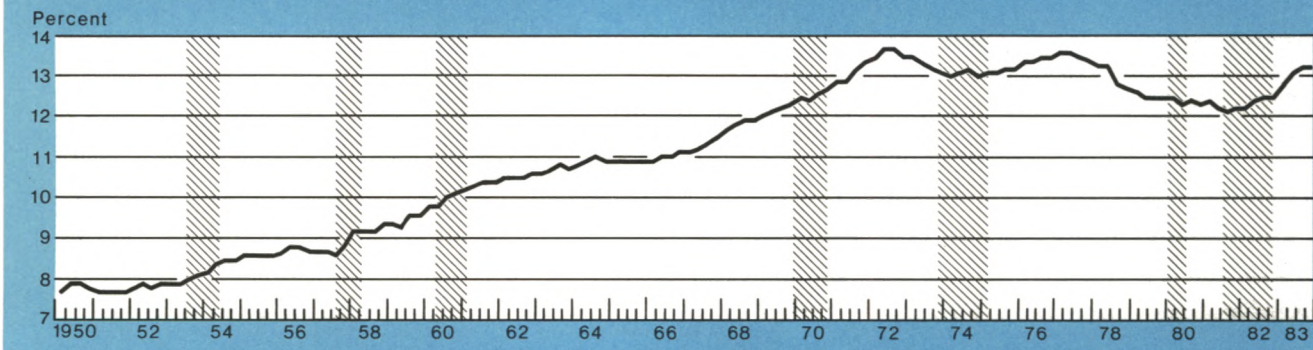
grants occurred, and the growth of expenditures slowed. By 1977 the state and local sector had an operating budget surplus of over $10 billion. At the time, it was the largest one the sector had ever run.

The end of this second phase marked a critical turning point for state and local governments. Financially, the sector, as well as the individual governments, had never been better off. In spite of that, a number of factors were complicating the budget decisions facing state and local policymakers. One was that state and local taxes were near record levels as a share of personal income (Chart 3). At the same time, though, state and local governments were not providing increasing levels of goods and services in real terms. Their purchases were at a ten-year low in relation to real GNP, and in 1976 and 1977 their real per capita purchases fell for the first time in the postwar period. Between 1950 and 1975 real per capita purchases had risen steadily from $375 to $840, but by 1977 they were down to $824. Finally, states and localities continued to be highly dependent on grants at a time when the Federal Government was running its largest deficits to date.

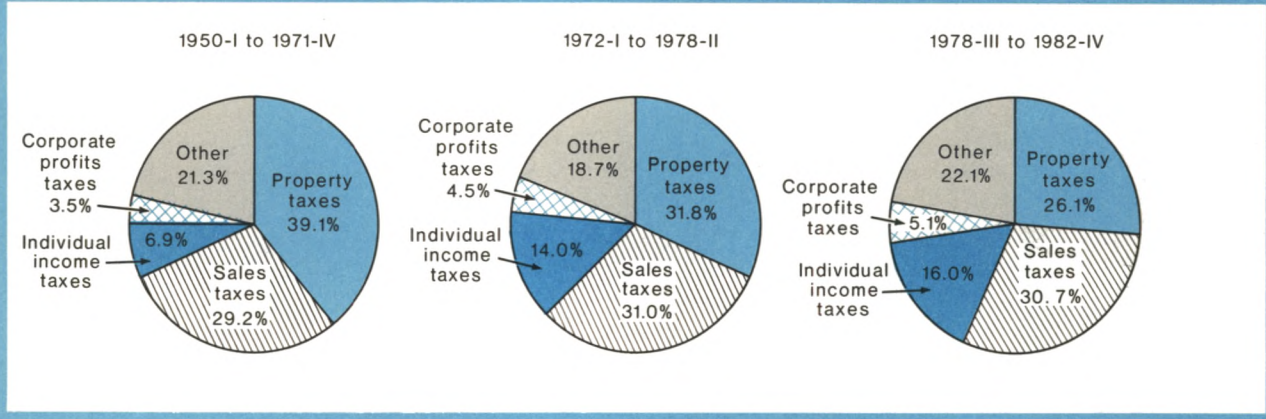
In many respects, state and local governments were confronted with the same set of circumstances in 1977 as they are now. At issue was the extent to which they should reduce taxes, increase spending, or maintain large balances. Their ensuing decisions brought about the most sweeping changes in the fiscal profile of the state and local sector in history. The outcome of those decisions also provide the basis for the two sets of

Chart 3

**State and Local Own-Source Receipts as a Percentage of Personal Income**




**Components of Own-Source Receipts**




All figures are on a national income and product account basis. Shaded areas represent periods of recession as defined by the National Bureau of Economic Research.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

concerns regarding the policy decisions state and local governments face today.

In the third phase, from 1978 through 1982, three different types of events had a substantial impact on the state and local sector—"the tax revolt", a sharp cutback in Federal aid, and two recessions.

The tax revolt was more than likely due to the combination of circumstances surrounding the financial position of state and local governments in 1976 and 1977 rather than to any one of them. The movement was ushered in by Proposition 13 in California in June 1978. That legislation was specifically designed to reduce property taxes. It received much of its impetus, though, from the state's $4 billion budget surplus which enabled taxes to be cut without necessarily requiring the provision of goods and services to be reduced as well.

Between 1978 and 1980, many other state and local governments, also running high surpluses, cut taxes and placed a ceiling on the rates of growth of own-source receipts and spending by indexing them. In most cases, the rates of growth of specific tax receipts and expenditures were indexed to the growth of personal income, the assessed value of property, or the growth of population. From 1978 to 1980, thirty-two states enacted a total of fifty-four reductions of a major tax. Most of their efforts were aimed at the individual income and general sales taxes. Local governments concentrated primarily on the property tax.

The impact of the tax revolt on the scope of state and local economic activities was immediate and substantial. From 1978 to 1980, the tax cuts reduced state and local own-source receipts by about $13.6 billion.[5] They also led to a deceleration in the growth of expenditures. For the first time in the postwar period, total revenues and expenditures at the state and local level declined on a sustained basis relative to the general government (Chart 1) and to GNP (Chart 2). State and local own-source receipts fell to a ten-year low as a share of personal income (Chart 3).

When state and local governments cut the effective rates in the general sales and individual income taxes, they also dampened the responsiveness of each tax to inflation. Between 1978-III and 1980-IV, for instance, the average rate of inflation in the United States was over 9 percent, as measured by the GNP deflator. At the same time, the consumer price index rose by an average of over 12 percent. Yet, for state and local governments, individual income tax receipts remained flat and general sales tax receipts fell with respect to personal income.

From 1979 to 1982, attempts by the Federal Government to reduce its budget deficit led to a reduction of grants to states and localities in real terms first and then in nominal terms as well (Table 1). By 1982, real Federal aid was less than it had been in 1975. As a share of state and local revenue, grants had fallen to 20.8 percent, the lowest amount in eleven years. The discontinuation of Federal revenue-sharing funds for state governments in 1981 was the major change in the makeup of grants. As shown in Table 3, it was offset by an increase in the portion of aid going to income support and welfare programs.

The decline in grants intensified the squeeze on state and local revenues initiated by their own tax cuts. However, state and local governments replaced only a small percentage of lost Federal funds with their own-source receipts. Ultimately, then, the cuts had a greater effect on reducing the growth of both revenues and expenditures for state and local governments than they had on the severity of their financial problems.

The first quarter of 1980 marked the beginning of state and local government financial troubles as the economy fell into a recession. By the second quarter of the year, the overall sector had registered its smallest aggregate surplus in four years (Chart 2). In contrast to the sector's deficits between 1950 and 1971, the decline in the NIPA surplus in 1980 signaled the beginning of financial problems for individual state and local governments as well. At the state level, for instance, governments opened fiscal 1980 with a balance of $11.2 billion left over from fiscal 1979. By the end of fiscal 1980, the balance was $11.3 billion, indicating that state operating budgets ran an aggregate surplus of only $0.1 billion.

The four quarters of recovery following the 1980 recession did little to ease the financial pressure on state and local governments.[6] In addition to the loss of receipts from the tax cuts, indexation had reduced the potential revenue gains from inflation. At the end of fiscal 1981, just prior to the start of the second recession, sixteen states had either a deficit or a balance equal to less than 1 percent of outlays.[7]

The recession from 1981-III through the end of 1982-IV left the state and local sector in its worst financial position in six years (Chart 2). Three states ended fiscal 1982 with a deficit. As a share of outlays, the balance

[5]Federal Reserve Bank of New York estimate. The Tax Foundation has estimated that tax cuts enacted solely by states from 1978 to 1980 amounted to about $4 billion. Over the same three years, figures from the Bureau of Economic Analysis show that, for selected taxes at the state and local levels, the cuts were worth roughly $9.5 billion.

[6]The recovery ended in the second quarter of 1981, the same time that fiscal 1981 ended for all but four states.

[7]All survey data on the financial condition of state governments at the end of a fiscal year reported in this article were obtained from the National Conference of State Legislatures.

in fifteen other states was no greater than 1 percent. In fact, only thirteen states did not face financial problems as they ended the year with balances of 5 percent or more. Conditions at the local level were only somewhat better.

Since the recovery was widely expected to begin by the middle of 1982, most state and local governments formulated their fiscal 1983 budgets on that basis. As the recession persisted throughout 1982, though, it became apparent that many budgets would have to be altered to avoid ending the year with a deficit. Once again, taxes were raised and the growth of spending was restrained. Nevertheless, eleven states still recorded deficits in fiscal 1983. As a percentage of outlays, balances in fifteen states were 1 percent or less and no more than 3 percent in fourteen others. Only nine states had a balance equal to 3 percent or more of outlays.

In response to their deteriorating financial position, state and local governments adopted strict austerity measures. From the beginning of 1981 to the end of fiscal 1983, they raised taxes by over $18 billion.[8] They also placed further restrictions on the growth of spending.

At first, the taxes that states raised were not the same ones they cut between 1978 and 1980. As a rule, states raise their general sales tax or individual income tax only as a measure of last resort. Of the seventy-five tax increases enacted by thirty-five states during fiscal 1981 and 1982, fifty-four were for excise taxes and half of those were for the gasoline tax. As their financial positions worsened through fiscal 1983, though, many states were forced to turn to a broad-based tax for additional revenue. Between 1981 and 1983, twenty-six states raised their general sales tax, their individual income tax, or both. The result was the most significant increases in these taxes since 1965-71. Back then, however, the goals were to broaden tax bases and to reduce the burden of local property taxes.

The structure of the corporate income tax was probably altered more than any other tax at the state level during this period. The Accelerated Cost Recovery System (ACRS) contained in the Economic Recovery Tax Act of 1981 greatly liberalized depreciation allowances and reduced Federal corporate income tax liabilities.[9] Since all states except California had been following the Federal depreciation standards, they also stood to lose a large percentage of their corporate income tax receipts. To avoid that loss, twenty-one states either partly or fully decoupled their systems from Federal depreciation standards while four others raised the corporate income tax rate.

At the local level, some governments raised the property tax following the 1980 recession and well into the 1981-82 downturn. More often, though, localities increased the individual income tax, sales taxes, user fees, or a variety of other taxes and charges to raise revenue.

On balance, then, there were two distinct sets of policy combinations at the state and local level from 1978 through 1982. The first one, applied between 1978 and 1980, contained reductions of both taxes and the growth of expenditures. In the second one, pursued from 1981 through 1982, there was an abrupt reversal in aggregate tax policy, but the stance on spending remained the same. Starting in 1978 and continuing through 1983, both sets of fiscal policies had a significant effect on the performance of the U.S. economy.

**Economic impact of state and local fiscal policies**

As a first step in examining the effects of state and local fiscal policies on the 1980 and the 1981-82 recessions, it is useful to look at how the aggregate components of real GNP have varied during each of the eight postwar recessions. Table 4 shows the changes in real GNP from the preceding peak to the trough of each recession as well as the underlying changes in real consumption, investment, net exports, and government purchases.

In the first six recessions after World War II, state and local government purchases stand out as the one component of real GNP that always served to reduce the magnitude of the downturn. The two most recent recessions were a departure. In 1980, state and local purchases in real terms registered their first postwar decline during a recession. In the 1981-82 downturn they increased by only $0.2 billion. This last recession was also unique in comparison to the other postwar recessions in that it contained the largest decrease in real Federal grants and the largest increase in real Federal purchases.

Focusing on the changes in the real purchases of state and local governments, though, gives an incomplete picture of the effect the sector had on past recessions. For example, the breakdown of figures in Table 4 makes it tempting to conclude that state and local governments exacerbated the 1980 recession and had virtually no effect on the most recent one. The following analysis, however, shows that both conclusions are incorrect. The reason is that the additional economic effects caused by changes in state and local tax policies and Federal grants are excluded in Table 4.

[8] Federal Reserve Bank of New York estimate. For the full three-year period from 1981 through 1983, the Tax Foundation estimated that tax increases at the state level were worth more than $14 billion.

[9] It was estimated that the Federal Government would lose 40 percent of its corporate income tax receipts by 1986 as a result of the provisions in ERTA.

The changes in state and local governments' tax policies had an impact on both their real purchases and on certain economic variables which, in part, determine several other components of real GNP. For instance, when state and local governments rebuild their balances during a recession by raising taxes, disposable income is reduced and, other things being equal, real consumption is lowered. Furthermore, not all the changes

Table 4

**Changes in the Components of Real GNP in the Eight Postwar Recessions***

In billions of 1972 dollars, seasonally adjusted annual rates

| Real GNP and its components | 1981–III to 1982–IV | 1980–I to 1980–III | 1973–IV to 1975–I | 1969–IV to 1970–IV | 1960–II to 1961–I | Eight postwar recession periods: 1957–III to 1958–II | 1953–II to 1954–II | 1948–IV to 1949–IV |
|---|---|---|---|---|---|---|---|---|
| Real GNP | −45.1 | −32.2 | −61.8 | −0.9 | −0.7 | −18.6 | −20.2 | −7.1 |
| Personal consumption | 16.7 | −8.9 | −3.4 | 10.0 | −0.1 | −0.5 | 1.6 | 7.1 |
| Nonresidential investment | −16.5 | −8.2 | −20.0 | −7.1 | −2.6 | −8.5 | −1.1 | −8.2 |
| Inventory investment | −38.8 | −9.6 | −38.0 | −5.6 | −7.4 | −9.9 | −9.2 | −13.0 |
| Federal purchases | 12.6 | 0.3 | 0.6 | −11.6 | 2.2 | 2.5 | −19.4 | 0.2 |
| State and local purchases | 0.2 | −0.3 | 6.1 | 7.5 | 4.8 | 4.8 | 4.7 | 6.4 |
| Net exports | −16.8 | 3.6 | 10.9 | 1.8 | 3.6 | −6.3 | 2.3 | −2.3 |
| Addendum: | | | | | | | | |
| Real Federal grants to state and local governments | −4.0 | 0.1 | 2.4 | 2.2 | 0.8 | 2.1 | −1.1 | 0.3 |

*Changes are expressed as the first difference from the peak to the trough of each recession.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Table 5

**Sources of Change in State and Local Government Revenues and Expenditures**

In billions of dollars, seasonally adjusted annual rates

| Sources of change | Period 1: 1978–III to 1980–IV | Recession: 1980–I to 1980–III | Period 2: 1981–I to 1983–IV | Recession: 1981–III to 1982–IV |
|---|---|---|---|---|
| In revenues | 68.5 | 12.4 | 82.7 | 25.8 |
| Due to: | | | | |
| Discretionary policy | −13.6 | −3.3 | 21.4 | 14.3 |
| Federal grants | 15.2 | 3.3 | −4.0 | −1.4 |
| *All other | 66.9 | 12.4 | 65.3 | 12.9 |
| In expenditures | 67.2 | 15.3 | 68.1 | 33.1 |
| Due to: | | | | |
| Discretionary policy | −7.2 | −0.6 | −2.8 | −6.5 |
| †Federal grants | 22.9 | 4.3 | 1.6 | 1.8 |
| *All other | 51.5 | 11.6 | 69.3 | 37.8 |
| In real purchases (1972 dollars) | 2.6 | −0.3 | −2.0 | 0.2 |
| Due to: | | | | |
| Discretionary policy | −2.4 | −0.8 | −0.9 | −3.3 |
| †Federal grants | 3.0 | −0.6 | −6.8 | −0.4 |
| *All other | 2.0 | 1.1 | 5.7 | 3.9 |

*These are due primarily to changes in both real and nominal economic conditions. Demographic factors also have a small impact.

†Includes both the actual change in grants plus the induced changes in expenditures due, for example, to matching requirements for state and local governments.

Source: Federal Reserve Bank of New York estimates.

in state and local governments' real purchases were due to discretionary action on their part. A portion of the changes came about because of the cutbacks in Federal grants.

In assessing the total impact of the state and local sector on the last two recessions, then, it is important to isolate the effects attributable to state and local discretionary tax and expenditure policies, Federal grant policies, and economic conditions. Otherwise, misleading conclusions could be drawn as to whether or not the actions of state and local governments were countercyclical or if they supported Federal efforts at restoring economic recovery. For purposes of evaluating fiscal policies at all levels of government, this distinction is crucial.

The changes in revenues, expenditures, and real purchases of state and local governments due to their own discretionary policies, the level of Federal grants, and all other factors are presented in Table 5.[10] Two time periods are analyzed. The first, from 1978-III to 1980-IV, corresponds to the period in which state and local taxes were being cut and the growth of spending was restrained following the tax revolt. This period includes the recession from 1980-I to 1980-III. In the second period, from 1981-I to 1983-IV, state and local taxes were raised and, at least through the beginning of 1983, spending was further restrained. The six quarters from 1981-III to 1982-IV is the recession in which this second mix of policies was pursued.

The overall impact of state and local governments' discretionary policies from 1978-III through 1980-IV was expansionary, as they reduced taxes by more than they reduced spending. During this time, Federal grants increased in nominal terms but fell in real terms. Even so, the changes in state and local governments' expenditures resulting from the change in grants were positive, as many of them failed to anticipate fully the extent of the grant cutbacks when planning their budgets.

Only a small portion of the expansionary effect of state and local fiscal policies between 1978-III and 1980-IV was felt during the 1980 recession. The decline in revenues due to the tax cuts had slowed, and the cuts just outweighed the discretionary reductions of expenditures and real purchases. Federal grants were not a significant factor in determining the sector's total revenues and expenditures.

In the second period, from 1981-I to 1983-IV, state and local discretionary policies were clearly contractionary. The wave of tax increases generated over $21 billion in additional receipts. Moreover, the limits and absolute cuts in spending continued to reduce expenditures and real purchases. The Federal Government reinforced the impact of state and local policies throughout the period. As grants declined in real terms in 1982 and 1983, so did the state and local purchases tied to those funds.

The contractionary effects of state and local government policies were especially strong during the 1981-82 recession. Revenues grew by over $14 billion as a result of discretionary tax increases. At the same time, state and local government spending policies led to a reduction of $6.5 billion in expenditures. Over the course of the downturn, real state and local purchases averaged about 11.7 percent of real GNP, the lowest since 1965.

**Near-term outlook**

A new phase in the fiscal profile of state and local governments may now be under way. Their recent tax increases provided a strong boost to revenues, and most of them continued to hold the line on spending. In addition, the recovery was stronger than most analysts and policymakers had originally expected. As a result, by the end of calendar year 1983, the state and local sector as a whole registered a large operating surplus for the third consecutive quarter (Chart 2). Furthermore, a survey of state budget offices revealed that only three states anticipate deficits for fiscal 1984.[11]

In spite of their improved financial conditions, state and local governments still face a number of difficult decisions in planning their budgets over the next several years. This is because the same set of troubling circumstances existing in 1976 and 1977 exist today.

- By postwar standards, the state and local sector's surplus is the largest ever. State and local

[10]The figures in Table 5 were derived from a ten-equation quarterly econometric model of the state and local sector estimated by the author. The model is patterned after the specification of the state and local sector in the Federal Reserve-MIT-Penn (FMP) model and was estimated using NIPA data. The model works as follows. First, total state and local spending is determined from equations estimated for employee compensation, structures, other purchases, and transfer payments. The explanatory variables for these expenditure equations include measures for personal income, relative prices, interest costs, population, unemployment, Federal grants, and lagged expenditures. Next, the portion of expenditures that would have to be financed through state and local own-source receipts is estimated, defining the sector's net revenue requirement. Then, each component of state and local own-source receipts is expressed as a share of the total and estimated as a function of personal income, household wealth, corporate profits, inflation, and the change in the net revenue requirements. By estimating each component as a share of the total net revenue requirement, the sector's budget constraint is imposed. The components for own-source receipts include the individual income tax and other taxes, sales taxes, indirect business taxes (includes the property tax), and the corporate profits tax.

[11]Steven Gold and Corina Eckl, *State Fiscal Conditions Entering 1984* (National Conference of State Legislatures, Denver, Colorado, 1984).

governments' taxes are as high as they have ever been with respect to personal income, and their real purchases are at a 21-year low as a share of real GNP.

- In 1983 the Federal Government ran its largest unified budget deficit in history—$195.4 billion, or 6.1 percent of GNP. Under current policies, the Federal deficit is expected to average over 5 percent of GNP throughout the rest of this decade. By 1989, this could amount to approximately $300 billion.

State and local policymakers are certainly aware of these circumstances and, given their experiences since 1978, are attempting to prepare for them. In some cases, their preparations involve rather new and innovative policies.[12] For example, twenty states now have "rainy day" or "budget stabilization" funds. Many of these were established in the last several years. States can draw upon these funds during lean economic times and rebuild them during prosperous times. Some states are also considering the adoption of "trigger" taxes that go into effect automatically if budget problems arise.

Just how well prepared state and local governments are should be tested soon. For instance, the recent tax increases which led to the sector's current surplus could be scaled back over the next few years. Although thirteen states raised their individual income tax in 1983, the increases were only temporary in seven of those states and will expire in either 1984 or 1985. Five of the fourteen general sales tax increases enacted in 1983 will expire during 1984. Finally, if voters believe that the Federal deficit will be reduced by higher taxes, they may call for an offsetting reduction of state and local taxes.

On the spending side of their budgets, state and local governments may find it increasingly difficult to hold the line on the growth of expenditures. In the immediate term, pressure to increase expenditures will come from the area of education and from state and local employees who, in the past few years, have settled for either partial wage adjustments or none at all.

Perhaps the most serious circumstance facing state and local governments is what may be the most significant infrastructure financing needs in their history. The bulk of the expenditures related to the capital projects they undertake will be financed by issuing debt. Even so, state and local current operating budgets may have to be adjusted to cover additional expenditures related to infrastructure projects or a portion of the interest costs from the increased borrowing.

Identifying infrastructure financing needs and projecting the potential costs is difficult. Nevertheless, the Congressional Budget Office estimates that, from 1984 to 1990, annual capital outlays by all levels of government will have to be about $28 billion for repairs, rehabilitation, and replacement on existing infrastructure systems.[13] To meet growing demands on existing systems, they estimate an additional $25 billion will be needed each year for new construction. That totals to nearly $375 billion over the seven-year period.

Presently, Federal, state, and local governments spend about $36 billion a year for capital outlays. Under current policy, the Federal Government would finance about half of the estimated additional needs. That share could fall below half, though, if the Federal Government decided to reduce its deficit by limiting its involvement in funding infrastructure projects. How state and local officials restructure their borrowing, taxing, and expenditure policies to finance the remaining portion could be their most severe test of all.

**Concluding remarks**

Any examination of fiscal policy in the United States excluding state and local governments is incomplete. State and local fiscal policy actions have had a particularly significant impact on the economy during the past five or six years. In view of the budget decisions state and local governments must make in the next few years, their actions will in all likelihood continue to be an important factor in economic growth.

What this suggests is that, for purposes of macroeconomic analysis and policy, we must consider the economic activities of all levels of government: Federal, state, and local. Too often, only Federal financial problems and policy decisions are evaluated. Certainly, one of the most critical issues over the near term will be selecting a course for the Federal budget. However, given the interrelationships between Federal policies, the economy, and state and local financial conditions, the course which is eventually chosen could have a substantial bearing on the direction of state and local fiscal policies as well. Recognizing this, and incorporating it into the decision-making process, would be an important first step toward coordinating fiscal policies across all levels of government.

Peter D. Skaperdas

[12]For a more detailed discussion of these policies, see Steven Gold, *Preparing for the Next Recession: Rainy Day Funds and Other Tools for States* (National Conference of State Legislatures, Denver, Colorado, 1983).

[13]Congressional Budget Office, *Public Works Infrastructure: Policy Considerations for the 1980s* (Washington, D.C., April 1983). All cost estimates are in 1982 constant dollars.

# Twelve Improvements in the Municipal Credit System

The United States faces the huge task of renovating its public capital infrastructure. There are several signs of political willingness to get on with the job, such as Congressional passage of the five cents a gallon gas tax and voters' approval of the "Rebuild New York" bond referendum. However, over the last few years several changes in Federal policy and state and local government practices may have raised the cost of capital to finance infrastructure projects at just the time when it has become apparent that more such investment is needed.

Improving our infrastructure will be costly in any event, but it will be more difficult than it needs to be without some successful effort to improve the operation of municipal credit markets. A number of changes in the municipal credit system are occurring or are being discussed. If some combination of these changes were implemented and if they were successful, it is conceivable they could produce a 20 to 25 percent savings in the cost of servicing debt for infrastructure financing.

Three items of evidence indicate that there is room for improvement in the way municipal credit markets work. First, yields on municipal bonds have never been as low, relative to corporate or Treasury yields, as they "should" be, given the advantage of tax exemption. Furthermore, since 1979 municipal (tax-exempt) yields have risen markedly relative to taxable yields (Chart 1). Although the extremely high values of this ratio in 1982 are not unprecedented and the ratio has been falling, few observers expect it to return to the low levels of the late 1970s. Second, as Chart 2 suggests, the share of credit market borrowing flowing to state and local governments tends to rise when interest rates are relatively high. This may mean that the borrowing behavior of state and local governments is less sensitive to credit market conditions than that of some other borrowers. Finally, through the past decade the proportion of new tax-exempt issues for "nontraditional" or "private" purposes has been rising (Chart 3).

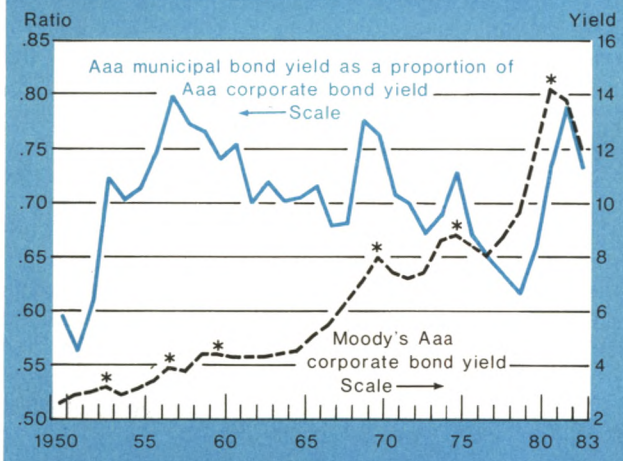
In part as a result of these trends in the municipal bond market and in part because of other forces, state and local borrowing specifically dedicated to traditional infrastructure projects has been held to relatively low levels through most of the last twelve years. An effort to reduce the cost of financing public capital projects relative to the cost of capital for other purposes might, therefore, be a useful element of any overall strategy for dealing with the infrastructure problem. This would involve a series of efforts aimed at reducing the ratio of yields on tax-exempt bonds to yields on taxable bonds.

The yield ratio between instruments of equal riskiness "should" be equal to (1-m), where m is the marginal income tax rate faced by the marginal investor in tax-exempt securities. Because since 1971 the marginal corporate tax rate has been between 46 and 48 percent, the exempt/taxable yield ratio should have been as low as 0.52 at those times when commercial banks were the marginal purchasers of municipal bonds. The ratio of yields on municipal to those on corporate bonds of equal rating has never been lower than about 0.60 after the early 1950s and, at times, the ratio has risen above 0.80 (Chart 1).

Chart 1

**Taxable Bond Yield Compared with Exempt/Taxable Bond Yield Ratio**

Annual averages, 1950 through 1983



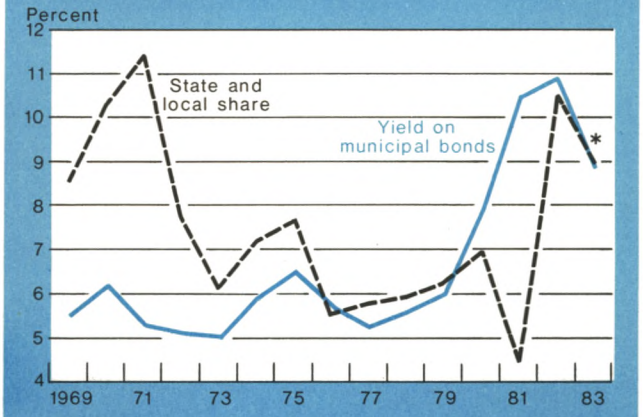

*"New" postwar peak of Moody's Aaa corporate bond rate.

Source: Moody's Investors Service, Inc.

Chart 2

**Comparison of Municipal Bond Yield to State and Local Obligations' Share of Total New Credit Market Debt**

Annual averages, 1969 through 1983




*1983-I to 1983-III average.

Source: Board of Governors of the Federal Reserve System (unadjusted flow-of-funds data) and Moody's Investors Service, Inc. (Aaa municipal bond yields).

Reductions of the cost of capital to state and local governments, without new direct intergovernmental subsidies, could be realized by working toward the following broad goals:

- Increasing the liquidity of municipal bonds as investment vehicles.
- Decreasing the riskiness, from the investor's point of view, of bonds issued for infrastructure purposes.
- Increasing the demand for traditional purpose municipal bonds relative to the demand for other vehicles with similar risk and liquidity characteristics.
- Improving the flow of information to potential investors.
- Relaxing constraints on municipal financial officers that limit their ability to economize on financing costs.
- Reducing the cost of underwriting and marketing services to issuers and investors.

**Twelve changes in the municipal bond market**

There are at least twelve potential improvements in the operation of the municipal bond market or in the practices of participants in that market which offer promise of reducing the cost of capital for traditional infrastructure purposes. But without extensive analytical effort it would be impossible to know whether any one or combination of these changes would have a beneficial net effect. The purpose here is to advance that effort and to suggest how additional work might be organized.

The first four potential improvements require Federal Government action. The next three involve private-sector initiatives. Four more suggest state and local government action, and the final innovation involves the creation of a new type of institution.

*The taxable bond option (TBO)*

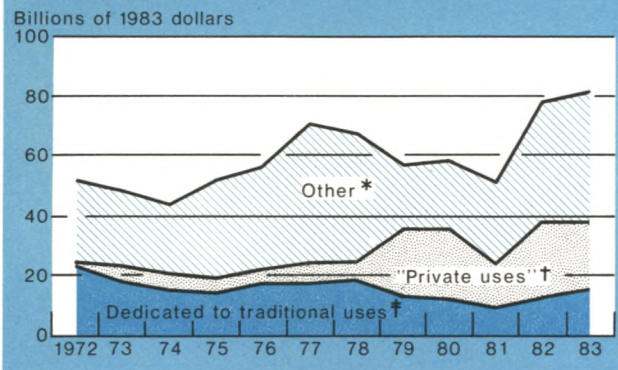
Under the TBO, a perennial reform proposal, municipalities would have the option of issuing taxable debt instruments[1] but, whenever a taxable municipal bond was issued, the Treasury would guarantee the issuer a stream of payments equal to a prestated proportion of

[1]For a full discussion of the TBO, see David C. Beek, "Rethinking Tax-Exempt Financing for State and Local Governments", this *Review* (Autumn 1982).

Chart 3

**Real Long-term Debt Issues of State and Local Governments, by Use**

1972-83




*Gas and electric; hospital; multipurpose bond issues.

†Industrial aid; pollution control; state and municipal housing finance.

‡School; water and sewer; highway, bridge, and tunnel.

Source: The Bond Buyer.

the interest cost of the taxable bond. Because issuers would opt for taxable bonds only when it paid them to, net interest costs to municipal borrowers would be reduced. In addition, the TBO would be more efficient than tax-exempt bonds from the Treasury's point of view. When exempt bonds are issued, the Treasury loses more in tax revenues than state and local governments receive in terms of interest cost savings. Given a TBO, when the option is exercised, under some assumptions, the cost to the Treasury is exactly equal to the benefit to the issuer (box). However, it is not obvious how the market would receive a taxable municipal bond. Some of the support for the TBO is based on the assumption that taxable issues would provide a way in which municipalities could tap the pool of capital held by untaxed institutions, especially the rapidly growing pension funds. However, given some of the other problems associated with municipal bonds—especially the thinness of the secondary market and the lack of widely recognized informational standards in the industry—it could be that pension fund managers would buy taxable bonds only at a substantial premium over the yields on "similar" corporate issues. Furthermore, if untaxed investors did purchase large volumes of municipal bonds, some of the expected benefits of this proposal to the Treasury would not materialize.

Opposition to the TBO focuses on concern over possible increases in Federal control over state and local government finance. It might be possible to design TBO legislation so that the Treasury reimbursement was perfectly automatic, but many observers are skeptical about divorcing Federal funding from Federal regulation. Other opponents are unwilling to concede a Federal constitutional right to tax interest payments by state and local governments.

*Limiting "private use" tax exemption*

In the first session of the 98th Congress, action on one pending tax bill was delayed by the controversy surrounding provisions affecting the use of so-called "private purpose" tax-exempt bonds: mortgage revenue bonds and small issue industrial development bonds, the two fastest growing segments of the tax-exempt bond market. These instruments provide a means through which home buyers and private firms can benefit from the Federal tax exemption of municipal bond interest payments.

Either of these "private purpose" uses of tax-exempt financing may or may not make sense as instruments of public policy. Our concern here, however, is the effect the expansion of these forms of financing may have on the cost of borrowing for more traditional state and local government activities. It is commonly believed that the market will not absorb large volumes of new municipal issues without large increases in the tax-exempt yield relative to the yield on taxable securities. Therefore, 1982 issuance of $16 billion of tax-exempt debt for state and municipal housing finance and another roughly $3 billion in industrial development bonds—together accounting for about 20 to 25 percent of the tax-exempt market—may have had a substantial effect on the cost to state and local governments of borrowing for more traditional purposes. Estimates of the effect of the aggregate supply of municipal bonds on the yield of these securities, if the taxable yield were held constant, vary from 0.6 basis points to 7 basis points per each additional billion dollars of municipal bonds.[2] Hence a halving of the issuance of mortgage revenue and industrial development bonds might reduce municipal yields by between 6 and 67 basis points, or by up to about 7 percent of current yields.

*Commercial bank underwriting of revenue bonds*

Under the Glass-Steagall Act, commercial banks are not allowed to participate in most revenue bond underwriting. Legislative proposals that would expand the role

[2]Roger C. Kormendi and Thomas T. Nagle, "The Interest Rate and Tax Revenue Effects of Mortgage Revenue Bonds", in George G. Kaufman, ed., *Efficiency in the Municipal Bond Market* (JAI Press, Greenwich, CT, 1981), pages 117-48.

## The Taxable Bond Option: Interest Cost Savings and the Efficiency of the Subsidy

Suppose the Federal Government had, over the forty quarters through 1983-III made a binding offer to pay state and local governments 31 percent of their interest payments on all taxable municipal bonds they issued. The 31 percent figure is used because over that period municipal Aaa yields averaged 69 percent of corporate Aaa yields. Suppose further that all issuers exercised this option whenever and only when the yield ratio exceeded 69 percent, but that the volume of new issues and the series of taxable and exempt interest rates was unaffected by the availability of the taxable bond option. Assume, finally, that coupon yields on taxable municipal bonds were identical to corporate yields on similarly rated issues and that all bondholders' marginal tax rate is 0.50.

Under these rather strong assumptions, two effects of the taxable bond option may be observed. First, the average net interest cost of municipal borrowing would have been lower than it actually was (Chart 4-A). Second, the efficiency of the subsidy to state and local governments, as measured by the dollars lost to the Federal Government divided by the dollars of interest cost saved by tax-exempt issuers, would increase. When a tax-exempt bond is issued, the Treasury loses all the taxes it would have collected on a taxable bond, but the locality benefits only by saving the difference between the tax-exempt yield and what it would have paid on a taxable issue. If the typical marginal tax rate on municipal bondholders were 50 percent, then the subsidy to issuers would be less than the cost to the Treasury whenever the yield ratio was greater than 0.50. The efficiency gain associated with a taxable bond option with a 31 percent subsidy rate (Chart 4-B) would have been roughly 46 percent.

Chart 4-A

**Average Interest Rate on Municipal Issues Weighted by Annual New-Issue Volume**

1973-IV through 1983-III

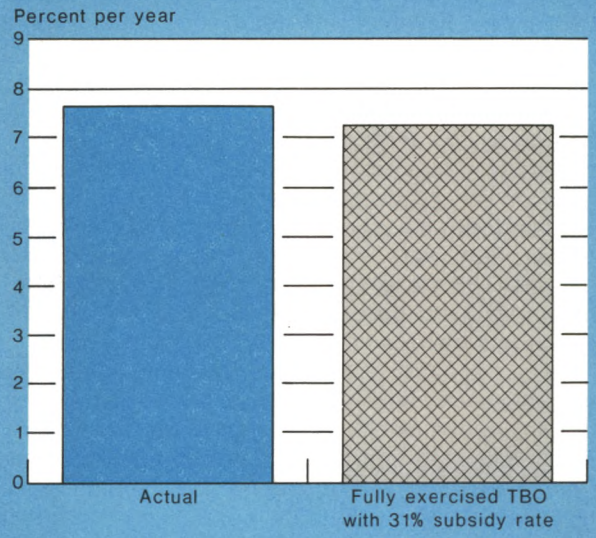
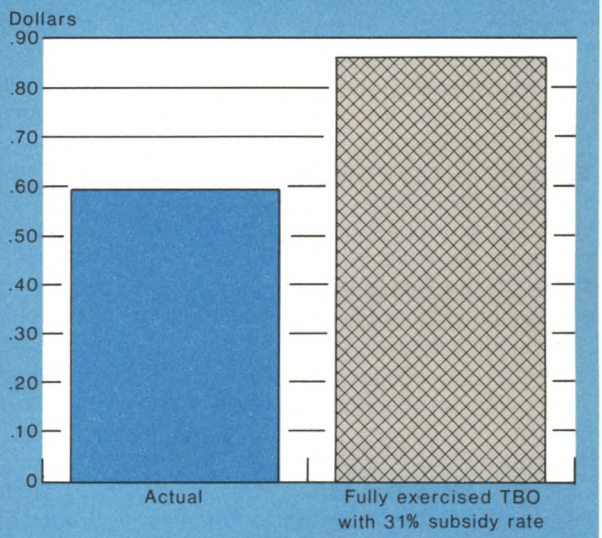



Chart 4-B

**Efficiency of Subsidy: Loss to Treasury per Dollar Savings to Issuers**

1973-IV through 1983-III




Sources: Staff calculations based on data from the Board of Governors of the Federal Reserve System (unadjusted flow-of-funds data) and Moody's Investors Service, Inc. (Aaa bond yields).

of commercial banks in municipal bond underwriting have been analyzed periodically over the past fifteen years. Proponents of commercial bank underwriting argue that it would bring greater competition to the municipal bond underwriting industry, reducing coupon yields. Opponents argue that the commercial banks' advantages as underwriters are so overwhelming they would soon drive the investment houses from the field, ultimately reducing competition and driving up yields.

Commercial bank underwriting could reduce interest costs faced by revenue bond issuers, but it is difficult to estimate how great the reduction would be. Past empirical studies of this question suggest that yields on new revenue bonds could be reduced by up to 6 percent—or roughly 50-60 basis points at current yields.[3] But it is worth bearing in mind that, however useful this change might be for revenue bonds, the impact on the costs of financing infrastructure would be smaller, since infrastructure projects tend to be financed through general obligation bonds, not revenue bonds. On the other hand, even in the unlikely event that the commercial banks drove the investment houses from the underwriting field, the result need not be to reduce competition, so long as the banks compete vigorously among themselves.

*New tax laws and deregulation*

The Federal Government's influence on the tax-exempt market is not limited to policies directly concerning municipal bonds. General tax and regulatory policies also have a substantial effect. Any reduction of high bracket marginal tax rates on corporations or wealthy individuals affects the exempt/taxable yield spread. Whenever the Congress tries to encourage any type of investment by granting special tax treatment, there is a chance that some taxpayer, otherwise disposed to investing in municipal bonds, will not buy them. One important example of this phenomenon is the effect of the accelerated depreciation provisions of the corporate tax law on commercial banks' choice of tax shelters.[4] Regulatory changes, such as those that have increased interest rates on time deposits, and that have the effect of reducing commercial bank and property and casualty insurance company taxable profits also lower the demand for municipal bonds.

Some combination of tax law and regulatory changes might return commercial banks, along with property and casualty insurance companies, to a dominant role in the municipal bond market. If corporations dominated the market, then the exempt/taxable yield spread might be much wider than it is. In fact, in the late 1970s, the last time institutions purchased the lion's share of new issues, the exempt/taxable yield ratio reached a record low. If the municipal/corporate yield ratio had been 0.61 in December 1983, as it was on average in 1979, then the tax-exempt yield would have been reduced by about 18 percent.

*More aggressive marketing*

The change in the municipal bond market that is probably most obvious to the general public, especially in the New York metropolitan area, is the new aggressiveness with which municipal bonds, municipal funds, and municipal unit trusts are being marketed. Extensive advertising in the print and broadcast media have stimulated more awareness of the advantages of municipal bond investment. Furthermore, the products offered by mutual bond funds and municipal unit trusts have allowed investors with smaller portfolios and less sophistication to realize these advantages.

Expansion of the demand for municipal bonds through aggressive marketing probably has made it easier to finance a record volume of new municipal issues at a time when the institutions were playing a small role. However, creating a new market through media advertising is an expensive undertaking. Most likely, the costs of advertising have been divided among the dealers, the investors who pay the dealers' commissions, and the issuers.

*Third-party guarantees*

Third-party guarantees of interest and principal payments on individual municipal bonds or on municipal bond portfolios have become much more common over the past four years. There are several forms of these guarantees. State government backing, in one form or another, of local government or public authority obligations has been familiar for a number of years.

The newer forms of third-party guarantees are issued by private-sector firms: commercial banks and municipal bond insurance companies. Commercial bank backing usually takes the form of an irrevocable letter of credit in an amount sufficient to meet all outstanding interest and principal payments on the guaranteed bond. Letter of credit backing is more typically associated with short-term securities than with the long-term issues that are the focus of this paper, although some letters of credit irrevocable for ten-year periods have been written. Private guarantees of long-term municipal bonds are provided by one of the three municipal bond insurance companies. The recent performance of the two oldest of these firms—the American Municipal Bond Assurance

[3]Phillip Cagan, "The Interest Savings to States and Municipalities from Bank Eligibility to Underwrite All Nonindustrial Municipal Bonds", *Governmental Finance* (May 1978), pages 40-48; Michael H. Hopewell and George G. Kaufman, "Commercial Bank Bidding on Municipal Revenue Bonds: New Evidence", *The Journal of Finance* (December 1977), pages 1647-56.

[4]See Allen J. Proctor and Kathleene K. Donahoo, this *Quarterly Review*, pages 26-37.

Corporation (AMBAC) and the Municipal Bond Insurance Association (MBIA)—reflects the remarkable growth of this form of third-party guarantee. AMBAC, for example, insures new municipal issues and the portfolios of investors. Total insurance in force grew 770 percent from about $6 billion in 1978 to $52 billion late in 1983. The incidence of insurance coverage has risen from not much more than 1 percent of new issues in 1979 to close to 15 percent in 1983.

Municipal bond insurance companies provide two services. First, like all insurance companies, they pool the risk associated with their covered municipal bonds. Second, insurance companies provide a service of special value to those municipalities that can prove to knowledgeable analysts that their bonds are less risky than the market perceives them to be. In fact, since Standard and Poor's automatically assigns a AAA rating to bonds insured by either of the currently active insurance companies and Moody's shows signs of recognizing the credit enhancement provided by insurance, the insurance companies may take over part of the rating agencies' traditional functions. Standard and Poor's and Moody's would devote their efforts to analyzing uninsured issues along with the financial soundness of the insurance companies themselves.

Finally, third-party guarantees generate the additional benefit of increasing the liquidity of the insured bonds. The market for obligations of small municipalities or obscure agencies may be extremely thin and the illiquidity premium on their obligations, therefore, very high. However, all the bonds insured by, say, MBIA might trade as freely as the obligations of MBIA itself. In other words, availability of insurance backed by widely known AAA-rated financial service corporations may introduce some needed uniformity into a market with about one million separate issues.

An illustrative computation suggests the magnitude of the savings available to issuers. In 1982 the yield on Moody's Aaa-rated twenty-year general obligations averaged 10.30 percent and the Baa yield 11.58 percent. Suppose a Baa borrower issued $1 million worth of bonds at a yield of 11.58 percent on the entire issue. Suppose further the issue was designed like a home mortgage: to be retired in equal annual payments over twenty years. The annual payments would be $130,370. Now suppose that by purchasing insurance, with a premium equal to 0.8 percent of all interest and principal payments, the issuer could have offered a coupon yield of 10.30. The annual payments, including the premium, would then be $120,833, or a savings of about 7 percent.

With the advantages introduced by third-party guarantees, it is not surprising that their use continues to grow rapidly. We cannot, however, be certain that this expansion has been or will be trouble free. Roughly half of the new municipal issues of 1982—those rated A or Baa—could have benefited from and might have been eligible for insurance. If, eventually, even half of these Baa- and A-rated issues obtain insurance and if the total value of new issues reaches $100 billion per year, then this branch of the insurance industry will be writing policies with face values of some $25 billion dollars a year. The criteria for soundness and prudence in the municipal bond insurance business may be very different from the criteria used in evaluating more traditional lines of the insurance industry and, in any case, current regulations have not yet met the test of time. As this industry develops, insurance regulators will have to develop and expand this new, specialized form of expertise.

A more troublesome potential problem concerns municipal bond insurers who are, quite prudently, unwilling to take all risks. As the incidence of insurance becomes more widespread, municipalities unable to obtain coverage may come to bear an additional stigma in the market. In other words, a Baa-rated uninsured issue might require an even higher premium yield than marginal investment grade issues do now. If these stigmatized municipalities are the ones with the most severely dilapidated infrastructure, the advent of third-party guarantees might make it more difficult to solve an important part of the infrastructure problem.

*Municipal bond futures trading*

Municipal bonds are generally considered relatively illiquid investments. For one thing, market turnover is small relative to the volume of outstanding issues. For another, the relatively wide bid-ask spreads for bonds listed on a regular basis raises the cost of buying and selling tax-exempt bonds. The bid-ask spread for even such widely held securities as seasoned Municipal Assistance Corporation (MAC) bonds is typically between 3 and 4 percent of the asking price. This is a narrower proportional spread than is typical of, say, the bid-ask differences in the daily over-the-counter quotations for equity prices of small, new, relatively speculative companies. However, the MAC spreads are much wider than the typical spreads of less than 1 percent on the Federal National Mortgage Association issues, for example. And the bonds of corporations with substantially smaller total indebtedness than MAC trade on the New York and American Stock Exchanges at single publicly quoted prices with no bid-ask spread. There is, then, a substantial relative penalty associated with selling even the most frequently traded municipal bond.

The illiquidity of municipal issues is, not only a problem in and of itself, but in addition the thinness of the secondary market for many outstanding municipal

bonds makes it prohibitively risky to agree to a contract to deliver one of these bonds at some time in the future. Without futures contracts, it is difficult for holders of large municipal bond portfolios to hedge their positions against market risk. An investor with a large municipal portfolio could hedge against rises in general interest rates by taking an appropriate position in Treasury bond futures. However, exempt/taxable yield spreads fluctuate. The simple correlation between changes in the yield on twenty-year Treasury bonds and in Moody's index of Aaa municipal bonds is 0.70.[5] By comparison, the correlation between changes in Treasury and in Aaa corporate bond yields is 0.91. Therefore, the risk left uncovered by a Treasury bond hedge against a position in municipal bonds could be substantial.

The absence of futures trading in bonds may be a substantial impediment to expansion of the market. Dealers unable to cover the market risk of holdings might be unwilling to maintain substantial inventories of municipal bonds. Without inventories of outstanding issues, the secondary market remains thin, reinforcing the initial problem of illiquidity.

The desirability of some sort of hedge against adverse fluctuations in the municipal-Treasury yield spread has led to widespread active planning to initiate trading, not in futures contracts for specific municipal bonds, but for contracts based on a municipal bond index. It is likely that trading in such a contract will commence shortly.

A rough estimate of the potential benefits to borrowers associated with this innovation can be derived if we assume that futures trading could make municipal bonds as liquid as corporate bonds. Suppose further that, given equivalent liquidity, municipal and corporate bonds would be perfect substitutes in portfolios, except for tax exemption. In that case, if a corporation were the marginal municipal bond buyer, municipal bonds would yield 0.54 times the corporate bond rate. Over the last decade the lowest actual yield ratio between long-term municipal and corporate bonds was about 0.60. A reduction of the ratio to 0.54 is equivalent to a 10 percent decrease in the exempt yield, the taxable yield held constant.

There is reason to be skeptical, however, about some of the potential benefits of this financial innovation. The "technical" problems, making it difficult to decide on the "right" municipal bond index, may be more than merely technical. There are many different participants in the municipal bond market who might make use of a hedge, but each group of participants is exposed to different types of risk on different types of portfolios. A single index may not be appropriate for all portfolios.

[5]Monthly average yields from January 1965 through October 1983.

*More flexibility for municipal finance officers*

Private corporations have at their disposal a wide variety of mechanisms for financing capital expansion and replacement. Corporations may, as municipalities usually do, issue long-term fixed-income debt instruments. However, corporations may also issue preferred or common equities, borrow directly from banks at home and abroad, tailor the maturities of their debt to market demand, finance projects temporarily through commercial paper markets, "borrow" from their employees through profit-sharing or stock option plans, and so on. State and local governments have had a more limited set of financial options; they usually finance long-term obligations only by issuing long-term bonds. Given this relative inability to tailor financial strategy to market conditions, it would not be surprising if municipalities missed opportunities to economize on financing costs.

In recent years some of the more sophisticated segments of the municipal bond market began to design new types of debt instruments to meet the requirements of the market. Among the new mechanisms are put option bonds, which can be "put back" to the issuer at various times, variable interest rate bonds, municipal warrants, and tax-exempt commercial paper. Many of these new instruments were designed to meet the demand of tax-exempt money market funds for municipal paper with short maturities.[6]

The incentive to design tax-exempt securities with shorter effective maturities is strong. The municipal yield curve has historically been positively sloped and steeper than the Treasury yield curve (table). Over the past two to three years, agencies that borrowed short or at floating rates did better than those that borrowed long or at fixed rates. During 1982, on average, for example, the one-year yield on tax-exempt securities was only 68 percent of the twenty-year yield. Of course, short-term borrowing to finance long-term obligations is risky. Given the generally rising interest rates through the 1970s and early 1980s, on average, it would not have paid municipalities to finance long-term obligations by rolling over short-term debt. For example, an AA-rated borrower could have issued twenty-year revenue bonds at 6.42 percent in 1979 but might have been tempted by the 15 percent savings on the coupon yield associated with a one-year maturity at that time. By 1982 that

[6]Capital markets, state and local governments, and the general public have been wary of short-term municipal financing since New York City's fiscal crisis of 1975. Indeed, New York City did issue a huge volume of short-term instruments in the early 1970s. The basic problem, however, was not the term structure of the city's debt as the fact that New York was financing *current operations* by borrowing, with little or no plan or prospect for balancing its budget. This is quite different from the evolving practice of financing part of a *capital improvement budget* through short-term money markets.

borrower would have seen the short-term rate rise to 7.60 percent.

Still, there is some reason to suspect that there is an endemic "shortage" of short-term municipal paper. The relatively steep and always positive slope of the municipal yield curve is usually explained, with mixed empirical success, by the strong demand of commercial banks for tax-exempt, but relatively liquid, assets. However, another contributing factor may be the institutional constraints that prevent municipal issuers from providing the mix of maturities the market would most like to buy.

For the most part the innovations allowing shorter borrowing were developed and exploited by nontraditional municipal borrowers: public authorities, mortgage revenue authorities, and private firms borrowing through industrial revenue bonds. State and local governments borrowing for traditional purposes have been slower to innovate. Important impediments to more creative municipal financing are state laws limiting the use of short-term financing of capital projects and the restrictions on interest rates public borrowers may pay that effectively preclude variable yield issues. It is easy to understand why these manifestations of risk aversion were written into many state laws. There is, after all, a substantial risk of rapidly rising interest costs to state and local governments whenever any of these innovations are adopted. Some balancing of risks and expected savings is necessary, but it is unlikely that the optimal plan would include *no* variable rate borrowing and *no* financing of capital projects through short-term securities.

To date, most of the creativity in municipal finance has focused on shorter maturities and floating interest rates. There are other dimensions of innovation that might be profitably explored. A few municipal issuers have experimented with small issue municipal bonds sold directly to the public. In general, the "entry fee" for municipal bond purchasers is several thousand dollars, whether investors buy individual bonds or invest in mutual funds or unit trusts. This large initial investment excludes many potential investors from this market, namely, those with high current incomes but relatively small liquid portfolios. If municipalities could raise borrowed funds through instruments marketed, for example, by commercial banks as no minimum deposit tax-exempt passbook accounts, a potentially large new market for these securities might open. As an alternative, small denomination tax-exempt bonds could be sold directly by municipalities to local residents through utility bills or the property tax collection mechanism.

Another departure might allow municipalities to issue something more like an "equity" rather than the traditional fixed-income security. For example, purchase of a municipal "equity" might entitle the investor to some fixed percentage of the aggregate value of real property in the municipality. From the municipality's point of view, such instruments might be attractive because they tie debt service to the growth of the local tax base, that is, to the municipality's ability to pay. Speculative investors whose need for tax-exempt income is likely to increase over time might generate a reasonable level of demand for such instruments.

**Ratios of One-Year to Twenty-Year Yields on Aaa General Obligation Municipal and U.S. Treasury Securities**

| Year | Aaa municipal securities | U.S. Treasury securities |
|---|---|---|
| 1978 | .76 | .91 |
| 1979 | .89 | 1.05 |
| 1980 | .75 | .96 |
| 1981 | .71 | .96 |
| 1982 | .68 | .86 |

Sources: Public Security Association, *Statistical Yearbook of Municipal Finance* (various issues) and Federal Reserve *Bulletin* (various issues).

*More uniform accounting, registration systems, and legal standards*

If municipal finance officers are to be allowed more flexibility in instrument design than their private-sector counterparts enjoy, then municipal accounting and reporting practices should adhere to standards as strict as, if not necessarily identical to, those the Securities and Exchange Commission requires of private-sector issuers of debt instruments. One of the clearest benefits to New York City of its grueling experiences of the mid-1970s was the adoption by the city government of generally accepted accounting practices (GAAP). New York, though, remains one of a small, but growing, number of governments whose accounts are certified to have met this standard.

In addition, more uniform and efficient mechanisms for registering municipal securities and transferring ownership might reduce the administrative cost of issuing and servicing municipal debt. Federal law now requires that the ownership of all newly issued municipal bonds be registered. Registration adds to the administrative costs of issuers, especially if secondary market activity expands. A number of proposals for such innovations as pure book entry of municipal bonds are being actively considered. If implemented, such proposals could

reduce administrative costs, risk of loss, and by facilitating trading enhance the liquidity of many issues.

Finally, the default of the Washington Public Power Supply System raises questions on the legal status of a number of projects financed by municipal bonds. Part of the problem lies in differences in relevant laws across states, and it is likely that investors would feel more confident if these laws had more national uniformity.

*A better mix of revenue bonds and general obligations*

In recent decades the use of revenue bonds has increased markedly, not just for what have been called "private" purposes, but also for such public purposes as road and sewage system construction and renovation, and construction of higher education facilities. Public purpose revenue bond financing has several advantages over general obligation financing. From the economist's point of view, because revenue bond financing is usually associated with user fees rather than general taxation, there is an initial presumption of superior efficiency. From the political leader's point of view, revenue bonds typically have the advantage of not requiring voter or legislative approval of specific issues.

However, revenue bonds have one distinct disadvantage, *i.e.,* investors consider them riskier than general obligation bonds. The evidence is the spread between the yields on the two types of issues, which averaged about 6 percent of the general obligation yield over the past ten years. In a sense, then, the market penalizes the financing mechanism which, in many ways, is more efficient.

One way of combining the advantages of revenue and general obligation bonds would be to provide some sort of general fund backing to revenue issues. Often, revenue bonds of a public agency are backed by the "moral obligation" of a legislature to meet any revenue shortfall. Moral obligations, however, are of dubious legal status.

One alternative to straight-out revenue bonds or moral obligations is the so-called "double barrel" security, pledging the general obligation of the state government to meet any revenue shortfall. Most states make such a commitment very difficult. The purpose of restrictive legislation is to prevent the state from becoming too deeply indebted. However, one state with very strict limitations on general obligation borrowing—New York, which requires a voter referendum for each general obligation bonding authorization—also has a very high state and local debt per capita.[7] The main effect of New York's strict general obligation limitation may have been to increase the share of state debt in the form of relatively expensive revenue bond obligations.

Some consideration might be given, therefore, to a relaxation of restrictions on general obligation borrowing. One way to relax restrictions, without making general obligation pledging too easy, might be to make it easier for states to issue bonds with double barrel security. Thus, for example, if a general obligation bond required a referendum, then contingent general obligation backing of a revenue bond might require only a vote of the legislature.

*State bond banks*

Several states—Vermont, Maine, Alaska, and Puerto Rico, among others—have established bond banks. These financial intermediaries issue their own bonds and distribute the proceeds to local governments for capital projects. The banks' bonds are backed by their state government's credit, usually either as a moral or a general obligation.

Attaching the state's name to a locality's bond issue allows small local governments to borrow at rates based either on pooled risk or, if the bonds are in some sense state obligations, at a yield appropriate to the state's credit rating. In addition, the state bank's bonds are likely to be more homogeneous and, therefore, probably more liquid than a local government's issues. A rough indicator of the potential for savings associated with substituting state for local credit is the difference between the average net interest cost of new state borrowing, which was 10.16 percent in 1982, and the average net interest cost to all other borrowers of 11.09 percent in the same year: about a 9 percent difference.

Some Congressmen and Senators are attracted to the state bond bank idea, as well. Several bills have been introduced in the Congress—for example, the "Public Investment Incentive Act of 1983" (S.532) by Senators Domenici, Bradley, Andrews, Gorton, and Randolph. The bills authorize Federal appropriations to capitalize infrastructure banks in the states. Initial Federal appropriation, perhaps with required matching funds from the states, would be allocated to infrastructure projects by state authorities. Local "debt service" to the bank, which might issue its own bonds to supplement its initial capitalization, would replenish the initial Federal appropriation on a revolving basis.

The bond bank idea is not universally popular. Some local leaders dislike the idea for the same reason state leaders like it: it would reassign some of the power to set infrastructure policy to the state from the local level.

*A Federal secondary market maker*

Another type of bank-like agency that might enhance the marketability of municipal bonds would be a secondary

[7]See Appendix for a discussion of the recent history of bond referenda in New York State.

market maker in the municipal bond field. This would work in a similar way to the Federal agencies that, in effect, make secondary markets for home mortgages (Fannie Mae, Ginnie Mae, Freddie Mac) or student loans (Sallie Mae). A "Muni Mae" for example, like Fannie Mae, might issue its own securities and use the proceeds to purchase certain types of municipal bonds, say, bonds funding certain approved infrastructure purposes.

If this Muni Mae's interest payments were taxable, some annual appropriation would be necessary to make up the difference between taxable and exempt yields. Under these circumstances, the intervention of Muni Mae would have some of the same effects as the TBO. As with the TBO, the effect of Muni Mae would be to remove some tax-exempt securities from the market, replace them with taxable securities, and have the Treasury pay a direct (or passed-through) subsidy to qualified issuers. The difference would be that, under the TBO, the Federal Government would play a passive role in the secondary market. Whenever the exempt/taxable yield spread was narrow, taxable municipal bonds would be issued and the Treasury would begin paying out the requisite subsidy. With a Muni Mae the Federal Government could play an active role in influencing the exempt/taxable spread—and, therefore, the relative cost of capital to municipal borrowers—by bidding a proportion of available municipal bonds away from marginal purchasers. In addition, Muni Mae might finesse some of the opposition to the TBO that exists among municipal finance officers unwilling to concede a Federal constitutional right to tax municipal interest payments.

If the interest on Muni Mae were tax exempt, then Muni Mae might run a surplus, given the higher risk premium on municipal than on Federal Government securities.

A Federal secondary market maker has at least one important advantage over the state bond bank idea. Local government authorities value their financial independence highly. Reliance on a state bond bank for direct financing limits that independence of action. A secondary market making agency would accomplish many of the same objectives as the bond bank without significantly changing the current balance of power between state and local governments. One possible disadvantage of this type of Federal intervention, however, is the potential politicization of Muni Mae's decision on whether or not to purchase a specific municipality's debt instruments.

### Some interactions among these changes

The potential effectiveness of each of these changes in reducing the cost of capital for infrastructure purposes depends on which combination of them are implemented and their success. To illustrate these interactions, consider how nine of the other eleven[8] changes would affect the operation of a TBO.

Certainly, it is difficult to imagine the Treasury Department supporting the passage of a TBO unless some strict limit were placed on the issuance of private purpose tax-exempt bonds. The TBO would increase the benefits of tax exemption by insuring that the exempt/taxable spread never narrowed to less than some proportional amount. Without some limitation this increased subsidy would attract even more sophisticated private purpose borrowers to the exempt market. That this increasing, and even more direct, subsidy would be more efficient than traditional tax exemption would be small consolation to the Treasury.

One key design feature of the TBO is the subsidy rate, *i.e.*, the proportion of a municipality's taxable interest reimbursed by the Treasury. The "right" subsidy rate depends, in part, on what the yield spread would be. But the yield spread, in turn, depends mostly on tax law and regulatory policy. Thus, the design of a TBO must be mindful of the likely evolution of tax and regulatory policy.

Most analyses of the TBO are based on the assumption that taxable municipal bonds would trade at the same prices as corporate bonds of similar credit rating. There are good reasons to suspect, however, that AAA taxable municipal bonds would not be treated by portfolio managers as a perfect substitute for the senior obligations of AAA-rated corporations. Given the thinness of the secondary market and the fact that municipal bonds are not backed by attachable collateral, investors might demand a premium on taxable municipal yields. Furthermore, portfolio managers, who are accustomed to the relative uniformity and transparency of corporate financial statements, might initially be put off by the work it takes to understand the finances of the typical municipality.

How well a taxable municipal bond does on the market might depend on the outcome of the changes discussed previously that could lead to greater uniformity and greater liquidity. A portfolio manager might be more receptive to bonds guaranteed by a well-known corporate third party and to the bonds of municipalities that issue debt frequently and are operating under GAAP. Similarly, the taxable obligations of a well-capitalized state bond bank might get a better reception from institutional investors who are new to the municipal market.

The ability to hedge a position in municipal bonds through futures trading might also be a prerequisite

[8]Commercial bank underwriting and more aggressive marketing are only distantly related to the TBO.

demanded by the managers of large pension funds. And the flexibility of a municipal finance officer to design obligations to meet investors' specific requirements might be even more important when dealing with institutions whose primary interest is not tax avoidance.

Given the number and diversity of municipal issuers, it might be, however, that all these changes would not be enough. For example, there could be substantial demand for the taxable bonds of larger issuers and little or none for those of smaller issuers. Smaller municipalities, or those with peculiar credit problems, therefore, would be unable to realize the benefits of the TBO. It might be that the only way for such municipalities to issue taxable debt would be through the intermediation of a state bond bank or a Federal secondary market maker.

**Conclusion**

The improvement of municipal credit markets is a policy-making problem of considerable complexity. There are at least a dozen different courses to follow which interact in potentially important ways. Some of these ongoing or potential changes fall under the purview of the Federal Government. Others require state action, and still others are or should be private-sector initiatives. Regulatory agencies, trade organizations, rating agencies, and leagues of state and local governments all have roles to play and axes to grind. Most of the changes discussed here appear to be good ideas on theoretical or rough empirical grounds. However, more extensive policy analysis may indicate that some of these proposals are neither cost beneficial nor practical.

Putting together a set of simultaneous initiatives with closely related content at several levels of government and in the private sector in a politically charged policy arena would be a very complex and delicate undertaking. However, a more effective municipal capital market might go a long way to help solve what many agree to be a national problem approaching crisis proportions.

Very rough estimates of the most that could be saved given universal implementation of some of these dozen changes are possible.

- Tax and regulatory changes inducing the return of corporate investors to a dominant role in the market could reduce exempt yields by 18 percent, taxable yields held constant.
- If municipal bonds became as liquid as corporate bonds, exempt yields might fall by 10 percent, taxable yields held constant.
- Eliminating half of all "private use" revenue bonds might reduce exempt yields by 7 percent, taxable yields held constant.
- A fully exercised TBO with a 31 percent subsidy rate might reduce municipalities' net interest costs by 5 percent on average.
- Use of "double barrel" security might save revenue bond issuers about 6 percent of net interest cost.
- State bond banks might save localities 9 percent of net interest cost.
- Commercial bank underwriting might reduce revenue bond yields by 6 percent, other yields held constant.
- Finally, third-party guarantees could reduce debt service expenditures by about 7 percent for Baa-rated borrowers.

This array of maximum potentials suggests that a 20 to 25 percent savings of net interest cost is well within the range of possibility. As the alternatives to municipal credit reform—large increases in current taxation, an even greater Federal deficit, or continued infrastructure deterioration—are all unattractive, an attempt to design and implement an integrated set of changes in the municipal credit system is probably worthwhile.

One way of beginning this task would be to establish a national commission including representatives of all levels of government and all participants in the municipal bond industry. The commission would have an independent staff of sufficient qualifications and size to analyze the relevant issues in depth. The task of the commission would be to design a set of proposals including actions to be taken by the Federal and state governments, the private sector, and the relevant regulatory agencies. Once a sound, well-balanced, and practical set of proposals has been developed, the commission's job would shift to the more delicate task of implementation.

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## Appendix: Voter Approval of General Obligation Debt in New York State

New York State voters have traditionally approved few general obligation bond referenda, and as a result New York leaders have been reluctant to seek their approval. Since 1970, New York authorities have asked approval for only eight bond proposals, yet voters rejected all but three, as shown in the accompanying table. When state leaders have sought general obligation financing, it has customarily been for projects that were so large that the usually lower cost and larger size of general obligation issues were essential. New York authorities have requested authorization of such issues, ranging from $250 million to $3.5 billion. By comparison, the average tax-exempt bond issue in the United States was $7 million in the 1970s. Even with this large size, so few issues have been approved that the general obligation debt of the State of New York amounted to less than one fifth of New York State's total outstanding long-term debt in 1983. Reliance on revenue bond financing has been expensive. The average net interest cost of New York State general obligation bonds sold in 1982 was about 10 percent. The average net interest cost for New York statutory authority (revenue) bonds sold in the same year was over 12 percent. Recently, however, voters appear to be more willing to approve issues. Of the $2 billion which voters have authorized in the past fourteen years, $1.8 billion was approved in the last five years, and most of that in the past four months.

Even when bonds have been authorized, the electoral support has been generally limited (table). Out of sixty-two counties, only two—the Bronx and New York (Manhattan)—have voted in favor of all eight bond referenda. The bond issues approved in the past five years won approval in no more than twenty-one out of sixty-two counties and had statewide approval rates of no more than 55 percent. In addition, in eighteen counties the proposals have been defeated by an increasing number of votes since 1979.*

The three general obligation bond proposals that voters have agreed to finance have been very special, nonroutine capital projects. The proposals in 1974 and 1979 were designed to respond to the enormous rise in oil prices by increasing energy efficiency through maintenance and improvement of transportation facilities. The 1983 proposal was designed to respond to the severe deterioration of the state's roads, bridges, and tunnels. All three proposals were carefully designed to provide benefits upstate as well as downstate in order to achieve statewide political concensus. Even then, traditional upstate mistrust was difficult to overcome as shown in the table by the small number of upstate counties that approved the 1979 and 1983 proposals.

In sum, few bond proposals have provided the immediacy and breadth of benefits that New York voters seem to require for approval of a general obligation bond. Even then, the margin of support was narrow and approval could not have been taken for granted. As a result, general obligation financing has been limited to projects with two characteristics. First, the proposed projects are so extensive and expensive that the usually lower cost and larger denominations of general obligation bonds have been necessary for fiscal viability. Second, the need addressed has been so important and immediate that a sufficient coalition of interests could be assembled for voter approval.

*Counties in which the margin of defeat has expanded in the last five years are Chautauqua, Columbia, Cortland, Delaware, Fulton, Hamilton, Madison, Montgomery, Onondaga, Oswego, Otsego, Rensselaer, Saratoga, Seneca, Tompkins, Warren, Washington, and Yates. Counties supporting all three referenda are the Bronx, Broome, Clinton, Kings, Nassau, New York, Queens, Richmond, and Westchester. Counties whose support has recently reached a majority are Monroe, Niagara, Putnam, Rockland, St. Lawrence, Suffolk, and Ulster.

**New York State Bond Referenda since 1971**

| Year | Project | Amount (millions of dollars) | Statewide counties approval (percent) | Approving counties upstate (out of 53) | Approving counties downstate (out of 9) |
|---|---|---|---|---|---|
| 1971 | Transportation | 2,500 | 39 | 4 | 2 |
| 1973 | Transportation | 3,500 | 42 | 1 | 4 |
| 1974 | Transportation | 250 | 65 | 52 | 8 |
| 1975 | Housing | 250 | 36 | 0 | 2 |
| 1977 | Economic development | 750 | 38 | 0 | 4 |
| 1979 | Transportation | 500 | 55 | 13 | 8 |
| 1981 | Prisons | 500 | 49 | 3 | 8 |
| 1983 | Transportation | 1,250 | 53 | 7 | 9 |

Allen J. Proctor

# Commercial Bank Investment in Municipal Securities

Historically commercial banks, together with casualty insurance companies and individual households, have been the major group of investors in tax-exempt municipal bonds. Banks, however, are now playing a much diminished role in the tax-exempt market. This article examines the reasons for the change in bank behavior.

The declining involvement of banks has taken place at an inopportune time for state and local governments. In 1982 and 1983, these governments issued debt at a net rate of about $50 billion per year, more than twice the average rate of the previous decade. Over the same two years, banks invested at a net rate of less than $1 billion per year, about one tenth the rate of the previous decade.

Although banks continue to participate in the municipal market, their own holdings since 1971 have not grown at the same pace as the municipal securities market (Chart 1). Today banks hold one third of all outstanding municipals, compared with over one half in 1971. Nor has their investment in municipals kept pace with the growth of the rest of their investment and loan portfolio (Chart 2).

Since 1981, banks have sharply reduced their municipals purchases. Their net purchases dropped by half in 1981 and remained low in 1982. They actually sold more municipal securities than they bought in the first three quarters of 1983. By early 1983, individual households exceeded commercial banks as the largest holders of municipals for the first time since 1964. And the share of banks' assets held in municipals also fell to levels not seen since the early 1960s. If commercial banks had instead maintained this share at 1971 levels, they would have held $90 billion in additional municipal bonds in 1983, over 150 percent of their actual holdings at that time.

The decline in bank investment in municipal securities has been broadly based. Even though small banks generally hold proportionally more municipals than large banks, both groups have reduced the share of domestic assets held as municipals (Chart 3).

No single explanation accounts for banks' diminished role in the municipals market. Since 1979, and especially since 1981, virtually every factor influencing bank tax-exempt holdings has worked toward a decline in bank investment in municipal bonds. Changes in tax laws in 1981 and 1982 probably have had the largest effects. But bank profitability, the level and volatility of interest rates, and credit risk have also been important.

Such a highly adverse coincidence of effects is unlikely to be repeated. And the precipitous slide in bank demand for municipals probably will not continue. But, if these effects are to be reversed and if banks are to return to at least their pre-1981 role as investors in municipals, some major changes in the financial environment or in Federal tax laws are needed. Short of this, state and local governments can take some steps to encourage bank investment. Most importantly, these governments must understand the investment needs of banks and become both more creative in designing and more aggressive in marketing their securities specifically to meet those needs.

**The analytical framework**

There are two basic determinants of a bank's decision to hold municipals: the net aftertax yield it can earn from a municipal and its desire for municipals at that yield relative to other investments or loans. A simple diagram will help organize the analysis around factors affecting each determinant (Chart 4). By referring to the diagram one can gain a clearer understanding of why these factors have influenced bank investment behavior and how they may have reinforced or offset each other in recent years.

Of course, the supply and demand for municipals ultimately dictate their nominal yield. But interest rate determination is not the primary concern of this article. Accordingly, the view taken here is that of an individual bank which observes the nominal yield available to it and, on the basis of several other factors, decides what its municipal holdings should be.

The effect of these factors is illustrated in the diagram by two lines (Chart 4). Line Y represents the net aftertax yield on municipals to a particular bank. Line D represents the bank's demand for tax-exempt securities at a given yield. A similar diagram could be drawn to represent the bank's decisions with respect to any category of loans or investment. But the decision to buy municipal bonds takes on some special characteristics because the net aftertax yield schedule that each individual bank faces varies with the share of tax-exempt bonds in its total assets.

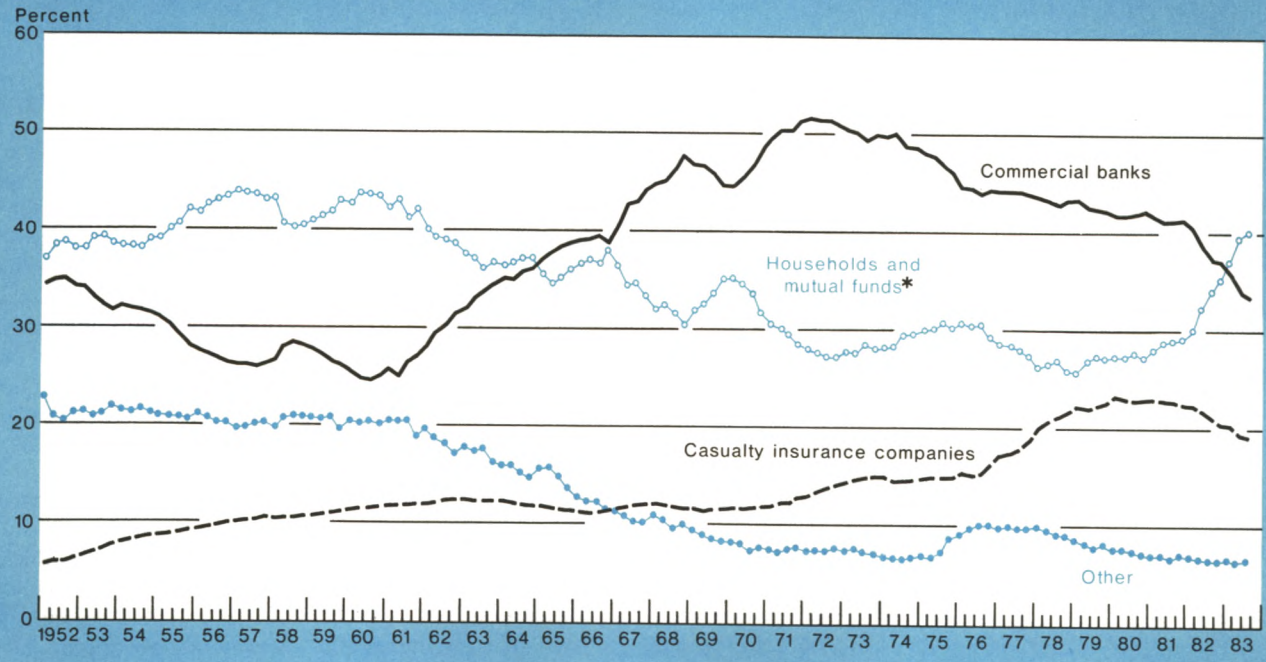
*Net aftertax yield*

The yield realized by a particular bank on municipal bonds is influenced by, but is not identical to, the nominal coupon yield of the security. The reason is that a municipal security is valuable largely because of its tax implications. As a consequence, many factors other than

Chart 1

**Share of State and Local Obligations Held by Various Groups of Investors**

Percentage share of municipals outstanding at end of quarter



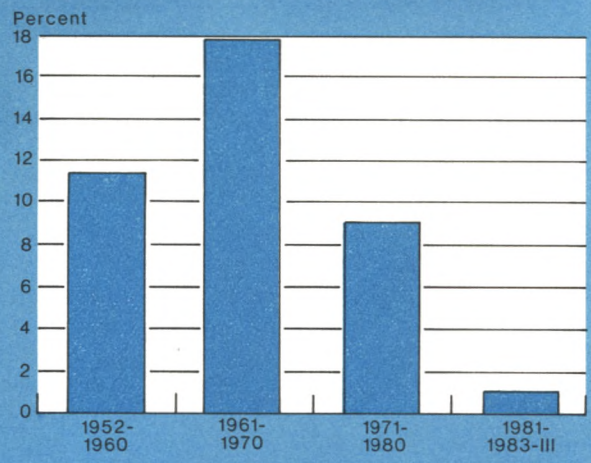

Commercial banks include U.S.-chartered banks, domestic affiliates, Edge Act and Agreement Corporations, U.S. agencies and branches of foreign banks, and banks in U.S. possessions.

*Includes open-end mutual funds. Figures for closed-end mutual funds, including unit trusts, should also be in this category but cannot be separated from other holders.

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

Chart 2

**Share of Newly Acquired Bank Assets Held in the form of Municipal Bonds ***



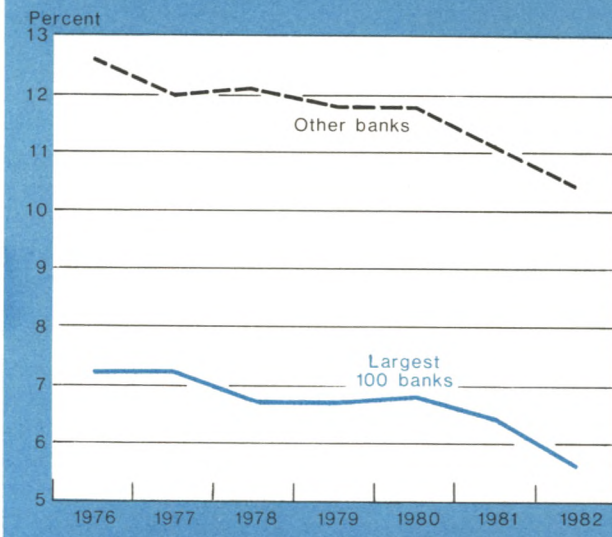

* Annual average of the ratio of purchases, less sales and redemptions of maturing holdings, to the net increase in total financial assets. Financial assets include all bank assets except current surplus, plant and equipment, and interbank positions.

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

Chart 3

**Commercial Bank Holdings of Municipals as a Share of Total Domestic Assets**

By asset size




Source: Board of Governors of the Federal Reserve System, Reports of Condition and Income.

coupon yield come into play in determining the value of a municipal as a tax shelter for an individual bank. Not only is the income on the municipal security exempt from Federal taxation (as it is for all investors), but also appropriate use of municipal investments can shelter from taxation bank profits on other operations. This tax savings is an important component of the net aftertax yield of a municipal security. The size of the tax savings is influenced by three main factors: (1) the marginal corporate income tax rate, (2) the bank's interest carrying costs, and (3) the degree to which carrying costs are deductible from taxable profits.

The determinants of the net aftertax yield can best be illustrated by a simplified example. Consider a bank with $100 million of investments and loans which earn an average taxable yield of 10.5 percent and are financed by liabilities with an average cost of 9.5 percent. By the year-end the bank will earn taxable profits of $1 million. Without some "shelter" the bank would have a tax liability of approximately $460,000 based on the marginal corporate tax rate of 46 percent (t). The bank could eliminate this liability entirely if, at the beginning of the year, it borrowed $10.5 million (M) at, say, a six-month certificate of deposit (CD) rate of 9.5 percent and invested the borrowed funds in municipal bonds paying a tax-exempt yield of 9 percent ($r_{ex}$). The $1 million carrying cost for these municipals (cM) is deductible from taxable profits, reducing them to zero. Therefore taxes too are reduced to zero.[1] The total net aftertax income from these municipal securities is the tax-exempt earnings of about $950,000 less the carrying costs of almost $1 million plus the tax savings of $460,000 for a net yield of 3.9 percent ($r_{ex} - c + tc'$).

In this example, $10.5 million is the most the bank would invest in municipals. If the bank borrowed another $1 million to buy municipals, the income would be $90,000 in tax-exempt earnings less $95,000 in carrying costs. The bank no longer has any income tax obligations so that there is no tax savings from this additional municipal investment. Thus, the net aftertax yield for these additional municipals is negative. This maximum level of bank municipal investment is denoted by the drop-off, or "kink", in the net aftertax yield schedule (Chart 4).

The point where this kink occurs can be expressed in terms of the municipal-to-asset ratio at which taxable profits are reduced to zero. In this case, the bank adds

[1] The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) limited this deductibility to 85 percent of carrying costs.

municipals to its initial taxable investments of $100 million until its total assets reach $110.5 million for a municipal-to-asset ratio of 9.5 percent. (A complete derivation of this relationship is illustrated in Chart 4.) Although the net aftertax yield on municipals in the absence of any tax savings is not necessarily negative, the ratio at the kink is usually the maximum ratio a bank is willing to maintain. The lower net aftertax yield on a municipal security is almost always inferior to the corresponding yield on taxables.

Any change in taxable profits, carrying costs, tax savings, or nominal yields will alter the shape or position of the net aftertax yield schedule. The direction of these effects can be demonstrated by using the same example. The fundamental factor is taxable profits. These fall when income on taxable investments or loans declines or when deductible expenses increase, such as business operating expenses, the cost of borrowed funds, loan loss provisions, and depreciation of physical capital. When taxable profits decline, the yield schedule shifts to the left so that the benefits of tax reduction disappear at a lower municipal-to-asset ratio. In the example, a decline in the level of taxable profits to $500,000 would move the kink from a ratio of 9.5 percent to a ratio of 5 percent.

A decrease in the marginal corporate tax rate has the effect of shifting downward the portion of the yield curve to the left of the kink. An increase in the cost of borrowed funds has two effects. The entire yield curve shifts downward because the net yield is lower. And the kink shifts to the left because, with higher carrying costs, a smaller volume of municipals shelters all taxable profits. In the example, costs of 10 percent instead of 9.5 percent will shift the left portion of the yield line to 3.6 percent from 3.9 percent, the right portion to a negative 1 percent from negative 1/2 percent, and the location of the kink to 4.8 percent of assets from 9.5 percent.

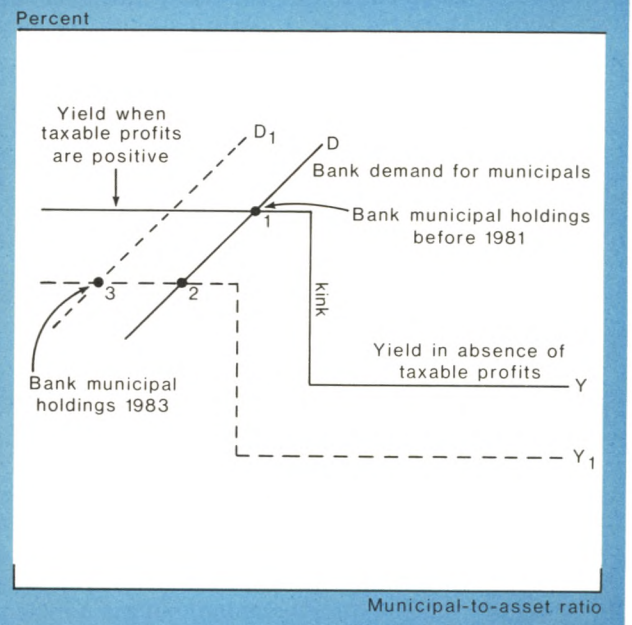
Finally, when the nominal yield on municipals declines, the net aftertax yield falls at all points and the point of fully sheltered profits remains at the same ratio of municipals to assets. In the illustration, a decline in the coupon from 9 percent to 8.5 percent lowers the upper and lower sections of the yield schedule by 1/2 percentage point.

*Demand for municipals at a given yield*

On average, a bank demands less than the volume of municipals denoted by the kink point in its version of Chart 4. Some banks may, in fact, choose to stay close to the kink point, but this choice depends on where its demand schedule (D) lies on Chart 4 relative to the net aftertax yield line (Y). Its demand schedule would intersect the kink point if the bank aimed to pay no

Chart 4

**Net Aftertax Yield of a Bank's Municipal Holdings**




The net aftertax yield on a tax-exempt security consists of

the nominal yield of the security ($r_{ex}$) less

the interest carrying cost of financing the security (c) plus

the tax savings, *i.e.*, the allowable deductible interest carrying cost (c') multiplied by the marginal corporate income tax rate (t): $r_{ex} - c + tc'$.

When the bank has no tax obligations, $tc' = 0$.

Taxable profits consist of

the yield (r) derived from the income on all taxable assets and operations (A − M) less

the total interest carrying costs (c) of the bank's financial liabilities (L) allocated to taxable assets (A − M) as a share of total assets (A) less

all other allowable expenses (s) of taxable assets (A − M) less

the total interest carrying costs of the bank's financial liabilities (cL) that are permitted to be allocated (c'/c) to the share of a bank's assets (A) held as tax-exempt securities (M):

$r(A - M) - cL[(A - M)/A] - s(A - M) - cL(c'/c)(M/A)$.

In other words, since A = L, taxable profits are the net interest margin adjusted for expenses (r − c − s) earned on taxable assets (A − M) less

the deductible carrying cost (c') of tax-exempt securities (M): $(r - c - s)(A - M) - c'M$.

If we set taxable profits equal to zero, we can solve for the municipal-to-asset ratio at which the net aftertax yield drops to $r_{ex} - c$:

$M/A = (r - c - s)/c' \div [1 + (r - c - s)/c']$.

income taxes, if tax-exempt bonds were the only shelter, if the bank had no foreign tax credits or loan loss provisions, and if except for their tax status municipal bonds were perfect substitutes for other securities. However, all these conditions are rarely met. Four factors help determine the location of the demand schedule:

- The availability and yield of alternative investments, particularly tax-shelter investments;
- The bank's liquidity requirements and preferences and the liquidity of other assets relative to municipal bonds;
- The risk of default, the risk of a downgraded credit rating, and the bank's attitude toward these risks; and
- The size of the bank in terms of the investment resources available.

The most important alternative to municipal bonds as a tax shelter for bank profits is leasing. This entails the purchase of a piece of equipment, building, or other depreciable asset for lease to a third party. The bank earns taxable income from the lease, but the purchase of the physical asset entitles the bank to substantial credits and deductions which reduce tax liabilities on other operations. Leasing by banks was first permitted in 1963 but did not become widespread until after 1970 when amendments to the Bank Holding Company Act made large-scale leasing easier. Moreover, leasing is often a highly leveraged investment by which the bank can receive substantial tax benefits while committing relatively few "equity" funds (Appendix 1). As a result, leasing can offer aftertax returns well above those on municipals.

The bank's need for liquidity is a second factor that affects demand for municipal securities. Municipal bonds are more liquid than some other assets, for example, equipment for leasing. However, most tax exempts are long term and the secondary market for municipals is not nearly so well-developed as the market for some other securities. Anything that increases a bank's desire for liquidity may decrease its demand for long-term forms of tax shelter. Changes that make municipals more liquid increase demand for tax exempts.

Third, holding municipal securities exposes the bank to credit risk. There is some chance that a municipal security could fall into default. There is an even greater probability that downgrading by a credit agency will reduce the market value of a bank's holdings. Any perceptions of increased riskiness tend to reduce demand at given net aftertax yields.

The size of a bank is also a factor in the level of bank demand for municipal securities. Large banks have access to more alternative investments and tax shelters, such as large-scale leasing. Hence, a large bank's need for municipals as a source of income and tax shelter is relatively less than that of a smaller bank. In fact, large banks invest more in leasing and less in municipals than small banks. By 1982, the largest 100 banks had accumulated about 6 percent of their assets in municipal securities whereas the small banks had accumulated more than 10 percent in municipals (Chart 3).[2]

The geographic location of a bank is an additional factor often cited as a source of varying demand. Because of the large number and relatively small size of most municipal bond issues, compared with corporate or Treasury bond issues, there are fewer potential investors for a typical municipal bond issue.[3] In particular, those investors are likely to be located in the same state or locality. For that reason, many analysts characterize the municipal market as geographically segmented so that different demand curves exist for each state. Preliminary investigation suggests that state-by-state differences in bank demand are not systematic (Appendix 2). In other words, it appears that nationwide factors common to all banks are the most important influences on aggregate bank municipal holdings.

**Trends over the past thirty years**

Bank investment in municipal securities over the past thirty years can be generally explained in terms of changes in these factors. During the 1950s, bank municipal holdings were constrained mostly by banks' reliance on their securities portfolios for most of their liquidity. This practice was incompatible with large

[2]This difference between large and small banks in the mix of tax shelters is ironic because it does not coincide with the difference between the proportional taxes they pay. Since leasing provides a superior shelter from taxes, compared with municipal securities, and since large banks do more leasing and less investment in municipals, compared with small banks, one would expect large banks to shelter proportionately more of their income from taxes.

This does not seem to be the case. Take the ratio of aftertax to before-tax income as one indicator of proportional taxation. The natural expectation is that large banks shelter more income from tax and have a higher ratio. In fact, in 1982 the ratio was 75 percent for the top 100 banks and 85 percent for the smaller banks. A lower average U.S. tax rate for the smallest banks and a higher average rate for multinational banks with operations in high-tax countries and states may account for some of the difference. However, the rest remains a puzzle.

[3]For example, during the 1970-78 period, there was an average of 7,845 new issues of municipal securities with an average value of $7 million per issue. By contrast, corporate bond issues over the same period averaged 493 new issues per year with an average value per issue of over $50 million. (Robert Lamb and Stephen Rappaport, *Municipal Bonds: The Comprehensive Review of Tax-Exempt Securities and Public Finance* (New York: McGraw-Hill Book Company, 1980), page 8.

holdings of long-term municipal securities. As a consequence, bank investment in municipals was modest relative to the municipals market and to the banks' own portfolios (Charts 1 and 2). By the end of 1960, banks held 25 percent of all municipals, but municipals represented only 8 percent of their financial assets.[4]

The growth of markets for Federal funds and large CDs during the 1960s freed the banks from exclusive reliance on their securities portfolios as a source of liquidity.[5] With the liquidity constraint relaxed, other factors, such as relative yields and tax strategies, increased in importance as determinants of the municipal-to-asset ratio. Bank municipal holdings surged over this period to a peak of 15 percent of bank assets and 51 percent of all outstanding municipals by 1971, nearly double the levels of a decade earlier.

During the 1960s, municipal bonds were essentially the sole vehicle by which banks could shelter their profits on domestic operations. The tax benefits of investment in physical assets were available in principle, but the use of leasing as a tax shelter did not begin in earnest until 1971. Through the early 1970s, banks' involvement in leasing increased rapidly and the municipal-to-asset ratio declined.

This trend continued through the mid-1970s. By the late 1970s, however, the growth of leasing activity by commercial banks stopped, possibly owing to changes in tax laws. The decline in bank participation in the municipal market also slowed through the late 1970s with a municipal-to-asset ratio of 11 percent and with banks holding 43 percent of outstanding issues in 1978.

## Most recent trends

Over the past four years, and particularly since 1981, almost all factors affecting the appeal of municipals discouraged bank investment.[6] The decline in the municipal-to-asset ratio continued in 1979, paused in 1980, and then accelerated. Banks, increasing the ratio by 1 percent in 1980, reduced it by almost 8 percent over 1981 and 1982. In the first three quarters of 1983, the share of municipals in bank financial assets fell another 7 percent.

### *Declining net aftertax yield*

Even though the average *nominal* yield on municipals increased substantially after 1979, increases in bank costs and less favorable tax treatment of net income from municipals made the net aftertax yield on municipals much less attractive to banks.[7]

Banks' need to shield profits from taxes has declined in the 1980s.[8] In 1981, bank pretax profits were flat after a decade of virtually continual growth. In the following year, profits declined by about $1 billion. Even though strictly comparable figures are not yet available, bank profits in general do not seem to have increased very much in 1983. In particular, it appears that gains some banks achieved in 1983 in the net yield of their loans and investments were at times offset by increases in loan loss provisions.

Changes in Federal tax laws in the past four years have also had profound negative effects on the net aftertax yield of bank-held municipal securities.[9] The changes began in 1979 when the maximum corporate income tax rate was reduced from 48 percent to 46 percent. This change lowered the tax shelter value of a municipal bond.

The greatest change was due to the 1982 tax act (TEFRA). That legislation disallowed part of the interest deduction for municipal carrying costs. Disallowance reduces the value of a municipal as a shelter against

[4]The discussion of the principal factors affecting bank municipal holdings through the mid-1970s is based largely on Herman Kroos and Martin Blyn, *A History of Financial Intermediaries* (New York: Random House, 1971); Marcia Stigum, *The Money Market*, rev. ed. (Homewood, IL: Dow-Jones-Irwin), 1983; John Petersen, "Changing Conditions in the Market for State and Local Government Debt" (U.S. Congress, Joint Economic Committee), April 16, 1976; and Ralph Kimball, "Commercial Banks, Tax Avoidance, and the Market for State and Local Debt Since 1970", *New England Quarterly Review* (Federal Reserve Bank of Boston, January/February 1977).

[5]Perhaps because the transition was so gradual from bank municipal demand primarily determined by liquidity restrictions to demand determined by a more diverse set of factors, empirical studies based on the 1950s and 1960s often concluded that bank demand for municipal securities was a residual. In other words, banks first satisfied their demand for loans, Treasury securities, and other investments. Whatever funds were left over were used to buy municipals. An example of this residual approach to municipals is Donald Hester and James Pierce, *Bank Management and Portfolio Behavior* (New Haven: Yale University Press, 1975). Patric Hendershott and Timothy Koch, "The Demand for Tax-Exempt Securities by Financial Institutions", *The Journal of Finance* (June 1980) provide an example of a later rejection of this approach once data for the 1970s became available.

[6]In terms of Chart 4, the net aftertax yield line has moved down and to the left (line $Y_1$) and banks reduced their holdings from point 1 to point 2. In addition, bank holdings were further reduced to point 3 by a decline in bank demand for municipals at that yield (line $D_1$).

[7]The factors that Marcelle Arak and Kenneth Guentner, "The Market for Tax-Exempt Issues: Why Are the Yields So High?", *National Tax Journal* (June 1983) argue had contributed to this increase in nominal yields are the same factors that made municipal securities less attractive to banks. This may account, in part, for the substantial increase in municipal investment by individuals, whose net aftertax yield from municipals may have increased over this period.

[8]Because banks must make their tax-shelter investment decisions well before actual taxable profits are known, they base their decisions on anticipated taxable profits. Unfortunately for the analyst, anticipated taxable profits, the most relevant variable, is not directly observable. But some inferences can be made by looking at banks' total actual profits before they paid taxes, as reported in the Board of Governors of the Federal Reserve System publication, *Reports of Condition and Income*.

[9]While state taxes may be important to the return that a bank receives on a municipal security, preliminary investigation suggests that state taxes do not play an important role on average in explaining the share of assets which a bank holds as municipals (Appendix 2).

taxes on other bank operations. Specifically, as of January 1, 1983 banks have been able to deduct from taxable profits only 85 percent of the interest costs incurred to purchase municipals. Municipals held as of the end of 1982, however, still benefit from the pre-TEFRA full deductibility. Thus, while the net aftertax yield of bank holdings of municipals as of 1982 was not affected, the yield of purchases in 1983 was reduced, contributing to the absence of net bank purchases over the first three quarters of 1983.[10] For example, because of the disallowance, the yield in 1983 for purchases of municipals paying the recent market return and being financed by six-month CDs was almost 20 percent lower than it would have been with full deductibility of carrying costs.

The net yield a bank can earn by investing in municipals has also been eroded in the last four years by a substantial increase in banks' interest cost of funds. An annual survey by the Federal Reserve shows that, in general, banks' average cost of money rose from interest payments of less than 5 percent in 1979 to almost 8 percent in 1981 and 1982. Part of the reason for the increased costs was the general rise in interest rates after 1979. An additional factor in banks' cost of funds in recent years, and for years to come, has been the deregulation of the interest rates banks pay on deposits. In 1981, interest-bearing transaction deposits became widely available for the first time at commercial banks. In 1983, deposits paying market rates of interest were permitted in the form of transaction deposits (Super NOW accounts) and time and savings deposits (money market deposit accounts and CDs).

The increasing interest costs reduced the net aftertax yield a bank can earn from investing in municipal securities in two ways. First, higher costs contributed to the reduction of taxable profits discussed earlier. Second, they reduced the spread a bank could earn by borrowing money to invest in tax-exempt securities. Even though the bank receives back some of the higher costs in the form of lower taxes through interest deductibility, it must still absorb more than half of the increase (1 − 0.46, the marginal tax rate).

For example, small banks, who acquire funds primarily through time deposits, saw their net aftertax yield on municipals decrease over 2 percentage points from 1979 to 1982. Large banks, who finance many of their assets through purchasing funds in the money market, saw their net aftertax yield on municipals decline by 1 to 2 percentage points.[11] Because funds available to banks will increasingly require market rates of interest in future years, the erosion of the spread a bank can earn by investing in municipal bonds may continue.

*Reduced bank demand at a given yield*

Large and small banks have been attracted away from municipals by several factors aside from the decline in yield, among them the availability of tax-sheltered leasing. Tax law allows a high degree of leveraging of investment in physical assets so that banks receive the tax benefits associated with a $5 investment with only a $1 "equity" stake in the capital asset (Appendix 1). This magnifies the effect of accelerated depreciation and investment tax credits on the net aftertax yield from purchasing an asset to lease.

Tax legislation in 1981 (ERTA) liberalized the leveraging requirements and increased the rate of cost recovery through depreciation. Some of the changes are subtle, and it is difficult to calculate their effect on average returns. But it is likely that the provisions in ERTA made leasing more attractive to banks and contributed to the drop in bank demand for municipals.

In fact, there is evidence that primarily large banks responded to these changes quickly by increasing their leasing activity substantially. In 1982, the share of total operating income provided by leasing operations at the largest banks increased by over 10 percent (Chart 5). What makes the increase so impressive is that this measure probably understates the increase in bank leasing activity. Taxable lease income is a small part of the net aftertax yield from leasing, and it usually does not become sizable until at least a year after the lease arrangement begins. The largest and most immediate benefits from leasing are the tax credits and depreciation deductions which are not reflected in this measure.[12]

On the other hand, the decline in small banks' demand for municipals was probably not influenced by this change in ERTA. Small banks generally do not have the resources necessary to overcome some of the disadvantages of leasing. First, small banks often may not

[10]This lowers the left portion of the yield curve in Chart 4. In addition, if part of its interest deduction is disallowed, the bank would have to increase its holdings of municipals in order to create enough deductions to shelter all its taxable profits, and the yield curve in Chart 4 will shift to the right. If most banks were at the kink point in Chart 4, then the effect of TEFRA could have been to increase municipal holdings. Because most banks do not hold enough municipals to cover fully their taxable profits, the yield effect of TEFRA probably dominates.

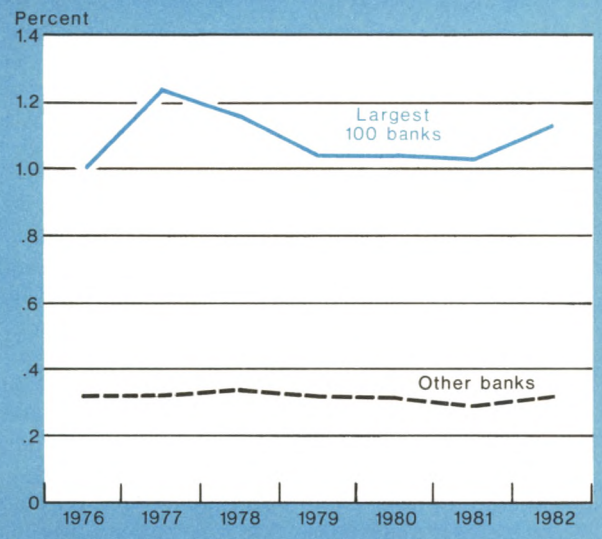
[11]Small banks absorbed 54 percent of the increase in time deposit costs from 6.4 percent in 1979 to 10.2 percent in 1982 as reported in the Federal Reserve Board of Governors publication *Functional Cost Analysis*. The cost of nondeposit funds rose from 6.3 percent to 9.2 percent for medium banks and from 8.2 percent to 10.2 percent for large banks between 1979 and 1982.

[12]Other attempts to measure the extent of bank leasing activity can be found in Ralph Kimball, *op. cit.*

Chart 5

**Income from Lease Financing as a Share of Total Operating Income**

By asset size




Source: Board of Governors of the Federal Reserve System, Reports of Condition and Income.

have large and diverse enough portfolios to absorb the greater risk and lower liquidity of leasing over high-grade municipal bonds. Second, leasing requires a specialized staff, which small banks generally cannot afford, and it is most efficiently done in volume. As a result, small banks have engaged in relatively little leasing, and income from leasing has remained stable at about 0.3 percent of their total operating income.

A second factor that reduced both large and small banks' demand for municipals at a given yield was the rapid and unpredictable change in interest rates from 1979 to 1982. Holders of substantial volumes of long-term fixed-interest bonds saw the value of their portfolios fluctuate substantially. In this environment, banks became wary of investing in long-term fixed-interest securities, which constitute the majority of municipal bonds, and sought to reduce their interest risk exposure. One way to do this was to shorten the average maturity of their municipal portfolios and thereby reduce their demand for a large proportion of municipals.

The adverse impact of the increased appeal of leasing and shorter term securities may have been limited to some extent by the increasing availability of a special form of tax-exempt security known as an industrial development bond (IDB). Issuers of IDBs have pioneered the introduction of floating interest rates and medium-term maturities to enhance their appeal to spread- and liquidity-conscious investors.

Moreover, one type of the IDB—the small-issue IDB—often carries a special attractiveness to banks, not usually associated with traditional municipal bonds. Small-issue IDBs have this appeal to small banks in particular because, in many ways, a small-issue IDB is merely a local business loan that is structured as a bond to achieve tax exemption for the interest earned. Small banks are used to making commercial loans, so that they may feel particularly comfortable with small-issue IDBs. As with loans, the terms are negotiated, the bond is held to maturity, and the bank often receives compensatory balances from the borrower.

The desirability of these characteristics to all investors, and presumably to banks as well, is suggested by the increasing popularity of all IDBs. Although they presently account for only 18 percent of outstanding tax-exempt bonds, IDBs have grown from less than 1 percent of the net increase in long-term municipal bonds in 1971 to more than one third since 1979, according to the Federal Reserve Board's *Flow of Funds*.

A final factor that has contributed to declining bank demand for municipals is the increase in credit risk associated with holding municipal securities in the last few years. Unlike Federal Government securities, there can be interruptions in the payment of principal or interest on municipal securities. Although the probability of default may be small, bank perceptions of the riskiness of municipals may have increased. As a response, banks may have kept unchanged or even lowered their portfolio exposure limits for municipals.

Recently, many investors, including banks, have seen the value of some of their municipals decline because of default or a downgrading of their credit rating. The most famous default recently, and the largest tax-exempt default ever, has been in the municipal bonds supporting WPPSS Projects 4 and 5. Unfortunately, there are few data available to support or to refute the widespread notion that credit risk is greater now than five years earlier. Two indicators of increased risk are that Moody's Investors Service has reduced the number of investment grade-rated bonds and that more issues have had their ratings reduced than increased by Moody's for the last five years.[13]

A bank may try to minimize losses due to higher credit risk by shifting its portfolio to higher quality municipals, or it may choose to reduce municipal exposure and, consequently, to reduce its demand for tax exempts. The first option has become increasingly difficult because of

[13]Robert Lamb and Stephen Rappaport, *op. cit.*, pages 70-71, and Moody's Investors Service.

the greater scarcity and expense of the top-grade municipal bonds. In 1978, eighteen states issued securities rated Aaa. By 1983, only twelve states did. Moreover, top-rated municipal securities have become increasingly expensive relative to riskier, minimum investment grade municipals. A bank had to forego a yield 14 percent higher if it wanted Aaa-rated municipals rather than Baa-rated municipals at the end of the 1970s. By 1982, this loss in yield increased to 15 percent of the Aaa rate and reached 17 percent in 1983. Faced with these difficulties in upgrading their portfolios, many banks may have opted in part to reduce their risk exposure and, consequently, their demand for municipal bonds.

In addition, demand for municipals may also have declined because some banks are choosing to take a portion of their municipal exposure in the form of letters of credit rather than ownership of municipal securities. As part of an effort to improve the creditworthiness of their debt, some issuers are asking for and receiving irrevocable bank letters of credit as a form of insurance that interest or principal will be paid to investors. These letters of credit earn banks a fee, but they do not tie up funds as investment in a municipal security would. However, banks which consider these letters of credit to be municipal exposure may reduce the amount of municipals they are willing to own. There are some estimates that, as of mid-1983, as much as $40 billion in letters of credit had been written by the largest banks as backing for municipal bonds. A portion of this may have displaced bank demand for municipals.

In summary, since 1981 virtually all factors have worked against bank demand for municipal bonds. The net aftertax yield of a bank-held bond has been reduced by a decline in bank profits needing shelter, a decline in the tax rate and the deductibility of municipal carrying costs, and a rise in the cost of financing investments in municipals. This was offset, but not entirely, by an increase in nominal yields. In addition, bank demand for municipals at that yield was reduced by an increase in the attractiveness of tax-sheltered leasing as well as increases in the interest risk and credit risk of holding traditional long-term fixed-interest municipals. However, demand may not have declined for some industrial development bonds whose similarity to loans, shorter maturity, or interest flexibility could limit some of these effects.

**Next several years**

A continued sharp decline in commercial bank investment in municipal securities is not likely. Virtually all the factors affecting bank demand contributed to the post-1981 drop in bank participation, but the probability of so many separate factors combining adversely again is not high. And some factors may actually have begun to move in more favorable directions.

- First, among the limitations to bank profit margins were increasing costs of funds fostered by deregulation of depository interest rates and loan loss provisions occasioned by changes in world economic conditions. Both of these should be one-time adjustment costs that probably will not recur for some time.

- Further decreases in income tax rates or enhancements in the appeal of tax-sheltered leasing are improbable. If either are changed, it is more likely to be in a direction that will raise tax liabilities and enhance the appeal of municipal securities. In contrast, the erosion of the tax-shelter benefits of municipal bonds could continue as part of Federal efforts to increase tax revenues. Proposals to restrict certain types of revenue bonds have recently been introduced, or possibly the 85 percent limit on carrying cost deductibility could be further lowered.

- Although one cannot predict changes in the credit risk of municipal issuers, there has been a noticeable expansion of techniques to reduce this risk for investors, primarily through insurance and other innovative forms of payment guarantees.

Despite the low probability of a continued decline in commercial bank participation in the municipal market, a reversal of the effects of the post-1981 period would require substantial changes in the financial, regulatory, and Federal tax environment. The specific adjustments have yet to be discovered, yet they will have to encompass some combination of the following conditions:

- A financial environment in which long-term fixed-income securities become much more attractive than they are now;

- A wider spread between municipal yields and banks' cost of funds;

- A higher level of bank profitability;

- An increase in marginal corporate tax rates;

- Tax law changes that reduce the attractiveness of leasing while increasing the attractiveness of municipal bonds.

It is possible, but unlikely, that a sufficient combination of these changes will occur in the foreseeable future.[14]

[14]A recent IRS opinion acquiescing to an earlier Tax Court decision granted favorable tax treatment for repurchase agreements (RPs) backed by municipal bonds. It remains to be seen, however, whether this opinion will create a new source of demand for tax-exempt securities.

Nonetheless, state and local governments have many options available to enhance the marketability of their bonds to banks. Taking a cue from the appeal of industrial development bonds, they might reduce the maturities and increase the flexibility of interest rates of more traditional municipal bonds to enhance their appeal to banks.

Allen J. Proctor and Kathleene K. Donahoo

## Appendix 1: The Returns on Leasing and Municipal Bonds Compared

Under current law, equipment leasing dominates municipal bonds, in terms of rate of return, as an investment for a profitable bank. To understand this, consider a bank with taxable income in need of sheltering. The bank has borrowed $1 and is deciding whether to buy a municipal bond with the dollar or to invest in a dollar's worth of equipment to lease. The bank will choose the investment with the greatest net present value (NPV) of aftertax returns.

In both cases the interest cost of the borrowed dollar will be written off for tax purposes against current operating income. For the bond, however, only a proportion — $(1-\alpha)$, $0 \leq \alpha \leq 1$ — can be deducted. Under current law $\alpha = 0.15$.

For a municipal bond with the face value of $1 purchased at par, the NPV is:

*Equation 1*

$$NPV_B = \sum_{t=1}^{T} \frac{r_{ex} + (1-\alpha)\mu r_c}{(1+r_c)^t} + \frac{1}{(1+r_c)^T}$$

where: $r_{ex}$ = Coupon yield on the exempt bond,
$r_c$ = Cost of funds to the bank,
$\mu$ = Marginal corporate tax rate, and
$T$ = Term of maturity of the bond in years.

For a lease of a durable good with a useful life of T years and no scrap value at the end of that period, the NPV is roughly:

*Equation 2*

$$NPV_L = \sum_{t=1}^{T} \frac{r_{tx}(1-\mu) + \mu r_c}{(1+r_c)^t} + 5\mu \sum_{t=1}^{P} \frac{\delta(t)}{(1+r_c)^t} + 5k$$

where: $r_{tx}$ = Rental income,
$\delta(t)$ = Proportion of the value of the asset allowed as a depreciation deduction t years after the investment,
$k$ = Proportion of the value of the asset allowed as an investment tax credit, and
$P$ = Period over which depreciation may be taken.

The benefits of accelerated depreciation and the investment tax credit are multiplied by five because current minimum "at risk" provisions require an investment of only 20 percent of the cost of the asset. The remainder can be borrowed. Current "at risk" requirements, then, mean that a bank can issue a CD for $1, borrow another $4 from an institution with little or no tax liability (*e.g.*, a life insurance company or a local government agency), purchase a $5 investment, and claim the full tax benefits associated with that investment.

Given these considerations, under what circumstances would a bank choose to purchase a municipal bond rather than enter an equipment leasing arrangement? The bank would be indifferent if equation 3 is:

$$NPV_B = NPV_L$$

Data for computations of $r_{ex}$ are based on equations (1), (2), and (3) and on the 1982 average values of the following variables.

$r_c$ = Six-month rate on large CDs in the secondary market (12.57 percent),
$r_{tx}$ = Yield on Baa corporate bonds (16.11 percent),
$T$ = Ten years.
$P$ = Five years under the accelerated cost recovery (ACR) provisions of ERTA.

## Appendix 1: The Returns on Leasing and Municipal Bonds Compared *(continued)*

Under these assumptions and with these variable values, the yield on municipal bonds would have to equal 42.25 percent to equal the rate of return on leasing. This is a little less than four times the average annual yield of 12.48 percent on Aaa-rated tax-exempt bonds in 1982. Of course, comparison of rates of return does not reveal the whole story. Leasing arrangements are probably riskier and less liquid investments than municipal bonds. However, the computation indicates that there are attractive alternatives to tax-exempt securities for banks wishing to shelter operating profits.

A series of experimental calculations with alternative variables and parameters indicated that the key provisions of current tax law affecting the attractiveness of leasing are the minimum at-risk investment requirements. If the tax benefits of a leasing arrangement were limited to the bank's direct "equity" investment in the equipment, instead of up to five times that investment, then the $r_{ex}$ required to match the benefits of leasing would be only 11.70. Our calculations suggest, therefore, that modifications of the at-risk requirements for investment tax benefits can have an important effect on banks' demand for municipal bonds.

Aaron S. Gurwitz

## Appendix 2: Some Characteristics of Municipal Bond Market Segmentation

The municipal bond market has been characterized as geographically segmented. There are two reasons to expect that banks' municipal-to-asset ratio will differ systematically across states.* First, the municipal bond market consists of a large number of relatively small issues, many of which are sold on a negotiated rather than on a competitive basis. A close relationship frequently develops between a local government and the banks or other institutions buying its debt. To the extent that accommodating state and local government borrowing requirements is a major determinant of bank municipal holdings, one would expect the municipal-to-asset ratio to be higher in the states that are the largest borrowers.

Secondly, bank income from in-state municipals is exempt from taxation in some states but is subject to taxation in other states. Banks in states which exempt bank income from in-state municipals would likely have higher proportional municipal holdings.

Analysis of sixteen states categorized by total state and local debt and tax treatment of banks' municipal income does not indicate a clear relationship between

*The mandatory pledging of municipal securities as collateral for state and local government deposits in banks was formerly an important reason for state-by-state differences in bank demand for municipals but not after 1978. For a discussion of other factors that may cause demand for municipals to vary by state, see Robert Lamb and Stephen Rappaport, *Municipal Bonds: The Comprehensive Review of Tax-Exempt Securites and Public Finance.*

Table 1

**1982 Municipal Holdings of U.S. Commercial Banks by State**

Municipal holdings as a percentage of total domestic assets

| High debt states* | Percent | Low debt states* | Percent |
|---|---|---|---|
| | | **Taxable municipal interest†** | |
| New York | 4.9 | Montana | 11.0 |
| California | 3.2 | New Mexico | 10.3 |
| Pennsylvania | 9.9 | South Dakota | 6.6 |
| Florida | 10.3 | North Dakota | 10.7 |
| Average | 7.1 | Average | 9.6 |
| | | **Tax-exempt municipal interest†** | |
| New Jersey | 9.4 | Vermont | 9.3 |
| Michigan | 8.9 | Maine | 11.7 |
| Oregon | 9.6 | New Hampshire | 8.1 |
| Virginia | 10.8 | Utah | 7.4 |
| Average | 9.7 | Average | 9.1 |

*High debt states had outstanding total debt in 1980 greater than $5.5 billion. Low debt states had outstanding total debt in 1980 less than $2.0 billion.

†Taxable and tax-exempt refer to states' treatment of bank municipal income from in-state municipals as of 1983.

## Appendix 2: Some Characteristics of Municipal Bond Market Segmentation *(continued)*

Table 2

**1982 Municipal Holdings of U.S. Commercial Banks by State and Asset Size**

Municipal holdings as a percentage of total domestic assets

| Category | Percent |
|---|---|
| All banks | 8.3 |
| *Top 100 | 5.6 |
| Other | 10.4 |
| All banks (excluding New York and California) | 9.9 |
| *Top 100 | 8.0 |
| Other | 10.7 |
| All New York banks | 4.9 |
| *Top 100 | 4.4 |
| Other | 8.5 |
| All California banks | 3.2 |
| *Top 100 | 2.6 |
| Other | 5.9 |

*Banks among the nation's 100 largest in asset size as of 1982.

Sources for Tables 1 and 2: Board of Governors of the Federal Reserve System, *Reports of Condition and Income*.

these two factors and banks' municipal-to-asset ratios. In general, the differences between municipal ratios within categories are at least as great as those across categories.

The average municipal-to-asset ratios for three of the four categories are extremely close: 9.7 percent for tax-exempt and high debt states, 9.6 percent for nonexempt and low debt states, and 9.1 percent for tax-exempt and low debt states (Table 1). The nonexempt and high debt states' average ratio of 7.1 percent is somewhat smaller, but much of this difference is due to the ratios in New York and California.

The New York and California ratios are much lower than those of any other nonexempt state studied here. It therefore seems likely that factors other than state tax treatment of banks' municipal income must account for the relatively low municipal ratios of banks in those two states.

One explanation of the low municipal-to-asset ratios in New York and California is that these states contain a disproportionate number of very large banks, and that large banks tend to hold a smaller proportion of their assets in the form of municipals (Table 2). Comparison of municipal holdings of large and small California and New York banks with similar banks in the other 48 states reveals that disaggregation by size lessens the difference between the New York and California ratios and those of the rest of the country. Thus, some of the difference between the ratios of New York and California banks and those of all other U.S. banks is due to a size effect—California and New York have a high concentration of very large banks. However, there remains some residual state effect.

In sum, regardless of the greater availability of local municipal issues and greater tax incentives to hold municipal bonds, banks in most of the states studied hold remarkably similar proportions of their assets in municipals. Geographic segmentation of the municipal market may exist in some form, but it does not seem to affect the proportion of their assets which banks hold as municipals.

Allen J. Proctor and Kathleene K. Donahoo

# Neighborhood Changes in New York City during the 1970s
## Are the "Gentry" Returning?

Since the late 1970s, a number of journalists and scholars have been calling attention to an emerging "back-to-the-city" movement of high-income households. Observers note that, after two decades of suburbanization, high-income households have begun to rediscover the central city and have been buying up property in or near low-income neighborhoods for renovation and owner occupancy. This process is sometimes called the "regentrification" of the inner city, with the modern "gentry" characterized as young, upwardly mobile executives.

Until now, the evidence of these changes had been largely anecdotal. For instance, a 1979 *New York Times Magazine* article heralding the "urban renaissance" and the "new elite" who had been rediscovering the city reported on the perceptions and observations of the *Times* author and others.[1] Even academic journals are often short on numbers. One recent paper described gentrification in Washington, D.C., only qualitatively, with assertions such as "downtown residential areas [are] increasingly populated by rich professionals who walk or bicycle to work".[2]

Regentrification is a controversial subject. Community groups have strongly opposed the process, citing neighborhood disruption and displacement of the poor and of nonwhite households. In contrast, regentrification has its adherents, notably government officials unwilling to discourage economic investment and property owners hoping for capital gains.

The analysis in this article does not—and is not intended to—support either side of the dispute. The social costs and benefits of regentrification in New York City have been well discussed in many forums. To add some quantitative evidence to the public discussion, this article presents a detailed analysis of the extent of regentrification over the decade of the 1970s.

Last year, 1980 census tract data for New York City were released, making this article possible. They permit an analysis of demographic shifts since the 1970 Census both citywide and at a geographically fine level of detail. In general, this analysis shows some specific instances of regentrification, but not of sufficient magnitude to offset the aggregate trend of continuing outmigration. Specifically,

- Citywide, New York City has not increased its population share of the metropolitan area's high-income households, college graduates, or any other high-status group.

- Census tract data for several individual neighborhoods which have been the focus of public discussions, however, provide some quantitative support for the existence of gentrification. Even so, changes in neighborhood income distributions were modest.

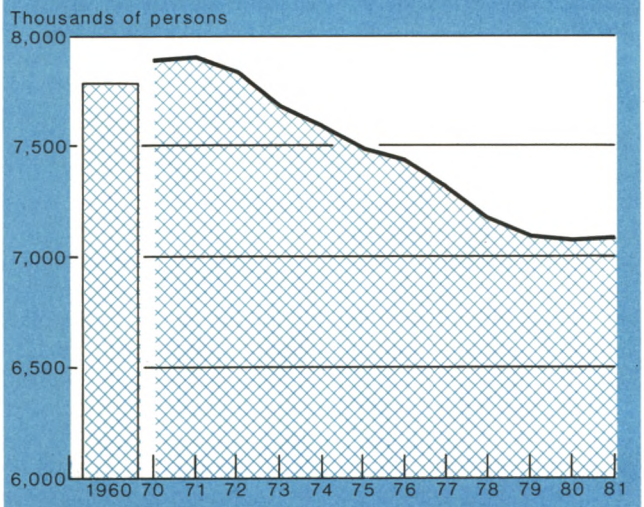
[1] Blake Fleetwood, "The New Elite and an Urban Renaissance", *New York Times Magazine* (January 14, 1979).

[2] Stephen F. LeRoy and Jon Sonstelie, "Paradise Lost and Regained: Transportation Innovation, Income, and Residential Location", *Journal of Urban Economics*, 13 (1983).

Chart 1

**Population of New York City**

1960, 1970-81

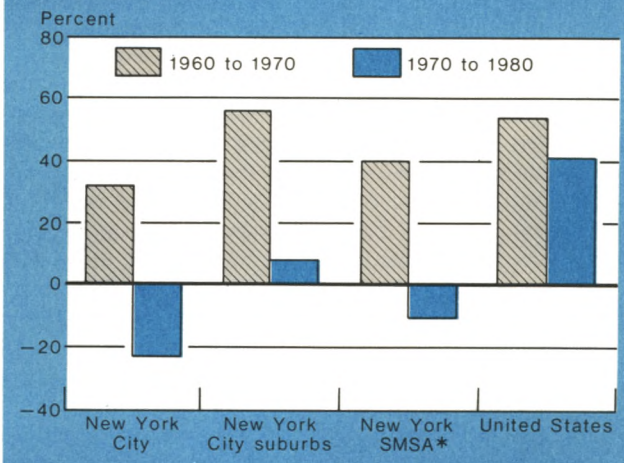



Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information Systems.

Chart 2

**High-income Families**

Percentage change




*Standard Metropolitan Statistical Area, defined as New York City plus Putnam, Rockland, and Westchester Counties in New York and Bergen County in New Jersey.

Source: U.S. Department of Commerce, Bureau of the Census.

- Citywide, there were many areas with especially large increases in the share of the adult population with at least four years of college. Neighborhoods most commonly labeled as gentrifying had some, but by no means all, of the largest gains. These increases were accompanied by corresponding occupational shifts.

- Changes in neighborhood income distributions were generally much smaller than the increases in educational attainment. Some of the largest income shifts, moreover, occurred in areas where regentrification has not been widely discussed.

- Structural and ownership characteristics of the housing stock did not change dramatically. Rents did increase substantially faster than the inflation rate in many areas, though. Neighborhoods commonly regarded as gentrifying had some, but not all, of the largest increases.

**Citywide statistics: continued decline**

Aggregate data provide scant evidence that a back-to-the-city movement has begun. In fact, there is a good deal of evidence to the contrary. The city's total population, which rose during the 1960s, fell continuously from 1971 to 1980 by a total of 800,000 people (Chart 1), or about 10 percent. Even this number understates the magnitude of the demographic change; the decrease in white persons, for example, was over 1.8 million, nearly 30 percent of the 1970 level.

The census data also show that overall the city did not become more attractive to high-income families. During the 1960s, the number of families in New York City with incomes greater than $50,000 (in inflation-adjusted 1980 dollars) rose about 30,000, but the growth rate was slower than in the suburbs (Chart 2).[3] Accordingly, the city's share of all high-income families in the Standard Metropolitan Statistical Area (SMSA) fell from 66 percent in 1960 to 62 percent in 1970.[4] During the 1970s, however, national economic growth was

[3]In current dollars, the definitions for high income were $50,000 or higher in 1980, $25,000 or higher in 1970, and over $18,500 in 1960. In 1980 the high-income group numbered 5 percent of the city's families.

[4]Unless otherwise noted, all references to the New York metropolitan area refer to the 1980 composition of the New York-Northeastern New Jersey SMSA. New York's suburbs include Putnam, Rockland, and Westchester Counties, New York, and Bergen County, New Jersey. (Nassau and Suffolk compose a separate metropolitan area.)

slower, and the number of high-income families in the New York SMSA even fell. The city's share of this smaller total dropped again, to 54 percent in 1980. In the aggregate, then, the city's relative attractiveness to high-income families with respect to the suburbs fell during both decades.

Two large demographic groups have grown over the decade, despite the overall population decline: there was an increase in the city's population between ages twenty-five and thirty-four and in the number of its one-person households. Both these increases reflected demographic trends occurring nationwide rather than increased attractiveness of the city. In fact, New York City failed to keep up with the SMSA or the U.S. growth rates for either group. As the baby-boom generation ages and if the rate of household formation slows, even these segments of the population may decline by the 1990 Census.

The city posted significant gains in educational attainment from 1970 to 1980. Over the decade, the number of its college graduates grew by roughly 50 percent, from about 500,000 to over 750,000. This follows a national trend of soaring numbers of college graduates, but again New York City lagged the national pace: the number of college graduates in the United States nearly doubled between 1970 and 1980. The number of graduates also grew more slowly in New York City than in the entire metropolitan area (which recorded a 64 percent increase), so that the city's share of the area's graduates declined.

By all these measures, then, New York City's share of the metropolitan area's gentry decreased over the decade. While there were increases in the number of one-person households, young people, and college graduates, the city did not share fully in the nationwide or metropolitanwide growth of these groups since the proportion of each group choosing the suburbs over the city increased. The census data do not indicate an aggregate back-to-the-city movement for any of these population groups.

### Census tract level analysis

Although the aggregate data indicate a continued outflow and further declines in the relative attractiveness of New York City to high-income families overall, it is still possible that particular parts of the city have become more attractive to certain identifiable segments of the population.[5] To assess the extent of regentrification, it is necessary to examine demographic changes at a geographically disaggregated level. Such an analysis is possible with the use of census tract level data. Census tracts in New York City have an area of eight or more square blocks, and contain an average of 3,200 people or 1,300 households. There is a good deal of variation, however; 10 percent of the city's tracts have fewer than 900 residents, and 10 percent have more than 6,200. New York City has over 2,000 tracts. This level of analysis is sufficiently fine to pick up relatively subtle neighborhood shifts and is useful in measuring the demographic and housing stock shifts that have received public attention.

The tabulations provide strong—though only indirect—evidence on the extent of gentrification and displacement. The ideal study would follow successive occupants of individual units and would determine the extent to which low-income families move because of eviction or large rent increases. Private and government surveys often take this approach, but such studies generally provide limited geographic information. The best information available on the extent of neighborhood shifts between 1970 and 1980, then, is obtained by comparing tract-level tabulations for the two census years.[6]

Some words of warning are appropriate, however. While these census numbers are the most comprehensive and detailed source available, they are not without limitations. Observing only census years may ignore important increases and decreases occurring in between, and after 1980. Moreover, the data also must be interpreted with caution:

- Most of the census tabulations are based on a sampling of the population, rather than on a 100 percent enumeration. The sampling procedure may cause percentages and totals to differ from the actual values.

- In many cases, census tract tabulations are not reported to preserve confidentiality. As a result, some tracts (generally those with a very small population) had to be eliminated from some of the analyses.[7]

[5]Several city neighborhoods are widely believed to have undergone regentrification. Among the areas most widely discussed are Brooklyn Heights and nearby neighborhoods in Brooklyn and Greenwich Village in Manhattan. (For a close-up of five such neighborhoods, see box on pages 44 and 45.)

[6]Most of the data used in this article came from computer tapes created by the Census Bureau. For 1980, the files were Summary Tape Files 1 and 3 for New York State. For 1970, they were the Second Count tape and the Fourth Count tapes for Population and Housing for New York State.

[7]There were other technical problems which caused census tracts to be dropped. The 1970 census files had missing records, and there were a few partitions and consolidations of census tracts over the decade. For some tabulations of 1970-80 comparisons, missing observations amounted to about 1 percent of the city's 1980 population. In many cases, five tracts accounted for most of the total.

- Many of the statistics reported here are based on preliminary data, subject to revision.

- The socioeconomic and housing data are based on the responses of households. There may be systematic errors in rent and income tabulations. For example, the Census Bureau found that respondents tended to overstate the utility cost component of gross rent. They also tended to understate sources of income components which are "minor or irregular". (Comparisons of 1970 and 1980 data would not be adversely affected, however, if the extent of overreporting and underreporting were about the same for the two censuses.)

- Changes in census procedures may affect some 1970-80 comparisons. For example, the 1980 census form had more racial categories than did the 1970 form, and the procedure for handling certain write-in responses was changed.

- The New York City government has charged that the Census Bureau disproportionally undercounted blacks, Hispanics, aliens, and poor people in the city. This charge is currently under adjudication in Federal District Court in Manhattan.

To identify tracts with significant changes, the extent of the socioeconomic and housing-stock shifts in specific neighborhoods are measured by the changes in proportions of a demographic group or housing type. Arbitrary cutoffs were selected, in most cases at a 10 percentage point increase (or decrease). Thus, for example, an increase in the proportion of high-income households from 1 percent to 2 percent would not be counted as a significant change with respect to the tract population, even though the share doubled.

## Socioeconomic shifts

*Increases in high-income households*

Between 1970 and 1980, the number of high-income households (those with incomes of $50,000 or more, in 1980 dollars) in New York City fell about 16,000. Despite the citywide decrease, however, the number of high-income households increased in almost one third of the city's census tracts. These tracts were distributed all across the city, and together their increase totaled over 18,000 high-income households (Map 1).

The largest increases per square mile took place between 70th Street and 90th Street across Manhattan. But these inflows did not drastically change neighborhood income distributions. In fact, the proportion of high-income households rose by 10 percentage points in only six census tracts—one in Manhattan and none in Brooklyn. Only one of these six tracts had more than a few low-income families in 1970.[8]

When the definition of high income is broadened to include those over $30,000 in inflation-adjusted 1980 dollars, there still were few dramatic changes in neighborhood income distributions.[9] The percentage of households with high incomes so defined rose by 10 points over the decade in thirty-two tracts (Map 2).[10] The increase exceeded 20 percentage points in only four tracts. And, despite the focus of attention on Manhattan and Brooklyn, most of the thirty-two tracts were outside these boroughs.

If regentrification implies income distribution shifts specifically in low-income areas, such changes were rare. The proportion of low-income families exceeded the 1970 citywide average of 16 percent in only nine tracts with significant increases in the high-income ($30,000) population share. Of these nine tracts, the largest increase in the high-income share took place in a low-population tract near Canal Street and Broadway in lower Manhattan.

*Decreases in low-income families*

Another subject of public discussion is the displacement of low-income households by renovation, increased rent, or eviction for owner occupancy. These changes may take place without significant shifts in the upper end of the income distribution, if high-income households are not the group moving in or if there is a delay between the exit of one group and the entry of another—such as for major structural renovations. Examination of changes in neighborhood proportions of low-income families may identify significant income distribution shifts which do not involve high-income households.

Citywide, the number of families with incomes below 125 percent of the poverty level increased more than 50,000. However, in over a third of the city's census tracts, the number of such families decreased. The total decline for these tracts was over 60,000 families. About one third of the tracts losing low-income families gained

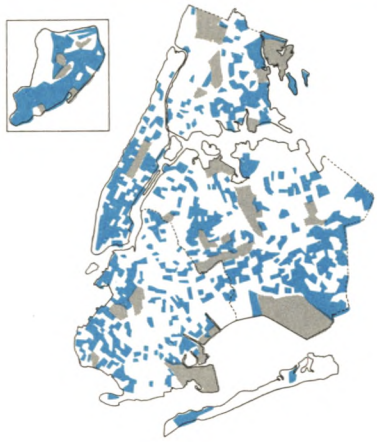
[8]Low income is defined as less than 125 percent of the Census Bureau's poverty level (which varies by family size and other factors). A low-income tract is one with a concentration of low-income families greater than the citywide average of 16 percent. About 30 percent of the city's tracts met this criterion in 1970. Other definitions of poverty—families below the poverty level and households with incomes below $5,000 in 1969—gave qualitatively similar results in these and other tabulations.

[9]The 1970 income cutoff was $15,000 in current (1970) dollars.

[10]In two of these tracts, moreover, the number of high-income households fell, even though the population share rose. The other income groups left these tracts even faster.

Map 1

## High-income households in New York City

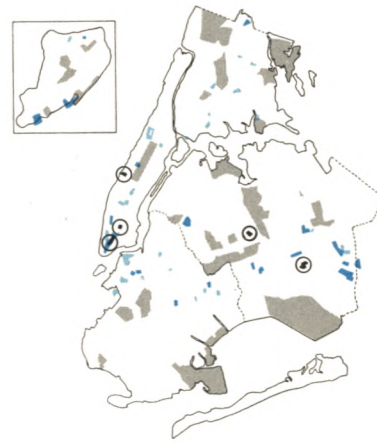


Number of high-income households increased during 1970-80.

Major parks, cemeteries, airports, etc.

Map 2

## Income distribution shifts in New York City



10 percentage point increase in high-income population share.

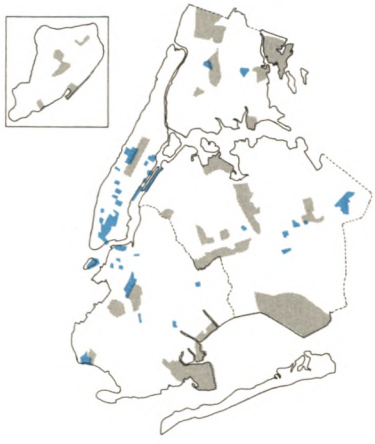
10 percentage point decrease in low-income population share.

⊙ Both of the above changes.

Major parks, cemeteries, airports, etc.

Map 3

## College graduates in New York City

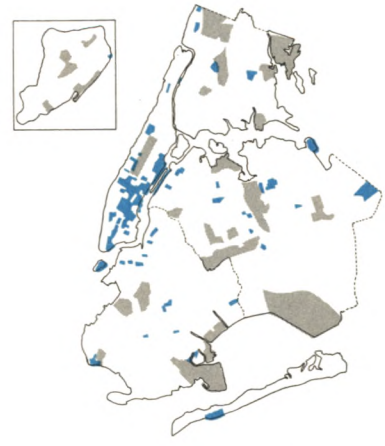


20 percentage point increase in the proportion of college graduates.

Major parks, cemeteries, airports, etc.

Map 4

## In-migration to New York City



25 percent of population lived outside New York City in 1975.

Major parks, cemeteries, airports, etc.

high-income households. These 270 tracts gained 7,500 high-income households and lost 15,000 low-income families during the 1970s.[11]

However, as with the high-income population, few census tracts had large declines in the low-income share of the population. Across the city, the neighborhood percentage of low-income families fell by 10 points or more in thirty-four tracts. These tracts mostly had very small populations and generally were not the same as the tracts with significant high-income increases (Map 2). In fact, in four of the twenty-one Brooklyn and Manhattan tracts with large declines of low-income families, the number of high-income households also dropped to zero.

In summary, some parts of the city have been moving against the aggregate trend of out-migrating high-income people and in-migrating low-income people. Such areas are found all over the city, not just in Manhattan and nearby Brooklyn. Changes in neighborhood income distributions were proportionately large in only a few areas.

*Changes in racial composition*

A definition of "gentry" based exclusively on income may be inappropriate. Significant neighborhood shifts might have occurred along other dimensions. Widespread shifts in neighborhood demographics and extensive displacement could be taking place without notable shifts in the income distribution.

One measure of demographic change that is highly visible is racial composition. If predominantly nonwhite areas were entered by whites in large numbers, perceptions of regentrification could arise, even if the incoming people did not have higher incomes than current residents.

The census data show almost no sign of increasing concentration of white persons. About 90 percent of the city's census tracts recorded a net decrease in the proportion of white persons over the decade; the white population share rose 10 percentage points or more in only eight census tracts, of which three were in Brooklyn or Manhattan. Moreover, three of these eight tracts had low-income concentrations below the citywide average. In 1980, these eight tracts collectively encompassed only 900 households. An influx of high-income white persons did not materially affect racial balance in poor nonwhite neighborhoods.

*Increases in neighborhood educational attainment*

As mentioned earlier, the city experienced a gain of 250,000 college graduates, despite the fact that its population fell by nearly a million. The increase in graduates was widespread within the city: the proportion of the population with four or more years of college increased in 85 percent of the city's census tracts. In fact, the population proportion of graduates rose 10 percentage points or more in over 300 census tracts and 20 percentage points in over sixty tracts (Map 3). Despite the size of these increases, however, the city's share of the SMSA's college graduates still declined over the decade. The city's numbers probably indicate a broadly based increase in the extent of educational attainment of New Yorkers, then, rather than indicating a sudden influx of graduates to the city.

There appears to have been a good deal of movement between neighborhoods, though. The sharpest educational gains were in Manhattan and nearby Brooklyn. About one third of the tracts with significant gains were low-income tracts in 1970; several of these were in neighborhoods widely cited as gentrifying. In fact, many of these neighborhoods had concentrations of college graduates two or three times the citywide average (box).

These educational gains were paralleled by changes in the kinds of jobs held by neighborhood residents. Over the decade the number of New Yorkers with managerial, professional, or technical occupations grew by 74,000, almost 10 percent of the 1970 level. The neighborhoods with the sharpest educational gains also had significant increases in the proportion of people with such jobs.

Census tabulations, then, lend some quantitative support to the direct observations of gentrification. It is unlikely that such dramatic gains found in some of these neighborhoods could have occurred without substantial in-migration. But the failure of the income numbers to match these changes is noteworthy. It suggests that the new residents may be young professionals, early in their careers, with prospects for substantially higher incomes. In coming years, many may choose to live elsewhere.

*In-migration to New York City*

Despite New York City's population loss between 1970 and 1980, many people went against the flow and moved into the city. In fact, 10 percent of New Yorkers in 1980, over 600,000 people, reported addresses outside the city for 1975. This level of in-migration was about equal to that for the 1965-70 period.[12] In the

[11] This comparison refers to the over-$50,000 definition of high income, for which increases are displayed in Map 1. Almost 40 percent of these tracts lost low-income families.

[12] This comparison ignores 400,000 people in 1970 who moved since 1965 but indicated no prior address. Thus, the actual extent of in-migration might have been significantly higher during the 1965-70 period than during 1975-80.

## Close-up of Five New York City Neighborhoods

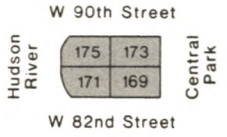
### Population and housing statistics, 1980


| Tract number | Population | Ages 25-34* (%) | Immigrants† (%) | College‡ (%) | High income§ (%) | Low income‖ (%) | Rental units¶ (%) | Gross rent** ($) |
|---|---|---|---|---|---|---|---|---|
| **Park Slope** | | | | | | | | |
| 153 | 3,252 | 27 | 17 | 41 | 20 | 9 | 78 | 256 |
| 155 | 3,737 | 27 | 10 | 39 | 15 | 18 | 81 | 243 |
| 157 | 4,168 | 31 | 14 | 48 | 20 | 11 | 83 | 271 |
| 159 | 4,676 | 33 | 18 | 54 | 22 | 10 | 84 | 262 |
| 165 | 4,936 | 29 | 13 | 56 | 28 | 1 | 76 | 273 |
| 167 | 4,993 | 26 | 16 | 34 | 19 | 13 | 82 | 260 |


| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Brooklyn Heights** | | | | | | | | |
| 1 | 4,902 | 24 | 24 | 48 | 27 | 2 | 70 | 290 |
| 3.01 | 5,353 | 33 | 24 | 53 | 36 | 2 | 85 | 325 |
| 5 | 6,173 | 31 | 24 | 52 | 24 | 5 | 91 | 295 |
| 7 | 3,272 | 35 | 27 | 55 | 31 | 6 | 83 | 293 |
| **Brooklyn** | 2,231†† | 16 | 8 | 12 | 12 | 27 | 77 | 234 |


| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **West Village** | | | | | | | | |
| 67 | 5,614 | 33 | 24 | 47 | 13 | 14 | 95 | 261 |
| 73 | 6,918 | 33 | 25 | 50 | 17 | 8 | 95 | 289 |
| 75 | 3,344 | 42 | 37 | 62 | 28 | 4 | 92 | 358 |
| 77 | 6,216 | 33 | 21 | 56 | 25 | 6 | 94 | 312 |


| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **East Side** | | | | | | | | |
| 136 | 14,702 | 31 | 27 | 57 | 36 | 4 | 84 | 377 |
| 138 | 12,169 | 33 | 29 | 52 | 28 | 4 | 94 | 384 |
| 140 | 7,843 | 22 | 22 | 66 | 52 | 6 | 66 | 448 |
| 142 | 6,035 | 15 | 20 | 59 | 62 | 2 | 59 | 500+ |




| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **West Side** | | | | | | | | |
| 169 | 9,219 | 33 | 26 | 50 | 21 | 19 | 96 | 337 |
| 171 | 9,343 | 30 | 21 | 52 | 26 | 9 | 94 | 338 |
| 173 | 8,665 | 30 | 18 | 54 | 26 | 14 | 90 | 320 |
| 175 | 10,357 | 25 | 14 | 50 | 31 | 7 | 89 | 341 |
| **Manhattan** | 1,428†† | 22 | 18 | 33 | 20 | 24 | 92 | 264 |

*Percentage of the total population.

†Persons outside New York City in 1975 as a percentage of the population over the age of five.

‡Persons with four years of college or more as a percentage of the population over the age of twenty-five.

§Households with incomes over $30,000 in 1979 as a percentage of all households.

‖Families with incomes below 125 percent of the poverty level as a percentage of all families.

¶Percentage of all occupied units.

**Median, including contract rent plus fuels and utilities.

††Borough population in thousands.

## Close-up of Five New York City Neighborhoods *(continued)*

### Neighborhood change, 1970 to 1980

| Tract number | College‡‡ | High income‡‡ | Low income‡‡ | Rental units‡‡ | Gross rent§§ (%) |
|---|---|---|---|---|---|
| | | | (In percentage points) | | |
| **Park Slope** | | | | | |
| 153 | 29 | 2 | 0 | −1 | 149 |
| 155 | 27 | 0 | 1 | 0 | 144 |
| 157 | 28 | 5 | −9 | −5 | 149 |
| 159 | 33 | 6 | −10 | −6 | 136 |
| 165 | 26 | 1 | −8 | −4 | 134 |
| 167 | 25 | 4 | −1 | 0 | 168 |
| **Brooklyn Heights** | | | | | |
| 1 | 15 | 0 | −2 | 5 | 145 |
| 3.01 | 13 | 8 | −4 | −7 | 110 |
| 5 | 12 | 4 | 0 | −5 | 125 |
| 7 | 17 | 8 | −5 | −3 | 143 |
| **Brooklyn** | 5 | −3 | 7 | 2 | 125 |
| **West Village** | | | | | |
| 67 | 19 | −1 | 1 | −1 | 176 |
| 73 | 14 | 0 | 0 | −2 | 160 |
| 75 | 26 | 14 | −2 | −5 | 212 |
| 77 | 19 | 6 | −5 | −2 | 141 |
| **East Side** | | | | | |
| 136 | 12 | 1 | 1 | −9 | 77 |
| 138 | 20 | 5 | −4 | −1 | 124 |
| 140 | 22 | 5 | −2 | −3 | 107 |
| 142 | 12 | −1 | 0 | −5 | 80‖‖ |
| **West Side** | | | | | |
| 169 | 21 | −2 | 6 | −3 | 690 |
| 171 | 22 | 2 | −2 | −1 | 122 |
| 173 | 20 | 2 | 3 | −3 | 126 |
| 175 | 15 | 1 | 0 | −3 | 108 |
| **Manhattan** | 12 | 0 | 6 | 1 | 128 |

‡‡Change, in percentage points, of the corresponding columns on the facing page, from their 1970 values.

§§Percentage change of medians between 1970 and 1980.

‖‖1980 median is reported only as over $500; actual growth rate may be larger than the number shown.

Much of the discussion about gentrification suggests that the phenomenon has been occurring extensively in a few specific neighborhoods, including Greenwich Village, Chelsea, the Upper West Side, and the East Side in Manhattan, as well as Park Slope, Brooklyn Heights, Boerum Hill, and other Brooklyn neighborhoods with easy access to Wall Street.

Detailed 1980 Census data for five such neighborhoods draw a picture of a young, highly educated, high-income population (table). The most striking indicator is the educational attainment in these areas: in almost every census tract, at least half of the residents over the age of twenty-five had four years of college or more, compared with a citywide proportion of 17 percent. The proportions of households with incomes greater than $30,000 also tend to exceed the citywide concentration of 16 percent, and the proportions of families with incomes below 125 percent of the proverty level are similarly below the citywide average of 22 percent. And, in most of these neighborhoods, median gross rents were significantly above the citywide median of $248 in 1980.

Comparison to 1970 data provide some evidence that gentrification has taken place. With the exception of Park Slope, the proportion of in-migrants generally ranged from one fifth to over one third. Moreover, these in-migrants seem to be very highly educated. The *increase* in the proportion of college graduates ranged from 12 percentage points to 33 percentage points in these tracts during the 1970s.

In contrast, the income distribution showed much less change. The high-income proportion of households rose 10 percentage points or more in only one tract. Similarly, the low-income share of the family income distribution fell in most of these tracts, but these declines were rather modest.

Brownstone purchases and "co-op" conversions did not have a drastic effect on the composition of the housing stock in these tracts; the rental share of the occupied housing stock fell during the decade but not by dramatic amounts. In the Brooklyn neighborhoods, for example, the rental share generally remained above the citywide and boroughwide average of 76 percent. In Manhattan, about a third of the tracts were below the boroughwide average of 93 percent by roughly the amount of the ten-year decline in the share. But in no case did the rental proportion fall by as much as 10 percentage points.

Finally, most of these tracts had larger than average rent increases. Citywide, the median gross rents rose by about 120 percent, a figure surpassed by all but five of these census tracts. A West Side tract had an especially large increase, as a number of single-room occupancy (SRO) buildings, containing several thousand units with rents below $30 per month, were eliminated.

aggregate, then, New York City has not been attracting more people to relocate here.

Many neighborhoods, however, had significantly greater inflows from outside New York City. There were over 200 tracts, in which 20 percent of the 1980 population (over the age of five) were recent in-migrants, and about 130 tracts where the proportion exceeded 25 percent (Map 4). The greatest concentrations were in Manhattan, where the boroughwide average was about 18 percent. Brooklyn neighborhoods near Manhattan also had large concentrations of recent in-migrants.

However, significant amounts of in-migration occurred in pockets of other areas of the city, areas out of the focus of most popular discussions of gentrification—the Bronx, Flatbush, Flatlands, Greenpoint, and Williamsburg. Much of midtown Manhattan also had significant in-movements in the latter half of the 1970s.

Despite all this in-migration, the data show very little movement to the city from its own suburbs. Ten percent of neighborhood residents were suburbanites in 1975 in only five census tracts—one in the Bronx near Westchester, one in Brooklyn on Jamaica Bay, one on the waterfront near Williamsburg, and two in lower Manhattan. The citywide total of 30,000 suburb-to-city movers was half that of the 1965-70 period.[13]

It is also noteworthy that much of the migration to New York City came from outside the United States. As of 1980, about 5 percent of the city's residents, or half of the in-migrants, lived abroad in 1975. In Brooklyn, 68 percent of the people living outside the city in 1975 also lived outside the country. In Manhattan, about a third of the new residents were immigrants.

**Housing stock changes**

Significant changes in the socioeconomic characteristics of a neighborhood also may have an impact on structural and occupancy characteristics of the housing stock. Sometimes the housing stock changes may be more conspicuous than the socioeconomic changes, as when several buildings on a block are being renovated at the same time. If the income distribution is an inappropriate measure of one group displacing another, housing stock statistics might indicate significant shifts not reflected in other tabulations.

*Units per structure*

One variable useful for investigating the extent of a particular kind of gentrification is the number of units per structure. If brownstones with several rental units are bought by high-income households and remodeled for owner occupancy, there would be more one- and two-unit structures and fewer structures with three, four, five (or more) units.[14]

In the aggregate, the number of one- and two-unit structures stayed about constant. But, in one third of the city's census tracts, the number of such structures rose, by an additional 50,000 units in one- and two-unit structures.

The proportion of units in this type of structure increased by 10 percentage points or more in about 50 census tracts. Only one such tract was in Manhattan, however, and about three in the areas of Brooklyn generally characterized as gentrifying. The rest of the tracts were throughout Brooklyn, the Bronx, Staten Island, and Queens.

The conclusion is that remodeling of structures with several units to structures with one or two units had a significant effect on the composition of the housing stock in only a few isolated pockets of the gentrified areas of Manhattan and nearby Brooklyn. If gentrification has brought dramatic changes in the housing stock in some of these areas, it is necessary to look to other housing variables for statistical confirmation.

*Owner occupancy*

Another commonly discussed neighborhood change involves widespread purchase of brownstones and similar rental properties for owner occupancy (at least in part of the purchased structure). If high-income households have been buying up rooming houses and rental structures in large numbers, and these trends are concentrated in specific neighborhoods, then these changes should show up in the census data as significant shifts in the proportions of owner occupants—especially considering that one owner can replace three or more renters.[15]

Only two census tracts in the regentrified part of Brooklyn—the area broadly encompassing Park Slope to Brooklyn Heights—experienced a significant replacement of owner-occupied units for rental units, however.[16] In fact, the rental proportion did not decline

[13]The tabulations for 1970 referred to the then-prevailing definition of the SMSA. In 1970, Nassau and Suffolk were included in the New York SMSA and Putnam and Bergen were not; these changes may explain part of the statistical decline in suburb-to-city migration.

[14]Renovation and subdivision of one-unit structures into multi-unit rental properties is also consistent with regentrification. The analysis presented here looks only for a specific renovation activity which may reduce the rental stock and displace the most low-income families per high-income household. If both subdivision and consolidation are going on, regentrification may not affect the renter-owner composition of the housing stock.

[15]Of course, three high-income renters can also replace one low-income owner of an unimproved brownstone. But, if the rental statistics are to show any regentrification, it would have to be as an increase in "co-op" or building ownership.

[16]A significant shift is defined as a 10 percentage point increase in the rental proportion of the occupied housing stock, provided that the number of rental units falls and the number of owner-occupied units rises.

by 10 percentage points in any Park Slope or Brooklyn Heights tract.

In Manhattan, one Greenwich Village tract, three in the East 60s, and three other tracts on or near the East Side experienced such changes. Many of these locations suggest "co-op" or condominium conversion of housing that already was serving high-income residents. Four Queens tracts also showed significant increases in owner occupancy.

*Rent increases*

For the city as a whole, rent increases seem to have been fairly moderate for the 1970s. Citywide, the median gross rent (which includes fuel and utilities) grew from $112 to $248, an increase moderately greater than that of the general price level (which about doubled). And high-rent units on average had similar rent increases. Ten percent of gross rents were at or above $200 in 1970; the comparable figure in 1980 was about $430.

But in many neighborhoods typical rent increases were much larger: the growth of median gross rent exceeded 150 percent in nearly 250 census tracts. Sixty of the tracts were in Manhattan, generally south of 100th Street. There were ninety-six in Brooklyn, a third of which were in neighborhoods near lower Manhattan. About forty-five of the tracts were in Queens, thirty-five in the Bronx, and thirteen in Staten Island.

The change in median gross rent is an ambiguous indicator of housing market conditions. Increases in the median might indicate rent increases only for below-median units, the construction of high-rent units, or the demolition of low-rent units. Conversion of rent-stabilized buildings to "co-ops" or condominiums can also increase a tract's median rent by removing low-rent units from the rental stock. Moreover, differences in rent increases may be largely a reflection of differential coverage of rent control and stabilization, as well as the varying impacts on units subject to these controls (due, for example, to areas with high or low turnover).[17]

Nevertheless, rents increasing faster than the citywide average may to some extent be an indication of gentrification. To the extent that the new gentry push up rents in some neighborhoods by outbidding the former tenants for some units, large rent increases may be indicative of conditions which force some of the original occupants to leave. In Brooklyn, however, most areas with rapid rent growth were not in prime gentrification territory. In Manhattan, areas below 14th Street had many tracts with large rent increases, but so did the less-discussed Midtown South area.

[17]There is evidence that median rent increases do not reflect uniform rent increases. The 10th and 90th percentiles of tract rent distributions often grew significantly faster or slower than the tract median rents.

**Summary and conclusions**

Tract-level tabulations from the 1980 Census provide the first opportunity to investigate empirically the extent and nature of changes of New York City's neighborhoods. Heretofore, much of the discussion about the shifts during the 1970s was based on limited observations and anecdotal evidence. An analysis of socioeconomic and housing data has led to the following conclusions:

- The overall attractiveness of New York City to the "gentry", by various definitions, did not grow between 1970 and 1980. The city's share of the metropolitan area's high-income households, college graduates, and managers/professionals/technical workers all fell over the decade.

- Neighborhood takeovers by high-income households did not occur. Even moderate changes in income distribution were fairly rare, and most of the larger shifts generally occurred outside Manhattan and Brooklyn.

- The population shares of low-income families did not decline significantly except in small pockets of some neighborhoods. Many of these changes, moreover, took place outside the prime gentrification areas of Manhattan and nearby Brooklyn.

- The numerically smallest changes were of racial composition. Only 10 percent of the city's census tracts posted *any* net increase in whites; fewer than 1 percent experienced substantial increases in population share.

- The strongest evidence of gentrification comes from increased educational attainment. Park Slope and other well-known gentrified areas posted some of the largest gains. Corresponding shifts in the occupational mix were also observed. But many of the young professionals, with incomes similar to those of the 1970 occupants, may have prospects for higher incomes in coming years. Whether they will stay in New York City is an open question.

- There was little evidence of widespread remodeling of multi-unit structures to create one- and two-unit structures in Manhattan and nearby Brooklyn. And increases in the latter structure type took place in several areas not associated with gentrification.

- Few instances were observed of especially large owner-occupancy shifts. Substantial decreases in renters were not observed in Brooklyn neighborhoods near downtown Manhattan, and many of the other shifts could be attributed to "co-op" or condominium conversion of high-income rental buildings.

- The most dramatic housing stock changes were rent increases. Sections of the neighborhoods most commonly cited as gentrified had some of the largest increases, but median rent increases in many other areas were equally large.

In summary, the census data indicate that some areas of the city have indeed moved counter to the citywide trends of declining high-income households and increasing low-income families. The most discussed neighborhoods in Manhattan and Brooklyn were among those areas, but some of the largest income distribution shifts were found in parts of the Bronx, central Brooklyn, and other areas not noted for much gentrification. Other kinds of socioeconomic and housing-stock changes generally associated with the phenomenon were observed only in moderate degrees, were not widespread, and were not limited to neighborhoods widely recognized as gentrifying.

It should be realized that regentrification is not a simple phenomenon whose essence can be captured by any dozen census variables. The tabulations presented in this article can only reflect the order of magnitude of neighborhood changes. These census variables cannot describe the changing *appearance* of neighborhoods—the departed people, the new faces, the closed ethnic restaurants, and the new boutiques. And the statistical significance of gentrification may not reflect the importance to neighborhood residents or other interested parties. Nevertheless, the numbers are still an important part of the picture and the individual stories must be balanced with an overall perspective.

Daniel E. Chall

# Currency Misalignments
## The Case of the Dollar and the Yen

The dollar's dramatic rise in the last three years has initiated an international debate involving sharply conflicting views. The strong dollar has been largely behind the substantial loss of U.S. competitiveness in world markets, which has importantly contributed to the large and still growing U.S. trade and current account deficits. As a result, many analysts assert that the dollar is "overvalued". By contrast, some analysts focus their attention on the growing U.S. trade deficit with Japan and on the large and rising Japanese current account surplus. They conclude that the yen is "undervalued". Still others argue that terms like overvaluation and undervaluation are meaningless in a floating rate system because exchange rates are basically determined by market forces.

The purpose of this paper is to shed some light on this debate. Theory and empirical evidence both suggest two major conclusions. First, it does make sense to talk about the possible overvaluation or undervaluation of a currency even in a freely floating system. However, these concepts mean different things to different people. Therefore, unqualified use of these terms can lead to confusion and unnecessary argument. Second, empirical evidence on changes in international competitiveness as well as on the behavior of trade and current accounts suggests that the dollar is unusually strong but the yen is not especially weak.

The views expressed in this article are those of the author and do not necessarily reflect those of the Federal Reserve Bank of New York.

**Some conceptual issues**

When is a currency in disequilibrium? To arrive at a sensible and operationally useful answer, it is first necessary to make a distinction between the concepts of *short-run* or temporary equilibrium and *long-run* or what may be called fundamental equilibrium.

A sequence of short-run equilibrium exchange rates is determined by continuously shifting forces of supply and demand in the foreign exchange market. Although trade in goods and services contributes to changes in the balance of supply and demand of foreign exchange, trade in financial assets, often speculative in nature, dominates the short-run dynamics of this market. And market rates change constantly as market participants assess and reassess all relevant new information. Since transaction costs are small and buying and selling go on at all times of the day, the foreign exchange market is in the process of clearing virtually continuously. Thus, for all practical purposes, it is a close approximation to treat market exchange rates as short-run equilibrium exchange rates, although we know that strictly speaking not every rate quoted during a trading day represents an equilibrium.

A long-run equilibrium exchange rate, by contrast, is determined only when the world economy as a whole is in equilibrium and all other economic variables are also in equilbrium. In this kind of general equilibrium, markets for assets, goods, and labor all clear in the sense that supply equals demand. In addition, all expectations are realized and all relative prices remain constant.

This notion of equilibrium, although useful in theory, does not have a counterpart in the real world. The world economy is continuously adjusting, but often slowly, to new shocks, and therefore it is questionable whether it could ever be in an overall long-run equilibrium. For example, slow and lagged adjustments in the goods markets and in the current account often lead to swings in market exchange rates that may persist over extended periods at times. In addition, the long-run equilibrium values of all economic variables, including exchange rates, are also changing over time, sometimes very sharply. Market exchange rates are, therefore, almost always overshooting or undershooting long-run equilibrium exchange rates which are changing as well.

Thus, deviations from long-run equilibrium represent a normal state of affairs, and they could be persistently large at times. These deviations may simply reflect slow adjustments in other markets rather than any malfunctioning of the exchange market *per se*.

But there are times when some may consider the short-run volatility or even the medium-term swings in market exchange rates as excessive and not consistent with changes in underlying economic and financial conditions (fundamentals). Exchange rate swings may also reflect a relative absence of stabilizing speculation or even the presence of destabilizing speculation. In extreme cases, market exchange rates may behave like speculative "bubbles".[1] Admittedly, it is often difficult to determine whether the market is being driven by destabilizing speculation or is just responding, with some uncertainty, to so-called economic fundamentals. This is so because the foreign exchange market is essentially a speculative market, and there is no consensus, even among economists, which variables represent fundamentals, let alone how to assess their linkages with exchange rates.[2]

The distinction between the two concepts of equilibrium helps shed light on a number of aspects of the current currency debate. For example, it appears that those who believe that the dollar cannot be in disequilibrium in the current floating rate system are essentially arguing that the dollar is almost always in short-run equilibrium. They are also expressing the view that the market rate reflects all available information and the market assessment of economic fundamentals is more accurate than that of anyone else.[3]

Those who believe that the dollar is overvalued do not necessarily dispute the view that the dollar is almost always in short-run equilibrium. But they stress the point that the dollar may be severely out of line with the likely range of long-run equilibrium values. Although this concern sometimes focuses on the persistence of deviations from long-run equilibrium *per se,* and some may have misgivings about the market assessment of fundamentals, the real issue is often the macroeconomic and distributional costs that these deviations induce. The focus of the concern and the assessment of the costs involved, however, vary a great deal, and so do the qualitative judgment and quantitative assessment of currency misalignments.

Thus, terms like "overvalued" and "undervalued" in and of themselves are nebulous, but they do reflect someone's judgment that the going rate is undesirable for one reason or another. To some, the dollar is overvalued because it has led to a substantial loss of international competitiveness of U.S. manufacturing. Certainly, the industries that have been adversely affected consider the dollar overvalued. The large and deteriorating trade deficit and the loss of jobs resulting from this erosion of U.S. competitiveness are seen as

[1]Market observers and policy practitioners often voice their concern with bandwagon and other destabilizing speculative behavior in the exchange market. Academic economists have also recognized this possibility long before the advent of the current float. Nurkse, for example, wrote in 1944 "...anticipatory purchases of foreign exchange tend to produce or at any rate to hasten the anticipated fall in the exchange value of the national currency, and the actual fall may set up or strengthen expectations of a further fall...Exchange rates in such circumstances are bound to become highly unstable, and the influence of psychological factors may at times be overwhelming." R. Nurkse, *International Currency Experience: Lessons of the Interwar Period* (League of Nations, Princeton, New Jersey, 1944).

Recently, Dornbusch expressed a similar view, "The idea of a bubble is worth recognizing because it emphasizes that there is no tendency for efficient capital markets to force a rate toward its fundamental value...There is no reason to assume that the present value of the dollar does not represent such a speculative trap" (page 7). R. Dornbusch, "U.S. International Monetary Policies", a paper presented to the Board of Governors of the Federal Reserve System, September 30, 1982.

[2]James Tobin has aptly summarized the problem. "...no one has any good basis for estimating the equilibrium dollar-mark parity for 1980 or 1985, to which current rates might be related. The parity depends on a host of incalculables—not just the future paths of the two economies and the rest of the world but the future portfolio preferences of the world's wealth owners....In the absence of any consensus on fundamentals, the markets are dominated—like those for gold, rare paintings, and—yes, often equities—by traders in the game of guessing what other traders are going to think," See J. Tobin, "A Proposal for International Monetary Reform" (Cowles Foundation Paper No. 95, Yale University, New Haven, 1980).

[3]A recent expression of this view comes from Treasury Secretary Donald Regan: "In a floating exchange rate system, there can be no correct value to any currency other than the value given to a currency through market transactions" (quoted in *Washington Post,* February 23, 1984. Secretary Regan, however, also believes that "...it is confused thinking to describe the dollar as overvalued".

confirmation of the view that the dollar is overvalued even from a national standpoint.

Many European analysts and officials consider the dollar overvalued because of the increased import costs and the inflationary impact of the associated depreciation of their currencies. The argument that the dollar deepened the European recession by inducing the authorities to raise interest rates is sometimes advanced as further evidence indicating the overvaluation of the dollar. The heavily indebted less developed countries (LDCs) view the dollar as overvalued because it has increased the burden of debt servicing substantially since most of their debt is denominated in dollars.

Thus, there are many groups at home and abroad that have been adversely affected by the current strength of the dollar, and hence they consider the dollar overvalued. However, significant exchange rate changes—equilibrating and disequilibrating ones—are always going to induce costs for some groups and lead to the complaint that one currency or another is misaligned. In the recent period, the concept of an overvalued dollar, for some, simply expresses the fact that a strong dollar is costly to them in one way or another.

The strong dollar, however, generates not only costs but benefits as well. The main beneficiaries of the strong dollar are consumers in the United States and foreign competitors of U.S. producers. The strong dollar has also significantly contributed to the achievement of one of the major policy objectives in the United States—the reduction of inflation. These examples again illustrate the distributional aspect of changes in exchange rates.

There is, however, a second and quite different way of looking at the concept of currency misalignment. Some analysts may consider the dollar overvalued from the standpoint of resource allocation costs rather than a distributional concern.

In their view, the current strength of the dollar is unsustainable, and hence resource allocations and global adjustments resulting from the strong dollar are temporary and likely to be reversed when the dollar declines. They believe that the strong dollar has been causing hardship in otherwise profitable industries in the United States and perhaps providing incentives for inefficient industries to spring up abroad. These resource allocations and reallocations are, therefore, unnecessarily costly and should be prevented.

An associated theme is the following. If the current levels of the dollar are ultimately unsustainable (because the large and growing U.S. current account deficits cannot be financed indefinitely) but nevertheless persist over the medium term, there may be a protectionist fallout in the United States. A variety of protectionist measures may be sought that would undermine the progress made over the past three decades toward a liberal global trading environment. Thus, persistent currency misalignments can impose real costs by reducing the economic efficiency that stems from a global expansion of free trade.

If unsustainable exchange rate movements are costly from the standpoint of efficient allocation of international resources, then it is important that these movements be detected and their magnitude be estimated. This is, in fact, the way most economists view the issue of currency misalignments. Although they usually define misalignments in exchange rates as deviations from long-run equilibrium values, many conceptual and practical problems have discouraged the use of general-equilibrium models of the world economy for calculating long-run equilibrium exchange rates. Instead, simple rules of thumb involving the concept of purchasing power parity (PPP) and considerations of current account balance are widely used to detect currency misalignments and sometimes to offer quantitative estimates. These approaches are, however, beset with many conceptual and practical problems as well, especially if they are used mechanically.

**Assessment of currency misalignments**

Attempts to detect disequilibrium in current exchange rates through PPP calculations must *assume* that, while the economy is suspected to be in long-run disequilibrium today, it was in long-run equilibrium or at least much closer to it in the chosen base period. In other words, PPP methodology essentially ignores two crucial insights that emerge from theory, namely, (1) observed rates are almost never in long-run equilibrium and (2) long-run equilibrium real exchange rates do change over time. This methodology also requires the use of a price or a cost index, and estimates of misalignments are often very sensitive to this choice.

A second approach is to define an approximately balanced current account, sometimes over a business cycle, as a long-run equilibrium condition. It has some practical appeal because it implies an absence of any net inflow or outflow of savings, and hence an absence of a redistribution of wealth between the country and the rest of the world. However, this notion of long-run equilibrium neither holds up to historical scrutiny, nor is based on first principles of economics. The United Kingdom, for example, ran surpluses in its current account continuously between 1870 and 1914. Between 1946 and 1970, the U.S. current account was in surplus in all but three years. These persistent "imbalances" did not necessarily point to any serious macroeconomic disequilibrium.

In principle, any current account imbalance is sustainable and optimal if it reflects the saving-investment

decisions of rational individuals and profit-maximizing firms. In other words, if current account deficits and surpluses result from or lead to matching and voluntary private trade in assets, then those external "imbalances" are both sustainable and optimal. This implies that there need be no macroeconomic problem if a country with a higher propensity to save or with a lower rate of return on investment at home runs current account surpluses for long periods of time.

Although mechanical applications of PPP and current account considerations can lead to misleading conclusions, judicious use of information on changes in international competitiveness, as well as careful analysis of current account behavior, can prove very useful in assessing currency misalignments. From a practical point of view, it is more tractable to view currency misalignments as deviations from currency values that are *sustainable* over the medium term rather than as deviations from the elusive long-run or fundamental equilibrium exchange rates.

A sustainable exchange rate can be thought of in a very broad manner: it is a rate that can be sustained over the medium term by policies that are appropriate from the point of view of efficient allocation of international resources. It is important to consider the appropriateness of policies. Even if a currency value can be sustained by inappropriate policies, it could be considered unsustainable because inappropriate policies themselves should be viewed as unsustainable.

A sustainable currency value is, therefore, one that can be maintained by government policies that are appropriate and sustainable in the sense of being consistent with such common national goals as stable economic growth, low inflation, and low unemployment. Assessing whether an exchange rate is sustainable from this point of view is not an easy matter, especially if distributional considerations—both intranational and international—are brought to bear on this judgment. For example, policy goals or policy mixes of a large country, even if deemed appropriate by its residents, may well be considered undesirable by its trading partners.

A careful analysis of changes in international competitiveness and the behavior of relative current accounts, however, can help detect extreme deviations from sustainable exchange rates. In less obvious situations, these types of information can contribute importantly to public discussion of, and private negotiations on, currency misalignments even if noneconomic considerations ultimately determine the nature of government policies. For example, if currency appreciation leads to substantial losses in a country's international competitiveness, it may suggest that the current value of the currency is unsustainable.

A narrow focus on conventional measures of international competitiveness, however, could be misleading. Changes in competitiveness may reflect structural shifts in the economy and hence may not indicate that the going exchange rate is unsustainable. Thus, it is necessary to supplement this type of information with a more comprehensive analysis of the country's "underlying" external payments position.

This requires a judgment on how large a current account surplus or deficit can be considered sustainable, given the medium-term saving/investment behavior of the country in relation to its trading partners. It is also necessary to take into account temporary and cyclical factors that may be influencing the present and prospective behavior of the current account and the capital account of the country's balance of payments. If the present and future current account balance of the country appears unsustainable over the medium term, even after accounting for factors other than the exchange rate, then the going exchange rate can be considered unsustainable.

Again, a thorough analysis of this type, especially if it is to be consistent on a multilateral basis, requires modeling the linkages among major economic variables as well as a great deal of judgment. However, less formal analysis can prove useful in extreme cases. For example, a rapidly deteriorating current account deficit is unsustainable if it points to a rising foreign debt/GNP ratio that the country will be unable or unwilling to maintain after a certain point. Or, if a large and deteriorating current account deficit reflects policies that are inappropriate and unsustainable from the standpoint of the medium-term objectives of the country and/or the international community, then the external imbalances can be viewed as unsustainable.

The rest of the paper is devoted to an assessment of the current exchange rates of the dollar and the yen along these lines. Particular attention is paid to the view that the yen is undervalued. Our assessment relies on an examination of various available measures of international price and cost competitiveness supplemented by an informal, albeit careful, analysis of the behavior of the current accounts of Japan and the United States.

## The yen problem

There are two versions of the argument that there is a yen problem. One version simply claims that the yen is undervalued. The other version is more specific; it holds that the dollar is more overvalued against the yen than any other major currency. That is, there is a special yen-dollar imbalance that cannot be explained solely by the dollar's overall strength.

Japan's large and rising trade and current account surpluses are seen as *prima facie* evidence for an undervalued yen. Japan's gains in international com-

petitiveness against the United States as well as the large and growing U.S. trade deficit with Japan are interpreted as evidence suggesting a special yen-dollar imbalance.

For example, in April 1983, Fred Bergsten of the Institute of International Economics (IIE) stated,

> Quantitatively the dollar-yen misalignment is more severe than the misalignment between the dollar and any other major currency.... U.S. international price competitiveness deteriorated against Japan by over 70 percent in four years. Is it any wonder that the U.S.-Japan trade imbalance has soared to record levels and that a major crisis exists in economic relations between the two countries?...the dollar is overvalued against a number of important currencies, but it is more overvalued against the yen than against the others.[4]

More recently, *The Economist* (December 3, 1983, page 15) expressed its view in this way.

> Overprotected farmers and an undervalued yen both anger Japan's trading partners, especially the Americans.... This cheapness of the Japanese currency and dearness of the American one can go a long way towards explaining why Japan is headed for a current-account surplus of $25 billion this year and America a deficit of $40 billion.

In what follows, these views on the dollar and the yen exchange rates are assessed on the basis of the data on changes in competitiveness and on movements in the current account. The major conclusion is that the dollar appears to be unusually strong, but the yen is not particularly weak. Japan's recent gains in competitiveness against the United States have resulted from an overall strength of the dollar, and not from any overall weakness of the yen.

*Changes in competitiveness*

Changes in international competitiveness are examined in a number of different ways. These changes are estimated for both the economy as a whole and for the manufacturing sector. Data on both price competitiveness and cost competitiveness are used. The calculations are performed for the United States, Japan, and to facilitate comparison Germany and France. Changes in competitiveness are computed on a trade-weighted (effective) basis for all four countries as well as *vis-à-vis* the United States for the other three countries.

The nominal trade-weighted dollar started its current upward swing in late 1980. But the average trade-weighted value of the dollar did not rise in 1980 from its level in 1979. Rather than choosing 1980 as a reference period, we take a long-run view and compare recent levels of exchange rates and competitiveness with their corresponding averages for the entire 1974-80 period. This averaging minimizes the effects of peculiarities of particular years on the broad conclusions of this analysis.

The year 1983 is chosen as the terminal period for the aggregate economy. For manufacturing, data availability dictates that we use 1983-II as the terminal period. Later we argue that our principal qualitative conclusions are essentially invariant with respect to any reasonable choice of these base and terminal periods.

Chart 1 presents some preliminary evidence in support of the view that the yen is not weak but that the dollar is strong. The appreciation of the inflation-adjusted trade-weighted dollar that began in late 1980 continued through 1983 and the value of the dollar in 1983 was much higher than its 1974-80 average level (top panel).[5] By contrast, the inflation-adjusted trade-weighted yen appreciated sharply in 1980 and then more than offset this appreciation by depreciating until late 1982. The substantial depreciation of 1981-82 has been partly responsible for the international concern on the weakness of the yen. The yen, however, appreciated sharply in late 1982 and, in contrast to the dollar, remained in 1983 near its average during 1974-80.

The bottom panel of the chart points to the overall strength of the dollar rather than to any overall weakness of the yen as a source of Japan's recent gains in competitiveness against the United States. The chart shows that, when compared with 1974-80 averages, the yen is significantly weak in inflation-adjusted terms *vis-à-vis* the dollar (because of the overall dollar appreciation), but it is very strong against the German mark and the French franc. These observations are confirmed and further elaborated by additional evidence summarized in the table.

*Bilateral competitiveness.* The major observations on bilateral exchange rates and bilateral competitiveness

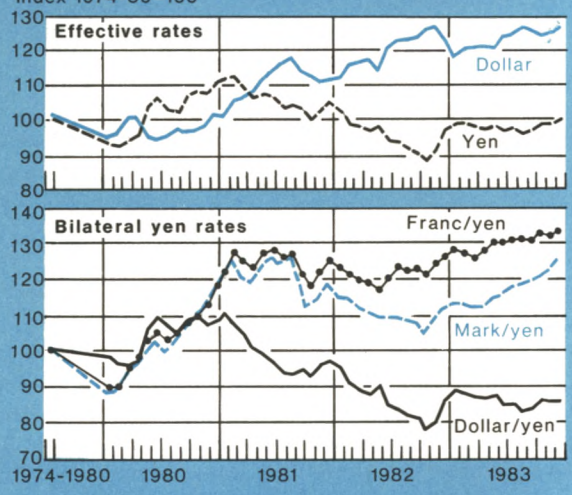
[4]Testimony before the Senate Foreign Relations Committee, pages 6-7. However, John Williamson, also of the IIE, did not identify the yen as particularly weak in the subsequent monograph, "The Exchange Rate System" (October 1983).

The Organization for Economic Cooperation and Development (OECD), in its December 1983 *Economic Outlook* (page 8), comes close to identifying a separate yen problem: "Exchange rates, assessed on the basis of current account prospects, have seemed out of line, with the dollar high and the yen, in particular, low".

[5]This index uses weights from the IMF's multilateral exchange rate model (MERM) for 11 major countries. Wholesale price indexes (WPI) are used in measuring inflation.

Chart 1

**Real Exchange Rates**




Wholesale prices have been used to adjust for inflation differentials. Weights for effective rates are derived for eleven major countries from the IMF's multilateral exchange rate model (MERM).

of Japan *vis-à-vis* the United States can be summarized as follows:

In 1983, the yen was 4 percent *higher* against the dollar than in 1974-80 on average. The German mark, however, was 15 percent lower and the French franc was 40 percent lower.

When adjusted for wholesale price inflation differentials, the yen does show a depreciation of 13 percent against the dollar. The mark, however, depreciated over 25 percent and the franc over 30 percent. Thus, Japan's gain in overall price competitiveness against the United States has been substantially less than that of Germany and France.

In manufacturing, Japan and Germany made substantial, but similar, gains against the United States both in terms of export price competitiveness (30 percent) and labor cost competitiveness (20 percent). France's gains have been even greater. But note that, while France's and to a lesser extent Germany's competitive advantage against the United States can be attributed to the depreciation of their currencies, Japan's advantage is more than accounted for by the relatively slow growth of its prices and costs. For example, if currency values remained at their 1974-80 averages, Japan's gains in export price competitiveness would have been even greater than 30 percent, whereas Germany's and France's gains would have been a great deal less.

*Effective competitiveness.* The evidence on changes in exchange rates and competitiveness on a trade-weighted basis (table) can be summarized as follows:

Relative to 1974-80 averages, the yen was, in fact, as strong as the dollar in 1983. Both currencies had appreciated around 23 percent. By contrast, the mark was over 10 percent stronger and the franc was around 27 percent weaker. As far as nominal rates are concerned, it is the strength of the yen rather than its widely perceived weakness that clearly emerges from the data.

When the relatively low inflation in Japan is taken into consideration, Japan's gains in aggregate price competitiveness in 1983 turn out to be negligible (1 percent). During the same period, the United States incurred a loss of 23 percent in overall price competitiveness. Germany and France, on the other hand, show substantial gains in competitiveness, about 8 percent and 20 percent, respectively.

The comparisons above refer to price competitiveness for the aggregate economies. But what about manufacturing competitiveness on a trade-weighted basis? According to the IMF index on manufacturing price competitiveness, Japan in 1983-II was where it was on average during 1974-80, while Germany had gained 5 percent and France 9 percent. According to the Morgan Guaranty index,[6] however, the manufacturing sectors of all three countries appear to have made similar gains (between 6 to 8 percent) in price competitiveness. By contrast, manufacturing price competitiveness in the United States declined by over 20 percent.

Finally, as regards changes in labor cost competitiveness in manufacturing, Germany and especially France again come way ahead of Japan, whose gains in competitiveness turn out to be minor. Again, the United States shows a dramatic loss, over 25 percent.

*Sensitivity of the results to the choice of the base and terminal periods.* It could be argued that the base period 1974-80 goes too far back in the past, that it biases the conclusions by including information of little relevance today. Instead, it would be more instructive to see how competitiveness has changed since the dollar began its rise in 1980. Further investigation, however, suggests that the principal qualitative conclusions of the above analysis do not depend on the choice of 1974-80 as the base period although the quantitative estimates are sensitive to such a choice.

[6]Of the two Morgan Guaranty indexes, this one takes into account competition in third markets (*World Financial Markets*, August 1983). Morgan Guaranty regularly publishes another index which shows Japan to be slightly more competitive than Germany. This latter index does not take into account competition in third markets.

**Changes in Exchange Rates and Competitiveness: Aggregate Economy (1983) and Manufacturing (1983-II)**

In percent; (+) indicates a loss of competitiveness

| Measure of competitiveness | Changes from 1974-80 period: United States | Japan | Germany | France | Changes from 1979-80 period: United States | Japan | Germany | France |
|---|---|---|---|---|---|---|---|---|
| **Bilateral competitiveness** | | | | | | | | |
| Aggregate economy: | | | | | | | | |
| Nominal exchange rate (dollar price of the currency) | — | 6.3 | −14.7 | −40.5 | — | −6.5 | −28.5 | −44.2 |
| *Real exchange rate | — | −13.4 | −25.7 | −33.6 | — | −16.7 | −30.2 | −35.3 |
| Manufacturing sector: | | | | | | | | |
| †Export price competitiveness | — | −29.6 | −31.9 | −35.3 | — | −27.8 | −35.4 | −37.5 |
| ‡Labor cost competitiveness | — | −20.6 | −21.7 | −28.1 | — | −16.2 | −29.1 | −34.1 |
| **Effective competitiveness** | | | | | | | | |
| Aggregate economy: | | | | | | | | |
| §Nominal exchange rate | 22.7 | 23.5 | 11.0 | −27.2 | 30.9 | 12.8 | −2.0 | −26.9 |
| Real exchange rate | 23.0 | −1.2 | −7.8 | −19.5 | 27.3 | −2.7 | −9.9 | −18.1 |
| Manufacturing sector: | | | | | | | | |
| Price competitiveness: | | | | | | | | |
| ‖IMF index | 21.2 | −0.6 | −5.2 | −8.5 | 26.9 | 2.4 | −5.2 | −11.7 |
| ¶Morgan Guaranty index | 23.8 | −5.8 | −7.2 | −7.5 | 27.5 | −4.1 | −6.9 | −7.9 |
| **Labor cost competitiveness | 27.5 | −2.5 | −9.7 | −13.2 | 35.7 | 3.3 | −12.3 | −14.8 |

Bilateral competitiveness refers to competitiveness of the country in question *vis-à-vis* the United States, while effective competitiveness measures the competitiveness of a country against its major trading partners.

*Wholesale price indexes (WPI) are used as deflators.

†Organization for Economic Cooperation and Development (OECD) data on export unit values are used.

‡OECD data on unit labor costs are used.

§Weights are derived from the International Monetary Fund (IMF) multilateral exchange rate model (MERM) for eleven major countries.

‖Changes in trade-weighted wholesale dollar prices for manufactures.

¶This index is weighted by 1980 bilateral manufacturing trade weights, adjusted for supplier competition in third markets. Wholesale prices of nonfood manufactures are used as deflators.

**This index of relative normalized unit labor costs for manufacturing represents the ratio of the indicator for the country to a weighted geometric average of corresponding indicators for thirteen other industrial countries, all expressed in a common currency (dollar). The country indicator is calculated by dividing an index of actual hourly compensation per worker by an index of output per man-hour adjusted so as to eliminate estimated cyclical swings.

The table summarizes the data taking 1979-80 (the period immediately preceding the rise of the dollar) as the base period. This change in the base period does not affect any of the above qualitative conclusions. The loss of U.S. competitiveness now looks even more dramatic, and Japan's gains in competitiveness appear even less significant. Germany and France continue to show substantial gains in competitiveness.

To provide a sense of the robustness of these conclusions, two other sets of computations were carried out by using period intervals unfavorable to our principal conclusions. First, an attempt was made to see how weak the yen was *vis-à-vis* the dollar in 1982-III, compared with the 1974-80 average. The 1982-III quarter was characterized by the weakest yen against the dollar since 1980. We find that the real exchange rate of the yen was 18 percent lower in 1982-III than the 1974-80 average, whereas the mark and the franc were around 28 percent lower.

On a trade-weighted basis, the pattern is the same—the yen shows a depreciation of 8 percent in real terms against a depreciation of 12 to 14 percent for the other two currencies. Thus, even when the yen hit its low of the recent period, Japan's gain in overall price competitiveness against the United States and on a trade-weighted basis was smaller than that of Germany and France.

The other computation involves measuring the extent of depreciation of the yen since 1978-III, the quarter characterized by the strongest real effective exchange

rate of the yen during the last decade. Between 1978-III and 1983, the yen depreciated around 28 percent against the dollar in real terms. The corresponding figure is about the same for the mark and is around 33 percent for the franc.

In real effective terms, however, the yen depreciated around 13 percent—slightly less than the franc (15 percent) but slightly more than the mark (10 percent). So, measuring from the yen's peak in the floating period, the yen is somewhat weaker in real terms than the mark on a trade-weighted basis but not *vis-à-vis* the dollar. However, it would be misleading to use this evidence from a period as brief as one quarter to argue that the yen has become a relatively weak currency. It is especially unwarranted in this case because the yen was unusually strong in the third quarter of 1978, a period of great speculative instability in the exchange markets.

Evidence on competitiveness, therefore, does not support the view that there is any overall weakness of the yen or that the yen is undervalued. It does, however, suggest the dollar is unusually strong. This implies that the yen's weakness against the dollar (or, more precisely, Japan's gains in competitiveness against the United States) reflects the overall strength of the dollar rather than any overall weakness of the yen.

This assessment implicitly assumes that the yen was not seriously undervalued on average during 1974-80. It could be argued, however, that the yen was already undervalued during the broad sweep of 1974-80.

When the base period is shifted to the sixties, evidence on competitiveness does not point to any undervaluation of the yen during 1974-80. In fact, conventional measures point to an overall loss of competitiveness for Japan during the seventies. It is possible that the available measures of competitiveness are faulty and do not capture the "true" changes in competitiveness. Besides, as argued earlier, changes in competitiveness—manufacturing or economywide—do not tell the whole story about currency misalignments. A broader macroeconomic perspective on the yen can be obtained from considering the behavior of the Japanese current account.

*Current account considerations*

As explained earlier, current account imbalances by themselves are, at best, an imperfect guide to detecting the presence of currency misalignments. One needs a judgment as to how large an external surplus or deficit can be considered normal or sustainable, given the pattern of the country's saving and investment as well as policy objectives over the medium term.

Thus, a persistent surplus in the Japanese current account *per se* does not suggest any undervaluation of the yen. In fact, many argue that by the early seventies Japan became a natural capital-exporting country, and a persistent underlying, if not actual, current account surplus is normal for such a country.[7]

Although a current account surplus in and of itself may not point to an undervalued currency, a rapidly growing and/or persistently large surplus may. This was, however, not the case in Japan during the seventies. Japan's current account was neither persistently in surplus nor growing every year but went through wide swings between surpluses and deficits. During 1974-80, Japan had surpluses in three years and deficits in four years.

Moreover, the average size of the Japanese surplus was not very large. Japan had an average surplus in its current account of only 0.13 percent of GNP during 1974-80. This was moderately higher than the U.S. figure (0.03 percent) and substantially less than that of Germany (0.57 percent) and that of the United States during the sixties (0.73 percent).

Thus, the behavior of Japan's current account during 1974-80 does not suggest that the yen was undervalued during that period.

Does the yen appear undervalued now if viewed in light of the current and future path of the Japanese current account? Since the Japanese current account surplus is expected to be much larger than that of any other industrial country in 1983-84, it could be argued that the yen is now more undervalued relative to other major nondollar currencies in the sense that its current account surplus is large, it is growing, and it is unsustainable.

A number of facts may help put this view in proper perspective. First, the Japanese current account surplus was around 0.5 percent of its gross domestic product (GDP) in 1981-82, and it rose to around 2 percent of its GDP in 1983. In 1984, the surplus is likely to rise somewhat in dollar terms, but not significantly as a percentage of GDP. The perception that the recent increase in the Japanese surplus results from a boom in Japan's exports helped by an overall weakness of the yen is, however, incorrect.

The dollar value of Japan's exports increased 18 percent in 1981 (without a matching increase in

[7] After the midsixties, Japan turned from being a capital importer to being a capital exporter in its long-term capital account. In addition, since the first oil shock, the private investment rate as well as overall economic growth has declined significantly in Japan. The decline in the private saving rate, however, has been much smaller. For fuller discussions, see R. I. McKinnon, "Exchange Rate Instability, Trade Imbalances, and Monetary Policies in Japan and the United States", in P. Oppenheimer (ed.), *Issues in International Economics* (Stocksfield, England: Orill Press Ltd., 1980), and M. Yoshitomi, "An Analysis of Current Account Surpluses in the Japanese Economy", in E. R. Fried, P. H. Trezise, and S. Yoshida (eds.), *The Future Course of U.S.-Japan Economic Relations* (The Brookings Institution, Washington, D.C., 1983).

imports), turning the 1980 current account deficit of over $10 billion into a surplus of $5 billion. But in 1982, a year in which the global criticism of Japanese trade practices as well as its financial and exchange rate policies became intense, Japan's exports declined 8 percent in dollar terms, leading to a slight shrinkage of its trade surplus. Both global recession and growing protectionism appear to have contributed to this drop in Japanese exports.

In 1983, exports recovered sharply, in both volume and dollar terms. But the dollar value of Japanese exports was still lower in 1983 than it was in 1981. Viewed in light of Japanese trade performance in 1981 and 1982, what appears remarkable about the 1983 bulge in Japanese trade surplus is not a surge in exports but an unusually low level of dollar imports. This decline in import value appears to have resulted from cyclical weakness of the Japanese economy, lower oil prices, and pure valuation effects of exchange rate changes. Volume of imports was slightly higher in 1983 than in 1981, but the dollar value of imports was, in fact, $17 billion lower in 1983 than in 1981.

Second, Japan's 1983-84 surplus can also be viewed as partly resulting from substantial liberalization of international capital flows in Japan at the end of 1980 and hence may reflect a one-shot but slow portfolio adjustment to an increase in capital mobility at a time when U.S. yields have been very high. The sharp rise in capital outflows resulting from this portfolio adjustment was partly responsible for the 1981-82 depreciation of the yen and appears to be counteracting upward pressure on the yen that may have come from large current account surpluses of Japan in 1983-84.

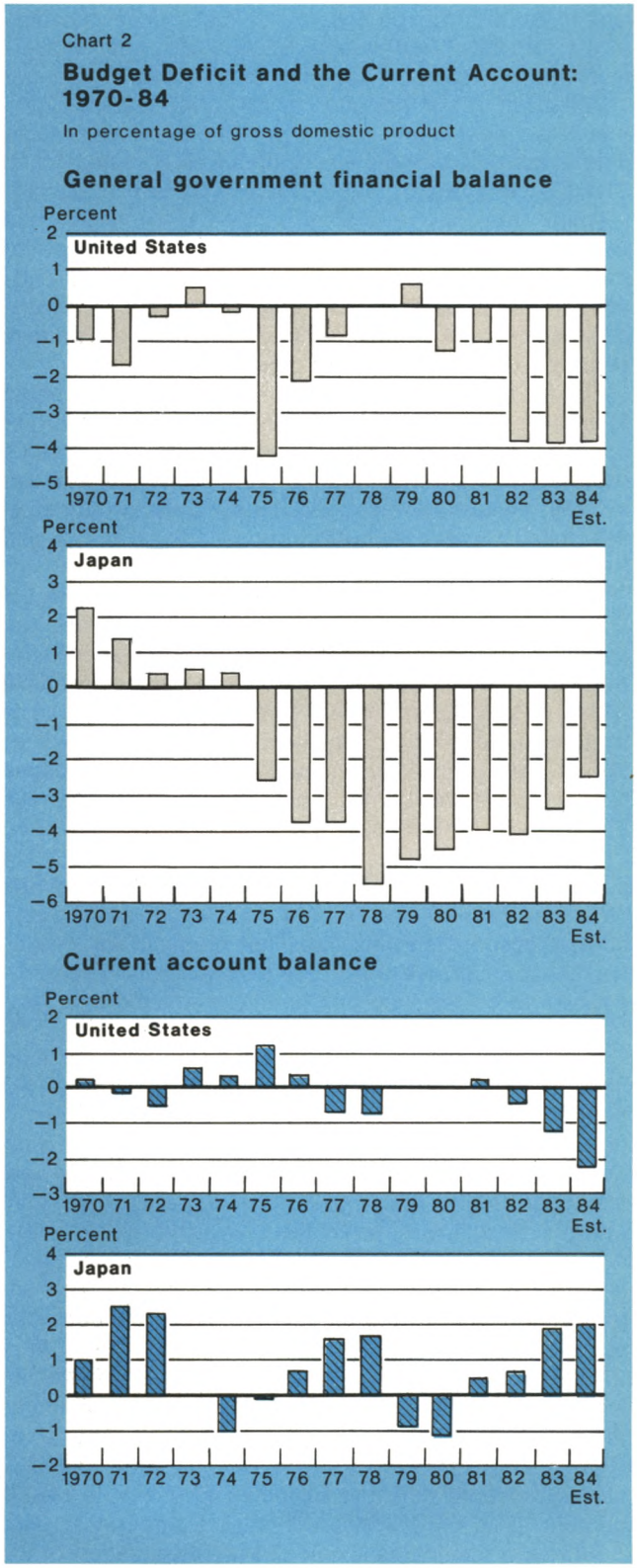
Some have suggested that Japan still maintains capital controls that depress the value of the yen by discouraging capital inflows. It is true that capital inflows into Japan are still not completely free. For example, foreign ownership of Japanese companies is still constrained by many regulations. But there are regulations that deter capital outflows as well. On balance, it is difficult to establish that the remaining capital controls significantly bias capital flows in the outward direction.[8]

Third, a shift has been taking place in the fiscal position of Japan relative to the United States during 1982-84 (Chart 2). A measure of this relative fiscal shift can be obtained from estimates of discretionary changes in general government budget balances. According to the December 1983 *Economic Outlook* of the OECD, the

Chart 2

**Budget Deficit and the Current Account: 1970-84**

In percentage of gross domestic product




[8]Many argue that the elimination of all remaining capital controls may, in fact, encourage further net capital outflows and weaken the yen in the short run. See, for example, W. A. Niskanen, "Issues and Nonissues", in E. R. Fried, P. H. Trezise, and S. Yoshida (eds.), *The Future Course of U.S.-Japan Economic Relations*.

United States is expected to provide a fiscal stimulus of 2.5 percent of GDP over 1982-84 while Japan is likely to contract fiscally by a similar magnitude.

In light of this information, it does not seem unusual that over the same period the current account would deteriorate by 2 percentage points of GDP in the United States while improving by 1.5 percent of GDP in Japan.

Fourth, the relative cyclical position of Japan and the United States may also have temporarily aggravated their current account imbalances. While the U.S. economy is experiencing a rapid homegrown recovery, Japanese growth has been modest and appears to have been led by the pickup in export demand.

Finally, if the overall strength of the dollar is partly responsible for the deterioration of the U.S. current account deficit, then the improvement in Japan's external surplus can be traced partly to the same factor as well. Japan is the second largest trading partner of the United States which itself happens to be the largest trading partner of Japan.

This close trade relationship dictates that some of the U.S. deficit will show up as the Japanese surplus. Between 1982 and 1983, the U.S. trade balance deteriorated by $25 billion. Japan picked up less than $3 billion of this directly in the form of an increase in its bilateral trade surplus with the United States. However, the strength of the dollar may also have enabled Japan to outcompete the United States in some third markets, such as Western Europe and East Asia.

When these various special and cyclical factors are considered together in assessing the behavior of the Japanese current account, Japan's large and growing current account surplus does not point to any overall weakness of the yen. A significant part of the surplus appears to be resulting from temporary factors and from the overall strength of the dollar.

Indeed, once these factors are taken into account, Japan's underlying current account surplus does not appear to be very large or to be growing rapidly. A persistent surplus in the Japanese current account may or may not lead to an overall appreciation of the real exchange rate of the yen. That will depend on the joint future interaction between the private portfolio preferences of international investors and the public policy choices of national governments. But the recent behavior of the Japanese current account does not suggest that the yen is particuiary weak.

The dollar appears too strong, however, if the behavior of the U.S. current account is analyzed. Whereas the Japanese current account surplus as a share of its GDP is not likely to rise appreciably in 1984, the U.S. current account deficit is expected to rise from over 1 percent of its GDP in 1983 to over 2 percent in 1984.

Although a significant part of the deterioration of the U.S. deficit can be accounted for by the relative cyclical position of the United States and the decline in demand for U.S. goods from the heavily indebted countries, especially those in Latin America, the strength of the dollar is still the single most important factor.[9] If the dollar remains at the current level, the U.S. current account is expected to continue to deteriorate. By end-1985, according to recorded statistics, the United States is likely to turn from a net creditor country to a net debtor country.

One implication of this shift in U.S. wealth will be a gradual change in the composition of the U.S. current account. Net investment income, which peaked at $33 billion in 1981, has already started declining and will continue to do so in the foreseeable future. Thus, the large service account surplus of the seventies will continue to shrink in the eighties. To achieve a balanced current account, the U.S. merchandise trade deficit must be significantly smaller during the eighties than it was in the seventies. Because of this dynamic effect, the longer the current account deficit persists, the larger is the depreciation of the real exchange rate of the dollar required to eliminate the deficit.

But what is of greater concern about the present situation is the fact that such large current account deficits are unprecedented in recent U.S. history, and there is a great deal of uncertainty as to how the dollar, and more generally the world financial markets, will react as the United States continues to demand a greater proportion of world savings.

Because of the current high return and the relatively low political and economic risk that characterize U.S. assets, international investors have so far financed the growing U.S. current account deficit. However, as the U.S. current account deficit grows bigger, the perceived exchange rate risk of holding financial dollar assets may begin to dominate the attraction of high U.S. yields, and market assessment may increasingly turn against the dollar. The weakening of the dollar since mid-January may be reflecting such a change, but how far the dollar will fall and how fast depends on how international investors and speculators will assess and reassess their expectations of the future course of the dollar in light of new events and new information.

To sum up, an assessment of the behavior of the U.S. current account supports the view that the current strength of the dollar may not be sustainable indefinitely but the precise dynamics of the dollar decline is still impossible to predict.

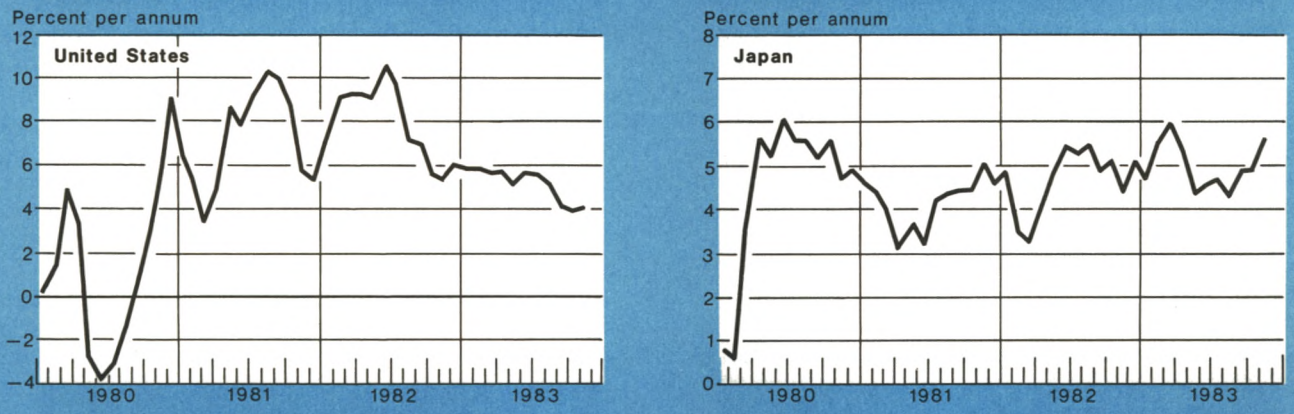
[9]According to staff estimates, if the real effective exchange of the dollar were held constant from 1980 to 1983 at its average 1973-80 level, the U.S. merchandise trade deficit would have been over $30 billion lower in 1983, all other things remaining the same.

Chart 3

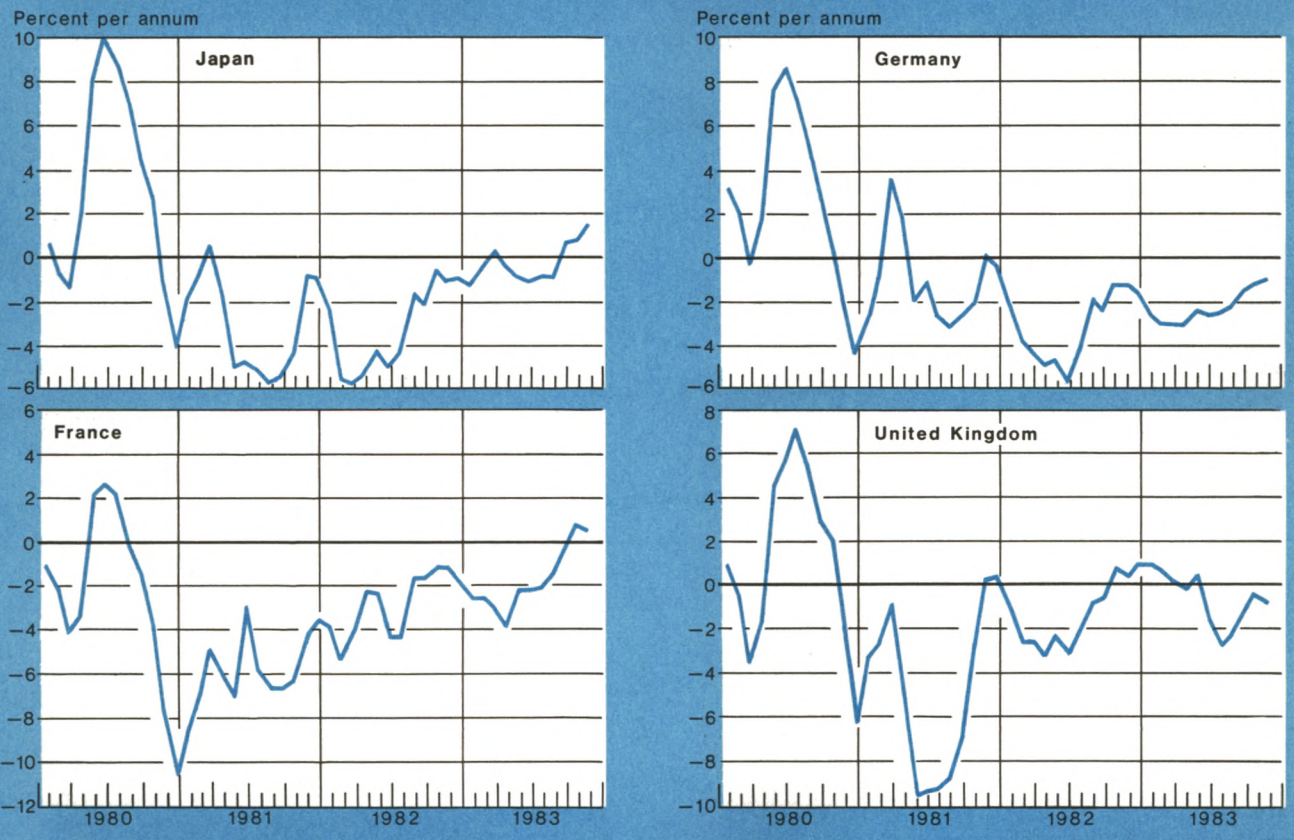
## Real Short-term Interest Rates*

January 1980—November 1983

### Real interest rates




### Real differentials: local minus U.S. real interest rate




*The rates shown are monthly averages of daily rates on money market instruments of about ninety days' maturity adjusted by an estimate of expected inflation. The rate for Japan is the discount rate on two-month (private) bills.

*Interest rates*

Another factor often cited in support of the view that the yen is undervalued is the low level of Japanese interest rates.[10]

A closer look at the facts, however, reveals that Japanese interest rates were not particularly low in 1983. For example, throughout 1983, the three-month Euro-yen deposit rate (as reported in Morgan Guaranty's *World Financial Markets*) remained somewhat higher than the comparable Euromark rate. Chart 3 provides additional evidence by taking into account differential inflation rates. Throughout 1983 the United States clearly emerges as the country with the highest level of short-term real interest rates, but Japan's short-term real interest rates were higher than those of most major industrial countries.[11] An examination of long-term real rates suggest the same conclusion.

There could be disagreements on the details of the measurement of these real interest rates, but the central conclusion is clear: the United States has very high interest rates but Japan does not have very low interest rates. Therefore, the weakness of the yen *vis-à-vis* the dollar cannot be attributed to low Japanese interest rates but appears to be partly a result of high U.S. interest rates.

## Concluding remarks

The central conclusion of this article is that, from a macroeconomic and trade point of view, the dollar is too strong but the yen is not particularly weak. Japan's recent gains in competitiveness against the United States have resulted from an overall strength of the dollar and not from any overall weakness of the yen. In other words, there is no special yen-dollar imbalance. Evidence on changes in international competitiveness as well as an assessment of the present and prospective current account movements both point to such a conclusion.

The conclusion that Japan's present and prospective current account surpluses are not excessively large once temporary and cyclical factors are taken into account can, however, be criticized from an international point of view. Since Japan is the world's second largest economy, a current account surplus that may not be large from its national point of view may be considered to be unduly large by the rest of the world. Japan's trading partners may not wish to incur matching current account deficits for economic or political reasons.

If this is the issue, it needs to be clearly spelled out. This will open an international debate on how large a Japanese current account surplus is considered undesirable by her trading partners and why. Is a Japanese current account surplus on the order of 1.0 percent of its GDP on average too large from the point of the view of Japan's trading partners? Should Japan run a balanced current account on average? Why is a small Japanese surplus desirable? Is it to keep the forces of protectionism in the United States and in Europe on a leash?

Similar questions can be raised about the size of the U.S. current account deficit. Since the dollar is the major international currency and the United States is the world's largest and richest economy, a large and growing U.S. demand on world savings may create unique adjustment problems for the international financial system.

These are important questions. But they do not focus narrowly on exchange rates. Rather they direct public attention to the broader issue of the international implications of different mixes of monetary, fiscal, financial, and trade policies. Ultimately, the question of what constitutes correct values of exchange rates can be understood only in that broader context.

Shafiqul Islam

[10]A recent expression of this view can be found in the October 19, 1983 issue of *The Economist* (page 77). An article entitled "How Japan Cheapens the Yen" maintains that Japan "contributes to the yen's weakness by still rigging interest rates".

[11]The rates used are monthly averages of daily rates on money market instruments with maturity of about three months. Expected inflation in month t is proxied by the twelve-month rate of CPI inflation in month t+6.

# In Brief
# Economic Capsules

## Was the 1980-82 Inflation Slowdown Predictable?

The steep deceleration of inflation over 1980-82, even after taking account of the depth of the recession, is widely believed to have been unpredictable on the basis of standard models of inflation. Some analysts argue that the two successive recessions in 1980 and 1981-82 altered (or were altering) the response of inflation to demand influences, possibly by lowering wage-price expectations faster than had been indicated by statistical models. As a result, the historical relationships in labor and product markets would then have become less useful in predicting inflation rates.

Looking to the future, with the progress toward eliminating inflation as yet incomplete, many analysts fear that inflation may flare up again as economic expansion continues unless the changes in wage-price behavior turn out to be durable. This has led some to argue that substantial further reduction of inflation and long-run price stability would be likely only if another recession occurred in the next year or two.

Our research suggests that the steep deceleration in inflation during 1980-82 was very much in line with the historical relationship between inflation and its critical determinants—wage-price expectations, aggregate demand pressures, and productivity. That relationship, as embodied in a conventional two equation wage-price model, appears to have been quite reliable since around 1960.[1]

[1]The model used is a simpler version of that presented in A. Steven Englander and Cornelis A. Los, "Recovery without Accelerating Inflation?", this *Quarterly Review* (Summer 1983). Wages are determined essentially by price expectations and the unemployment rate, while prices depend on labor compensation, productivity, and cyclical factors. Food and energy prices are exogenous.

As for the medium-term outlook, no one can rule out the possibility that the relationship between inflation and its major determinants may be changing at present. But so far there is no compelling evidence to suggest that it is. Given that past relationships hold in the future, our research suggests that a short third recession would not likely drive inflation out of the system. Instead, in the absence of a sharp break with past relationships, it would take a long time to eliminate the last traces of inflation. By contrast, a vigorous expansion of aggregate demand that some forecasters are predicting could pull wages and prices toward an accelerating course.

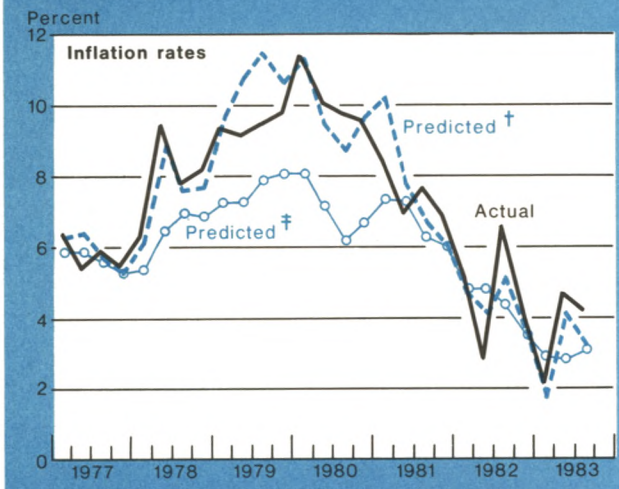
Chart 1 provides a historical perspective on the forecasting performance of our conventional two equation wage-price model beyond the estimation period. The structural relations of the model are based on pre-1977 information. Use of post-1976 information is limited to energy and food price shocks and to developments in demand. On the whole, this conventional model is able to pick up both the trends and turning points in inflation. Over the forecast period the model underpredicts inflation very slightly (0.04 percentage point per quarter), while the average absolute discrepancy between actual and forecasted inflation is 0.67 percentage point.

The ability of the conventional model to track inflation suggests that the relationships were stable in the late 1970s and early 1980s. Given information on future demand pressures and special factors, a forecaster in 1976 or 1977 would have been able to predict both the upturn and the downturn in inflation quite accurately. And, indeed, even in the absence of any information on energy and food price shocks, a forecaster could have predicted an acceleration of inflation from about 5.5 percent in late 1977 to about 8 percent at the end of 1979 (Chart 1). Thus, the assertion that the acceleration of inflation over 1978-79 and the subsequent deceleration were unpredictable is not true.

Turning to the future, we simulate the paths of

Chart 1

**Buildup and Reduction of Inflationary Pressures***



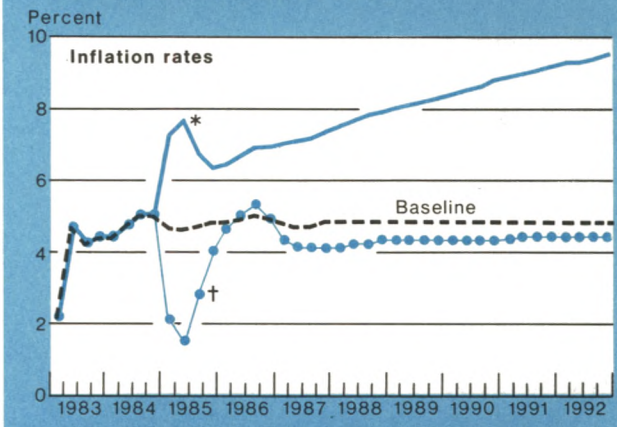

*Growth of personal consumption expenditures deflator.

†Assuming historical values of energy and food prices.

‡Assuming constant real values of energy and food prices.

Chart 2

**Price Inflation under Alternative Unemployment Rate Paths**




*Assumes the unemployment rate remains 2 percentage points below the baseline.

†Assumes a sharp recession occurs in the first half of 1985, with the unemployment rate returning gradually to the baseline by 1986-III.

essentially the same model over the 1984-92 period under three alternative unemployment rate paths (Chart 2).[2] The *baseline* brings the unemployment rate gradually down to 6.5 percent (roughly the rate at which inflation is stable, commonly called the natural rate) by the third quarter of 1986 and keeps it there subsequently. The *expansion* path shows the effect of an unemployment rate path assumed to be 2 percentage points below the baseline throughout the period. The *recession* path raises the unemployment rate 2 percentage points above the baseline in the first half of 1985 and gradually returns it to the baseline. After the third quarter of 1986 the baseline and recession unemployment rates are the same.

The baseline inflation path gradually stabilizes at about 4-5 percent. In contrast, under the expansion path, inflation would climb close to 10 percent over time. Under the recession scenario, a sharp downturn would produce an immediate lowering of the inflation rate to below 2 percent, but that would be reversed quickly with any recovery. The net gain three or four years after the recession, therefore, is fairly small.

The three inflation paths do not represent forecasts of the *actual* economy, looking a few years down the road. They are constructed to illustrate the consequences of different unemployment paths under certain assumptions, such as the absence of supply price shocks and a constant natural rate of unemployment. Any change in these assumptions would alter the baseline as well as the other two inflation scenarios. For example, another energy price shock would lead to a rise in the baseline inflation, while continuing energy conservation efforts could result in a lower inflation rate over time. Similarly, the baseline inflation path might trend downward if there is a decline in the natural rate of unemployment due to changes in the composition of the labor force and/or a rise in the trend growth rate in labor productivity.

In any case, changes in unemployment rates produce substantial short-term movements in inflation, but unless they are sustained the long-term effect is limited. Thus, for a *short* recession to lower inflation to zero and to maintain price stability over an extended period, the historical relationships would have to change. While

[2]In the estimation and 1977-83 simulations, we did not constrain the effects of, for example, a 10 percent increase in unit labor costs, food prices, and energy prices to produce a 10 percent increase in prices. We did impose this restriction over the 1984-92 simulations because there are strong theoretical reasons to expect it to hold over the long run.

recent moderation in wage settlements and strike activity hint at that possibility, it is too early to assess their significance.

M. A. Akhtar, A. Steven Englander,
and Cornelis A. Los

# Surveys of Inflation Expectations: Forward or Backward Looking?

Many economists believe that surveys of price forecasts (expectations) are "forward looking" in that they make use of information about current and future economic policies and about developments of other variables. This forward-looking feature presumably distinguishes these surveys from the purely "backward-looking" measures of inflation expectations based on past experience. If households and businesses hold forward-looking inflation expectations, they would pay less attention, in making their decisions, to past movements of inflation and more to current developments and changes in economic policies. In this sense, the nature of expectations behavior is an important factor in determining the outcome of economic policies.

The evidence seems to indicate, however, that survey price forecasts *are not* forward looking or "rational" in the sense of incorporating information about current and future periods. In fact, they appear to be lagging indicators of actual inflation rates; expectations contained in them are essentially adaptive in character. The inflation forecasting performance of these surveys is roughly similar to forecasts based on recent past experience with inflation.

Two well-known surveys of price expectations are those conducted by Joseph Livingston of the *Philadelphia Inquirer* and by the Michigan University's Institute for Social Research. We examined both these surveys to determine (1) whether they are forward looking or backward looking and (2) whether their ability to track inflation is better or worse than purely backward-looking inflation expectations based on past experience.

Charts 1 and 2 plot the Livingston and Michigan survey inflation forecasts and *actual* consumer price inflation for the corresponding periods. In both cases the survey expectations of inflation rates lag actual inflation rates, particularly in upturn phases of inflation. Two other features of the charts are also inconsistent with the forward-looking behavior. First, the survey forecasts appear, on average, to underpredict inflation systematically, although in the case of the Michigan survey this underprediction is rather small. Second, they tend to smooth the peaks and valleys of actual inflation rates, which is reflected in the large discrepancy (*i.e.,* average absolute error) between the forecasted and the actual inflation rates. As shown in the left-hand upper corner of the charts, the downward bias of inflation forecasts and the average absolute error are particularly significant in the case of the Livingston survey.

More rigorous analysis of data underlying the charts confirms the impression that the Livingston and Michigan survey forecasts are not forward looking. If survey expectations were forward looking or rational, they would tend to be free of any serious systematic underprediction or overprediction, and any errors between actual and predicted inflation rates would be completely random. Both surveys failed to meet these conditions in our formal tests. The survey forecasts systematically deviate from actual inflation rates and do not incorporate all available information on past inflation rates; that is, forecasts could have been improved by making better use of past inflation experience.

In technical terms, we tested the forward-looking (or rationality) hypothesis by estimating the following equation:

$$p = a_0 + a_1 p^e + u$$

where p is the actual rate of inflation, $p^e$ is the survey expectation of inflation, and u is an error term. If the estimated value of $a_0$ and $a_1$ are equal to 0 and 1, respectively, this equation implies that the survey forecasts would be unbiased predictions of future inflation. In addition, such forecasts would incorporate all available information from the past if the prediction errors (u's) are random, *i.e.,* there is no serial correlation of residuals. In this case, one would learn nothing from past prediction errors in forecasting future inflation.

Estimates of the above equation for the Livingston and Michigan inflation forecast data are reported in Table 1. They indicate that survey expectations are not forward looking.[1] In particular, an F statistic test for the

[1]For the conversion of the price-level forecasts of the Livingston survey into expected inflation rates, we followed the formal procedures of Stephen Figlewski and Paul Wachtel in their article, "The Formation of Inflationary Expectations", *The Review of Economics and Statistics* (1981), pages 1-10. Because of the timing of the availability of data to the economists in this survey, the predicted rates of change are actually eight-month rates of change. Compare with Edward M. Gramlich, "Models of Inflation Expectations Formation", *Journal of Money, Credit and Banking* (1983), pages 155-73.

Chart 1

**Inflation Tracking Performance of Livingston Survey Data**

Seasonally adjusted annual rates

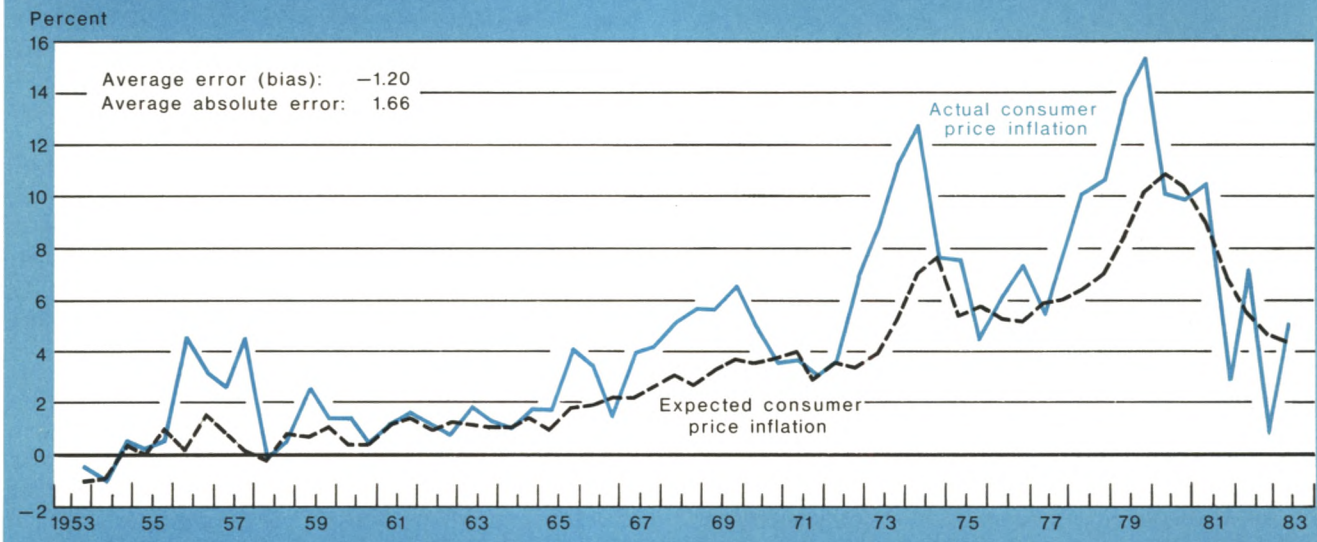
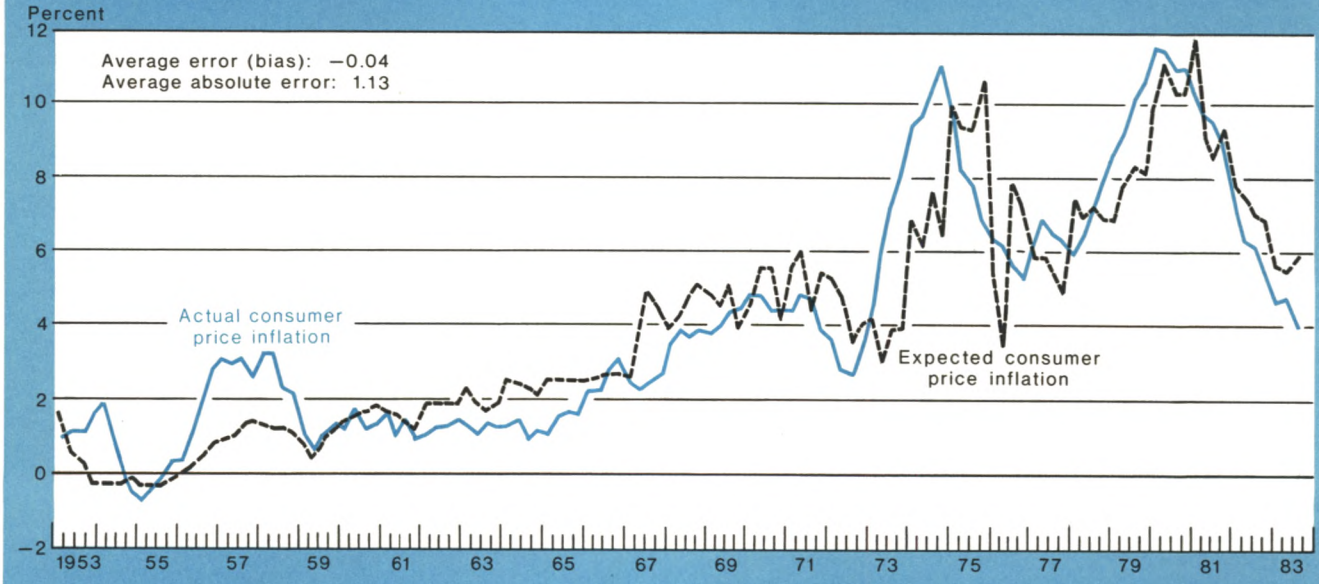



Chart 2

**Inflation Tracking Performance of Michigan Household Survey Data**

Seasonally adjusted annual rates



*joint* hypothesis that $a_0 = 0$ and $a_1 = 1$ is rejected by the data, and the residuals from the regressions appear to contain a high level of serial correlation. Thus, both survey forecasts of inflation are biased and do not make efficient use of information from preceding periods in forecasting future inflation.

Even though the two survey inflation forecasts are not forward looking in a strong statistical sense, it could be that they contain more information than purely backward-looking inflation expectations and provide better forecasts of actual inflation than the latter. An examination of the data suggests, however, that this is not the case. The survey inflation forecasts for any given period appear to follow closely the actual inflation performance over the preceding periods. It is as if the survey forecasters are projecting the recent past experience into the future; for example, shifting the position of the actual inflation line forward by one period in Charts 1 and 2 tends to match up actual inflation rates more closely with the survey inflation forecasts.

To pursue this analysis further, Table 2 compares the Livingston and Michigan forecasts with a simple extrapolation and with a "standard backward-looking" forecast. The extrapolation forecast assumes that inflation in the next half year remains unchanged from the last half year, while the standard backward-looking forecast is based on a distributed lag over the last two periods.

The Michigan survey forecasts and the two backward-looking forecasts deviate, on average, by slightly more than 1 percentage point from actual inflation rates. The three forecasts also exhibit a virtually identical small downward bias or underprediction. By contrast, the Livingston survey forecasts are considerably less accurate and more downward biased.

The predictive power—which measures, on a scale of 0 to 1, the ability of inflation forecasts to track actual inflation—of all four forecasts in Table 2 is virtually the same. When the predictive power is close to 0, there is little evidence of forecasting ability, even if the average error is quite small. The predictive ability of all four forecasts is significantly less for the period after 1970 than for the longer period. All four forecasts also become considerably less accurate in the 1970s. However, there is no significant change in the bias of backward-looking forecasts, whereas underpredictions from the two survey forecasts are more pronounced

Table 1

**Tests of the Forward-Looking or Rational Expectations Forecasting Hypothesis**

| Statistics | Livingston (economists) 1953-83 | Michigan (households) 1949-83 |
|---|---|---|
| ***No correction for serial correlation:** | | |
| $a_0$ | 0.81 (2.03)† | 0.77 (3.11)‡ |
| $a_1$ | 1.11 (1.26) | 0.86 (2.66)† |
| $R^2$ | 0.72 | 0.66 |
| SEE | 2.04 | 1.91 |
| D.W. | 1.41 | 0.44 |
| §F-statistic | 22.34‡ | 9.86‡ |
| ‖Chi-squared statistic | 31.57‡ | 175.36‡ |
| **Correction for serial correlation:** | | |
| Rho | 0.30 (2.39)† | 0.96 (41.46)‡ |

*Absolute t-ratios for $a_0$ and Rho around 0 and for $a_1$ around 1 are reported in parentheses beneath the coefficients.
†Significant at 5 percent level.
‡Significant at 1 percent level.
§For the joint hypothesis that $a_0 = 0$ and $a_1 = 1$.
‖For tests if the resulting residual series are white noise (not serially correlated).

Table 2

**Bias, Accuracy, and Predictive Power of Survey and Backward-Looking Forecasts**

| Periods of observation | Survey forecasts: Livingston | Survey forecasts: Michigan | Backward-looking forecasts: Simple extrapolation | Backward-looking forecasts: Standard backward |
|---|---|---|---|---|
| ***1953-83:** | | | | |
| Average error (bias) | −1.20 | −0.04 | −0.03 | −0.04 |
| Average absolute error | 1.66 | 1.13 | 1.18 | 1.17 |
| †Predictive power | 0.73 | 0.80 | 0.78 | 0.78 |
| ***1970-83:** | | | | |
| Average error (bias) | −1.45 | −0.15 | 0.04 | 0.04 |
| Average absolute error | 2.29 | 1.44 | 1.62 | 1.62 |
| †Predictive power | 0.45 | 0.51 | 0.52 | 0.51 |

Rates of inflation are annualized six-month rates of change. The "simple extrapolation" assumes that inflation in the next half year remains unchanged from the last half year. The "standard backward" looking forecast is a two-period distributed lag (coefficients add up to one) on the rates of inflation.

*The forecast errors are defined as $e_t = p^e_t - p_t$, where $p_t$ is the actual rate of inflation and $p^e_t$ is the corresponding expected rate of inflation; the average (mean) error, *i.e.*, bias, and the average (mean) absolute error are expressed in percentage points.

†The predictive power (coefficient of determination) indicates on a scale from 0 to 1 how closely related the forecasted and predicted rates of inflation were. It gives the percentage of variation in the actual rate of inflation predicted by the forecast.

over the 1970-83 period than over the whole period.

In sum, our analysis suggests that survey inflation expectations are not forward looking. On the contrary, they follow actual inflation with a lag. The *average* inflation forecasts provided by the Livingston and Michigan surveys are not very accurate and frequently tend to be downward biased. On the whole, their performance appears to be essentially similar to (or perhaps slightly weaker than) that of inflation expectations exclusively based on immediate past data for inflation.

M. A. Akhtar, Cornelis A. Los, and Robert B. Stoddard

# Initial Claims: a Reliable Indicator of Unemployment?

Every Thursday the Bureau of Labor Statistics (BLS) reports the number of people filing for the first time for state unemployment insurance benefits. These data on initial claims are examined closely by many observers of the economy for clues on the near-term change in the unemployment rate. Notwithstanding the close attention they receive, this analysis shows that initial claims do not provide much information about the direction of unemployment. However, they are a good indicator of employment.

First, consider the simple relationship between the monthly changes in initial claims and the unemployment rate. Both often change in the opposite direction. Since 1948, initial claims and the unemployment rate moved in the same direction less than 50 percent of the time. Their inconsistent behavior has been more pronounced during economic expansions. But, when the economy was in a downslide, the relationship was a little better—nearly two thirds of their monthly movements were in the same direction.

Looking at the level of claims rather than their change may be a more appropriate way to predict the direction of unemployment. This is because, given the labor force, unemployment tends to rise or fall when the number of people who have just lost their job—measured by initial claims—is relatively high or low. To determine whether the level of initial claims is high or low, the cyclical component of claims has to be separated from the trend component. This trend is related to the long-run growth of the economy and the labor force and can be estimated by regression analysis.[1] In expansions, claims should be expected to be below trend, as fewer people become unemployed, while in recessions claims should exceed trend.

Even relative to trend, initial claims do not predict the unemployment rate satisfactorily. Only half of the time did the unemployment rate rise when initial claims exceeded their trend or fall when claims stood below it. The direction of unemployment was predicted with a little more success, at close to 60 percent, during recessions. Thus, comparing claims with trend—while for the most part better than observing their monthly change—still is not particularly helpful.

In addition to claims, many observers monitor the insured unemployment rate to predict overall unemployment. The BLS constructs the insured unemployment rate partly from initial claims data. The insured unemployment rate is not a dependable indicator of overall unemployment either. Its success rate in predicting the direction of unemployment has been only slightly above 50 percent, although somewhat better during recessions.

While initial claims do not consistently predict the direction of unemployment, they may provide a clue around cyclical troughs as to when the unemployment rate will fall. During most of the postwar recessions, claims have peaked two or three months ahead of the unemployment rate. Thus, they may serve as a leading indicator of the decline in unemployment. Around cyclical peaks, in contrast, claims frequently have begun to climb simultaneously with unemployment and by only a small, normally inconsequential amount. As a result, they may not be a useful indicator as an expansion nears its end.

To be sure, there have been occasions during recessions when initial claims turned down but then resumed their climb before the economy began to recover. In the last recession, claims declined fairly sharply but temporarily in June and July 1982, well ahead of the peak in unemployment. Thus, even during recessions, a drop

[1]The trend in claims was calculated in two stages. First, the following estimated equation yielded a trend level of about 0.4 percent of the labor force. Second, the predictive performances of other, parallel trends were examined. The most successful predictions were obtained when initial claims were compared with a level 15 percent above the estimated trend at any point in time. This adjusted trend is used in this analysis. It stood at 480,000 in 1983.

$$\frac{IC}{LF} = \underset{(21.7)}{0.003762} + \underset{(9.2)}{0.0005327(U-UN)} + \underset{(17.9)}{0.841\ error_{-1}} \qquad \bar{R}^2 = 37.8$$

where IC = initial claims, LF = labor force, U = unemployment rate, UN = natural rate of unemployment (numbers in parentheses are t-statistics). For a discussion of the natural rate of unemployment, see A. Steven Englander and Cornelis A. Los, "Recovery without Accelerating Inflation?", this *Quarterly Review* (Summer 1983).

in initial claims over two or three months may incorrectly signal a topping in the unemployment rate.

Although initial claims do not tell us much about the unemployment rate, they are useful in predicting the direction of payroll employment. Admittedly, the simple relationship between the monthly changes in claims and employment is about as weak as that between claims and unemployment; in only a little more than half the time did they move in the same direction. Nevertheless, when claims are compared with trend, they serve as a good guide to the direction of employment. In more than 80 percent of the time, employment has fallen when initial claims have been greater than trend or has risen when claims have been less than trend. This rate of success has been evident in both expansions and recessions.

Claims predict employment best when the economy is not near a cyclical turning point. About half of the months in which claims relative to trend flashed incorrect signals occurred within five months of cyclical peaks or troughs. However, around cyclical troughs, claims have tended to turn around ahead of employment, although the lag has been more variable than for unemployment. Thus, claims may serve as a leading indicator at those times. Around many past cyclical peaks, though, claims and employment have often reversed direction simultaneously—with the change in claims being quite small—making claims less insightful.

In conclusion, should anyone pay attention to initial claims? The bottom line of this analysis is that for the most part the answer is no when the purpose is to predict the direction of unemployment, but yes when the purpose is to predict the direction of payroll employment. In one important case, however, it may pay to watch the pattern of initial claims to predict the direction of unemployment. This is at times when a recession seems to be ending and questions arise as to when the unemployment rate will start to fall. Although the true peak in initial claims may be difficult to determine, claims usually have peaked about two months ahead of the unemployment rate. Thus, at those times when many observers strive to pinpoint an upturn in the economy, initial claims may be of some help.

Carl J. Palash

# NOW Accounts and the Seasonal Adjustment of M-1

In general, adjusting economic statistics to remove purely seasonal influences is an imperfect exercise at best. It is even more difficult a task when a long-time series upon which to base estimates of changing seasonal patterns is not available, or when a given time series contains components with different underlying seasonal patterns, but the relative size of the components cannot be determined.

In recent years, these types of seasonal adjustment problems have been quite serious for M-1. This aggregate includes a large and growing component, NOW account deposits, which were not available on a nationwide basis before 1981. By statistical standards, that is much too short a time period to estimate a reliable seasonal pattern for NOW accounts. Usually, five years or more of data are required to estimate seasonal adjustment factors.

Moreover, NOW accounts are not like the other deposit components of M-1, because they can fulfill two distinct functions. They can be used for transactions purposes as well as a savings vehicle. Indeed, in 1981 when nationwide NOWs were introduced, it was estimated that about 25 percent of the initial flow into NOWs came from sources outside M-1, primarily from passbook savings accounts. Therefore, it would appear incorrect to adjust NOW accounts using the same seasonal factors that are appropriate for demand deposits.

This, of course, raises the question of whether it would be better to adjust NOW accounts by using a weighted average of seasonal factors for demand deposits and for savings balances (which are part of M-2), where the weights would be in proportion to the degree to which consumers use NOW accounts for savings purposes. While that might sound good in theory, in practice it is impossible to know to what extent NOWs are used as a transaction vehicle and to what extent as savings accounts. Nonetheless, some calculations can be made to illustrate how serious a problem NOW account deposits could pose in the seasonal adjustment of M-1.

The following equation uses weighted average seasonal factors to adjust NOWs.

$$OCD.SA = \frac{OCD^{CB}}{xSAV.SF^{CB} + (1-x)DDA.SF} + \frac{OCD^{T}}{xSAV.SF^{T} + (1-x)DDA.SF}$$

**M-1 under Alternative Seasonal Adjustment Procedure**

Annualized one-month rates of growth, in percent

| 1983 | M-1 prior to revisions | Savings balance fraction in alternate procedure 25% | 50% | 75% | Revised M-1* |
|---|---|---|---|---|---|
| January | 9.8 | 11.8 | 10.8 | 10.2 | 13.9 |
| February | 22.4 | 18.6 | 15.4 | 12.1 | 14.6 |
| March | 15.9 | 16.9 | 16.9 | 16.7 | 13.0 |
| April | −2.7 | 5.8 | 7.7 | 9.7 | 1.9 |
| May | 26.3 | 14.2 | 12.0 | 9.8 | 20.5 |
| June | 10.2 | 10.7 | 11.4 | 12.1 | 8.8 |
| July | 8.9 | 7.5 | 7.5 | 7.5 | 8.5 |
| August | 2.8 | 3.0 | 2.8 | 2.8 | 5.8 |
| September | 0.9 | 2.6 | 3.7 | 4.7 | 2.9 |
| October | 1.9 | 3.5 | 4.0 | 4.4 | 4.6 |
| November | 0.9 | 3.5 | 4.6 | 5.6 | 3.2 |
| December | 6.5 | 5.8 | 7.4 | 9.2 | 6.3 |
| †(Standard deviation) | 9.0 | 5.6 | 4.6 | 4.0 | 5.7 |
| ‡Correlation with revised M-1 | | 0.77 | 0.80 | 0.81 | |

*Adjusted for February 1984 revisions to seasonal factors and does not incorporate benchmark revisions.

†In percentage points.

‡Correlation between the changes to M-1 suggested by the alternative adjustment procedure and the published changes to M-1 derived from the revised 1983 seasonal factors.

where:

$OCD.SA$ = Alternative seasonally adjusted interest-bearing checkable deposit component of M-1.

$OCD^{CB}$ = Interest-bearing checkable deposits at commercial banks.

$OCD^{T}$ = Interest-bearing checkable deposits at thrift institutions.

$SAV.SF^{CB}$ = Seasonal factor for savings deposits at all commercial banks.

$SAV.SF^{T}$ = Seasonal factor for savings deposits at thrift institutions.

$DDA.SF$ = Seasonal factor for demand deposits.

$x$ = Portion of interest-bearing M-1 deposits assumed to reflect savings balances.

The resultant impacts on the M-1 growth rates for 1983 are presented in the table. No matter which weights are chosen in the 25 percent to 75 percent range (the assumed share of savings in NOWs), this procedure yields a smoother pattern for monthly M-1 growth than originally reported in 1983. For example, the standard deviation of the monthly M-1 growth rates for 1983 was 9 percentage points as first reported and 5.7 percentage points after the annual seasonal factor revision. The assumption that something in the range of 25 to 75 percent of NOWs are savings resulted in standard deviations of 5.6 percentage points to 4.0 percentage points.[1]

Furthermore, the impacts of the seasonal factor revisions made recently for 1983 and of the alternative seasonal factors calculated here are highly correlated, suggesting that the standard seasonal adjustment process is beginning to pick up some of the changing character of M-1, as a greater percentage of it is composed of interest-bearing accounts that can also be used for savings purposes. Picking up some of the new seasonal characteristics of M-1 is only one step in understanding the changing nature of M-1 now that it contains a savings component. We still do not have enough experience to understand its cyclical behavior.

All in all, the lesson from this exercise seems clear. Monetary data in general must be assessed with extreme care, particularly over intervals shorter than one year. But even greater caution should be exercised when looking at seasonally adjusted M-1 because it is no longer made up exclusively of transactions deposits. NOW accounts—since they pay explicit interest—are likely to be used by consumers for savings purposes as well but to an unknown degree, not only in a seasonal sense, but over the business cycle as well.

[1]A smaller standard deviation is not necessarily an indicator of better seasonal adjustment. The originally reported M-1 growth rates for 1983, however, were so volatile (a range of −2.7 to 26.3 percent) that it seemed quite natural to investigate whether alternative seasonal adjustment procedures would reduce the volatility in 1983.

Sandra C. Krieger

# FASB 52: Corporate Response and Related Foreign Exchange Market Effects

U.S. multinational corporations are in the midst of responding to the second major change in foreign exchange accounting rules in the last nine years. The first change occurred in October 1975 when the Financial Accounting Standards Board (FASB)[1] issued "Statement of Financial Accounting Standards Number 8" (FASB 8). The FASB had felt compelled to develop a standard set of rules to replace the diverse accounting procedures being used by U.S. corporations following the move to generalized floating exchange rates in 1973.

But FASB 8 almost immediately generated controversy. In particular, it was criticized for producing a distorted picture of a multinational company's underlying economic situation. Thus, after much debate and a thorough review of various alternatives, the FASB adopted in December 1981 a vastly revised set of accounting rules embodied in FASB 52. Corporations were required to implement the new statement for fiscal years beginning on or after December 15, 1982.

To determine how U.S. corporations are responding to the significant changes of FASB 52, corporate treasury personnel at sixteen of the largest U.S. industrial companies and at one of the top ten U.S. diversified service firms were contacted and questioned about corporate foreign exchange hedging practices, borrowing strategies, and other matters related to managing foreign exchange risk. In most cases, corporate respondents did not confine their remarks to activities of their own firms. Instead, based on experience and conversations with their counterparts at other companies, they spoke more generally about their views regarding the reaction of U.S. corporations to FASB 52.

In addition to the corporations, corporate advisory personnel at seven of the top twenty U.S. commercial banks and at one foreign bank operating in New York were contacted. Altogether, a total of twenty-seven people were contacted.

Based on these conversations, several findings emerge about the response of U.S. corporations to the adoption of FASB 52.

Most of those asked said that many corporations which had hedged or offset balance sheet exposure under FASB 8 had scaled back, or ended altogether, this practice following the adoption of FASB 52. Balance sheet exposure results from a mismatch between those foreign-currency-denominated assets and liabilities which must be translated into U.S. dollars at exchange rates prevailing on the date of the balance sheet. The majority said that overall corporate activity in the exchanges had declined, although not everyone attributed this to the new accounting rules. But the bulk of respondents thought that the volume of foreign exchange business done by corporations in the forward market had dropped under FASB 52. By contrast, well over half believed corporations had become more active in the foreign exchanges during the time of FASB 8.

Virtually all of those questioned said that some companies, including many deemphasizing or ending the practice of hedging balance sheet exposure, are now focusing more on transaction and/or economic exposure. Transaction exposure results from the possibility that exchange rates might change between the time a transaction is agreed to (*e.g.*, when a sales contract is signed) and the time when it is actually settled (*e.g.*, after the goods are delivered). Economic exposure, a broader and more forward-looking concept, stems from the possibility that the firm's future cash flow will be affected by exchange rate changes.

The change in hedging strategy by many U.S. companies seems to have been accompanied by a shift in corporate borrowing patterns. A majority of the respondents thought that under FASB 52 some U.S. firms are more willing, or had moved, to arrange more foreign currency loans than before. About half felt that some corporations had relied more on dollar-denominated and less on foreign-currency-denominated borrowings under FASB 8.

A majority of those asked believed that many U.S. companies had already centralized, or were moving toward centralizing, the management of foreign exchange exposure. They felt that many corporations use, or are looking at the possibility of using, a system of netting exposures. Netting involves collecting at a central location information about payments and receipts between the different entities within a corporation. The central office calculates a net receipt or payment figure for each entity and issues specific payment instructions, which result in funds flowing from entities with net payments to those with net receipts. Netting lowers transaction costs by reducing the number of payments between entities within the corporation.

Most of the contacts reported that corporations also

[1]The FASB is a private rule-making body in the United States with the responsibility of setting forth generally accepted accounting principles.

have used, or were considering, foreign exchange options contracts as part of their overall strategy to manage exchange rate exposure better. However, actual corporate use of foreign exchange options apparently has not become very widespread as yet. And few respondents felt that corporations were using foreign exchange futures contracts as a tool for managing foreign exchange exposure.

Statistical evidence to support most of these findings is unfortunately sparse. However, the respondents' belief that corporate activity in the forward foreign exchange market has dropped following the adoption of FASB 52 receives support from the latest foreign exchange turnover survey conducted by the Federal Reserve Bank of New York. The survey shows that outright forward transactions reported by U.S. banking institutions with nonfinancial customers declined 16 percent to $8.8 billion in April 1983 from $10.5 billion in March 1980 even as total foreign exchange turnover reported by the banks rose about 44 percent. While FASB 52 may not be the only reason for this decline, it seems to have played an important role.

Michael D. Andrews

August-October 1983 Interim Report
*(This report was released to the Congress and to the press on December 7, 1983.)*

# Treasury and Federal Reserve Foreign Exchange Operations

Early in August the dollar moved up sharply, reaching a 9½-year high against the German mark and a record high on a trade-weighted basis. For much of the balance of the period, market participants expected the dollar to retreat substantially from those levels, and the dollar did depreciate gradually through early October. But, buoyed by the effects of greater than expected strength in the domestic economy and political turbulence internationally, the dollar strengthened again during the remainder of October to close the period little changed from its end-July levels against most major foreign currencies.

The decline in the dollar through early October was influenced by widespread predictions of a slowing of the recovery and an easing of money market conditions in the United States. Many forecasters doubted that the domestic economy, which had advanced at a strong 9.7 percent rate in the second quarter largely on the basis of a rebound in consumer expenditures and residential construction, could show sustained growth in the face of the strong dollar and high real interest rates. Moreover, growth of the narrowly defined monetary aggregate, M-1, had decelerated sufficiently to move within its monitoring range for the first time this year, and price data indicated that inflation remained relatively moderate. Consequently, many market participants came to the view that the Federal Reserve would take this opportunity to exert less pressure on bank reserves, and U.S. financial markets developed a considerable sense of optimism from late August through early October. Short-term interest rates declined by some ¾ percentage point. Yields on longer dated securities also fell, but by smaller margins. Some market participants were concerned that, if interest rates should continue to ease, financing the widening U.S. current account deficits could become more difficult.

However, the U.S. economy continued to grow faster than many observers had anticipated. To be sure, housing starts and retail sales temporarily weakened during the summer, and the release of these statistics kept alive expectations of a significant slowing later in the year. But demand in other sectors, especially business fixed investment and inventories, was strong enough to support major gains in industrial production and employment. During the third quarter, GNP registered a growth rate of some 7.7 percent in real terms, and by October it was clear that the economy retained considerable momentum as it proceeded into the fourth quarter.

As the economy remained buoyant, the scope for further declines in interest rates gradually came to be seen in the market as limited. After mid-October most U.S. interest rates edged higher, reinforced somewhat by uncertainties over the credit market implications of the lack of Congressional action to raise the government debt ceiling. In addition, the rapid reemployment of idle

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 for Foreign Operations of the System Open Market Account.

Table 1

## Federal Reserve Reciprocal Currency Arrangements

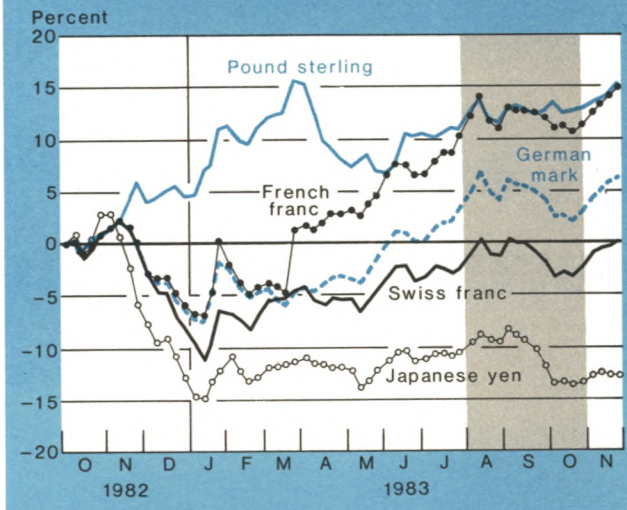
In millions of dollars

| Institution | Amount of facility October 31, 1982 | Amount of facility October 31, 1983 |
|---|---|---|
| Austrian National Bank | 250 | 250 |
| National Bank of Belgium | 1,000 | 1,000 |
| Bank of Canada | 2,000 | 2,000 |
| National Bank of Denmark | 250 | 250 |
| Bank of England | 3,000 | 3,000 |
| Bank of France | 2,000 | 2,000 |
| German Federal Bank | 6,000 | 6,000 |
| Bank of Italy | 3,000 | 3,000 |
| Bank of Japan | 5,000 | 5,000 |
| Bank of Mexico: | | |
| Regular facility | 700 | 700 |
| Special facility | 325 | * |
| Netherlands Bank | 500 | 500 |
| Bank of Norway | 250 | 250 |
| Bank of Sweden | 300 | 300 |
| Swiss National Bank | 4,000 | 4,000 |
| Bank for International Settlements: | | |
| Swiss francs-dollars | 600 | 600 |
| Other authorized European currency-dollars | 1,250 | 1,250 |
| Total | 30,425 | 30,100 |

*Facility, which became effective August 30, 1982, expired on August 23, 1983.

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 September 27-October 1, 1982. Figures calculated from New York noon quotations.

Table 2

## Drawings and Repayments by the Bank of Mexico under Special Combined Credit Facility

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

| Drawings on | Outstanding October 1, 1982 | 1982 IV | 1983 I | 1983 II | 1983 III | Outstanding October 31, 1983 |
|---|---|---|---|---|---|---|
| Federal Reserve special facility for $325 million | 46.0 | +211.2 | + 67.8 | − 56.0 | −269.0 | * |
| United States Treasury special facility for $600 million | 85.5 | +392.2 | +122.3 | −104.0 | −496.0 | * |
| Total | 131.5 | +603.5 | +190.0 | −160.0 | −765.0 | * |

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

*Facility expired and outstanding drawings were repaid on August 23, 1983.

capacity began to raise some questions among market participants over the medium-term outlook for monetary policy, particularly in view of the continuing fiscal stimulus provided by a large government deficit. As the outlook for U.S. interest rates and the economy shifted during October, market professionals moved to cover large short-dollar positions that they had built up earlier.

With the outlook for the U.S. economy remaining stronger than for those abroad, capital continued to flow into U.S. stock and bond markets. Also adding support for the dollar were "safe-haven" considerations prompting capital flows into the United States in response to events that heightened international tensions during the period. Market participants were mindful that such episodes had generated significant capital inflows at times during the past year, and talk of safe-haven influences resurfaced on September 1 following report that the Soviet Union had downed a Korean airliner. But that particular incident did not elicit a strong exchange rate reaction. Later in the period, however, intensified fighting in Lebanon, escalation of threats in the Iran-Iraq war, and a U.S. landing in Grenada were among the events that did have a more noticeable impact on the dollar and thereby enhanced the perceived risk of positioning against the U.S. currency.

Exchange market reaction to announcement of record U.S. trade and current account deficits was subdued, as the deficits were being easily offset by the continuing capital inflows. Although the statistics confirmed the existence of deficits of unprecedented size—with one monthly trade deficit over $7 billion—the current account issue faded into the background as a market factor, especially when the September trade deficit showed a reassuring narrowing.

The only currency to advance significantly against the dollar over the three-month period as a whole was the Japanese yen, buoyed by Japan's outstanding trade and price performance. The yen also benefited from the market's perception that the Japanese authorities were committed to supporting the yen. Bank of Japan Governor Mayekawa made clear that the exchange rate was an important consideration in the timing of the 1/2 percentage point discount rate cut which finally took place on October 21 in conjunction with announcement of a six-point economic stimulus package. The Japanese authorities stated that they remained ready to intervene in the exchanges when necessary to defend the yen, and in fact they did sell dollars in the market on several occasions during the period. Following close consultation with the Bank of Japan as the yen weakened late in the period, the U.S. authorities also purchased a modest amount of yen in a joint operation with the Japanese central bank. These operations began on October 31 and continued the next day. In total, the U.S. authorities purchased $29.6 million equivalent of yen, an amount that was split evenly between the Treasury and the Federal Reserve.

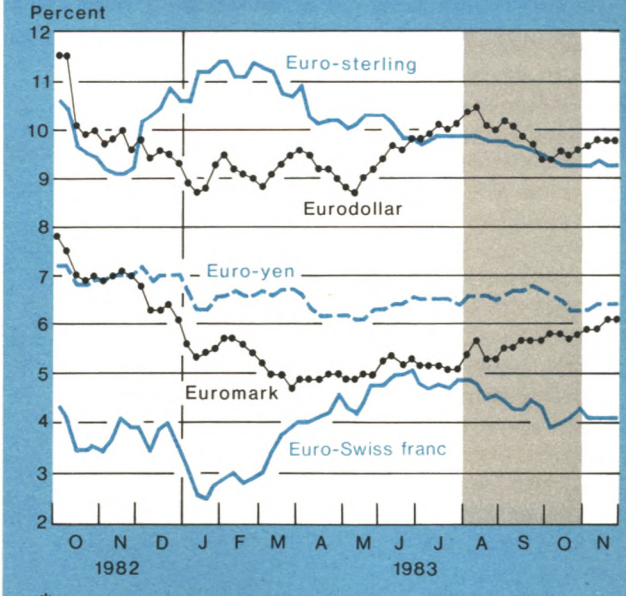
As detailed in the previous report covering the period through end-July, the U.S. authorities also intervened in the exchanges on four occasions during six business days, buying both Japanese yen and German marks, in coordinated operations that began on July 29 and lasted through August 5. These operations together brought the total of U.S. authorities' intervention in the exchange market from July 29 through November 1 to $283.6 million equivalent, split equally between the Treasury and the Federal Reserve. Of this amount, $101.0 million equivalent was in Japanese yen and $182.6 million equivalent was in German marks.

In other operations during the three-month period, Mexico fully repaid the remaining portion of its special combined credit facility. On August 15, Mexico prepaid outstanding swaps of $100.8 million to the Treasury and $54.3 million to the Federal Reserve. Drawings of $395.3 million and $214.8 million were repaid to the Treasury and the Federal Reserve, respectively, upon maturity on August 23, and the facility then expired. This

Chart 2

**Selected Interest Rates**

Three-month maturities *




* Weekly averages of daily rates.

Table 3

**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 |
|---|---|---|---|
| August 1 through October 31, 1983 | -0- | -0- | -0- |
| Valuation profits and losses on outstanding assets and liabilities as of October 31, 1983 | −771.9 | −786.2 | -0- |

Data are on a value-date basis.

facility had originally consisted of $600 million from the Treasury and $325 million from the Federal Reserve. It was provided in cooperation with other central banks, which together extended credit to the Bank of Mexico totaling $1.85 billion.

During the past year, the Treasury had participated, along with other nations, in providing liquidity support to the Bank for International Settlements for credit facilities that the BIS provided to the Central Bank of Brazil and to the National Bank of Yugoslavia. This support took the form of the Treasury, through the Exchange Stabilization Fund (ESF), agreeing to be substituted for the BIS in the event of delayed repayments. By the end of the period, contingent commitments on behalf of Brazil remained at $500 million and on behalf of Yugoslavia were reduced to $16 million. Both commitments expired as the credits were repaid after the close of the reporting period.

In the period from August through October, the Federal Reserve, the ESF, and the Treasury general account realized no profits or losses from exchange transactions. As of October 31, cumulative bookkeeping, or valuation, losses on outstanding foreign currency balances were $771.9 million for the Federal Reserve and $786.2 million for the ESF. (Valuation gains and losses represent the increase or decrease in the dollar value of outstanding currency assets and liabilities, using end-of-period exchange rates as compared with rates of acquisition.) These losses reflect the fact that the dollar strengthened since the foreign currencies were purchased.

The Federal Reserve and the Treasury invest foreign currency balances acquired in the market as a result of their foreign exchange operations in a variety of instruments that yield market-related rates of return and that have a high degree of quality and liquidity. Under the authority provided by the Monetary Control Act of 1980, the Federal Reserve invested some of its foreign currency resources in securities issued by foreign governments. As of October 31, the Federal Reserve's holdings of these securities were equivalent to $1,618.6 million. In addition, the Treasury held the equivalent of $2,318.8 million in these securities as of end-October.

**NEW PUBLICATION**

A table—*Depository Institutions and Their Regulators*—is now available from the Federal Reserve Bank of New York. The grid-like form shows the responsibilities that national and state regulators have in ten areas—from branching to consumer protection—for a variety of depository institutions. The table contains footnotes summarizing laws and rulings affecting the activities of regulators and depository institutions. It is intended to provide easy reference for bankers and advanced students of banking.

Single copies of the 11 1/2" x 22 1/2" foldout table can be obtained free. Quantities for classroom use are also available free when ordered from a university address. Write to the Public Information Department, 33 Liberty Street, New York, N.Y. 10045.

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