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).

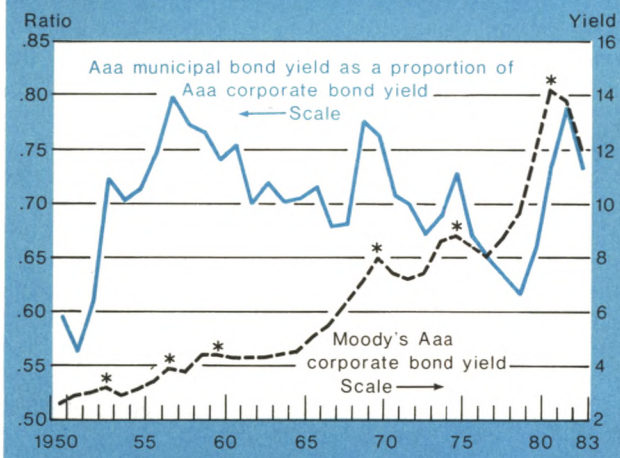
In part as a result of these trends in the municipal bond market and in part because of other forces, state and local borrowing specifically dedicated to traditional infrastructure projects has been held to relatively low levels through most of the last twelve years. An effort to reduce the cost of financing 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



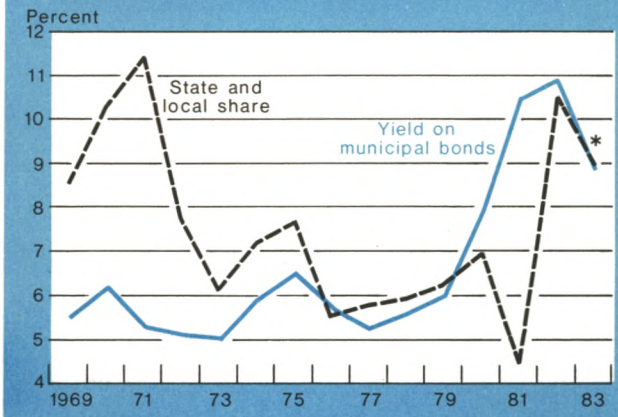
*"New" postwar peak of Moody's Aaa corporate bond rate.

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)

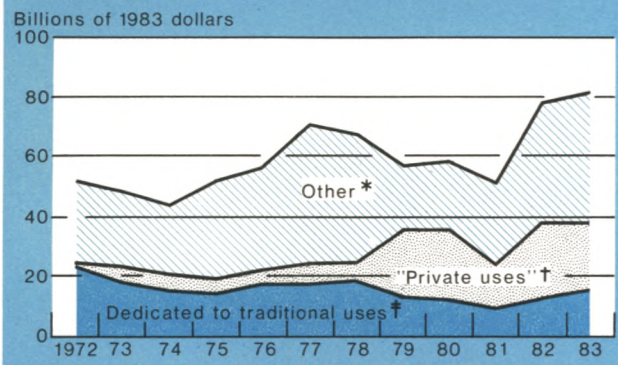
Under the TBO, a perennial reform proposal, municipalities would have the option of issuing taxable debt instruments[1] but, whenever a taxable municipal bond was issued, the Treasury would guarantee the issuer a stream of payments equal to a prestated proportion of

[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

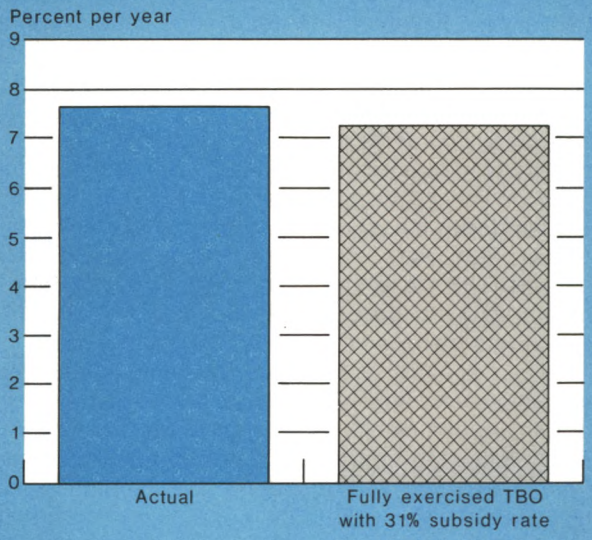
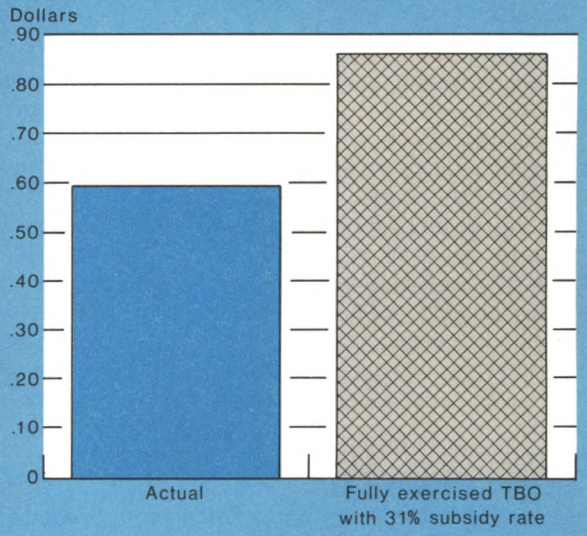


Chart 4-B

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.

Aaron S. Gurwitz

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