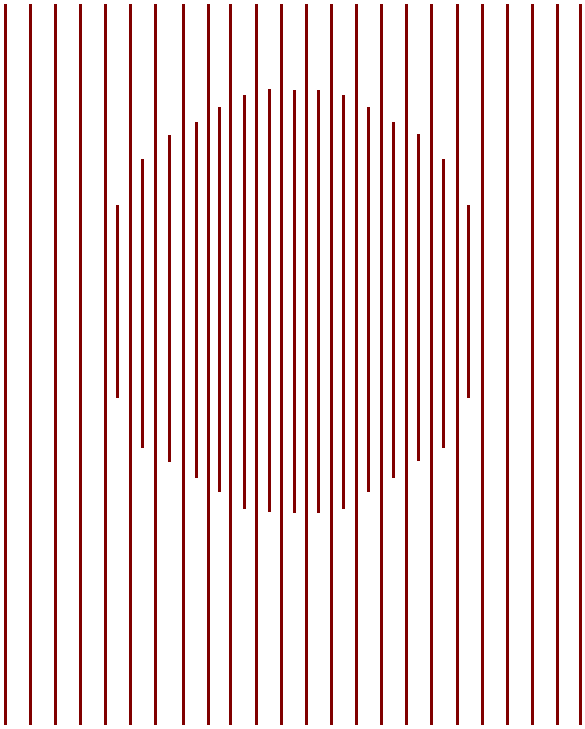
CBO PAPERS

AN ANALYSIS OF THE REPORT OF THE COMMISSION TO PROMOTE INVESTMENT IN AMERICA'S INFRASTRUCTURE

February 1994



CONGRESSIONAL BUDGET OFFICE

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REPORT OF THE COMMISSION
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CONGRESSIONAL BUDGET OFFICE
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PREFACE

This Congressional Budget Office (CBO) paper analyzes the report of the Commission to Promote Investment in America's Infrastructure. The commission's report considered the need for more investment in public infrastructure by the federal and state and local governments and recommended several new means--including a National Infrastructure Corporation and an Infrastructure Investment Company--to provide credit assistance to state and local governments for infrastructure projects. As requested by the House Committee on the Budget, this paper reviews how the commission's recommendations could affect the allocation of society's resources and examines alternative ways to organize the two corporations. Consistent with CBO's mandate to provide impartial analysis, the paper makes no recommendations.

Ron Feldman and Robin Seiler of CBO's Special Studies Division wrote the paper, under the supervision of Marvin Phaup and Robert W. Hartman. Steve Celio, Elizabeth Pinkston, Pearl Richardson, Elliot Schwartz, and David Torregrosa of CBO made valuable contributions. Outside of CBO, John Petersen, Thomas Stanton, and Dennis Zimmerman offered helpful suggestions. Useful information and comments were also received from the staff and advisors of the Commission to Promote Investment in America's Infrastructure and officials of the Capital Guaranty Insurance Company, the College Construction Loan Insurance Association, the Department of Justice, the Financial Guaranty Insurance Company, Fitch Investors Service, the Government Finance Officers Association, and Standard & Poor's Corporation.

Leah Mazade edited the manuscript, and Christian Spoor provided editorial assistance. Mary V. Braxton prepared the paper for publication.

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Director

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SUMMARY

In 1991, the Congress created the Commission to Promote Investment in America's Infrastructure to identify new ways of encouraging investment in the nation's stock of physical infrastructure. The commission found that current levels of spending and traditional means of financing are inadequate to meet current and future U.S. infrastructure needs. The commission attributed the projected inadequacy to resource constraints, limitations of current financing arrangements, and lack of political support for infrastructure projects at the state and local levels. It found that the federal government would have to provide leadership in developing new means of financing infrastructure, especially for projects paid for with user charges.

The commission proposed that the federal government intervene in the financing of infrastructure by state and local governments in three ways. A new National Infrastructure Corporation (NIC) would purchase and bear the credit risk of municipal bonds issued to provide long-term financing for infrastructure projects; the corporation would also insure a portion of the risk of developing new facilities. A new Infrastructure Insurance Company (IIC) would insure infrastructure bonds issued to provide long-term financing for new projects. Both corporations would support investment in transportation and environmental projects financed with user charges, and could support investment in other forms of infrastructure as well. The commission also asked policymakers to consider easing current restrictions on tax-exempt financing for infrastructure that is used for private activities and giving a new tax break to participants in pension plans that purchased qualified infrastructure securities.

This Congressional Budget Office paper examines the commission's recommendations. It describes the municipal bond market, reviews several factors that may cause investment in infrastructure by state and local governments to be less than optimal, and analyzes how the commission's proposals could affect the allocation of resources in the economy. It also discusses the advantages and disadvantages of alternative approaches to organizing the NIC and the IIC. The major conclusions of the analysis are the following:

- The commission's proposals would increase investment in municipal infrastructure by subsidizing the development and financing of new projects. The NIC would lower the interest rates that municipalities pay on their infrastructure bonds by bearing credit and development risks on

subsidized terms. The changes in tax law that the commission proposed would provide subsidies that would also lower the interest rates paid by municipal borrowers.

- The primary effect of the commission's proposals would be to divert resources from investments such as business plant and equipment, housing, and other government spending and direct them toward state and local infrastructure projects financed with user charges. This shift would improve the allocation of resources if it directed them toward activities that produced greater benefits. The commission's proposals could achieve such a shift if they corrected for "spillover benefits" (benefits from a project that spill over to residents of other jurisdictions who do not pay for the project). Improved allocation would also result if the proposals led municipalities to borrow at interest rates more in line with the risks of the debt they issued.

- The municipal bond market, which is the source of most financing for state and local infrastructure, has many of the attributes of a well-functioning credit market. For example, it is extremely large and active, with massive numbers of investors and municipalities participating in transactions. Recent innovations in financing techniques are helping to lower borrowing costs. Favorable federal tax treatment also benefits municipal borrowers by allowing them to pay significantly lower interest rates on their debt.

- Of course, no market is perfect. Regulators contend that investors may have incomplete information on some bonds. Other experts argue that the municipal bond insurance industry is not fully competitive and that interest rates on municipal debt vary by geographic region. As a result, state and local governments may invest too little in infrastructure. Given alternative policies and the nature of the problems, however, the commission's proposals are neither necessary nor likely to address these market imperfections.

- The NIC and IIC could not correct spillover problems. In fact, the projects that the commission wanted the corporations to target would be unlikely to have spillovers that would justify federal subsidies.

- The new tax subsidies recommended by the commission would also be unlikely to improve the allocation of resources. By permitting subsidies for private-purpose activities, the changes in tax law could increase the costs of financing public-purpose infrastructure facilities and further distort private and municipal decisions about investment. Pension funds

already benefit from substantial federal tax subsidies, which account for the low level of pension fund investment in municipal infrastructure that the Congress noted when it established the commission.

- Achievement of some of the commission's general goals--encouraging user fees to finance infrastructure projects and requiring state and local governments to pay a larger portion of the costs of federally assisted projects--could improve the allocation of resources. But policymakers could achieve those goals more simply by modifying existing grant programs or by reforming policies for pricing the use of existing infrastructure. There is little evidence that diverting funds to the NIC and IIC from alternative private investment or current federal grants for state and local infrastructure would produce more benefits for society.

- How the activities of the NIC and the IIC would affect the allocation of resources may be analyzed independently of how the corporations should be organized. If the NIC was set up as an on-budget federal agency, policymakers could obtain accurate, complete information about its activities and directly control the cost of the subsidies that it provided to municipal borrowers. As an on-budget agency, the NIC would also require much smaller initial appropriations than if it was established as an off-budget entity, as the commission appeared to propose. Moreover, it could use loans or grants to provide subsidies directly to a broad universe of infrastructure borrowers. The corporation would also, however, have a significant competitive advantage over private firms that insure or otherwise bear the credit risk of infrastructure bonds.

- If the NIC was established as a private, for-profit finance company and subsidized with a long-term federal loan that had a below-market interest rate, the cost of the subsidy that the loan provided would be controlled in the appropriation process and recorded in the budget. The company would be subject to less direct control by policymakers than an on-budget agency and could operate as a revolving fund. But a finance company would have to stand on its own after it repaid the government's loan. That requirement would subject the NIC to significant market discipline and give it a strong incentive to use the limited, one-time subsidy it received to build its capital and establish a track record, rather than provide ongoing subsidies to municipal borrowers.

- Organizing the NIC as either an on-budget agency or a finance company would have fewer risks than establishing the corporation as a government-sponsored enterprise (GSE). If the NIC was organized as a GSE, the federal budget would not measure, and policymakers could not

directly control, the subsidies provided by the implicit federal guarantee of its obligations. Those subsidies would be relatively large because the corporation's business prospects would be uncertain. Some of the federal subsidies would benefit investors in the NIC's obligations, and some could benefit the corporation's owners; its management would be relatively free of direct federal control. The corporation would also have a competitive advantage over private firms and investors, although the advantage would probably be smaller than that possessed by an on-budget agency. Yet as long as the NIC was profitable, it would have an incentive to limit its risk taking and manage itself prudently. A GSE could also operate as a revolving fund, as the commission desired, and subsidize an indefinite volume of infrastructure bonds. The demand for the NIC's lending could be quite small, however, unless, as the commission proposed, policymakers provided a new tax subsidy for qualified pension plans that invested in its debt.

- As a federal agency, the IIC could not insure tax-exempt infrastructure bonds unless policymakers reversed the long-standing federal policy of not providing explicit federal guarantees of tax-exempt debt. If the company made loans at tax-exempt rates, the cost of the interest subsidies would have to be appropriated each year.

- If the IIC was organized as a private, for-profit bond insurer that was partially owned by the federal government, the budget would record the cost of purchasing stock in the company. A private insurer would be subject to less direct control than a federal agency but could insure tax-exempt infrastructure bonds. The company would have an incentive to manage itself prudently, because investors would be unlikely to perceive an implicit federal guarantee of the bonds that it insured. But there would be some uncertainty about the IIC's profitability and ability to obtain a triple-A credit rating. By establishing a sunset date for the company, policymakers could use this organizational form to provide temporary federal support for insuring infrastructure bonds that existing insurers do not now insure.

CHAPTER I
THE COMMISSION'S FINDINGS AND RECOMMENDATIONS

As part of an effort to modify the nation's policy on public works, the Congress in 1991 established the Commission to Promote Investment in America's Infrastructure. The commission's primary charge was to assess new means of encouraging investment, especially by pension funds, in public infrastructure. Specifically, the Congress directed it to "conduct a study on the feasibility and desirability of creating a type of infrastructure security to permit the investment of pension funds in funds used to design, plan, and construct infrastructure facilities in the United States. Such study may also include an examination of other methods of encouraging public and private investment in infrastructure facilities."[1]

After hearing testimony and receiving information from a Member of Congress, executive branch agencies, state and local officials, and the private sector, the commission reported its conclusions and recommendations in February 1993.[2] It argued that there is a significant gap between current spending on infrastructure and the nation's needs and that this gap is likely to widen in the future.[3] (For example, the commission cited estimates that highway spending would have to double to meet highway construction needs.) It also found that traditional means of financing investment in infrastructure were inadequate to fund current and future national needs. The commission concluded that the federal government would have to take the lead in developing new means of financing infrastructure, especially the growing proportion of projects that are ultimately financed with user fees and other dedicated sources of revenues.

The commission recommended that the Congress create two new corporations to provide credit assistance that would encourage states and localities to issue debt for investing in transportation and environmental projects financed with user charges. The corporations could also support investment in other forms of infrastructure. A National Infrastructure Corporation (NIC)

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1. Section 1081 of the Intermodal Surface Transportation Efficiency Act of 1991 (105 Stat. 2020).

2. Commission to Promote Investment in America's Infrastructure, *Financing the Future: Report of the Commission to Promote Investment in America's Infrastructure* (February 1993). All subsequent quotations in this paper are taken from that report.

3. The term "infrastructure" can be defined broadly to include any long-lived assets that produce benefits. The commission focused more narrowly on publicly owned physical infrastructure, especially transportation and environmental projects financed with user fees or special taxes. Physical public infrastructure includes highways, bridges, and tunnels; mass transit, intercity rail, and airports; waterways, docks, and wharves; water, sewer, and wastewater systems; and solid and hazardous waste disposal facilities.

would purchase and bear the credit risk of municipal bonds issued by states and localities to provide long-term financing for infrastructure projects; it would also insure private firms against a portion of the risk of developing new facilities. An Infrastructure Insurance Company (IIC), which would initially be a subsidiary of the NIC, would insure infrastructure bonds issued to provide long-term financing for new projects. The commission also recommended that the Congress consider changes in federal law that would offer expanded tax subsidies to encourage municipal investment in infrastructure.

PROJECTED INADEQUACY OF MUNICIPAL INVESTMENT

In support of its recommendations, the commission argued that the federal and state and local governments will not build the infrastructure that the nation needs for the future. That view reflects previous studies that found a large gap between the current level of investment in new infrastructure projects and the nation's needs and concluded that closing that gap with new spending would make the nation better off. The commission identified several factors that would make public investment inadequate, including resource constraints that limit government spending and tax subsidies, limitations of current financing arrangements, and lack of support from citizens and state and local officials.

Resource Constraints

According to the commission, budgetary pressures have prevented and will continue to prevent states and localities and the federal government from increasing either expenditures or tax subsidies by enough to eliminate the shortfall in the nation's investment in infrastructure. All levels of government face constraints on the amount of taxes they can collect. Given those constraints, spending on health care and social services, income maintenance, education, and public safety is limiting the amount of resources that can be devoted to infrastructure. Furthermore, the legal limits on federal tax subsidies for municipal bonds issued to finance projects that involve private-sector participation, which are described in Box 1, increase the cost of financing such projects. The commission found that these restrictions greatly limit the supply of low-cost credit to municipalities.

Limitations of Current Financing Arrangements

The commission argued that three factors unnecessarily limit state and local governments in financing infrastructure with debt. First, the private municipal bond insurance industry is highly concentrated and risk averse, and the commission took the view that the industry does not insure enough higher-risk debt. Second, there is a relative lack of investment by pension funds in debt issued to finance infrastructure facilities. Private pension funds and state and local government retirement funds on average invest only 0.1 percent of their portfolios in tax-exempt municipal bonds and hold only 0.2 percent of outstanding municipal debt (see Table 1 and Table 3 on pages 4 and 24). Pension and retirement funds invest only small amounts in municipal bonds because they do not need the tax advantage that the bonds offer--income on all of their investments is exempt from federal taxation, and taxable bonds pay higher interest rates than tax-exempt debt. Consistent with its statutory mandate,

BOX 1.
CURRENT LIMITS ON TAX-EXEMPT FINANCING
FOR INFRASTRUCTURE

Municipalities value the ability to issue tax-exempt bonds because investors are willing to accept a lower interest rate than the rate that is paid on taxable debt. But federal law, which was substantially tightened by the Tax Reform Act of 1986, restricts the issuance of tax-exempt debt for financing infrastructure that is used, at least in part, for private activities. It also restricts municipalities from issuing tax-exempt debt that directly or indirectly finances loans to entities that are not exempt from taxation.

Under federal law, a municipal bond finances private activities if private businesses or individuals use more than 10 percent of the facility and service more than 10 percent of the debt. Public airports, docks and wharves, solid waste disposal plants, and facilities for nonprofit organizations are exempt from the definition of private activity; bonds that finance such facilities are tax-exempt. The law also caps the volume of tax-exempt, private-activity bonds issued in a state at no more than $150 million or $50 per capita. Each state's governor distributes his or her state's allocation among local jurisdictions.

TABLE 1. FINANCIAL HOLDINGS OF PRIVATE PENSION PLANS AND STATE AND LOCAL GOVERNMENT EMPLOYEE RETIREMENT FUNDS

Assets	1980	1985	1990	1991	1992	1993[a]
	In Billions of Dollars					
Agency Debt	37.4	114.9	179.4	195.8	212.3	220.8
Checkable Deposits and Cash	4.8	6.4	9.7	8.9	11.4	12.3
Corporate and Foreign Bonds	169.9	272.5	382.6	426.0	444.5	460.1
Corporate Equities	267.8	584.5	953.7	1,275.1	1,431.3	1,503.9
Miscellaneous	84.6	141.3	136.1	175.2	190.4	197.8
Money Market and Mutual Fund Shares	9.7	19.9	63.2	83.2	91.0	93.8
Mortgages	14.5	27.8	39.9	48.7	48.1	48.2
Open-Market Paper	19.5	19.9	47.2	50.2	48.3	51.1
Tax-Exempt Securities	4.1	2.6	2.1	2.4	2.6	2.8
Time Deposits	35.6	103.3	189.7	240.7	259.5	270.9
Treasury Securities	53.1	198.2	362.1	408.9	447.3	470.8
Total	701.0	1,491.3	2,365.7	2,915.1	3,186.7	3,332.5
	In Percent					
Agency Debt	5.3	7.7	7.6	6.7	6.7	6.6
Checkable Deposits and Cash	0.7	0.4	0.4	0.3	0.4	0.4
Corporate and Foreign Bonds	24.2	18.3	16.2	14.6	13.9	13.8
Corporate Equities	38.2	39.2	40.3	43.7	44.9	45.1
Miscellaneous	12.1	9.5	5.8	6.0	6.0	5.9
Money Market and Mutual Fund Shares	1.4	1.3	2.7	2.9	2.9	2.8
Mortgages	2.1	1.9	1.7	1.7	1.5	1.4
Open-Market Paper	2.8	1.3	2.0	1.7	1.5	1.5
Tax-Exempt Securities	0.6	0.2	0.1	0.1	0.1	0.1
Time Deposits	5.1	6.9	8.0	8.3	8.1	8.1
Treasury Securities	7.6	13.3	15.3	14.0	14.0	14.1

SOURCE: Congressional Budget Office based on Federal Reserve Board, "Flow of Funds Accounts, Second Quarter 1993, Annual Revision" (1993).

a. The figures in this column represent holdings at the end of the second quarter of 1993.

the commission argued that facilitating investment in infrastructure by pension funds should be an important objective of federal policy.

Third, the commission contended that the private sector is unwilling to bear the risks of developing and financing some infrastructure projects, especially new facilities, in part because it has difficulty putting a price on those risks. For example, the commission found that private firms are often unwilling to invest money to pay the costs associated with developing new projects where there is a risk that the facilities may never be built. It noted that states and localities are financing an increasing proportion of infrastructure projects with user fees or other dedicated revenue sources and asserted that many such projects could be self-sustaining in the long run and would have significant public benefits. The commission concluded, however, that jurisdictions might not be able to purchase insurance for bonds to finance new projects that lacked a track record or involved complex user fees, and that they might not be able to sell the debt without bond insurance. It also asserted that investors needed to improve their ability to assess the creditworthiness of such projects.

Lack of Support from Citizens and Elected Officials

The commission also concluded that local residents and elected officials are often reluctant to support revenue-raising measures, such as certain user fees, that could make new infrastructure projects self-sustaining and encourage the private sector to bear the risks of developing and financing them. It asserted that jurisdictions that could issue tax-exempt bonds often avoid the difficult task of gaining citizen approval for revenue-producing measures to pay for investment in infrastructure.

THE ACTIVITIES OF THE NIC AND THE IIC

The commission proposed that the government establish and capitalize a National Infrastructure Corporation to provide three forms of credit assistance to state and local governments seeking to finance infrastructure projects. First, the NIC would purchase a portion of the debt issued to provide the long-term financing for new projects. The payments on the bonds would be legally subordinated to (not due before) payments on the remainder of the debt sold to finance the projects. (By subordinating some bonds to the remaining, so-called senior portion of a debt offering, the issuer reduces the credit risk of the senior bonds.) Second, the corporation would insure private firms against a portion of the risk associated with developing new facilities. Third, the Infrastructure

Insurance Company would insure senior infrastructure bonds and reinsure--bear a portion of the credit risk of--such bonds that other firms had insured.

In addition to these forms of credit assistance, which are discussed in detail below, in the long run the NIC would purchase senior bonds and bear the credit risk on those that did not carry bond insurance. The corporation would also provide technical assistance to help state and local governments borrow to finance infrastructure investment. For example, the NIC could help issuers produce financial and engineering studies that would help investors evaluate the risk of projects more accurately.

Purchasing Subordinated Infrastructure Bonds

The NIC would purchase subordinated infrastructure bonds sold by state and local governments to provide long-term financing of projects that could not be financed solely with senior debt sold to the public. The commission concluded that senior debt financing may not be feasible when projects "lack historical operating results or . . . may not be able to demonstrate sufficient credit strength immediately." Depending on the nature of the projects, the subordinated bonds would pay either taxable or tax-exempt interest.

By issuing subordinated bonds to the NIC, a municipality would reduce the credit risk of the senior bonds that it issued to provide the balance of funding for the same infrastructure project. The subordinated bonds would reduce the credit risk because the municipality would make payments on them only if the project's cash flows exceeded the payments on the senior debt. The greater the risk of the project, the larger the proportion of the total debt that the issuer would have to subordinate in order to make the senior debt eligible for bond insurance or to make it attractive to investors without insurance.

The subordinated bonds purchased by the NIC typically would not be eligible for investment-grade credit ratings.[4] If the corporation concentrated on less risky projects, the subordinated bonds could be eligible for a credit rating of double B, the highest below-investment-grade rating. If the NIC focused on riskier projects, however, the bonds would be eligible only for lower credit

4. A credit rating is a measure of the risk of default of a debt security. Private credit rating agencies assign letter ratings to indicate the relative risk of rated obligations. Ratings range from triple A, the highest, to single C, the lowest. The agencies provide a general description of the differences in the default risk of securities that receive different ratings. For example, obligations rated double A are usually described as having a very strong capacity to pay interest and principal and differ from the highest-rated issues only to a small degree. Triple A, double A, single A, and triple B are the investment-grade ratings. Bonds rated double B, single B, triple C, double C, or single C are below investment grade. Debt securities issued by private corporations that receive below-investment-grade ratings are often referred to as junk bonds.

ratings, and the corporation's exposure to credit risk would be greater. In any event, the corporation would bear the majority of the credit risk of the debt issued to finance the facilities.

Insuring Private Firms Against Project Development Risk

The NIC would provide "developmental insurance" that would "cover the initial development phase of projects [for which] . . . financial feasibility and regulatory approvals pose specific risks." Environmental lawsuits, voter disapproval of the issuance of bonds to provide long-term financing, or changes in the economy or in government policy may prevent jurisdictions from going forward with infrastructure projects. According to the commission, that uncertainty may deter developers in some cases from providing the engineering, environmental, legal, and preconstruction planning services that are needed to develop projects. The corporation would induce developers to provide such services by insuring up to 70 percent of the costs of project development.

The NIC's development insurance would be a kind of financial guarantee of the money that construction firms spent to develop targeted infrastructure projects. The corporation would be legally obligated to cover up to 70 percent of any losses that developers incurred if projects were never completed. The commission assumed that the NIC would establish loss reserves equal to 100 percent of the development risk insurance it provided.

Bearing the Credit Risk on Senior Infrastructure Bonds

The Infrastructure Insurance Company would insure and reinsure senior municipal bonds issued to finance state and local infrastructure projects. The commission proposed that the IIC operate under two restrictions. First, the company would be allowed to insure or reinsure only infrastructure bonds that existing, private municipal bond insurers would not insure or that could not obtain other forms of credit enhancement such as a bank letter of credit. Second, the IIC would not be allowed to insure the most creditworthy infrastructure debt. Specifically, the company could not insure bonds that were eligible for a credit rating higher than triple B, which is the lowest investment-grade rating. The commission assumed that the IIC would insure some bonds that were not eligible for investment-grade credit ratings.

The commission's report also proposed that, in the long run, the NIC purchase senior infrastructure bonds, including bonds insured by the IIC. If the senior debt carried bond insurance provided by other firms in the industry, the

NIC would incur negligible credit risk. If the bonds were uninsured, the corporation's exposure to credit risk would be comparable to the IIC's.

FINANCING AND ORGANIZING THE CORPORATIONS

The commission's report distinguished two phases in financing the NIC and the IIC. In the first phase, federal grant funds would provide capital for the corporations, which would use the money to induce the private sector to invest a large amount of additional funds in new infrastructure projects. In the second phase, the NIC would obtain funds by borrowing from the public; the IIC would sell stock to private investors. The commission was unclear about the legal and organizational status of the NIC but appeared to propose that it be established as an off-budget, federally chartered corporation. The commission also proposed that the IIC be organized as a state-chartered municipal bond insurer. Initially, the IIC would be wholly owned by the NIC, but eventually it would be owned by private investors.

Financing the NIC and the IIC

Initially, the federal government would capitalize the NIC and the IIC through grants. The commission's report mentioned the possibility of the government's providing $1 billion a year for five years. It noted several potential sources for this money, including the unobligated balances of existing federal agencies, new appropriations made directly to the NIC, or a change in law that would dedicate part of the revenues from the federal gasoline tax to the corporations.

The commission's report discussed how the corporations would use the federal grant money during this first phase. The NIC would use 65 percent of the funds to purchase subordinated infrastructure bonds and 25 percent to capitalize the IIC. It would use another 10 percent of the federal grant money to establish reserves against losses from its development risk insurance. The commission estimated that if the government invested a total of $5 billion in the corporations, the initial round of credit assistance that they provided would support $50 billion of investment over five years to develop and finance new infrastructure projects. As municipalities paid off the subordinated bonds initially purchased by the NIC, the corporation would function as a revolving fund and make a second round of loans to finance additional projects. The commission stated that in the long run, a federal investment of $5 billion would have the potential of supporting up to $100 billion in new infrastructure projects.

In its second phase, the NIC would raise additional funds by issuing debt to the public and securitizing infrastructure bonds that it had purchased. (Securitization is the process of assembling pools of loan assets and issuing debt securities that entitle investors to portions of the income generated by the pools.)[5] During this phase, institutional and other public and private investors could purchase stock in the IIC. The commission's report suggested that this part of the corporation's life could begin after five years, when the subordinated bonds initially purchased by the NIC had developed a repayment history. The report noted that subordinated infrastructure bonds purchased by the corporation would be heterogeneous and pose significant credit risks, which would limit the market's willingness to purchase them and delay their securitization for some time. That observation would also apply to securitization of senior infrastructure bonds that the NIC purchased during this second phase.

Organizing the Corporations

The commission's report did not specify the legal and organizational status of the NIC. It appeared to propose that the corporation be established as an off-budget, federally chartered corporation. The commission did not examine the issue of who, if anyone, would own the NIC. During the second phase of its existence, the corporation would eventually need to raise additional capital to finance a growing volume of credit assistance to infrastructure borrowers. Private owners could be a source of such capital.

The commission noted that during the second phase, the NIC's ability to borrow "would benefit from a limited line of credit to the U.S. Treasury," but stated that it did not "foresee a need for a full faith and credit guarantee of the U.S. government." Those statements imply that the commission was aware of the option of organizing the NIC as a government-sponsored enterprise (GSE) during this phase. A GSE is a privately owned, federally chartered financial institution that has nationwide operations and specialized lending powers. The government has established several such enterprises to enable farmers, home buyers, mortgage lenders, and students to borrow more cheaply and efficiently.[6] All but one of the existing GSEs have a line of credit with the Treasury.

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5. For an overview of the development of securitization in other credit markets, see Frank J. Fabozzi, Franco Modigliani, and Michael G. Ferri, *Foundations of Financial Markets and Institutions* (Englewood Cliffs, N.J.: Prentice-Hall, 1994), pp. 29-33 and 480-499.

6. For comprehensive discussions of GSEs as instruments of federal policy and of the five existing enterprises, see Thomas H. Stanton, *A State of Risk* (New York: HarperCollins, 1991); and Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991). For a previous analysis of the use of a GSE to provide federal subsidies for municipal infrastructure borrowing, see Congressional Budget Office, "Federal Infrastructure Subsidies: Grants or Credits?" CBO Paper (August 1990).

Investors infer from this and other special legal attributes of the enterprises that the federal government will not allow them to default on their obligations. An implied federal guarantee would enable the NIC to issue taxable debt at near-Treasury interest rates and would lead investors to pay higher prices for asset-backed securities that it issued than they would pay for identical securities issued by the most creditworthy private firms.[7]

The commission's report stated that the IIC "would be established initially as a subsidiary" of the NIC and would operate like the College Construction Loan Insurance Association (Connie Lee). Connie Lee is a private, for-profit municipal bond insurer that is restricted by federal law to insuring bonds for construction at institutions of higher learning and teaching hospitals.[8] The company is jointly owned by the Department of Education (14 percent); the Student Loan Marketing Association (Sallie Mae), which is a GSE (36 percent); and private investors (50 percent). The report also noted that the IIC would have to maintain the highest possible credit rating, triple A, in order to make its insurance attractive to state and local borrowers. The commission took the view that the company could maintain this rating on the strength of its underwriting criteria, management, investment policy, and premium income, without regard to its ties to the federal government.

PROPOSED REVISIONS IN FEDERAL TAX POLICY

The commission asked the Congress to consider various revisions in federal tax law that would encourage investment in municipal infrastructure by providing additional subsidies to jurisdictions that financed projects with debt. Several proposals would modify or repeal various federal restrictions on the use of tax-exempt bonds imposed by the Tax Reform Act of 1986. Another option would allow part or all of the investment earnings attributable to infrastructure securities to be distributed tax-free upon retirement to workers who participated in defined-contribution pension plans, including cash or deferred profit-sharing plans--often known as 401(k) plans--and to workers who invested in individual

7. In the decade ending in 1992, the interest rates on 10-year bonds issued by the existing GSEs averaged about 35 basis points more than the rates on bonds of comparable maturity. However, the 10-year Treasury bonds averaged 20 basis points less than the rates on triple-A-rated bonds, and about 65 basis points less than the rates on single-A-rated bonds issued by financial services firms. See Salomon Brothers, *Analytical Record of Yields and Yield Spreads* (New York: Salomon Brothers, July 1992 and updates), Part I, Table 2, and Part II, Table 9A.

8. See Department of the Treasury, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (May 1990), Appendix G; College Construction Loan Insurance Association, *1992 Annual Report* (Washington, D.C.: College Construction Loan Insurance Association, 1992); and Standard & Poor's Corporation, "Connie Lee Insurance Co.," *Creditweek Municipal,* November 15, 1993.

retirement accounts (IRAs). The remainder of this paper refers collectively to these vehicles for saving for retirement as qualified pension plans.

Modifications of Current Restrictions on Tax-Exempt Financing

The commission encouraged the Congress to review and modify or repeal various federal restrictions on the use of tax-exempt bonds imposed by the Tax Reform Act of 1986. One option would exempt from federal taxation any debt issued to finance new environmental and transportation projects if "the benefits to the general public [were] substantial, notwithstanding private sector participation." A second option would allow municipalities to retain arbitrage profits (money earned by investing funds borrowed at tax-exempt rates in higher-yielding, generally taxable assets) to support infrastructure projects. A third option would narrow the definition of a private-purpose bond by increasing from 10 percent to 25 percent the proportion of the facilities financed with tax-exempt bonds that private businesses can use and the proportion of the debt service on such bonds that the businesses can pay. A fourth would allow banks to deduct the purchase price and carrying costs of tax-exempt infrastructure debt issued by jurisdictions that sell no more than $25 million of debt per year. (Current law allows the deduction if an issuer sells no more than $10 million of debt per year.)

New Tax Break for Participants in Qualified Pension Plans

The commission recommended that the Congress consider allowing part or all of the investment earnings attributable to "infrastructure securities" to be distributed tax-free upon retirement to workers who participated in qualified pension plans. The commission did not define infrastructure securities; nevertheless, it would be consistent with the panel's other proposals to interpret the term to refer broadly to any municipal bonds issued to finance defined categories of infrastructure, including bonds insured by the IIC, that would otherwise be taxable. If the term was defined to refer to debt obligations issued by the NIC in the second phase of its existence, the new tax break would reduce the corporation's borrowing costs substantially. Those savings would be in addition to the reduction in the NIC's borrowing costs that would arise from an implicit federal guarantee of its obligations, if it were a GSE.

Federal law already provides substantial tax subsidies for workers who participate in qualified pension plans (see Box 2), and the commission's proposal would create a further tax break for such workers. The workers would earn after-tax returns on infrastructure securities that were comparable to the

BOX 2
CURRENT FEDERAL TAX BREAKS FOR PENSIONS

Current federal law provides substantial tax preferences for contributions to and the investment earnings of private pension plans and individual retirement accounts (IRAs). The government does not tax employer contributions to qualified employer-sponsored pension plans--or some types of employee deferrals of wages--as compensation of the worker at the time the funds are deposited into the account. Limited amounts of an individual's contributions to an IRA are also tax-deductible. In addition, interest and other investment income earned within pension plans and IRAs accumulate tax-free until the investment income, along with the original contributions, is distributed after retirement. These policies thus shift the taxation of income from the time it is originally earned to the time it is withdrawn and used (when the worker's tax rate is generally lower). Federal revenue losses from these tax preferences are substantial, amounting to an estimated $65 billion in fiscal year 1994. Over $30 billion of these estimated losses is attributable to the favored tax treatment of qualified pension plans.

SOURCE: Congressional Budget Office, *Tax Policy for Pensions and Other Retirement Saving* (April 1987); Department of Labor, Pension and Welfare Benefits Administration, Office of Research and Economic Analysis, "Abstract of 1990 Form 5500 Annual Reports," *Private Pension Plan Bulletin*, no. 2, (Summer 1993), Table E7, p. 75; and Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 1994-1998* (April 22, 1993), Table 1, p. 17.

returns they would earn on other taxable debt obligations, despite the fact that they accepted interest rates on the former that were lower than those on the latter, because part or all of the earnings on the infrastructure securities could be distributed tax-free.[9]

The new tax break for workers who participate in qualified pension plans would reduce the rates of interest that municipalities would have to pay on eligible infrastructure securities. The interest rates on the bonds would probably not be quite as low as those on comparable tax-exempt bonds, however, because only participants in qualified plans, rather than all potential investors, would benefit from the new tax break. The magnitude of the savings in borrowing costs for the municipalities would depend on several factors: the expected postretirement tax brackets of workers who participated in qualified plans; the aggregate assets of those plans, which currently exceed $2 trillion; and the

9. As an example, suppose that a worker saving through an IRA could earn 7 percent a year by investing in 30-year, triple-A-rated, taxable corporate debt securities. (The worker expects to be able to reinvest the interest income at 7 percent per year and to have a marginal federal income tax rate of 28 percent when he or she retires.) Suppose further that, as the commission proposed, upon retirement the worker could receive tax-free distributions of the earnings from triple-A-rated infrastructure securities held in the IRA. Under those conditions, the worker would be indifferent as to whether he or she invested in the 30-year corporate debt securities or in 30-year infrastructure securities that paid a taxable rate of interest of about 5 percent per year.

volume of eligible infrastructure securities. Rough calculations suggest that under current market and economic conditions, the proposal might reduce the interest rates on eligible infrastructure securities by 1.3 to 1.8 percentage points. In contrast, the yields on tax-exempt bonds have recently been about 2.3 percentage points less than the yields of fully taxable municipal bonds of equal maturity and credit risk.[10]

HOW THE COMMISSION'S PROPOSALS WOULD REDUCE BORROWING COSTS FOR MUNICIPAL INFRASTRUCTURE PROJECTS

The commission's proposals would increase municipal investment in infrastructure by reducing the costs of developing projects and financing them with debt. As Box 3 discusses, debt financing involves two costs: the cost of paying interest on bonds and the expenses associated with issuing them. The NIC would lower the interest rates paid by municipal infrastructure borrowers and the costs of developing projects by bearing the development and credit risks on subsidized terms. If the corporation was organized as a GSE in the second phase of its life, it would also be able to lower the issuance and interest costs of municipal infrastructure borrowers by financing the bonds it purchased with very low risk, highly liquid debt that carried an implicit federal guarantee. The changes in federal tax law advocated by the commission would provide subsidies that would also reduce the interest rates paid by infrastructure borrowers.

10. Since 1989, the yields on 30-year, triple-A-rated, tax-exempt general obligation bonds have averaged about 1.4 percentage points less than the yields on 30-year Treasury bonds. See Salomon Brothers, *Analytical Record of Yields*, Part I, Table 1, and Part III, Table 7. On a recent trading day, newly issued 30-year, triple-A-rated, taxable municipal bonds yielded about 0.9 percentage points more than 30-year Treasuries. The savings that the new tax break would offer an issuer of infrastructure bonds that would otherwise be fully taxable can be roughly estimated as follows. If all of the earnings attributable to infrastructure securities could be distributed tax-free to any investors, then the securities would yield interest rates equal to those on tax-exempt municipal bonds of equal maturity, liquidity, and credit risk. However, the commission's proposal would provide the new tax break only to participants in qualified pension plans, rather than to all investors. To attract this more limited universe of potential investors, the yields on infrastructure securities would have to be somewhat higher than those on comparable tax-exempt bonds. An investment banker who advised the commission speculates that the additional cost could be between one-half and one percentage point. That estimate and the figures above suggest that under current market and economic conditions, the proposal could reduce the yields on taxable infrastructure bonds by approximately 1.3 to 1.8 percentage points.

BOX 3.
COSTS OF DEBT FINANCING

States and localities that finance infrastructure projects with debt incur two costs. First, they purchase financial and other services to bring their debt securities to market. Second, they induce investors to purchase their bonds by paying interest rates that compensate the investors for the use of their money and the risks they bear.

Issuance Costs. To prepare to issue debt, municipal bond issuers may pay fees for the services of underwriters, bond counsels, rating agencies, financial and investment advisors, accountants, printers, advertisers, and paying agents. In general, those parties assist issuers by producing and disseminating information that enables investors to evaluate the risk of their debt. They also help issuers comply with federal and state laws and link them with investors.

Interest Costs. The interest rate that investors require a municipality to pay is set by the interaction in credit markets between two sets of parties: households, businesses, and others with money to lend, and the many types of public and private borrowers seeking funds. Just as prospective borrowers compete to attract funds, suppliers of loanable funds compete to finance investments with the highest after-tax, risk-adjusted returns. The high correlation between various rates of return suggests that investors view different types of financial assets (corporate debt and equity, Treasury and GSE debt, municipal bonds) as interchangeable. As a result, interest rates on municipal securities are affected by supply and demand in all sectors of the financial markets.

Interest rates compensate investors for bearing several types of risk. These include the risk that an issuer will default, leading to a loss of interest or principal (credit risk); the risk of an unexpected increase in interest rates, which would reduce the market value of a bond (interest rate risk); the risk that the investor will be unable to reinvest interest or principal at expected interest rates (reinvestment risk, or prepayment risk on callable bonds); and the risk that inflation will rise, reducing the purchasing power of future investment income (purchasing power risk). There is also the risk of future changes in income tax rates (taxation risk). In addition, investors demand a premium to compensate them for the costs they may incur in reselling and for uncertainty about the resale prices of bonds that are illiquid (not easily convertible into cash). Borrowers may be able to reduce the interest rates that investors require by purchasing credit enhancements from third parties.

SOURCES: See "The Segmentation of Capital Markets," Appendix A in Barry P. Bosworth, Andrew S. Carron, and Elisabeth H. Rhyne, *The Economics of Federal Credit Programs* (Washington, D.C.: Brookings Institution, 1987); and Sylvan Feldstein, "Municipal Securities II: Guidelines for Investor Analysis," in Robert Kuhn, ed., *Corporate and Municipal Securities* (Homewood, Ill.: Dow Jones-Irwin, 1990), pp. 796-831.

Bearing Credit and Development Risks on Subsidized Terms

The NIC could accept lower interest rates on the subordinated infrastructure bonds that it purchased and charge lower premiums for providing development risk insurance than those that private firms would charge for bearing the same risks. Below-market interest rates and insurance premiums would convey subsidies to the municipalities and developers that the corporation assisted. In the first phase of its life, the NIC could charge subsidized rates and premiums because it would operate with government grant money provided free of charge. The corporation would be able to increase the funds that it had received from the government simply by charging prices that covered its administrative expenses and any losses resulting from borrower default or the cancellation of projects that were in the process of development.

If the NIC was established as a GSE during the second phase of its life, it could continue to charge below-market interest rates on infrastructure bonds and below-market premiums for development risk insurance, although the prices could not be as low as in the corporation's first phase. The implicit federal guarantee of the NIC's debt obligations that the GSE status conveys would reduce the interest rates that investors required on them. The NIC could pass on the savings--in the form of lower interest rates--to municipalities that issued taxable subordinated infrastructure bonds. It could also pass on savings to project developers in the form of lower premiums for development risk insurance. In effect, the government would subsidize the NIC by bearing the credit risk of its obligations, and municipalities and developers would receive a portion of the subsidies.

Increasing Federal Tax Subsidies

The two types of changes in federal tax law proposed by the commission would provide new subsidies to municipal infrastructure borrowers. The commission's proposals to modify or repeal current limitations on the use of tax-exempt bonds would enable jurisdictions to finance projects at lower interest rates. The proposal to allow part or all of the earnings attributable to investing in eligible infrastructure securities to be distributed tax-free to participants in qualified pension plans upon retirement would reduce the interest rates that issuers of such securities would have to pay. If the NIC was established as a GSE in the second phase of its life and policymakers defined its obligations as eligible infrastructure securities, the new tax break would enable the corporation to provide larger subsidies to infrastructure borrowers and project developers.

Tapping the Highly Liquid and Very Broad Market for GSE Debt

If the NIC was established as a GSE in the second phase of its life, the implicit federal guarantee of its debt obligations would make them very liquid and attractive investments for firms that ordinarily do not purchase tax-exempt municipal bonds. Pension and retirement funds, which hold few municipal bonds but invest more than a third of their assets in taxable Treasury, GSE, and corporate obligations, would shift some of those funds into debt issued by the NIC, as would other investors that invested in debt issued and guaranteed by the existing GSEs. Moreover, the corporation could issue a very large volume of debt, making its issuance costs per dollar of debt lower than those of any state or locality. The NIC could pass its low interest and issuance costs through to sponsors of infrastructure projects in the interest rates that it charged.

Enhancing the Efficiency of the Municipal Debt Market

The NIC and the IIC could also lower the issuance or interest costs paid by infrastructure borrowers by enhancing the efficiency of the municipal debt market. The corporations might be able to lower interest costs by producing information that improved the private sector's ability to price infrastructure debt; they could also reduce segmentation in the markets for some infrastructure bonds and increase competition in the bond insurance industry. Those results would enhance the allocation of resources even if the government subsidized the NIC and the IIC, provided that the benefits of the activities of the corporations exceeded the cost of the federal subsidies. Chapter II evaluates the ability of the corporations to achieve the above-noted results.

ISSUES RAISED BY THE COMMISSION'S PROPOSALS

The commission's recommendations raise two broad policy issues. The first is whether the proposals would produce an allocation of resources that would generate more benefits for society as a whole. They would improve the allocation of resources if they enhanced the functioning of the municipal credit market or if they induced states and localities to produce a preferred level and mix of infrastructure. Chapters II and III examine those possibilities.

If policymakers decided to establish the NIC and the IIC, a second broad issue would arise, namely, how the corporations would be organized. Chapter IV examines several approaches to organizing the NIC and the IIC and how those approaches would affect the following: the amount of information available about the corporations, how much control policymakers would have

over the subsidies that they provided to infrastructure borrowers, and the competitive advantages that the corporations would have over private firms that participated in the municipal debt market. The analysis in Chapter IV is independent of the assessment in Chapter III of how the activities of the corporations would affect the allocation of resources.

CHAPTER II

THE MARKET FOR MUNICIPAL DEBT AND THE COMMISSION'S PROPOSALS

The Commission to Promote Investment in America's Infrastructure concluded that the federal and state and local governments are not building enough infrastructure. That view assumes that the current stock of infrastructure is smaller than the economically optimal, or efficient, amount and that new investments in infrastructure would raise economic output. The municipal debt market is the source of most financing for investment in state and local infrastructure. For the market to allocate resources efficiently, funds must be allocated to those uses that have the greatest value to society. An efficient allocation of funds cannot occur if interest rates do not reflect the costs that investors bear in financing projects. If the commission's proposals moved interest rates closer to the costs of making investments, they could improve the allocation of society's scarce resources. By exempting the interest on most municipal bonds from taxation, the federal government already reduces significantly the interest rates that municipal borrowers pay. As discussed in Chapter III, the commission's proposals could also improve resource allocation if they corrected for "spillover benefits" that caused municipalities to demand less than the optimal amount of infrastructure.

In general, however, interest rates in the municipal bond market already appear to reflect the risks and other costs of the activities being financed. Most of the market's attributes are consistent with a well-functioning credit market. The market is large, competitive, sophisticated, and able to adapt to changing economic conditions. The volume of long-term financing and the use of techniques to reduce the cost of borrowing for infrastructure have increased in the past decade. All of these factors make the municipal bond market quite robust and allow municipalities to raise the large amount of funds they need.

Yet like other credit markets, the municipal debt market is not perfect. Research indicates that the interest rates on some bonds vary by geographic location. Regulators and analysts believe that investors have incomplete information about some municipal debt. And some observers contend that the municipal bond insurance industry is not competitive. Those factors could lead to an inefficient level of investment in infrastructure. But some analysts and other evidence suggest that those factors may not diminish investment in infrastructure by state and local governments. Most importantly, the commission's proposals would not address these potential sources of market inefficiency.

CURRENT FEDERAL SUBSIDY FOR TAX-EXEMPT MUNICIPAL DEBT

The current federal tax subsidy for most municipal bonds gives municipal borrowers an advantage in the competition for loanable funds. By exempting interest on most municipal debt from federal income taxes, the federal government significantly lowers the interest rates that municipal borrowers pay. Because of the tax exemption, an investor who receives a lower interest rate on a municipal bond than on a taxable debt security can earn an equivalent after-tax return on the two investments. For example, an investor with a marginal federal income tax rate of 30 percent would be indifferent to the choice between a $10,000 taxable bond that pays 10 percent interest per year and a $10,000 tax-exempt bond that pays 7 percent. In both cases, the investor would receive after-tax interest payments of about $700 per year.

The federal government incurs substantial losses of revenue by exempting interest on municipal debt from federal income taxes. In budgetary terms, that "tax expenditure" had an estimated outlay equivalent of $25.8 billion in fiscal year 1992.[1] (The outlay equivalent figure is the sum of estimates in the federal budget of the tax expenditures from exempting interest on 11 types of municipal debt.) In addition, many states also exempt the interest on some municipal debt from state income taxes.

A LARGE, ACTIVE MARKET

From 1956 to 1990, states and localities provided, after deducting federal assistance, 70 percent of the financing for physical infrastructure built by governments in the United States.[2] Municipalities generally raise these funds by issuing long-term debt.[3] The municipal debt market, in general, functions effectively to provide many types of debt issuers and projects with access to

1. Office of Management and Budget, *Budget Baselines, Historical Data, and Alternatives for the Future* (January 1993), p. 549.

2. This calculation is based on data from Congressional Budget Office, "Updating Trends in Public Infrastructure Spending and Analyzing the President's Proposals for Infrastructure Spending from 1994 to 1998," CBO Paper (August 1993), p. 3.

3. Municipalities also issue short-term debt--debt with maturities of 13 months or less--called notes, primarily to provide cash in periods when revenues are low. In 1992, $40 billion in notes was sold. See *The Bond Buyer 1993 Yearbook* (New York: Thompson, 1993), p. 15.

funds, to raise a massive amount of capital, and to accommodate new sources of and demand for funds.

There are a substantial number of municipal borrowers, over 50,000 in total, competing to attract funds from investors.[4] An extremely large number of bond issues come to market each year. From 1983 to 1992, 87,847 long-term municipal issues were sold, compared with 15,533 debt issues in the corporate debt market.[5] The average size of a municipal offering is $15 million, although half the issues that come to market are smaller than $5 million. Because states and localities often sell debt in multiple maturities, the number of issues is much smaller than the number of bonds with distinct maturities that are subject to separate pricing decisions. When the volume of outstanding municipal debt is broken down by maturity and distinguishing characteristics, an estimated 2 million municipal securities emerge, all subject to different pricing decisions.[6]

In 1992, municipal issuers sold more than $78 billion in infrastructure debt and a total of $235 billion in debt, both to refinance outstanding, more expensive debt and to finance new projects.[7] Outstanding municipal bonds totaled $1.2 trillion at the end of 1992.[8] In 1993, new issues proceeded at a record pace, and volume is projected to be $289.5 billion for the year.[9] As shown in Table 2, the long-term municipal debt market is able to attract huge amounts of cash and meet extensive demands for funds. In general, those investments pose relatively little credit risk, because historically, municipal securities have had significantly lower rates of default than corporate debt.[10] Yet some of those funds finance relatively risky projects. For example, from 1980 through 1991,

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4. Public Securities Association, *Fundamentals of Municipal Bonds* (New York: Public Securities Association, 1987), p. 53.

5. *The Bond Buyer 1993 Yearbook*, pp. 10-11; and Securities Industry Association, *1993 Securities Industry Fact Book* (New York: Securities Industry Association, 1993), p. 13. Corporate debt totals include straight, convertible, and asset-backed debt.

6. John Petersen, "Innovations in Tax-Exempt Instruments and Transactions," *National Tax Journal*, vol. 44, no. 41 (December 1991), pp. 11-12.

7. William Chew, "Infrastructure Investment: A Credit Perspective," *Standard and Poor's Municipal Creditweek*, February 22, 1993, p. 1; *The Bond Buyer 1993 Yearbook*, p. 11.

8. Federal Reserve Board, "Flow of Funds Accounts: Second Quarter 1993, Annual Revisions" (September 1993), p. 112.

9. Roughly two-thirds of that volume was for re-funding. See Public Securities Association, "Municipal Bond Market Has Record Year in 1993" (press release, New York, December 15, 1993).

10. Securities and Exchange Commission, "Staff Report on the Municipal Securities Market" (September 1993), Appendix B, p. 1.

TABLE 2. LONG-TERM MUNICIPAL BORROWING, 1970-1993 (In billions of dollars)

	New Capital	Re-funding	Total
1970	17.7	0.1	17.8
1971	23.9	0.5	24.4
1972	21.3	1.6	22.9
1973	21.8	1.2	23.0
1974	22.2	0.6	22.8
1975	28.4	0.9	29.3
1976	31.8	3.5	35.3
1977	36.2	10.4	46.6
1978	37.4	10.7	48.1
1979	41.4	1.9	43.3
1980	46.7	1.8	48.5
1981	46.6	1.2	47.8
1982	74.8	4.3	79.1
1983	71.8	14.0	85.8
1984	95.3	12.7	108.0
1985[a]	164.1	58.1	222.2
1986	81.6	70.0	151.6
1987	57.3	48.2	105.5
1988	77.2	39.6	116.8
1989	81.2	44.0	125.2
1990	97.0	31.0	128.0
1991	121.3	52.8	174.1
1992	115.8	119.5[b]	235.3
1993[c]	96.6	192.9	289.5

SOURCE: Congressional Budget Office based on data from the Public Securities Association.

a. The rise in borrowing in 1985 preceded legislation restricting tax-exempt borrowing.

b. A drop in interest rates substantially increased re-funding in 1992.

c. Figures for 1993 are estimated.

over $155 billion in unrated bonds was sold.[11] Some portion, possibly sizable, of that unrated debt poses a relatively high level of credit risk.

The types of investors that hold municipal debt have changed considerably over the past decade. The holdings of commercial banks and savings and loans fell from 42 percent of outstanding municipal debt in 1980 to 8 percent in 1993,

11. J.J. Kenny Co., Inc., *Municipal Bond Defaults* (New York: J.J. Kenny Co., Inc., 1993), p. 23.

while the holdings of households and mutual funds increased from 24 percent to 70 percent of outstanding debt (see Table 3). By spreading their risk across many bonds and issuing standardized shares that investors can readily buy and sell, mutual funds achieve efficiencies that may be passed through to municipal borrowers in the form of lower interest rates. (This role is somewhat similar to that of firms that pool and securitize fixed-income assets in other markets.) The growth of investment by households demonstrates that the market can provide new funds when demand increases. For example, from 1980 to September 30, 1993, the number of municipal bond mutual funds grew from 55 to 1,612, and fund assets grew from $5 billion to $399 billion.[12]

ACTIVITY TIERED BY BORROWER SIZE AND LOCATION

Like many other well-functioning financial markets, the municipal debt market is not a single place but a network of borrowers, dealers, and investors that provide financing in varying amounts and in different geographic regions. Although there are many borrowers and bond issues, a small percentage of offerings constitutes a large portion of the market's total dollar volume. In 1992, municipal bond issues greater than $25 million accounted for 77 percent of total volume but only 13 percent of total issues.[13] Those large, well-known issues are usually sold initially to investors across the country. Medium-sized issues are often sold initially on regional markets. Smaller bonds, which constitute the vast majority of borrowers, are often sold initially in the issuer's region or more immediate locale.[14]

After municipal bonds are sold to the initial set of investors, they may be resold and bought on "secondary markets." The larger, better-known bonds trade on an active national market, which is estimated to be one to two times as large as the new-issue market. (Trading volume is estimated at $3 billion a day.)[15] Trades take place "over the counter" between dealers and not through a central exchange or computer network. Medium-sized bonds are often traded on regional markets. Small bonds usually trade infrequently.

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12. These figures were provided by Lipper Analytical Services, Inc., New York, New York.

13. Testimony of Jeffrey Green, Government Finance Officers Association, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, p. 13.

14. Robert Lamb and Stephen Rappaport, *Municipal Bonds* (New York: McGraw-Hill, 1987), pp. 17, 34-35.

15. Public Securities Association, *Fundamentals of Municipal Bonds*, p. 81; Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," p. 46.

TABLE 3. VOLUME OF MUNICIPAL DEBT, BY HOLDER

Holder	1980	1985	1990	1991	1992	1993[a]
			In Billions of Dollars			
Bank Personal Trusts	22.5	48.6	82.5	91.6	97.6	103.4
Banks and Savings and Loans	152.4	235.1	120.4	105.6	99.6	98.9
Brokers and Dealers	2.5	19.9	7.9	9.4	11.3	1.4
Households	80.0	255.2	468.9	503.8	509.4	507.4
Insurance Companies	87.2	97.9	149.2	137	145.7	148.6
Mutual and Money Market Funds	6.3	70.8	206.7	255.1	307.6	340.9
Nonfinancial Corporate Businesses	3.5	4.9	10.1	11.9	12.2	12.6
Private Pension Funds	b	1.5	1.4	1.6	1.7	1.8
State and Local Government Retirement Funds	4.1	1.1	0.7	0.8	0.9	1.0
State and Local Governments	7.0	7.8	14.2	14.8	11.4	8.1
Total	365.5	742.8	1,062.0	1,131.6	1,197.4	1,224.1
			In Percent			
Bank Personal Trusts	6.2	6.5	7.8	8.1	8.2	8.4
Banks and Savings and Loans	41.7	31.7	11.3	9.3	8.3	8.1
Brokers and Dealers	0.7	2.7	0.7	0.8	0.9	0.1
Households	21.9	34.4	44.2	44.5	42.5	41.5
Insurance Companies	23.9	13.2	14.0	12.1	12.2	12.1
Mutual and Money Market Funds	1.7	9.5	19.5	22.5	25.7	27.8
Nonfinancial Corporate Businesses	1.0	0.7	1.0	1.1	1.0	1.0
Private Pension Funds	0	0.2	0.1	0.1	0.1	0.1
State and Local Government Retirement Funds	1.1	0.1	0.1	0.1	0.1	0.1
State and Local Governments	1.9	1.1	1.3	1.3	1.0	0.7

SOURCE: Congressional Budget Office based on Federal Reserve Board, "Flow of Funds Accounts, Second Quarter 1993, Annual Revision" (1993).

a. The figures in this column represent holdings at the end of the second quarter of 1993.

b. Less than $100 million.

The volume of trading in municipal bonds is less than in other types of fixed-income securities. One study found that, on average, only 180 issues are actively traded each day.[16] The low level of trading occurs largely because most municipal bonds are bought by individual investors, who usually hold them as a stable source of tax-free income.[17] Moreover, given the number and wide variety of outstanding issues, the number of potential investors in some issues is small.

Municipal bonds are relatively illiquid, for several reasons. First, because they cannot be easily or cheaply bought and sold and because they trade infrequently, they do not have stable, predictable sale prices. Second, information on municipal debt is not always readily accessible to distant investors. Third, many investors prefer bonds issued in--and therefore often exempt from income taxation by--their state of residence. The latter two factors can reduce the number of investors who are willing to purchase municipal debt on the secondary market and may also explain why smaller bonds are often sold initially on local or regional markets. To interest investors who may wish to resell their investments in illiquid bonds, borrowers must pay higher interest rates. That charge reflects the higher costs faced by the holders of the securities, should they choose to resell them.

FINANCIAL SERVICES TO REDUCE BORROWING COSTS

In a market that is working well, competition often leads to innovation and the ability to provide services and products at lower costs. Consistent with that kind of development, the municipal bond market offers financial services that reduce borrowing costs and provide access to funds. Such services are readily available and have become more sophisticated in the past decade. Examples include new types of financial instruments to provide low-cost financing and a wide array of private and public pooling techniques and credit enhancements. To be successful, those services must benefit both issuers and investors, who both may be quite sophisticated.

16. The number of issues with four or more interdealer trades in a given day ranges from approximately 80 to 350 (see Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," p. 52). During a six-month period in 1991, only 40 municipal issues traded more than three times per day during a 10-day window. See Municipal Securities Rulemaking Board, "Report of the Municipal Securities Rulemaking Board on Regulation of the Municipal Securities Market" (September 1993), p. 38.

17. Testimony of Gerald McBride, Public Securities Association, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, p. 7; testimony of Andrew Kintzinger, National Association of Bond Lawyers, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, pp. 9-10.

Low-Cost Financing Techniques

Underwriters facilitate the operation of the municipal bond market and reduce borrowing costs by bringing together borrowers and investors and providing information about borrowers at a relatively low cost. Reviews of the municipal bond underwriting industry, both regional and national, indicate that it is highly competitive.[18]

Underwriters and issuers have become more adept at developing and implementing new techniques for financing debt. In the early 1970s, 60 percent of all municipal bonds were general obligations (GOs), which are backed by the taxing power of the issuer. Two decades later, revenue bonds--debt supported by a dedicated stream of revenue that often is generated by a specific project such as a turnpike or a wastewater treatment center--accounted for almost 65 percent of tax-exempt issues, even though such issues are more costly to issuers than GOs because they are usually of lower credit quality. User charges and utility fees, which often support revenue bonds, accounted for 26 percent of all state and local revenues in 1990, up from 23 percent in 1980.[19] The growth in the issuance of revenue bonds expanded the ability of municipalities to make investments in infrastructure by allowing them to use project revenues creatively and sell infrastructure debt that posed a relatively low level of credit risk.[20] As a result of that transformation, many investors and analysts have also developed increasing expertise in assessing the revenues from projects and the credit risk of revenue bonds.

In recent years, underwriters and issuers have been able to make greater use of sophisticated cost-reducing financial techniques that allow them to create debt with attributes that more exactly match the preferences of investors. Those techniques allow issuers to sell debt securities that can be redeemed before maturity, that pay interest rates that vary over time, and that pose different degrees of credit risk even when they finance the same project. Such tools allow issuers to reduce their borrowing costs--for example, by selling long-term bonds that have some characteristics of short-term debt, which allows issuers to take advantage of the lower rates charged on short-term debt. In addition, the

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18. See General Accounting Office, *Tax-Exempt Bond Issuance Costs* (1990). In fact, the average net charge for underwriting municipal issues fell from $21.42 per $1,000 in 1983 to $9.25 per $1,000 in 1992 (*The Bond Buyer 1993 Yearbook*, p. 41).

19. Stewart Simon, "Infrastructure and Economic Development: Built on Bonds," *Fitch Research Report*, October 25, 1993, p. 8.

20. The credit quality of revenue bonds issued for infrastructure has improved over the past five years. See Philip Edwards, "Infrastructure Debt Bucks Credit Quality Trend," *Standard and Poor's Municipal Credit Week*, January 11, 1993, p. 1.

use of derivative products, which permit borrowers and lenders to exchange different types of cash flows--a variable interest rate for a fixed rate, for instance--has increased.[21] Over the past decade, development and expansion of the municipal futures market--where investors can protect themselves against changes in the interest rates of municipal debt--have also allowed issuers and investors to make use of lower-cost financing techniques.

Mutual funds also offer specialized products to attract investors with varying preferences. For example, by September 30, 1993, there were 45 mutual funds with $27.6 billion in assets that sought out and invested in many municipal bonds that were above-average credit risks.[22] Many funds have been established to purchase only the municipal debt of issuers located in one state.

Private Credit Enhancements

Private credit enhancements, such as bond insurance, guarantee timely payment of the principal and interest of a bond over its lifetime. They lower the interest rates on municipal debt by substituting the higher credit rating of an insurer or a bank for the issuer's lower rating.[23] Credit enhancements also provide information to investors, especially to households, that makes the debt more marketable.[24] For example, by purchasing insurance from a nationally known firm, a smaller issuer known primarily to local investors can market its bonds more readily to national investors. Greater competition for the debt lowers the interest rates that borrowers must pay.

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21. The following discuss new municipal financing products and techniques: Thomas Vogel, Jr., "Munis Placid Turf Faces Invasion of Tigers, Other Exotic Creatures," *Wall Street Journal*, April 19, 1993, pp. C1 and C17; Aaron Pressman, "Derivative Swaps Rapidly Expanding Beyond 'Plain Vanilla'," *The Bond Buyer's Public Finance Watch*, July 26, 1993, p. 3.; William Browne, "Derivatives: A Growing Part of the Municipal Market's Future," *Municipal Finance Journal*, vol. 13, no. 4 (Winter 1992), pp. 40-61; Petersen, "Innovations in Tax-Exempt Instruments and Transactions," pp. 18-20; and Manley Mumford, "Techniques to Lower Municipal Borrowing Costs," *Municipal Finance Journal*, vol. 12, no. 3 (Fall 1991), pp. 13-31.

22. Figures were provided by Lipper Analytical Services, Inc.

23. Bond insurance is not attractive to issuers who already have a very strong credit rating. One-quarter of the insured debt that is sold with bond insurance would be eligible for only the lowest investment-grade credit rating.

24. David Kidwell and others, "Estimating the Signalling Benefits for Debt Insurance: The Case of Municipal Bonds," *Journal of Financial and Quantitative Analysis*, vol. 22, no. 3 (September 1987), pp. 299-313. The cost savings provided by insurance (through lower credit risk, increased liquidity, and fuller information) depend on how the market views the insurer and the credit quality of the underlying security. See Eli Nathans, "Municipal Bond Insurance: The Economics of the Market," *Municipal Finance Journal*, vol. 13, no. 2 (Summer 1992), pp. 1-20.

The use of private credit enhancements, principally bond insurance, has grown dramatically in recent years, as the proportion of municipal debt held by individual investors has risen. In 1982, only 8.7 percent of new issues were insured. By 1992, the proportion of insured bonds had risen to 34.5 percent; it stood at 37.5 percent by the end of 1993.[25]

Public Credit Pooling and Credit Enhancements

State and local governments have also developed various types of credit assistance and pooling techniques to reduce the issuance and interest costs on municipal bonds. Often, they lower such costs by spreading them across a pool of diversified bonds and issuing debt in larger, more liquid amounts.[26] State and local credit pooling occurs through substate credit pools, state bond banks, and state revolving funds. Local issuers that are good credit risks but that have difficulty getting into the market because of their small size or because they have not borrowed previously can combine with other jurisdictions to create a substate credit pool that obtains funds for the localities by selling its own bonds. State bond banks sell debt whose proceeds are then re-lent to smaller communities.[27] Revolving funds make loans funded by federal grants, debt issues, and repayments of earlier loans. All three forms of intermediation reduce borrowing costs by spreading risk and issuance costs, increasing liquidity, and providing financial expertise. When pooling is combined with credit enhancement, costs for local issuers may be minimized even further.

State governments also offer numerous types of credit enhancement, including a state's "moral obligation" (a less-than-full-faith credit commitment), liens on taxes and intergovernmental funds, and full-faith and credit guarantees. Those mechanisms are usually aimed at smaller, riskier issues, especially for infrastructure.[28] Most smaller and less creditworthy issuers can benefit from

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25. Aaron Task, "Muni Insurers Back Record Total Volume of Bonds; Surpassed 1992 Market Share," *The Bond Buyer*, January 11, 1994, p. 1. Another form of credit enhancement is bank letters of credit. In 1993, 3.3 percent of the dollar volume of new issues was backed by letters of credit. In 1983, the rate was 7.5 percent (*The Bond Buyer 1993 Yearbook*, p. 10).

26. See John Petersen and others, *Credit Pooling to Finance Infrastructure: An Examination of State Bond Banks, State Revolving Funds, and Substate Credit Pools* (Washington, D.C.: Government Finance Officers Association, September 1988), for a detailed discussion of state and local credit pooling.

27. For a discussion of bond bank savings, see David Kidwell and Robert Rogowski, "Bond Banks: A State Assistance Program That Helps Reduce New Issue Borrowing Costs," *Public Administration Review* (March/April 1983), pp. 108-113; and Robert Bland, "The Interest Cost Savings from Municipal Bond Insurance: The Implications for Privatization," *Journal of Policy Analysis and Management*, vol. 6, no. 2 (1987), pp. 207-219.

28. Lamb and Rappaport, *Municipal Bonds*, pp. 183-191.

state credit enhancements or credit pooling, but many states restrict or do not use all of the pooling techniques and credit enhancements available to them. (For example, historically only a small minority of states have established bond banks.)[29]

SOURCES OF MARKET INEFFICIENCY

In a well-functioning credit market, competition among borrowers, firms that provide financial services, and investors determines borrowing costs. Thus, the prices that borrowers pay for the services they need to issue debt equal the costs of producing those services, and the interest rates they pay equal the costs of the risks for investors of investing in the assets. Three attributes of the municipal debt market that the commission or other analysts have identified may either cause states and localities to pay higher interest rates than they would in an efficient credit market or prevent them from securing financing at all. First, some investors may have incomplete information about some issues and would thus provide credit in an inefficient amount. Second, the existence of segmented state and regional markets for some municipal bond issues may push up the price of credit. Third, if the municipal bond insurance industry is not competitive, as some observers allege, this could also cause rates to be too high. Yet some of the available evidence suggests--and some analysts have concluded --that those factors may not have materially diminished investment in state and local infrastructure.

Incomplete Information About Municipal Bonds

If investors do not have information about the credit quality of municipal bonds or their future resale price, they may raise the cost of providing financing above the true risk of the investment--or be reluctant to invest at all--and thus finance less than the optimum amount of infrastructure. Based on recent reviews of the market, regulators and many market experts argue strenuously that investors lack ready access to information about the credit quality of municipal debt--particularly after bonds are initially issued--and to data about recent trading in the secondary market. Some analysts and market participants, however, dispute the effect of lack of information on the costs of issuing infrastructure debt.

Availability of Information on Credit Quality. To assess the credit risk of an investment, investors must have access to information to estimate the probability

29. In 1988, only nine states had bond banks. See Petersen and others, *Credit Pooling to Finance Infrastructure*, p. 28.

of default and the likely magnitude of their loss in case of default. If investors are denied access to information about credit risk, a market in the securities may not develop.[30] If a market does develop, investors with incomplete information may require interest rates that are higher than appropriate for the actual credit risk of the debt that they are willing to buy. Investors who purchase debt on the secondary market also require information to assess credit risk. Therefore, such information must be available on a continuing basis.

Information on credit quality may not be made available to investors for several reasons. Producing and disseminating information may be expensive tasks, and potential producers may not be able to charge all those who would benefit from its availability. In addition, issuers may not release data that would raise their borrowing costs.

Yet even if credit analysts or investors had access to all of the available information on an issue, that access would neither eliminate uncertainty about the repayment prospects of projects nor ensure that all projects obtained financing. Investors, credit rating agencies, bond insurers, and issuers who all have access to the same information may still come to different conclusions about the viability of a project, particularly one that employs a method or idea that has not been attempted in the past or one that could default as a result of a single, unpredictable event, such as a decision of future legislators. An investor's judgment about the risk of such an investment may lead him or her to refuse to extend credit on terms that the issuer is willing to accept. In such cases, wider distribution of existing information would not alter market pricing or the volume of borrowing. Rather than reflecting a "market failure," these cases indicate the inherent difficulty that projects with uncertain futures face in attracting funds at rates that borrowers consider affordable.

Availability of Trading Data. To determine the interest rate that investors require to purchase debt on the primary market, the investors need information about the frequency and prices at which bonds traded in the secondary market and about the cost of making those transactions. Unlike information on credit quality, which issuers or their representatives usually provide, information on trading prices and frequencies can only be produced by market activity.

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30. The lack of a market may arise because of the so-called lemon problem. For example, if an investor is unable to determine the quality of an asset like a bond, he or she will offer a price that reflects the expectation that it is of average quality. At that price, bonds of above-average quality would not come to market because they would be underpriced, but the lemons would come to market. Indeed, the market would be dominated by lemons, and as a result, investors would avoid the market as a whole. The lemon problem exists because of an asymmetry in the distribution of information; that is, the borrower has information that the investor does not. For a summary of this problem in financial markets, see Frederic Mishkin, *The Economics of Money, Banking, and Financial Markets* (New York: HarperCollins, 1992), pp. 165-171.

Causes of Incomplete Information and Potential Effects on Municipal Borrowing. Three factors contribute to incomplete information in the municipal bond market. First, municipal bond issuers are subject to much less federal regulation than borrowers in other financial markets in regard to the dissemination of financial information. Only in 1975 did the Congress create the Municipal Securities Rulemaking Board (MSRB) and grant it the power to promulgate rules, under the supervision of the Securities and Exchange Commission (SEC), with respect to transactions in the municipal securities market. In that year, the Congress gave the SEC broad rulemaking and enforcement authority over all municipal securities brokers and dealers. However, the MSRB is not allowed to require states and localities to disclose financial information, either initially or on an ongoing basis, to the marketplace. The SEC is also prohibited from requiring municipal borrowers to file any documents prior to the sale of a municipal security. The SEC does require underwriters of municipal offerings to obtain and distribute certain financial information to their customers; however, municipal issuers are not subject to any direct federal requirements regarding continuing disclosure.[31]

The SEC and the MSRB have recently examined existing disclosure requirements in the municipal bond market and presented their findings and recommendations for reform.[32] The SEC found that a lack of continuing disclosure by issuers may lead to ill-informed pricing of some bonds in the secondary market, which could result in higher borrowing costs for some issuers.[33] (Some market participants as well argue that limited secondary market disclosure may raise costs for issuers.)[34] The MSRB has also concluded that additional continuing disclosure could lead to lower borrowing costs for some municipalities.[35] Although the SEC study found that its regulations, combined with voluntary municipal efforts, had substantially improved initial disclosure for large issuers, it argued that some smaller, less

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31. For a discussion of regulation in the municipal bond market, see Securities and Exchange Commission, "Staff Report on the Municipal Securities Market"; and Municipal Securities Rulemaking Board, "Report of the Municipal Securities Rulemaking Board."

32. The SEC and MSRB have also examined a number of other issues including political contributions from underwriters. These issues and the general subject of "investor protection," however, are outside the scope of this study. The Congress has held hearings on these efforts; see testimony before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, on September 9 and October 7, 1993.

33. Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," pp. 27-28.

34. For example, see the testimony of Gerald McBride, October 7, 1993, p. 5.

35. Municipal Securities Rulemaking Board, "Report of the Municipal Securities Rulemaking Board," pp. 72-73.

frequent issuers disclosed information at initial offerings that was less than complete.[36]

A second factor leading to incomplete information is that data on the last bids received on bonds or on executed trades are usually not available to all investors.[37] A third factor is the nature of the market--a preponderance of small, inactively traded bonds sold by thousands of infrequent, small borrowers--which makes it difficult and expensive to collect and maintain data on most issues.

Still, some analysts and data suggest that the current availability of information on credit quality in the municipal bond market may not significantly reduce the amount of investment in municipal infrastructure. Several market experts argue that the bonds, particularly small ones, about which there is less than adequate initial and ongoing market information are typically health care, industrial development, housing agency, and other bonds in which the ultimate payor of the debt is a corporation or another nongovernmental entity.[38] Those bonds do not support public infrastructure projects.

There is also some evidence that financial information is available on most bond issues and that the market uses this type of information to determine borrowing costs. For example, information is reportedly available to the marketplace both initially and on a continuing basis on the issues that constitute 80 percent of the municipal debt that comes to market each year.[39] Moreover, as noted earlier, in the absence of nationally mandated disclosure, regional and local firms have developed methods to collect and disseminate data on credit quality to meet customer needs.[40] Some research indicates that institutional investors and intermediaries may be efficient in pricing municipal debt in the primary and secondary markets.[41] In addition to directly assessing the credit

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36. Securities and Exchange Commission, "Staff Report on the Municipal Securities Market," pp. 26-27.

37. Ibid., p. 20.

38. See John Petersen, *Information Flows in the Municipal Bond Market: Disclosure Needs and Processes* (Washington, D.C.: Government Finance Officers Association, 1989), p. 39; and Blue Ribbon Committee on Secondary Market Disclosure, *Report to the National Association of State Auditors, Comptrollers, and Treasurers on Improving Secondary Market Disclosure* (Washington, D.C.: National Association of State Auditors, Comptrollers, and Treasurers, August 1993), p. 1.

39. Blue Ribbon Committee on Secondary Market Disclosure, *Report*, p. 1.

40. See testimony of Andrew Kintzinger, October 7, 1993, p. 11.

41. See Robert Lamb, "The Secondary Market: Trading Municipal Bonds," and "The Primary Market: Underwriting Municipal Debt," in Robert Kuhn, ed., *Corporate and Municipal Securities* (Homewood, Ill.: Dow Jones-Irwin, 1990), p. 819 and pp. 805-807, respectively; and Richard Tauber, "Efficiency in the Municipal Market," in George Kaufman, ed., *Efficiency in the Municipal Bond Market* (Greenwich, Conn.: JAI Press, 1981), p. 229.

quality of the municipal debt they purchase, investors can use credit ratings--credit rating agencies rated about 90 percent (by volume) of all debt sold during the 1980-1991 period--and credit enhancements to provide them with information about credit quality.[42] Finally, some issuers argue that the market is satisfied with the amount of information on credit quality that is now available because investors do not set higher rates for issuers that currently disclose less information than others.[43]

Some analysts suggest that a lack of data on the trading of infrastructure debt may not lead to an inefficient amount of investment in infrastructure. The small amount of trading data on infrastructure bonds, as noted, may simply reflect the absence of trades in bonds that many investors prefer to hold to maturity. In addition, some information is available through private firms--especially firms that act as brokers for other broker-dealers--that specialize in collecting and disseminating data to institutional buyers and sellers on trading activity in the secondary market.

Segmentation of the Market for Some Issues

In efficient financial markets, the risk-adjusted, after-tax returns on all assets are equal, after deducting administrative costs. But some debt markets are segmented; that is, interest rates vary by geographic location. In the case of the municipal bond market, several studies indicate that it is segmented by region, especially for smaller issues. That means that an increase in the relative demand for funds by issuers of a certain class in a region can increase regional and local borrowing costs relative to nationwide costs.[44] One factor leading to

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42. J.J. Kenny Co., Inc., *Municipal Bond Defaults*, p. 23. The use of credit ratings and independent assessment of credit quality in the municipal bond market is reviewed in John Capeci, "Credit Risk, Credit Ratings and Municipal Bond Yields: A Panel Study," *National Tax Journal*, vol. 44, no. 4 (December 1991), pp. 41-56. R. Marquette and E. Wilson, "The Case for Mandatory Disclosure: Do Seasoned Municipal Bond Yields Impound Publicly Available Information?" *Journal of Accounting and Public Policy*, vol. 11 (1992), pp. 181-206, found that market prices reflected publicly available information, which they judged to be less complete and disclosed in a less timely manner than in other markets.

43. Testimony of Jeffrey Green, October 7, 1993, p. 9.

44. See Patric Hendershott and David Kidwell, "The Impact of Relative Security Supplies," *Journal of Money, Credit, and Banking*, vol. 10, no. 3 (August 1978), pp. 337-347; David Kidwell and others, "The Impact of State Income Taxes on Municipal Borrowing Costs," *National Tax Journal*, vol. 37, no. 4 (December 1984), pp. 551-561. As a result of market segmentation, credit enhancement programs that increase the supply of higher-quality

segmentation is that funds may be restricted in a particular geographic region, in part because investors outside the area have less immediate access to information on local investments and are therefore less willing to risk investing in them. But the one major cause of segmentation is that investors prefer to buy municipal bonds issued in their own states so as to take advantage of the exemption from income taxes that many states offer on local municipal bonds.[45] Because those state-specific tax exemptions also lower the borrowing costs for state and local borrowers, it is not clear that they negatively affect borrowing for infrastructure.[46]

Researchers have also argued that the municipal bond market has been segmented by maturity. Studies found that in the early and mid-1980s, banks chose to purchase short-term municipal bonds to match the maturity of their liabilities, even though longer-maturity bonds paid higher interest rates. But issuers could not take advantage of the lower borrowing costs on short-term debt because they were legally prohibited from using it to finance long-term projects.[47] As a result, they paid higher interest rates than they would have if the maturity preferences of lenders and issuers had matched more closely. Some analysts argue that the Tax Reform Act of 1986 significantly reduced maturity segmentation by encouraging a drop in bank holdings of municipal debt and leading to the entry of households into the short- and intermediate-term parts of the market.[48] New financing techniques could also help lessen maturity segmentation by allowing long-term bonds to pay short-term rates. However, some observers claim that factors inherent in the different maturities, such as the

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bonds in a state may raise the cost of borrowing for other higher-quality issues. See L. Hsueh and David Kidwell, "The Impact of State Bond Guarantees on State Credit Markets and Individual Municipalities," *National Tax Journal*, vol. 41, no. 2 (June 1988), pp. 235-245.

45. Allen Proctor and Julie Rappaport, "Federal Tax Reform and the Regional Character of the Municipal Bond Market," *Federal Reserve Bank of New York Quarterly Review* (Autumn 1985), pp. 6-15. Another cause of segmentation may be the cash management practices of states and localities. See R. Forbes and P. Leonard, "The Effects of Statutory Portfolio Constraints on Tax-Exempt Interest Rates," *Journal of Money, Credit, and Banking*, vol. 16, no. 1 (February 1984), pp. 93-99.

46. Mary Lovely and Michael Wasylenko, "State Taxation of Interest Income and Municipal Borrowing Costs," *National Tax Journal*, vol. 45, no. 1 (March 1992), pp. 37-52, found that exempting residents from state personal income tax on the interest on in-state municipal bonds reduced borrowing costs. The authors also found, however, that one-half of a state's debt must be held by nonresidents for revenue losses to equal interest savings.

47. Discussions of maturity segmentation can be found in David Kidwell and Timothy Koch, "Market Segmentation and the Term Structure of Municipal Yields," *Journal of Money, Credit, and Banking*, vol. 15, no. 1 (February 1983), pp. 40-55; and Levis Kochin and Richard Parks, "Was the Tax-Exempt Bond Market Inefficient, or Were Future Expected Tax Rates Negative?" *Journal of Finance*, vol. 43, no. 4 (September 1988), pp. 913-931.

48. Peter Fortune, "The Municipal Bond Market. Part I: Politics, Taxes, and Yields," *New England Economic Review* (September/October 1991), pp. 19-20.

tax risk of owning a long-term bond, continue to lead to some maturity segmentation.[49]

Competition in the Municipal Bond Insurance Industry

A competitive municipal bond insurance industry is important to an efficient level of state and local investment in infrastructure. If municipal bond insurers did not compete, they could set prices that were higher than their costs. As a result, borrowers would buy too little insurance and might finance an inefficiently low amount of infrastructure.

Evidence on competition in the municipal bond insurance industry is mixed. On the one hand, the industry is highly concentrated, with three firms insuring 91 percent of the bonds that are sold with insurance. Market concentration is a common measure of competition in a market. As part of their broader assessments of market competition, the Department of Justice and Federal Trade Commission use the Herfindahl-Hirschman Index (HHI), which calculates industry concentration by summing the squared market shares of all firms in the industry. In general, the two agencies regard an industry with an HHI of 1,800 as being heavily concentrated.[50] The municipal bond insurance industry had an HHI of 2,839 in 1992 (see Table 4). In addition, some analysts suggest that investors' belief in the high quality of the insurance issued by established firms--which comes from their reputations and level of capitalization --makes it almost impossible for new firms to enter the industry and succeed.

On the other hand, several attributes of the municipal bond insurance industry are consistent with the view that it is competitive:

- The premiums charged by municipal bond insurers have been declining, as a consequence of what many analysts believe is increasing price competition.[51]

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49. William Browne, "Derivatives: A Growing Part of the Municipal Market's Future," *Municipal Finance Journal*, vol. 13, no. 4 (Winter 1992), pp. 46-47 and 56-57.

50. For a discussion of the index and its use by the agencies, see Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines* (April 2, 1992).

51. Thomas McLoughlin and Catherine Holstein, "Does Bond Insurance Make Sense?" *Government Finance Review* (December 1989), pp. 37-38; and Kemper Securities, Inc., *1993 Bond Insurance Company Comparison* (Chicago: Kemper Securities, Inc., August 1993), p. 5. Petersen, "Innovations in Tax-Exempt Instruments and Transactions," p. 27, also finds that prices in the market are set through "intense competition." One industry analyst notes that premium rate competition in the industry will limit the industry's profitability; see Mark Cohen, "Bond Insurers Smash Records," *Fitch Research*, September 13, 1992, pp. 1 and 3.

- Financial institutions offering other forms of guarantees, such as letters of credit, compete with municipal bond insurers. State credit enhancements also compete to a limited extent, and issuers have the option as well of not buying any credit enhancements. If premiums were being set above the cost of bearing the risk of default, it would pay some borrowers to go to market without bond insurance or to take additional steps to reduce the credit risk of their bonds. Pension funds may be able to obtain the credit rating needed to compete with existing bond insurers.[52]

- As Table 4 indicates, market shares among the three largest bond insurers have fluctuated over time, which is usually consistent with competition.

- Firms have successfully entered the industry recently. Some smaller firms are also taking steps--such as receiving additional credit ratings and selling equity to the public--to increase their capacity to compete.

The difficulty that new entrants into the industry have in competing with existing firms is not necessarily evidence of a lack of competition. Competing with firms that are well run and able to back up their insurance pledge is an arduous task and may lead firms to stay away or to leave an industry. The small number of firms may reflect their economies of scale and cost-effective production rather than inefficient pricing. There is no evidence that firms with large amounts of capital and established reputations could not enter the industry and compete successfully. Rather than reflecting barriers, the slow rate of entry into the industry may signal that competitive pricing has dampened the incentives for firms to enter the market.

Yet not even a highly competitive market results in every municipal borrower's being able to buy insurance at a price that it finds acceptable. For example, the premium that a bond insurer must charge for a smaller, riskier issue may outweigh the benefits to the borrower of buying the insurance. A bond insurer's premium must cover its costs as well as allow it to earn a market rate of return and maintain a triple-A credit rating. In particular, insurance premiums for risky issues must account for their higher risk of default, their higher probability of being downgraded below investment grade, the additional cost of underwriting the bonds, and the higher level of capital that the rating agencies require insurers to hold when they insure riskier debt. Premiums will also be higher for smaller bonds because the insurer's fixed costs will be spread over a smaller amount of debt service.

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52. See Aaron Task, "In 1994, Insurers Face Increased Competition and Diversification," *The Bond Buyer*, December 28, 1993, p. 15.

TABLE 4. MARKET SHARES OF BOND INSURERS, 1986-1992 (In percent)

	1986	1987	1988	1989	1990	1991	1992
MBIA	38.49	34.97	31.07	38.54	38.48	36.12	32.70
AMBAC	26.53	17.96	30.24	30.92	30.14	31.55	31.91
FGIC	28.49	27.16	21.21	17.67	23.92	25.23	26.76
FSA	0	0.05	1.10	0.06	5.12	4.26	5.57
Bond Investors Guaranty[a]	6.48	18.97	15.48	10.32	0	0	0
Capital Guaranty	0	0.90	0.90	2.50	2.33	2.69	1.88
Asset Guaranty	0	0	0	0	0.02	0.13	0.23
Connie Lee	0	0	0	0	0	0.02	0.95
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Insured Amount (Billions of dollars)	23.1	18.4	26.8	30.5	32.9	51.4	79.8
Herfindahl-Hirschman Index[b]	3,039	2,644	2,571	2,866	2,992	2,962	2,839

SOURCE: Congressional Budget Office based on *The Bond Buyer Yearbook* (New York: Thompson, 1993, 1992, 1990, 1989, and 1988).

NOTES: MBIA = Municipal Bond Investors Assurance Corporation; AMBAC = AMBAC Indemnity Corporation; FGIC = Financial Guaranty Insurance Company; FSA = Financial Security Assurance Incorporated; Connie Lee = College Construction Loan Insurance Association.

Numbers may not add to totals because of rounding.

a. Bond Investors Guaranty was acquired by MBIA in 1990.

b. The Herfindahl-Hirschman Index calculates industry concentration by summing the squared market shares of all firms in the industry.

A generally competitive market--especially one such as the municipal bond insurance market that falls short of the stylized perfectly competitive market--does not preclude additional competitive pressures from further reducing prices. For example, a firm that could provide insurance at a lower cost or become better informed about some types of bonds that the industry does not now insure could conceivably earn long-run profits comparable to those earned by other firms in the industry, which would put additional pressure on industry pricing.

HOW THE COMMISSION'S PROPOSALS WOULD ADDRESS THE CAUSES OF INEFFICIENCY IN THE MUNICIPAL DEBT MARKET

The commission's proposals are not directed at the three major sources of inefficiency that its members and other analysts have identified in the municipal debt market (incomplete information, market segmentation, and a lack of competition in the bond insurance industry). It is doubtful, therefore, that the proposals would improve the market's allocation of funds.

Incomplete Information

The commission's proposals would not address concerns about a lack of disclosure of information and trading data that have been raised and are being addressed by the SEC and MSRB. (Market participants are also recommending steps to resolve concerns about a lack of disclosure.)[53] The NIC would work with issuers to package relevant data about their projects and provide information to investors. But the NIC and IIC would do nothing to remove any structural obstacles to the dissemination of information about the risk of infrastructure bonds. In addition, the NIC and IIC would be no better informed about completely new types of projects than their sponsors or other potential investors.

The NIC and the IIC could produce new information that investors could use to price the credit risk of future infrastructure bonds more accurately. For example, in financing bonds that are not now financed by the private sector, both corporations would generate new information about the performance of such debt. Private firms might be able to use those data to price the credit risk of such projects more accurately in the future.

In total, however, the NIC and IIC would finance a relatively small number of large, heterogeneous projects. That focus could mean that information on the performance of the bonds financed by the corporations would be of little use to investors, who must rely on the specific characteristics of each new project when assessing the risk of financing it. Furthermore, the cost of producing the new information might be much greater than its benefits. Of course, if the NIC and IIC ultimately financed projects similar to those already being financed by the market, they would not produce new information.

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53. See, for example, American Bankers Association, Corporate Trust Committee and others, "Joint Statement on Improvements in Municipal Securities Market Disclosure" (American Bankers Association, Washington, D.C., December 20, 1993), pp. 1-9.

Market Segmentation

The commission's proposals would not directly reduce the regional segmentation of the market for municipal infrastructure bonds. States could continue their practice of taxing the interest on debt issued in other states while exempting the interest on debt issued by municipalities within their borders, which is a primary cause of segmentation. In addition, under the commission's proposals, the NIC and IIC would not target projects in smaller, segmented markets as a way of lessening segmentation. Finally, the tax break for participants in qualified pension plans proposed by the commission would not work to dispel segmentation in the market. It would still be cheaper for issuers to sell the current tax-exempt bonds in a segmented part of the market than to switch to issuing the new type of debt that benefited from a tax break for pension participants.

Competition in the Bond Insurance Industry

Although the municipal bond insurance industry is highly concentrated, there is some evidence that prices are set in a competitive manner. As a result, the federal government has no strong efficiency justification for creating and investing in the IIC. That finding does not mean that the IIC would not benefit some issuers. Rather, it suggests that alternative uses of society's resources might produce more benefits. In any case, existing state or federal regulatory powers should be used to correct noncompetitive behavior by firms if competition is weak. However, for those firms performing "the business of insurance" that are subject to state regulation, the McCarran-Ferguson Act exempts them from federal anti-trust law for activities that do not involve boycott, coercion, and intimidation.[54]

54. See Henry Cohen, *The McCarran-Ferguson Act's Exemption of the Business of Insurance from Federal Antitrust Law* (Congressional Research Service, 1990).

CHAPTER III

THE COMMISSION'S PROPOSALS AND RESOURCE ALLOCATION

States and localities are reluctant to build infrastructure projects whose benefits "spill over" into other jurisdictions. The National Infrastructure Corporation and the Infrastructure Insurance Company proposed by the Commission to Promote Investment in America's Infrastructure would improve the allocation of economic resources if they induced states and localities to build infrastructure projects that they would not otherwise build because of spillovers. Yet the commission's proposals for the NIC and IIC would not address spillover problems. Unless the proposals were financed with reductions in other federal spending or tax subsidies, their main effect would be to absorb funds that would otherwise be allocated to private investment. However, there is reason to believe that the alternative investments that the private sector would finance would have greater benefits to society than the investments financed by the commission's proposals. The principal effect of its proposals, therefore, would probably be to redistribute income.

To achieve the goals of the commission, policymakers could choose to finance the activities of the NIC and IIC with funds that would otherwise be spent on existing federal grants to finance state and local infrastructure. However, the commission's general objectives of encouraging projects financed with user fees and requiring state and local governments to pay a larger proportion of project costs could be achieved more simply by modifying existing federal grant programs or pricing policies (such as user fees) for existing infrastructure facilities. Moreover, it is not clear that the investments made by the corporations would enhance the allocation of resources more than the investments that would otherwise be financed by grant programs.

SPILLOVERS AND THE ALLOCATION OF RESOURCES TO STATE AND LOCAL INFRASTRUCTURE

Investment in infrastructure may be less than optimal if the projects produce benefits that spill over to people who do not help to finance the facilities. For example, a proposed wastewater treatment plant financed by a town might produce a large amount of benefits, some of which accrue to the town's residents and some of which accrue to residents of other communities. If the town's residents faced the prospect of paying all of the costs of the plant but not receiving all of the facility's benefits, the town might decide to invest less than the socially optimal amount and not build the facility. In the decentralized U.S.

system of state and local government, taxpayers in one political jurisdiction may be unwilling to invest in infrastructure if they cannot arrange for residents of other jurisdictions to pay for the spillover of benefits that the latter enjoy.[1]

Jurisdictions can approach the problem of spillovers in several ways, all of which help to prevent localities from demanding a less-than-optimal amount of infrastructure. First, a governmental entity with a broader jurisdiction can tax those who would otherwise receive such benefits without paying for them. For example, a state government can collect monies from residents of a county to subsidize construction of a project in another county that benefits the first county's residents. The subsidies can be provided by direct state grants or less directly through state-subsidized credit enhancements or credit pooling. With the beneficiaries of spillovers paying for the benefits that they receive, the investment in infrastructure is closer to the socially optimal level. Second, states and localities can jointly finance projects that benefit multiple jurisdictions. The Washington Metropolitan Area Transit Authority is an example of such an approach. Third, a jurisdiction that builds a facility--for example, a toll road--may be able to directly charge users who reside elsewhere for the benefits they receive from the project. Indeed, charging user fees to address spillovers mitigates the need for subsidies from higher levels of government.

The level of municipal infrastructure may also be too low if elected officials have incentives to prefer spending that produces short-term benefits. Short-term preferences could dominate if voters think they will not be residing in a jurisdiction long enough to receive benefits commensurate with the costs of long-term projects or if short-term programs produce greater benefits for elected officials. Municipalities, however, usually try to match debt-service payments with a project's long-term benefits by financing the project with long-term debt. Thus, the possibility that residents would be forced to pay all of the costs of a long-lived project in the first years of its existence would not adequately explain why voters reject such projects. Although elected officials may reap benefits from supporting short-term programs, capital projects also offer advantages--jobs and prestige, for example--that would make infrastructure spending attractive. Those advantages may help to explain why municipal capital spending has increased in recent years during a period of scaled-down budgets.[2]

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1. The phenomenon of "public goods" is often used to explain why the government and not the private sector initially undertakes certain types of investment or service provision. The defining characteristics of a public good--such as clean air--are that one person's consumption does not limit another person's use and that producers cannot economically deny consumption to those who do not pay for the good.

2. See John Petersen, "A Star Amid the Fiscal Gloom," *Standard and Poor's Creditweek*, February 4, 1991, p. 58.

EFFECTS OF THE ACTIVITIES OF THE NIC AND IIC

The NIC and the IIC would be unlikely to produce a more desirable allocation of resources, for three reasons. First, as detailed in Chapter II, their activities would be unlikely to increase the efficiency of the municipal debt market. Second, although spillovers might lead state and local governments to underinvest in infrastructure, the NIC and IIC could not address or resolve that problem. The corporations could not tax those who benefit from spillovers but who do not pay for the capital projects. Moreover, they would have no mandate to attempt to subsidize projects with spillover benefits. In fact, the commission proposed that the NIC assist projects that had the potential to be self-supporting through direct fees paid by users. Such projects would be unlikely to have spillover benefits that would justify assistance from the federal government on the grounds of enhancing efficiency.

For example, the commission identified several local toll road projects as worthy of federal assistance. The benefits of such projects would seem to accrue to toll payers and those people in the projects' immediate areas. If spillovers on a multistate or multicity level develop from the infrastructure projects that the commission argued should be funded, states or localities can join together (without federal assistance) and use taxes and subsidies to correct such problems.[3]

A third reason that the NIC and IIC are unlikely to improve the allocation of resources is the disputable assumptions on which the commission based its proposals. Many analysts do not subscribe to the commission's view that economic output would be enlarged by significant increases in public infrastructure spending for many types of projects at the expense of alternative investments. As Box 4 discusses, some of the studies of the nation's infrastructure needs that the commission cited tend to systematically overstate how much infrastructure spending the country requires. Moreover, strong evidence indicates that only a limited set of new infrastructure projects would provide greater returns than alternative investments and that high returns could be achieved at much lower cost by improving the pricing of existing facilities.

3. Some empirical research has found a lack of large interstate spillovers. See Douglas Holtz-Eakin, "New Federal Spending for Infrastructure: Should We Let This Genie Out of the Bottle?" *Jerome Levy Economic Institute Public Policy Briefs*, no. 4 (1993), p. 38.

BOX 4.
THE NEED FOR AND ECONOMIC RETURNS OF GREATER INFRASTRUCTURE INVESTMENT

The Commission to Promote Investment in America's Infrastructure argued that a wide gulf exists between the current level of spending on public infrastructure and the nation's needs. The changes in policy that it proposed were intended to eliminate that gap by encouraging a large increase in the amount of infrastructure spending. Its proposals, however, make two assumptions that are inaccurate or exaggerated. First, the size of the infrastructure "gap" that the commission takes for granted is probably overstated. Second, substantial investments in new public physical infrastructure are not likely to generate higher economic returns than alternative private investments.

Some of the "needs" and "use" that the commission cites tend to overstate the spending required for infrastructure for a number of reasons. First, they usually reflect the cost of repairing facilities to a given engineering standard, regardless of whether the benefits exceed the costs involved. As a result, the studies often suggest that a project is needed even if its costs outweigh its benefits. Second, the studies usually ignore the potential savings that can be achieved by using existing infrastructure more productively and thus base future needs on the current misuse of existing structures. Third, they often inflate required spending by assuming that both technology and existing pricing policies will remain unchanged. Fourth, support for the existence of a large infrastructure gap is often based on historical spending patterns or comparisons with other countries, even though the optimal level of spending for public works should vary with the structure of a nation's economy. It is possible that the United States does not need as much investment in traditional physical infrastructure as it once did. Finally, some analysts criticize needs studies as depending on unreliable, unverifiable data. Such studies often produce "wish lists" rather than measures of economic demand.

To increase investment in public infrastructure, resources must be diverted from other potential uses. The commission apparently believed that the large increase in investment that it proposed would produce more benefits than alternative uses of the same resources. In fact, there is little evidence to suggest that substantially increasing spending for a wide variety of public infrastructure would produce higher returns than the spending it would displace. Supporters of large increases in infrastructure spending often justify their view by pointing to studies that indicate that public capital investment is much more productive than private capital investment. However, reviews of such studies suggest that their findings are probably flawed because of problems with data, statistical techniques, and faulty interpretations of results.

Certainly, the existing stock of physical infrastructure has provided important benefits, and some new investments could produce returns that would be greater than the average return on private capital. As a rule, the highest level of benefits would result from maintaining existing infrastructure and building select new facilities in congested urban areas. However, much of the benefit generated by additional investments could be achieved at much lower cost by altering pricing through such means as charging users of infrastructure a higher price during times of congestion and charging users a fee based on the damage they cause to the facility or structure.

SOURCES: Congressional Budget Office, *How Federal Spending for Infrastructure and Other Public Investments Affects the Economy* (July 1991), and *New Directions in Public Works* (September 1988), Appendix; Office of Management and Budget, *Supplement to Special Analysis D* (February 1985); and "Whatever Happened to the Infrastructure Crisis?" *Governing* (July 1993), pp. 59-67.

EFFECTS OF INCREASING TAX SUBSIDIES

The changes in federal tax policy that the commission recommended to subsidize municipal infrastructure borrowers would increase the flow of investment to infrastructure projects. Yet there is reason to believe that the subsidies provided by the current exemption--interest on most municipal debt is not subject to income tax--may already distort resource allocation and lower economic output. One reason for that belief is that the tax subsidy is not restricted to bonds that finance projects with spillovers. In addition, even if the subsidy were going to projects with spillovers, its parameters are not set to correct for the inefficiencies that spillovers cause.[4] Exempting municipal bonds from federal income taxes encourages municipalities to allocate resources in favor of capital spending over noncapital spending--such as for public safety--which residents may value more.[5] Providing additional tax subsidies for infrastructure borrowing would increase those potential biases without improving the allocation of resources.[6]

Some analysts suggest that exempting municipal debt from income taxes actually increases economic efficiency by encouraging local governments to fund projects in a market that provides fiscal "discipline." But state and local governments would still go to the debt market to finance needed infrastructure if the tax exemption did not exist. In fact, by far the most important sources of discipline of municipal spending are state and local residents and infrastructure

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4. For a discussion of the inefficiency of untargeted interest rate subsidies, see Irene Lurie, "A Note on the Inefficiency of Interest Subsidies," *National Tax Journal*, vol. 35, no. 4 (December 1982), pp. 491-495. Dennis Zimmerman, *The Private Use of Tax-Exempt Bonds* (Washington, D.C.: Urban Institute Press, 1991), pp. 106-109, finds little evidence to support efficiency rationales for the tax subsidy.

5. Some economists hold the alternative view that the tax exemption does not have any significant effect on municipal investment because it does not lower borrowing costs. These economists argue that the tax exemption does not affect the costs of funds for a municipality as long as the tax rate of the marginal investor in municipal bonds equals the tax rate faced by the municipal resident. See Roger Gordon and Gilbert Metcalf, "Do Tax-Exempt Bonds Really Subsidize Municipal Capital?" *National Tax Journal*, vol. 44, no. 4 (December 1991), pp. 71-79. Another analyst argues that the tax exemption still subsidizes municipal investment even if it provides no subsidy for debt finance. See Peter Fortune, "On the Tax Subsidy for Municipal Investment," Working Paper 93-04 (Tufts University, Department of Economics, 1993).

6. For example, Peter Fortune, "The Municipal Bond Market. Part II: Problems and Policies," *New England Economic Review* (May/June 1992), compares the current policy with a perfectly competitive economy without subsidies and estimates that the efficiency loss from the federal tax exemption for municipal debt was $3.5 billion for the 1980-1985 period. An earlier study found that the tax exemption reduced output $14 billion in 1975 relative to an economy with an optimal allocation of resources. See Peter Fortune, "Tax Exemption and Resource Allocation: Implications for Prices, Production and Factor Choice," *Public Finance Quarterly*, vol. 12, no. 3 (July 1984), pp. 347-364. Roger Gordon and Joel Slemrod, "A General Equilibrium Simulation Study of Subsidies to Municipal Expenditures," *Journal of Finance*, vol. 38, no. 2 (May 1983), pp. 585-594, found very small gains in the benefits to society from eliminating the tax-exempt status of municipal bonds.

users. (Governments cannot finance projects with municipal debt or general tax revenues if taxpayers and users do not support the investments.)

The commission's recommendation to create a new tax break for participants in qualified pension plans that invest in eligible infrastructure securities would subsidize projects that are not currently considered public in nature and, because of legal restrictions, not presently allowed to use tax-exempt municipal debt for financing. These restrictions were put in place after the early 1980s, when the strategy of financing private activities through tax-exempt municipal bonds negatively affected traditional infrastructure projects by crowding out state and local capital spending and causing borrowers for public-purpose projects to pay much more in interest costs to attract funds.[7] In response, the Congress developed the current definition of private activities and set out restrictions on the tax-exempt financing of them to limit the ability of private firms to benefit from the subsidy generated by the tax exemption. There is evidence that some of those restrictions reduce neither spending for infrastructure nor the benefits that the public receives.[8]

The problem of financing private activities through tax-exempt bonds might also exist in the commission's proposal for targeting new tax subsidies toward debt used to finance environmental and transportation projects. The commission maintained that this exemption would apply if the projects had substantial benefits for the general public, notwithstanding the private-sector participation in the project. But the commission neither defined what it meant by substantial public benefits nor offered criteria for distinguishing them from the benefits that would accrue to private firms from lowering their borrowing costs.

The changes in tax law that the commission proposed would reduce federal revenues and increase the budget deficit. Easing the current restrictions on issuing tax-exempt bonds would reduce federal revenues by increasing the volume of outstanding tax-exempt debt. The new tax subsidy for qualified pension plans would reduce federal revenues when the plans distributed the investment income attributable to the infrastructure securities they held. Although some of the losses in revenue from both proposals would occur in the

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7. See Zimmerman, *The Private Use of Tax-Exempt Bonds*, pp. 92 and 267.

8. For example, the General Accounting Office (GAO), in its report *Environmental Infrastructure: Effects of Limits on Certain Tax-Exempt Bonds* (1993), found that the volume cap on private-activity bonds noted in Box 2 on page 13 of this paper did not appear to reduce overall investment in environmental infrastructure. Another GAO report, *Industrial Development Bonds: Achievement of Public Benefits Is Unclear* (1993), found it doubtful that private-activity bonds financing industrial development created new public benefits.

next few years, most of the increases in the federal deficit would occur in the next century.

Another aspect of the commission's proposal is the substantial administrative costs that would be associated with implementing the proposed new tax break for qualified pension plans. The Internal Revenue Service (IRS) would have to promulgate and enforce regulations that required individuals who participated in qualified plans to maintain accounting records that distinguished between income earned from investing in infrastructure securities and income from other assets that would be subject to federal income tax. If the IRS did not require such records, individuals might attempt to evade taxes on the distributions from qualified plans by shifting their funds into infrastructure securities shortly before they retired.

Some of the commission's tax proposals should also be considered in a broader context. For example, the proposals to modify the current arbitrage rebate requirement and small issuer limits may or may not be as compelling for bonds that finance schools and prisons as they are for infrastructure. A broader analysis would consider the significant costs of administering and enforcing the proposed changes in law and the costs to bond issuers of adhering to the restrictions.[9]

ENCOURAGING INVESTMENT BY PENSION FUNDS IN MUNICIPAL INFRASTRUCTURE

The major feature of the commission's charge was to determine how to increase investment by pension funds in municipal infrastructure. Yet the low level of pension fund investment in municipal bonds does not appear to prevent states and localities from financing investments in infrastructure, and there is no evidence of a shortage of funds in the municipal debt market.[10] As noted in

9. Such a review could consider another argument. Some municipal bond professionals argue that the current absence of banks from the municipal market, in which previously they acted as buyers of last resort, may lead to steep price declines and market instability if individual investors who now dominate the market sell off their holdings. Thus, to encourage market stability, those experts support restoring some of the tax-exempt features of municipal debt repealed in 1986. See the testimony of Andrew Kintzinger, National Association of Bond Lawyers, before the Committee on Energy and Commerce, Subcommittee on Telecommunications and Finance, October 7, 1993, p. 5. Richard Lehmann of the Bond Investors Association, in his testimony before the Subcommittee on Telecommunications and Finance, October 7, 1993, pp. 4-5, also discusses the potential instability of the market.

10. William Chew, managing director of Standard and Poor's, argued, for example, in his testimony before the commission on September 25, 1992, that it was voter and user resistance and, ultimately, limits on household budgets, rather than insufficient financial capital, that restricted the ability of municipalities to borrow to finance infrastructure projects.

Chapter II, the volume of outstanding debt in this market exceeds a trillion dollars.

In fact, federal tax subsidies are the cause of the low level of investment by pension funds in municipal infrastructure. Pension plans hold little municipal debt because policymakers have already exempted income on their investments from federal income tax and because nearly all municipal debt is also tax-exempt. Thus, the plans prefer to invest in taxable bonds, which pay higher interest rates than tax-exempt ones. As Chapter II discusses, municipalities minimize their borrowing costs by issuing tax-exempt debt. To attract pension funds, states and localities could issue taxable debt, but taxpayers and infrastructure users would be reluctant to pay for interest rates that were higher than necessary.

Policymakers could induce pension plans to increase the supply of funds in the municipal debt market by reducing federal tax subsidies for municipal borrowers. Repealing the current tax exemption for infrastructure bonds would induce states and localities to issue taxable debt. Then, pension plans would probably purchase a portion of highly rated municipal bonds, such as those insured by bond insurance firms. The commission did not propose this option, however, almost certainly because the increase in the interest payments of infrastructure borrowers caused by taking away the subsidies provided by the current tax exemption would be greater than the reduction in rates from pension fund purchases of taxable bonds. The commission could also have called for eliminating the tax break on assets held by pension funds in order to increase their investment in municipal debt. Instead, the commission proposed that federal tax subsidies to pension plans be increased to induce the plans to supply more funds to municipal infrastructure borrowers. As argued earlier, those additional subsidies could further distort decisions about investment.

OVERALL EFFECTS OF THE PROPOSALS ON RESOURCE ALLOCATION

In summary, the commission's proposals would shift resources in a manner that is unlikely to improve resource allocation. It is doubtful whether the proposals would improve pricing in the municipal debt market or induce state and local governments to demand a superior amount and mix of infrastructure. Municipalities would be able to finance more infrastructure with debt because of the new federal subsidies they would receive from the NIC and the changes in the tax laws. The proposals would not increase the pool of savings available for investment, however, and as a result would divert funds from alternative uses, such as investment in private entities and activities. Moreover, the new

investments would probably yield a lower level of benefits than the alternative investments they displaced because the decisions to produce and invest in the new facilities would be distorted by federal subsidies. If the new investments had lower economic returns than alternative investments, they would produce fewer benefits for society. As a consequence, the principal economic effect of the commission's plan would probably be to reduce and redistribute income. Those who gained from increased federal subsidies would benefit at the expense of others whose income declined because of higher federal taxes or lower economic output.[11]

Arguments for and against the commission's proposals parallel the above conclusions about their potential economic effects. On the one hand, the proposals can be supported on grounds other than their effects on resource allocation. For instance, some policymakers may believe that the initiatives would alleviate inequities in the current distribution of income among communities. Others may assert that the preferences of state and local officials, voters, and users of infrastructure projects should not guide decisions about the construction of new facilities. An additional argument is that, because the federal government directs the use of state and local resources by requiring states and localities to build new facilities, such as wastewater treatment plants, it therefore should help subsidize those investments.

On the other hand, the commission's proposals can be opposed on the grounds that they would not improve the allocation of resources. The major reason that state and local governments finance the vast majority of all physical infrastructure in the United States is the belief that officials at these levels of government and voters are best positioned (especially in comparison with policymakers at the federal level) to evaluate the costs and benefits of infrastructure and use this information to make investments.[12] Yet state and local elected officials, voters, and users appear unwilling to finance construction of the new infrastructure projects supported by the commission, even with existing federal subsidies. Voters and users may be reluctant to do so because they believe that the costs of the facilities exceed the benefits--or that equal expenditures on other programs, such as public safety or education, have greater benefits. Furthermore, the commission's proposals would not target federal

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11. If policymakers also required pension plans to make investments that produced lower returns than they currently earn, pensioners would fund part of the income redistribution. Ray Schmitt, *Pension Fund Investment in Infrastructure* (Congressional Research Service, 1993), discusses the risks to pension fund participants of the commission's proposals.

12. See Bruce Hamilton and Edwin Mills, *Urban Economics* (Chicago: Scott, Foresman and Company, 1989), pp. 313-321, for a discussion of the ability of local governments to provide an efficient amount of government services. Douglas Holtz-Eakin, "Why a Federal Plan Isn't Needed," *Spectrum* (Fall 1993), p. 39, argues that capital spending by local governments is usually commensurate with economic conditions.

subsidies solely toward projects that federal mandates require states and localities to build. Policymakers can defray the costs of mandated projects by providing additional funds to state and local governments simply and directly through grants.

COMPARING THE COMMISSION'S PROPOSALS WITH CURRENT FEDERAL GRANTS

In 1993, federal grant programs gave state and local governments an estimated $26.8 billion to build and maintain physical infrastructure.[13] To capitalize the NIC and IIC, policymakers could choose to divert some of those funds. This would not reduce the overall amount of federal grants but would change the organizations that distributed subsidies to infrastructure borrowers, the criteria used to select projects, and the amount of subsidies that the average project received. Specifically, the NIC and IIC would target projects that had the potential to be self-supporting through user charges. The commission also believed that credit assistance provided by the corporations would absorb a much smaller portion of total project costs than do existing federal grants. An important question, however, is whether capitalizing the NIC and IIC with funds taken from existing programs would be either necessary or likely to yield an allocation of resources that produced more benefits.

The general goals of increasing reliance on user fees to pay for infrastructure and raising state and local financial contributions for some infrastructure projects can be justified as improving resource allocation. If fees are not charged, infrastructure users have an incentive to use more than an optimum amount of infrastructure services. To achieve efficiency, user fees must be set to equal the marginal cost of providing the services. Although the commission supported user fees, it did not suggest that they be set according to marginal cost principles. The federal government, however, could give jurisdictions an incentive to charge user fees and force them to increase their share of project financing simply by changing the terms of existing grant programs. Recent legislation allows municipalities to use federal grant funds to pay up to 50 percent of the cost of toll highways, bridges, and tunnels. Jurisdictions may also use federal funds to pay up to 80 percent of the cost of rehabilitating existing toll facilities or converting existing free facilities to toll facilities. The federal government could take more steps in this direction by reducing the remaining restrictions on the use of grants and altering the terms under which projects are eligible for them.

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13. Congressional Budget Office, "Updating Trends in Public Infrastructure Spending and Analyzing the President's Proposals for Infrastructure Spending from 1994 to 1998," CBO Paper (August 1993), p. 60.

Policymakers could also finance federal assistance for state and local infrastructure through new user fees. For example, the Congress could finance physical capital grants by charging fees based on congestion and damage to facilities. By altering the terms of its grants to lower the percentage of a project's cost that it pays, the federal government could also achieve the "leveraging" of federal funds advocated by the commission more directly than would the NIC or IIC. In addition, if municipalities had to pay more for new facilities, they would have an incentive to develop new sources of revenue such as user fees.

Although a policy of requiring user fees would encourage more optimal use of infrastructure facilities--and might make funds available for future maintenance and modernization--it would be neither necessary nor sufficient to ensure that states and localities used federal subsidies to make efficient investments in new resources.[14] That outcome can follow only from properly conducted benefit-cost analysis that ranks projects on the basis of their expected benefits-to-costs ratios. Certainly, projections of the prices that people would pay to use a facility can support benefit-cost analysis by providing data on the demand for the infrastructure. But the absence of user charges does not imply that a project will yield few benefits. In fact, relying on user fees may lead to underinvestment in some facilities that would bring high levels of economic returns. For example, jurisdictions may not be able to finance some high-return projects primarily with fees if the projects have spillover benefits and the costs of collecting user fees are high. Political resistance from users may also limit fees on high-return projects. In sum, properly set user fees, especially for existing facilities, can achieve a use of infrastructure that is more in line with an efficient allocation of resources and produce high returns at low costs. But the existence of user fees should not be the primary criterion by which the government determines which projects should be assisted with federal funds.

By paying for a smaller proportion of total project costs, the NIC and IIC could use federal funds to support a larger number of projects. It would be the benefits produced by the facilities, however, and not the number of facilities financed that would determine how federally assisted investments affected resource allocation. Federal funding for state and local infrastructure can produce a better allocation of resources if it corrects for benefit spillovers. The NIC and IIC would restrict federal assistance to projects that had the potential to pay for themselves with user fees, but assistance to such projects would probably not correct for spillovers. Subsidizing projects that could be paid for

14. The distinction between encouraging user fees on existing projects so that infrastructure is used more efficiently and employing user fees to encourage efficient investment decisions is discussed in Congressional Budget Office, *Paying for Highways, Airways, and Waterways: How Can Users Be Charged?* (May 1992), p. 9.

directly by charging their beneficiaries will seldom improve the allocation of resources--user fees imply that people who benefit from spillovers are paying their share of the costs. There is evidence that current grant programs for highways and other physical infrastructure overcompensate for spillover problems.[15] However, it is not clear that diverting current grant funds that oversubsidize projects relative to their spillovers to finance projects that lack significant spillovers would enhance the allocation of resources.

15. One analyst estimated that total highway spending and economic efficiency would be increased and the federal government would save money--all by noticeable amounts--by lowering federal matches on current grants and removing the caps on these grants. See Edward Gramlich, "How Should Public Infrastructure Be Financed?" in Alicia Munnell, ed., *Is There a Shortfall in Public Capital Investment?* Conference Series, No. 34 (Boston: Federal Reserve Bank of Boston, undated), p. 227.

CHAPTER IV

ALTERNATIVE ORGANIZATIONAL FORMS

If policymakers decided to create the National Infrastructure Corporation and the Infrastructure Insurance Company that the commission proposed, the corporations could be organized in one of several ways. Both could be established as on-budget agencies. Alternatively, the corporations could be organized as private, for-profit firms. The NIC could be established as a government-sponsored enterprise or as a special-purpose finance company that received a long-term federal loan at a below-market interest rate. The IIC could be established as a municipal bond insurer with the government initially as a minority owner, as the commission proposed. Each organizational form would affect the information available about the corporations, the degree of control that policymakers had over the subsidies that they conveyed to infrastructure borrowers, and their competitive advantages over private firms that could provide the same financial services. The analysis of those alternatives in this chapter is independent of the discussion in Chapter III of how the activities of the NIC and the IIC would affect the allocation of resources.

ESTABLISHING THE CORPORATIONS AS ON-BUDGET AGENCIES

If the corporations were established as on-budget agencies, the NIC's purchases of subordinated infrastructure bonds would be federal direct loans, and the IIC's insurance of senior debt would convey an explicit federal guarantee. The Federal Credit Reform Act of 1990 reformed the budgetary treatment and control of federal loans and loan guarantees. Under the act, neither the NIC nor the IIC could commit itself to provide credit assistance to infrastructure borrowers without first receiving appropriations to pay the estimated subsidy cost of the assistance. Annual appropriations would also be required to finance the NIC's development risk insurance and each corporation's administrative expenses. Most of the implications of organizing the NIC and the IIC as on-budget agencies would reflect features of credit reform.[1]

1. For more detail on the budgetary treatment and control of federal direct loans and loan guarantees under credit reform, see Congressional Budget Office, "An Explanation of the Budgetary Changes Under Credit Reform," CBO Staff Memorandum (April 1991).

Paying the Cost of Subsidies Through the Appropriation Process

If the NIC and the IIC were organized as on-budget agencies, the federal budget would measure the cost to the government of their activities, and policymakers would exert direct control over those costs, through the appropriation process. Policymakers would have to appropriate funds equal to the estimated subsidy cost of the NIC's purchases of infrastructure bonds, and of any subsidized bond insurance provided by the IIC, before the corporations could commit to provide the credit assistance. The NIC's development risk insurance and the administrative expenses of each corporation would require separate appropriations.[2] All appropriations to the two corporations would be on-budget.

Under credit reform, the subsidy cost of a federal loan or loan guarantee is defined as the loss that the government expects to incur on the transaction. That loss is measured narrowly as the difference between the government's cash flows in the year in which the transaction occurs and the net present value of all future cash flows resulting from the transaction. For example, if the NIC as an on-budget agency purchased $100 million in subordinated bonds and expected to receive interest and principal payments with a net present value of $95 million, the subsidy cost of the loans would be $5 million. Similarly, if the IIC insured $100 million in debt that had been issued to finance various infrastructure projects and received insurance premiums totaling $5 million, but expected to incur default losses with a net present value of $8 million, the subsidy cost of the insurance would be $3 million.

Limitations of the Subsidy Cost Measure

If the NIC and the IIC were organized as on-budget agencies and policymakers authorized the corporations to compete with the private bond insurance industry or other firms or investors that bear the credit risk of infrastructure bonds, the agencies would have a competitive advantage. That advantage would arise from the way in which the subsidy cost of federal credit assistance is estimated, which understates the government's cost.

Under credit reform, the subsidy cost is defined to exclude the costs of forgoing a market rate of return on capital and of administering federal credit programs. The government calculates the net present value of a federal agency's expected future cash flows resulting from credit assistance over a year by using a discount rate equal to the projected interest rate on Treasury debt of the same

2. The NIC's development risk insurance would not be considered a federal credit program because the corporation would not insure the debt of infrastructure project developers. It would protect them against losing the money they put up to cover development costs.

maturity as the average assisted loan issued by the agency in that year. The calculation excludes the costs of administering the credit assistance because the costs of administering all of an agency's programs are financed together in many cases and loan administration costs are hard to break out.[3] These practices have the effect of reducing estimates of subsidy costs, relative to estimates based on discount rates that include premiums to pay the cost of bearing the uncertainty about expected default losses, administrative expenses, and a markup for profit.[4]

Under the estimating rules established by credit reform, credit programs do not require subsidy cost appropriations if the programs charge interest rates, guarantee fees, or insurance premiums that are high enough to cover their default losses and the interest on Treasury debt issued to finance them. That principle applies even though the programs are subsidized; that is, the government is administering them free of charge (for the purpose of credit reform) and accepting a below-market rate of return on them. Credit programs do not need to charge prices that earn a market rate of return because the government does not compensate taxpayers for the alternative use of their tax dollars. On-budget credit programs also have the advantage of being able to raise funds in the very large, liquid market for Treasury securities. For these reasons, if the NIC and the IIC were on-budget agencies, they would have a competitive advantage over any private firms and investors that provided the same financial services without federal subsidies. They could use that advantage to monopolize the markets they served.

An approach is available to limit the ability of the NIC and the IIC to use their competitive advantage to take profitable business away from the private sector. Specifically, policymakers could restrict their activities to bearing the credit risk on infrastructure debt that had been turned down by the municipal credit market or the municipal bond insurance industry. But a turn-down requirement would not prevent the NIC from financing some projects that the private sector could finance on its own. For example, private bond insurers might be willing to insure asset-backed securities collateralized by a pool of infrastructure bonds that they would turn down singly. Insurance might be

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3. Although the costs of administering credit programs are financed through the appropriation process and included in agency budgets, Congressional decisions about those costs are separate from those made about the subsidies conveyed to borrowers through federal direct loans and loan guarantees.

4. In an earlier study, CBO found that excluding administrative expenses reduced the estimated subsidy cost of federal credit programs in fiscal year 1991 by between 10 percent and 85 percent; the specific percentage varied with the characteristics of the program. See Congressional Budget Office, *Budgeting for Administrative Costs Under Credit Reform* (January 1992), pp. 20-21, Table 9. Some analysts defend the practice of ignoring the cost of bearing uncertainty about expected losses on the grounds that the government's large portfolio of loans and guarantees enables it to reduce that cost through diversification.

available if the pool was large and diverse and if each issuer had pledged some of its debt proceeds to cover delinquency or default by other issuers.

Direct Provision of Federal Assistance to Infrastructure Borrowers

If the NIC and the IIC were on-budget agencies, the government would provide credit assistance directly to infrastructure borrowers, rather than indirectly through private financial institutions. One implication of assisting borrowers directly would be that the corporations could buy or insure bonds that had been issued to finance very risky infrastructure projects. In contrast, as a GSE or a private finance company, the NIC would have an incentive to allocate its capital to activities that promised to earn the highest risk-adjusted rates of return and, under most conditions, to avoid financing high-risk projects. For similar reasons, as a private, for-profit insurer, the IIC might avoid insuring infrastructure bonds that were not eligible for an investment-grade credit rating.

Assisting infrastructure borrowers directly would also ensure that they were the recipients of federal subsidies. If the NIC was organized as a GSE, infrastructure borrowers might not receive all of the federal subsidies conveyed by the implicit guarantee of the corporation's obligations because its owners and management would be able to retain some of the subsidies. Furthermore, investors in tax-advantaged municipal bonds inevitably receive some of the subsidies intended for issuers of the debt. An investor's gain from exempting the interest on municipal debt from federal taxes is the excess of the loss to the government over and above the reduction in the issuer's borrowing costs. This windfall to bondholders has been estimated to be about 23 percent of the federal subsidy (about $6 billion in 1992).[5] The windfall arises because all investors in tax-exempt bonds with a marginal tax rate greater than the break-even tax rate (the rate at which the after-tax returns on taxable and tax-exempt bonds are equal) save more in federal income taxes than the issuers save in interest costs.

Comparison with Establishing the NIC as an Off-Budget Corporation

The commission appeared to propose that, during the first phase of the NIC's existence, it would be an off-budget, federally chartered corporation that would operate solely with federal funds and have no authority to borrow from the Treasury or the public. Placing the NIC, and the IIC as its subsidiary, outside the federal budget would conflict with the fundamental, long-standing norm of

5. Peter Fortune, "The Municipal Bond Market. Part II: Problems and Politics," *New England Economic Review* (May/June 1992), p. 52.

including in the budget the transactions of all federal agencies and all nominally private firms that are controlled and owned by the government. That norm facilitates comparison and control of the costs of, and accurate measurement of the share of national output absorbed by, all activities that involve the exercise of the sovereign power. In addition, as an off-budget entity, the NIC would require much larger initial federal appropriations than it would as an on-budget agency, although being off-budget would allow it to operate as a revolving fund. Whether the NIC was on- or off-budget, policymakers could give it the same discretion to select the infrastructure projects that it would support and to determine the amount of the subsidies that it would provide to each project.

Larger Initial Appropriations Required to Finance an Off-Budget Corporation. The NIC would require much larger appropriations to finance its initial purchases of subordinated infrastructure bonds as an off-budget corporation than it would as an on-budget federal agency. In its report, the commission assumed that the NIC would receive $3.25 billion from the government to finance the purchase of an equal amount of bonds. It also assumed that the bonds would mature in 20 years and that half of the debt would pay a taxable and half a tax-exempt interest rate; the average interest rate on the debt would be 7.5 percent. If the bonds were eligible for a credit rating of double B, as suggested in Chapter I, the purchases would have an average subsidy cost of about 33 percent. Therefore, to finance the purchases as an on-budget agency, the corporation would need a subsidy cost appropriation of only about $1.1 billion.

Off-Budget Corporation Could Operate as a Revolving Fund. If the Congress organized the NIC as an on-budget agency, credit reform would prevent the corporation from "recycling" payments by borrowers and making new loans without prior Congressional action (as it could have done before credit reform). As a result, when issuers of subordinated infrastructure debt purchased by the corporation made payments of principal and interest, the funds would not be available to finance new credit assistance. Instead, the estimated subsidy cost of the new loans would be charged against the appropriation provided for that year and for that purpose. The Congress also would not appropriate funds to capitalize the NIC. Instead, it would finance the subsidy cost of the corporation's loans and loan guarantees, the cost of its development risk insurance, and its administrative expenses with annual appropriations rather than with a revolving fund's capital and payments from borrowers.

The commission's report explicitly advocated allowing the NIC to operate as a revolving fund. The commission appeared to take the view that the credit reform requirement that the Congress appropriate funds to cover the subsidy cost of new NIC credit assistance would be a disadvantage, because fluctuations in that annual funding could curtail the corporation's support of

municipal infrastructure borrowing. The Credit Reform Act represents a decisive rejection of that perspective, however. The law reflects a judgment by policymakers that more accurate, timely information about the cost of federal credit assistance and annual Congressional control of that cost are more important than agency discretion over the terms on which credit assistance is provided or the volume of federally assisted loans.

Discretion to Select Projects. The Congress could give the NIC as an on-budget agency the same degree of discretion over the types of infrastructure projects that it financed as it would have as an off-budget revolving fund. Policymakers could direct the corporation to select projects on a nationwide rather than a state-by-state basis, target projects with regional or multistate significance, choose projects financed with user charges, or limit the subsidies it provided to a small portion of project costs, to cite several of the commission's objectives.

Authorizing the IIC to Provide Direct Loans Rather Than Insurance

One implication of establishing the IIC as an on-budget agency is that current federal law would deny tax-exempt status to any municipal debt that the company had insured. An alternative would be to allow the IIC to purchase, rather than insure, infrastructure debt that paid the same interest rates that the jurisdictions would have to pay to sell tax-exempt debt that carried bond insurance. Assuming that the IIC charged fees that covered the cost of expected defaults, the subsidy cost of the loans, which would have to be appropriated each year, would equal the present value of the difference between the rates on Treasury securities and on triple-A-rated, tax-exempt bonds.

ESTABLISHING THE NIC AS A GOVERNMENT-SPONSORED ENTERPRISE

The commission was aware of the option of establishing the NIC as a government-sponsored enterprise. Chapter I noted that as a GSE, the corporation would benefit from an implicit federal guarantee of its obligations. That guarantee, as well as the tax subsidies that would be provided to qualified pension plans that invested in the NIC's obligations if they were defined as eligible infrastructure securities, would lower the corporation's borrowing costs. The NIC could pass the savings through to municipalities by charging them below-market interest rates on their infrastructure debt. The implications of organizing the NIC as a GSE would be consequences of the implicit federal guarantee and the corporation's private ownership.

Ability to Subsidize an Indefinite Volume of Borrowing

As a GSE, the NIC could subsidize an indefinite amount of infrastructure borrowing, provided that it was profitable enough to attract private capital. But the corporation could not finance taxable infrastructure debt at interest rates that were close to those on tax-exempt bonds unless policymakers approved the commission's proposal to provide a new tax subsidy to qualified pension plans that invested in its debt securities. If the new tax subsidy was not available, the volume of infrastructure debt that the NIC could finance would be quite limited.

Exclusion from the Federal Budget

If the NIC was organized as a GSE, the federal budget would record no cost to the government associated with the implicit federal guarantee of the corporation's obligations. Of course, if the NIC ever suffered large losses and the Congress provided financial assistance to it in order to sustain its operations and protect the huge market in GSE obligations, appropriations to pay for the assistance would increase the budget deficit at that time unless offsetting cuts in other spending were made. Policymakers, however, would have no direct way to control the cost of the implicit federal guarantee of the corporation's obligations through the annual budget and appropriation process. Instead, the President and the Congress would have to use indirect means to control that cost, as explained below.

Incentive to Increase Risk

If the NIC was a government-sponsored enterprise, the implicit federal guarantee of its obligations would give it an incentive to increase its risk, especially if its current net worth were negative and it did not expect to be profitable in the future. The corporation would have this incentive because its owners would benefit most from any gains that resulted from greater risk, whereas the government would absorb most of any losses.

One way that the NIC could increase its risk would be to reduce the amount of capital it maintained relative to a given volume of infrastructure bonds that it had purchased or guaranteed. The corporation could also take more credit risk or interest rate risk (the risk of losses from changes in interest rates) and charge higher interest rates or guarantee fees to compensate for the greater possibility of loss. In the short run, lower capital or higher interest or fee income would raise the NIC's rate of return on equity and, absent federal restrictions, increase the dividends per share that it could pay to stockholders.

In the long run, however, such actions would also increase the corporation's risk of becoming insolvent and needing federal financial assistance.

The NIC would be most likely to take greater risks if it became insolvent and was allowed to remain in business.[6] At that point, the corporation would have an incentive to purchase or guarantee infrastructure debt on which, on average, it expected to lose money, provided that it also earned high interest rates and guarantee fees on that debt and some of the bonds were likely to be repaid in full some of the time. Because the firm's owners would no longer have any of their own money at stake, they would have everything to gain from the profits that greater risk-taking might earn, even if success was unlikely, and they would have nothing to lose from the losses, even if failure was quite likely.

Ineffective Charter Act Restrictions and Supervision of Safety and Soundness

Although policymakers could not use the federal budget process to control the cost of the implicit federal guarantee of the NIC's obligations and the incentives created by that guarantee, they could exert indirect, nonbudgetary control over the corporation. That control would include charter act restrictions on its legal authority to take risks and the designation of an existing or the establishment of a new federal agency to supervise the corporation's safety and soundness. Both of those indirect approaches to controlling the government's costs would have significant shortcomings.[7]

There would be a tension between using charter act restrictions to limit the NIC's ability to take risks and providing subsidies to infrastructure borrowers. For example, policymakers could limit the corporation to incurring the credit risk of bonds that were of investment-grade credit quality. The charters of the two largest GSEs, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), include such provisions. But that restriction would prevent the NIC from financing some infrastructure projects that the commission believed should receive new federal subsidies.

Policymakers could also attempt to control indirectly the risk posed by the NIC by requiring it to comply with federal capital requirements and by

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6. Technically, the incentive would be greatest if the NIC was insolvent on a marked-to-market basis (that is, the market value of its assets was less than the market value of its liabilities) and the economic value of the corporation's expected future business was low or negative.

7. For a general discussion of these issues, see Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991), Chapter 2.

directing a federal supervisory agency to force the corporation to sell additional stock if it suffered losses that eroded its capital. Standards could be set in the corporation's charter, or they could be established by a supervisory agency. Capital requirements, however, probably would not limit the government's exposure to risk very effectively, at least in the short run, for two reasons.

First, some of the infrastructure debt that the NIC would finance might not be currently sold in the municipal credit markets and, in many cases, would be of below-investment-grade quality. It would be difficult for policymakers to write into law capital requirements or recapitalization rules that were not largely arbitrary. On one hand, the standards might be too stringent and could hamper the NIC's ability to do business.[8] On the other hand, they might be too lenient, in which case a supervisory agency would need clear statutory authority to impose tougher ones. The absence of information on the credit risk of the bonds that the corporation would buy would make the same tasks difficult for the supervisory agency.

Second, it is not clear that the commission or potential proponents of organizing the NIC as a government-sponsored enterprise would be committed to giving a supervisory agency the statutory authority and political support that it would need to closely monitor the corporation's risk taking in the early years of its operations, when defaults on the infrastructure bonds that it purchased would be fewer than in the long run. On the contrary, the agency would probably be under considerable pressure to allow the corporation to provide a large volume of deeply subsidized loans and guarantees in order to produce an increase in the overall volume of infrastructure investment.

Relatively High Level of Federal Exposure to Risk

Establishing the NIC as a government-sponsored enterprise would also expose the federal government to a relatively high level of risk. In the first place, because neither the federal government nor the private sector now finances the riskiest infrastructure bonds that the corporation would finance, there would be considerable uncertainty about how successful the NIC would be. In contrast, when the government established the two GSEs that subsidize the secondary mortgage market--Fannie Mae and Freddie Mac--more than 20 years ago, there

8. This problem has plagued the Federal Agricultural Mortgage Corporation (Farmer Mac), a GSE established in 1987 to bear the credit risk on securities backed by pools of agricultural mortgage loans. Wary of Farmer Mac's incurring too much credit risk in the volatile agricultural sector, the Congress required that securities guaranteed by the GSE be protected by liquid, low-risk funds or subordinated debt equal to 10 percent of the loans in each pool. That requirement has protected the government but has hampered Farmer Mac's ability to make its guarantee services attractive to lenders who make agricultural mortgage loans.

was little uncertainty about the profitability of their basic lines of business. When Fannie Mae became a GSE in 1968, an on-budget federal agency--the Federal Housing Administration (FHA)--had already demonstrated that long-term, fixed-rate home mortgages could be underwritten to national standards and profitably insured. When the Congress created Freddie Mac and authorized both it and Fannie Mae to securitize home mortgages in 1971, another on-budget agency--the Government National Mortgage Association (Ginnie Mae)--had already shown that securitization of such loans was feasible.

In the second place, even if the NIC was able to develop into a profitable firm, it would probably pose a relatively high level of risk to the federal government. Chapter I concluded that all of the subordinated infrastructure debt that the corporation purchased would be eligible for below-investment-grade credit ratings. That conclusion implies that, unless the NIC purchased a much higher volume of investment-grade senior bonds than is implied by the commission's report, the corporation's overall exposure to risk would be relatively high--comparable to that of a firm with a credit rating of double B (the highest below-investment-grade rating) or perhaps a weak triple-B rating. In 1991, Standard & Poor's Corporation (S&P), a private credit rating agency, found that at the end of 1990, the Farm Credit System (FCS) was comparable to a firm with a credit rating of double B.[9] The risk that the FCS poses to the government has declined in the past several years, but it remains the riskiest of the existing GSEs.

ESTABLISHING THE NIC AS A SPECIAL-PURPOSE FINANCE COMPANY

The NIC could also be organized as an off-budget, special-purpose finance company that would be chartered to provide credit assistance to municipal infrastructure borrowers. To subsidize the corporation's activities, the government would neither make federal grants nor give it the legal characteristics of a GSE that would imply a federal guarantee of its debt securities. Instead, the government would make a long-term, subordinated loan

9. Credit ratings can be used as summary indicators of the government's relative exposure to the risk of the several enterprises. The ratings provide rough ordinal measures of the relative probabilities that each GSE will become insolvent and unable to meet its obligations without borrowing on the strength of its implicit federal guarantee or receiving federal financial assistance. Issues about the use of credit ratings to assess the government's exposure to GSE risks are analyzed in Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises*, pp. 50-55; and General Accounting Office, *Government-Sponsored Enterprises: Using Private Risk Ratings for Exemptions from Federal Regulations* (November 1991). S&P's report is contained in Department of the Treasury, *Report of the Secretary of the Treasury on Government-Sponsored Enterprises* (April 1991), Appendix.

to the NIC at a below-market interest rate. The loan would subsidize the corporation's operations and give it time to demonstrate to the private sector that it was profitable and creditworthy enough to attract private investors.

The Precedent of the National Consumer Cooperative Bank

The precedent for this organizational form is the National Consumer Cooperative Bank. The bank is a federally chartered, cooperatively owned financial institution; operating as the National Cooperative Bank (NCB), it provides loans and financial services to cooperatives.[10] The NCB was established as a federal agency in 1978 and was converted to private, cooperative ownership at the end of 1981. The legislation that privatized the bank required the Treasury to make a 39-year loan of $184.3 million that extinguished an equal amount of preferred stock owned by the government. Through fiscal year 1990, federal law limited the interest rate on the loan to no more than 25 percent of the NCB's gross revenues less necessary operating expenses, including a provision for possible credit losses. For the remaining life of the loan, a statutory formula sets the rate on the basis of a weighted average of the yields on Treasury securities of several maturities. The loan is subordinated to all other liabilities of the NCB. Because the loan paid very low interest rates initially and posed substantial credit risk to the government, it had a subsidy cost of at least 60 percent of the principal amount.[11]

The terms of the federal government's subordinated loan to the NCB divide its life as a private corporation into three periods. In the first period, from 1982 through late 1990, the bank's interest costs were quite low, reflecting the below-market rate on the Treasury loan. The subsidies provided by the loan gave the NCB time to build a capital base and develop expertise in lending to cooperatives. The second period began when the interest rate on the Treasury loan changed at the end of fiscal year 1990. Since that time, the bank has demonstrated that it is profitable enough to pay higher interest costs and has convinced the private sector that it is a creditworthy issuer of senior debt. At present, the bank has a line of credit with a group of commercial banks. Three credit rating agencies have given its short-term senior debt an investment-grade rating. Each rating assumes that the government would not protect the NCB's creditors if the bank got into financial trouble. The third period of the NCB's

10. For information on the bank's recent financial performance, see National Cooperative Bank, *1992 Annual Report* (Washington, D.C.: National Cooperative Bank, 1993).

11. That estimate assumes that the loan was to pay a 2 percent interest rate through 1990 and 10 percent thereafter, and that the credit risk of the loan was equivalent to that of a corporate bond with a credit rating of double B, the highest below-investment-grade rating.

life will begin after the government's loan is due in 2020. At that point, the bank either will have demonstrated that it can be profitable enough without federal subsidies to attract private equity and credit, or it will have to go out of business. The NCB plans to prepare for the transition to unsubsidized operations by developing a strategy for retiring the subordinated federal loan.

Comparison with Other Approaches to Organizing the NIC

If the NIC was organized as a finance company and subsidized with a federal loan, the subsidy cost of the loan would be recorded in the federal budget and controlled through the appropriation process. Because the company would lack the legal attributes that characterize the GSEs and because investors would know that policymakers intended it to stand on its own after it repaid the government's loan, it probably would not benefit from an implicit federal guarantee of its obligations. Consequently, the company would be subject to greater market discipline than a GSE and would have a strong incentive to use most of the limited, one-time subsidy it received to build its capital and establish a track record that would enable it to attract private investors. In contrast, a GSE, which would receive ongoing subsidies, could--and would have an incentive to--pass a portion of them to infrastructure borrowers in the form of below-market prices for its services.

ESTABLISHING THE IIC AS A MUNICIPAL BOND INSURER

The commission proposed that the IIC be organized as a private, for-profit municipal bond insurer. The infrastructure bonds that it could insure would be restricted: they would have to be eligible for an investment-grade credit rating of no higher than triple B, and other firms in the bond insurance industry would have to have declined to insure them. The commission intended that the IIC would maintain a triple-A credit rating on the strength of its underwriting, management, investment policy, capital, and premium income.

Private ownership would allow the IIC to insure tax-exempt infrastructure bonds and give it an incentive to charge premiums that enabled it to earn a market rate of return on equity. The cost to the government of providing part of the IIC's capital would be recorded in the federal budget. Policymakers would have to require the firm to raise the majority of its capital from private investors to ensure that the Internal Revenue Service exempted infrastructure bonds insured by the company from federal taxation. Policymakers might also want to set a sunset date for the IIC.

The Necessity and Advantages of Majority Private Ownership

In order for the IIC to operate as a private, for-profit firm, the company would have to raise the majority of its initial capital from private investors rather than from the federal government. The IIC would also have to raise any additional capital that it needed in the future from private investors. If either of those conditions was not met, it would be difficult for the IRS to justify allowing the interest on bonds that the company insured to escape federal taxation. Initial majority ownership of the firm by the government, whether through an on-budget agency or an off-budget revolving fund, would suggest that policymakers stood ready to provide additional funds if the firm ever suffered large losses and was unable to pay claims by insured bondholders. Subsequent federal stock purchases would have the same implication. Current law requires the IRS to deny tax-exempt status to any municipal debt that carries a federal guarantee. If the NIC was organized as a GSE, it would probably qualify as a private owner of the IIC.

The most important implication of requiring the private sector to provide the majority of the IIC's initial and all of its future capital is that, under current policy, the company would be able to insure tax-exempt infrastructure debt. Another effect of strictly limiting the government's investment is that the firm would have to earn a market rate of return on its capital to attract private investors. The requirement of adequate profitability would have several implications:

- It would give the IIC an incentive to develop prudent underwriting standards and investment policies and to charge adequate insurance premiums. As a result of those incentives, the company might be better managed than a federal agency and more likely to profitably insure infrastructure bonds that other municipal bond insurers do not now insure.

- The IIC would have an incentive to avoid insuring the riskiest infrastructure bonds.

- The company would not be able to charge subsidized insurance premiums without dissipating its capital, losing its triple-A credit rating, and being unable to write new insurance. Unlike a federal agency that insured taxable municipal bonds, the company's premiums would have to be high enough to pay its administrative expenses and earn adequate profits.

Uncertainty About the IIC's Profitability and Ability to Obtain a Triple-A Credit Rating

The IIC might not be profitable enough to attract private capital and be self-supporting, and it might not be able to obtain a triple-A credit rating. The federal government's restrictions would tend to limit the company to insuring infrastructure bonds issued in small amounts by the least creditworthy municipalities. If, as the commission assumed, many of the issues would be of below-investment-grade caliber, the company would be exposed to significantly greater credit risk than other municipal bond insurers, which would make it difficult to obtain a triple-A rating. Many of the borrowers that the IIC served would not have issued debt publicly or obtained bond insurance in the past; as a result, there would be uncertainty about the credit risk of their bonds and about the premiums that the IIC would have to charge for bearing that risk.

The company would be especially vulnerable to mistakes in underwriting and investment of premium income in the short run. Investors would not be willing to pay as much for bonds that the IIC insured initially as they would for those it insured later on, provided that it was successful in the business, had insured a large portfolio of bonds, and was rated triple A by several rating agencies. The lower sales prices would mean higher interest rates for issuers. The company would have to make up for the higher interest rates by charging lower insurance premiums than it could charge in the long run if it was successful. The lower premiums would leave a smaller margin for errors in the firm's underwriting and investment policies.

Potential Risks of Minority Federal Ownership

Some observers argue that minority federal ownership of the IIC would give the company a competitive advantage over other bond insurers. They claim that investors in infrastructure bonds insured by the IIC would have good reason to believe that the government stood ready to prevent the company from defaulting on any of its insurance. If the belief in the existence of an implicit federal guarantee was widespread, the yields on bonds insured by the IIC would be lower than those on bonds insured by other firms in the industry. That outcome would make the IIC's insurance more attractive to borrowers, who would be willing to pay higher premiums for it, and would give the company a competitive advantage.

There are reasons to believe that investors would not perceive an implicit federal guarantee of bonds insured by the IIC, at least not in the short run. If the company suffered losses that caused it to lose its triple-A rating, the firm

would have an incentive to turn to the private sector, rather than to the government, to raise additional capital. That incentive would exist because an infusion of federal funds could lead the IRS to revoke the tax-exempt status of the bonds that the IIC had insured, which would harm the company's economic value. Furthermore, policymakers would be unlikely to provide assistance when the firm was still solvent.

Of course, if the IIC incurred losses that completely eroded its capital, policymakers could always choose to appropriate funds to the company to protect investors in the bonds that it had insured. If the firm was successful enough to insure a large volume of bonds, investors in those bonds might believe that policymakers would be increasingly unlikely to allow them to incur losses. It is not clear, however, that the IIC would benefit very much from such a perception, because investors would also tend to believe that the company would have every incentive to maintain its triple-A rating. Policymakers could limit the risk that the potential for an implicit federal guarantee posed to the government by capping the dollar volume of infrastructure bonds that the IIC could insure. A cap might also make policymakers less inclined to bail out the firm if it ever got into trouble.

Setting a Sunset Date

Policymakers may want to use the IIC to provide only temporary federal support for innovation in the insurance of infrastructure debt. That goal could be accomplished by setting a date after which the company would be allowed to insure any type of municipal bonds. If the NIC or the federal government owned stock in the IIC, the shares would have to be sold at that time.

The Experience of Connie Lee

The commission asserted that the experience of the College Construction Loan Insurance Association (Connie Lee) indicates that the IIC would be profitable enough to attract private capital and be self-supporting. Yet several factors make the relevance of that experience questionable. If the IIC insured some non-investment-grade bonds, it would be exposed to more credit risk than Connie Lee. In addition, although Connie Lee has been profitable and maintained a triple-A rating, it has only been in business for five years and has been functioning as a primary insurer for just over two; it is thus too early to reach a definitive conclusion about its long-run prospects. The company's earnings during this initial period have been lower than they are likely to be once it has written a large volume of insurance and its operating expenses are

a smaller and more stable proportion of its premium and investment income. (It is common for start-up financial guaranty companies to increase their earnings gradually as their insured volume grows.)

Another significant factor is that federal law restricts Connie Lee to insuring bonds issued to finance higher education facilities and teaching hospitals, which pose a greater credit risk than many other types of municipal bonds. The restriction prevents the company from diversifying its exposure across the different sectors of the market and, in the long run, will prevent it from insuring as large a volume of municipal bonds as another triple-A-rated but better diversified firm could insure with the same amount of capital.[12] The smaller volume of business that Connie Lee's capital can support will limit the company's income from premiums and investments. The firm will try to make up for the smaller volume by charging higher premiums, but there is no guarantee that this strategy will succeed, because Connie Lee will face competition from other bond insurers and from investors who are willing to buy uninsured debt.

If Connie Lee earned a below-market rate of return on equity in the long run, the company could have difficulty raising the capital necessary to continue writing insurance indefinitely. Connie Lee argues that it will be able to charge high enough premiums to maintain its triple-A rating, earn a market rate of return, and continue to write insurance indefinitely.[13] The Department of Education could conduct a market test of that view by selling its stock in the company, as allowed by current law, when the firm has completed the start-up phase of its operations. The alternative is to wait and see how Connie Lee performs over time.

SUMMING UP THE OPTIONS

The objectives that policymakers sought to achieve by establishing the NIC and the IIC would influence the way in which they chose to organize the corporations. Organizing the NIC as on-budget agency would be appropriate if the objectives were the following: to convey relatively large, ongoing subsidies to finance infrastructure projects that the private sector probably could not

12. Connie Lee could do a larger volume of business by reinsuring higher education and teaching hospital bonds, which it may reinsure regardless of their credit ratings. But the other insurers in the market have refused to allow Connie Lee to reinsure bonds that they have insured except on a case-by-case basis.

13. An analyst at one credit rating agency has estimated that the federal government's $19 million investment in Connie Lee has a current market value of only $7 million. Connie Lee asserts that the stock has actually appreciated in value. See Paul Starobin, "Connie's Prizefight," *National Journal*, June 26, 1993, pp. 1642-1645.

finance without federal help; to provide fairly accurate, comprehensive, and timely information about the cost of the subsidies; and to give policymakers direct control over that cost and the corporation's activities. Making the NIC a government-sponsored enterprise would be appropriate if policymakers wanted to provide smaller, ongoing subsidies--but wanted as well to keep the subsidies from being recorded in the budget or controlled through the budget process. Organizing the NIC as a private finance company would be appropriate if policymakers had a twofold aim: on one hand, to provide and record in the budget a one-time federal subsidy to induce a private firm to bear the risks of developing and financing infrastructure projects that would not be undertaken otherwise, but on the other hand, to keep from providing permanent subsidies to a new financial institution that would compete with existing private firms.

Organizing the IIC as an on-budget agency would be appropriate if policymakers wanted the company to insure some below-investment-grade infrastructure bonds but did not want to risk the IIC's not being profitable enough to survive as a private firm. The on-budget status would also allow policymakers to exert direct control over the company's activities. Making the IIC a private, for-profit firm would be appropriate if policymakers wanted the company to be able to insure tax-exempt bonds but at the same time wanted to minimize any competitive advantage that the firm had over other bond insurers. It would also be appropriate if policymakers did not wish the IIC to focus on insuring below-investment-grade issues.