

美國地方政府公債特徵之分析

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摘 要

這篇論文提供有關美國地方（州及地方）政府公債發行影響因素之分析及相關研究之回顧。首先，本文討論美國地方政府公債的本質及特性，以及探討地方政府發行公債所涉及銷售步驟、要求、發行市場及主要的參與者。其次，二件發生於1980年代影響美國地方政府公債發行的法案，如1986年稅制改革法及1988年聯邦大法官解釋案：南卡羅納州控告貝克乙案，亦詳細討論。

關鍵字：地方政府公債，聯邦政府公債，投資者，信用等級，看漲選擇權，普通契約公債，歲收公債，1986年稅制改革。

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An Analysis of the Characteristics of Municipal Bonds in the United States

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Abstract

This paper provides a review of previous research on the factors affecting the cost of state and local borrowing. This study examines both the nature and the characteristics of municipal bonds along with a discussion of the key participants in the municipal market including types of issuers, underwriters, and investors. The processes and strategies used in borrowing are examined. Such technical aspects as the methods of sale, the nature of the secondary market, and credit enhancements are explained. Also, a review of the legislative and judicial events affecting the municipal bond market during the 1980s is presented. The history and impact of the 1986 Tax Reform Act and the 1988 Supreme Court decision in *South Carolina v. Baker* also are discussed in detail.

Key Words : Municipal Bonds, Government Bond, Investors, Credit Ratings, Call Option, General Obligation Bonds, Revenue Bonds, 1986 Tax Reform Act.

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An Analysis of the Characteristics of Municipal Bonds in the United States

I. INTRODUCTION

Use of municipal bonds as a means for financing capital improvements in state and local governments in the United States has paralleled the growth of these units of government. Hillhouse (1936) reports that the first American city to issue bonds was New York City around 1812, and Boston issued \$100,000 in 1822 that subsequently increased to \$1.5 million by 1840.

The increase in the volume of state and local debt, collectively referred to as municipal bonds (or munis), continued as the country expanded. These bonds form a major part of the public debt, which includes the combined obligations of federal, state, and local governments. By 1880, the issuance of state and local government bonds exceeded the \$1.1 billion mark (Godfrey 1990, 19). This expansion in the national municipal bond market was interrupted in the twentieth century only by the Great Depression of the 1930s and pressures caused by capital shortages during World War II. Following the war, the dramatic economic and social changes that resulted in rapid expansion of cities, coupled with the growing need for public facilities caused by inadequacies in the infrastructure of state and local governments, created tremendous increased in the volume and uses of municipal debt. The national municipal bond market, as a result of continuous growth, by 1970 rose to \$143.6 billion for new debt issued; by 1985 it had expanded to almost \$571.3 billion; by 1992 it had reached \$970 billion (ACIR 1993). Table 1 shows this historical growth of municipal debt.

The literature on municipal bonds may be divided into three categories. Many of the earlier studies present a history of the development of municipal bonds and tend to deal with technical and legal aspects of issuing debt (Heins 1963; Hillhouse 1936; Moak 1970; Ratchford 1941). These studies also describe the principal participants and their roles in the bond market. A second group of writings considers the environmental factors affecting the market and, since the mid-1980s, have focused on the impact of legislative, judicial, and regulatory changes on the tax-exempt bond market (Keohane 1988; Petersen 1987; Watson and Viocino 1990; Wrightson 1989). More recent studies also have begun to use statistical models to determine the impact of various factors on the cost of state and local debt. A third category of literature on municipal

bonds considers the influence of fiscal competition between various units of government in the federal system and how this competition influences tax and expenditure policies of the various units of government (Brucato, Forbes and Leonard 1991; Kenyon and Kincaid 1991; Kidwell; Koch and Stock 1984). This paper is organized around these three aspects of research and literature on municipal debt.

Table 1 Historical Growth of the Governmental Bond Market
from 1949-1992 New debt issued (in billions\$)

Fiscal Year	Federal	State	Local	Total
1949	252.8	4.0	16.9	273.7
1959	284.8	16.9	47.2	348.8
1970	370.9	42.0	101.6	514.5
1980	914.3	122.0	213.6	1249.9
1985	1827.5	211.9	359.4	2398.8
1989	2881.1	295.5	502.9	3679.5
1990	3266.1	318.3	542.3	4598.9
1992	4082.9	371.9	598.1	5052.8

Source: ACIR, Significance of Fiscal Federalism, vol.2, 1994.

II. Developmental Phase of Municipal Bonds

Municipal securities have grown dramatically since the nation was founded and this growth has increased most rapidly in the period since the late 1970s and 1980s (Public Securities Association 1990). The immense growth of municipal debt also may be seen in the fact that the volume of municipal bonds was more than twice the amount of corporate debt issued since the 1970s.

A municipal bond is a bond issued by a state or a local government, in contrast to a corporate bond which is issued by a profit-generating corporation. Both types of bonds typically provide fixed payments over the life of the security and both usually can be quickly liquidated when needed. Unlike most corporate issues, which are usually composed of bonds with a single maturity (term bonds), most municipal bonds have serial maturities with interest repaid in semi-annual installments over the life of the issue (Public Securities Association 1990). The fundamental difference between municipal and corporate bonds, however, is the exemption from federal income taxation for interest earned on most municipal bonds. Also, state law often exempts interest income of municipal bonds from state income taxation. As a result of the tax exemption provisions, municipal bonds normally incur interest rates below

comparably rated corporate bonds (Public Securities Association 1990).

Municipal bonds have evolved into several types. They may be categorized by the length of maturity into long-term and short-term bonds. Short-term securities, usually called "notes," mature in one year or less; long-term bonds may extend from two to thirty years to maturity. Notes are frequently issued by governmental units to cover cash shortfalls until anticipated tax, grant, or bond revenues become available. Municipal bonds also may be divided into three categories according to the type of credit backing: general obligation (GO), revenue, and hybrid bonds.

A GO bond represents a commitment of the "full faith, credit and taxing authority" of the issuer (Public Securities Association 1990). It implies that the issuer has the authority to use all available sources of revenue and taxing power to repay outstanding securities. States statutes generally require voter approval for the issuance of GO bonds and in some states (e.g., Texas), there are constitutional requirements calling for public approval before GO debt can be issued. There are, however, differences in the nature of the constitutional guarantees for general obligation bonds. Most state constitutions provide for unlimited tax support for bonds voted by the public. These are termed unlimited tax bonds (ULT) because the credit support for repaying the debt is not subject to any kind of constitutional or statutory limitation. Other state constitutions limit the rate of taxes that can be assessed against property values. Bonds in these states are designated as limited tax bonds (LT) because they are protected only to the extent of the maximum tax levy permitted by the state constitution (Lamb and Rappaport 1987, 66).

In recent decades, many states have abandoned the ad valorem tax, leaving it mainly for their local governments. States, as a result, normally secure their bonded indebtedness through sales, income, or other types of taxes. Municipalities, however, like other units of local government, still rely heavily on the property tax to secure their indebtedness.

Revenue bonds, unlike GOs, are issued to finance revenue-generating projects, such as toll roads, dormitories, hospitals, and public utility services. Only the revenue generated from these projects is pledged to repay outstanding obligations. Normally, revenue bonds do not require electoral approval or constitute "debt" within the meaning of applicable constitutional or statutory limitations (Public Securities Association 1990, 18).

Revenue bonds frequently are called by the enterprise they fund, such as sewer, water, or electrical bonds. User charges for these services repay the debt and meet the annual debt service obligation. Other revenue debts, such as highway, bridge, airport, and seaport bonds, are financed through tolls, concessions, and direct fees.

Revenue bonds are considered inherently more risky than GO bonds due to their more limited credit backing. The interest cost of revenue bonds is generally 6 percentate points higher than comparable GO bonds (Gurwitz 1983-1984; Kidwell and Koch 1982; Rogowski 1980). These studies have only examined local revenue bonds, and it remains as yet unknown whether such a price differential exists at the state level. In spite of higher interest costs, revenue bonds are increasingly popular with state and local governments because they do not require voter approval for issuance; they also tend to ration the use of the service by charging user fees, thus promoting economic efficiency.

The issuance of revenue bonds has increased greatly over the past twenty years. In 1993, they accounted for 68 percent of all new long-term municipal bonds issued, compared with only 48 percent in 1975 (The Bond Buyer 1994, 11).

Hybrid bonds are a third category of municipal bonds; they are secured by the pledge of two or more sources of revenue. For instance, in some states a bond is secured first by a user fee, and may in addition be secured by ad valorem or other tax sources. These bonds are also called double-barrelled securities because of the contingent source of revenue backing the debt should the primary source be insufficient.

III. Municipal Bond Market

Most of the literature on the development of the municipal bond market discusses the various parties participating in the market and their role in the process. Issuers, underwriters, and investors are the most important participants in the municipal bond market as illustrated in the following flow diagram.

Table 2 Participants in the Municipal Market

ISSUERS (states, municipalities, counties, school districts, special districts, statutory authorities)
→Capital budget or plan; approval for issuing bonds
→Credit rating
→Financial advisor
→Bond counsel
→Credit enhancement
→Method of bond sales
<u>UNDERWRITER</u> (investment banks, commercial banks)
→Syndicate to bid a large issue
→Sales of individual bonds to investors
<u>INVESTORS</u> (individuals, bond funds, property and casualty)
→Insurance corporation commercial banks
→State and local governments

Issuers. All municipal bonds are issued either by the state and its agencies or by units of local government. Bonds are typically not sold directly to investors, but to intermediary underwriters. The bonds are then resold to investors.

The issuance process is initiated by a state or local government desiring to build or expand their facilities requiring long-term capital. Many states and local governments in their financial planning, called capital budgeting, consider needed capital projects over a period of five to seven years. Most governments rely on a mix of debt, grants and current revenue to finance such capital acquisitions. In the capital planning process, the legislative body of the governmental unit must formally approve the issuance of the bonds. In the case of general obligation bonds, voter approval normally is required depending on state or local law. Revenue bonds, however, normally may be issued by the governing authority to obtain funds to finance revenue producing facilities without a vote of the public.

States and local governments are vitally concerned about their credit ratings because the cost of borrowing is directly affected by the issuer's creditworthiness. The credit rating of the issuer is, in fact, the most consistent determinant of an issue's interest cost (Lamb and Rappaport 1987, 47). In order to provide investors with a symbol of credit quality, and also provide public officials with an independent appraisal of their government's relative standing in the investment world, private rating agencies provide such an evaluation. For investors, the rating answers these questions: What is the probability of the timely repayment of principal and interest on this bond and what is the risk of a rating downgrade (Lamb and Rappaport 1987, 36)?

There are two major rating agencies in the municipal bond market: Moody's Investors Service and Standard & Poor's Corporation (S & P's). Each rating firm uses its own symbols to indicate their analysis of credit worthiness of a bond issue. Table 3 summarizes the credit rating symbols used by these firms. Studies consistently show that the interest cost of municipal bonds significantly varies as a result of ratings (Lamb and Rappaport 1987, 46). Generally, there is a reverse relationship between bond ratings and interest rate, that is, the higher the bond rating, the lower the interest rate. High ratings reflect a low risk of default, Whereas low rating means higher risk of default. All long-term rated debt below the Baa/BBB is speculative grade and is often referred to as "junk" bonds.

Table 3 Moody's and Standard and Poor's Credit Rating Categories

Credit Categories	Moody's	S&P's Grades	
Best Quality	Aaa	AAA	investment grade
High Quality	Aa	AA	investment grade
Upper Medium	A	A	investment grade
Medium Grade	Baa	BBB	investment grade
Lower Medium	Ba	BB	speculative grade
Lower Grade	B	B	speculative grade
Poor Grade	Caa	CCC	speculative grade
Highly Speculative	Ca	CC	speculative grade
Defaults	C	C,D	speculative grade

Source: John L. Mikesell. 1995. Fiscal Administration: Analysis and Applications for the Public Sector. 4th ed. p.484.

Note: For those bonds in the Aa through B categories that have the strongest credit feature within their respective categories, Moody's designates them with 1, such as Aa1. S&P use a plus (+) or minus (-) sign to show the upper and lower segment of the rating category.

A rating evaluation is initiated on application and payment of a fee by issuers of bonds. The fee in the 1980s ranged between \$1,000 and \$10,000 (Reeve and Herring 1986, 68). Because of the cost, about 30 percent of the municipal bonds are not rated by either Moody's or S&P's (Reeve and Herring 1986, 66).

General obligation bonds are rated according to the issuer's overall credit worthiness and thus the rating applies to all outstanding GO bonds of that issuer. The two rating agencies consider four basic factors in making a rating decision for GO bonds: an issuer's debt burden, economic base, finances, and management capability (Lamb and Rappaport 1987, 62-65). When evaluating an issuer's debt service burden, rating agencies usually focus on the current debt service level, debt pledged, and future debt needs. On the issue of economic condition, rating agencies consider such factors as income, population growth, diversity, and growth in the tax base. For the financial condition of the issuer, the rating agency takes into consideration the issuer's accounting and financial reporting practices, and its ongoing operating budget balance. Lastly, the evaluation of management capacity of the issuer depends on the degree of organizational autonomy, the decision-making and managerial skills, and the range of services the governmental unit can provide.

Revenue bonds are rated differently. The stability of revenues committed to repaying the debt is the most important factor in establishing the issue's credit worthiness. Each revenue bond issue and the revenue sources to repay it affect its credit rating. Governmental units preparing to issue bonds normally employ advisors to assist them in preparing for the bond issue.

Financial advisors analyze the financial needs of the community, organize the sale, advise the government unit on strategies of credit enhancement and provide help in choosing an underwriting syndicate. Financial advisors, in some instances, may also act as the underwriter for an issue. These advisors are paid for their services on a fee basis.

Another specialized advisor, the bond counsel, verifies that the interest on the issue is tax-exempt according to federal income-tax laws, and state and local laws. The bond counsel issues an opinion verifying that the issue is a legal, valid, and binding obligation of the issuer, and that it meets the legal requirements to make it a tax exempt bond. No underwriter will release an offering until a bond counsel has provided a clean legal opinion.

Before the bond issue is sold to an underwriter, government units pursue various strategies designed to increase the appeal of their debt, collectively known as strategies for credit enhancement. This has become necessary in recent years because of the uncertainty in the bond market that in part was caused by a number of highly publicized defaults of municipal bonds in the 1970s and 1980s. There are three means of credit enhancement: private bond insurance, standby letter of credit (LOC), and various state-funded programs for assisting local governments in the bond market. These enhancement programs aim to reduce risks of default, and thus appeal to risk-averse investors. About one-third of municipal bonds come to the market with some form of credit enhancement (Bland and Yu 1987). According to one study, insured bonds sell at interest rates comparable to A-rated issues, not Aaa-rated ones (Bland 1987; Bland and Yu 1987). It also indicated that the most interest savings from credit enhancements are on bonds with lower credit ratings. However, the insurance industry is inclined to insure only those bonds with higher ratings to avoid potential default.

A letter of credit calls for a bank commitment to pay bondholders in the event of default. Thus, rating companies rate LOC-backed debt on the bank's ability to pay not on the issuer's credit worthiness (Moody's Investor Service 1987; Standard and Poor's Corporation 1986). Kim and Stover (1987), however, found that savings from LOCs are negligible when compared with their cost (Kim and Stover 1987).

State funded programs for assisting local governments in the bond market are another means of enhancing the credit of local governmental units. States follow several ways of enhancing the credit of their governments, such as state credit guarantees, state payment of debt credit service, and state financial intermediation (Forbes and Petersen 1983). According to state guarantee programs, repayment of debt is legally guaranteed by the state in the case of default by the local issuer. The program may be a collateralized

commitment in which earmarked revenues are pledged to satisfy local debt payment in default, or it may be an unfunded commitment in the form of a full-faith-and-credit pledge (Bland 1987).

In the case of state payment of debt service, states earmark revenues or grants-in-aid to guarantee timely payment of an issuer's debt. For example, in the state of Indiana, the state treasurer earmarks state aid to pay debt in the event of default of its school districts. In the case of state financial intermediation, a state agency or authority serves as a financing conduit on behalf of the local government. An example is the creation of a state bond bank. A state bond bank pools many relatively small local governments' long-term bonds and resells these bonds in the state agency's name (Kidwell and Rogowski 1983; Cole and Millar 1982). The advantage of state bond banks is that they lower the flotation costs—the up front costs incurred in issuing debt—because of economies in marketing the debt.

The governmental unit, after ensuring it has done all that it can to lower the cost of borrowing, sells the issue to an underwriting syndicate. GO bonds are most often issued through competitive sales, except in the case of refunding bonds. In some instances, bonds may be sold through negotiation. Normally, bids are solicited from underwriters and the lowest interest rate is accepted. Once a bid is legally accepted, the underwriters are obligated to pay the price they offered no matter whether they can resell the bonds to investors or not.

Underwriters. Municipal bonds are sold by issuers to underwriters who then resell the debt to investors. The intermediary, known as an underwriter, functions like a wholesaler. An underwriter may be either an investment banking firm or a commercial bank. Usually, underwriting of larger issues is made by a syndicate or group of underwriters to raise sufficient capital to purchase and resell a pending bond issue. The larger the issue, the greater the number of firms coming together to bid on an issue. The underwriter of a new bond issue may use other commercial banks and investment firms to sell the bonds, or it may act as its own retail outlet.

Investors. The ultimate purchasers of municipal bonds include individuals, mutual funds, property and casualty insurance companies, corporations, and commercial banks. The largest purchasers in the municipal market from the 1960s to 1986 were commercial banks, followed by individual investors, and property and casualty insurance companies. The relative importance of the major investment categories, however, has shifted over the years. For example, throughout the period from the 1960s, commercial banks were able to deduct 80 percent of their cost of buying tax-exempt bonds because the interest income from the municipal bonds are tax-exempt. Commercial banks in this

period absorbed approximately two-thirds of new municipal bonds issued. After the Tax Reform Act of 1986 (TRA 1986) sharply restricted banks' ability to deduct interest on debt incurred to purchase tax-exempt bonds, the share of municipal bonds, purchased by commercial banks decreased to only 15 percent of new sales in 1990 (Petersen 1987; Zimmerman 1991). Mutual funds have assumed a more dominant role in the municipal bond market in recent years and have become the second largest purchaser after individuals, and their holdings now exceed commercial banks and insurance companies (Lamb, Leigland, and Rappaport 1993).

IV. Environmental Factors Affecting the Municipal Bond Market

Another body of literature on municipal bonds considers environmental factors affecting the market. Many of these works examine the cause for the decline of general obligation bonds in favor of revenue bonds since the 1970s. GO debt comprised 65 percent of the new issues in 1960, while made up only 35 percent in 1992 (The Bond Buyer 1994). Other studies focused on economic and political events, such as the municipal bond defaults of the 1970s and 1980s, the tax reform legislation of 1986, and the Supreme Court decision of South Carolina. Other studies have focused on various variables, some directly within the market system and some broader economic and political factors affecting the market but not directly within the sphere of the bond market. Factors such as market interest rate, issue size, issue types, and credit ratings normally are factors considered directly within the market system, while the impact of differing issue entities, state income taxes, along with other legislative, judicial, and demand and supply of municipal bonds are factors influencing the market from outside of the bond market.

The Tax Reform Act of 1986. Other literature on environmental factors influencing the municipal bond market has focused on the recent major legislative and judicial events affecting the bond market, such as the Tax Reform Act of (TRA) 1986, and the Supreme Court case of South Carolina v. Baker in 1988. Tax Reform Act of 1986 was the most sweeping restriction on tax-exempt bonds in history. First, it more narrowly defined public-purpose bonds, then further limited private-purpose bonds through a 10 percent private use test, set state limits on the volume of private-purpose municipal bonds, and imposed a 5 percent loan test (Petersen 1987, 987). Moreover, the TRA of 1986 further limited the practice of advance refunding and arbitrage that had greatly benefitted state and local governments; lastly, enactment of TRA

caused the emergence of new taxable municipal bonds, which had to compete with corporate bonds.

The TRA of 1986 narrowed the scope of tax-exemption for municipal bonds to only those that met a restricted definition of public-purpose debt. Public-purpose bonds, also called "government bonds," may be issued under the act only for governmental purposes such as roads, school buildings, water treatment and distribution systems, and other facilities operated by government entities. Other debt issued by governments for such projects as industrial development parks, students loans, and nonprofit hospitals are no longer tax-exempt, as these projects are now considered to be private activities.

Before passage the TRA of 1986, municipal bonds were governmental bonds as long as no more than 25 percent of the bond issue was used for a private purpose. Consequently, governmental issued tax-exempt debt for a wide range of purposes that otherwise would have been financed by taxable securities. The benefit was to greatly expand state and local governments role in economic development by providing below market interest rates to private business. Under the TRA of 1986, a bond is a private activity bond if more than 10 percent of the bond sale proceeds are used to benefit a private trade or business. Bonds exceeding these limits are classified as private purpose, with some exceptions, and subject to the state's volume limits set by TRA of 1986.

New volume limits or caps were placed on states as to the amount of municipal tax-exempt private-purpose bonds they could issue for purposes such as industrial development, student loans, nonprofit hospitals, and mortgage revenue bonds and still enjoy the tax-exempt privilege on interest income. The TRA of 1986 lowered each state's volume limit for private-purpose debt to the greater of \$50 per capita or a total of \$150 million per state (Petersen 1987). The only private-purpose bonds not subject to the volume limit and still tax exempt are those used for government-owned airports, docks, wharves, and solid waste disposal facilities, qualified veteran mortgage programs, and 501(c)(3) organizations, e.g., nonprofit hospitals (Lamb and Rappaport 1987).

The TRA of 1986 also set forth limitations on advance refunding and arbitrage profits on tax-exempt bonds. Advance refunding is a common practice used by local governments to save interest payments by issuing new debt at lower interest rates for replacing existing bonds. From the Treasury's point of view, this practice means a multiplication in available tax yields and thus a revenue loss for the federal government. The TRA of 1986 allows only governmental bonds and 501(c)(3) bonds to take advantage of advance refunding, and it provides that such refunds can be made only twice in the term of the bond.

The practice of arbitrage involves issuers earning higher interest rates

from their investment than the interest costs they pay on the borrowed amount. The difference constitutes arbitrage income for the issuer, and can amount to a substantial amount as market interest rates rise. The TRA of 1986 basically eliminated this practice. All arbitrage profits from investment of construction funds, debt service reserve funds, and capitalized interest accounts must be rebated to the U.S Treasury Department (Petersen 1987).

Another impact of the enactment of TRA of 1986 was the creation of taxable municipal bonds (Bland and Chen 1990). These new bonds are primarily municipal "private-purpose bonds" that are not tax-exempt. These bonds incurred higher interest costs than their tax-exempt counterparts, and interest on the new taxable revenue issues was even higher than interest rates on corporate bonds generally. State and local governments as a result of this change were forced to pay more interest for these taxable municipal debts (Bland and Chen 1990). They found in year of 1986-1987 that the taxable municipal GO bonds incurred interest cost 200 basis points higher than their tax-exempt counterparts. For revenue bonds, the difference between taxable revenue bonds and tax-exempt bonds is even greater—219 basis points. This may be due to the inefficiency of market for these newly issued taxable municipal bonds (p 47). As a result, state and local governments are forced to look to alternative measures or taxable municipal bonds for financing their capital budgets.

South Carolina v. Baker. The second major event to change the landscape for municipal debt during the period under study was the 1988 Supreme Court decision in South Carolina v. Baker. This decision came on appeal of the 1982 Tax Equity and Fiscal Responsibility Act that required state and local governments to maintain a register of the names of owners of their tax-exempt bonds in order to limit tax avoidance of federal income tax liability. Prior to this time, municipal securities were issued as bearer bonds; the bearer of the bond was presumed to be the owner. This device greatly facilitated the transfer of ownership of these securities in the secondary market because it was unnecessary to update any records of ownership. The decision in South Carolina not only upheld the 1982 federal law requiring states to keep records of who buys such bonds but also overturned the reciprocal immunity doctrine that municipal bond interest is immune from federal taxation.

The immunity doctrine was first established by the U.S Supreme Court in McCulloch v. Maryland (4 L Ed 579, 1819) and was explicitly applied to municipal bonds in Pollock v. Farmers Loan and Trust Co (39 L ED 1108, 1895). The Court held unanimously in Pollock that the federal government has no power under the Constitution to tax either the instrumentalities or the property of states, including the interest on state and local bonds (Hedlund

and Dewe 1986, 27; Keohane 1988). Basically, this immunity doctrine withstood major constitutional changes until the Courts's decision in South Carolina.

The Supreme Court, however, on April 20, 1988 reserved the precedent established in Pollock by saying that interest on municipal bonds was not constitutionally protected by either the Tenth Amendment or the doctrine of intergovernmental tax immunity. The majority ruled that "owners of state bonds have no constitutional entitlement not to pay taxes on income they earn from state bonds, and states have no constitutional entitlement to issue bonds paying lower interest rates than other issuers." The Court further maintained that state and local governments should seek such exemptions on their debt through the political process, i.e., the national legislative process, rather than through the courts. Essentially, the Court stated that tax exemption on municipal bonds is a privilege granted by the legislature, not a right granted by the Constitution. Margaret Wrightson explained the 1988 decision as a proclamation that national sovereignty is always greater than state authority (Wrightson 1989). State and local officials, therefore, must look to Congress for political protection for tax exemption on bonds. State and local governments, furthermore, need to concentrate on the economic soundness of their bonds in order to maintain congressional support for tax exempt bonds (Keohane 1988; Watson and Viocino 1990).

Economic Conditions. Economic conditions also are a major factor influencing the bond market. Researchers normally use two variables to reflect economic conditions, the percentage change in gross national product and market interest rate at the time of sale. A number of studies have shown that interest costs of bonds follows inversely with the percentage change in GNP (Rogowski 1980; Benson and Rogowski 1978; Roden and Bland 1986). In other words, if the economy is expanding, bond interest is low. It also is reasoned that when economic conditions are prospering, the revenue of state and local governments increases and the risk of default decreases. Under these conditions, interest on bonds normally decreases.

Fluctuation in market interest rates in another variable that has been found to affect the interest costs of bonds. In the bond market, the interest cost of issues is positively correlated with prevailing market rates. That is, when the market interest rate is low, the interest cost of bonds also declines, but when market interest rate is high, the interest cost of bonds increases.

The fluctuation of the market interest rates is driven mainly by the amount of capital available in the market and demand for these capital. The Federal Reserve Bank (FRB), influences the amount of capital available through various monetary regulations such as changes in reserve requirements for banks, adjusting discount rates, and open market operations (Samuelson

and Nordhaus 1984, 294-312). Since the FRB's activities affect interest rates, bond dealers closely watch and attempt to forecast their actions.

Competition Among Units of Government. Competition in the American federal system is a major political aspect of the decentralized system of government. The states and local government units compete for domestic as well as foreign resources, such as manufacturing plants, jobs, tourism, and military bases. The ensuing rivalry between units of government for these scarce resources affects the politics and the policies they enact. The effect of this competition among states in the 1980s, according to Gold(1991), can be seen in the politics over state income taxes. He stated that competition caused states to reduce their income tax rates in order to keep themselves competitive tax-wise with other states. Maintaining a "good business climate" is almost a universal creed in the politics of every state and local government, and it affects numerous policy areas such as labor, welfare regulation, and especially taxation.

States often use their tax and expenditure powers in competition with other states. They attempt to attract particular business firms by not adopting taxes particularly onerous to business, or by making expenditures favorable to that business. These practices have raised questions about the impact of a state income tax. Also, the question of whether such an income tax affects the borrowing of states has been raised.

Some states have enhanced state tax differentials on municipal bond interest as a means of reducing the disadvantage from state income taxes for investors in municipal bonds. State tax policies treat interest earned on municipal bonds in one of four categories as seen in Table 4.

Table 4 Summary of State Income Tax Policies on Municipal Bonds

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- A. States do not tax interest income on municipal bonds.
 - B. States tax interest income on in-state and out-of-state municipal bonds equally.
 - C. States levy an intangibles tax on out-of-state municipal bonds.
 - D. States levy income taxes on only out-of-state bonds.
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Source: Peter F. Brucato, Ronald W. Forbes., and Paul A. Leonard. 1991.
 "The Effects of State Tax Differential on Municipal Bond Yields,"
Municipal Finance Journal, 12: 59-77.

Policies A and B in Table 3 do not provide any special incentives to in-state investors to buy state bonds. Policies C and D both provide incentives for in-state investors. Investors in these states have a clear preference for in-state issues because they can avoid state income taxes on interest earnings from these municipal bonds. California, for example, levies a state income tax on interest from out-of-state bonds held by residents of California, but does not

tax the same investor's interest income from bonds sold by a government entity within the state. The demand for bonds sold by California governments thus is enhanced, while the demand for out-of-state bonds is reduced. Texas, by contrast, does not have a state income tax. As a consequence, Texas state and local bonds have no tax advantage over bond issues from other states and there is no tax incentive for Texas investors to purchase in-state municipal bonds. One may expect, therefore, Texas securities to bear higher interest costs than similar issues in California.

Kidwell et al. found in their research on local bonds that small issues of less than \$5 million in a state with a positive tax differential over out-of-state bonds incur interest costs about 4 basis points lower. The reason for excluding larger issues in their study was because larger issues are marketed nationally; therefore, the effect of state income taxes is negligible (1984). Brucato et al. confirmed that in states with a positive state tax differential over out-of-state bonds, interest costs are lower by 18 basis points. The research by both Kidwell and Brucato was on bonds sold by local governments. The impact of state tax differentials on state borrowing has not yet been undertaken.

V. Internal Factors Influencing the Cost of Municipal Debt

In recent decades, many of the studies on municipal bonds have examined internal factors influencing the rate of interest. Most of these statistical studies have focused on those factors directly in the sphere of the bond market, such as the issue size, types of bonds, issuing authority, term to maturity, call provisions, number of bids, and credit ratings. Most of these studies, however, have examined variables affecting local bonds not state bonds.

Issue Size. The impact of the size of bond issues on interest rates was one of the variables studied particularly from the late 1960s to the 1980s. One study by Tanner in 1975 argued that larger bond issues incur higher interest cost "because the demand curve for any particular issue usually is downward sloping" (Tanner 1975, 77). Tanner's hypothesis, however, was challenged by Benson, Kidwell, Koch (1981) who argued that the size of an issue is also an equivalent of marketability. They argued that marketability increases with issue size because larger bonds are issued by more well-known issuers and are more active in the secondary market, which increases their liquidity and in turn lowers interest rates. Benson and his associates found that the relationship between size and interest is manifested in a U-shaped curve that indicates that interest cost of a bond will decrease up to a point, and only

beyond that point will interest costs increase because larger issues become more difficult to market.

Other studies have attempted to identify the optimum size of bond issues that incur the lowest cost. Kidwell and Rogowski(1983) in another article found that the optimum issue size for obtaining the lowest interest cost was \$ 60 million in 1972 dollars. They also report that as size exceeds \$60 million, marketability gradually declines and interest cost increase. Another study by Bland(1984) found through multiple regression that there was an interaction of the size of bond issues and the frequency issuers entered the bond market. He concluded that the best market rate occurred at an issue size of \$40 million in 1976 dollars when the issuers had entered into the market only once every eight years. His study was limited to issues sold by local governments in five northern states.

Types of Bonds. The type of bond is another variable that is considered to influence interest rates. A number of studies have compared the interest difference of municipal general obligation bonds with revenue bonds. All of these works have found that interest cost on revenue bonds exceeds that of GO bonds (Kidwell and Koch 1982; Rogowski 1980). Interest on revenue bonds, according to several studies, averaged between 6 percent to 10.5 percent higher than comparable GO bonds (Bland and Chen 1990; Gurwitz 1983-1984; Kessel 1971).

After the passage of the Tax Reform Act of 1986, new types of municipal bonds appeared on the market, such as taxable municipal bonds. These bonds incur higher interest costs than their tax-exempt counterparts, and interest on the taxable revenue issues are even higher than interest rates on corporate bonds generally.

Type of Issuing Authorities. Special districts or public authorities are a fast growing phenomenon across the country. One major incentive for establishing these authorities is to increase the access to the capital markets in order to pay for their capital projects. Generally, the number of special districts authorized to issue either general obligation or revenue bonds have grown phenomenally in recent decades. Although the popularity of these special districts is well known, the cost of borrowing for these authorities has not been examined fully.

Influence of Length to Maturity. The length to maturity of bonds is also a variable that influences the rate of interest. It is commonly thought that the longer the term to maturity, the higher the interest will be because investors bear greater risk having their funds committed for a long period (Tanner 1975). The reverse is also believed to be true, that the shorter the period to maturity, the lower the interest (Braswell, Fortin, and Osteryoung

1984, 342). In order to avoid having all their bonds with a long maturity, most governments issue bonds with serial maturities that have a diversity of maturity dates. These types of issues are attractive to a wider range of investors because they meet investors' diversified needs. The trend in local government issues seems to be toward more short maturity bonds in an attempt to take advantage of relatively lower interest rates.

Influence of Call Provisions. The presence or absence of a call provision is still another variable influencing interest costs. Most tax-exempt bonds have call provisions that permit the issuer to redeem them prior to maturity date. A study by Kidwell (1974, 28) spelled out some advantages of callable bonds, such as the fact that they provide flexibility to reduce the debt burden if the market interest declines below the interest rate of the bond. From the view of bond investors, however, callability increases the risk of financial loss when market interest rates decline. As a result, in order to compensate for this additional risk, callable municipal bonds incur a higher interest cost than noncallable bonds (Braswell, Fortin, and Osteryoung 1984, 344-346). According to Petersen (1991, 308), callable bonds usually incurs a 10 to 50 basis point higher interest rate than comparable noncallable bonds for compensating the risk of being called. Calling debt is not cost free; the premium for calling a bond usually costs 2 percent to 5 percent above the par value of a bond (Petersen 1991, 309).

Method of Sale. Generally, there are two ways of selling municipal bonds: competitive bidding and negotiated sales (Joehnk and Kidwell 1980; Mease 1985). In competitive bidding, the issuer has to prepare all papers pertaining to the bond before it goes to public auction. These tasks include deciding the maturity schedule, preparing the financial and legal documents, and obtaining a bond rating, and in some instances purchasing insurance. After the sale is publicly posted, underwriters submit bids to the issuer. The award is to the lowest bid. Most states require competitive bidding for GO bonds, but revenue bond may be issued by competitive or negotiated sales. In a negotiated sale a bond is awarded not through market competition but on the basis of the underwriter's expertise, experience. After the negotiated sale is made, underwriters help issuers prepare and structure the bond since competitive bidding is generally perceived as the most effective way to sell bonds since it may lower interest costs because of market competition.

Number of Bids. Studies by Benson and Kessel found that the degree of competitiveness among underwriters can be indicated by the number of bids; therefore, the number of bids received from underwriters is negatively correlated with the interest cost (Benson, 1979; Kessel 1971). As the competitiveness between underwriters heats up, interest costs decline. Kessel (

1971) further added that each bid signifies that underwriters have identified potential buyers who encourage them to enter a bid. Kessel's research showed that the marginal effect of an additional bid on interest cost decreases when the number of bids increases (Kessel 1971). Intensity of the bids, another dimension of underwriters competition identified by Benson, pertains to the dispersion of interest rates among bidders. This dimension of underwriter competition also is inversely related to interest cost (Kessel 1971).

Credit Ratings. Credit ratings are one of the most significant determinants of interest cost of an issue (Lamb and Rapport 1987). The higher the rating, the lower the interest costs. The interest cost difference between the highest rated issue AAA bonds and a lower rated A issue, according to Petersen, is about 30 basis points, and the difference for a BB rated bond more than 100 basis points (Petersen 1974). Basically, credit ratings provide investors an objective evaluation of an issue's credit quality. Credit ratings during the 1980s, as a result of the abuses and defaults of municipal bonds, became even more important in providing information on the financial soundness of a specific issue. Credit ratings also affect the marketability of some bonds because federal laws and regulations limit some financial institutions and mutual funds from purchasing bonds below certain ratings.

Because many small bond issues do not have credit ratings by Standard and Poor's or Moody's, they enter the market at a disadvantage. Reeve and Herring found, however, that the interest costs of smaller unrated bond issues was 10 basis points lower than comparable Baa bonds, indicating that these small bond issues often were perceived to be sound despite being unrated (Reeve and Herring 1986). On larger unrated bond issues, however, the interest cost was 30 basis point higher than the comparable Baa bonds. These bonds obviously are seen as being quite speculative.

VI. Conclusion

The major purpose of this research is to identify and explore the characteristics of municipal bonds. Scholars have identified such factors as the market rate of interest, percentage change of gross national product, callability, term to final maturity, number of bids, and credit ratings to be significant factors in affecting municipal bonds. Furthermore, enactment of the Tax Reform Act of 1986 and 1988 Supreme Court decision in *South Carolina v. Baker* also greatly dampened already worsening municipal financial conditions by limiting the issuance of tax-exempt municipal bonds.

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