Research

THE BOND MARKET ASSOCIATION

# Secondary Market Effects of Municipal Bond Tax Audit Disclosure

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For the past nine years, the Internal Revenue Service (IRS) has undertaken a systematic audit program for outstanding tax-exempt bonds to help ensure compliance with federal tax laws. Some municipal bond market participants have maintained that the announcement of an IRS audit can have a significant effect on the pricing and liquidity of the bond in question, even though almost no audits result in any penalty or tax liability for bond investors. This study clearly demonstrates that effect for certain variable-rate tax-exempt bonds, where rates paid by state and local bond issuers have risen significantly when news of the audit is made public. While anecdotal evidence suggests similar effects for long-term, fixed-rate bonds, empirical evidence is inconclusive.

## Background

The Internal Revenue Service (IRS) has conducted audits of municipal bond issues since 1993 as part of its Tax-Exempt Bond Compliance Program. The purpose of the Compliance Program is to ensure that issuers and bond counsel comply with the increased number of technical rules that have been enacted since 1986. The program was set up to include two types of audits. The first is a targeted audit, which examines transactions that have potential problems based on information received from market participants, the press, IRS officials, or other sources. The second is random, and is designed to gather data from which the IRS can develop profiles for future audits.[1]

The number of audits conducted by the IRS has accelerated over the past few years, particularly following the reorganization of the agency's tax-exempt bond division in March of 2000. Recent press reports indicate that 300 to 400 audits are ongoing at this time. The focus of recent audits have ranged from the examination of individual sectors—such as sports stadium deals, solid waste recycling, and sewage treatment facilities—to specific types of transactions, such as tobacco securitizations and healthcare acquisition deals. Other audits have focused on natural gas financings and arbitrage compliance in the education sector. Recently, the IRS said it expects to pursue audits focused on the single- and multi-family housing sector, private activity bonds, and arbitrage compliance in general.

Most audits are closed with no change in the tax-exempt status of the bond. In cases where the IRS does determine the bond to be taxable, the issuer almost always reaches a settlement with the IRS in order to keep the bonds from becoming taxable, thus protecting bondholders from having to pay taxes retroactive to the date of issue. Therefore, it is not surprising that most IRS tax audits are not disclosed to the public. Disclosure rules, including Rule 15c2-12, require that investors in the initial and secondary markets receive information that is material to their decision to buy or sell bonds. If information is deemed material, it then must be disclosed to the four Nationally Recognized Municipal Securities Information Repositories (NRMSIRs). Since issuers have observed a negative effect from the disclosure of IRS audits, and the vast majority of audits are resolved with no change to the tax-exempt status, the industry has asked the IRS to consider some changes to its enforcement program.

Industry groups such as the Government Finance Officers Association (GFOA) and the National Association of Bond Lawyers (NABL), with the support of The Bond Market Association (TBMA), have asked the IRS to disclose more information to bond issuers regarding the reason behind each audit. In January 2001, the industry groups asked the IRS to classify audits according to four categories: **1**) randomly selected audits; **2**) audits of certain types of transactions, e.g., tobacco settlement bonds; **3**) targeted audits of a specific problem area, e.g., solid waste recycling; and **4**) audits based on external information received, e.g., informants or press stories.

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TABLE 1

| Issuer | Year Issued/Series | Sector | Type | State |
|---|---|---|---|---|
| American Public Energy Agency | 1999 | Gas | Rev | NE |
| Becker Minn Solid Waste Disp Fac Rev-1994B | 1994B,D | Solid Waste | Rev | MN |
| Birmingham Ala Pub Edl Bldg Auth Student Hsg Rev (Var) | 2000A, B | College Housing | Var | AL |
| Camden Cnty NJ Poll Ctl Fing Auth Solid Waste | 1991A,B,C,D | Solid Waste | Rev | NJ |
| Castle Rock Ranch Colo Pub Impts Auth Pub Facs Rev | 1996 | Industrial Development | Rev | CO |
| City of Tampa Health Sys Rev Bonds Catholic Health East | 1998A | Healthcare Acquisition | Rev | FL |
| Colorado Health Facilities Authority | 1990, 1991, A, | Healthcare | Rev | CO |
| Danville VA Indl Dev Auth Student Hsg Rev | 1999 | College Housing | Rev | VA |
| Delaware County PA Auth Student Hsg Rev | 2000B | College Housing | Rev | PA |
| Delaware St Ecn Dev Auth Rev-Courtyard | 1999 | College Housing | Rev | DE |
| District of Columbia Multimodal Medlantic - Series C (Var) | 1998C | Healthcare Acquisition | Var | DC |
| Edmond Okla Econ Dev Auth Student Hsg Rev | 1998 | College Housing | Rev | OK |
| Florida Gas Utility | 1998 | Gas | Rev | FL |
| Glen Cove NY Indl Dev Agy Civic Fac Rev | 1992 | Retirement Housing | Rev | NY |
| Gulf Coast Waste Disp Auth Tex | 1992 | Solid Waste | Rev | TX |
| Hardeman Cnty Correctional Fac Corp Rev-1997 | 1997A, B | Correctional Facilities | Rev | TN |
| Harris County TX Health Facs Dev Corp | 1999A, B | Healthcare Acquisition | Rev | TX |
| Illinois Dev Finance Auth (Var) | 1998 | Healthcare Acquisition | Var | IL |
| Illinois Dev Finance Auth | 1990,1991A, B | Retirement Housing | Rev | IL |
| Indiana Health Fac Fin Auth Hospital Rev | 1996A | Healthcare | Var, Rev | IN |
| Industrial Dev Board of the County of Knox | 1991 | Industrial Development | Rev | TN |
| Jefferson Cnty KY Student Hsg Indl Bld | 1999 | College Housing | Rev | KY |
| Los Angeles Unified School District | 1997A, B | Education | Var | CA |
| Marengo Cnty Port Auth Port Fac Rev | 1989AB | Port | Rev | AL |
| Maryland Economic Development Corp | 1999 | College Housing | Var, Rev | MD |
| Maryland Health & Higher Educational Auth | 1998A, B | Healthcare Acquisition | Rev | MD |
| Memphis Center City Rev Fin Corp-1998A (Var) | 1998A, B | Sport Stadium | Var,Rev | TN |
| Met Govt Nashville & Davidson Cnty Tenn Sports Auth Rev | 1996 | Sport Stadium | Rev | TN |
| Michigan St Hospital Fin Auth Rev | 1999A | Healthcare Acquisition | Rev | MI |
| Monroe Cnty NY Indl Dev Agy Rev | 1999 | College Housing | Var, Rev | NY |
| Nassau Cnty NY Tobacco Settlement Corp | 1999 | Tobacco | Rev | NY |
| New York NY City Indl Dev Agy Rev | 1995 | Recycling | Rev | NY |
| North Central Texas Health Facilities Dev Corp | 1997B | Healthcare Acquisition | Rev | TX |
| Oak Grove Mo Dev Fndtn Leashold Rev | 1998A | Retirement Housing | Rev | MO |
| Payne Cnty Okla Eco Dev Auth Stu Hsg Rev | 1999 | College Housing | Var, Rev | OK |
| Plano Health Facilities Development Corp | 1997B | Healthcare Acquisition | Rev | TX |
| Port of Walla Walla Public Corporation | 1995 | Recycling | Rev | WA |
| Richmond County Dev Auth | 1991A, C | Healthcare Acquisition | Rev | GA |
| San Diego Area Local Governments (Chula Vista) | 1999C | Education | Rev | CA |
| Shelby Cnty TN Health Edl & Hsg Facs | 1999 | College Housing | Rev | TN |
| Spokane Wash Downtown Foundation Pkg Rev | 1998 | Parking | Rev | WA |
| Tarrant Cnty Tex Health Facs Dev Corp | 1997 | Healthcare Acquisition | Rev | TX |
| Tennergy Corporation Gas Rev | 1999 | Gas | Rev | TN |
| Tuscaloosa AL Edl Bldg Auth Stud Hsg | 2000 | College Housing | Rev | AL |
| Utah School District Finance Coop | 1988, 1991 | Education | Rev | UT |
| Westchester Tobacco Asset Securitization Corp NY | 1999 | Tobacco | Rev | NY |

In response to the request of the industry, the IRS agreed to provide more information regarding the type of audit being conducted beginning in May of 2001. The IRS agreed to categorize audits into three categories: random audits, audits aimed at specific market sectors, and audits based on IRS concern that the issue may fail one or more provisions of the tax code.

### Statement of the Problem

Market participants have expressed concern about the effect of the announcements of IRS audits on the municipal bond market.[2] Issuers have indicated that the announcement of an IRS audit has a negative effect on their cost of capital. In the case of variable-rate demand obligations[3] (VRDOs), issuers said their interest rates rise immediately to near taxable levels upon the announcement of an IRS audit. Since the interest rates on these issues vary on a weekly or daily basis, issuers' cost of funds rises immediately and sharply. Issuers have stated that many investors choose to put their VRDOs back to the dealers following the announcement of an IRS audit. When the issuer's remarketing agent attempts to resell the bonds, interest rates are substantially higher. For long-term, fixed-rate bonds, some issuers have reportedly found it difficult to place new issues at reasonable cost after an audit announcement, even though the audit in question relates to bonds which are already outstanding. As a result, state and local issuers have either canceled or delayed new issues or have found other means by which to finance their capital needs.

Investors have also voiced concern over the IRS audit process. If the prices of bonds under audit fall, investors who need to sell these bonds will be forced to sell them at a loss. If investors continue to hold the bonds, they bear the risk that if the bonds are found to be taxable, they will be forced to pay taxes to the IRS, however small that risk may be. Investors have indicated that the liquidity of bonds under audit tends to decrease, as measured by lower prices or weaker bids and fewer secondary market transactions. Some mutual funds have investment policies that prohibit buying any bond that is undergoing an IRS audit.[4]

In this study, The Bond Market Association will investigate the effect of the announcement of an IRS tax audit on the secondary market for municipal bonds. It is hoped that this study will contribute to the body of knowledge available to the IRS and market participants regarding the tax audit process and its consequences.

### Data

The first step in the analysis required the identification of bonds for which IRS audits had been disclosed. The sample was restricted to audit disclosures from 1999 through 2001. Bonds were identified by contacting the four NRMSIRs, i.e., Bloomberg Municipal Repository, FT Interactive Data, DPC Data Inc., and Standard & Poor's J.J. Kenny Repository, and examining all material event notices that pertained to adverse tax events. In addition, news media articles were searched for relevant information. This process resulted in the identification of 45 issuers with 49 different bond issues that were under audit by the IRS. Table 1 contains the list of issues used in this study.

The second step required the identification of CUSIP numbers for the 49 issues. Since many of the bonds are serial issues, numerous CUSIP numbers correspond to each issue. Material event notices and Bloomberg were used to identify the 461 CUSIP numbers that correspond to the 49 issues

TABLE 2

| VRDO Issuer | Avg Spread Before Audit | Avg Spread After Audit | Change In Spread (After-Before) |
|---|---|---|---|
| Birmingham Ala Pub Edl Bldg Auth | 0.34 | 0.39 | 0.05 |
| District of Columbia Multimodal* | 0.01 | 1.48 | 1.47 |
| District of Columbia Multimodal* | 0.01 | 1.48 | 1.47 |
| District of Columbia Multimodal* | 0.01 | 1.48 | 1.47 |
| District of Columbia Multimodal | -0.12 | 1.35 | 1.47 |
| District of Columbia Multimodal | -0.12 | 1.35 | 1.47 |
| Illinois Dev Fin Auth | -0.07 | 0.56 | 0.63 |
| Illinois Dev Fin Auth | 0.02 | 0.54 | 0.52 |
| Illinois Dev Fin Auth* | -0.17 | 1.57 | 1.74 |
| Indiana Health Fac Fin Auth Hosp Rev | 0.01 | 0.28 | 0.27 |
| Indiana Health Fac Fin Auth Hosp Rev | 0.01 | 0.29 | 0.28 |
| Maryland St Eco Dev Corp | 0.06 | 0.01 | -0.05 |
| Maryland St Eco Dev Corp 2000B | 3.44 | 2.98 | -0.46 |
| **Average** | **0.26** | **1.06** | **0.79** |

* The rates on these issues are set by auction and before being the subject of audits, were held principally by retail investors. Liquidity in these issues is more acutely affected by audit announcements due to the lack of a broad, institutional investor base.

under audit. There were 17 CUSIP numbers identified as belonging to VRDOs. A database containing CUSIP, name, issue date, audit announcement date, industry sector and project was developed to facilitate the study.

In order to investigate the effects of audit announcements, price and trading volume data were collected for 6 months before and 6 months after the announcements. Price and volume data reported by dealers to the MSRB were obtained from Bloomberg. For VRDO issues, weekly remarketing rates were obtained from Bloomberg and Thomson Financial Municipal Market Data (MMD). MMD collects data from remarketing agents and maintains historical time series of rates. Data used by TBMA were released with the approval of the remarketing agents involved.

## Methodology

Interest rates on VRDOs was examined for several months before and after the announcement of an IRS audit. The average spread of the issuer rate over the TBMA swap index was calculated for the before and after time periods. The TBMA swap index is a short-term index of VRDOs which is considered the industry benchmark for short-term municipal interest rates. It is compiled and maintained by MMD, and is based on their Variable Rate Demand Note Network, which is a comprehensive database of over 11,000 VRDOs. MSRB transactions data for VRDOs were also examined before and after the audit announcement date to determine volume effects, if any.

For long-term bonds, MSRB price and volume data were examined to determine the secondary market effects of the announcement of an IRS audit.

## Results for VRDOs

Interest rate data were available for 14 of the 17 VRDOs in the study. The average spread of an issue over the TBMA swap index was calculated for several months before and after the audit announcement. Thirteen issues were included in the summary calculations.[5] The average spread over the TBMA index before the audit was 26 basis points. After the audit, the spread increased to 106 basis points, more than four times the pre-audit spread. Table 2 shows the changes in the spreads for each issue.

Spreads were higher for all but one issuer, the Maryland State Economic Development Corporation. This result likely reflects the fact that the credit rating of the issuer was upgraded during the time period under study. For the vast majority of issuers, the spreads were higher, thus providing a direct measure of the increase in borrowing costs that results from the IRS audit announcement. Investors immediately demand a higher interest rate. Charts 1 and 2 demonstrate the magnitude of the range of the rate increase for two sample issuers.

CHART 1

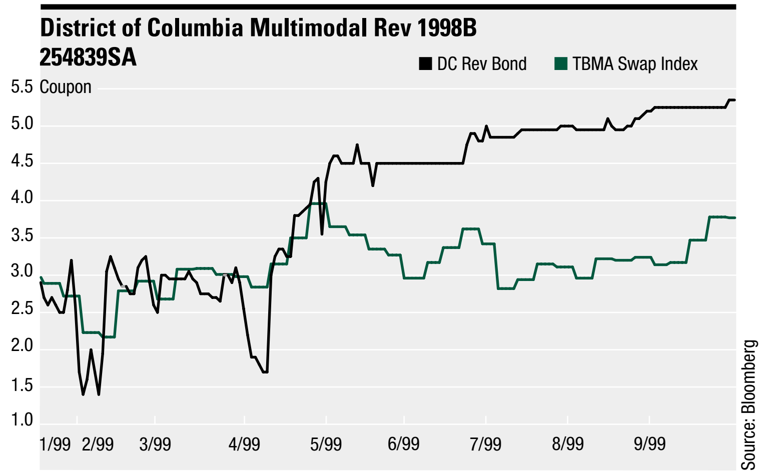



CHART 2

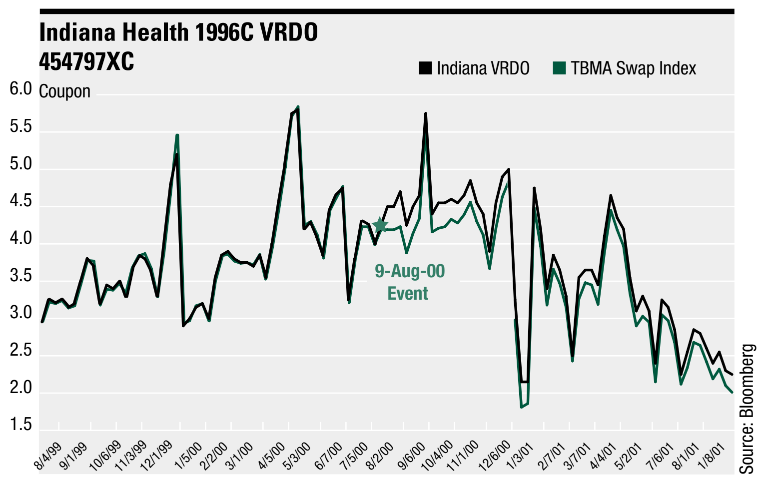
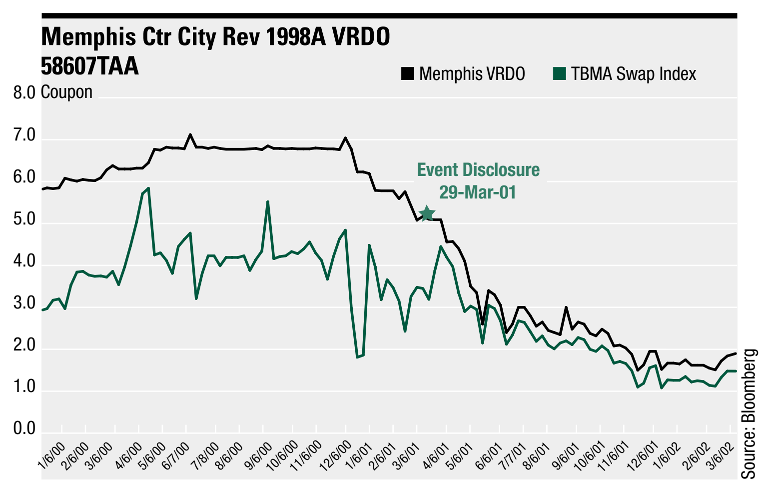



CHART 3



One VRDO audit was resolved during the course of this study. As chart 3 shows, the interest rate spread narrowed substantially following the resolution of the audit.

The issuer, Memphis Center City, entered into a closing agreement with the IRS in order to maintain the tax exemption, and following the resolution of the audit, the interest rate spread narrowed 207 basis points.

Examination of MSRB transactions showed some evidence that the liquidity of VRDOs declines following audit announcements since they are often put back to dealers immediately. VRDO trading data typically exhibit weekly trading patterns which reflect the weekly remarketing activity. However, immediately following the audit, trading volume spikes sharply higher. For example, closer examination of the transactions data for Illinois Development Finance Authority's 1998 VRDO (audit announced on July 28, 2000), revealed that all 59 transactions on July 31, 2000 were dealer purchases from customers, i.e., the customers were putting the VRDOs back to the dealer.

### Results for Long-Term Bonds

MSRB price and volume data was obtained for each of the 441 CUSIPS pertaining to long-term issues for the years 1999 to 2001. Unfortunately, the trading volume in the municipal market is not contiguous. In many cases, none of the CUSIPS traded before or after the audit announcement date. Most before and after trades occurred within one month of the audit date, but in several cases the time period was wider. The final results found eleven CUSIPS for which there was trading volume and price data within a reasonable time period both before and after the audit date. The weighted average price (WAP) for each bond was calculated before and after the audit. Volume weighted prices were used so that prices or large-size trades were given more weight than smaller trades. Zero coupon and capital accumulation bonds were excluded from this analysis because their prices behave differently over time.

Of the eleven bonds examined, the weighted average price fell after the audit announcements for nine of the bonds. (See table 3.) For one issuer, Tampa, Florida, prices were higher after the audit announcement, reflecting the presence of other factors that outweighed the impact of the audit announcement. Further investigation into this issuer did not reveal any additional information that could explain this observation.

Examination of trading volume revealed little information. Trading volume prior to the audit announcement was low and infrequent, and volume following the announcement was not noticeably higher or lower. Given the lack of transactions before the audit, it is not possible to draw any conclusions regarding liquidity based on the examination of trading volume data.

### Primary Market Considerations

The results focus on the effects of audit disclosure on the secondary market. Attempts were made to examine new issue volume and costs in the primary market for issuers who had other bonds under audit. However, it was not possible to develop any tests due to the difficulties involved in quantifying the myriad of factors that go into the pricing of a new issue. It was also difficult to locate new issues where the ultimate beneficiary was the same entity that was under audit.

Aggregate issuance was examined for bonds in targeted sectors, such as solid waste, water and sewer, and 501(c)(3) healthcare issues. It was difficult to observe any change in new issue volume for any sector except the 501(c)(3) health care sector, where issuance slowed in the second half of 2000 and into 2001 following the announcement of several health care acquisition audits. (See table 4, quarterly issuance of 501(c)(3) health care bonds.)

TABLE 3

| | Before Disclosure | | | Disclosure | After Disclosure | | | WAP |
|---|---|---|---|---|---|---|---|---|
| Name | Date | Vol* | WAP | Date | Date | Vol* | WAP | Change |
| Colorado Health | 9-Apr-01 | 215 | 21.682 | 30-Apr-01 | 3-May-01 | 400 | 20.165 | -1.517 |
| Glen Cove | 10-Jul-01 | 250 | 34.637 | 13-Jul-01 | 31-Jul-01 | 960 | 32.616 | -2.021 |
| Harris County | 13-Apr-00 | 22,010 | 92.204 | 26-May-00 | 5-Jun-00 | 7,600 | 89.622 | -2.582 |
| Harris County | 22-May-00 | 855 | 89.609 | 26-May-00 | 2-Jun-00 | 7,850 | 88.259 | -1.350 |
| Indiana Health | 5-Jul-00 | 80 | 100.000 | 9-Aug-00 | 25-Aug-00 | 35 | 98.387 | -1.613 |
| Knox County | 13-Jun-00 | 210 | 36.383 | 16-Jun-00 | 12-Jul-00 | 300 | 34.031 | -2.352 |
| Michigan St Hosp | 6-Apr-00 | 1,350 | 103.820 | 11-May-00 | 2-Jun-00 | 450 | 102.526 | -1.294 |
| MD Eco Dev Corp | 2-Nov-00 | 60 | 98.166 | 22-Dec-00 | 28-Feb-01 | 600 | 90.623 | -7.543 |
| Tampa Fla | 22-Jun-00 | 250 | 93.636 | 28-Jun-00 | 25-Jul-00 | 200 | 96.983 | 3.347 |
| Tampa Fla | 26-Jun-00 | 250 | 87.749 | 28-Jun-00 | 1-Aug-00 | 105 | 89.59 | 1.841 |
| Tampa Fla | 28-Jun-00 | 105 | 88.234 | 28-Jun-00 | 7-Jul-00 | 260 | 87.222 | -1.012 |

* Quantity in thousands

In April 2002, the IRS released proposed regulations on the definition of refunding issue which is applicable to tax-exempt bonds for 501(c)(3) organizations that operate hospital systems. This proposed rule is not yet final. However, it is believed that this guidance will mitigate IRS scrutiny of these transactions in the future.

TABLE 4

| Quarter and Year | Principal Amount Issued (mil $) |
|---|---|
| Q1 1998 | 6003.7 |
| Q2 1998 | 6133.1 |
| Q3 1998 | 4189.0 |
| Q4 1998 | 5293.2 |
| Q1 1999 | 2401.9 |
| Q2 1999 | 1969.1 |
| Q3 1999 | 3186.3 |
| Q4 1999 | 4438.7 |
| Q1 2000 | 1682.7 |
| Q2 2000 | 2556.4 |
| Q3 2000 | 1844.3 |
| Q4 2000 | 870.0 |
| Q1 2001 | 626.0 |
| Q2 2001 | 1822.6 |
| Q3 2001 | 1644.1 |
| Q4 2001 | 2958.9 |
| Q1 2002 | 2289.2 |

Source: Thomson Financial Securities Data

## Conclusions

This study examined the effect of IRS audit announcements on the secondary market for municipal bonds. A thorough search for audits disclosed between 1999 and 2001 identified 49 issues and their corresponding 461 CUSIP numbers. VRDOs were examined separately. Results indicated that VRDO issuers face substantially higher borrowing costs following audit announcements. In addition, volume effects were observed which indicate a reduction in liquidity as the VRDOs are put back to dealers.

For long-term bonds, there were insufficient data to draw any quantitative conclusions. The trading characteristics of municipal bonds are such that there is not continuous trading activity. Out of the 461 CUSIP numbers in the study, only eleven bonds traded within a reasonable period of time both before and after the audit announcement. It was not possible to conduct statistical tests with such a small sample size. However, there is much qualitative information that supports the hypothesis that the announcement of an IRS tax audit leads to a reduction in liquidity for long-term, fixed-rate bonds. Many investors, mutual funds in particular, have investment policies that prohibit investment in bonds that are under audit. Scudder Kemper Investments Inc. is one example of a firm with such a prohibition.[6] If a fund did not own a particular bond that is under audit, they would not buy the bond because such a transaction could be viewed as risky. If the bond were declared taxable, the fund would incur substantial administrative costs in tracking down all prior interest payments and shareholders affected. Given the size and diversity of the municipal market, it is simply not necessary for a fund manager to buy a bond that is under the "black cloud" of an audit. So, bonds under audit are not likely to attract new investors. On the other hand, if a fund already owned a bond that came under audit, the fund manager would typically hold rather than sell the bond with the hope that the matter will be resolved, rather than sell at a depressed price. Clearly, this behavior results in a decline in market liquidity. Buyers are not interested and holders will not sell. In a market that is not very liquid to begin with, liquidity is all but lost.

1 Meleney, J. Alexander. "The Taxman Cometh (To Issuers of Tax-Exempt Bonds): The IRS Tax-Exempt Bond Compliance Program," *Illinois Municipal Revenue*. February 1996, 19-20.

2 Kinnander, Ola. "Market Participants: Many Investors Still Wary of Audited Bonds," *The Bond Buyer*, February 20, 2001.

3 Variable-rate demand obligations are securities where the interest rates paid by issuers vary periodically based on prevailing market conditions. In addition, the securities include a feature whereby investors are able to sell their securities at par on a regular basis. The frequency of interest resets varies from daily to annually.

4 Fine, Jacob. "Hanging on Under a Cloud: Holders Stick With Audited Healthcare Debt," *The Bond Buyer*, August 16, 2000.

5 Data for one issue, Memphis Center City, is discussed later in this paper, as it demonstrates interest rate behavior following the resolution of an audit.

6 Fine, Jacob. "Hanging on Under a Cloud: Holders Stick with Audited Healthcare Debt," *The Bond Buyer*, August 16, 2000.