

Special Report

## Default Risk and Recovery Rates on U.S. Municipal Bonds

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### Related Research

- “Municipal Default Risk Revisited,” dated June 23, 2003
- “Municipal Default Risk,” dated Sept. 15, 1999

### ■ Summary

In comparing performance data for various fixed-income securities, Fitch Ratings has concluded that most U.S. public finance debt has consistently lower default rates and higher recovery rates than similarly rated corporate and structured finance debt. Fitch has incorporated these lower expected loss levels for public finance debt into Matrix, the new stochastic stress model it uses to assess the capital adequacy of financial guarantors, and credit enhancement levels used by Derivative Fitch to assign ratings to municipal CDOs.

### ■ Default Risk

Fitch performed two comprehensive default studies of municipal debt in 1999 and 2003. The universe for these studies consisted of all municipal bond defaults, not just those that were rated by Fitch or other bond rating agencies. Since the 2003 default study, only one Fitch-rated municipal bond has defaulted, issued by National Benevolent Association, a long-term care system, which eventually repaid bondholders 100%. Fitch is aware of some municipal defaults since 2003 that it did not rate, including Fort Worth Osteopathic Hospital, which closed in 2004 and was sold at a loss in 2005, and a few local governments in the Gulf Coast region affected by Hurricane Katrina whose insured debt service payments were made by financial guarantors; those issuers have since recovered and resumed debt service payments.

### Default Risk Based on Municipal Subsector

Based on these studies, Fitch concludes that various subsectors of municipal debt fit broadly into three classifications of default risk. The lowest risk class consists of general obligation (GO), tax-backed, and most appropriation-backed debt of state and local governments, as well as GO and revenue bonds issued by long-standing, essential purpose enterprises that are either natural monopolies or have strong protections against competition. Enterprises that share these low credit risk characteristics include single-family housing, public power distribution utilities, public higher education, and water and sewer revenue bonds. Since the Great Depression, there have been extremely few defaults in these subsectors. According to Fitch’s default studies, from 1987–2002, the five- to 15-year cumulative default rates within these combined sectors averaged 0.24%, which was less than the 10-year cumulative default rate of 0.43% for ‘AAA’ rated global corporate bonds.

The second risk class consists of enterprises that serve essential purposes but are not fully insulated from competition or fluctuations in demand; sectors in this category include hospitals, private higher educational institutions, military and state multifamily housing, airports, seaports, and toll roads with established traffic patterns. Defaults in this risk class have occurred occasionally but with far less

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**Default Rate Classifications**

Class 1	Class 2	Class 3
State and local governments – GO, lease, and tax-backed debt Public colleges/universities – GO bonds, leases, tuition revenue Housing – Insured and single family Water/sewer/gas Public power distribution	Public power generation Hospitals Waste disposal Private colleges/secondary schools State multifamily and military housing TIFs and TABs Museums/stadiums Airports, marine ports, parking Bridges/toll roads (established)	CCRCs, nursing homes Private college auxiliary revenue Local multifamily housing Bridges/toll roads (startups)

GO – General obligation. TIFs – Tax-increment financing. TABs – Tax allocation bonds. CCRCs – Continuing care retirement communities.

frequency than other fixed-income securities. The five- to 15-year cumulative default rates within these sectors averaged approximately 0.70% versus the 10-year cumulative default rate of 0.76% for ‘AA’ rated corporate bonds. The third risk class includes enterprises that must compete against private-sector entities or securities with volatile revenue streams. These include industrial development bonds, local multifamily housing, nursing homes and continuing care retirement communities (CCRCs), toll roads and other transportation facilities that lack established traffic patterns, tobacco securitizations, and tribal gaming bonds. These sectors have default risk characteristics similar to corporations, and their five- to 15-year cumulative default rates averaged 3.65% versus the 10-year cumulative default rate of 3.97% for ‘BBB+’ rated corporate securities.

**Adjusting Default Rates**

Fitch notes the much lower default rate history of class 1 bonds and the somewhat lower default rate history of class 2 bonds, relative to most similarly rated corporate and structured finance debt. While Fitch expects future default risk will likely approximate past experience for class 1 and 2 bonds, relative to corporate bonds and to each other, this has only been partially incorporated into Fitch’s public finance ratings. In other words, Fitch believes an ‘A’ rated GO bond will have a lower default risk than an ‘A’ rated airport, which will have a lower default risk than an ‘A’ rated corporate or industrial development bond. Nevertheless, Fitch believes that within each of the three classes, ratings accurately represent default risk relativity (i.e. ‘A’ rated class 2 bonds will default with less frequency than ‘BBB’ rated class 2 bonds).

Fitch adjusts the assumed default rates in Matrix to compensate for this disparity in default risk among the class 1, 2, and 3 bonds. The model uses the assumption that bonds in class 1 will default at a rate similar to corporate bonds rated one full category higher. For

example, a class 1 municipal bond rated ‘A+’ is assumed to default at the same rate as an ‘AA+’ rated corporate bond. Class 2 municipal bonds are assumed to default at a rate determined by the midpoint between the corporate default rate of the assigned rating and the rating one category higher. For example, if the default rates for corporate bonds rated ‘A-’ and ‘AA-’ are 2.16% and is 0.88%, respectively, the assumed default rate for an ‘A-’ rated class 2 municipal bond would be 1.52% (2.16% plus 0.88% divided by 2.0). Class 3 bonds are assumed to default at the same rate as corporate bonds.

The paucity of investment-grade municipal bond defaults makes it problematic to empirically analyze default rates by rating within the investment-grade spectrum. However, Fitch is able to determine that below-investment-grade and nonrated municipal bonds are approximately 10 times more likely to default than investment-grade-rated municipal bonds. Therefore, class 1 and 2 municipal bonds rated below investment grade do not benefit from any “notching” of default rates in Matrix.

■ **Loss Given Default**

Again, because of the dearth of municipal bond defaults, recovery data are far from robust. However, available data demonstrate that most municipal sectors have superior recovery prospects to corporate bonds, which have an average recovery rate of about 40%. Where defaults have occurred on government obligations and essential service monopoly enterprises, the entity generally recovers and resumes paying debt service. Other municipal enterprises have ceased to exist due to competition or reduced demand but have usually provided recoveries to bondholders from the value of their assets. Certainly, there have been some cases where recoveries have been quite low; Washington Public Power Supply System (WPPSS) bonds, which defaulted in 1982, recovered less than 25%. However, the WPPSS default — which was

**Recovery Classifications**

Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
State GO debt State sales tax	Local GO, tax-backed debt Insured health care Public college GO/tuition revenue Housing – insured and single family Transit Water, sewer, gas	Lease/appropriation-backed  Airports Marine ports Public power distribution	CCRCs, nursing homes Private college/secondary school – GO debt, leases, and tuition backed State/local multifamily TIFs/TABs Museum/stadiums Parking Bridges/toll roads (established) Public power generation Waste disposal	Military housing Bridges/toll roads (startups)	Hospitals Private college auxiliary revenue

GO – General obligation. CCRCs – Continuing care retirement communities. TIFs – Tax-increment financing. TABs – Tax allocation bonds.

caused by an unexpected court ruling that invalidated “take or pay” contracts entered into by various municipalities — appears to be one of the exceptions that proves the rule.

**Recovery Rates Vary by Sector**

Fitch considers the recovery prospects of municipal bonds as fitting broadly into six classes. State GO and sales tax-backed debt is considered the safest in terms of recovery. In the extremely unlikely event a state ever defaulted on its GO or tax-backed debt, it is believed the state would call upon its considerable resources to cure the default in short order. Fitch is not aware of any state that permanently defaulted on its GO or tax-backed debt in the post-Civil War era, and it is certainly difficult to envision a scenario in modern times where a state default would remain uncured for more than one year.

The second recovery class includes local government GO and tax-backed bonds. Recoveries from defaults on these securities are also assumed from a resumption of debt service repayments, with the only losses stemming from the time value of money on the delayed payments. Local governments generally have fewer resources and may lack the taxing power of states. Still, Fitch is not aware of any municipality of size that has experienced an extended default on its GO or tax-backed debt since the Great Depression. Other municipal subsectors that fit within the second highest recovery class are federal agency guaranteed debt, public higher education bonds, single-family housing bonds, and bonds issued by local transit agencies and water/sewer facilities.

The third recovery class includes state and local leases and certificates of participation (COPs), as well as airports and public power distribution revenue bonds. As in the first two classes, recovery is assumed from a resumption in debt service payments, albeit after a longer potential delay. In the case of a COP or lease-backed security, the issuer always has

the legal right not to appropriate funds to pay the obligation; however, this would often result in the loss of the issuer’s right to use the asset. Even in cases where the certificateholder has no legal or practical ability to take possession of an asset, it is believed that most lease or COP issuers will ultimately repay their obligations to ensure continued access to the capital markets. While there have been cases where issuers have completely abrogated their COPs or lease obligations, they have been isolated and rare.

The fourth, fifth, and sixth recovery classes consist of securities where enterprises may cease to operate but the bondholder can expect various levels of recovery from the resale value of the assets, as well as securities where bondholders do not have a lien on assets but resumption in debt service may be expected after an extended delay. The fourth class (moderate recovery prospects) includes bonds backed by nursing homes and CCRCs, private higher education institutions, multifamily housing, public power generating facilities, and parking facilities. Toll roads would also fall into the fourth class, with recovery coming from a resumption of debt service, albeit after a potentially more extended delay than for recovery class 3 bonds.

The fifth and sixth recovery classes generally consist of bonds backed by more specialized or single-use assets, with a lower expected resale value, or bonds that may resume debt service payments only after an extensive delay. Recovery class 5 includes military housing and startup toll road bonds. Recovery class 6 includes hospital, private prison, stadium, student housing, and tribal gaming bonds.

**Adjusting for Recovery Rates**

Recovery class 1, 2, and 3 bonds are assumed to recover 100% of par, with the loss to financial guarantors consisting of estimated lost interest income on claims paid. Recovery class 1 (state GO and tax-backed debt) have loss-given default calculated for

interest on one year's missed debt service payments; recovery classes 2 and 3 assume two and five years of missed payments, respectively. Recovery class 4 and 5 bonds are assumed to recover 90% and 70% of par, respectively. Class 6 bonds are treated the same as corporate bonds, with average recovery rates of 40%.

■ **Outlook for Municipal Bond Ratings**

While many market participants have expressed that existing fine credit distinctions within the lowest risk sectors are desirable, Fitch is also aware that the user base of municipal credit ratings has grown beyond the

traditional base of individuals, banks, and insurance companies seeking returns on tax-exempt securities. Many of these new users of municipal credit ratings, such as derivative instrument counterparties and municipal taxable security institutional investors subject to regulatory capital requirements, may desire indicators on municipal bonds that measure expected loss on the same scale as other fixed-income investments. In the future, Fitch will seek market input in evaluating the development of supplementary credit indicators aimed at satisfying the needs of these other investors while continuing to serve the traditional municipal marketplace.

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