



C A M B R I D G E A S S O C I A T E S L L C

U.S. MARKET COMMENTARY

CAN MUNICIPAL BONDS GET UP FROM THE CANVAS?

April 2009

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Municipal Bond Market Still Unsettled

In March 2008 we wrote “the municipal bond market, normally a rather placid place, has been extraordinarily turbulent over the past eight months.”¹ In retrospect, the turbulence was just getting started. Investors’ fear of illiquidity and aversion to all but the safest of securities caused a massive divergence in the bond universe during this credit crisis, with Treasury investors seeing rarified gains while muni investors experienced atypical levels of mark-to-market losses (Table A). Against this backdrop, we felt an update was in order. This brief report looks at performance, the yield picture, liquidity, default prospects, and developments in the insurance and regulatory environments.

Over the past 12 months, yields of Treasury securities fell roughly 70 basis points (bps) across the yield curve, while municipal bond yields *increased* across most of the long end of the curve (Table B). The performance divergence between muni and Treasury bonds has been extreme. During the 2008 calendar year, long-maturity Treasury bonds returned nearly 33.7%, while municipal bonds returned -7.7%. The 41 percentage point performance differential is more than three times greater than the differential from any other calendar year period dating back to 1980 (Table C).²

Danger in Safety?

It is hard to reconcile bonds of high credit quality delivering a negative return during a recessionary year featuring incipient deflation, negative GDP growth, and collapsing equity earnings. What happened? Illiquidity happened. During 2008 (particularly the fourth quarter), investors shunned fixed income instruments with low or moderate liquidity. The secondary market for Treasury Inflation-Protected Securities (TIPS) provides one example. Real yields on five-year TIPS topped 4% in November 2008, and some TIPS that were issued many years ago and that mature during 2009 and 2010 briefly offered real yields of 8% or higher. TIPS holders benefit from the same creditworthiness as nominal Treasuries, but TIPS are significantly less liquid, accounting for less than 2% of daily Treasury trading, yet 12% of outstanding Treasury securities.³

¹ Please see our March 2008 Market Commentary *Municipal Bonds: Waters Are Roiling in this Once-Sleepy Sector*.

² The 14.7 percentage point performance differential during the 12-month period ended on March 31, 2009, is less extreme than that of calendar-year 2008 because the more recent figure excludes February 2008, when muni bonds underperformed by nearly 4 percentage points, yet it includes January 2009, when munis outperformed by 17 percentage points. No rolling 12-month periods topped the 41 percentage point lag of calendar-year 2008. One 12-month period spanning parts of 1985 and 1986 saw a 29 percentage point performance differential, as Congress finalized Reagan-era tax cuts that slashed the top marginal income tax rate from 50% to 28%, making the tax exemption on municipal bond interest less valuable to upper-income taxpayers.

³ Some may argue that the high real yield for TIPS reflected fears of deflation, which could lead to loss of accrued inflation adjustments for older TIPS. There was a large spread between TIPS with large accrued principal adjustments and those with small adjustments, but even newly issued TIPS were trading at high real yields. Nominal Treasuries show similar evidence of liquidity preferences: the yield spread between benchmark Treasury notes and their off-the-run counterparts is running at about 40 bps today, compared to just 13 bps before the credit crunch kicked off. See “Treasury Premium Triples for U.S.’s Newest Bonds,” Bloomberg, March 16, 2009.

Pre-refunded bonds provide an example from the municipal bond sector of the extreme preference for liquidity. Yields of pre-refunded bonds, which are fully backed by Treasury securities, have remained higher than Treasury yields since September 2008, despite having tax-free income treatment and the same underlying exposure to the U.S. Treasury, simply because they are much less liquid than Treasuries (though they are more liquid than other types of municipal securities).⁴

Municipal bond liquidity has never been great, but in most periods it is sufficient to attract investors. Not so for most of 2008, when liquidity premia soared at the same time that municipal bond liquidity deteriorated from its so-so starting point. Municipal bond trading averaged about \$20 billion per day from 2003 through 2008, but average volume during the three months ended in March was just \$12 billion (roughly 1% of total trading volume in the U.S. bond market). Muni bonds account for 8% of the bond market, but only 1% of daily bond trading volume.

On the average March 2009 day, municipal trading volume was about 0.4% of the total amount of municipal bonds outstanding, compared to daily Treasury trading volume of about 7% of outstanding Treasury securities.⁵ Moreover, most muni trading is concentrated in a relative handful of issues, while the rest of the universe trades very infrequently. The most liquid muni bonds, accounting for 0.1% of the universe, see four or more trades per day, but the majority of bonds trade about once per month or less. The roughly 14% of bonds that trade most frequently account for more than half of all trades (Table D). Small wonder that during a period when investors are willing to pay phenomenally high premia for liquidity, municipal bonds have not benefited from the flight to quality.

Compounding the stampede out of less-liquid securities during the latter portion of 2008, a large number of leveraged muni bond trusts were forced to unwind in the wake of the Lehman Brothers bankruptcy as funding costs soared. The unwinding of these leveraged structures, known as tender-option bond programs, pushed large packages of long-maturity muni bonds into a market that was in no mood to buy anything other than Treasuries. The fire sale pushed the yield of the Bond Buyer 40 Index of long-maturity muni bonds up 84 bps from August 31, 2008, to November 31, 2008, while 30-year Treasury yields declined by 98 bps during that time.⁶

⁴ Yields on 1-2 year pre-refunded bonds (“pre-re’s”) have averaged a 55 bp yield premium over 1-2 year Treasuries from September 2008 through March 2009, compared to a 62 bp yield *discount* from January 2005 to the present. Pre-re’s with a 2-4 year maturity have traded at an average premium of 68 bps, versus a 47 bp average discount since January 2005. And 4-6 year pre-re’s have been at a 64 bp premium over the past six months, versus a 44 bp average discount since January 2005. It should be noted that not all pre-re’s are backed by escrowed Treasuries; about 25% are backed in escrow by agency securities or other high-quality instruments that may not have a full-faith-and-credit blessing from the Treasury.

⁵ March 2009 was chosen to illustrate the concept, but the broad pattern has held true across time periods (throughout 2007, for example, average daily muni trading volume was about 1% of outstanding muni securities, while daily Treasury volume was 12% of outstanding Treasuries).

⁶ More details on tender-option bond programs can be found in our March 2008 commentary on municipal bonds.

Credit Quality Slipping Moderately

Credit quality has deteriorated, unsurprisingly, but the prospect of large waves of defaults by investment-grade municipal credits remains remote, despite the troubled finances of many states and localities. All but three states are facing budget shortfalls for 2009 and/or 2010, with a total estimated 2009 shortfall of more than \$100 billion. Property taxes, sales taxes, and income taxes are all pouring significantly fewer dollars into state and local coffers; however, a dozen states are either considering or have implemented a major increase in sales or income taxes. Governments are looking closely at their spending as well, but they often have limited ability to adjust labor costs. After a recent decision by S&P, the state of California, a very large participant in the muni bond issuance market, is now the lowest-rated state, with an A rating; the rating of Illinois was also cut (to AA-), while Rhode Island and Florida were designated as having a negative ratings outlook. Bondholders that loaned nearly \$4 billion to Jefferson County, Alabama, now find their fate very much in doubt as the county considers what would be the largest ever U.S. municipal bankruptcy.⁷

Municipal defaults are somewhat correlated with the business cycle, but with a one-year lag, according to a 2003 Fitch study. Defaults of rated issuers will likely increase in 2009 and 2010. We expect that defaults will continue to be quite uncommon, however, for investment-grade bonds with good underlying credit characteristics⁸ issued as general-obligation bonds or essential-service revenue bonds. The *cumulative* 22-year default rate for S&P-rated bonds was 0.23% from 1987 through 2007 (in other words, if you held a static portfolio of 10,000 bonds throughout those two decades, 23 of the bonds would have defaulted). A Moody's study covering a longer time period (1970–2006) had similar findings: a cumulative ten-year default rate of 0.1% for the entire rated muni bond universe, compared to a 0.2% cumulative default rate just for corporate bonds rated Aa2 (Table E).

For what categories of bonds do default risks become more meaningful? To generalize, default risk historically has been elevated for speculative-grade rated bonds, particularly those rated below BB (Table F).⁹ It has been elevated for health care and housing-related bonds (these issues accounted for 80% of all defaults by Moody's-rated issuers since 1970). And it is high for unrated bonds; S&P reports zero defaults in

⁷ It appears that, like many other municipalities, Jefferson County engaged in complex interest rate swaps at the behest of its investment bankers and public-finance consultants, perhaps not fully understanding the economics of the transactions. Of course other observers may offer less charitable explanations, given that Birmingham mayor Larry Langford, who was president of the Jefferson County Commission at the time of the swaps deals, is slated to go on trial for bribery and public corruption charges in August. The prevalence of swaps stems from tax-exempt money market funds' strong demand for short-maturity paper, lowering interest rates for borrowers that issue variable-rate paper; those issuers typically used swaps to attempt to hedge their risk of higher interest rates. Some investment banks were very aggressive at promoting packages of variable-rate bonds and swaps-based hedges, which can be more profitable for those banks than underwriting traditional fixed-rate muni bonds.

⁸ We emphasize *underlying* characteristics as opposed to the credit rating of an insurer that may have provided an insurance wrapper on the bond guaranteeing timely payment of interest and principal. A brief update on the insurers is included later in this report. See our March 2008 commentary on municipal bonds for additional details on the troubles surrounding "monoline" municipal insurers.

⁹ Credit ratings agencies proved spectacularly inept at rating collateralized debt obligations and asset-backed securities in recent years, but they have been much more successful in assessing default risk in municipalities. Of course, a talented and well-resourced bond manager should be effective in assessing default risk as well, provided the issuer's disclosures are timely, comprehensive, and trustworthy.

2007 for the bonds it rates, while the publication *Income Securities Advisor*, which tracks defaults, counts 30 defaulting issuers that year—the difference can be attributed to bond issuers that did not purchase a rating.

Speculative-grade and unrated bonds tend to trade at higher yields than general-obligation (tax-supported) bonds or essential-service revenue bonds because of their low liquidity, generally poor disclosure, and higher default rates. The yield spread over investment-grade munis has averaged 272 bps since 1999, with the yield premium over Treasuries averaging 180 bps (Table G). The current premium is vastly higher than average, at nearly 600 bps, thanks to falling Treasury yields and elevated yields for high-yield munis (Table H).

Temporarily High Yields, But What Do You Own?

With a tax-free yield of 10%, does a standalone allocation to high-yield (unrated and speculative-grade rated) munis begin to look attractive?

The maturity structure of the high-yield municipal bond universe is similar to that of the investment-grade universe (Table I). More than half of high-yield bonds are unrated (recall that defaults on unrated bonds appear to be significantly more common than on rated bonds). The issuance sectors are markedly different for high-yield bonds than for investment-grade bonds (Table J). High-yield bonds are only rarely general obligation, and they are not typically backed by essential-service revenues. Often, cities or counties, hoping to spur development, issue high-yield bonds to fund the construction of a housing development, convention center, or even a factory or warehouse.¹⁰ Such bonds rely on revenues generated by the facility to meet coupon payments. These bond deals typically have a speculative element, and if future revenues do not pan out, issuers are less likely to be bailed out (it is the bondholders that are really in need of bailing out, of course) than they would be with a more typical general-obligation or essential-service bond. Defaults in the high-yield muni sector could be significant over the next two to three years and recoveries will likely be lower than those from investment-grade muni bonds.

The high-yield municipal bond universe is diverse, with a lot of dreck and plenty of decent names. Given the wide range of bond types and quality, the poor disclosure standards for smaller issuers, and the short history of data (with one index dating back only to 2003 and the other to 1999), we do not believe we can adequately assess the opportunity for high-yield munis as a sub-asset class. For this reason, a standalone allocation to high-yield munis is probably not appropriate for most investors.

Institutional-quality high-yield muni managers are not common, in any case (in part because the illiquidity of the sector is not tolerant of large, lumpy subscriptions or redemptions—buying or selling large blocks of these securities over the course of a few days to meet redemptions could be very difficult). However, with the index yielding 10% (taxable bonds would need to yield 15% to generate the same after-

¹⁰ These include factories built to spec for a company, which would then relocate to the county to move into the new factory and receive a tax deduction for interest payments, even though the bond is tax exempt.

tax yield for an investor in the 35% tax bracket), there is probably some tasty low-hanging fruit out there, even if much of the orchard appears rotten. For investors with a municipal bond allocation that is significantly larger than what is needed for liquidity needs and deflation hedging, lifting some constraints from their municipal bond separate account manager would permit the manager to eventually source some of the high-yield opportunities as they present themselves in coming months. Investors should ensure that the revised constraints limit the percentage of the account that may be invested in high-yield munis, and that the limit is appropriate for maintaining a sufficient allocation to high-*quality* munis consistent with the investor's anticipated liquidity and deflation-hedging needs. Investors should also assess whether their manager has the resources to select high-yield credits that will perform well. Many of the best muni managers see little client appetite for higher risk and higher yield securities, given the role of municipal bonds in most portfolios, and therefore they may not have expertise in evaluating lower-quality credits.

Thanks for the Memories, Monoline Insurers

A year ago, we detailed the challenges facing monoline bond insurers. These companies had branched out into more profitable, but ultimately much more risky, lines of business, including writing insurance on collateralized debt obligations (CDOs). The credit ratings of most of the legacy monoline insurers were eventually downgraded by Moody's and S&P to levels where their insurance does not meaningfully increase the creditworthiness of the underlying municipal bonds. Berkshire Hathaway stepped into the void during the first half of 2008, launching a municipal bond insurance firm, and this year Citadel (a hedge fund sponsor) and Macquarie teamed up to do the same. For the first three quarters of 2008 (the latest period for which we have data), the share of bonds carrying an insurance wrapper dropped from about 50% to about 20%, according to SIFMA. Bonds carrying alternative forms of enhancement, including letters of credit, have become somewhat more common than they were previously and issuers are more likely now to go without enhancement. The decline in issuance of insured bonds has primarily made life difficult for retail investors who relied on insurance because they did not have the skills or resources to evaluate underlying credits. Sophisticated managers generally have been looking at underlying issuers all along.

What Does Washington Have in Store?

In our March 2008 commentary, we discussed the then-pending U.S. Supreme Court case *Kentucky v. Davis*. This case threatened to remove the authority of states to give preferential tax treatment to their own in-state bond issues (exempting the interest of their own bonds, while taxing interest from the bonds of other states). A ruling that went against the status quo would have upset the applecart, pushing yields higher for bonds issued by high-tax jurisdictions like New York, while increasing demand for bonds issued by municipalities with low indebtedness and low or no income tax. The Supreme Court decided last year that the preferential treatment (the status quo) was legal and could continue.

This year, the Washington question centers on what kinds of bailouts may be offered to municipal bond issuers. Already, the fiscal stimulus package passed in March offers some benefits. For example, it is

likely that some of the “shovel-ready” projects paid for with federal funds would have been paid for by state funds anyway. The stimulus shifts the burden of payment from the beneficiaries of those projects to taxpayers writ large. Roughly \$220 billion of the \$787 billion in stimulus is expected to go to states and municipalities to assist in various ways.

The stimulus also exempts some bonds (known as private-activity bonds) from the alternative minimum tax, at least for this year and next, and subsidizes taxable municipal bonds used to finance infrastructure. These provisions will increase the marketability of airport bonds and bonds from some other sectors as well.

Now comes word that about two dozen members of the U.S. House of Representatives have asked the federal government to create a backstop for short-term muni paper including variable-rate demand obligations. These issues, generally purchased by tax-exempt money market funds, traditionally have relied on standby purchase agreements from banks. The number of banks willing and able to provide these agreements at commercially feasible rates has declined during the credit crisis and a backstop would aim to smooth the issuance of short-term securities. California Governor Arnold Schwarzenegger is also pushing for a federal guarantee of short-term muni paper. Given the number of interest groups pleading for special programs and the growing demands on the Federal Reserve’s balance sheet, this initiative is far from a slam-dunk.

Where Do We Stand Today?

After tax-loss selling of depressed muni bonds began to slow in mid-December,¹¹ muni bonds rallied, with investors pouring an estimated \$12 billion into municipal bond funds in first quarter 2009 (compared with an \$8.8 billion inflow during first quarter 2007 and a \$6.3 billion inflow during the same period in 2008). Long-maturity munis returned 5.8% for first quarter 2009, compared to a -10.9% return for Treasuries. The lowest-rated state, California, found a very willing audience for its recent issue, selling \$6.5 billion in bonds, half of them directly to individual investors (albeit at an attractive yield of 6.1% for the issue’s 30-year slice).

Despite the recent bounce, attractive (if somewhat more restrained) opportunities remain. The ratio of muni yields over Treasury yields has shrunk, but at 151% remains well outside the 76% to 95% range of ratios experienced between 1991 and mid-2007 (Table K). For taxable investors that can tolerate continuing turbulence and periodic illiquidity, munis provide appealing tax-exempt income and generally solid credit quality. They currently appear to have a more symmetric risk/return posture than Treasuries. If the economic situation becomes still more dire and bond yields compress dramatically, long munis have plenty of additional positive return potential due to their much higher current yields (5.9%) than long Treasuries (3.6%). They may also have somewhat less *downside* price risk if we move into an environment of inflationary economic growth and Treasury yields increase. State and local finances are hardly healthy, but

¹¹ Municipal bond mutual funds reported nearly \$14 billion in net redemptions during third quarter 2008.

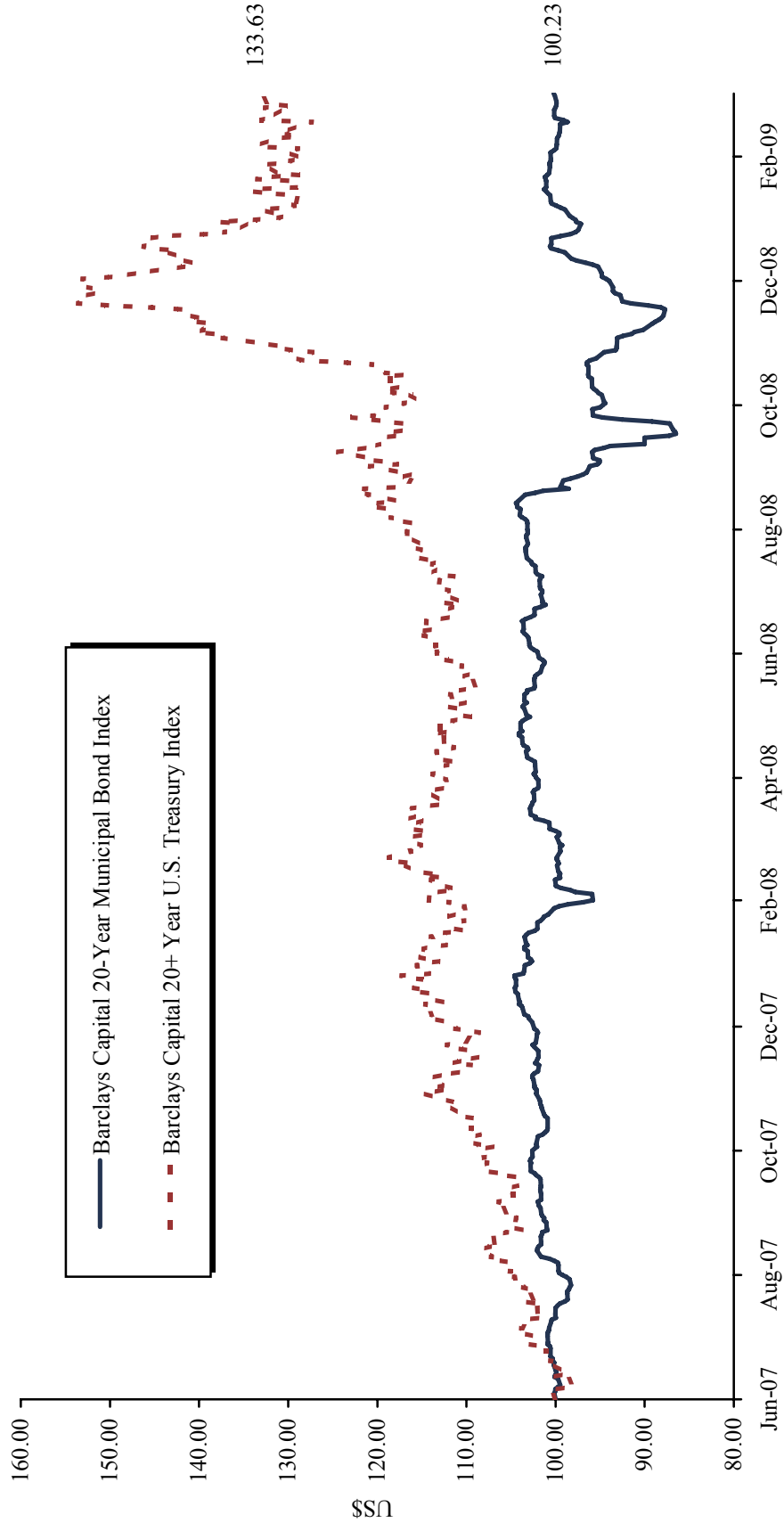
taxing authority is a powerful revenue-generating tool, and we believe that the investment-grade muni bond landscape is still of generally high quality.

Yields of high-quality credits are reasonable in absolute terms and a rare bargain relative to Treasuries. Yields of lower-quality issues provide tempting opportunities, but the high-yield muni shoals are best navigated by a well-resourced manager nibbling around the edges in a small, defined portion of a large muni bond portfolio, rather than a permanent and standalone high-yield muni allocation. Credit indices in general are not ideal as investment benchmarks (because they assign the greatest weights to the most indebted issuers), but the high-yield municipal bond indices strike us as a lousy role model for a bond portfolio manager.

Table A

CUMULATIVE WEALTH OF 20-YEAR MUNICIPAL BONDS AND U.S. TREASURY BONDS

June 29, 2007 – March 31, 2009

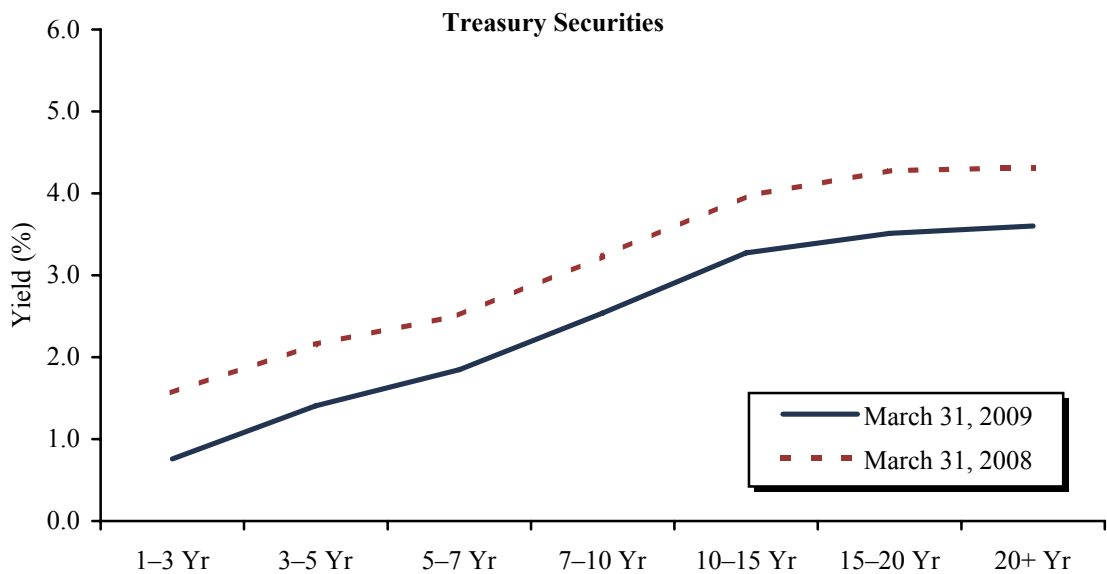
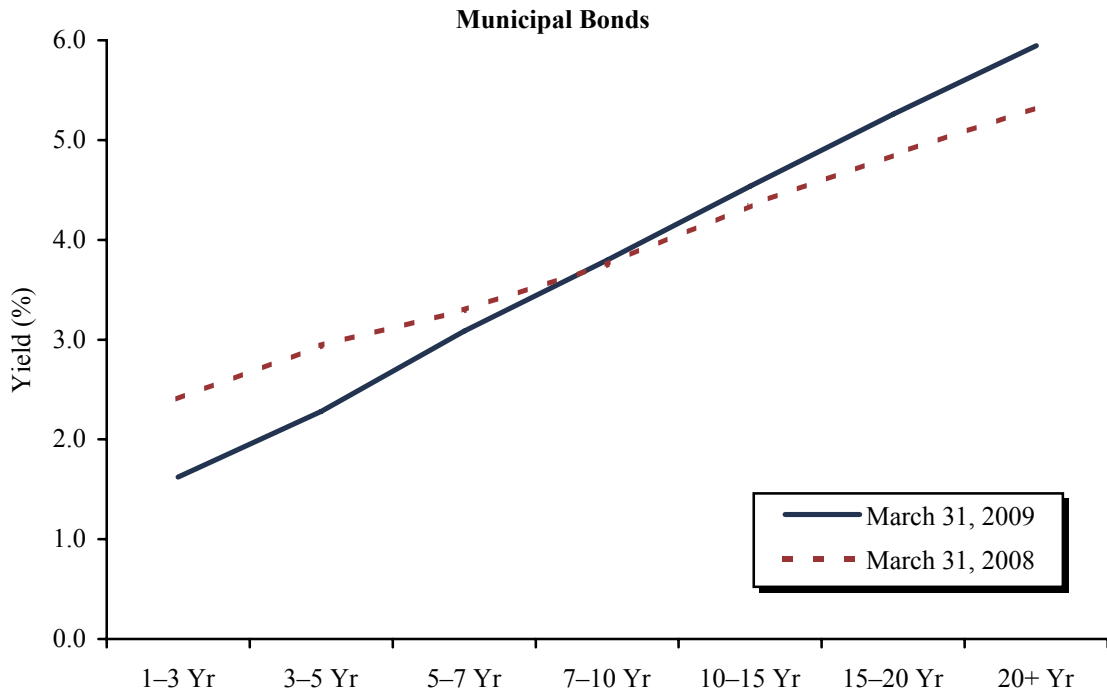


Source: Barclays Capital.

Table B

YIELD CURVES FOR THE BARCLAYS CAPITAL MUNICIPAL INDEX AND THE BARCLAYS CAPITAL U.S. TREASURY INDEX

March 31, 2008 and March 31, 2009

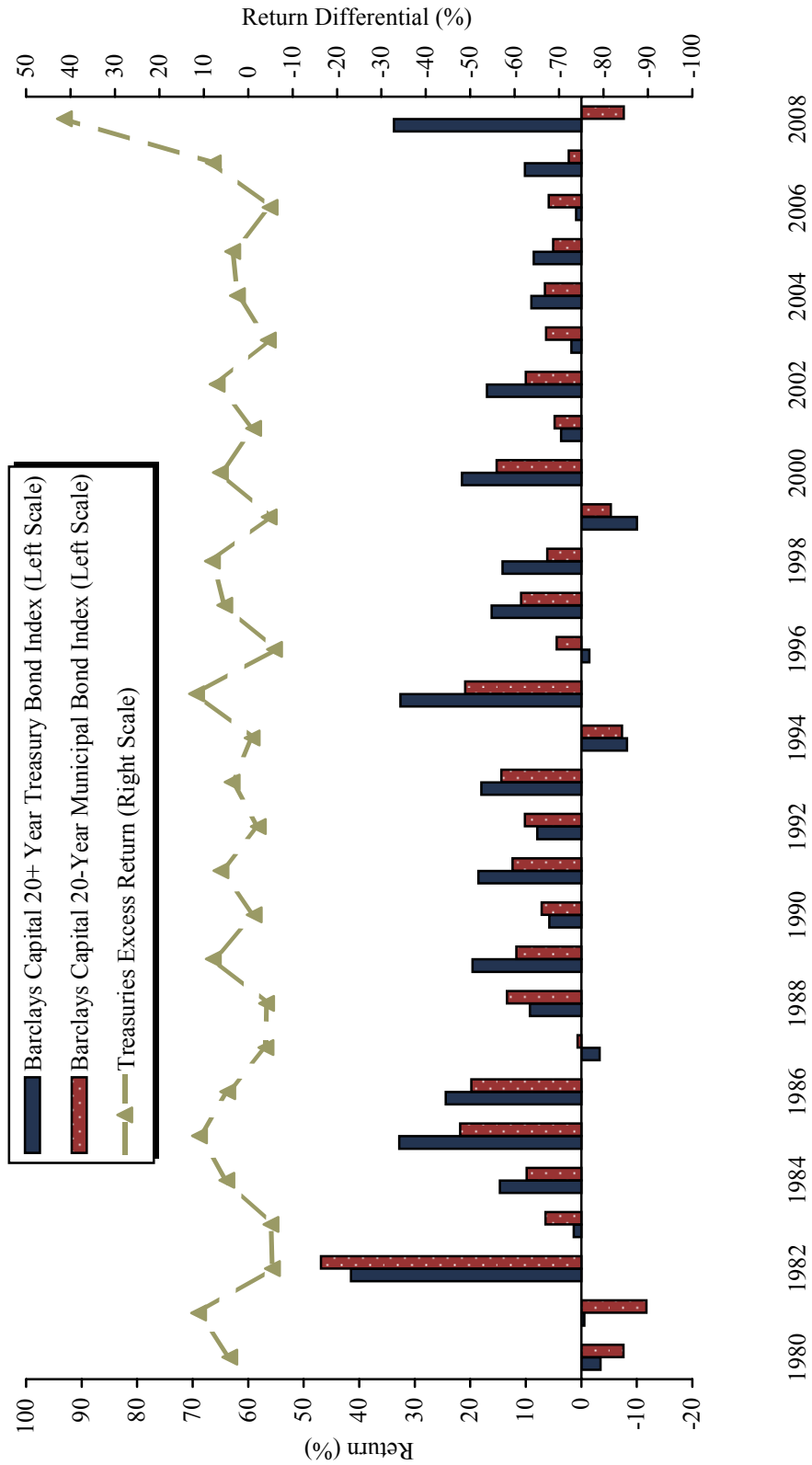


Source: Barclays Capital.

Table C

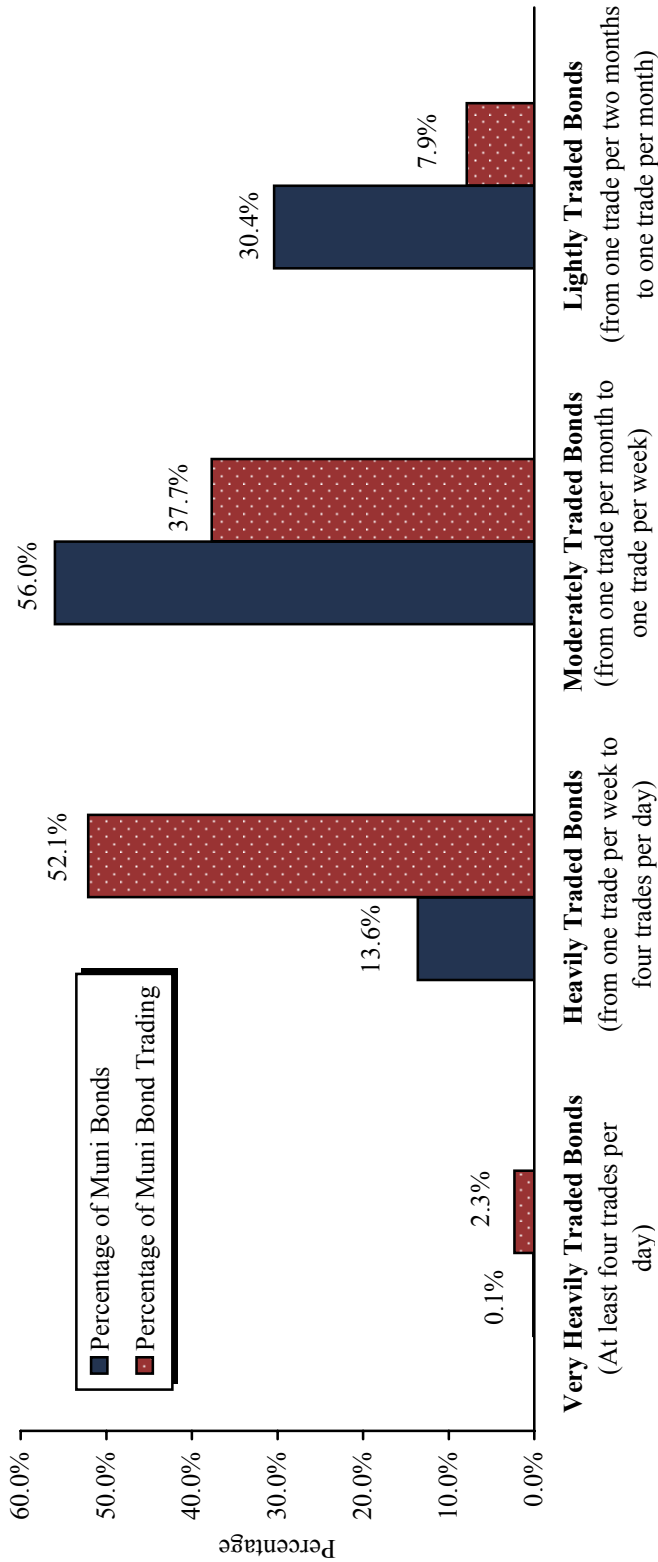
**ANNUAL RETURNS OF THE BARCLAYS CAPITAL 20+ YEAR TREASURY INDEX AND THE
BARCLAYS CAPITAL 20-YEAR MUNICIPAL BOND INDEX**

January 1, 1980 – December 31, 2008



Source: Barclays Capital.

Table D
MUNICIPAL BOND UNIVERSE CATEGORIZED ACCORDING TO TRADING FREQUENCY

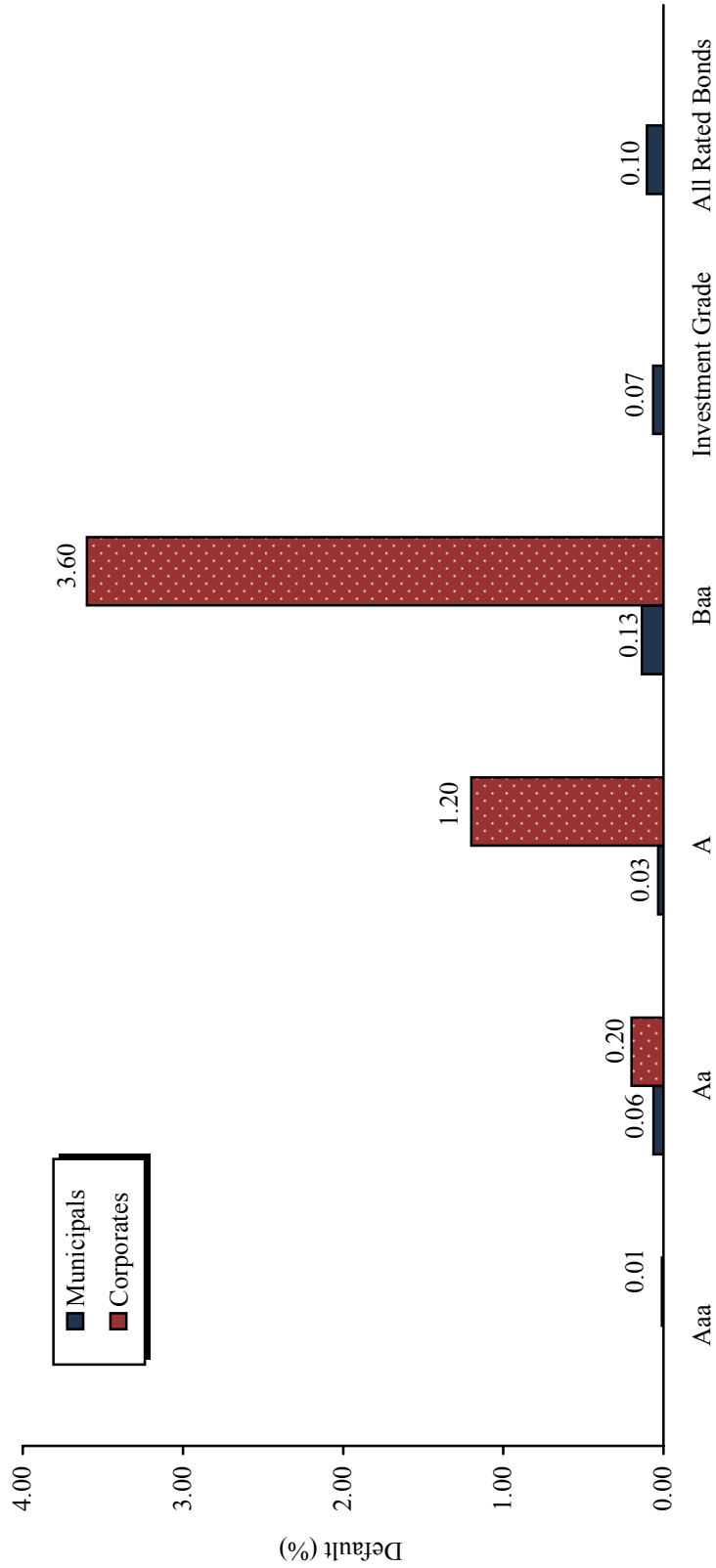


- Less than 14% of muni bonds trade more than 50 times per year (roughly once per week), yet these bonds account for 54% of all muni bond trades.

Source: Lawrence Harris and Michael Piwowar (both of the Securities and Exchange Commission at that time), "Municipal Bond Liquidity," AFA 2005 Philadelphia Meetings, February 13, 2004.

Notes: Harris and Piwowar reviewed every municipal bond trade from November 1999 through October 2000 (254 trading days). The authors included all bonds that traded at least six times during the period, categorizing them into four categories: six to ten trades during the year, 11 to 50 trades per year, 51 to 1,000 trades per year, and greater than 1,000 trades per year. For the sake of clarity, our labels above adapt those category thresholds using standard periods (trades per day, week, or month). However, the authors did not use those time periods and the category labels we show are only approximately equivalent to those of the authors.

Table E
CUMULATIVE TEN-YEAR DEFAULT RATES OF MUNICIPAL BONDS VERSUS CORPORATE BONDS
BY CREDIT RATING
1970–2006

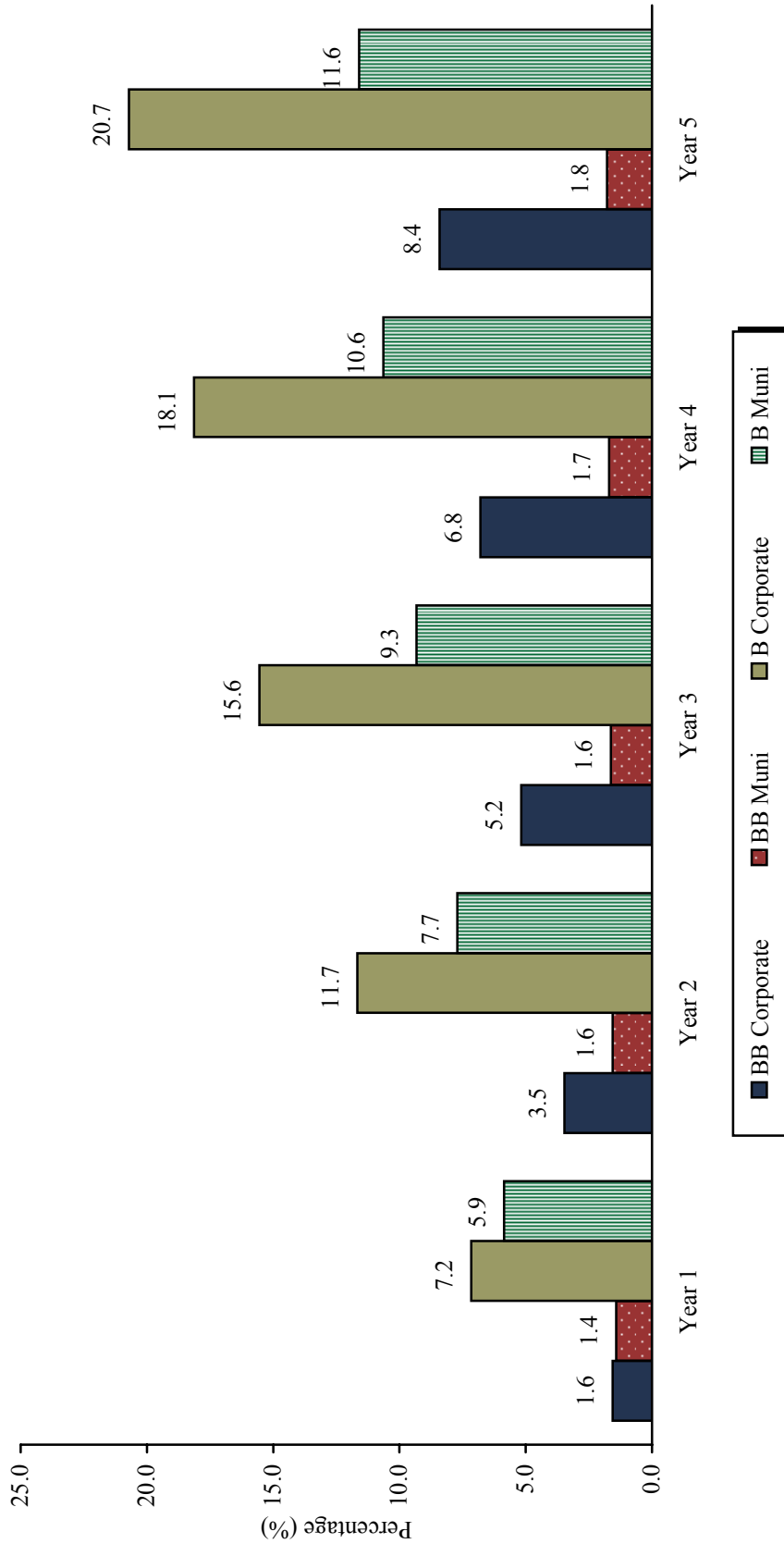


Source: Moody's Investors Service.

Notes: The Aaa municipal default rate is 0%. Baa is Moody's lowest investment-grade rating, equivalent to a BBB rating from Standard & Poor's. Rating category refers to bond's rating at issuance. Default rates shown for Aa corporate bonds are represented by bonds rated Aa2 at issuance; corporate bonds rated A are represented by bonds rated A2 at issuance; Baa corporate bonds are represented by bonds rated Baa2 at issuance.

Table F
CUMULATIVE DEFAULT RATES (%) BY ORIGINAL RATING OF SPECULATIVE-GRADE CORPORATE AND MUNICIPAL BONDS

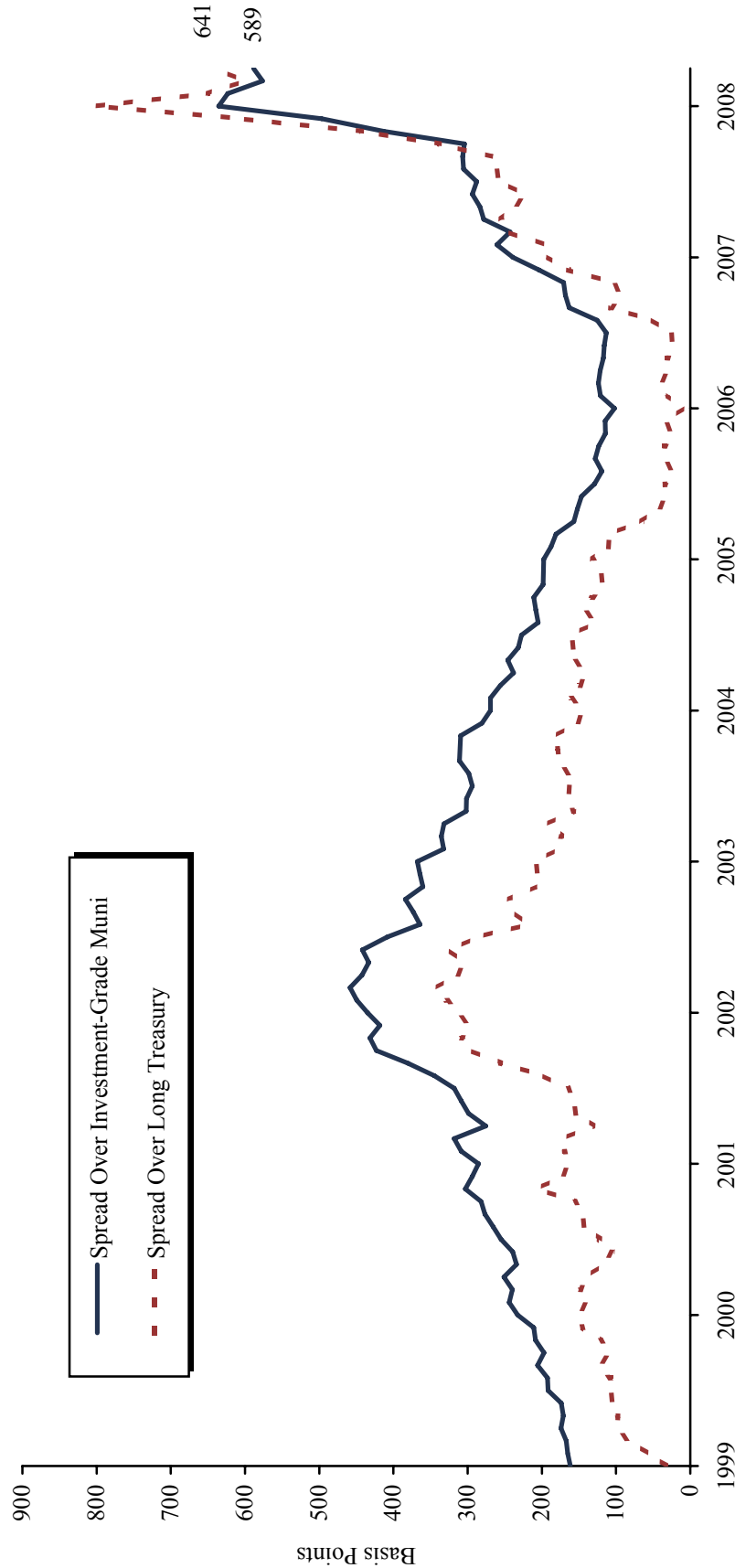
1970–2006



Source: Moody's Investor Services.

Notes: Bonds are rated by Moody's at issuance. Default rates shown for BB corporate bonds are represented by bonds rated Ba2 at issuance; B corporate bonds are represented by bonds rated B2 at issuance.

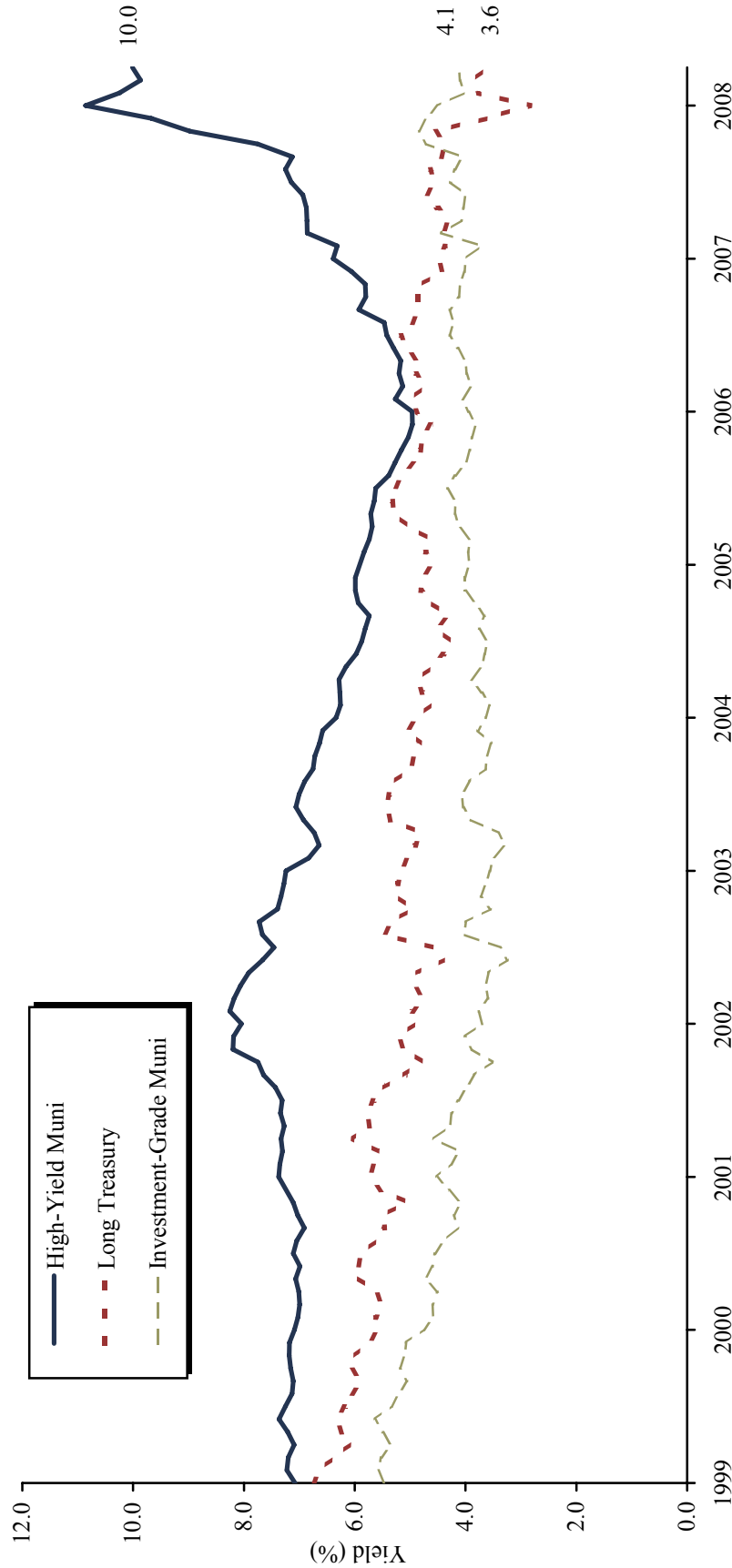
Table G
HIGH-YIELD MUNICIPAL BOND SPREADS
December 31, 1999 – March 31, 2009



Sources: Barclays Capital and Bloomberg L.P.

Notes: The yield on high-yield municipal bonds is represented by the S&P High-Yield Municipal Index from 1999 through 2006, and by the Barclays Capital High-Yield Municipal Bond Index from 2007 to the present. Investment-grade munis are represented by the Barclays Capital Municipal Bond Index and Treasuries are represented by the Barclays Capital 20+ Year Treasury Index.

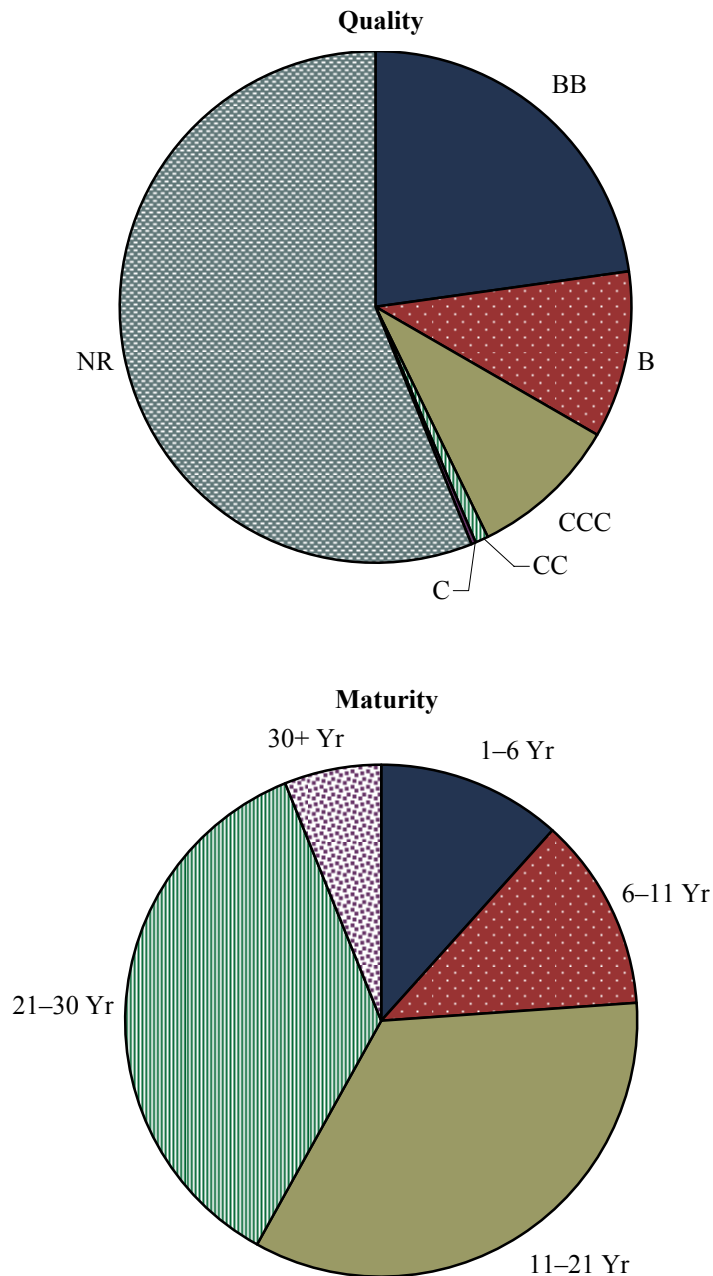
Table H
YIELDS ON INVESTMENT-GRADE AND HIGH-YIELD MUNICIPAL BONDS
December 31, 1999 – March 31, 2009



Sources: Barclays Capital and Bloomberg L.P.

Notes: The yield on high-yield municipal bonds is represented by the S&P High-Yield Municipal Index from 1999 through 2006, and by the Barclays Capital High-Yield Municipal Bond Index from 2007 to the present. Investment-grade munis are represented by the Barclays Capital Municipal Bond Index and Treasuries are represented by the Barclays Capital 20+ Year Treasury Index.

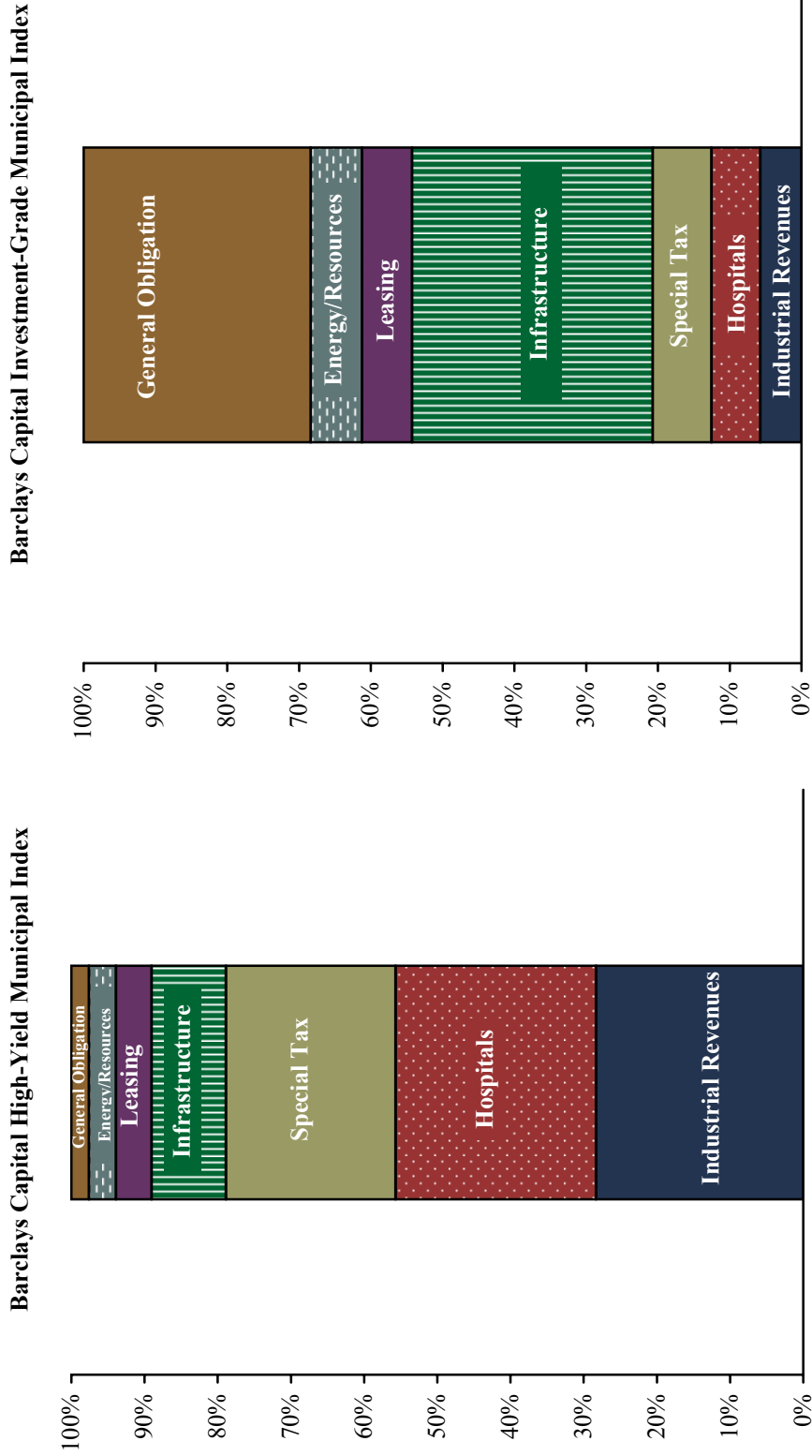
Table I

QUALITY AND MATURITY OF BARCLAYS CAPITAL HIGH-YIELD MUNICIPAL BOND INDEX

Source: Barclays Capital.

Note: Data are as of January 31, 2009.

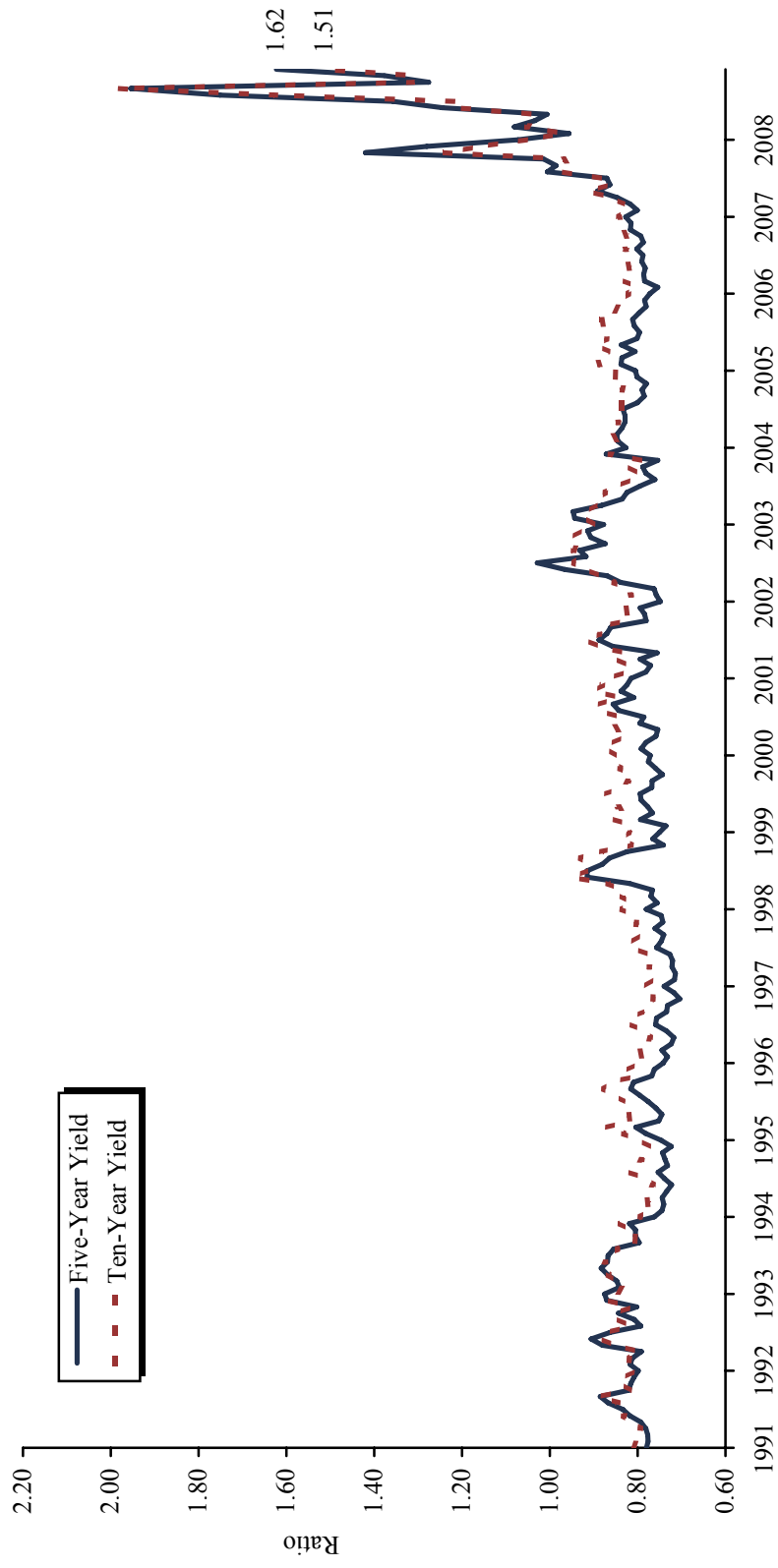
Table J
SECTOR ALLOCATIONS OF HIGH-YIELD AND INVESTMENT-GRADE MUNICIPAL BOND INDICES



Source: Barclays Capital.

Notes: Sector allocations shown as of January 31, 2009. General-obligation sector also includes insured and pre-refunded issues. Infrastructure sector includes education, housing, transportation, and water issues. Energy and natural resources sector includes power and resource-related issues.

Table K
RATIOS OF MUNICIPAL BOND YIELDS TO U.S. TREASURY YIELDS
April 30, 1991 – March 31, 2009



Sources: Barclays Capital, Citigroup Global Markets, and Thomson Datastream.

Note: Indicates the ratio of the yields of the ten- and five-year Barclays Capital municipal bond indices to the yields of the Citigroup ten- and five-year Treasury bond indices.