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Long Muni Bonds: Unloved, Orphaned and Perhaps Safer Than You Think

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Sean McLaughlin & Peter Mitsos

Lack of structural demand and the surprise expiration of the Build America Bonds subsidy create opportunity.

No Love for Long Muni Bonds

Long-maturity municipal bonds have been all but orphaned by investors over the past three years, so when a combination of negatives weighed on the sector starting last fall, yields rose sharply, as detailed on Exhibit 1. These negatives centered on the surprise expiration of the Build America Bonds (BABs) subsidy, a steepening Treasury yield curve in the midst of the Federal Reserve's QE2 debt-buying program, and the airing of credit concerns on national television.

Investors have legitimate reasons for shying away from these 20+ year tax-exempt bonds issued primarily by U.S. states and cities, including wariness about rising inflation and interest rates, credit concerns aired during popular television programs, and a new respect for the downside of leverage. But despite very little buyer appetite and a structural base of demand that has shrunk sharply in recent years, issuers continue to prefer long-maturity debt. This supply/demand mismatch provides an opportunity for investors that are willing to go against the grain. Tax-free yields of 5% or more are available; this might equate to 7.5% pre-tax returns on a hedge fund, and is much higher than the after-tax yield on high-yield corporate bonds. In fact, the yields on long-maturity muni bonds are sitting right on top of their average level of the past 20 years (can you say that about any other type of bond?). While some of the recently highlighted credit concerns are valid, and long-maturity bonds would suffer in any inflationary outbreak, taxable investors that have thus far

shied away from long-maturity munis should take another look.

For investors that commit to a long-maturity muni allocation, implementation presents both opportunities and challenges. The opportunity set is large and diverse—combined, the Barclays Capital Municipal Long Bond (22+ Year) Index and the Barclays Capital 20 Year Municipal Bond Index incorporate more than 13,000 discrete securities and a market value of more than \$400 billion. Within that are pristine credits and others with considerable taint;¹ skilled managers may be able to add value in this environment, given the poor state of municipal finance disclosure and the diminishing role of bond insurance.

Where Did the Structural Buyers Go?

If you were to jot down a list of pundits who are publicly bullish toward municipal bonds today, two things would stand out: the list would be very short, and it would be populated almost exclusively by muni bond managers (few disinterested parties have stood up for the asset class amid the negative clamor). And even among that feeble base of professional supporters, few would be willing to commit significant capital to buying long-maturity munis. Contrast that to the mid-2000s, when private banks and brokerage firms confidently asserted that owning long-maturity munis with leverage of seven times or more would generate tax-free, double-digit “arbitrage” returns, or to 2009 and

¹ Both sub-indices have an average credit rating of AA-/A+, which is one notch below both the full Barclays Capital Municipal Bond Index and each of the various shorter-maturity sub-indices.

2010, when taxable-bond funds lapped up high subsidized yields on BABs.

Long muni bonds lost two important sources of “sponsorship” in recent years: the leveraged buyer that dominated in the mid-2000s, and then the taxable buyer that had stepped in during 2009–10 to take the place of the leveraged buyers.

Leveraged Buyers Disappeared in 2009

In the middle of the last decade, taxable investors eagerly bought into a concept called “municipal arbitrage.” The promised return stream was compelling: “an annualized return between 9 percent and 12 percent that is nearly all tax-exempt over a five- to seven-year period, ... low correlation to traditional municipal and equity investments, and ... a risk profile far lower than equities.”² What’s not to like? And investors poured capital into muni arbitrage funds from J.P. Morgan, Citigroup, and numerous boutique firms. The return stream was not magic, of course; in fact, it was closer to traditional banking in concept: borrow at the short end of the curve; lend at the long end of the curve; lather, rinse, repeat. The Treasury yield curve is almost always positively shaped (meaning that long-maturity bonds yield more than cash-like T-bills, offering bond buyers compensation for their acceptance of greater uncertainty, less liquidity, and more inflation risk), but it has inverted several times over the past three decades, and the level of steepness has varied dramatically over the years. The steepness of the muni yield curve was very reliable from 1990 until the early 2000s (see Exhibit 2³), encouraging the

² From “Finding Excess Return in Tax-Exempt Investments,” a 2007 article by Fortigent’s Chip Norton published in a wealth management industry group’s newsletter.

³ The muni steepness graph looks slightly “choppy” relative to the Treasury graph above it, but this is due to the weekly periodicity of the muni data. The term premium shown in the exhibit for munis was at least 100 basis points 98% of the time from September 1990 through the end of 2003, compared with just 79% of the time for the Treasury term

municipal arbitrage trade, which simply hitched a ride on the perpetually steep yield curve.

The primary structure used by these funds was called a tender option bond (TOB). Exhibit 3 provides an illustration of the economics of a typical TOB program during the 2007 heyday.⁴ These funds took each dollar of equity capital, leveraged it often seven to ten times, and used the borrowed funds and the small amount of equity to buy long-maturity insured municipal bonds. The example illustrates the economics of 6:1 leverage, which was considered somewhat conservative in 2007. The structure would generate a gross tax-free yield of 9.6%.⁵

The banks that sponsored these municipal arbitrage hedge funds were not only investing the capital of their high-net-worth clients; they were also investing some of the banks’ proprietary capital in the structures. Capital flooded into the trade, and the TOB market at its peak was an estimated \$200 billion market.

The impact of these highly leveraged structures on the municipal bond market was quite significant, while it lasted. At \$200 billion, the TOB market was more than half as large as the entire universe of long-maturity muni bonds. And the impact on demand was dramatic: according to the Municipal Market Advisor industry newsletter, TOBs

premium for that time period. The muni curve was inverted for only one week during that 13-year period.

⁴ The illustration is stylized and simplified, and it attempts to illustrate the economics of the structure but not necessarily its legal components or actual cashflows. The example illustrates a structure leveraged 6:1.

⁵ Generating that 9%+ yield *net* of hedge fund fees would require an additional turn or two of leverage, natch. Hedging strategies were in place to moderate the risk of the yield curve inverting (which could have boosted the cost of borrowing above the carry coming from the muni bonds, destroying the favorable economics of the transaction). And structurally, these transactions created a residual cash-like, tax-free security that was eligible for purchase by money market mutual funds, helping the funds industry satisfy perennial demand for tax-advantaged cash havens.

vacuumed up 60% of long-maturity issuance from 2003 to 2007.

True of many investment themes, TOB programs were in part a victim of their popularity. As capital flooded in, the economics began to inexorably deteriorate (recall the downward ski-slope shape of the yield curve from 2003 to 2007 in Exhibit 2, as the steepness of the muni yield curve shrank from roughly 5% to less than 1%).⁶

Smaller spreads between long and short maturities necessitated additional leverage to turn a profit. The high degree of leverage increased the funds' vulnerability. The credit crisis gave a shove, and the funds toppled over in 2008.

The TOB structure relied on a bank's letter-of-credit agreement to support the money market security. The banks, in turn, required that the underlying long-maturity muni securities carry a AAA rating (which was typically provided by insurance from a "monoline insurer" such as seemingly bulletproof but now bankrupt Ambac). In 2008, the TOB structures and the muni arbitrage funds collapsed under their own weight. A combination of monoline-insurer downgrades and spiking interest rates on the short-duration securities issued by the TOB trusts forced managers to unwind the funds. From \$200 billion in 2007, the TOB market shrank to just \$60 billion in early 2009 (Exhibit 4).⁷

In early 2009, the muni industry and policymakers fretted that strapped municipalities would have trouble issuing debt in this newly thin market,

⁶ The popularity of the trade was only one factor in the flattening of the muni yield curve, of course. While hedge funds were buying long muni bonds, the persistent Chinese bid for long Treasuries was keeping the muni/Treasury yield ratio in check. The Fed also began hiking short-term interest rates over that time.

⁷ They have since rebounded modestly to about \$95 billion at the end of 2010, according to one manager—less than half their peak size.

deepening the already-painful recession as they cut jobs and put off projects. The heroic-sounding BAB was born.

BABs Buyers Came and Went

The BAB program replaced the structural demand for long-term muni bonds that had been provided by leveraged TOB trusts with a demand source that was potentially much larger, and that was not dependent on the availability of, and willingness to use, leverage: traditional bond managers. The BAB program used a direct subsidy to reduce interest costs for issuers, as opposed to the traditional indirect subsidy of making yields tax-exempt for the bondholder. The yield on BABs is fully taxable (which increases their yield, because high tax-bracket investors do not bid down the yield), while the issuer receives a subsidy from the federal government covering 35% of the interest expense. BABs took up the slack at the long end of the muni curve, sucking up 16% of muni bond issuance in 2009 and a whopping 27% in 2010 (Exhibit 5).

After the mid-term elections, doubt arose as to the future of the BAB program (with some market participants predicting the program would end while others believed it would continue but with a reduced interest rate subsidy), and issuers pushed out \$44.1 billion of BABs in fourth quarter 2010⁸ in order to lock in the attractive 35% interest subsidy. In December, it became clear that the BAB program was dead.

With the disappearance of the BAB program came the end of the structural demand for long-maturity munis from taxable bond funds. Some of these funds will continue to buy long-maturity munis opportunistically when pre-tax yields are attractive, but they can no longer be counted as a steady source of demand for new offerings.

⁸ The fourth quarter's issuance was 70% greater than the average quarterly BAB issuance during 2009 and 2010 and 54% greater than any previous calendar quarter.

Lack of Sponsorship Spells Opportunity

The structural abandonment of long-maturity muni bonds, first by the disappearance of the leveraged investor market in 2008 and then by the surprise winddown of the BABs subsidy at the end of 2010, has pushed up yields for orphaned bonds. Yields also rose in sympathy with a steepening Treasury yield curve. Individual investors, who account for the large majority of demand⁹ for muni bonds, saw falling bond prices and heard bearish media commentary and decided they had had enough. Net outflows from municipal bond mutual funds totaled nearly \$13 billion in December and \$12.4 billion in January (Exhibit 6). Faced with such enormous redemptions, managers had little choice but to raise cash by selling into the increasingly illiquid market, increasing the pain in a feedback loop. The situation finally stabilized in February, as outflows shrank and issuers pulled back sharply on new bond issuance. First quarter muni issuance, in fact, is on track to be the lowest in more than a decade (Exhibit 7). Several strategists estimated that issuance during 2011 would total about \$350 billion (Exhibit 8); getting to that level after just \$46 billion of estimated first quarter issuance¹⁰ would imply a very significant volume of new bonds in the remaining three quarters of the year.¹¹ Any ramp-up in issuance will be a

⁹ Individuals invest in munis directly, via exchange-traded funds, and via mutual funds.

¹⁰ The \$46 billion estimate of first quarter issuance assumes that the average weekly issuance so far in 2011 continues for the final weeks of March. One reason for the low level of first quarter issuance is that some issuers may have filled some of their issuance needs during the fourth quarter (which saw very heavy issuance).

¹¹ In past years, some of the long-maturity issuance could have come via structures such as auction-rate securities (ARS), which do not mature for decades, but were designed to reset their interest rates each week at an auction, and were marketed as cash substitutes to corporations and wealthy investors. The \$330 billion auction-rate market collapsed in 2008. For more on ARS, please see our March 2008 Market Commentary *Municipal Bonds: Waters Are Roiling in this Once-Sleepy Sector*.

significant test of the market's appetite for long-maturity bonds, even at today's elevated yields, and it is very possible that we are in the eye of the storm—prices could fall further once the current lull in supply builds back up, even in the absence of the default pileup that some commentators have warned of.

Credit Challenges Are Real; Armageddon Scenario Is Unrealistic

As 2010 was coming to a close, some 18 million Americans tuned in to the iconic *60 Minutes* television newsmagazine to hear about the fiscal crisis gripping many American states. The program featured telegenic analyst Meredith Whitney, who made her reputation with her sharp analysis of Citigroup and other banks during the credit crisis, and who is now attempting to launch a bond-ratings firm.¹² Whitney told *60 Minutes* interviewer Steve Croft that the muni bond landscape would see a default spike unlike anything seen in the last century: “You could see 50 sizable defaults, 50 to 100 sizable defaults, more,” she said. And she was not talking about obscure issuers: “This will amount to hundreds of billions of dollars’ worth of defaults,” she continued.

Hundreds of billions in defaults in a one-year period would be enormous for the roughly \$3 trillion muni bond market. The low end implied by “hundreds”—\$200 billion—would equate to a stunning 7% default rate, with one in every 13 bonds defaulting. The average annual default rate on rated muni bonds has been about 0.01% over the past 40 years, with a cyclical default peak of about 0.4% in 1991 when interest rates and indebtedness were both very high. The long history of the muni bond market is not all quietude, however. The “Long Depression” during the post-Civil War reconstruction period saw nearly

¹² While Whitney's experience covering municipal bonds is somewhat limited, her nascent firm in September 2010 published an extensive report on state fiscal health titled “Tragedy of the Commons.”

25% of the muni market default, but this was primarily caused by Southern states repudiating their unwieldy debt loads. The Great Depression featured a state and local default rate of 16% over several years, but of course it delivered a decline in prices and economic output that dwarfed the 2007–10 experience.¹³ A 7% one-year default rate in today's environment strikes us (and many other market observers) as extremely unlikely.¹⁴ That is not to say that municipal finances are cheery, however. Municipal bond investors should remain wary of credit quality, which remains poor; pension and health care liabilities exacerbate the problem for long-maturity bonds.

Most Do Not Face Crushing Debt Burdens

Municipalities have increased their debt loads over the past decade, topping 20% of U.S. GNP in 2009. The level of muni debt to national GNP has trended upward since the end of World War II, though the current level is roughly equal to the level in the late 1980s and early 1990s. While 21% of GNP sounds remarkably low relative to the levels of indebted countries, it is somewhat misleading because of course state and local debt liabilities are *added* to national liabilities (taxpayers are responsible for both). State debt burdens as a percentage of state GDP average 2.8% as of 2009, and nine-tenths of states have debt levels less than 5%.¹⁵ Median state debt burdens are about 4% of

¹³ For more information on historical defaults, please see George Hempel's "The Postwar Quality of State and Local Debt" from 1971, or the recent report by Roubini Global Economics titled "States of Despair Part 1: Muni Stress—Past, Present and Future."

¹⁴ For example, Roubini Global Economics, which is no stranger to bearish outlooks, in February predicted a still extreme but certainly possible \$100 billion in total defaults over the next five years, implying a default pace that was at most one-tenth as large as Whitney's scenario. Numerous muni managers and the Municipal Market Advisors trade newsletter have also disputed Ms. Whitney's forecast, but to be fair, it is difficult for firms in the muni asset management industry to *ever* be bearish on the asset class.

¹⁵ Connecticut, Hawaii, and Massachusetts are all at about 8% of state GDP, New Jersey is about 7%, and New York

state residents' total personal income and about 48% of the state's government revenue, as shown in Exhibit 9; however, the largest debt issuers in dollar terms tend to be more indebted in percentage terms than the remaining states (unsurprisingly, of course). Debt levels equal to 100% of annual government revenue or more sound extreme, but recall that muni debt typically has a very long average maturity, a fixed interest rate, and is amortized over many years; these characteristics are akin to traditional residential mortgages in the United States, which often have balances larger than a household's annual after-tax income, even among fiscally prudent households.¹⁶

Falling interest rates have sharply lowered the interest burden for states and cities even as indebtedness has ratcheted up. Exhibit 10 shows that interest costs of state and local issuers peaked at 7.5% of revenue in 1987, and are just 5.2% of revenue today despite the recently diminished revenue denominator.¹⁷ Municipal debt burdens are meaningful and can be painful when tax revenue falls during and after recessions, but we do not believe they are cause for concern at an aggregate level.

Revenues Took a Hit; Now on the Upswing

The municipal revenue base faces many challenges, but diverse funding sources have helped to ameliorate the impact of falling revenue in some areas. As Exhibit 11 highlights, states have benefitted from federal stimulus largess, and state funding in turn is an important source of support

is 5.4%. The left-most column of Exhibit 14 shows the debt/state GDP ratios for the 25 most indebted states.

¹⁶ It is important to remember that Exhibit 9 only shows state debt, while the total tax revenue from each state's residents and companies also must service both local and federal debt.

¹⁷ The exhibit shows the debt burden at an aggregate level; some issuers commit significantly larger fractions of their revenue for debt service than others. Massachusetts, which has the highest interest burden, paid 7.9% of state and local revenue to service debt interest in 2008.

for local governments. That said, state and local governments have diverse revenue mixes.

State and local tax revenue peaked in fourth quarter 2008 and is now 4.2% below peak levels in inflation-adjusted terms; however, it is trending upward, with third quarter 2010 revenue clocking in at 5% greater than revenue from the year-ago quarter (Exhibit 12). The performance of various local and state revenue sources has diverged in recent years, which is highlighted in Exhibit 13. Personal and corporate income taxes, which together accounted for 27% of state and local government revenue in 2008, have dropped nearly 17% since then, hammering state budgets. Sales tax revenue, down 6% from peak levels, has further exacerbated the state budget crises. Property tax collections, on the other hand, which are a key local government revenue source, are up since 2008, counterintuitively (tax rates on each dollar of property value rose steadily from 0.90% in 2006 nationally to 1.04% in 2009 according to the Tax Foundation—a nearly 16% increase that helped offset falling assessed property valuations).

As Exhibits 12 and 13 indicate, tax revenues are trending upward, and most of the uptrend is due to rising sales and property taxes. Sales tax revenue could remain below peak levels for some time, given that automotive sales remain well off their average levels. Property tax revenues are unlikely to come under much pressure even if home prices fall further, given that local governments often have flexibility to increase property tax rates as they have in recent years. Income taxes have not yet rebounded much from hitting lows in 2009, but strong investment returns are likely to boost income tax collections in coming quarters, despite continued high unemployment. Bottom line: the state and local tax revenue picture appears to have stabilized and revenues are moving higher.

Mind the (Budget) Gap

While tax revenues have stabilized, what about the yawning state budget gaps that have been reported periodically? The Center for Budget and Policy Priorities reports that state budget gaps for fiscal 2009 and 2010 combined totaled about \$300 billion, before the impact of federal stimulus funds (federal transfers shrank the combined 2009–10 gap to about \$210 billion). The fiscal 2011 gap is \$130 billion before federal transfers or \$61 billion after transfers, and 2012's gap is \$125 billion, with no meaningful stimulus transfers planned. Investors used to examining sovereign government finances would likely look at these ongoing budgetary chasms and conclude that the 50 states collectively are on track to spend about \$550 billion more than they collect in taxes from 2009 through 2012. That would indeed be daunting, but it is incorrect.

State budget accounting differs from sovereign government accounting in several important respects. One such difference is that at the state level, reported deficits are cumulative, so a 2009 gap that is not eventually closed by revenue increases or spending decreases gets carried into the following year. If the U.S. government reported its deficits using this much more conservative approach, PIMCO points out, it would have a reported deficit of not \$1 trillion but \$9 trillion!¹⁸

¹⁸ Please see *Viewpoints: Muni Market Bargains? A Closer Look at Municipal Debt, Deficits, and Pensions* by Christian Stracke and Joseph Narens of PIMCO, February 2011. The PIMCO report details two additional ways in which state accounting differs from federal accounting: (1) spending for upcoming fiscal years is projected at current per capita service levels rather than reflecting an estimate of what legislators expect to spend, and (2) municipal bonds, unlike Treasuries, are amortizing, and principal payments on the state's outstanding bonds are included as a budgetary expenditure. Amortization (where both principal and interest payments are made each year, like most residential mortgages) is one important reason behind the low historical level of muni defaults: unlike corporations, munis do not face significant rollover risk when credit market conditions are adverse.

Budget gaps are indeed very significant, and they will certainly constrain state support of local issuers in the coming year or two, but they are not as damaging as headline numbers would indicate, due to the more conservative accounting practices than those practiced by sovereign issuers. In addition, we believe their implications are likely to be significantly more negative for state and local government employees, and for the citizens in those municipalities who depend on government services, than they will be for bondholders.¹⁹

Pension Problems Have a Long Fuse, But Cannot Continue to Be Ignored

When muni managers are asked about pension problems, the response always seems to be a variant of, “Well it’s a concern, though it’s not an issue for us because of the very long time horizon.” However, it is a concern for *long-maturity* muni bond investors. Investors holding 20- or 30-year muni bonds do need to think about pension liabilities, even though muni debt is typically senior to pension liabilities.

The erosion of public pension funding levels is a result of several factors, including the following: (1) political leaders can pacify public employee labor unions (which are very effective at delivering votes) with unsustainable pension promises, confident that setting aside money to fund those promises is a problem for the politician’s successor; (2) pension investments have had generally lousy returns over the past decade; and (3) dismal municipal finances have limited the ability and appetite to top up plans that have funding gaps. Funding gaps are quite large, although how large is matter of some debate, with estimates from

¹⁹ Our rationale for this belief stems in part from the moderate debt service levels in many municipalities; other cost cuts are likely to prove more feasible compared to eliminating or paring debt-service obligations, even in those states that have established a Chapter 9 bankruptcy framework (about half have no such framework, meaning that municipal bankruptcy is not structurally possible in those states under current laws).

reputable sources ranging from a large but manageable \$700 billion to a massive \$3 trillion, a four-fold difference. The swing factor between the two estimates is the discount rate for the liability; public plans often use 7% to 8%, which they justify using historical rates of return on the plan’s assets.²⁰ Some experts have advocated a discount rate closer to the yield of long-term Treasuries (4% to 5%), which they prefer because the benefits are guaranteed, while 8% returns are far from guaranteed. Pick your poison—4% or 8% discount rates—and either way, many plans are underfunded. The aggregate funding level according to Boston College’s Center for Retirement Research is projected at 77% for 2010, moving to 73% in 2013. For the average state, the unfunded liability is equal to about 5% of the state’s GDP, but for some states it is north of 10% (Exhibit 14). Interestingly, not all states with large debt loads also have large pension deficits. For example, Massachusetts is the most indebted state with 8% debt to state GDP, but its 6% pension gap is barely in the top 20. Oklahoma, on the other hand, has a yawning 9% pension gap, while the debt load is just 1.4% of GDP and does not register on the top 25 chart.

How can these gaps be closed? Municipalities hope that markets will help to close them, but given low interest rates and sluggish growth expectations, 8% already seems like a high long-term hurdle for these plans. More likely, improvement will need to come from higher employer contributions, and perhaps from increased employee contributions or benefit adjustments, such as changes to inflation indexation or limits on artificial benefit boosts from “spiking.”²¹ Employer contributions average

²⁰ If a fund has a \$10 million liability payable in ten years, and the fund’s discount rate is 7%, then the present value of the liability is about \$5 million. If the fund’s current assets are \$4 million, then it has a \$1 million funding gap.

²¹ Spiking is the practice of artificially boosting compensation during the last three years of employment such as via overtime, because benefits are typically calculated as a percentage of those final years’ compensation.

only 3.8% of state and local budgets, which is clearly too low.

The pension shortfall is a worrying issue, and if not fixed over the medium term will become increasingly cumbersome for state and local taxpayers to fix, in the same way that it is less painful for workers to fund retirement if they start saving at age 30 then at age 50. If the pension gaps are not narrowed, the situation will become untenable in some states within ten to 15 years. Left unchecked, it seems possible that massive current-year pension expenditures could precipitate defaults in coming decades, even though pension liabilities are typically junior claims to general obligation bonds.²² However, we believe that momentum favors pension reforms in the near term, and for that, bondholders have Meredith Whitney to thank. It appears that due in part to the barrage of negative publicity regarding municipal finances, support from various quarters is building for reforms that would move pensions into more sustainable quarters; Exhibit 15 indicates that numerous states have already enacted some reforms. State and local taxpayers, together with government leaders, may continue to push for “shared sacrifice” solutions that shrink pension benefits or increase employee contributions for government employees covered by defined-benefit pensions, paralleling the government service cuts and/or tax increases that taxpayers have faced.²³

²² Some market observers also believe health care liabilities are a significant long-term issue for municipalities. We are more sanguine about them, because while the magnitude of unfunded health care liabilities is quite large at an estimated \$500 billion, these liabilities are generally not legally binding, with governments retaining flexibility to increase employee contributions and co-payments or make other adjustments.

²³ Of course, it is possible that the prevailing sentiment could change, with government employees coming into favor and wealthy bondholders falling out of favor. There are few indications of this today, but it is possible down the road. However, municipal bondholders are often local residents, which may make them less likely to be demonized.

Valuations Appear Favorable

While credit conditions are quite unfavorable for municipalities, we believe that a massive spike in muni defaults remains unlikely; meanwhile, the structural abandonment of long-maturity munis and legitimate concerns about low Treasury yields have conspired to offer investors attractive yields on long-maturity muni bonds.

Long-maturity muni yields are essentially equal to their average level over the past 20 years on an absolute basis (Exhibit 16), and yields relative to Treasuries are well above typical levels (Exhibit 17).²⁴ A yield history available from the *The Bond Buyer* trade publication gives us more than a century of data (Exhibit 18), which show that yields have spent many years considerably higher than their current level (including double-digit yields in the early 1980s), and many years below their current level. Exhibit 19 illustrates the estimated impact of various yield changes on the price of a long-maturity muni bond portfolio. The dashed line represents a guesstimate of the return path as muni bonds are called away in a scenario of falling rates.²⁵

Taking a Dip in the Long End of the Pool

For investors convinced that value lurks at the despised long end of the muni curve, many implementation questions await.

The characteristics of long-maturity muni bonds are important to consider. Typically, these bonds are somewhat less volatile than the bumpy ride offered by long Treasury bonds (Exhibit 20), but

²⁴ Interestingly, relative yields have remained for the most part stable in recent quarters even as muni sentiment deteriorated. The likely rebound in muni supply, when it comes, may push yields further above those of Treasuries.

²⁵ See exhibit notes for the methodology of the call-impact estimate.

in a liquidity or inflationary crisis, the volatility can quickly spike to a multiple of typical levels. In addition, long munis have typically been highly correlated with long Treasuries, but in 2008 we saw those correlations decline and correlations with high-yield corporate bonds (and equities) increase (Exhibit 21).

The periods of volatility spikes and of increased correlations with high-yield bonds likely result in part from changing liquidity preferences, although inflation and default/downgrade uncertainty can play a significant role as well.²⁶ For these reasons (and because of their call features), investors should not assume that long-maturity municipal bonds would offer home-run performance and exceptional liquidity during a sustained deflationary period. In fact, they might even lose value or experience wide bid-ask spreads during such a period (alongside most other assets).²⁷ They would also fare quite poorly in a sharply inflationary period. Because long-maturity munis are perhaps more vulnerable to problems than shorter-maturity munis, we would be nervous about putting an investor's entire bond allocation into long munis.

Instead of stuffing the entire bond portfolio into the long end of the curve, a more reasonable approach may be for clients to inform their muni managers that increased exposure to the long-maturity segment is now appropriate within the existing bond portfolio (many Cambridge Associates clients have separately managed muni portfolios with benchmarks that exclude the long end altogether, such as the Barclays Capital 1-10 Year Municipal Bond Index). Some managers would be willing to

accommodate this shift, while others may resist for largely administrative reasons.²⁸

For other investors, a dedicated long-maturity allocation may be the most sensible option. For this, some managers may prefer to open a separately managed account, while others may prefer a mutual fund. The mutual fund option offers more convenience, particularly for investors that would likely exit the allocation and take profits if yields were to move lower. The downsides are that most mutual funds avoid the longest-maturity segment of the curve (we can recommend a grand total of one fund with a true long-maturity focus!), and management fees for the limited universe of long-maturity funds are fairly high.²⁹ Exchange-traded funds and closed-end funds are not ideal for this asset class, due to credit concerns and the possibility of premiums and discounts that may arise at inopportune times.

One final implementation consideration: one Achilles heel for long-maturity nominal bonds, of course, is the risk of unanticipated inflation. While current yields are not dramatically lower than yields during much of the inflationary 1970s (the average yield of the Bond Buyer 20 Index during the 1970s was 6.0%, versus 4.9% today), yields certainly could spike materially higher in response to inflation worries. Investors may be able to moderate the impact of this potential hit by boosting their allocations to inflation-sensitive assets alongside their allocations to long-maturity bonds. As Exhibit 22 illustrates, adding a small dollop of energy equities to a long muni portfolio has tended to

²⁶ For more on the thin liquidity of the municipal bond market, please see our March 2008 Market Commentary *Municipal Bonds: Waters Are Roiling in this Once-Sleepy Sector*.

²⁷ That said, they tend to serve as most taxable investors' anchor defense against such a possibility, because long-horizon, after-tax return expectations on Treasury bonds are unappealing.

²⁸ Increasing the portfolio's weighted-average maturity may cause the performance of the client's portfolio to diverge from other clients within the composite, raising questions among other consultants and other clients of the manager. Because of the issues surrounding pension gaps, some managers may also be less comfortable analyzing very long maturity credits.

²⁹ Vanguard Group manages low-cost muni funds labeled as long maturity, but the maturity of these funds is considerably shorter than the segment of the curve that we believe offers considerable value.

increase returns without materially boosting volatility.³⁰ In fact, as the second page of the exhibit highlights, despite the natural volatility of energy stocks, their inflation linkage and low correlation of bonds might help tame the bond portfolio's downside during an inflationary crisis.

not addressed, but meaningful fiscal progress is happening and tax revenues are on the upswing, at least for now. Investors willing to walk out on the steep yield curve should choose as their guide managers with significant credit expertise. ■

Loving the Steep Slopes, While Keeping an Eye Out for Cliffs

Contrarian investors may join us in seeing value at the long end of the municipal bond yield curve.³¹ Structural abandonment (first by leveraged buyers, and then by buyers of taxable BAB debt) and well-publicized credit worries have boosted yields to punitive levels.

With many long-maturity bonds yielding 5.5% or more, tax free, investors should take another look at this asset class. It is unlikely to offer equity-competitive returns over the very long run, but it might come close to or beat some alternatives on an after-tax basis, and should offer meaningful diversification to a portfolio that is loaded with significant equity risk. A well-constructed hedge fund portfolio, for example, may offer tax efficiency of around 80%—hedge funds would need to generate pre-tax returns of about 7% to equal an after-tax return of 5.5%, which seems reasonable but far from certain. High-yield corporate bonds taxed at 35% would require 8.5% yields to equate to 5.5% after-tax yields; current yields on high-yield corporates are just 7%.

Some issuers are basket cases, and long-tail pension liabilities will continue to cause dry rot if they are

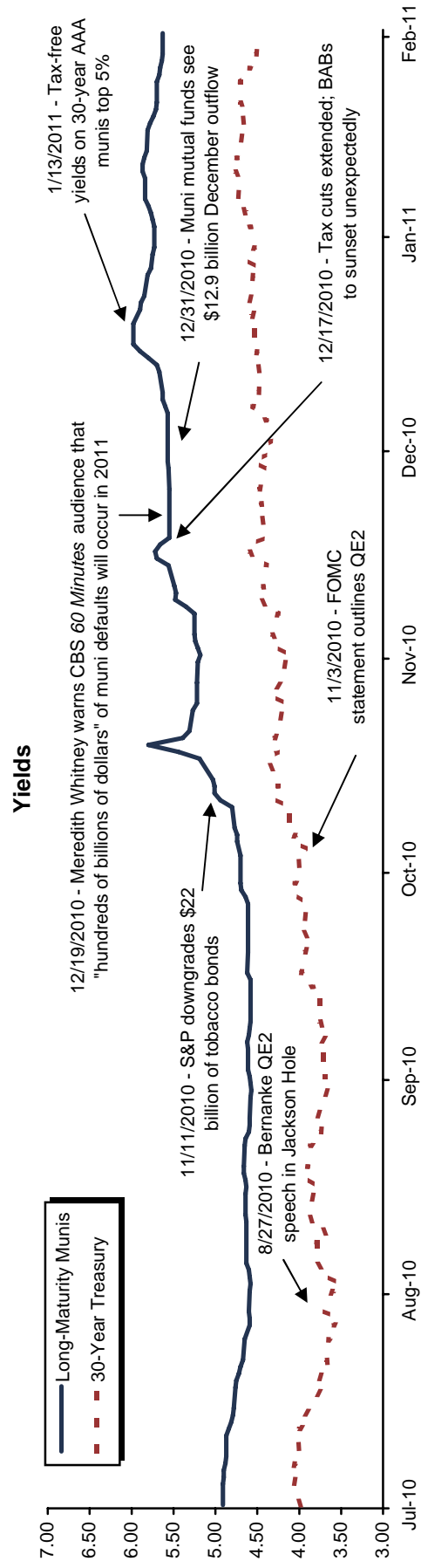
³⁰ Other inflation-sensitive assets such as commodity futures have exhibited similarly beneficial qualities when combined with long bonds; however, valuations of commodities are less attractive today than those of natural resources equities.

³¹ At the time of publication, the primary author of this commentary is invested in funds that allocate to long-maturity municipal bonds.

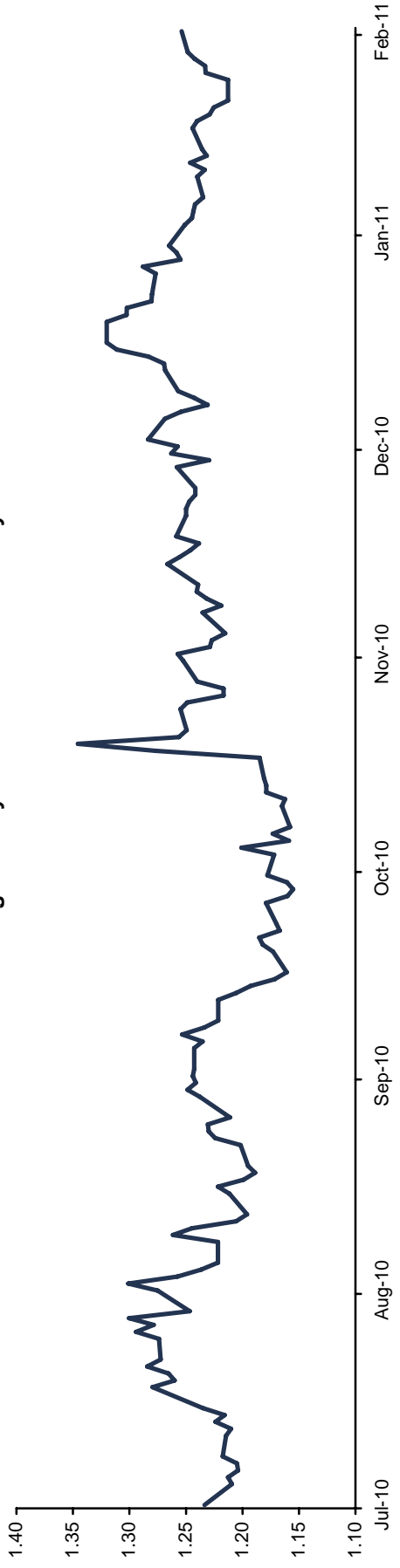
Exhibit 1

Long-Maturity Municipal and Treasury Bond Yields

July 31, 2010 – February 28, 2011

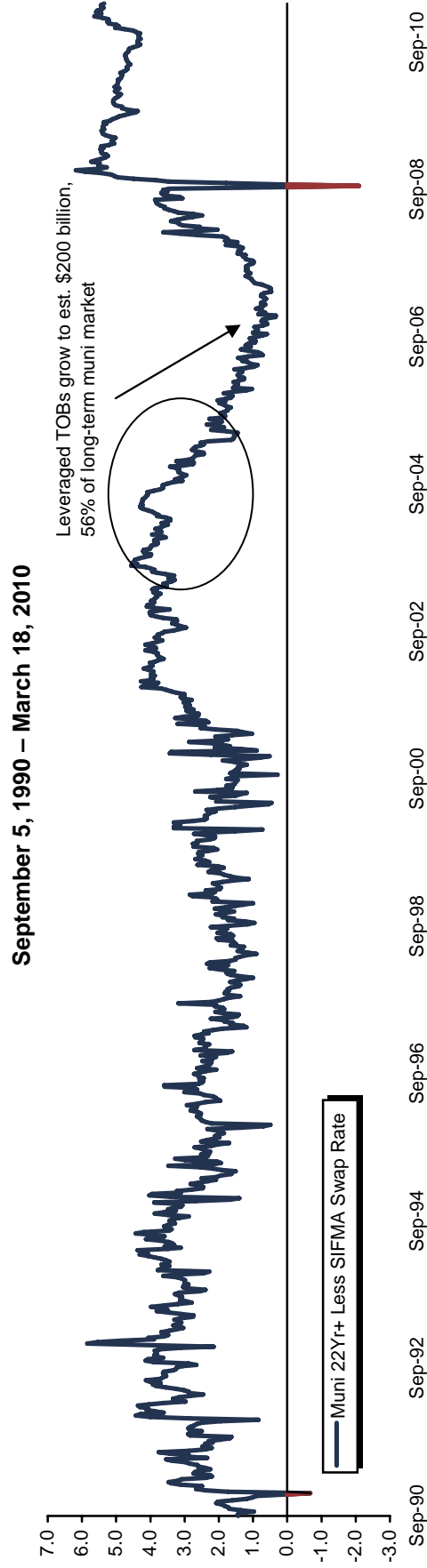
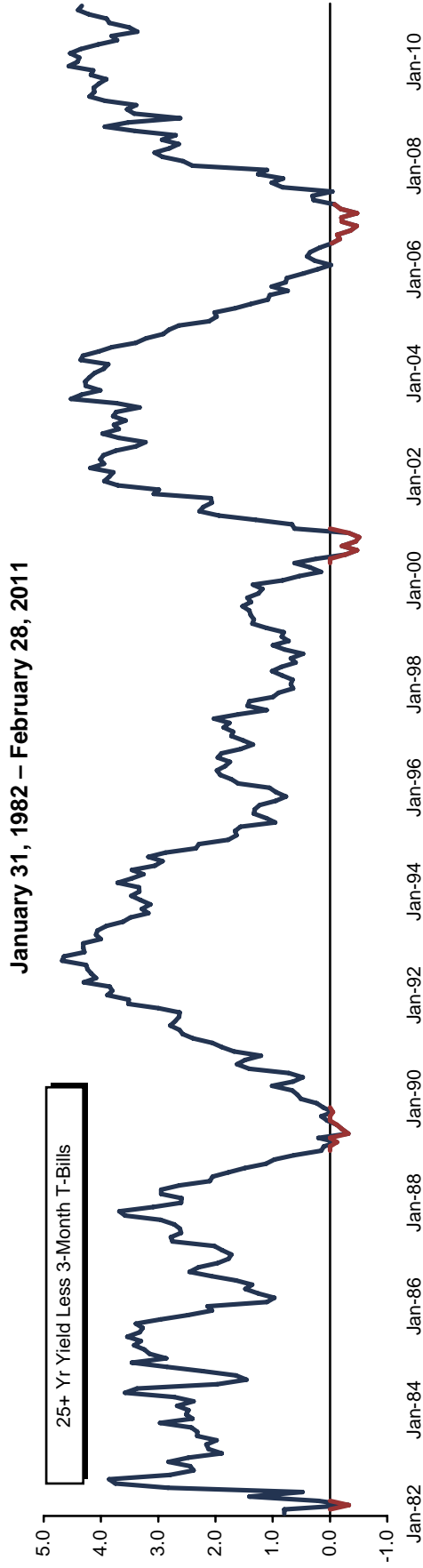


Ratio of Long-Maturity Muni to 30-Year Treasury



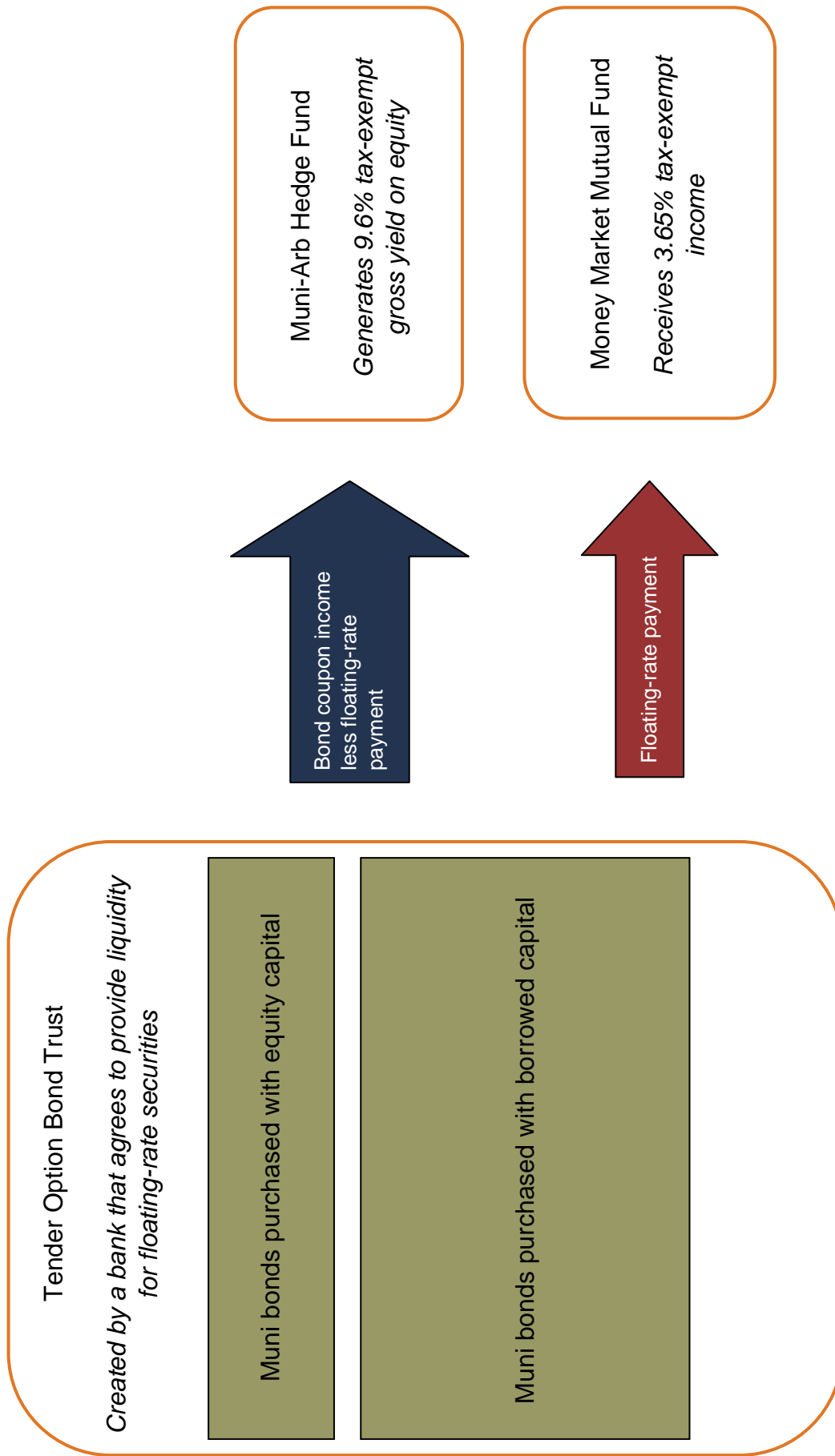
Sources: Barclays Capital and Thomson Datastream.
 Note: Long-maturity munis are represented by the Barclays Capital Municipal Long Bond (22+ Year) Index.

Exhibit 2
Steepness of Treasury and Municipal Bond Yield Curves



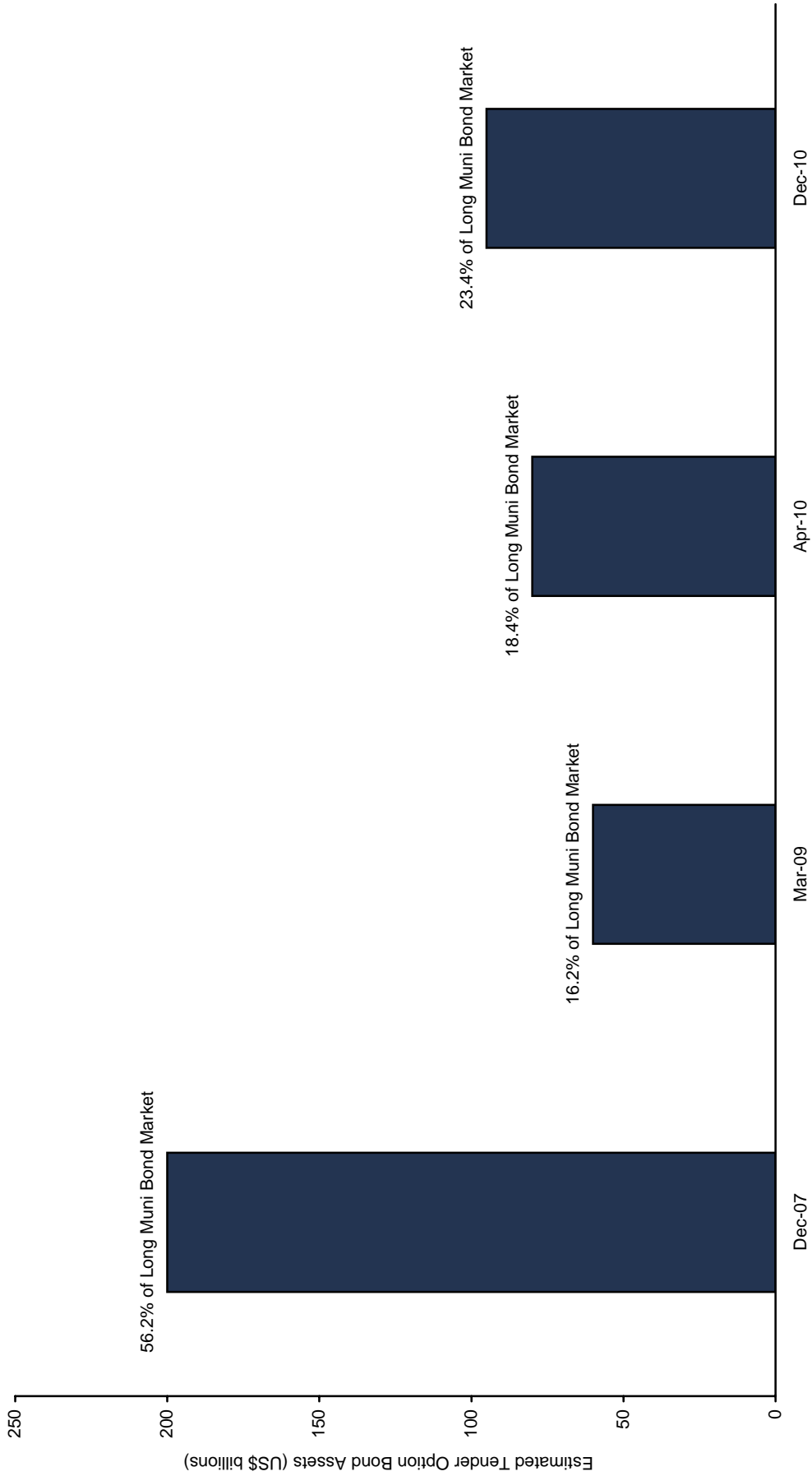
Sources: Barclays Capital, Financial Markets Association, SIFMA, and Thomson Datastream.
 Notes: Data are monthly for Treasury yields and are represented by the 30-year Treasury yield from January 1980 to August 1989 and the Barclays Capital 25 Year+ Treasury Index from September 1989 through present. Data are weekly for municipal yields and are represented by the Barclays Capital Municipal Long Bond 22 Year+ Index and the SIFMA swap rate.

Exhibit 3
Economics of a Typical Tender Option Bond Program in 2007



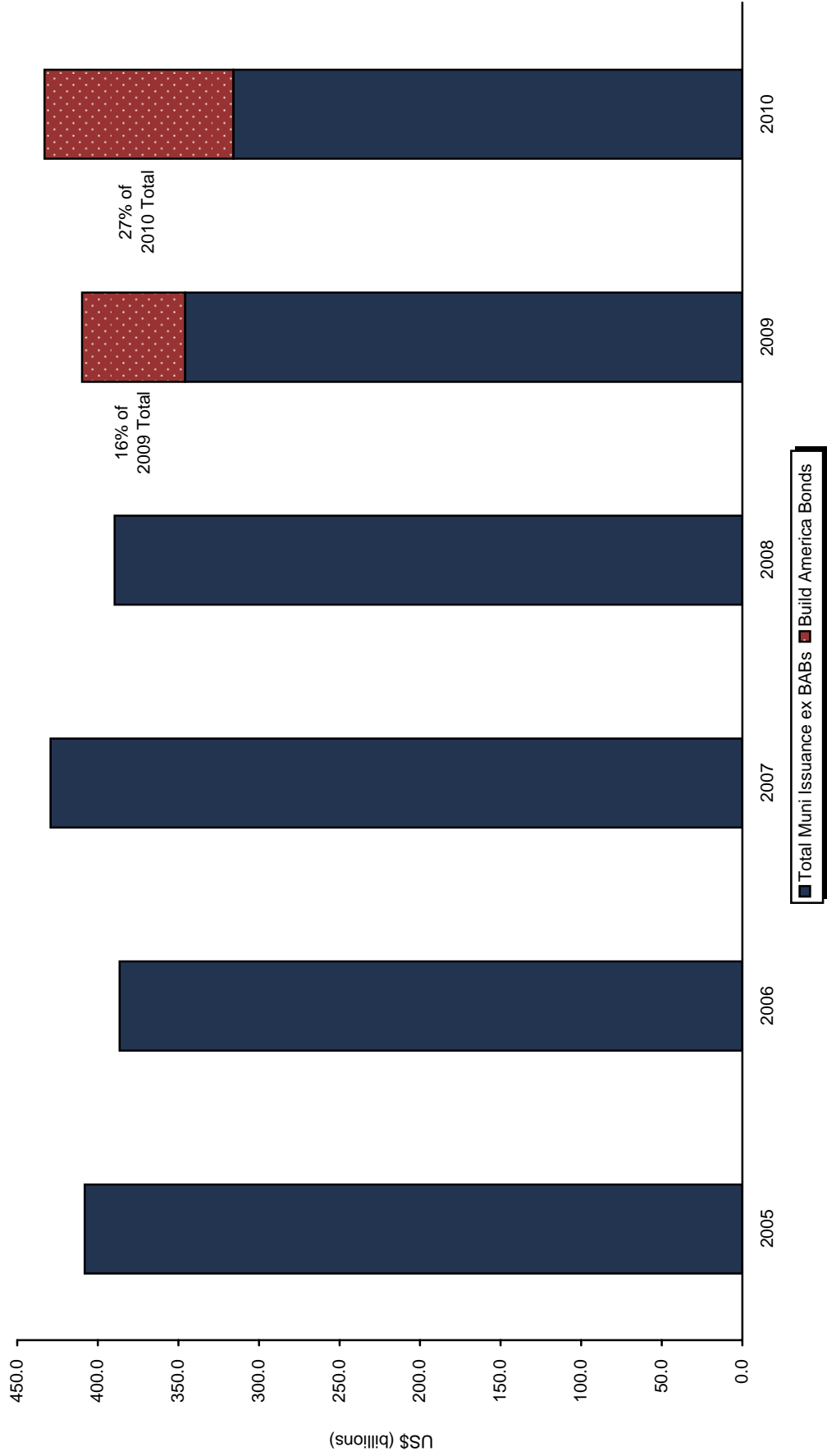
Sources: *The Bond Buyer* and Municipal Market Advisors.
 Notes: This illustration is stylized and simplified, and it attempts to illustrate the economics of the structure but not necessarily its legal components or actual cashflows. This example illustrates a structure leveraged 6:1.

**Exhibit 4
Leveraged Tender Option Bond Programs as a Percentage of the Long-Maturity Muni Bond Market**



Sources: Barclays Capital, BNY Mellon, and *The Bond Buyer*.
 Notes: Estimates for the size of the tender option bond market from 2007 through 2010 are taken from *The Bond Buyer* (April 20, 2010), and the December 2010 estimate is from a discussion with BNY Mellon. Market value used to represent the long muni bond market is the sum of the market values of the Barclays Capital 20 Year Municipal Bond Index and the Barclays Capital Municipal Long Bond (22+ Year) Index.

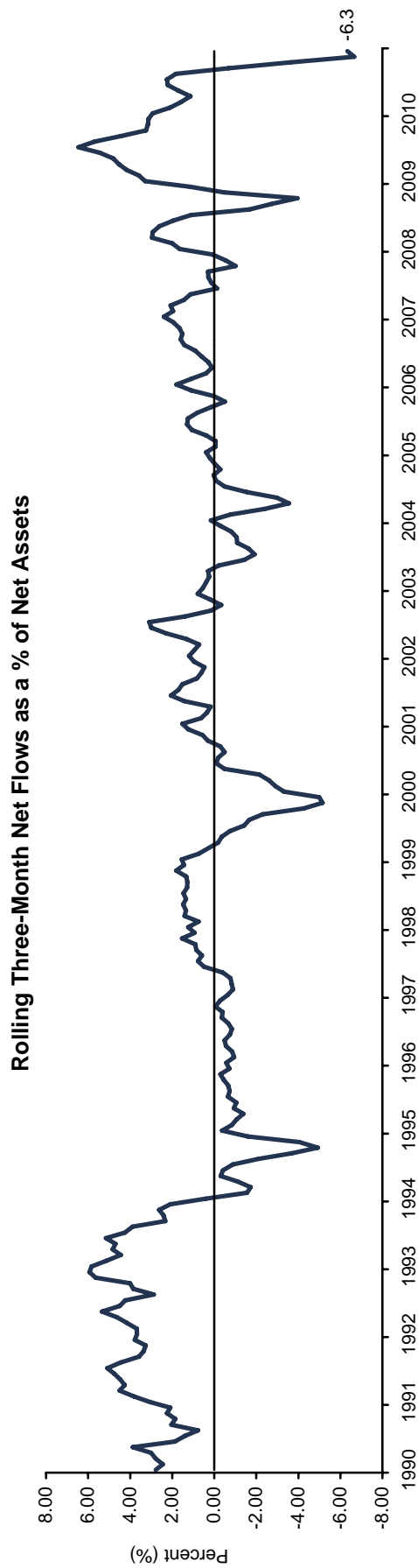
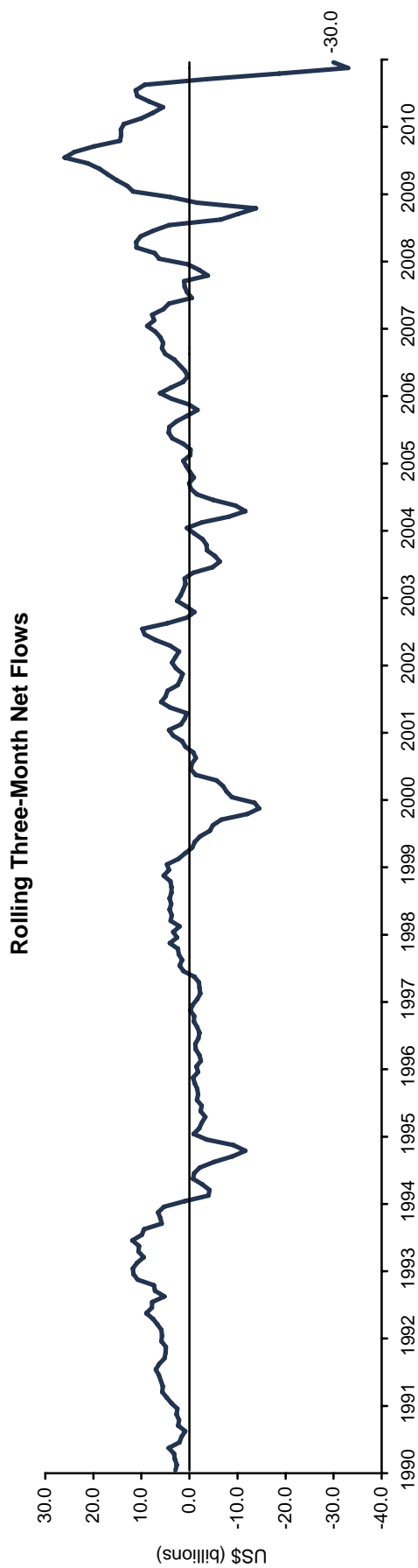
Exhibit 5
Total Municipal Bond and Build America Bonds Issuance
 2005–10



Sources: Bloomberg, SIFMA, and Thomson Reuters.
 Notes: Data are annual. Build America Bonds were first used in April 2009; the program expired on December 31, 2010. Municipal bond issuance includes long-term issuance only, both taxable and tax-exempt.

Exhibit 6
Net Flows into Municipal Bond Mutual Funds

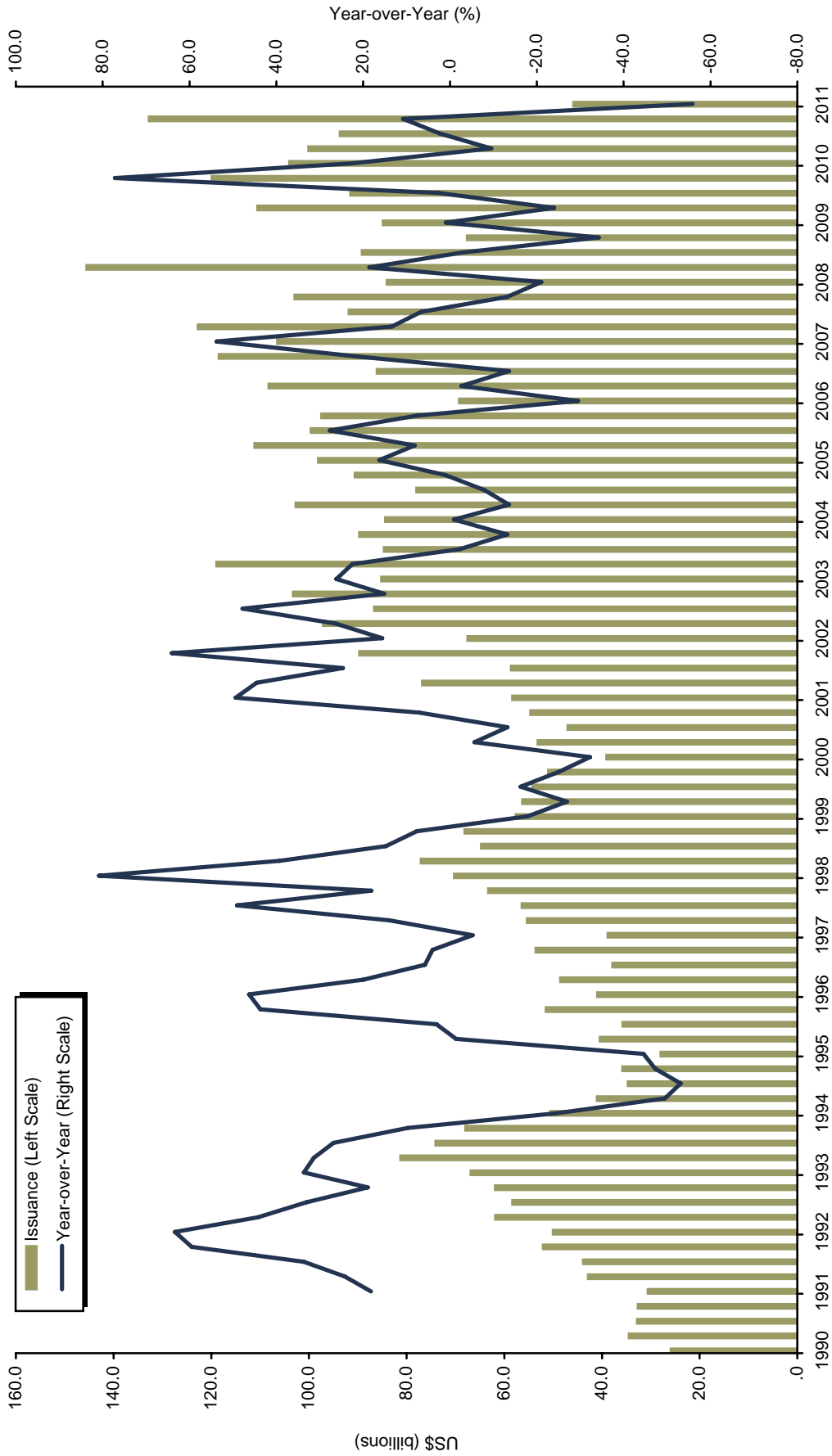
March 31, 1990 – February 28, 2011



Sources: Investment Company Institute and Thomson Datastream.

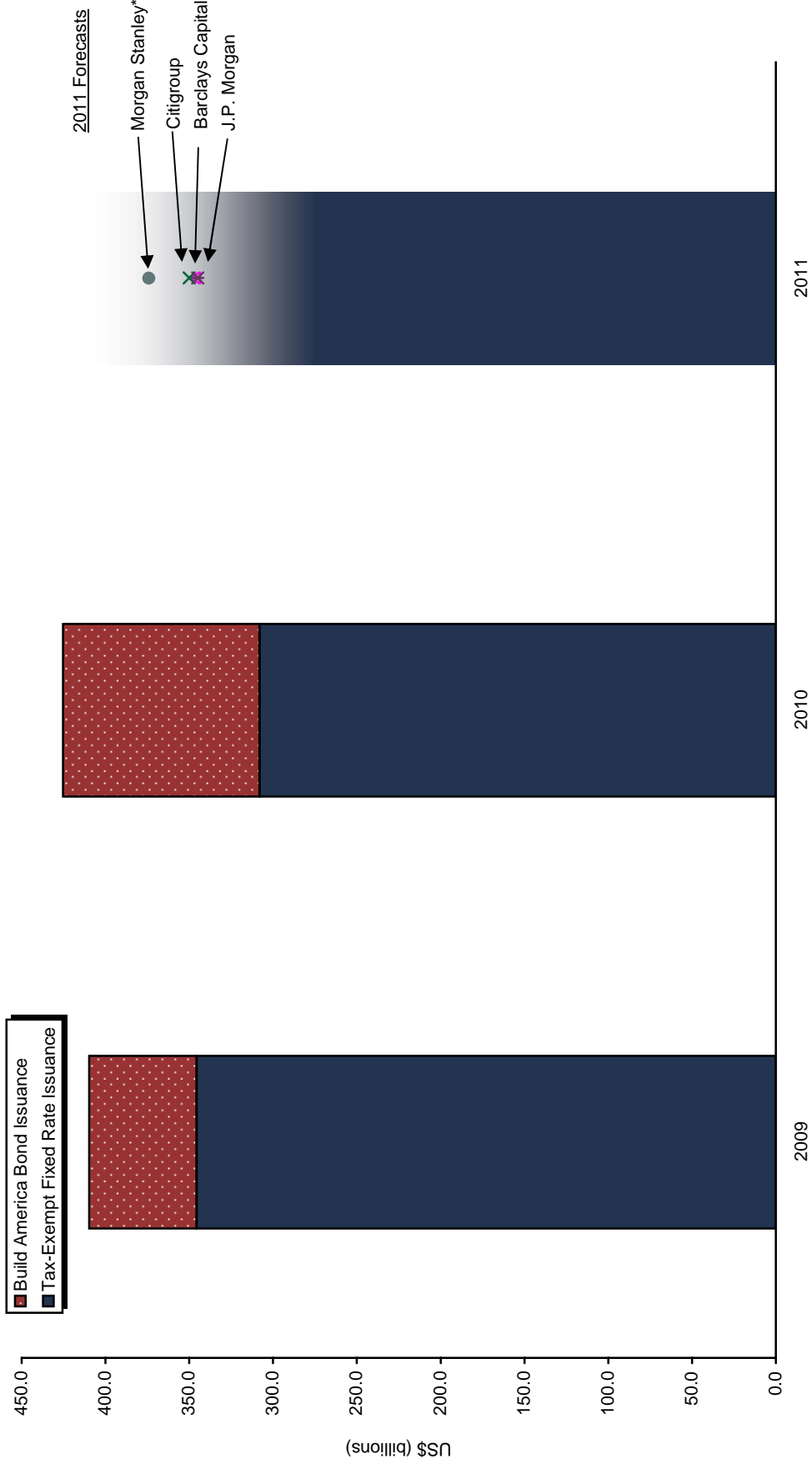
Notes: The denominator of the flows as a percentage of net assets calculation is the asset level at the beginning of the three-month measurement period. Data for February 2011 have been estimated using weekly flows from the Investment Company Institute.

Exhibit 7
Municipal Bond Issuance
 First Quarter 1990 – First Quarter 2011



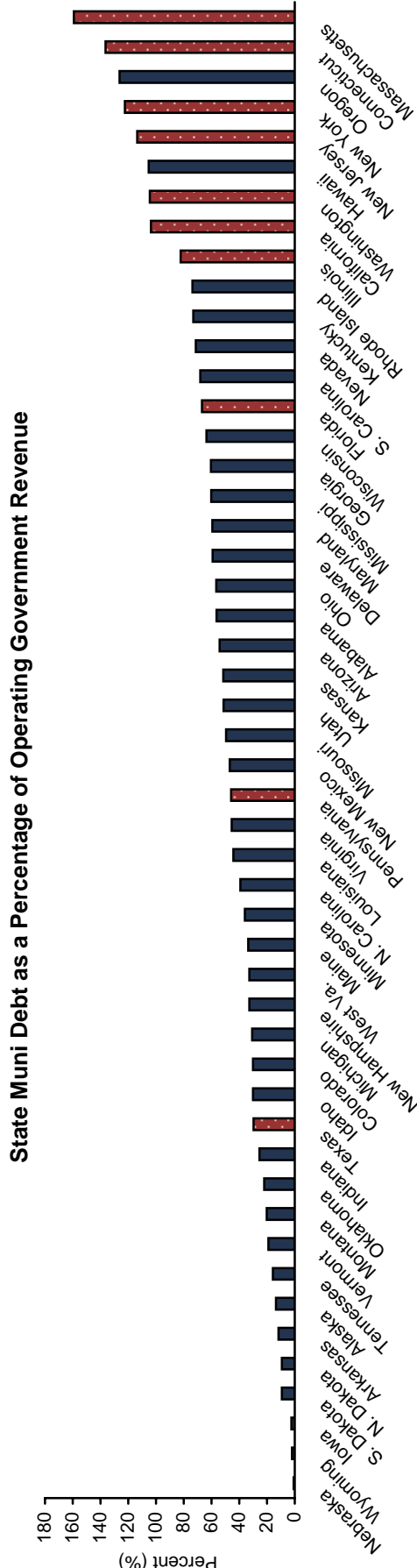
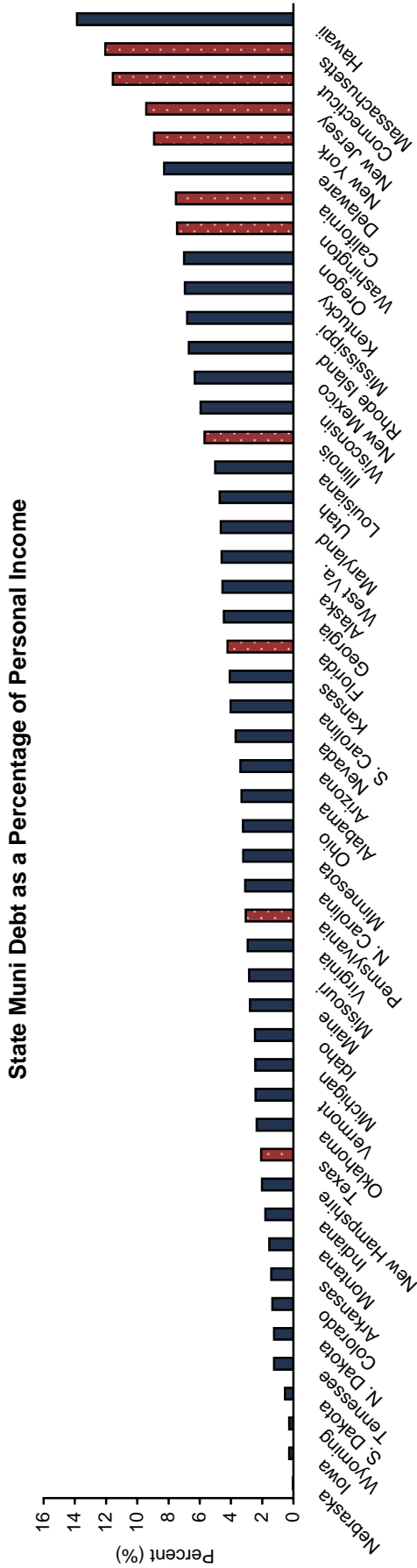
Source: Thomson Reuters.
 Notes: Data are quarterly. First quarter 2011 data have been estimated by adjusting actual issuance through March 18, 2011, to reflect the remaining days in the quarter.

Exhibit 8 Municipal Bond Issuance Forecasts 2009-11



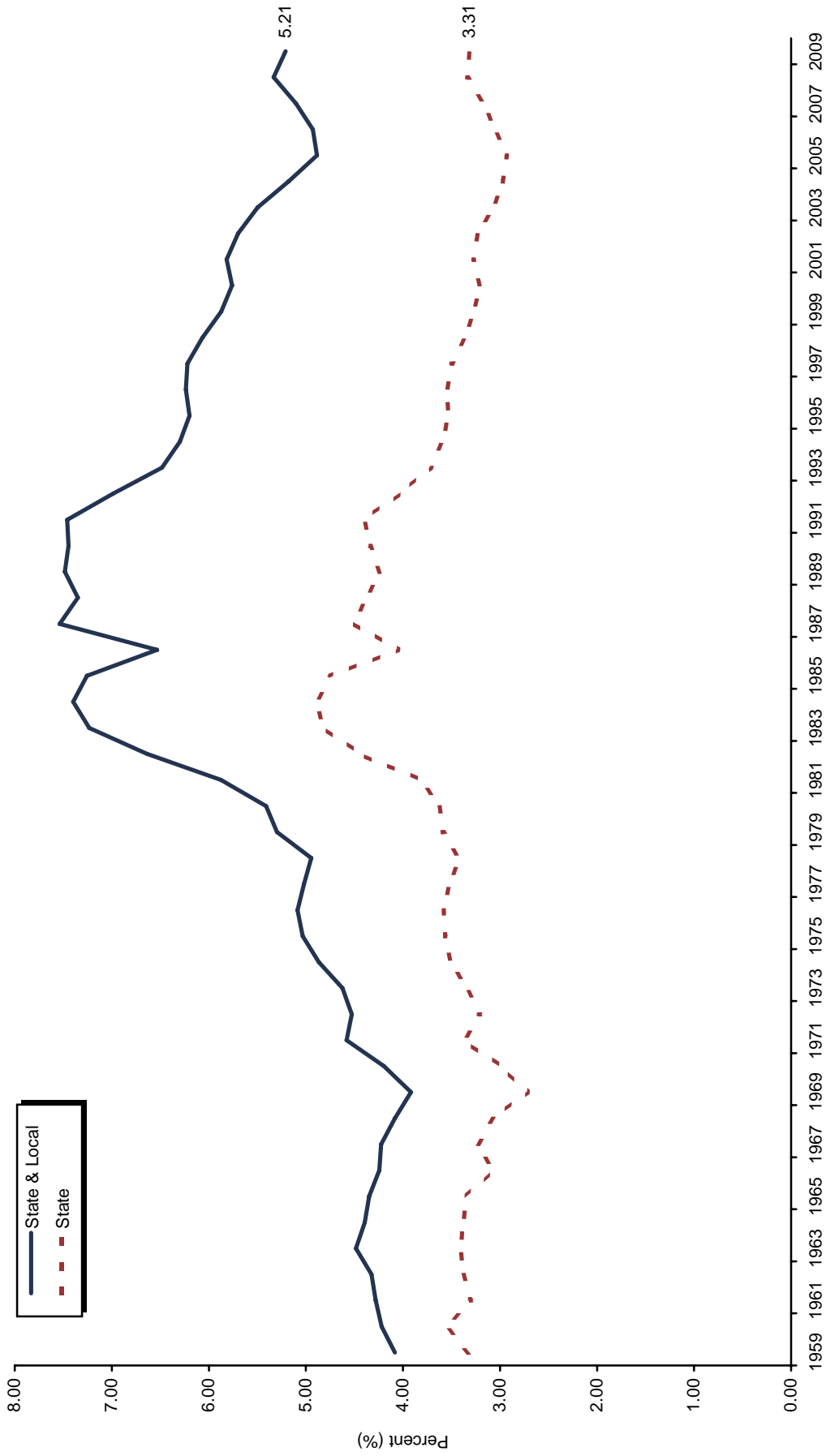
Sources: Barclays Capital, Bloomberg L.P., Citigroup Global Markets, *Financial Times*, J.P. Morgan Securities, Inc., Morgan Stanley Research, SIFMA, and Thomson Reuters.
 Notes: Tax-exempt fixed rate issuance is derived from subtracting the Build America Bond program issuance from the total fixed rate issuance figure as reported by SIFMA. Data for 2011 are forecasts. J.P. Morgan forecast as of November 24, 2010; Morgan Stanley, December 7, 2010; Barclays Capital, December 10, 2010; and Citigroup, January 25, 2011.
 * Morgan Stanley forecast includes approximately \$30 billion in taxable supply.

Exhibit 9
Debt Issuers' Long-Term Liabilities as a Percentage of Personal Income and Revenue
 As of January 26, 2011



Source: Moody's Investor Services.
 Note: Bars with a dot fill indicate the ten states with the largest amount of outstanding muni debt.

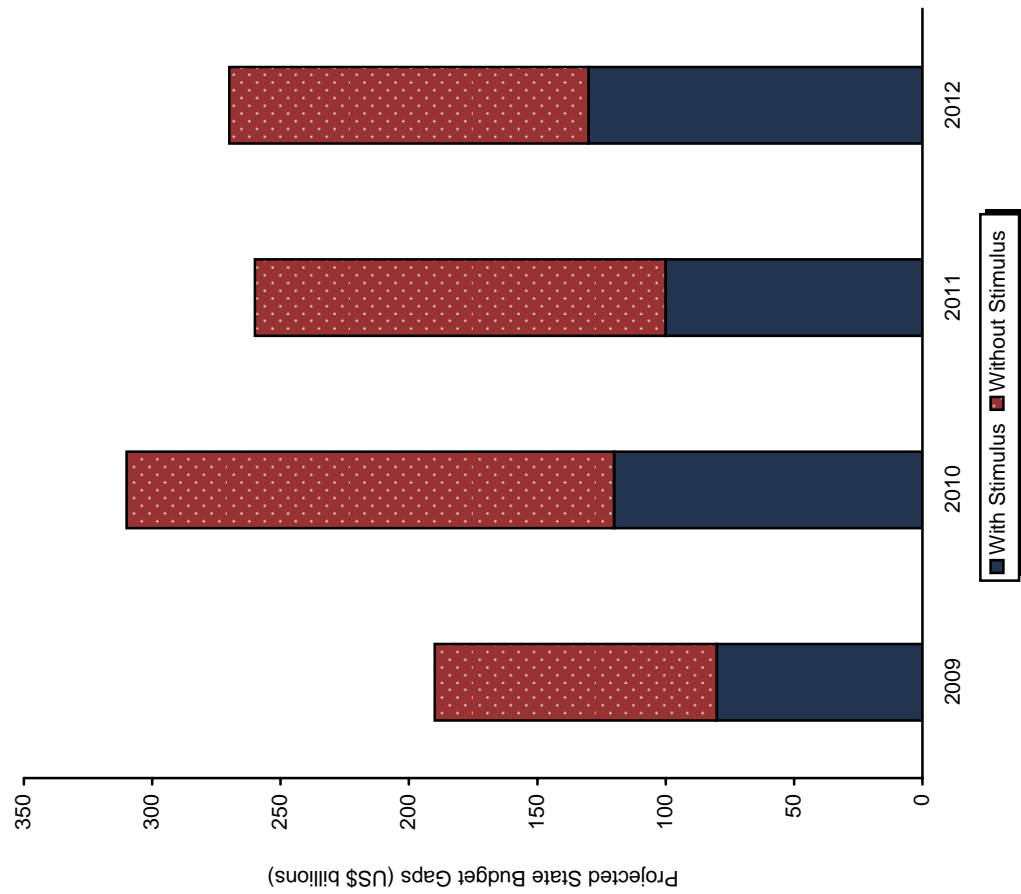
Exhibit 10
Municipal Interest Costs as a Percentage of Total Receipts
 1959-2009



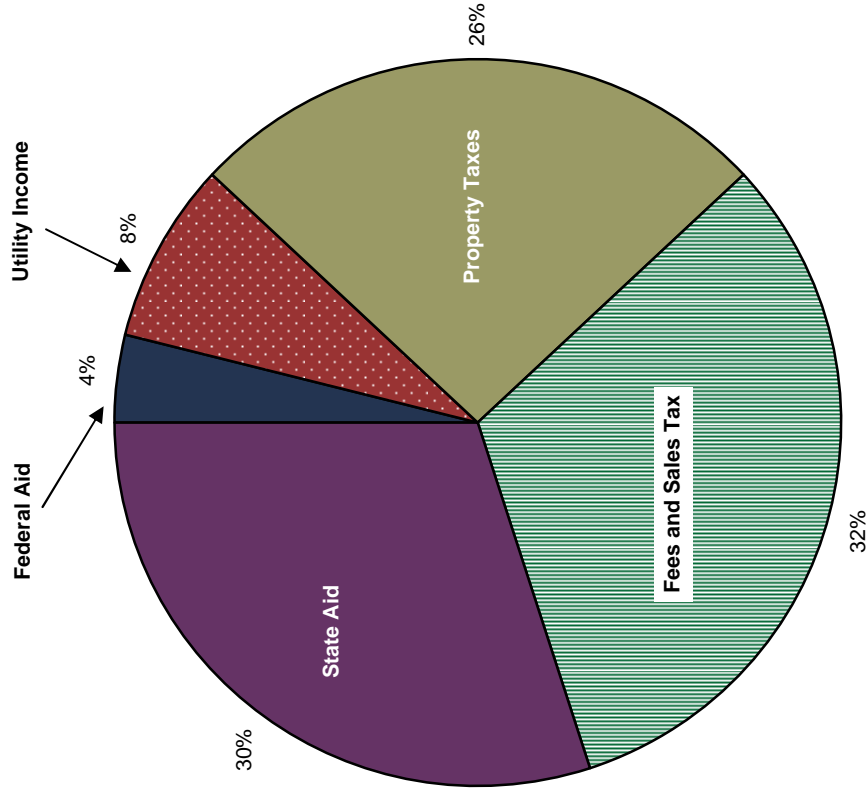
Sources: Thomson Datastream and U.S. Department of Commerce - Bureau of Labor Statistics.

Exhibit 11
Reliance of States on Federal Stimulus and Reliance of Localities on State Aid

Projected State Budget Gaps With and Without Federal Stimulus
 As of January 5, 2011



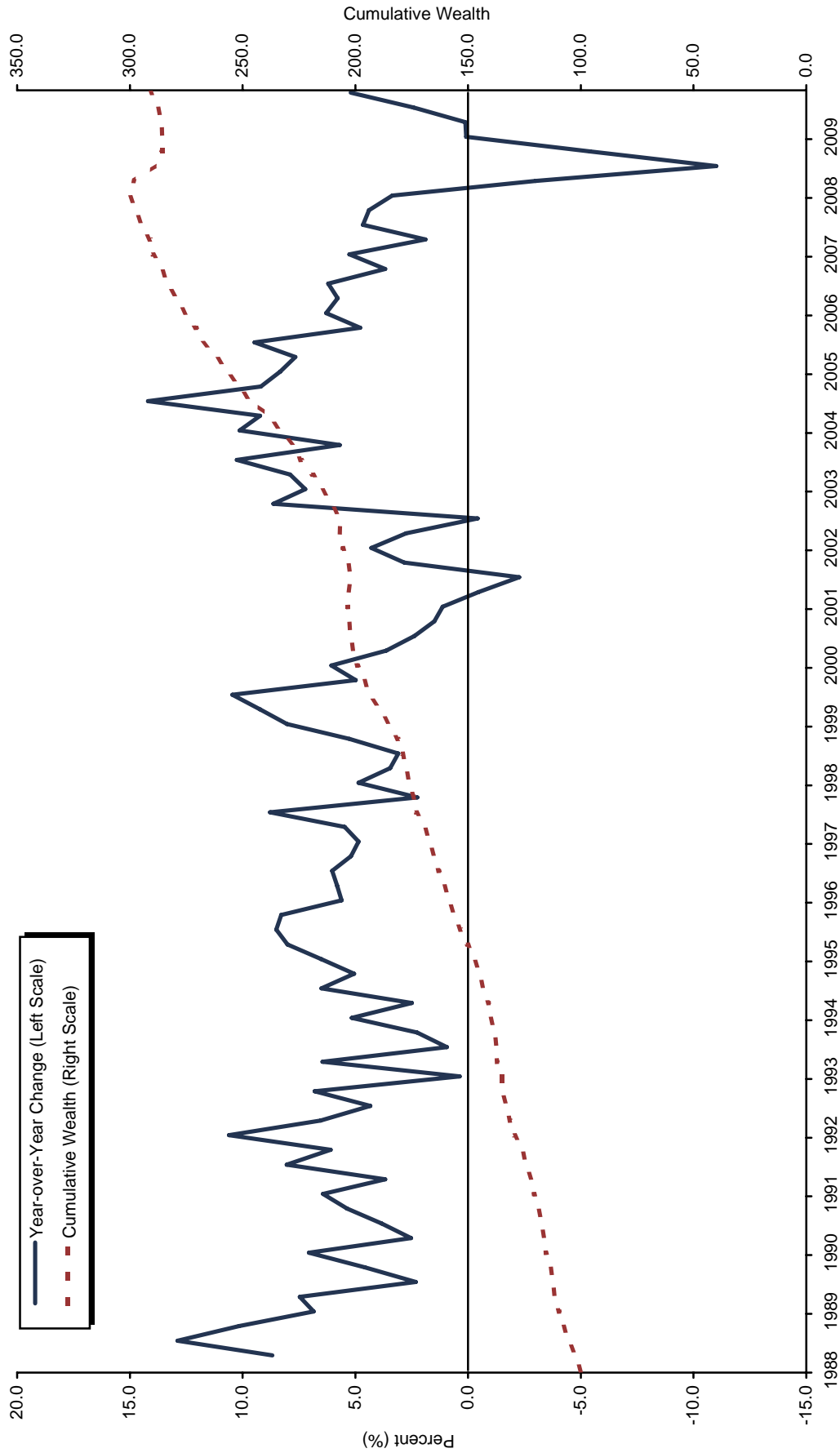
Sources of U.S. Local Government Revenue
 As of 2008



Source: Center on Budget and Policy Priorities via *Financial Times*, January 5, 2011, and Congressional Budget Office.

Exhibit 12
State and Local Tax Revenues

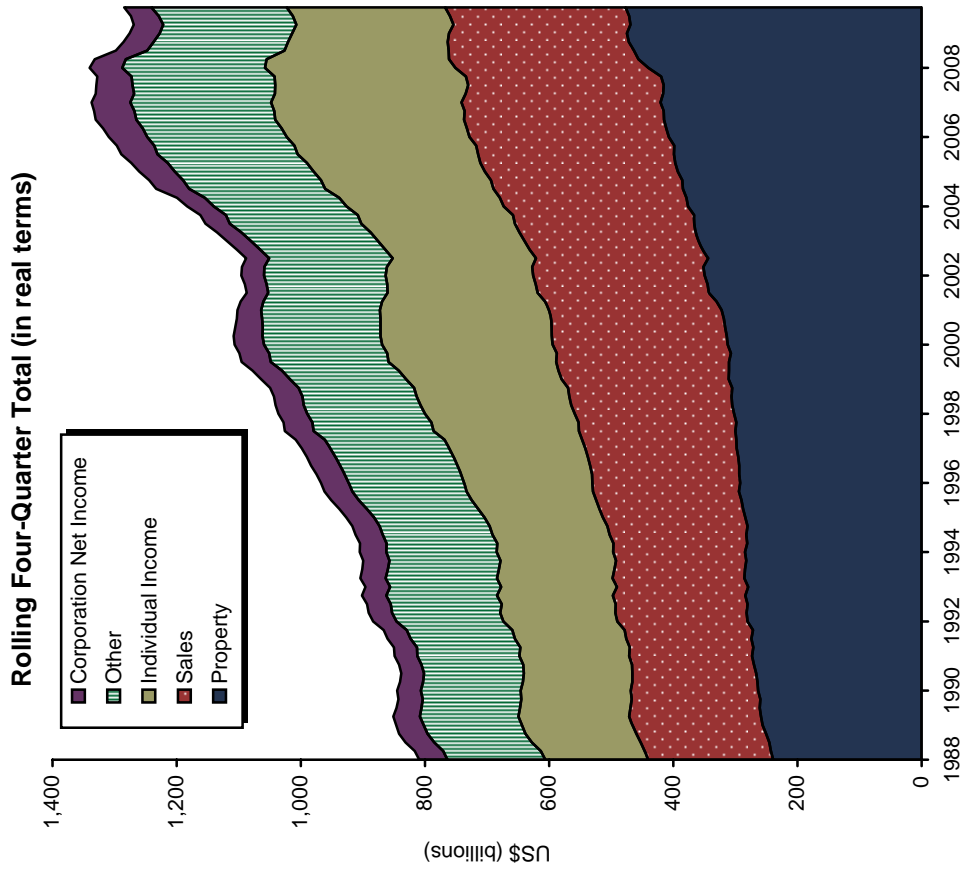
December 31, 1988 – September 30, 2010



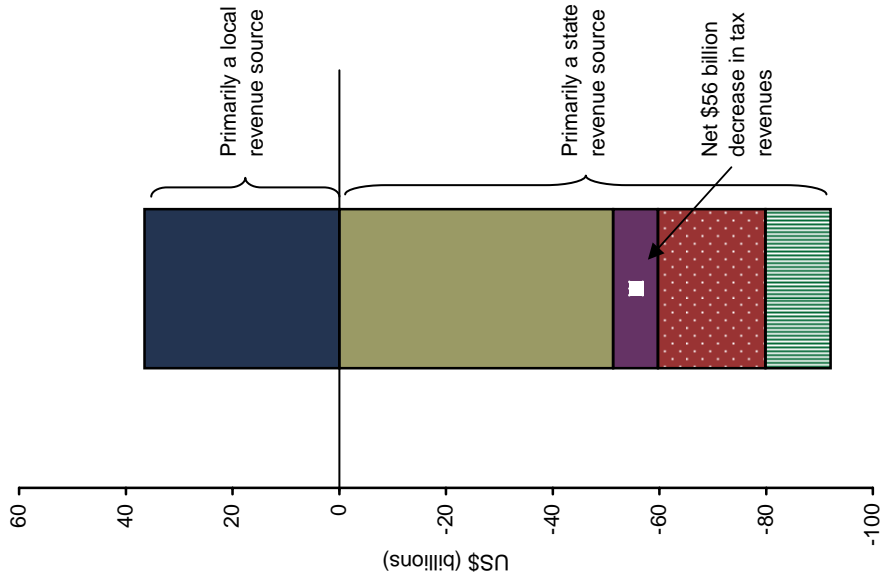
Source: U.S. Census Bureau.
 Notes: Cumulative wealth is based on rolling four quarters of tax revenues. Cumulative wealth has been rebased to \$100 on December 31, 1988. Data have not been adjusted for inflation.

Exhibit 13 State and Local Tax Revenues by Source

December 31, 1988 – September 30, 2010



Change in Revenue from Q4 2008 Peak Level to Q3 2010

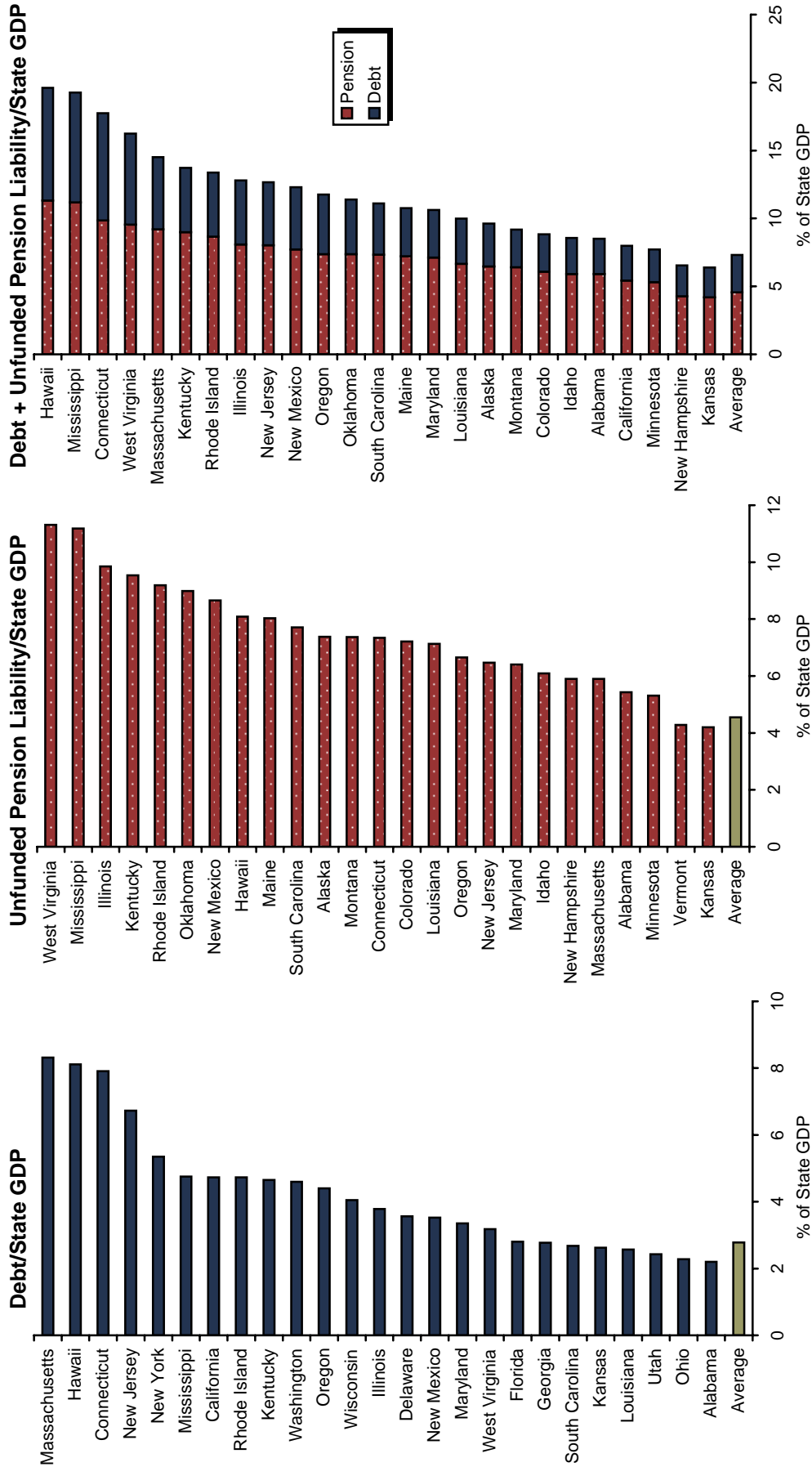


Sources: Thomson Datastream, U.S. Census Bureau, and U.S. Department of Labor - Bureau of Labor Statistics.
 Notes: Other includes alcohol, motor fuel, motor vehicle and operator's licenses, tobacco, and other unlisted taxes. Brackets indicate that income taxes generally support state spending, while property taxes support local spending; however, revenue sources vary in some areas, and state aid is also a significant source of local government revenues. Data are shown in September 2010 dollars.

Exhibit 14

State Debt and Unfunded Pension Liabilities as a Percentage of State GDP for 25 Heavily Indebted States

As of January 26, 2011

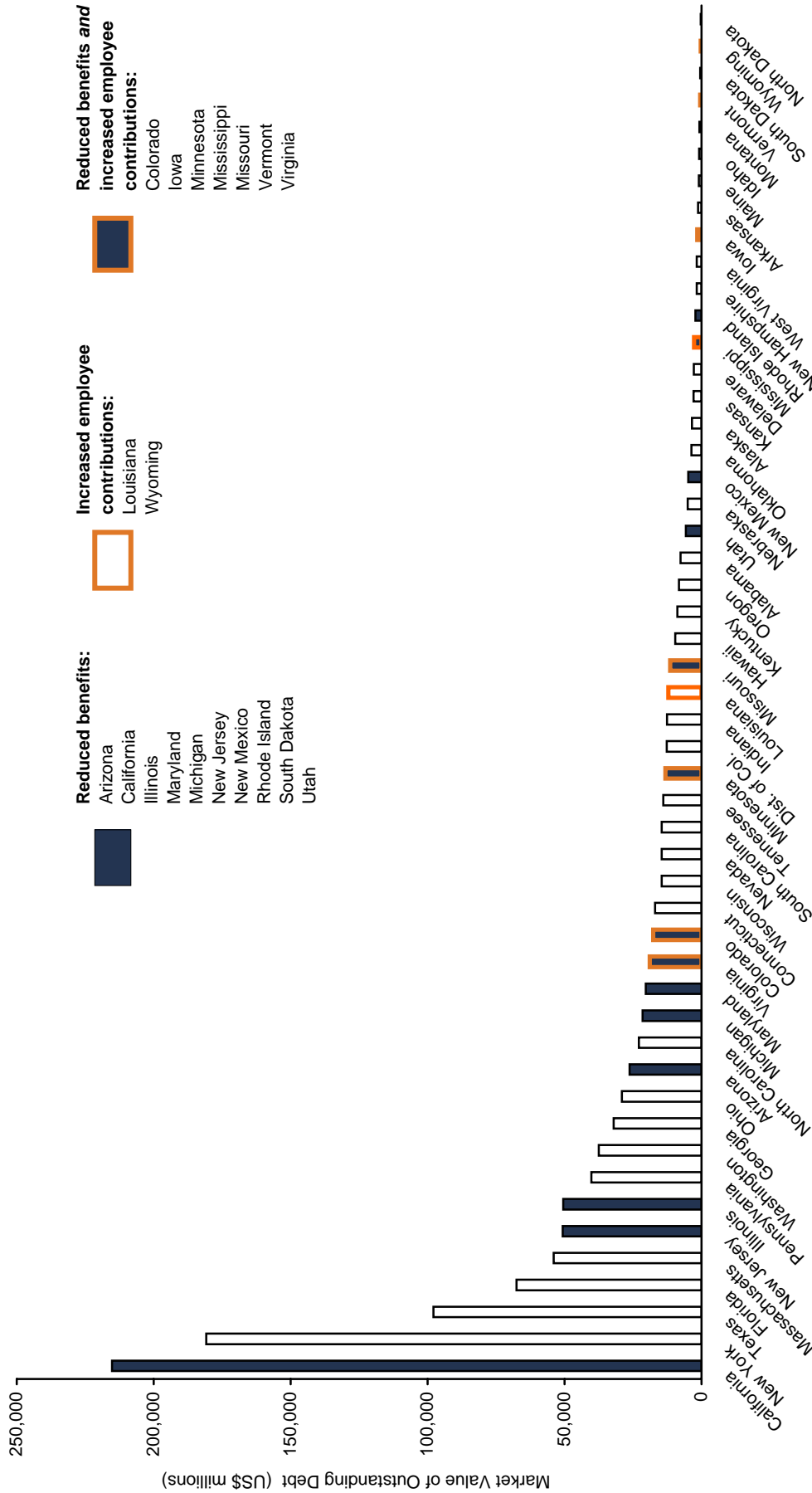


Source: Moody's Investor Services

Notes: Moody's data on unfunded pension liabilities are taken from state's audited financial statements, which typically use discount rates of approximately 8%; more conservative discount rates would increase unfunded liabilities substantially. Average calculation is based on all 50 states.

Exhibit 15 State Pension Reform Implementation

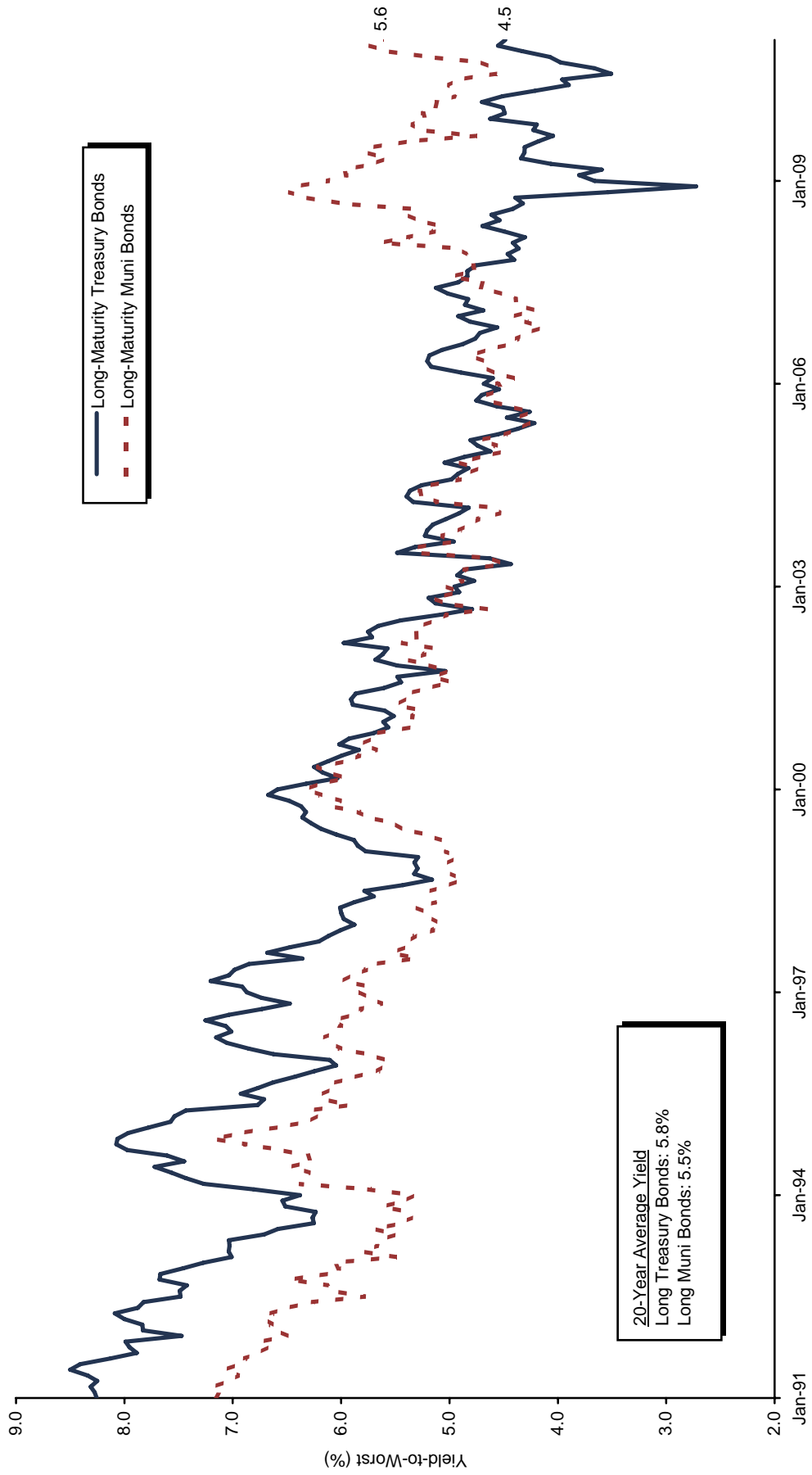
As of November 30, 2010



Sources: Barclays Capital and Pew Center on the States via *Pensions & Investments*, December 13, 2010.
 Notes: Non-highlighted states did not complete pension reforms during the first 11 months of 2010. Market value shown is of each state's municipal bond index within the Barclays Capital Municipal Bond Index.

Exhibit 16
Yields on Long-Maturity Treasury and Municipal Bonds

January 31, 1991 – February 28, 2011

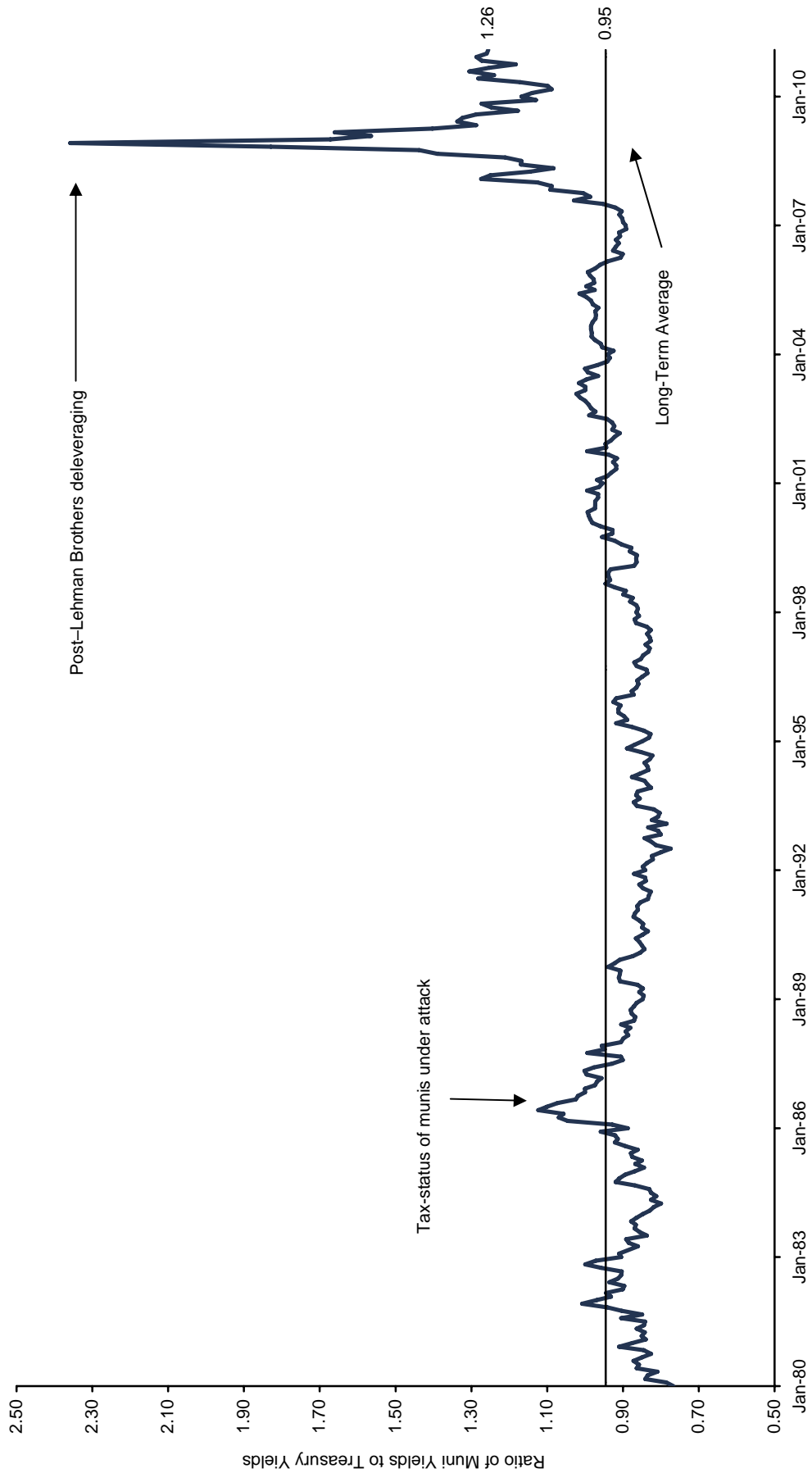


20-Year Average Yield
 Long Treasury Bonds: 5.8%
 Long Muni Bonds: 5.5%

Source: Barclays Capital.
 Notes: Data are monthly. Yields are represented by the Barclays Capital Municipal Long Bond (22+ Year) Index. Treasury yields are represented by the Barclays Capital 25+ Year Treasury Bond Index.

Exhibit 17
Ratio of Long-Maturity Municipal Bond to Treasury Yields

January 31, 1980 – February 28, 2011

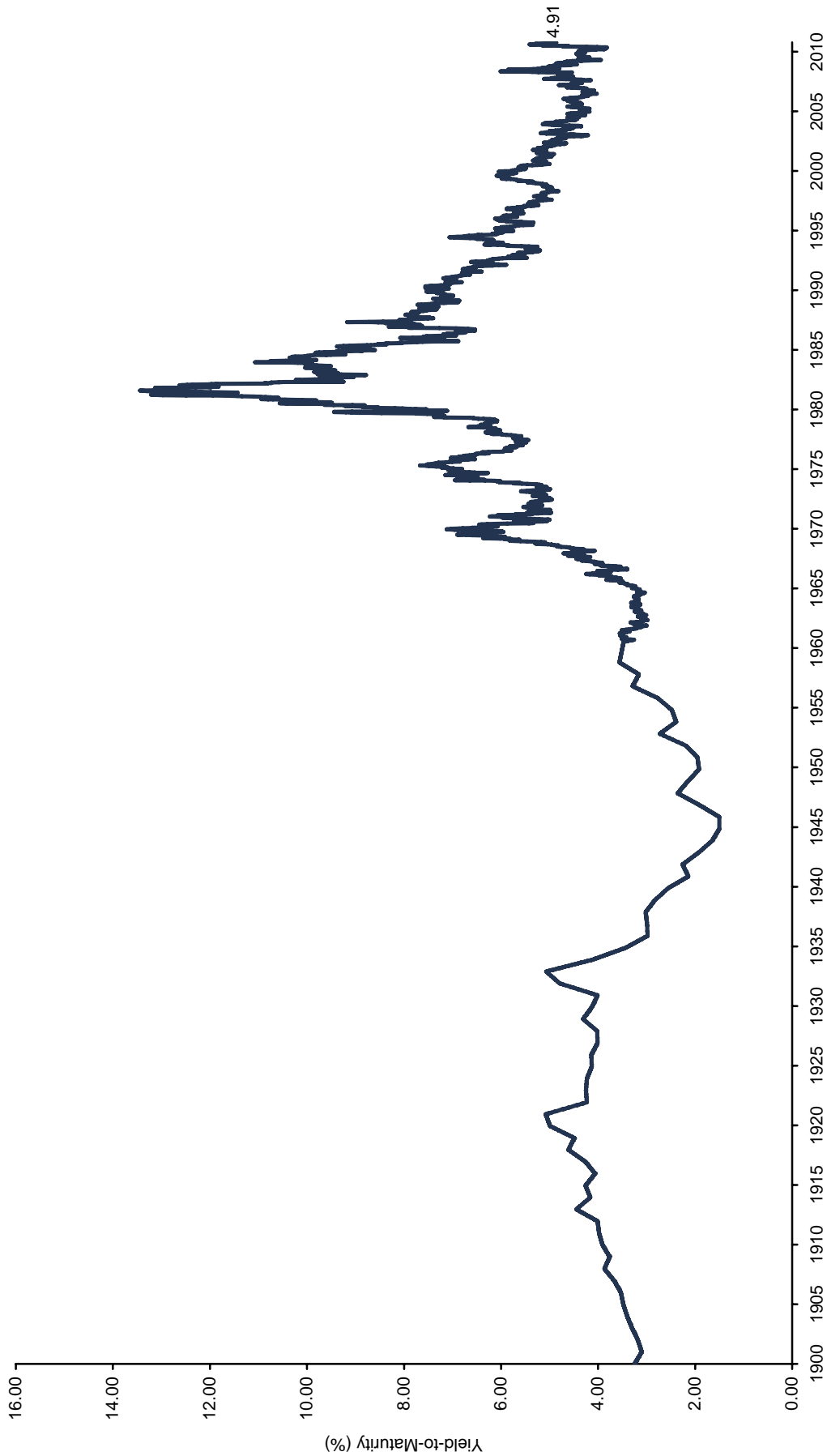


Sources: Barclays Capital and Thomson Datastream.

Notes: Data are monthly. Yields are represented by the Barclays Capital Municipal Long Bond 22 Year+ Index for Municipal Bonds. Treasury yields are represented by the 30-year Treasury yield from January 1980 to August 1989, and the Barclays Capital 25+ Year Treasury Bond Index from September 1989 through the present.

Exhibit 18
Bond Buyer 20 General Obligation Bond Index Yields

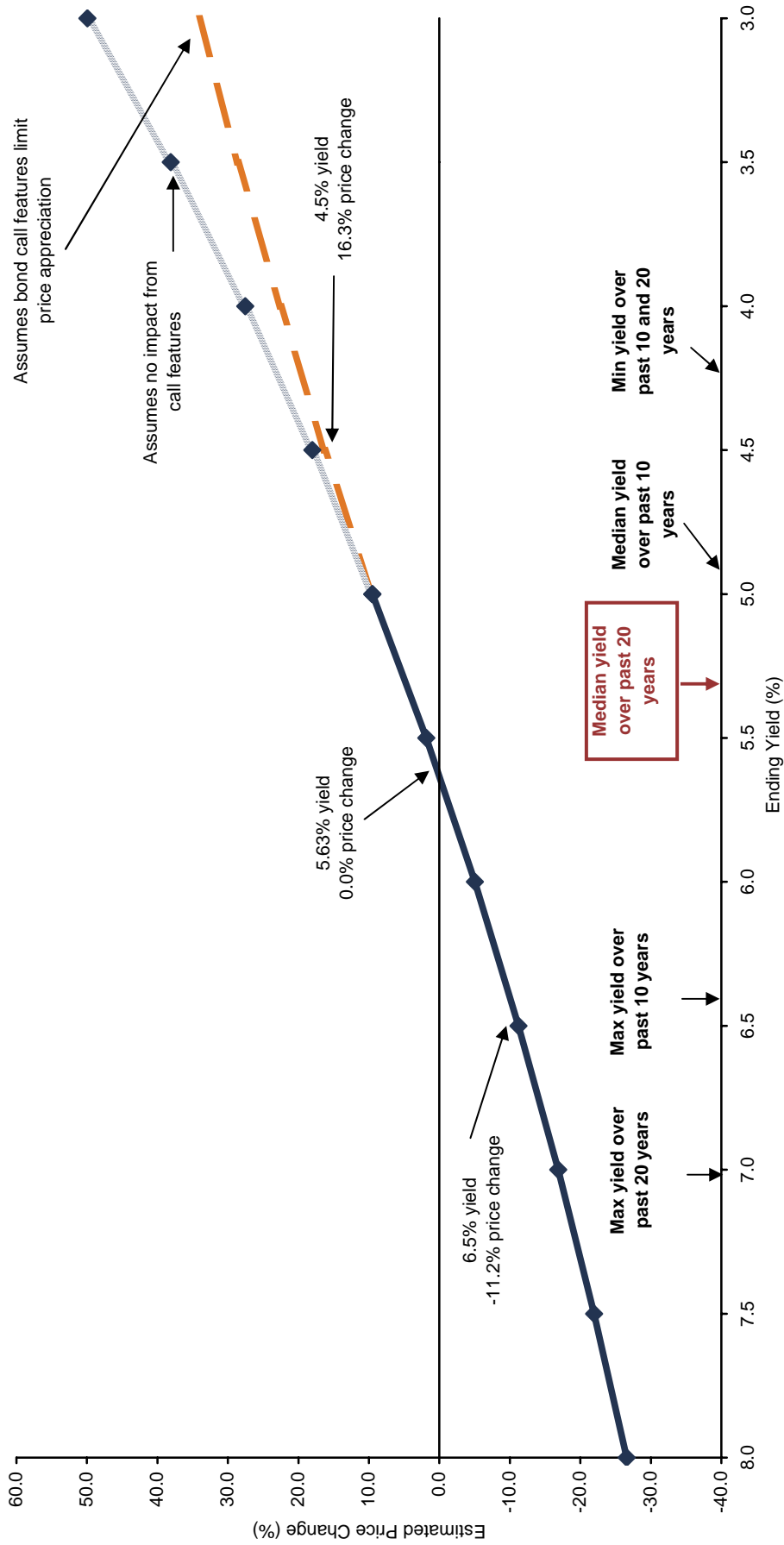
June 14, 1900 – March 24, 2011



Sources: Bloomberg L.P. and The Bond Buyer.
Notes: Data from 1900 through 1960 are annual. Data from 1961 through present are weekly.

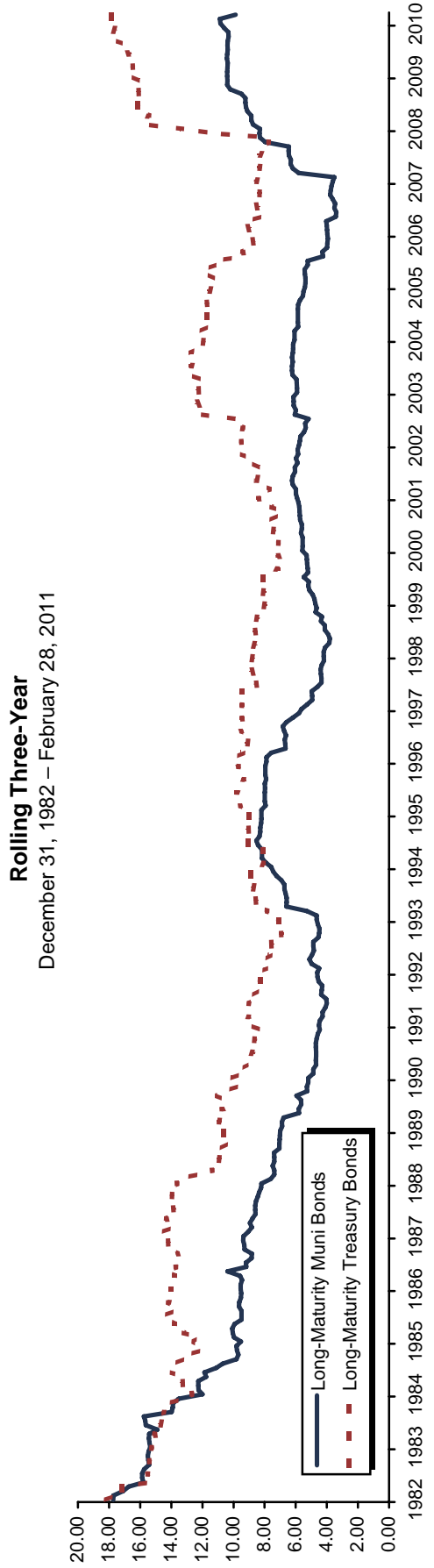
Exhibit 19 Long-Maturity Municipal Bond Estimated Price Changes at Various Ending Yields

As of February 28, 2011



Source: Barclays Capital.
Notes: Long-maturity municipal bonds are represented by the Barclays Capital Municipal Long Bond (22+ Year) Index. Many municipal bonds have an embedded call option, which would limit returns in the event of sharply falling yields. Model assumes that callability dampens bond price increase by one-fifth if yields move from 5.0% to 4.5%, by one-third from 4.5% to 4.0%, by two-fifths from 4.0% to 3.5%, and by one-half from 3.5% to 3.0%. Median, maximum, and minimum yields shown are quarterly.

Exhibit 20
Rolling Annualized Standard Deviation of Long-Maturity Municipal and Treasury Bonds

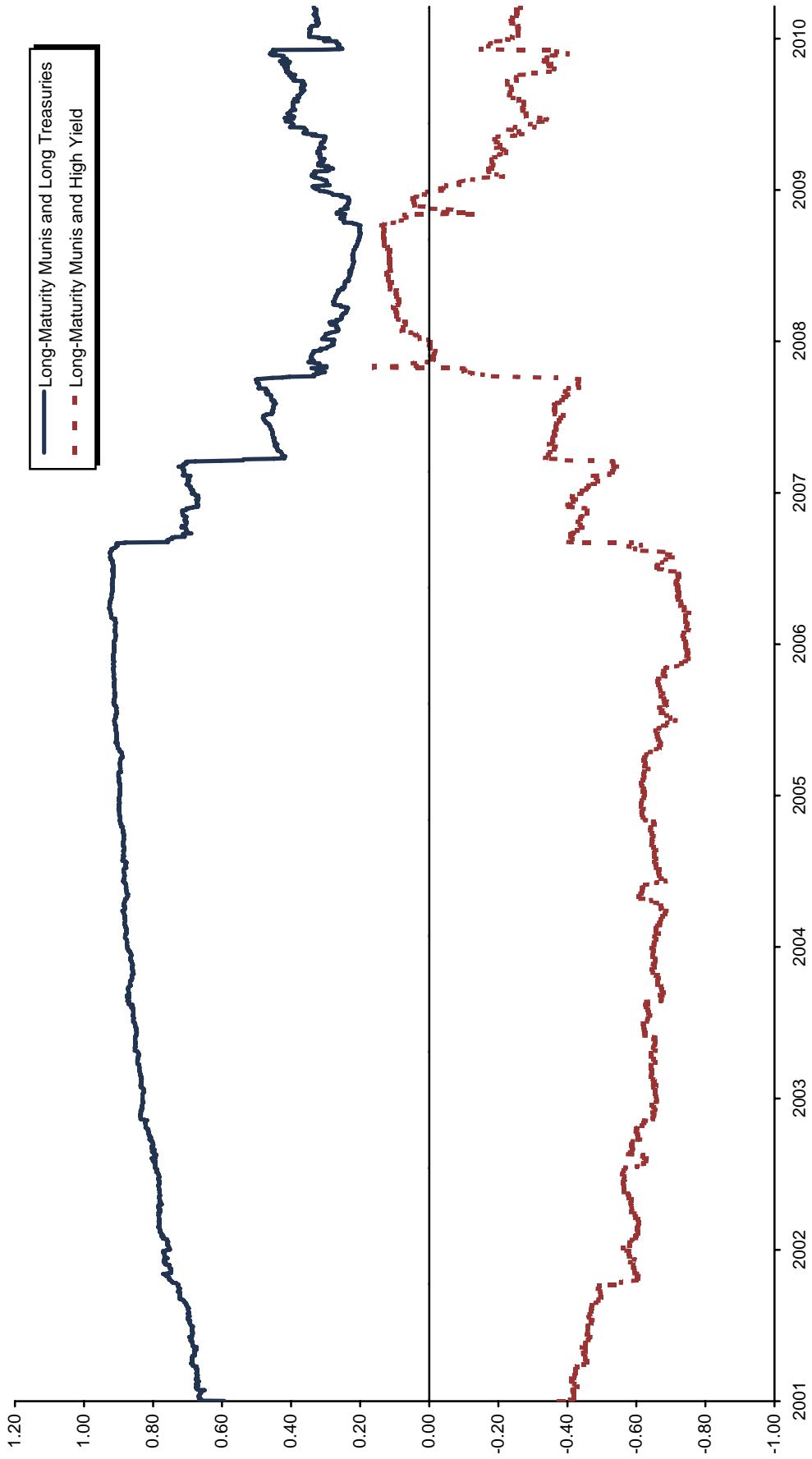


Sources: Barclays Capital, BofA Merrill Lynch, and Thomson Datastream.
 Notes: The top graph uses monthly data and the Barclays Capital Municipal Long Bond (22+ Year) Index and the Barclays Capital 20+ Year Treasury Bond Index. The bottom graph uses daily data and the BofA Merrill Lynch Municipals 22+ Year Index and the BofA Merrill Lynch 20+ Year U.S. Treasury Bond Index. The top graph uses annualized monthly data. The bottom graph uses annualized 65-day data to represent the number of typical trading days in three months.

Exhibit 21

Rolling One-Year Correlation of Long-Maturity Muni Bond Returns with Long Treasuries and High-Yield Bonds

December 13, 2001 – February 28, 2011



Sources: Barclays Capital and Thomson Datastream.

Notes: Correlations are calculated using total returns for the Barclays Capital Municipal Long Bond (22+ Year) Index and the Barclays Capital 20+ Year Treasury Bond Index and excess returns for the Barclays Capital High Yield Composite Bond Index. Graph uses daily data. We have used 265 days to represent the typical number of trading days in one year.

Exhibit 22
Historical Return and Volatility of Various Blends of Long-Maturity Municipal Bonds and Energy Equities
 February 28, 1973 – February 28, 2011

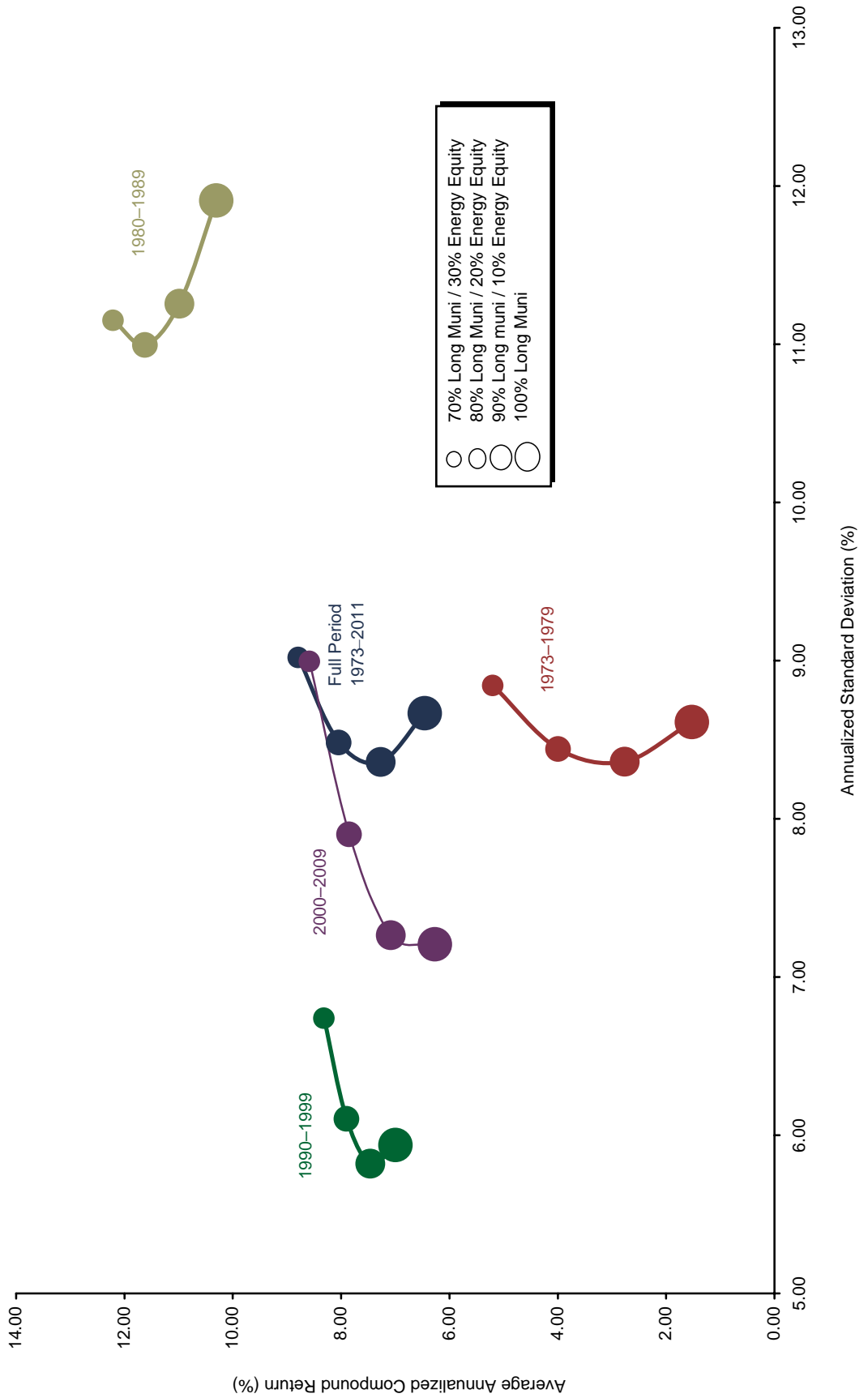
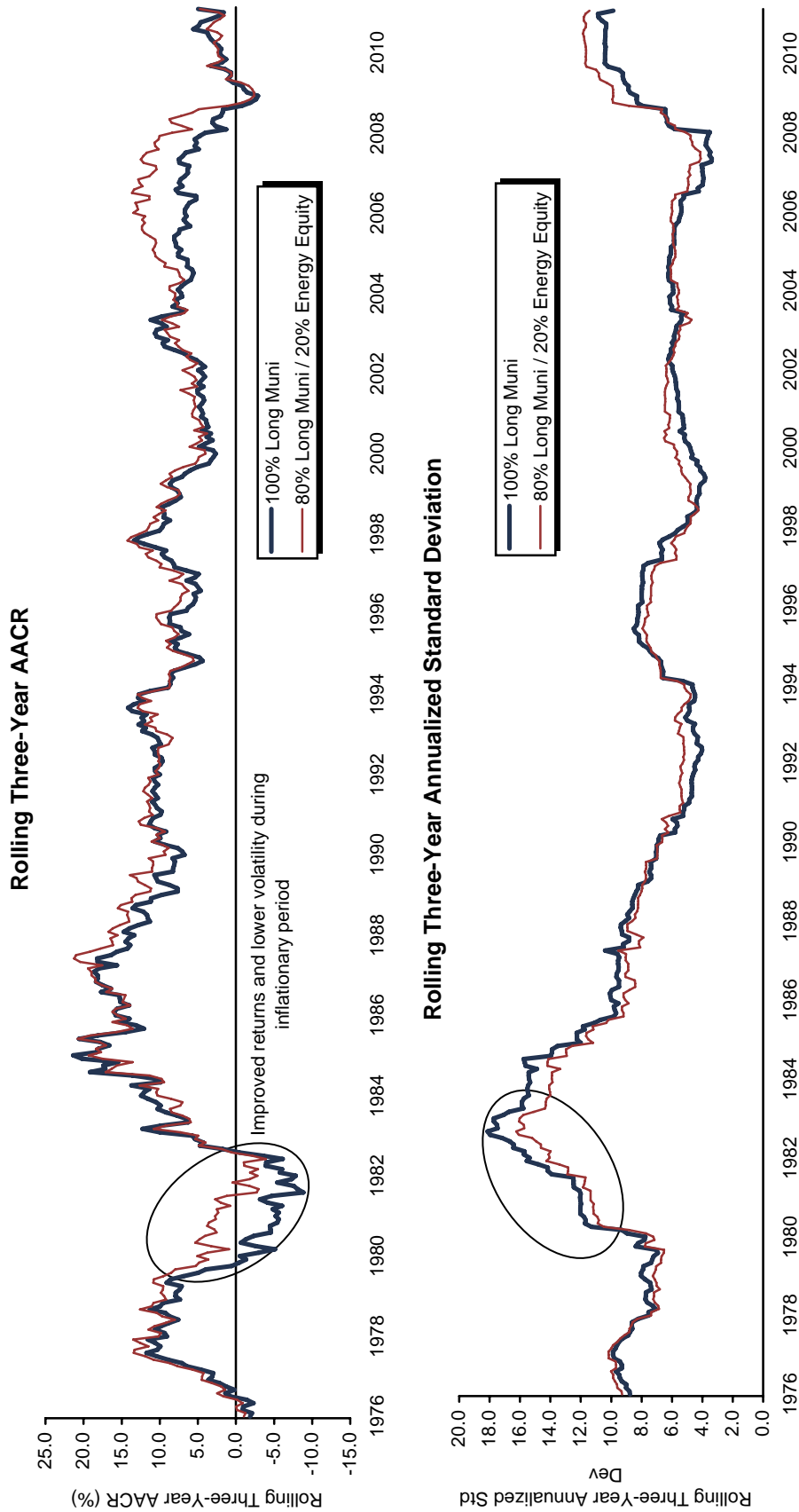


Exhibit 22 (continued)
Historical Return and Volatility of Various Blends of Long-Maturity Municipal Bonds and Energy Equities
 February 28, 1973 – February 28, 2011



Sources: Barclays Capital, Global Financial Data, Inc., and Thomson Datastream.
 Notes: Energy equities are represented by the Datastream World Oil & Gas Index. Long municipal bonds are represented by the USA Municipal Bonds Total Return Index from 1973 through 1979 and by the Barclays Capital Municipal Long Bond (22+ Year) Index from 1980 through present. The calculated blends represent allocations of 100% / 0%, 90% / 10%, 80% / 20%, and 70% / 30% to long municipal bonds and energy equities, respectively. Returns and volatilities shown are pre-tax and reflect monthly rebalancing with no assumed transaction costs. Assuming a more reasonable annual rebalancing frequency does not appear to materially change the results. Circle sizes are indicative of the blend percentages with the largest circle representing 100% long municipals and the smallest representing 70% municipals / 30% energy equities.