HARVARD | BUSINESS | SCHOOL

Why fears about municipal credit are overblown

Daniel Bergstresser
Randolph Cohen

Working Paper

11-129

Why fears about municipal credit are overblown

Daniel Bergstresser*
Randolph Cohen**

(First version April 2011. Current draft June 2011. Comments welcome)

Abstract

Highly publicized predictions of 50-100 municipal defaults have caused anxiety among municipal bond investors. While there is some chance that negative investor sentiment will lead to further spread widening, the probability of the kind of widespread default that would be required to justify current municipal bond yields is low. In this paper we document the reasons why the fears of widespread municipal default during the current recession are overblown.

Keywords: Municipal bonds.

We are grateful for support from Harvard Business School. Although both authors' primary affiliations are with academic institutions, both authors have at times been paid for consulting engagements in the investment management industry. Details are available upon request.
* Corresponding author. Harvard Business School. Tel.: 617-495-6169. E-mail: dbergstresser@hbs.edu
** Massachusetts Institute of Technology.

Contents

1. Summary

Highly publicized predictions of 50-100 municipal defaults have caused anxiety among municipal bond investors.[1] These recent predictions must be placed into appropriate context, looking both forward and to history:

- In 2009 municipal issuers defaulted on 178 individual bond issues. The aggregate face value of the defaulted issues was $3.5 Billion. In 2010 issuers defaulted on seventy-five municipal bond issues, with an aggregate face value of $1.7 Billion.

- The municipal credit market is a $2.5 Trillion market.

- Thus the prediction of hundreds of municipal defaults has already been realized. Losses have amounted to a tiny fraction of market value.[2]

- As of December 31, 2010 the MCDX 5-year index spread was 218 basis points. With seventy percent recovery for investors in default, this spread is consistent with 3.63 defaults per year out of the index's fifty names, or a seven percent annual default rate.[3]

- Market spreads as of December 31 were already consistent with approximately thirty percent of municipal issuers going into default over the next five years. In that sense, the worst of the doomsday scenarios had already been incorporated into market yields.

- This doomsday scenario is very unlikely. States, counties, and cities face long-term budget stress, related in large part to employee retirement benefits. These problems, though large, are long-term problems and are unlikely to create across-the-board short-term liquidity crises that could lead to widespread municipal default.

---

[1] A recent quote from Meredith Whitney, interviewed on CBS' 60 Minutes: 'There's not a doubt in my mind that you will see a spate of municipal bond defaults…You could see 50 sizeable defaults. 50 to 100 sizeable defaults. More. This will amount to hundreds of billions of dollars worth of defaults.' See *CBS News*, December 2010. Even more recently, Whitney has moderated her predictions. In a March 21, 2011 interview with Maria Bartiromo, she noted that 'Every day things get better because politicians are addressing the fiscal challenges more directly. Since November you've had more governors take strong austerity measures.' See *USA Today*, March 21, 2011.

[2] A recent quote from Jeffrey Gundlach of DoubleLine Capital, interviewed in *Barrons*: 'I don't know whether the market would suffer $10 Billion or $30 Billion in defaults, but the actual amount doesn't matter.' $30 Billion in defaults, at historically prevailing recovery rates, would amount to a loss of 40 basis points in the $2.5 Trillion municipal credit market.

[3] Expectation on a risk-neutral basis. Please see section on investor flows.

- **In sum, fears of widespread municipal default are overblown**. Although spreads have tightened somewhat since December, doomsday scenarios have already been incorporated into market prices. While there is a good chance that negative investor sentiment will lead to further spread widening, the probability of the kind of widespread default that would be required to justify current municipal bond yields is low.

2. Background: why do states and localities borrow in the United States?

Under the 10th Amendment to the United States Constitution, the fifty individual states retain power over facets of government that are not explicitly constrained or turned over to the Federal government. This means that in the United States areas like elementary, secondary, and higher education, law enforcement and corrections, and public assistance are generally left to state and local control. Each state has its own constitution, and these individual constitutions often very detailed and specific (unlike the United States Constitution) about state and local spending, borrowing, and taxing. Within the states, the authority of cities and counties is established by state legislatures. Their abilities to tax, spend, and borrow vary from state to state.

Municipal authorities borrow for two primary reasons. First, they borrow to fund infrastructure projects. Borrowing to fund an infrastructure project such as a school, road, or hospital aligns the timing of payment and benefits: if a road will have a useful life of 30 years, borrowing to pay for the road over 30 years means that the same generation will both pay for and use the road. Borrowing is also used when infrastructure projects are immediately necessary in order to comply with federal or other guidelines.

For example, a municipal wastewater treatment facility may require immediate upgrades to comply with federal standards. Municipal borrowing to fund a project like this would be the only way to avoid sudden cuts in other services or increases in taxes.

States and localities also occasionally borrow on a short-term basis because the seasonal timing of municipal receipts does not match the timing of expenditures. In these situations, states and localities issue short-term instruments (often called Revenue Anticipation Notes or Grant Anticipation Notes) to cover the time period between expenditures and receipts.

There are some important differences between states budget processes and the budget processes that prevail among sovereigns.[4] Forty-four of the fifty states have constitutional or statutory requirements mandating that the governor submit a balanced budget to the legislature. Thirty-seven states have a requirement that the final budget be balanced. In principle, only seven states[5] allow a deficit to be carried from one year to the next. As the next section discusses, these restrictions are not always as binding as they appear at first blush. But they do appear to have an impact on state responses to economic downturns. A GAO survey (GAO, 1993) estimated that during the 1988-1992 recession forty-nine percent of the deficit reduction came through spending cuts, and another thirty-two percent was achieved through revenue increases. The remainder was closed with borrowing, drawing down 'rainy-day' funds, and other (often dubious) accounting adjustments.[6]

To the extent that they are followed, these limitations on borrowing and carrying forward deficits expose states to cyclical volatility. State revenues tend to be pro-cyclical, rising with economic activity and falling in recessions. Expenditures, in particular for public assistance, are often highest in economic troughs. With borrowing to cover operating deficits generally limited by constitution or statute, states are often forced to cut services or raise taxes at the bottom of the economic cycle.[7]

The cuts to state and local services during the recent economic recession have been rapid and steep. According to the National Association of State Budget Officers (**NASBO**) *2010 Fiscal Survey of States*, state general fund expenditures fell from $660.9 Billion to $612.6 Billion between fiscal 2009 and fiscal 2010.[8] One particular indicator of the depth of the current recession is the extent of state budget cuts that have been made after annual state budgets have been passed. These post-budget spending cuts reflect downside 'surprises' in revenues, surprises that need to be accommodated using within-year spending cuts. **Figure 1** shows the pattern of within-period budget cuts back to 1990.[9] The post-budget cuts during

[4] See NASBO, 2008.
[5] California, Indiana, Maine, Michigan, Vermont, Washington, and Wisconsin.
[6] Of this remaining 19 percent, 32 (or 6 percent of the total) percent came from drawing down rainy-day funds, 22 percent came from inter-fund transfers, 17 percent came from short-term borrowing, and 13 percent came from deferring payments. Rainy-day funds are state reserves of liquid assets used to cover expenditures during fiscal emergencies. Aggregate rainy day fund balances at the end of 2010 were estimated by the National Association of State Budget Officers to total $27.6 billion.
[7] For example, the state legislature in Illinois recently voted to raise personal income taxes by 66 percent in order to balance the 2011 budget, and the governor of California has proposed to reduce higher education funding by $1 billion. NASBO, 2010 describes state-by-state approaches to balancing budgets during the recent economic recession.
[8] Under government accounting practices, the General Fund accounts for all financial resources except for those that are specifically required, either by law or by accounting standards, to be accounted for in a different fund. Many states and localities have statutory or constitutional requirements to establish separate funds used exclusively for particular projects. For example, Article IX of the Michigan Constitution creates the State School Aid Fund, which is used exclusively for lower and higher education and for the school employee retirement systems.
[9] Reproduced from NASBO, 2010.

the current recession have exceeded the cuts of the past two recessions, indicating the severity of the current recession relative to the milder earlier recessions.

Continuing with this theme, **Figure 2** shows aggregate state and local receipts between 1960 and 2010. The figure is based on data from the National Income and Product Accounts (**NIPA**), the benchmark Census measures of aggregate economic activity. These figures include both state and local receipts, as well as spending out of both general and other funds. Figures in the graph are quarterly numbers, expressed in 2010 dollars at an annual rate, and seasonally adjusted. These figures include all levels of state and local receipts, meaning that they are broader than figures that look only at state-level general fund spending. **Table 1** shows the same data but only for the more recent period.

The figure shows the aggregate mix of funding sources for the state and local sector. Local governments are generally financed with property taxes and with transfers from the states, while state governments are financed with personal and corporate income taxes. Aggregate receipts from property taxes have so far been relatively stable during the recession, but this pattern masks significant local and regional differences. This stability has come because changes in property valuations often occur with significant lags, and it is reasonable to expect that property tax collections will lag even as the economy recovers.

Aggregate personal income taxes, which play a larger role in state finances, have already been hard-hit during the recession. Personal income taxes adjust to the business cycle with minimal lags, and state tax receipts are likely to recover more quickly than local receipts as the economy recovers. Transfers from the Federal government have played an important role in offsetting declines in personal income and sales taxes. Net borrowing, perhaps reflecting the use of borrowing to evade balanced budget requirements, has also played a role, although net borrowing has been smaller than during the early part of the decade. During the current recession, net borrowing has already fallen significantly from its peak in the third quarter of 2008.

The rapid declines in state and local tax receipts during the current recession and the resulting spending cuts have helped to create an atmosphere of fiscal crisis. This atmosphere of crisis may in turn have affected sentiment in municipal credit markets. But although municipal balanced budget requirements are not perfect (see in particular the section on pensions below), from the perspective of municipal credit quality the rapid spending cuts during the recession by and large reflect strength and not vulnerability.

Because in general the states rely on credit markets to finance infrastructure projects, rather than relying on markets to roll over operating deficits, the consequences of an investor ‘strike’ in the municipal bond market would be benign relative to a circumstance where the borrower relied on creditors to continue

covering operating deficits. It is true that if bond buyers stopped purchasing new bonds today, new infrastructure projects would become difficult or impossible to finance. The average age of roads, school, hospitals, and jails would rise, and their quality would deteriorate. But the bonds that had financed those projects are very likely to be repaid.

3. Do state balanced budget restrictions really matter?

The previous section noted the near-universal existence of state balanced budget requirements. The true nature of these balanced budget requirements can often be more flexible than they appear at first. A variety of legal and accounting maneuvers are often available for states to avoid cuts to services in the face of significant budget problems. A recent paper by Hou and Smith (2006) documents the flexibility behind state balanced budget requirements. In addition to demonstrating the cross-state differences in the stringency of these requirements, they show how well-informed observers can even come to different conclusions about the stringency of the balanced budget requirements for a particular state.[10]

Surprisingly, many states allow a budget to be considered 'balanced' if they can borrow to cover the deficit. In the last year both Connecticut and New Hampshire have borrowed in order to 'balance budgets.' New Hampshire issued $51 million worth of Debt Service bonds to pay for current debt payments. Cathy Provencher, New Hampshire Treasury Secretary, noted that this method of balancing the budget was unprecedented for the state of New Hampshire, and the practice appears to remain unusual.

There is also significant heterogeneity across states in the extent to which balanced budget requirements are legally enforced. At one extreme, the Oklahoma Constitution mandates that appropriations from a fund be reduced pro-rata if revenues fall below forecast. This turns out to be a rather binding implementation. Alternatively, Virginia has a constitutional requirement that the governor maintain spending below revenues, but does not appear to have any legal mechanism for enforcing this requirement. The Michigan Constitution allows 'unavoidable' deficits to be carried over to the next fiscal year, and does not define 'unavoidable.'

[10] See also Poterba (1995) for a review of the literature on the impact of balanced budget rules. Bennett and DiLorenzo (1982) point to the introduction of Tax and Expenditure Limitations, which occurred during the 1970s and 1980s, as a driving force between the adoption of fiscally evasive tools. They note that state and local governments responded to the TELs by placing billions of dollars of expenditure off-budget, into what they describe as 'Off-Budget Enterprises' or OBEs. These OBES are generally financed by revenue bonds, which are often not subject to the same restrictions as general obligation debt.

Poterba (1995) points out that exact nature of a balanced budget requirement can depend on the stage of the budget process at which balanced is required. In New Hampshire, the governor is required by statute to submit a balanced budget, but there is no requirement that the legislature pass or that the governor sign a budget that is balanced. **Table 2**, based on data from the NASBO *2008 Budget Practices in the States*, shows cross-state variation in the actual nature of balanced budget requirements. Poterba (1995) concludes that the stringency of balanced budget requirements does have an impact on state fiscal responses to unexpected deficits. States with more stringent rules adjust to deficit overruns with much larger expenditure cuts than other states. The GAO estimates cited above, which reflect averages across all of the states, thus mask significant heterogeneity across states in the response of expenditures to budget shocks.

Focusing on the specific tools for 'balancing budgets,' other approaches include the delay of tax refunds, delaying payments to vendors, and deferring funding of pension plans. The current recession has also seen some high-profile asset sales by states. As Barrett and Greene (2010) note, Arizona recently sold off $737 million worth of state assets, which generated money to close a current budget gap. The state will now have to lease back space in offices it once owned. In that sense, the state's sale-leaseback represents the economic equivalent of a debt issue. Barrett and Greene note similar long-term costs to delaying payments to vendors: over time, vendors build in higher margins to compensate for these payment delays.

Issuing short-term debt is another gimmick identified by the GAO as a tool for balancing budgets during fiscal crises. Thus one sign of fiscal trouble for state and local borrowers is increasing reliance on the issuance of short-term debt. Figure 1 suggests that net debt issuance during the recent recession had already peaked, and was in any case smaller than the net debt issuance during and following the 2001 recession. These aggregate figures mask cross-state variation, however, and **Table 3** shows, state-by-state, total issuance of municipal debt and issuance of short-term debt (defined here as debt with a maturity of less than 24 months) since the beginning of 2010. The table includes debt issued at both state and local level, and the final column scales the total short-term issuance by expressing it as a share of state GDP. Based on this measure, state and local borrowers in California, New Jersey, Massachusetts, Michigan, and Wisconsin have each issued short-term debt amounting to more than 1 percent of state GDP in the period since 2010. In no state has short-term borrowing since 2010 exceeded 1.5 percent of GDP. The size of the gaps identified in Table 3 appears consistent with significant budget stress, but does not appear large enough to cause widespread liquidity problems like those that are now occurring in parts of Europe.

To be more specific on the comparison to sovereign borrowers, **Table 4** shows gross financing needs for a selection of developed economies for the period between 2010 and 2012. The table is reproduced from a recent International Monetary Fund report (IMF, 2011). Average budget deficits in this sample of countries are 8.7 percent of GDP in 2010 and 8.1 percent of GDP in 2011. On top of those deficits, maturing debt as a share of GDP is 17.2 percent in 2010 and 18.9 percent in 2011. Total gross financing needs for these sovereign borrowers amount annually to a quarter of GDP for the next several years. State and local budgets are under stress, and some states are relying on short-term debt issuance and other types of fiscal gimmicks. But it is fair to say that the picture is worse for the sovereign borrowers highlighted in the IMF report.

The largest channel for municipal fiscal evasion is pensions, an issue that receives specific coverage in a section below. On the whole, the flexibility of the balanced budget rules makes it more accurate to say that states have very strong and long-standing traditions of running balanced budgets, and that these traditions are generally backed up by some form of legal protection. Over time there is a risk that fiscal evasion and gimmicks will become increasingly accepted; the unprecedented actions of the current recession may be viewed as time-honored traditions during the next one. In addition, states and localities that balance budgets by selling off assets will eventually find that all of their monetizable assets have been liquidated. Cities that use asset sales and other budget gimmicks to postpone fiscal adjustments will eventually face very abrupt tax increases or service cuts. This is the situation now in Harrisburg, PA, which is covered in a case study in the final section below.

But balanced budget requirements, though not perfect, do appear to have an effect. Most of the adjustments in cyclical downturns come through tax increases and service cuts, and the states with more stringent balanced budget requirements adjust using deeper expenditure cuts. It is very likely that a combination of economic recovery and other factors will allow states and localities to weather the current recession. The current recession will not be the last, however, and the states and localities that continue to rely on evasive budget practices will be more vulnerable during the next cyclical downturn.

4. How indebted are states and municipalities today?

The section above describes a variety of budget gimmicks that can be used to balance budget, but by far the biggest hole in state and local balanced budget requirements comes from their sponsorship of defined benefit pension plans. In fact, the measurement of net state and local borrowing depends crucially on the accurately measuring pension liabilities.

Defined benefit pension programs can be viewed as functionally equivalent to debt. For example, if a state employee accepts a generous pension plan in exchange for low wages today, then the state has effectively borrowed from the employee rather than borrowing from capital markets. The rapid increase in the amount by which state and local pensions are underfunded reflects the use of pension programs to relax municipal budget constraints.

The accounting rules applied to states and cities do not accurately reflect the true value of their pension liabilities. This pension accounting problem goes hand-in-hand with the generosity of many municipal pension arrangements. The programs are particularly generous and their costs have not been reflected accurately.

Pension promises are long-duration promises. Their current value is sensitive to the discount rate assumption used to value them. Municipalities, with the blessing of the Government Accounting Standard Board, continue to use inappropriately high discount rates for valuing these long-term pension liabilities. The inappropriately high discount rates deliver inappropriately low measures of true municipal pension liabilities.

A recent paper by Robert Novy-Marx and Joshua Rauh shows the impact of this discount rate assumption on pension liability valuation. **Table 5**, reproduced from their paper, shows state-by-state levels of state municipal debt and of a more comprehensive net debt measure that includes the net pension liability, measured using the Treasury rate as the discount rate for these liabilities. The use of the Treasury rate to discount these liabilities increases their magnitude and has a significant impact on measured state indebtedness. In aggregate, official state debt as a share of GDP was seven percent in 2009. But using the broader measure of net debt, Novy-Marx and Rauh show that net liabilities amounted to twenty-five percent of GDP.

The details of the Novy-Marx and Rauh calculations have been the topic of substantial debate, but the broad thrust of their argument is certainly true: pensions are seriously underfunded.[11] **Figure 3** uses data from the Federal Reserve's Flow of Funds reports and the Census Bureau's National Income and Product Accounts to show the evolution of state borrowing over time. The figure shows state and local borrowing, interest payments, and a broader measure of debt (including gross pension liabilities) as a share of GDP. While the state borrowing measure in Table 4 does not include city and county bonds, Figure 1 does. The gross pension liability reflects state reporting of their own liabilities, and is almost

[11] See, among others, Baker 2011, and Brown and Wilcox 2009. From Brown and Wilcox: 'Nearly all state and local pension defined benefit plans compute the present value of their future liabilities using the expected return on the assets held in the pension trust. This practice contrasts sharply with finance theory, which is unambiguous that the appropriate discount rate is one that reflects the riskiness of the liabilities, not the assets.'

surely an underestimate of their true value. But the figure does not include the substantial assets that partially offset those pension liabilities.

Both explicit debt and interest payments as a share of GDP peaked in the 1980s and early 1990s. Interest payments have fallen from 1 percent of GDP to under .80 percent of GDP since the 1980s. While debt amounts have risen over the past 10 years, they are still below the peak reached in the early 1990s. Including the gross value of pension liabilities suggests that total debt relative to GDP (not including the value of pension assets) has varied between 30 percent and 40 percent since the early 1990s.

But neither the explicit debt nor the pension debt seem likely to cause widespread liquidity crises during the current recession. Both forms of debt are very long-term debt. **Figure 4** shows the maturity profile of explicit municipal debt as of early 2011. The maturity profile is very smooth over the next 30 years, with no more than 5 percent of outstanding debt maturing in any year on the horizon. **Table 6** shows the maturity structure of debt, by state, highlighting the cross-state differences in the amount of debt maturing over the next five years.

Munnell, Aubry, and Quinby (2010) use simulation evidence to show that the fiscal adjustments needed to address the public pension problem are feasible. Their simulations show that even at the most conservative (lowest discount rate) valuation assumptions for pension liabilities, increasing contributions in order to fully fund pension liabilities would mean that pension contributions as a share of state and local budgets would rise from around 4 percent today to 9.1 percent by 2014. This increase will require some combination of tax increases and spending cuts, but is feasible.

The picture for state and local indebtedness suggests three things. First, explicit municipal debt and debt burdens are not currently at historical peaks. A recent Moody's study of municipal defaults studied the 1970-2009 period, and found very small default losses over this period (see below). Over that period, municipal interest payments as a share of GDP have generally been higher than they are today. In that sense the Moody's study may lead to an inappropriately pessimistic forecast of future municipal bond performance.

This optimism must be tempered by a consideration of true extent of municipal indebtedness – which should include net borrowing through underfunded pension plans. Budget and accounting rules have worked together to cause a pension funding problem, and true net debt, including pensions, is much higher than explicit municipal borrowing.

Finally, both municipal debt and pension promises reflect long-term promises. While there will be high-profile individual problems, there is a small chance of across-the-board immediate liquidity problems on

either the pension front or the bonds front. The adjustments needed to bring the pension problem into line, though painful, are manageable with timely adjustment.[12] And capital markets are now aware of the pension issue. The municipal pension problem is not going to sneak up on anybody.

Retiree health insurance, though potentially a drag on budgets, poses less of a problem than pensions for a variety of reasons. Most importantly, pension promises are often backed by explicit state constitutional guarantees.[13] In other cases, these pension promises are otherwise protected by law. In general, retiree health benefits do not enjoy these protections. These retiree health benefits can be modified or terminated much more easily than pensions can be cut.

5. What is the historic loss experience on municipal debt?

Losses due to default on municipal debt have been rare. In describing the loss experience on American municipal debt, it is important to make a distinction between two types of municipal debt. So-called 'General Obligation' debt[14] is secured by a pledge from a state or local government to use tax revenues in order to pay interest and principal on the bond. A so-called 'revenue bond' is secured only by the revenues from a particular project. For example, the construction of a toll road could be financed either using General Obligation bonds or using revenue bonds. If the road were financed using revenue bonds, then the bonds would be secured only by toll revenue.

A recent Moody's study looked at the experience of the municipal bonds that they had rated between 1970 and 2009. The average 5-year cumulative default rate for all municipal debt was 0.05 percent. The Moody's study also suggested that losses given default have been low. Ultimate recovery rates on the defaults in their sample averaged 67 percent. Taken together, this suggests a 5-year cumulative loss rate of less than 0.02 percent.

Seventy-eight percent of the defaults in the Moody's sample occurred on revenue bonds in the healthcare and housing finance sectors. For general obligation bonds, the 5-year cumulative default rate was 0.00 percent. The 5-year cumulative default rate for all non-general obligation debt was 0.11 percent.

[12] As the day of reckoning with unfunded pension liabilities is pushed off, the pain of the adjustment to fully funding pension promises will become increasingly sharp.

[13] For example, Article XII, Section 5 of the Illinois State Constitution: 'membership in any pension or retirement system of the State…shall be an enforceable contractual relationship, the benefits of which shall not be diminished or impaired.'

[14] About 45 percent of municipal bonds are general obligation bonds.

State and local borrowing (scaled by GDP) during the period covered in the Moody's study have fluctuated within a range, and are not currently at historical peaks (see Figure 3). Reflecting the use of defined benefit pension plans to evade balanced budget requirements, state debt plus gross pension liabilities have had something of an upward trend, although they are not now at levels that are meaningfully different from the levels observed during the 1990s. Thus the Moody's study, which found minimal losses due to default, covered a time period that looks similar to what we observe today.

The last state default, and the only state default in the post-Reconstruction period, was Arkansas' default. Arkansas restructured its debt in 1933, following a set of events that highlight how unusual state defaults have been. Arkansas borrowed heavily during the 1920s to finance the construction of an automobile road network. The 1927 Mississippi River floods destroyed much of this infrastructure as well as the much of the state's cotton-growing capacity. The Great Depression was the final blow that pushed the state into default. The state restructured and eventually paid off its debt.[15]

6. What about investor flows?

Recent credit spreads on municipal bonds suggest that the market expects very high rates of default over the medium term.[16] Such a scenario is extremely unlikely for the reasons described in the earlier sections. Thus current spreads, although they have tightened noticeably since the beginning of the year, reflect bearish investor sentiment. **Figure 5** shows the evolution of the 5-year MCDX municipal credit spread over the past year. Market prices are already factoring in a disaster scenario. If there is an aggregate 'surprise' in municipal credit markets, it will be on the upside, as the market-forecasted default rates fail to materialize.

But investor sentiment can push prices out of equilibrium for long periods of time. There are numerous examples of this phenomenon. One example comes from refunded municipal bonds: these are bonds that are secured by United States Treasury securities held in escrow. The credit risk of these refunded bonds is equivalent to the credit risk of Treasuries, and they pay tax-exempt interest. **Figure 6** shows yields on 10-year United States Treasury bonds and refunded municipal bonds. The low spread between these refunded municipal bonds and US Treasuries has been a persistent puzzle, and during the credit crisis the

[15] See *New York Times* article by Monica Davey, 'The State that Went Bust,' January 22, 2011.
[16] Based on the following calculation: the December 31, 2010 the MCDX 5-year index spread was 218 basis points. With 70 percent recovery, this spread is consistent with a risk-neutral expectation of 3.63 defaults per year out of the index's fifty names, or a seven percent default rate. Because defaults frequency is likely correlated with economic downturns, it is reasonable to expect that the risk-neutral probability of municipal default exceeds the physical measure probability of default.

spread actually inverted, with the refunded municipal bonds paying a higher pre-tax yield than treasury bonds.[17] While that obvious anomaly has been reversed, it highlights the potential for prices to remain out of equilibrium for extended periods of time.

Municipal bonds are largely a retail investment, either held through mutual funds or directly by investors. Investor flows into municipal mutual funds are an important indicator of investor sentiment, and the recent signals continue to be bad. **Figure 7** shows monthly net inflows and outflows from open-end mutual funds. The net outflow from municipal bond funds since December of 2010 has totaled more than $38 Billion.[18] These flows can continue to exert a negative influence on municipal bond prices, and there is no guarantee that spreads will not widen again in the future.

Wagner and Sobel (2006) note that there is some precedent for the loss of an entire class of municipal investors. The changes in the tax code with the 1986 Tax Reform Act eliminated the tax advantages that depository institutions had enjoyed in holding municipal debt. Prior to the reform, these institutions had been able to deduct interest payments on debt used to finance tax-exempt debt, a rule that allowed the institutions to enjoy a spread between the net return on their municipal investments and the after-tax cost of their financing. The 1986 tax reform eliminated this practice. At the same time, by reducing the marginal tax rates at the top of the income distribution, the reform reduced the advantage to holding municipal debt.

Figure 8 illustrates the results of these changes. The share of municipal debt owned by depository institutions peaked at over 50 percent in the 1970s, then fell rapidly to under 10 percent, where it remains today. Most of the drop in the share of debt held by banks and thrifts preceded the formal implementation of the tax reform rules changes, which were widely anticipated in advance of the law change. The drop in the share held by depository institutions was accommodated by the household sector and by mutual funds, which for the most part represent an institutional channel for household investment. So as one considers the future of the municipal bond market, and the potential for a protracted investor strike, there is some precedent for the drying up of an entire class of investors in the municipal market.

Depository institutions have not completely left the municipal credit market. The 1986 tax reform created a specific class of municipal debt, called 'qualified tax-exempt' obligations, or 'bank-qualified' debt. Banks can deduct 80 percent of the carrying cost of these obligations from their taxes. Issuers must be 'qualified small issuers,' now defined as issuers who sell no more than $30 million of tax-exempt bonds

[17] See also Chalmers (1998). See also Bergstresser, Cohen, and Shenai (2011), which explores a persistent anomaly in the pricing of insured and uninsured municipal debt.
[18] The Federal Reserve's Flow of Funds accounts estimate that open-end mutual funds held in aggregate $532.8 Billion in municipal securities as of September 2010.

during the year. In the event of a continuing investor strike, one potential channel of indirect federal support for the municipal bond market could be to further relax the rules governing bank-qualified debt.[19]

The decline of the financial guarantors will play an important role in changing the nature of household investment in municipal bonds. Stable financial guarantors commoditized roughly half of the market, and allowed relatively uninformed investors to invest based on the credit ratings of the monoline insurers. With stable guarantors now a thing of the past, the role for active credit management of municipal bond portfolios has increased.[20] This suggests that the locus of household investing in municipal securities will move from the direct channel to intermediated channels. There will be some bumps in this process, and the protracted investor strike in the municipal market may reflect the opening stage of a reallocation of household investment in municipal securities from direct investments in bonds to indirect investments in professionally managed investment vehicles.

Finally, although some states and localities have been relying on credit markets to finance operating deficits during the recent crisis, municipalities, in general, rely on credit markets to finance new investment in infrastructure. This swing in investor sentiment is not likely to cause across-the-board problems for municipalities rolling over debt of the sort that highly-leveraged financial institutions and nations have experienced. There will be some municipal defaults, however, and particularly high-profile municipal defaults could have a prolonged impact on market sentiment. A prolonged municipal bond investor strike would lead to aging and deteriorating infrastructure. But regardless of investor sentiment, across-the-board municipal bond default is not likely.

7. What about reduced Recovery Act Federal support for states and localities?

The American Recovery and Reinvestment Act of 2009 (the Recovery Act) provided $282 Billion in Federal funds for programs administered by states and localities. Although this funding runs from 2009 through 2019, more than half of the funding came in fiscal years 2009 and 2010. **Table 7** describes the intertemporal pattern of funding, by funding type.

[19] This mechanism of federal support would be less directly obvious than the direct payments from the federal government that came with the Build America Bonds program. While political economy can be complicated, it is reasonable to expect that less-obvious subsidies will be favored over more-obvious ones. The 2009 Recovery Act increased the 'qualified small issuer' threshold from $10 million of issuance to $30 million.

[20] Or more accurately, the active credit management activity is moving from the insurers to mutual funds and other investment vehicles.

Many analysts have pointed out that, along with budget cuts, tax increases, and reserve funds, the Recovery Act funding has helped states and cities so far during the deep recession. One potential implication is that as Recovery Act funding dries up, states and localities will face severe fiscal headwinds.

The largest component of Recovery Act support has come through the Federal Medical Assistance Program (FMAP), which provides matching federal funding for state support for Medicaid spending. A recent GAO report (GAO, 2010) suggests that this program has helped states maintain Medicaid eligibility and benefit levels during the current recession, and suggests that the reduction in Federal support through the Recovery Act may make it difficult for states to sustain these levels of services.

A second component of Recovery Act support funded states' efforts to restore highways and other roads. In that sense, the Recovery Act financed infrastructure projects that would otherwise have been deferred. The Recovery Act also established a State Fiscal Stabilization Fund, targeted at fixing shortfalls in state support for elementary, secondary, and higher education. Most analysts believe that the withdrawal of Recovery Act support will increase fiscal stress with respect to public education and increase the depth of cuts needed to balance budgets.

8. What about the declining credit quality of financial guarantors?

The period between 1980 and 2007 saw rapid growth in the share of municipal bonds that are insured by third-party financial guarantors. These insurers, often referred to as 'monoline' insurers due to their one business of insuring bonds, insured about half of all new issues by 2007.

The monoline insurers also expanded into insuring structured products based on residential mortgages. The collapse of that market that started in 2006 left almost all of the financial guarantors in precarious financial positions. Because these guarantors had previously carried the highest credit ratings, the bonds that they had insured had carried the highest credit ratings as well. The collapse of the insurers means now that the credit quality of these municipal bonds is now more directly affected by the credit quality of the underlying municipal issuers.

The struggles of the bond insurers have been an unfortunate surprise for holders of insured municipal debt. But these struggles have no impact on the underlying credit quality of municipal issuers, as described above. The tiny default losses on municipal debt always made the existence of bond insurance something of a puzzle: when it came to insuring municipal bonds the entire industry was, to a first

approximation, insuring against events that never happened. The most important effect of the decline of the monoline insurers is that credit research will now be performed by the investor (or investment manager) rather than the monoline insurer.

9. What about proposals that would allow states to file for bankruptcy protection?

In states that allow municipal bankruptcy filings, Chapter 9 of the United States bankruptcy code is available to localities seeking protection from their creditors. **Table 8** describes state rules on Chapter 9 bankruptcy filings. Many states that have statutes covering municipal bankruptcy filings require distressed municipalities to receive approval before receiving protection. For example, in Connecticut, the city of Bridgeport was prevented by the Governor from filing for bankruptcy protection.[21]

Before the introduction of municipal bankruptcy laws in 1934, the main remedy for creditors of a municipality in default was to petition state courts to compel the municipality to increase taxes. The introduction of the chapter in federal bankruptcy code specifically focusing on municipalities was a response to perceived weaknesses in the pre-1934 regime and was designed to alleviate the burden of destructive creditor competition in situations of municipal distress. A number of differences distinguish municipal bankruptcy from the more familiar corporate and personal bankruptcy processes. For example, the municipality enjoys the exclusive right to propose restructuring proposals, and there is no arrangement available (nor would one make sense) for the liquidation of a municipality.

Municipal bankruptcy filings that involve general obligation debt come in two types. The first type reflects a sudden investment loss (for example, Orange County, CA in 1994) or a large legal judgment against a municipality (which has recently occurred in Boise County, ID in 2011, the topic of one of the case studies at the end of this paper.) In the first type of bankruptcy, bondholders generally suffer minimal losses. For example, in Orange County, cuts in municipal services and tax increases allowed the county to pay back bondholders in full. The second type of bankruptcy follows years of ongoing structural operating deficits (for example Vallejo, CA in 2008, the topic of another case study at the end of this paper.) This type of bankruptcy filing has been very rare, but in the Vallejo case bondholders are likely to suffer significant losses.

[21] The New England states apart from Connecticut do not have statutes allowing Chapter 9 filings, and Amdursky and Gillette (1992) note an additional remedy that may be available to bondholders in those states: '**Execution on Property of Residents**…Lest one dismiss the action as an idiosyncracy of a bygone era, it should be recognized that statutes provide for execution against property of a municipal debtor's constituents in Maine, New Hampshire, and Vermont, and the doctrine has not been rejected in any of the New England jurisdictions where it was once enforced.'

Bankruptcy filings involving general obligation municipal debt have been very rare. Of the 183 Chapter 9 bankruptcy filings since 1980, 113 have been by municipal utilities districts or special municipal districts. Another 23 have been for hospital or health care authorities. Only 32 have been filings by cities, villages or counties.[22]

At the moment there is no provision in the bankruptcy code for a state to file for protection from its creditors. On February 14, 2011 a House Judiciary Committee subcommittee hearing explored changing the law to allow states to declare bankruptcy.[23] Although the hearing seems to have spooked municipal markets, the experts who testified appeared to reject the idea of state bankruptcy protection. As James Spiotto pointed out, 'Both practical and constitutional considerations mandate the rejection of a State bankruptcy option.'

Indeed, the impetus for holding hearings exploring state bankruptcy appears not to have come from the states themselves, who appear to view even the mention of readjustment of debts as a matter that could create stigma and increase borrowing costs. Again, as Spiotto noted, 'There is an understandable leeriness to jump into the uncharted waters of State bankruptcy when the cause of financial difficulty can be traced to several discrete problems that can be dealt with separately.'

Although municipalities have long-term budget problems, there does not seem to be a broad push coming from states and cities to expand the bankruptcy option for municipalities. This likely reflects two factors. First, for most states and localities payments on municipal debt are low enough that the chaos and loss of control that would follow a municipal bankruptcy filing are not worth the limited benefits that would follow.

A second factor reflects the political economy of municipal bonds: they are disproportionately held by within-state high-net-worth individual investors. The pain of municipal default or bankruptcy would not be felt by far-away institutions. That pain would be felt by people who are close, who are rich, and who tend to vote. This drives our forecast that most of the pain from any coming fiscal adjustments will be borne those who rely on state and local services, and not by holders of municipal debt.

10. Municipal crisis case studies

a. Vallejo, CA

[22] See Spiotto, 2008.
[23] See http://judiciary.house.gov/hearings/hear_02142011.html.

On May 6, 2008, the Vallejo, California City Council voted to file for Chapter 9 bankruptcy. Vallejo is the largest city in the state to file for bankruptcy protection and is currently the largest city operating under bankruptcy protection.

On January 18, 2011, Vallejo filed a plan of adjustment with the United States Bankruptcy Court in Sacramento. The plan is unique in that it proposes paying general unsecured creditors much less than the full value of their claims. This would be the first time that a city or county under bankruptcy protection had paid creditors less than the nominal value that they were owed. It remains unclear whether the court will approve the proposal, but an approval involving partial payments would be a new and potentially unsettling precedent for municipal credit markets.

Vallejo's problems stem in part from unusually generous compensation arrangements for city police and firefighters. Prior to filing for bankruptcy protection, seventy-four percent of the city's $80 million in general fund expenditures went towards police and fire salaries. These salaries were based on generous contracts established following a disruptive police strike during the 1970s. These arrangements combined with a dramatic reduction in tax collections and a 67 percent drop in city housing values during the recession to hurt Vallejo's financial stability.

Vallejo has had a steeper drop in housing values than any of the cities in the Case-Shiller housing index – higher than the 58 percent peak-trough drop in Las Vegas and the 55 percent peak-trough drop observed in Phoenix. Vallejo is unusual in its combination of extremely high public employee legacy costs and housing price drop. Las Vegas and Phoenix, with more recent population growth, do not have quite the same burden of legacy costs as Vallejo.

Some observers watching Vallejo's Chapter 9 experience are now expressing the view that other municipalities are learning from Vallejo that the costs of Chapter 9 outweigh the benefits. According to a recent Bloomberg article:

> When Vallejo, California filed for bankruptcy in 2008 after failing to win union pay cuts, Councilwoman Stephanie Gomes said officials around the U.S. would have their eyes trained on the city of 120,000. She was right. The lesson they've taken from the two-year old case, which has cost Vallejo $9.5 million in legal fees and made it a nationwide symbol for distressed municipal finances, is that out-of-court negotiations yield better results…The Vallejo bankruptcy resonates in Tracy, a city of about 82,000 residents 60 miles east of San Francisco, said Zane

Johnston, the finance director. In the face of a $7.5 million budget gap, the police union agreed to cancel remaining raises and boost the retirement age to 55 from 50 for new hires.[24]

At the moment, Vallejo does not appear to be an unambiguous advertisement for municipal Chapter 9 filings.

b. **Boise County, ID**

Boise County, Idaho is a small, rural county, with about 7,500 residents. It is not home to the mid-sized city of Boise. The city of Boise is in the county seat of the much larger Ada County, Idaho.

Boise County recently lost a federal lawsuit related to the county's placement of restrictions on a developer attempting to construct a residential treatment facility. A federal court ruled that the county's restrictions violated the Fair Housing Act and awarded a $5.4 million judgment. This judgment is a large burden for a county whose annual operating budget is $9.4 billion.

The county filed for bankruptcy protection in March of 2011. The Boise County filing was the first municipal bankruptcy filing of 2011. In many respects, Boise County represents a smaller example of earlier cases such as Orange County, California, where a large one-time shock affects the finances of a county with fundamentally sound fiscal management. In the case of Orange County, bankruptcy protection was used to prevent the seizure of assets while the county arranged a plan to pay its creditors, which it eventually did in full through tax increases and spending cuts. The most likely forecast is that Boise County will do the same – use the bankruptcy protection to arrange a plan for repaying its new creditor. The county does not have any bonds outstanding.

c. **Jefferson County, AL**

While the overall liquidity of municipalities is strong, Jefferson, Alabama is an example of a municipality that has been driven to default by unusually poor liquidity management. Jefferson moved in 2002 away from fixed-rate debt toward using a combination of variable-rate debt and interest rate swaps. This transition, at least in retrospect, appears to have been a mistake. This variable-rate debt included Auction-Rate Securities as well as other types of variable-rate debt.

[24] Alison Vekshin and Martin Z. Braun, 'Vallejo's Bankruptcy 'Failure' scares cities into cutting costs,' Bloomberg, December 14, 2010. http://www.bloomberg.com/news/2010-12-14/vallejo-s-california-bankruptcy-failure-scares-cities-into-cost-cutting.html.

Auction-Rate securities are long-term securities that pay a floating coupon based on periodic auctions. These auctions are often held at a monthly or weekly frequency. In the event of a 'failed auction,' current holders of the securities continue to hold the securities and the coupon rate resets to a pre-specified 'maximum' rate, often some multiple of LIBOR or some other benchmark rate.[25] Failures in the ARS market were all but unknown until the 2008 liquidity crisis, and the securities were often marketed to investors as a yield-enhanced cash substitute. Jefferson also used Variable Rated Demand Obligations (VRDOs), which are distinguished from ARS by the existence of a third-party liquidity provider; in the event of a failed auction the liquidity provider is obligated to purchase the issuers' bonds.

A cascading sequence of problems during the 2008 crisis led to widespread auction failures and the interest rate on Jefferson County's debt reset from 3 percent to 10 percent. At the same time, because the bonds were insured by newly-downgraded financial guarantors, the downgrade of the financial guarantors led to demands from the VRDO liquidity providers that Jefferson County post additional collateral.

Jefferson had also entered into swap contracts to hedge the variable-rate exposure from the VRDO and ARS securities. This caused two problems: first, the swap contracts failed to perform as expected when interest rates on municipal variable rate securities diverged from the floating rates on the county's swap contracts. Second, the downgrade of Jefferson County led swap counterparties to terminate the swap contracts and demand additional collateral.

These problems led Jefferson to default on its General Obligation and sewer debt in 2008. An FBI investigation led to the arrest and subsequent conviction of former Jefferson county commission president and Birmingham mayor Larry Langford. Langford was found guilty of receiving bribes for influencing the bond deals related to Jefferson's liquidity problems and default. He is now serving a 15-year sentence in federal prison.

On a bond-weighted basis, all kinds of variable-rate financing amounts to about 4.4 percent of municipal debt currently outstanding. This total includes all kinds of variable-rate financing, ranging from very simple floating-rate notes to more highly structured instruments like ARS and VRDOs. Weighted by dollar face value outstanding, the total amounts to 17.3 percent of outstanding municipal debt; variable-rate bonds tend to be much larger than other types of municipal debt.[26] Table 6 shows for each state the amount of debt issued by all of the issuers in that state, as well as the share of that debt that is maturing soon and the share of the debt that is variable rate. This table illustrates the heterogeneity in potential

[25] See Bergstresser, Cole, and Shenai, 2009.
[26] While there are no good data on aggregate totals, the municipal bond underwriters that I have talked to suggested that about half of variable rate debt is swapped to create a fixed-rate exposure.

liquidity problems across states. Wisconsin, although not unusually highly levered, has a significant share of its debt maturing in the next year. Mississippi has a large share of variable-rate debt. If this debt is matched with appropriate hedges, the state would be vulnerable to budget problems if there were a spike in municipal yields

It is possible that other municipalities will turn out to have mismanaged liquidity risk related to variable-rate financing and interest rate swaps. But the extent of mismanagement and crime in Jefferson County appears to be unique. The collapse of the ARS market is now three years in the past, and while other municipalities were adversely affected, Jefferson County remains the only major municipal borrower forced into default by the turmoil in the variable rate borrowing market.

d. Harrisburg, PA

The crisis in the city of Harrisburg, PA illustrates how a chronic mismanagement and an extreme shock can push a city into financial distress. The Harrisburg Authority (THA) owns a waste-to-energy trash incinerator, which it purchased from Harrisburg in 1993. The incinerator was closed in 2003 in order to comply with orders from the United States Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Protection (DEP). At that point a project to retrofit the incinerator began. The project ran over-time and over-budget, and was financed with a sequence of revenue bonds issued by THA.

These bonds for the retrofit project now amounts to approximately $242 million, and debt service between 2010 and 2034 ranges from $14.6 million to $27.6 million per year. The project has now been completed, and since 2007 the facility has been operated by the Covanta, a private operator. Operating profits on the facility are not sufficient to cover maturity debt issued by THA. The revenue bonds have also been guaranteed by Harrisburg, and most of the debt was secondarily guaranteed by Dauphin County, of which Harrisburg is the county seat. Assured Guaranty, a relatively stable financial guarantor, has also underwritten policies insuring THA debt.

Harrisburg also has outstanding General Obligation debt not related to THA debt, and has revenue debt secured by parking concessions. Harrisburg apparently came close to skipping a payment on its GO debt, an outcome that was avoided only when the State of Pennsylvania accelerated payments due from the state to the city. THA bondholders have avoided losses because of the guarantees from the County and from Assured, both of which have filed suit against Harrisburg.

While many observers identify Harrisburg's guarantee of the THA debt as the source of its financial difficulties, it is more accurate to say that both the THA guarantee and years of chronic financial mismanagement are behind the city's trouble. The Pennsylvania Municipalities Recovery Act (Act 47) allows a distressed municipality to access professional services and other state support for crafting a recovery plan; Harrisburg has been operating under Act 47 since December 2010. This is not the same as a Chapter 9 filing, and does not preclude a Chapter 9 filing in the future. The State, in its approval of Harrisburg's request for Act 47 status, notes that budgets had been repeatedly 'balanced' only through one-time sale of assets and issuance of debt. A recent report by Cravath, Swaine, and Moore, which has been advising Harrisburg during the restructuring, notes that a Chapter 9 filing can be avoided through a combination of measures, notably including selling off city assets. Their report identifies the THA facility and parking facilities as the only likely sources of revenue, potentially augmented with the sale of certain city buildings.

This plan, if followed, seems likely to allow Harrisburg to avoid default during the current recession. Losses for bondholders will be ameliorated or prevented by the patchwork of guarantees and insurance policies: Dauphin County, Assured Guaranty, and Ambac (for the Harrisburg GO debt) may suffer losses if the current distress is not resolved. The case study does raise questions about the longer term. At some point, Harrisburg will have sold off all of its monetizable assets. Postponement of fiscal adjustments will make the eventual adjustment very abrupt.

11. References

Amdursky, Robert S. and Clayton P. Gillette, 1992, *Municipal Debt Finance Law: Theory and Practice*, Aspen Publishers, New York.

Baker, Dean, 2011, 'The origins and severity of the public pension crisis,' Center for Economic and Policy Research white paper, February 2011.

Barrett, Katherine, and Richard Greene, 2010, 'State fiscal gimmicks: A budgetary balancing act,' *The American Prospect*, 21:2, page A20.

Bennett, James T. and Thomas J. DiLorenzo, 1982, 'Off-budget activities of local government: The bane of the tax revolt,' *Public Choice* 39, pp. 333-342.

Bergstresser, Daniel, Randolph Cohen, and Siddharth Shenai, 2011, 'Financial guarantors and the 2007-2009 credit crisis,' working paper, Harvard Business School. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1571627.

Bergstresser, Daniel, Shawn Cole, and Siddharth Shenai, 2009, 'UBS and Auction Rate Securities,' Harvard Business School case.

Brown, Jeffrey R. and David W. Wilcox, 2009, 'Discounting state and local pension liabilities,' *American Economic Review*.

CBS News, 2010, 'State budgets: The day of reckoning,' 60 Minutes, December 19, 2010. Accessed at http://www.cbsnews.com/stories/2010/12/19/60minutes/main7166220.shtml?tag=contentMain;contentBody.

Chalmers, John M.R., 1998, 'Default risk cannot explain the muni puzzle: Evidence from municipal bonds that are secured by U.S. Treasury obligations,' *Review of Financial Studies*.

Hou, Yilin, and Daniel L. Smith, 2006, 'A framework for understanding state balanced budget requirement systems: Reexamining distinctive features and an operational definition,' *Public Budgeting & Finance*, pp. 22-45.

International Monetary Fund, 2011, *Fiscal Monitor: Shifting gears, tackling challenges on the road to fiscal adjustment*. April, 2011.

Munnell, Alicia H., Jean-Pierre Aubry, and Laura Quinby, 2010, 'The impact of public pensions on state and local budgets,' Center for Retirement Research white paper #13, Boston College.

National Association of State Budget Officers, 2008, *Budget Processes in the States*.

National Association of State Budget Officers, 2010, *The Fiscal Survey of States*.

National Association of State Budget Officers, 2010, *2009 State Expenditure Report*.

Novy-Marx, Robert and Joshua Rauh, 2010, 'Public pension promises: How big are they and what are they worth?,' working paper, Northwestern University (forthcoming in *Journal of Finance*).

Poterba, James M., 1995, ‘Balanced budget rules and fiscal policy, evidence from the states,’ *National Tax Journal*, 48:3, pp. 329-336.

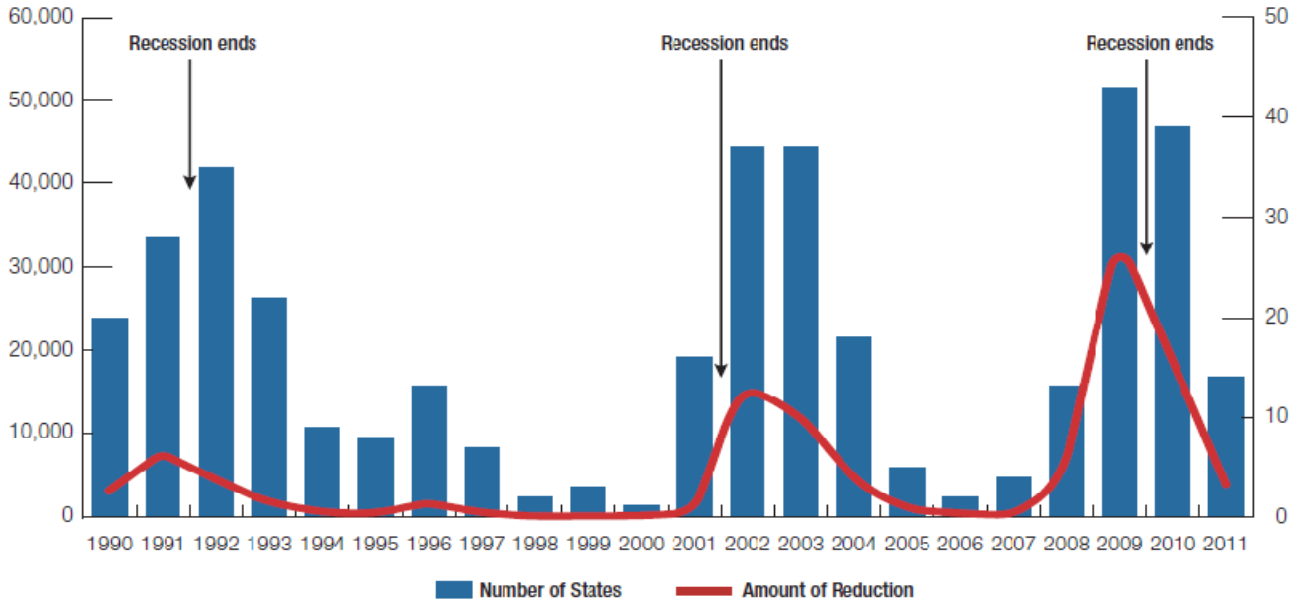
United States Government Accounting Office, 1993, ‘Balanced Budget requirements: State experiences and implications for the Federal Government,’ GAO report AFMD-93-58BR.

United States Government Accountability Office, 2010, ‘Recovery Act: One year later, States’ and localities’ uses of funds and opportunities to strengthen accountability,’ GAO report GAO-10-437, March 2010.

12. Exhibits

Figure 1

Budget Cuts Made After the Budget Passed, Fiscal 1990 to Fiscal 2011 ($ millions)



SOURCE: National Association of State Budget Officers December 2010 Fiscal Survey of States

Figure 2. State and local receipts by source, 1960-2010

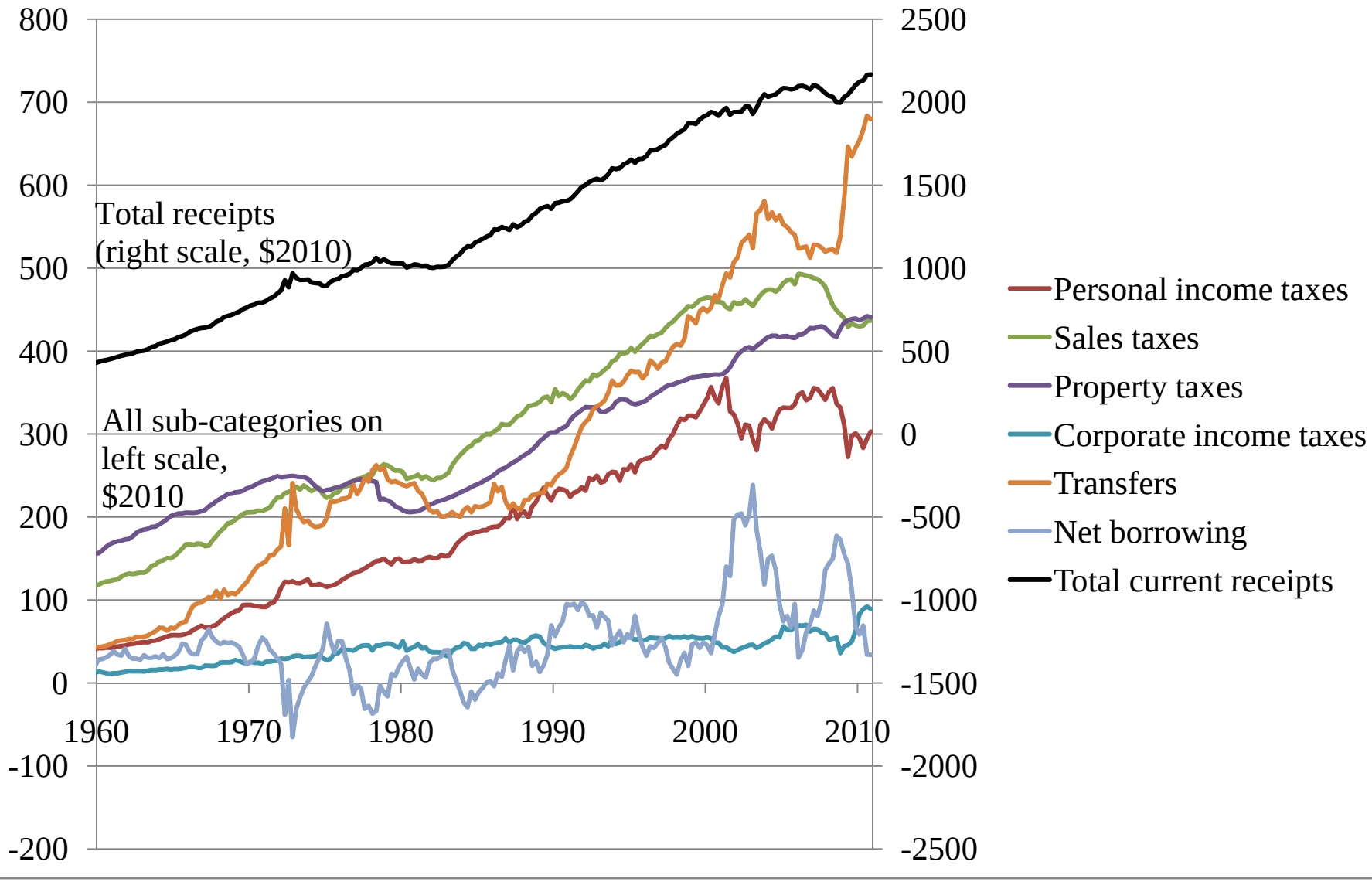


Figure 3. State and local borrowing, 1947-2010

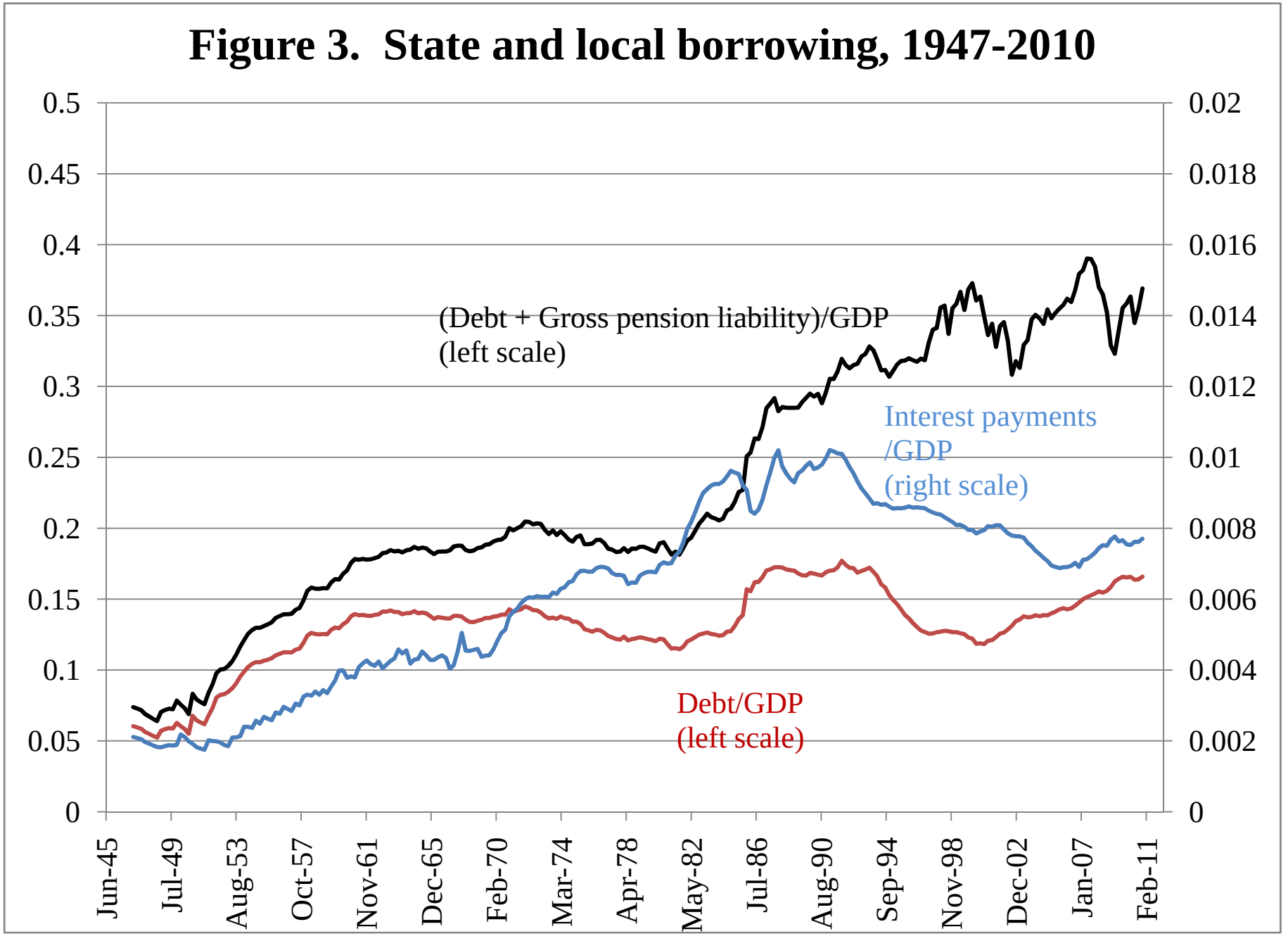


Figure 4. Municipal debt maturity profile, 2011

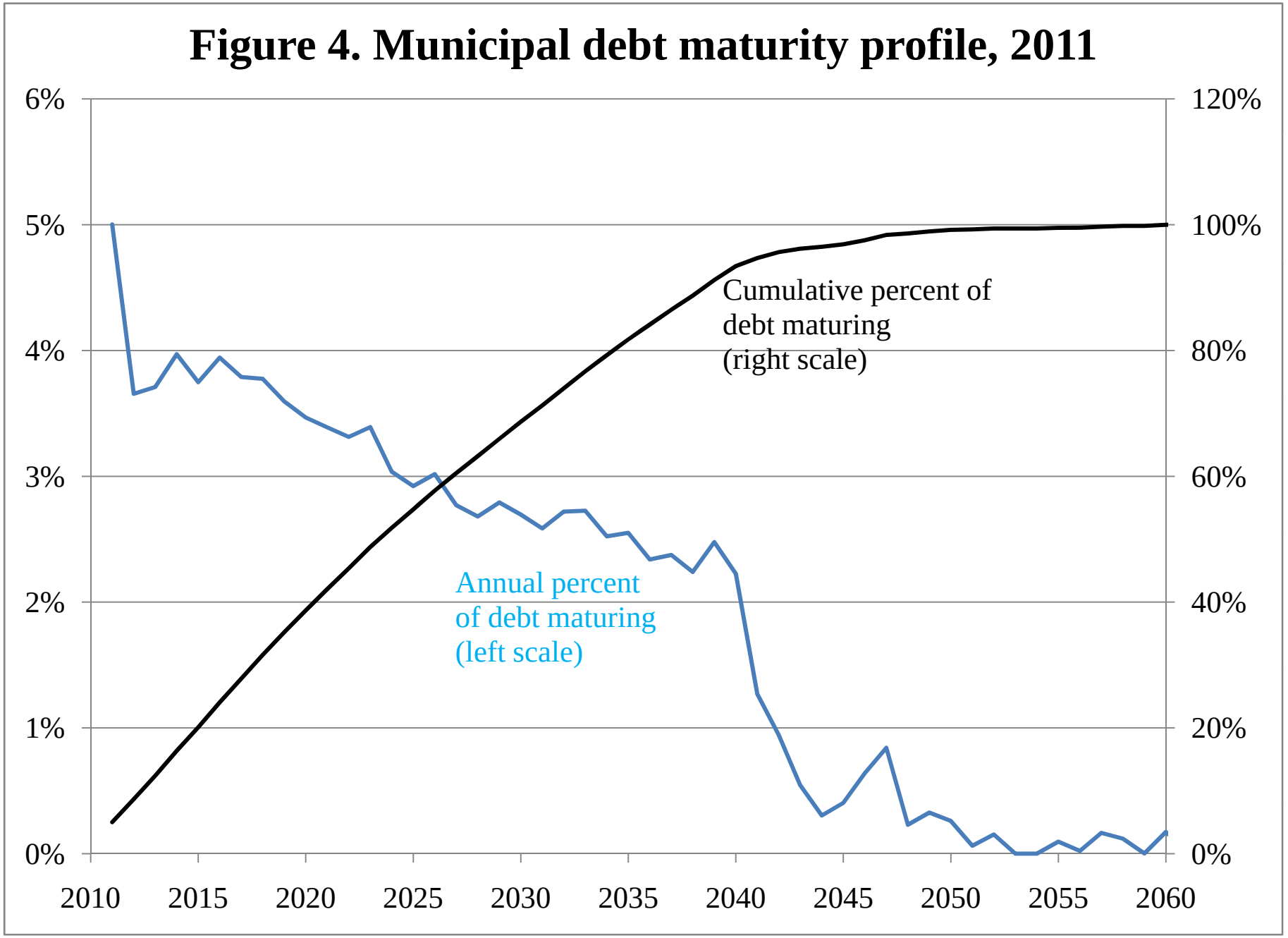


Figure 5. MCDX 5 year credit spread, basis points

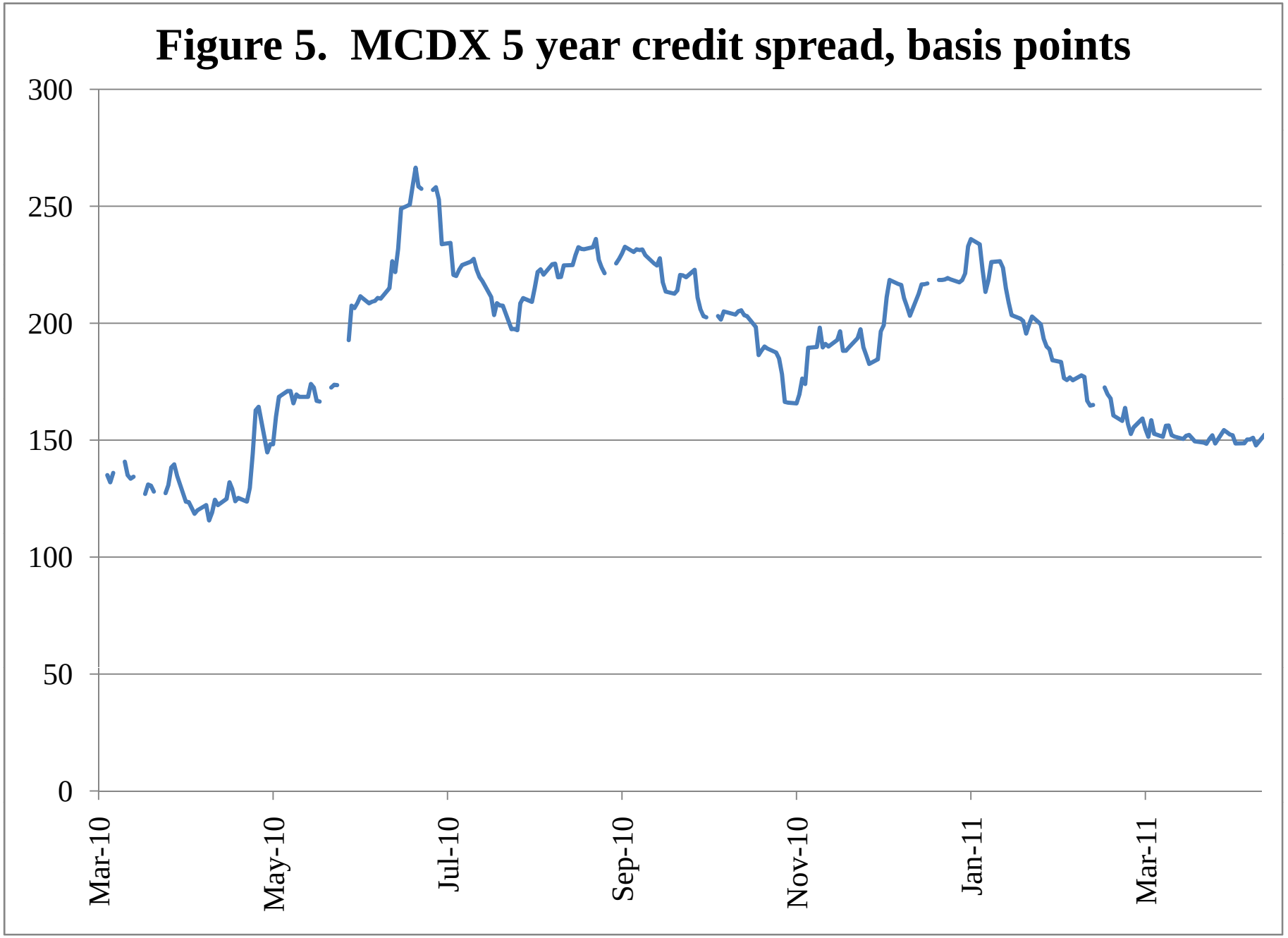


Figure 6. Yields on Treasuries and Refunded Munis

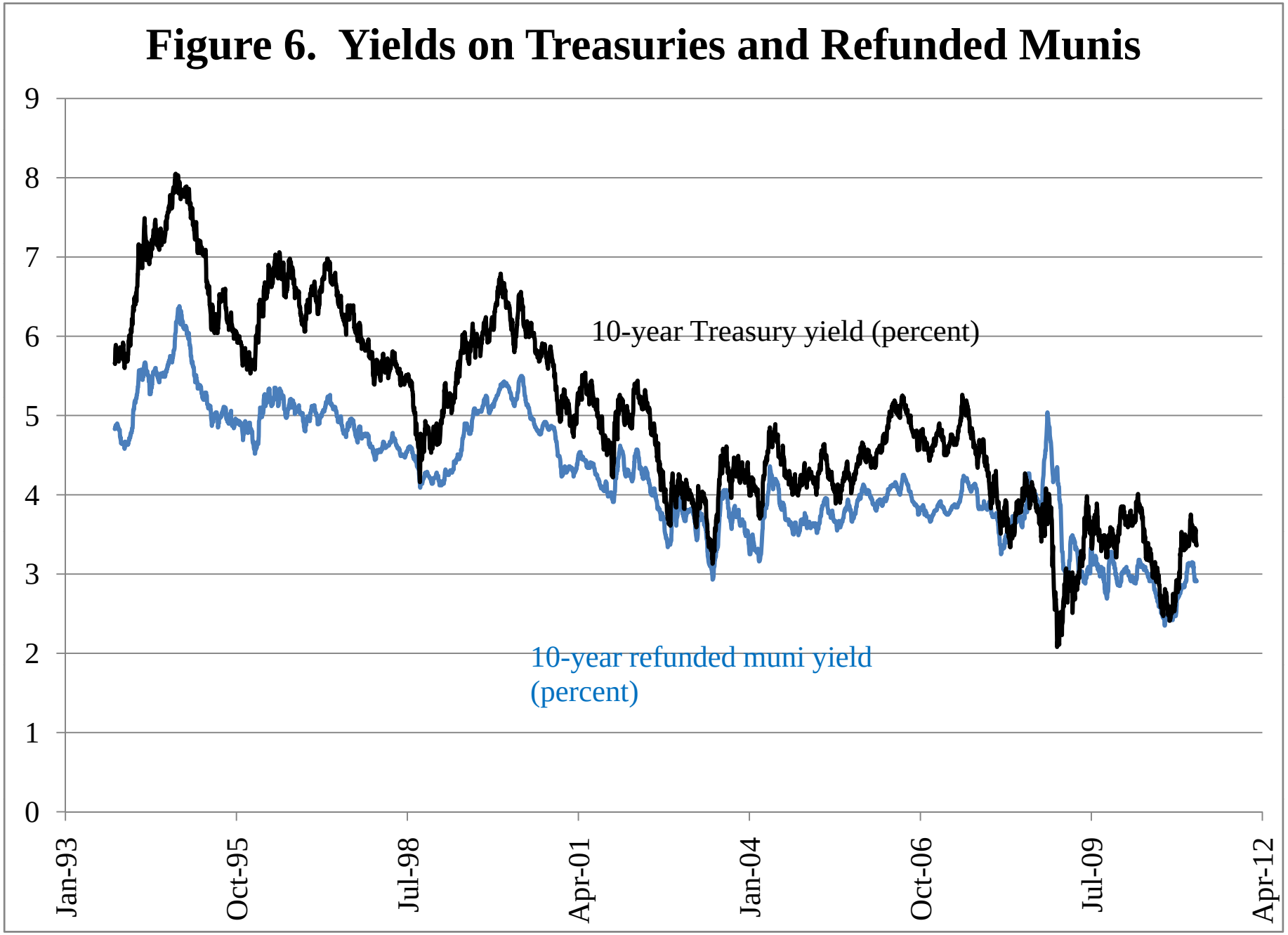


Figure 7. Monthly net mutual fund inflows, $M

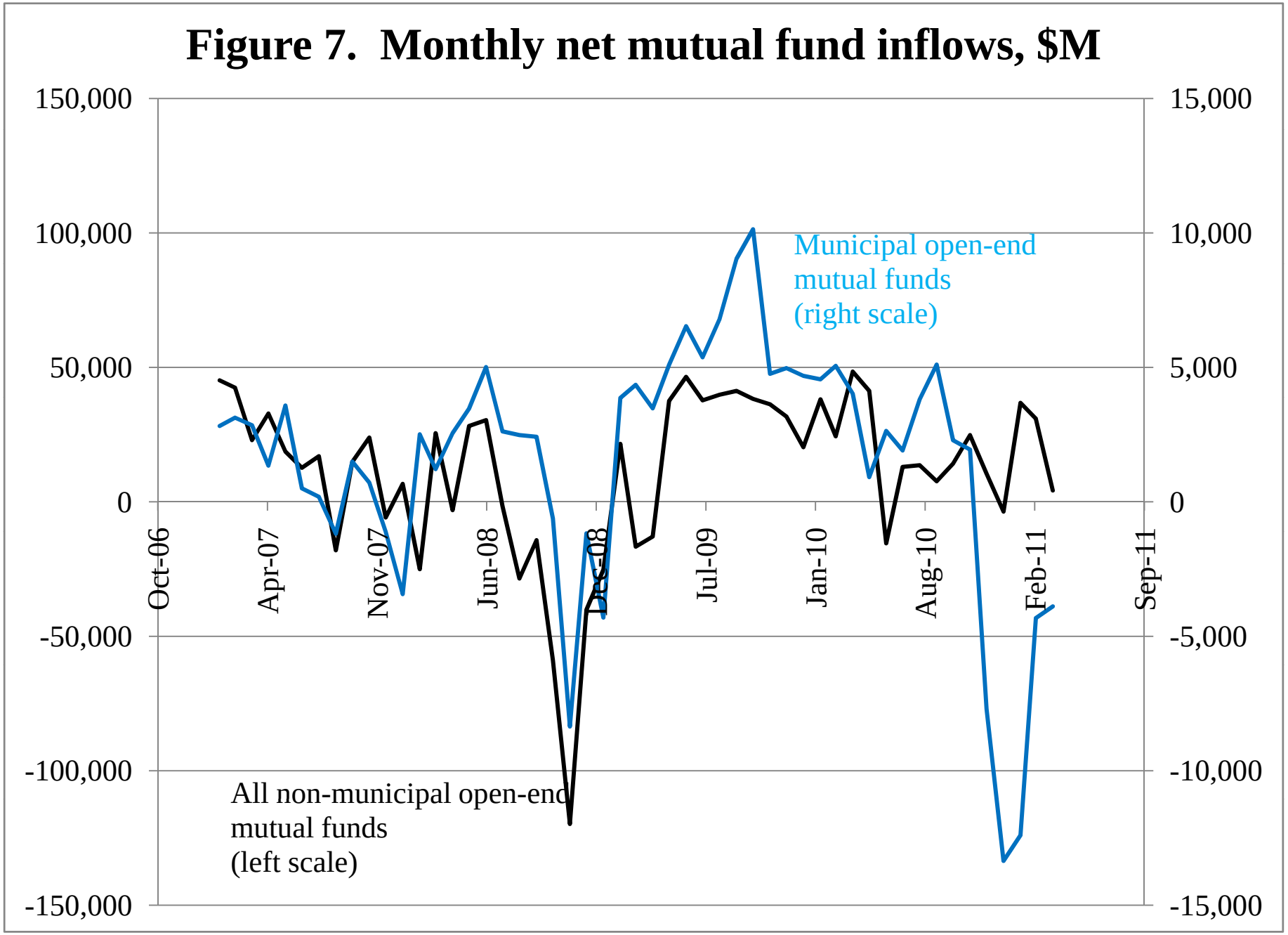


Figure 8. Share of municipal debt holdings, by holder, 1945-2011

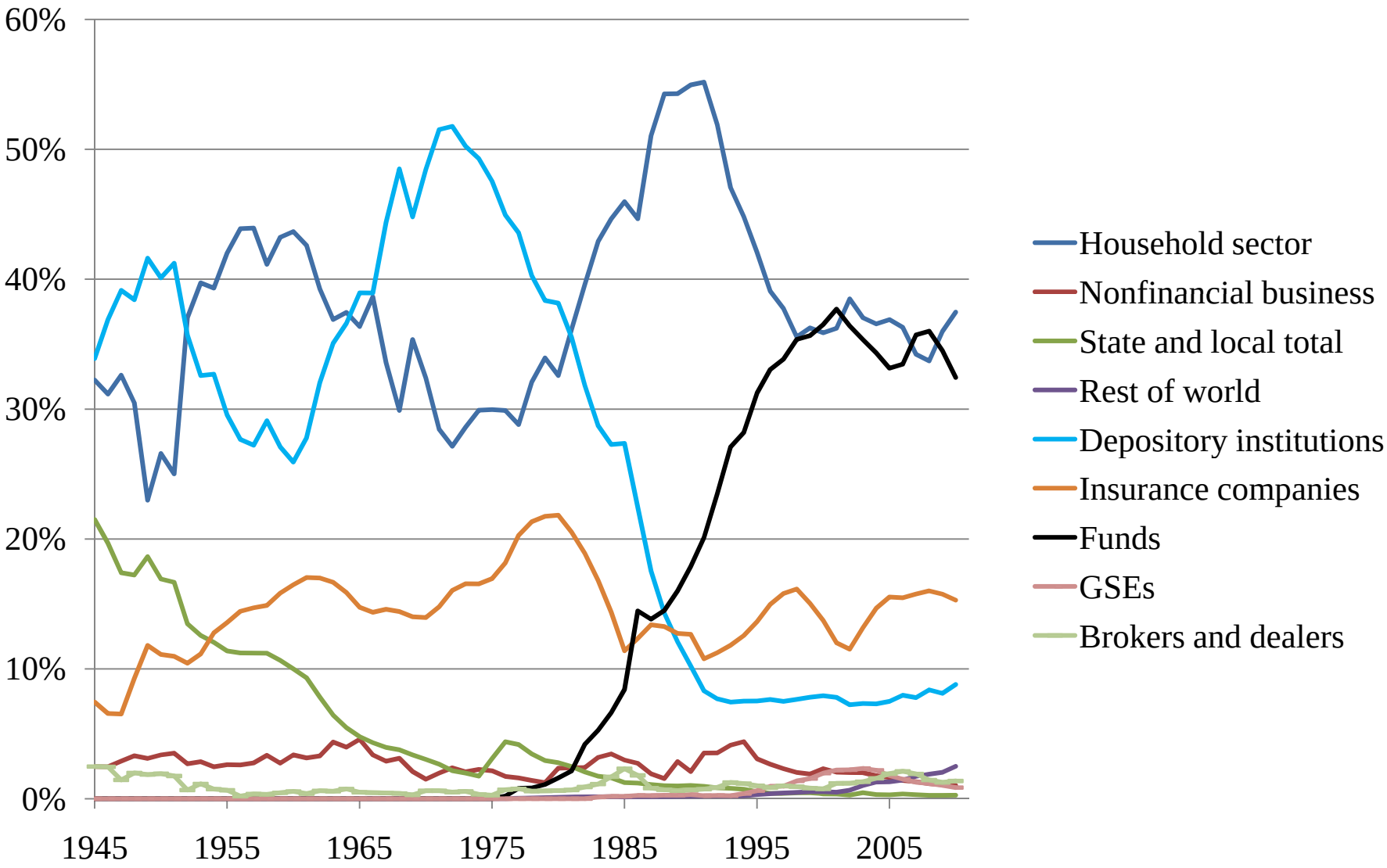


Table 1. Total receipts of State and Local sector

Period	Total current receipts, $2010	Receipts by type, $2010: Personal income taxes	Sales taxes	Property taxes	Corp. income taxes	Transfers (mostly Federal)	Net borrowing	Other sources	Note: receipts exc. transfers
2002 Q1	1939.9	312.6	456.8	395.6	39.8	512.7	203.1	19.4	1427.2
2002 Q2	1942.1	295.0	457.4	399.8	42.0	530.5	204.3	13.1	1411.6
2002 Q3	1972.8	311.3	462.3	403.3	43.5	534.8	190.0	27.6	1438.0
2002 Q4	1972.0	310.0	458.1	404.7	45.7	540.0	202.8	10.6	1432.0
2003 Q1	1929.1	293.3	454.4	401.9	46.2	524.1	238.6	-29.3	1405.0
2003 Q2	1966.9	280.6	461.4	406.3	42.3	566.0	184.0	26.3	1401.0
2003 Q3	2014.9	310.9	467.4	409.6	44.6	569.9	157.0	55.6	1445.0
2003 Q4	2047.0	317.8	472.2	413.8	47.8	580.7	118.6	96.2	1466.3
2004 Q1	2031.4	314.1	474.3	416.7	49.4	558.9	150.1	67.9	1472.5
2004 Q2	2040.0	306.7	474.2	418.5	52.7	567.0	153.2	67.6	1473.0
2004 Q3	2046.7	320.2	471.7	418.4	55.8	557.7	136.2	86.7	1489.0
2004 Q4	2067.0	329.6	475.6	416.8	55.2	563.2	94.9	131.7	1503.8
2005 Q1	2083.6	331.9	482.0	417.9	68.1	552.6	74.4	156.7	1531.0
2005 Q2	2082.4	331.6	485.4	418.1	64.4	549.5	80.7	152.7	1532.8
2005 Q3	2076.4	331.4	486.5	416.6	63.6	543.4	66.7	168.3	1533.0
2005 Q4	2081.1	336.1	480.7	415.9	68.2	540.0	95.2	145.0	1541.0
2006 Q1	2095.9	347.3	493.2	419.5	69.4	523.7	30.6	212.2	1572.2
2006 Q2	2097.8	350.2	492.4	420.1	69.0	524.7	39.8	201.7	1573.1
2006 Q3	2090.4	340.8	491.0	423.3	69.9	525.9	61.2	178.4	1564.5
2006 Q4	2075.9	343.7	489.9	427.7	62.0	512.4	70.2	170.0	1563.5
2007 Q1	2102.8	355.5	487.9	427.5	65.2	527.9	87.2	151.6	1574.9
2007 Q2	2094.1	354.2	486.8	428.9	64.6	527.6	80.6	151.6	1566.5
2007 Q3	2074.6	348.2	483.1	429.9	60.5	524.9	97.9	130.2	1549.8
2007 Q4	2054.1	341.2	477.8	427.9	60.0	519.9	136.0	91.3	1534.2
2008 Q1	2036.8	351.1	466.1	423.4	52.4	521.9	144.1	77.8	1514.9
2008 Q2	2031.4	355.4	455.5	419.2	53.3	522.3	149.5	76.2	1509.1
2008 Q3	1998.4	336.7	449.1	417.4	54.8	518.4	177.3	44.7	1480.0
2008 Q4	1996.8	331.9	444.2	427.4	36.1	538.7	172.5	45.9	1458.0
2009 Q1	2030.4	310.6	439.5	435.0	44.5	584.8	155.0	61.0	1445.6
2009 Q2	2045.5	272.6	429.3	436.7	45.7	646.3	143.5	71.5	1399.2
2009 Q3	2073.1	298.0	433.0	438.6	50.1	634.6	112.3	106.5	1438.5
2009 Q4	2103.5	300.8	430.9	439.2	62.8	645.0	67.5	157.5	1458.6
2010 Q1	2121.9	295.1	429.7	437.2	83.0	653.9	58.4	164.5	1468.0
2010 Q2	2129.9	283.5	430.8	439.3	89.0	666.6	69.1	151.5	1463.2
2010 Q3	2163.6	294.6	436.2	442.1	92.0	683.4	34.3	180.9	1480.2
2010 Q4	2165.9	303.0	436.8	440.7	89.1	679.4	33.9	183.0	1486.5

Source: National Income and Product Accounts, Bureau of Economic Analysis, United States Census Department. Implicit GDP deflator for State and Local government sector used to convert nominal totals to constant 2010 dollars. All figures are seasonally adjusted totals, expressed at annual rates.

Table 2. State balanced budget requirements

State	Governor must submit balanced budget	Legislature must pass balanced budget	Governor must sign balanced budget	State can carry over deficit
Alabama	Yes	Yes	No	No
Alaska	Yes	Yes	Yes	No
Arizona	Yes	Yes	Yes	No
Arkansas	Yes	No	Yes	No
California	Yes	Yes	Yes	Yes
Colorado	Yes	Yes	Yes	No
Connecticut	Yes	Yes	Yes	No
Delaware	Yes	Yes	Yes	No
Florida	Yes	Yes	Yes	No
Georgia	Yes	Yes	Yes	No
Hawaii	Yes	No	Yes	No
Idaho	No	Yes	No	No
Illinois	Yes	Yes	Yes	No
Indiana	No	No	No	Yes
Iowa	Yes	Yes	Yes	No
Kansas	Yes	Yes	No	No
Kentucky	Yes	Yes	Yes	No
Louisiana	Yes	Yes	Yes	Yes
Maine	Yes	Yes	Yes	No
Maryland	Yes	Yes	No	No
Massachusetts	Yes	Yes	Yes	No
Michigan	Yes	Yes	Yes	Yes
Minnesota	Yes	Yes	Yes	No
Mississippi	Yes	Yes	No	No
Missouri	Yes	No	Yes	No
Montana	Yes	Yes	No	No
Nebraska	Yes	Yes	No	No
Nevada	Yes	Yes	No	No
New Hampshire	Yes	No	No	No
New Jersey	Yes	Yes	Yes	No
New Mexico	Yes	Yes	Yes	No
New York	Yes	Yes	Yes	No
North Carolina	Yes	Yes	No	No
North Dakota	Yes	Yes	Yes	No
Ohio	Yes	Yes	Yes	No
Oklahoma	Yes	Yes	Yes	No
Oregon	Yes	Yes	Yes	No
Pennsylvania	Yes	No	Yes	No
Rhode Island	Yes	Yes	Yes	No
South Carolina	Yes	Yes	Yes	No
South Dakota	Yes	Yes	Yes	No

table 2 continued on next page

table 2 continued from previous page

State	Governor must submit balanced budget	Legislature must pass balanced budget	Governor must sign balanced budget	State can carry over deficit
Tennessee	Yes	Yes	Yes	No
Texas	No	Yes	Yes	No
Utah	Yes	Yes	Yes	No
Vermont	No	No	No	Yes
Virginia	No	No	Yes	No
Washington	Yes	No	No	Yes
West Virginia	No	Yes	Yes	No
Wisconsin	Yes	Yes	Yes	Yes
Wyoming	Yes	Yes	Yes	No

Source: NASBO *Budget Processes in the States, 2008*

Table 3. State and local issuance of total debt and short-term debt since January 2010, by sta

State	Total debt issued, $B	Debt with maturity less than 2 years, $B	Percent of debt issued with maturity less than 2 years	Debt issued with maturity less than 2 years as a share of state GDP
Alabama	4.2	0.1	3.5%	0.1%
Alaska	1.4	0.4	28.9%	0.8%
Arizona	6.8	0.2	3.6%	0.1%
Arkansas	1.9	0.1	4.2%	0.1%
California	87.3	22.1	25.3%	1.2%
Colorado	8.7	1.3	14.8%	0.5%
Connecticut	7.7	1.7	22.7%	0.8%
Delaware	2.8	0.1	2.3%	0.1%
Florida	23.1	2.0	8.7%	0.3%
Georgia	11.9	1.0	8.3%	0.2%
Hawaii	2.9	0.0	0.9%	0.0%
Idaho	1.1	0.5	47.2%	1.0%
Illinois	32.6	4.3	13.1%	0.7%
Indiana	6.7	1.2	18.1%	0.5%
Iowa	3.6	0.3	9.0%	0.2%
Kansas	5.1	0.9	17.0%	0.7%
Kentucky	6.6	0.9	14.1%	0.6%
Louisiana	7.1	0.1	1.7%	0.1%
Maine	1.4	0.2	18.1%	0.5%
Maryland	7.2	0.2	3.2%	0.1%
Massachusetts	18.7	3.8	20.5%	1.1%
Michigan	12.4	3.8	30.6%	1.0%
Minnesota	9.1	1.3	14.8%	0.5%
Mississippi	3.2	0.1	2.3%	0.1%
Missouri	8.1	0.4	4.5%	0.2%
Montana	0.7	0.0	5.6%	0.1%
Nebraska	3.2	0.2	5.5%	0.2%
Nevada	4.9	0.2	3.7%	0.1%
New Hampshire	1.6	0.2	14.3%	0.4%
New Jersey	23.5	7.4	31.5%	1.5%
New Mexico	3.3	0.4	12.2%	0.5%
New York	56.4	10.1	17.9%	0.9%
North Carolina	9.2	0.3	3.7%	0.1%
North Dakota	0.8	0.1	8.8%	0.2%
Ohio	19.0	2.4	12.8%	0.5%
Oklahoma	4.1	0.4	10.8%	0.3%
Oregon	5.4	1.1	20.1%	0.7%
Pennsylvania	24.0	3.8	15.7%	0.7%
Rhode Island	1.4	0.5	35.7%	1.1%
South Carolina	6.8	1.2	17.3%	0.7%
South Dakota	1.0	0.1	11.9%	0.3%

Table 3 continued on next page

Table 3 continued from previous page

State	Total debt issued, $B	Debt with maturity less than 2 years, $B	Percent of debt issued with maturity less than 2 years	Debt issued with maturity less than 2 years as a share of state GDP
Tennessee	6.6	0.3	5.0%	0.1%
Texas	49.1	9.9	20.2%	0.9%
Utah	4.0	0.3	7.7%	0.3%
Vermont	0.7	0.0	6.8%	0.2%
Virginia	8.8	0.4	4.9%	0.1%
Washington	16.3	0.6	3.7%	0.2%
West Virginia	0.8	0.0	3.8%	0.0%
Wisconsin	8.7	2.4	27.6%	1.0%
Wyoming	0.4	0.0	4.7%	0.1%

Source: State GDP data from US Census Department. Municipal bond issuance data from Mergent.

Table 4. IMF projections of developed economy gross financing needs, 2010-2012 (percent of GDP)

	2010			2011			2012		
Country	Maturing Debt	Budget Deficit	Total Financing Need	Maturing Debt	Budget Deficit	Total Financing Need	Maturing Debt	Budget Deficit	Total Financing Need
Japan	43.4	9.5	52.9	45.8	10.0	55.8	44.4	8.4	52.5
United States	15.4	10.6	26.0	18.0	10.8	28.8	18.0	7.5	25.6
Greece	13.6	9.6	23.2	16.6	7.4	24.0	19.8	6.2	26.0
Italy	20.3	4.5	24.8	18.5	4.3	22.8	19.6	3.5	23.1
Belgium	17.8	4.6	22.4	18.5	3.9	22.4	18.6	4.0	22.6
Portugal	11.6	7.3	18.9	16.0	5.6	21.6	15.5	5.5	21.0
France	14.3	7.0	21.3	14.6	5.8	20.4	14.6	4.9	19.5
Spain	14.8	9.2	24.0	13.1	6.2	19.3	13.1	5.6	18.7
Ireland	6.5	32.2	19.0	8.7	10.8	19.5	9.2	8.9	18.0
Canada	13.1	5.5	18.6	13.9	4.6	18.5	13.6	2.8	16.4
United Kingdom	5.3	10.4	15.7	7.1	8.6	15.7	6.7	6.9	13.6
Finland	9.1	2.8	11.9	10.0	1.2	11.2	8.6	1.1	9.7
Germany	8.5	3.3	11.8	9.1	2.3	11.4	9.0	1.5	10.5
Sweden	4.1	0.2	4.4	5.5	-0.1	5.4	5.0	-0.4	4.6
Australia	1.5	4.6	6.1	2.0	2.5	4.5	2.7	0.6	3.3
Weighted average	17.2	8.7	25.8	18.9	8.1	27.0	18.7	6.1	24.8

Source: IMF, 2011. Projections assume that short-term debt maturing in 2011 will be refinanced with new short-term debt. 2010 totals for Ireland reflect outlays on bank recapitalization.

Table 5. State borrowing, pension obligations, and pension assets, 2009 (reproduced from Novy-Marx and Rauh, 2010)

State	Stated pension liabilities, $B	Pension obligation, valued at Treasury rates, $B	Pension assets, $B	State Debt, $B	Tax revenues, $B	State GDP, $B	State bond debt/GDP	Total Net Debt/GDP	S&P GO bond rating
Alabama	42.0	61.8	21.4	8.5	9.1	170.0	5%	29%	AA
Alaska	15.3	21.7	12.4	6.5	8.4	47.9	14%	33%	AA+
Arizona	43.6	73.5	24.8	10.5	13.7	248.9	4%	24%	NR
Arkansas	21.5	30.4	14.6	4.3	7.5	98.3	4%	20%	AA
California	518.1	699.7	329.6	121.9	117.4	1846.8	7%	27%	A
Colorado	57.3	86.2	28.8	15.9	9.6	248.6	6%	29%	NR
Connecticut	45.3	69.1	20.1	27.6	13.4	216.2	13%	35%	AA
Delaware	7.6	10.9	5.8	5.7	2.9	61.8	9%	17%	AAA
Florida	136.4	186.3	96.5	42.3	35.8	744.1	6%	18%	AAA
Georgia	75.8	110.1	53.1	13.1	18.2	397.8	3%	18%	AAA
Hawaii	17.5	24.2	8.1	6.0	5.1	63.8	9%	35%	AA
Idaho	11.7	16.6	8.7	3.4	3.7	52.7	6%	21%	NR
Illinois	151.0	233.0	65.7	58.4	31.9	633.7	9%	36%	AA
Indiana	37.3	49.8	19.6	19.9	14.9	254.9	8%	20%	NR
Iowa	26.0	35.0	18.0	7.2	6.9	135.7	5%	18%	NR
Kansas	21.3	30.3	10.2	5.8	7.2	122.7	5%	21%	NR
Kentucky	45.2	63.4	21.1	12.2	10.1	156.4	8%	35%	NR
Louisiana	36.8	54.8	18.4	16.4	11.0	222.2	7%	24%	A+
Maine	14.4	20.1	8.3	5.3	3.7	49.7	11%	34%	AA
Maryland	52.7	72.1	28.6	23.1	15.7	273.3	8%	24%	AAA
Massachusetts	59.7	86.9	32.7	71.9	21.9	365.0	20%	35%	AA
Michigan	73.2	103.1	39.5	29.1	24.8	382.5	8%	24%	AA
Minnesota	60.6	91.0	35.9	9.5	18.3	262.8	4%	25%	AAA
Mississippi	31.4	44.2	15.5	6.3	6.8	91.8	7%	38%	AA
Missouri	53.5	75.2	33.1	19.7	11.0	237.8	8%	26%	AAA
Montana	9.1	12.4	5.3	4.9	2.5	35.9	14%	33%	AA
Nebraska	8.4	11.6	5.5	2.7	4.2	83.3	3%	11%	NR

Table 5 continued on next page

Table 5 continued from previous page

State	Stated pension liabilities, $B	Pension obligation, valued at Treasury rates, $B	Pension assets, $B	State Debt, $B	Tax revenues, $B	State GDP, $B	State bond debt/GDP	Total Net Debt/GDP	S&P GO bond rating
Nevada	25.4	36.3	18.8	4.2	6.1	131.2	3%	17%	AA+
New Hampshire	8.5	12.5	4.3	7.9	2.3	60.0	13%	27%	AA
New Jersey	132.8	191.2	67.2	52.8	30.6	474.9	11%	37%	AA
New Mexico	28.8	39.8	15.9	7.8	5.6	79.9	10%	40%	AA+
New York	239.8	325.7	192.8	114.2	65.4	1144.5	10%	22%	AA
North Carolina	74.9	101.8	64.0	19.6	22.8	400.2	5%	14%	AAA
North Dakota	4.4	6.3	2.7	2.0	2.3	31.2	6%	18%	NR
Ohio	197.5	281.4	114.7	26.9	26.4	471.5	6%	41%	AA+
Oklahoma	33.6	45.9	15.8	9.1	8.5	146.4	6%	27%	AA+
Oregon	57.5	80.7	42.9	11.6	7.3	161.6	7%	31%	AA
Pennsylvania	110.6	164.5	64.3	40.7	32.1	553.3	7%	25%	AA
Rhode Island	13.9	20.5	6.6	8.9	2.8	47.4	19%	48%	AA
South Carolina	42.4	63.5	20.3	15.2	8.5	156.4	10%	37%	AA+
South Dakota	7.4	10.3	5.6	3.4	1.3	37.0	9%	22%	NR
Tennessee	36.7	49.6	26.4	4.4	11.5	252.1	2%	11%	AA+
Texas	191.2	268.4	126.1	33.3	44.7	1223.5	3%	14%	AA
Utah	22.6	31.2	14.7	5.9	5.9	109.8	5%	20%	AAA
Vermont	4.0	5.7	2.4	3.4	2.5	25.4	13%	26%	AA+
Virginia	69.1	89.6	41.3	21.9	18.4	397.0	6%	18%	AAA
Washington	62.3	86.4	43.5	23.5	17.9	322.8	7%	21%	AA+
West Virginia	13.7	18.3	7.2	6.4	4.9	61.7	10%	28%	AA
Wisconsin	79.7	114.6	58.4	22.1	15.1	240.4	9%	33%	AA
Wyoming	7.0	9.8	4.4	1.3	2.2	35.3	4%	19%	NR
TOTAL	3136.8	4427.4	1941.6	1004.8	780.7	14068.3	7%	25%	

Table 6. Maturity structure of debt, by state

State	Total Debt, $B	State GDP (2008), $B	Debt/GDP	Debt/GDP, by maturity and type			
				2011	2011-2	2011-5	Var. rate
California	590.00	1883.65	31.3%	5.4%	7.8%	17.1%	12.8%
Texas	317.00	1141.04	27.8%	5.6%	8.6%	18.7%	14.0%
New York	394.00	1084.26	36.3%	4.9%	9.3%	21.8%	17.7%
Florida	187.00	729.96	25.6%	5.3%	10.4%	21.3%	20.5%
Illinois	188.00	621.31	30.3%	5.0%	8.4%	20.8%	15.3%
Pennsylvania	163.00	547.75	29.8%	4.9%	8.3%	18.8%	22.6%
New Jersey	150.00	479.50	31.3%	6.9%	10.3%	21.2%	9.1%
Ohio	111.00	465.83	23.8%	4.1%	7.2%	17.9%	18.8%
Virginia	74.90	406.25	18.4%	3.9%	7.8%	19.7%	16.0%
North Carolina	64.20	398.66	16.1%	3.7%	7.6%	20.3%	23.9%
Georgia	78.30	393.47	19.9%	4.3%	8.7%	19.7%	18.4%
Massachusetts	109.00	362.89	30.0%	5.7%	9.7%	21.4%	19.3%
Michigan	95.10	361.25	26.3%	5.8%	9.3%	20.2%	18.5%
Washington	93.50	336.24	27.8%	3.4%	7.7%	20.2%	11.4%
Maryland	52.10	283.54	18.4%	4.1%	8.5%	22.4%	15.8%
Minnesota	56.30	257.63	21.9%	6.5%	11.5%	26.2%	14.1%
Indiana	67.10	257.43	26.1%	4.2%	9.6%	27.1%	18.7%
Arizona	63.00	254.16	24.8%	5.2%	9.3%	21.8%	12.9%
Colorado	69.70	250.83	27.8%	3.9%	7.0%	16.4%	19.3%
Tennessee	49.40	241.77	20.4%	3.5%	7.4%	19.5%	28.5%
Wisconsin	51.20	238.99	21.4%	8.2%	13.2%	29.0%	17.2%
Missouri	60.00	236.91	25.3%	2.6%	5.1%	14.0%	29.1%
Connecticut	48.70	220.44	22.1%	7.6%	12.8%	28.3%	11.9%
Louisiana	42.50	208.59	20.4%	2.8%	6.2%	17.5%	23.2%
Alabama	38.80	168.22	23.1%	2.6%	5.6%	15.1%	27.9%
Oregon	38.90	165.24	23.5%	5.9%	9.9%	21.4%	12.7%
South Carolina	43.70	158.07	27.6%	4.9%	8.6%	20.2%	20.3%
Kentucky	38.50	154.56	24.9%	5.2%	8.7%	19.5%	23.1%
Oklahoma	24.80	154.31	16.1%	5.7%	11.4%	25.6%	20.4%
Iowa	22.10	136.14	16.2%	5.0%	9.9%	23.9%	23.1%
Nevada	33.90	125.23	27.1%	3.5%	7.6%	18.1%	15.4%
Kansas	32.90	123.27	26.7%	5.6%	10.4%	26.0%	12.0%
Utah	25.40	112.84	22.5%	3.8%	7.6%	20.8%	25.7%
Arkansas	10.80	101.19	10.7%	4.1%	7.8%	20.3%	10.6%
Mississippi	22.90	95.09	24.1%	3.1%	6.3%	16.7%	36.4%
Nebraska	19.20	84.57	22.7%	3.8%	8.2%	24.7%	15.7%
New Mexico	18.50	74.33	24.9%	6.0%	10.5%	24.3%	21.5%
Hawaii	17.70	65.78	26.9%	3.6%	8.1%	22.6%	5.8%
West Virginia	8.09	62.23	13.0%	2.7%	5.7%	15.6%	31.1%
Delaware	16.40	59.34	27.6%	2.8%	7.4%	16.9%	34.7%
New Hampshire	12.50	59.02	21.2%	2.8%	5.6%	15.9%	27.8%
Idaho	7.87	53.52	14.7%	8.9%	11.6%	20.9%	21.9%

Table 6 continued on next page

Table 6 continued from previous page

State	Total Debt, $B	State GDP (2008), $B	Debt/GDP	Debt/GDP, by maturity and type			
				2011	2011-2	2011-5	Var. rate
Maine	9.20	50.62	18.2%	5.9%	11.3%	26.7%	17.1%
Rhode Island	11.70	47.73	24.5%	6.7%	10.2%	22.1%	16.1%
Alaska	12.90	46.57	27.7%	4.4%	8.8%	20.4%	25.3%
South Dakota	5.94	38.75	15.3%	4.4%	8.1%	17.7%	21.5%
Wyoming	5.63	37.47	15.0%	1.5%	2.9%	14.9%	50.4%
Montana	6.70	35.60	18.8%	2.1%	4.3%	15.6%	40.7%
North Dakota	4.71	31.66	14.9%	4.5%	9.1%	23.2%	13.8%
Vermont	7.19	25.12	28.6%	2.7%	6.7%	16.6%	49.7%
Sum	3671.93	13928.81	26.4%	5.0%	8.7%	20.1%	17.3%

Source: Mergent. Debt includes all debt issued by both state and local issuers.

Table 7. Support for states and cities in the 2009 Recovery Act

	Composition of outlays, $B				
	Actual	Estimated			
	2009	2010	2011	2012-2019	Total
Health	31.7	40.4	10.8	0.6	83.6
Education and Training	14.8	38.4	29.2	5.0	87.3
Transportation	3.2	9.3	8.9	24.8	46.1
Income security	1.6	7.3	6.3	13.0	28.2
Community development	1.6	5.2	4.4	8.0	19.3
Energy and Environment	0.5	3.1	4.4	10.5	18.6
Total	52.9	103.7	63.4	61.9	281.9

Source: GAO.

Table 8. State statutes covering municipal bankruptcy filings

State	Chapter 9 filings addressed in state statutes?	Authorization type	Notes
Alabama	Yes	Specific authorization	
Alaska	No		
Arizona	Yes	Specific authorization	
Arkansas	Yes	Specific authorization	
California	Yes	Specific authorization	
Colorado	Yes*		*Authorization for irrigation and drainage districts.
Connecticut	Yes	Conditional	No authorization without express, written consent of Governor.
Delaware	No		
Florida	Yes	Specific authorization	
Georgia	Yes	Bankruptcy specifically prohibited by statute	
Hawaii	No		
Idaho	Yes	Specific authorization	
Illinois	Yes	Conditional	Allowed if a Financial Planning Board is created and judges that bankruptcy is in the municipality's interest.
Indiana	No		
Iowa	Yes	Conditional	Allowed only if the municipality is insolvent as a result of involuntary debt.
Kansas	No		
Kentucky	Yes	Conditional	County must receive approval from state local debt officer and state local finance officer in order to declare bankruptcy.
Louisiana	Yes	Conditional	Need approval from State Bond Commission, Governor, and Attorney General.
Maine	No		
Maryland	No		
Massachusetts	No		
Michigan	Yes	Conditional	Multiple review processes.

Table 8 continued on next page

Table 8 continued from previous page

State	Chapter 9 filings addressed in state statutes?	Authorization type	Notes
Minnesota	No		
Mississippi	No		
Missouri	Yes	Specific authorization	
Montana	Yes	Specific authorization	
Nebraska	Yes	Specific authorization	
Nevada	Yes	Conditional	
New Hampshire	No	Conditional	
New Jersey	Yes	Conditional	Can only file with approval from the Municipal Finance Commission
New Mexico	No		
New York	Yes	Conditional	A municipality may file for bankruptcy unless it has ARRA bonds outstanding.
North Carolina	Yes	Conditional	Need approval of the Local Government Commission.
North Dakota	No		
Ohio	Yes	Conditional	Need approval of Tax Commissioner.
Oklahoma	Yes	Specific authorization	
Oregon	Yes*	*Specific authority granted to irrigation districts and drainage districts.	
Pennsylvania	Yes	Conditional	Authority with outstanding bonds issued under the Transportation Code cannot file for bankruptcy. Other municipalities must meet authorization standards under the Municipal Corporations Statute.
Rhode Island	No		
South Carolina	Yes	Specific authorization	
South Dakota	No		
Tennessee	No		
Texas	Yes	Specific authorization	
Utah	No		
Vermont	No		
Virginia	No		

Table 8 continued on next page

Table 8 continued from previous page

State	Chapter 9 filings addressed in state statutes?	Authorization type	Notes
Washington	Yes	Specific authorization	
West Virginia	No		
Wisconsin	No		
Wyoming	No		

Source: Vinson & Elkins LLP, Paul S. Maco, Jane L. Vris, and William L. Wallander, 'Public Finance Challenges and Opportunities for Resolution,' *Municipal Finance Journal* 31:2. pp. 1-50.