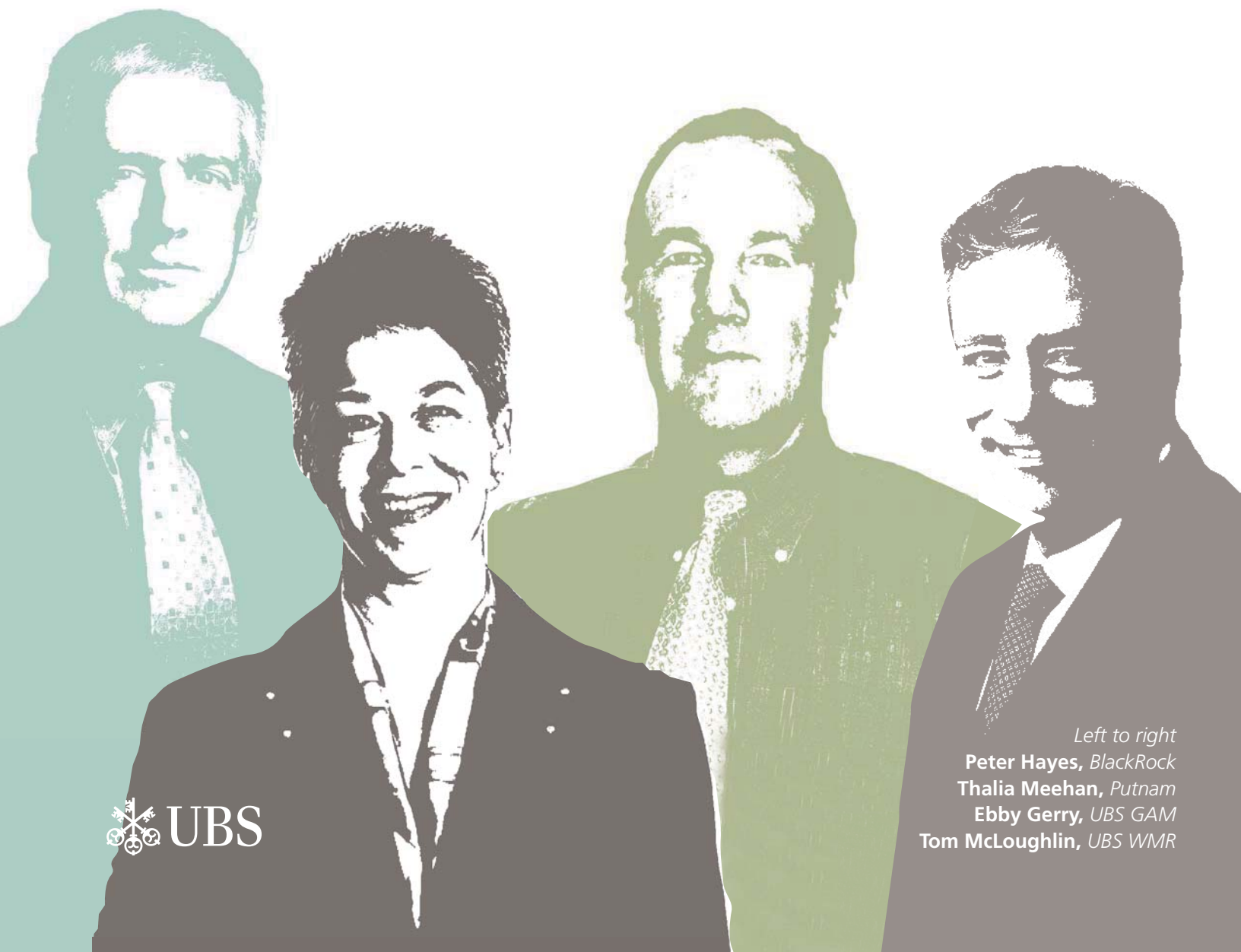


Exchange

Perspectives on important investment topics
presented by the Chief Investment Strategist of UBS Wealth Management Americas

The municipal bond market: A whole new world



Left to right
Peter Hayes, BlackRock
Thalia Meehan, Putnam
Ebby Gerry, UBS GAM
Tom McLoughlin, UBS WMR

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Letter from **Mike Ryan**

Chief Investment Strategist

While the financial press is filled with alarmist tales of an approaching crisis within the municipal market, the reality is actually far less grave — but also much more complex — than the headlines alone would suggest.

Dear readers,

Welcome to this inaugural edition of *Exchange*, a new publication from UBS with one aim: To join intellectual forces with experts from across private industry and the public sector to address the most critical issues of the day. By regularly engaging the best minds in an open exchange of ideas and perspectives, we hope to meaningfully help UBS clients understand how these events may impact their own portfolios and how they should invest accordingly.

Beginning with this edition's discussion of the municipal markets, and continuing with topics ranging from public policy changes, to secular shifts in the macro-economic environment, to structural transformations within individual markets, to new ways of investing across different asset classes, we will endeavor to offer more varied and deeper insight into some of the most topical and pressing issues facing investors today.

On to our first edition...

In the pages that follow we tackle the current state of public finance. While the financial press is filled with alarmist tales of an approaching crisis within the municipal market, the reality is actually far less grave — but also much more complex — than the headlines alone would suggest.

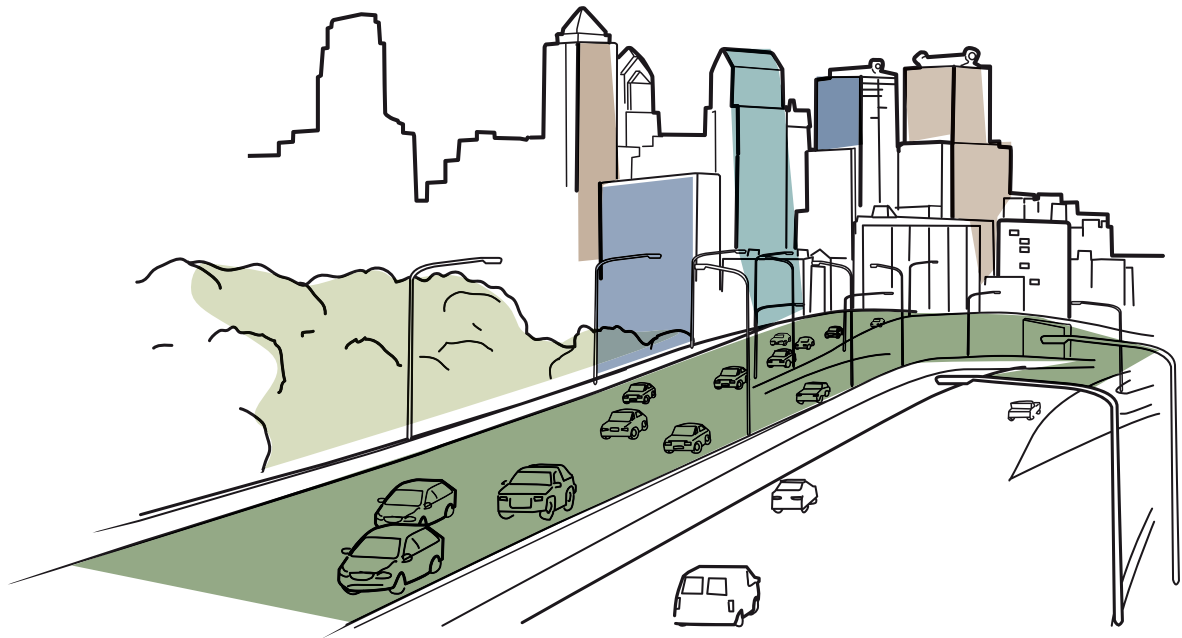
We start the conversation by offering the UBS **Point of View** on the central issues facing the municipal market. Our

Head of Municipal Research Tom McLoughlin then leads a roundtable **Dialogue** among professionals from across the public finance space. Finally, in the **Perspectives** section of the report, you'll find several feature articles, in which our contributors focus more narrowly upon subjects that are likely to materially alter the public finance space such as public pension reform, the expansion in public-private partnership funding, and the fragmenting of secondary market liquidity. We also assess the prospects of municipal bankruptcy for those issuers that fail in their efforts to repair finances, reform pensions and/or secure assistance from federal or state sources.

We hope you find this format effective and the views offered by our contributors both timely and informative. Since all of our content is intended as "work in progress," we invite your feedback on the subject matter, content, and tone of this publication. We also encourage you to contact your Financial Advisor to discuss this report and how it may impact your investment strategy. And please let us know about subjects you believe could benefit from future discussions like this one.

Thank you for allowing us to share these insights with you.

Mike Ryan, CFA
Chief Investment Strategist



POINT OF VIEW

A whole new world

Problems in the municipal market have been temporarily pushed off the front pages due to the escalation of the conflicts in the Middle East and North Africa and the devastating events in Japan. However, the fiscal challenges that state and local government leaders must confront over the next several years—including gaping budget deficits and underfunded pension plans—remain daunting and pose the most serious threat to public finance since the Great Depression. While the prospects for the sort of wholesale defaults by state and local issuers envisioned by some analysts may well be grossly exaggerated, the threats of structural deterioration and a continued tiering in credit quality are genuine. The ratings agencies have only just begun to come to grips with the effects these deep structural problems will have on municipal finances. It is therefore critical to understand how these risks will likely arise, the significance of their impact on municipal credits and how to effectively manage those risks in portfolios.

By **Mike Ryan**, UBS Chief Investment Strategist

Risks have risen

Until now, municipal bond defaults have been both rare in frequency and short in duration. Studies by Standard & Poor's, Moody's and others consistently have demonstrated that the default rates on municipal debt historically have been well below those in the investment-grade universe (see Fig. 1). In fact, it also has been shown that municipal debt is between 10 and 20 times less likely to

While the prospects for wholesale defaults by state and local issuers may well be grossly exaggerated, the threats of structural deterioration and a continued tiering in credit quality are genuine.

default than corporate bonds with identical ratings (see Fig. 2). What's more, when there were defaults in the municipal space, they tended to be "cured" relatively quickly, with the principal losses to bondholders well below those of corporate creditors.

But historical default and recovery rates may be less meaningful in the current environment where the challenges are more structural than cyclical in nature. So, to offer some broader perspective on what the downside

risks might look like this time around, Cadmus Hicks from Nuveen looks back at the municipal defaults experienced during the Great Depression. [Cadmus points out on pg. 39](#) that even during this period, marked by the deepest economic contraction in history, the maximum amount of past due principal and interest at any one time was only 1.7% of outstanding debt.

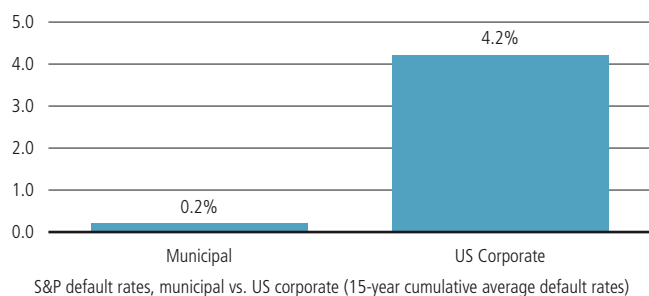
Still, there are acute problems in different sectors of the municipal market that pose a whole new set of risks in the current environment. [Tom McLoughlin, UBS' Head of Municipal Credit Research, offers a sobering assessment on pg. 12](#) of the current state of public pension plans and the challenges they will pose to elected officials, issuers and bondholders alike. Understanding the threat that underfunded pension plans pose to municipal issuers will be critical in managing the credit risk in tax-exempt portfolios.

Despite the obsession over the prospects for a high-profile default by a state, most of the problems that will arise in the municipal market will likely be found at the local level. To help understand and navigate the hot spots in this more vulnerable area of the municipal market, [Amy Laskey from Fitch Ratings offers her assessment on pg. 37](#) of ratings and default risks in local government entities.

As fiscal consolidation becomes the most critical initiative on Capitol Hill, the reductions in federal support that states, cities, counties, towns and other local government

Fig. 1: Default rates on municipal debt historically have been well below those within the investment-grade universe

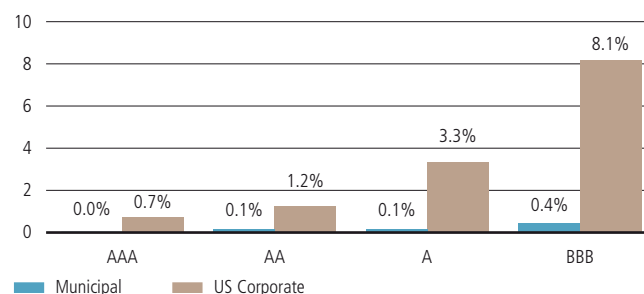
S&P default rates, municipal vs. US investment-grade corporate (15-year cumulative average default rates), in %



Source: S&P, U.S. Municipal Rating Transitions and Defaults, 1986–2009, Annual Global Corporate default Study and Rating Transitions, 2009. US corporate default rates are shown for 1981–2009; municipal rates are for 1986–2009.

Fig. 2: Municipal debt is far less likely to default than corporate bonds with identical ratings

S&P default rates, municipal vs. US corporate (15-year cumulative average default rates)

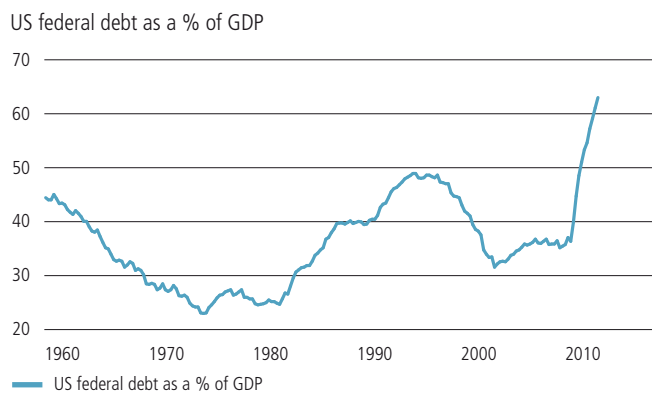


Source: S&P, U.S. Municipal Rating Transitions and Defaults, 1986–2009, Annual Global Corporate default Study and Rating Transitions, 2009. US corporate default rates are shown for 1981–2009; municipal rates are for 1986–2009.

entities are likely to experience will influence credit conditions. Keep in mind that the federal government played an outsized role across many segments of the economy in the aftermath of the global financial crisis and associated recessions—including direct stimulus to state and local governments suffering from dramatic declines in tax receipts. But as [Peter Rowan from UBS’s US Office of Public Policy points out in the chapter entitled “Capital Corner” on pg. 18](#), Congress is now grappling with ways to reduce a budget deficit that routinely exceeds \$1 trillion and an accumulated federal debt load that is approaching 70% of GDP (see Fig. 3). Although the initial stage of fiscal pullback has largely been about the expiration of one-off stimulus measures, the next phase is likely to be more comprehensive as federal lawmakers look to tackle both spending and revenue items. According to Peter, this means that municipalities will not only face reduced funding for social programs and infrastructure needs, but they will also have to respond to reduced federal funding in the near term.

Despite these deep-seeded credit issues, the prospects for municipal bankruptcy filings at the state level remain remote. Congress recently held hearings to explore a federal statute that would create a state bankruptcy chapter. [Jim Spiotto, a partner at the law firm Chapman and Cutler, argues in his essay on pg. 33](#) that any sort of expanded bankruptcy options for states still appears unlikely. He cites both historical precedent as well as constitutional complexities as the principal reasons for rejecting any material widening of municipal bankruptcy filings. Keep in mind that the cause of current fiscal stress can be traced

Fig. 3: US Federal debt load continues to rise



Source: DataStream and UBS WMR

to specific difficulties such as growth in pension commitments and the expansion of state and local government services. Rather than resort to the expensive, time-consuming and disruptive process of bankruptcy, states can

In short, insurance wrappers offered the municipal market the same sort of liquidity that the housing guarantees provided by the GSE’s provided for the mortgage market.

address these issues by finding new, creative ways to meet their obligations that are less expensive, less intrusive and therefore more focused on precisely what is broken.

Not just credit

But the difficulties in the municipal market are not limited to credit conditions alone. Municipal bond insurance represented more than just a credit backstop for buyers of tax-exempt debt; it also provided market participants with a consistent benchmark for trading securities from different issuers in different states. In short, insurance wrappers offered the municipal market the same sort of liquidity that the housing guarantees provided by the government-sponsored enterprises, or GSEs (e.g., GNMA, FNMA, FHLMC), provided for the mortgage market. But the virtual implosion of the monoline bond insurance industry has created a liquidity void that has transformed the way municipal debt is now being bought, sold and managed. [Andy Rountree describes how one large issuer, the Metropolitan Washington Airports Authority, managed to navigate the financial crisis on pg. 20](#). In the absence of credit enhancement, the Authority focused attention directly on its investors by disclosing information on a timely basis through various channels. In a market long criticized for inconsistent disclosure, the Authority demonstrates how municipal bond issuers benefit when they engage in a comprehensive investor relations program.

Markets have become narrower and less liquid as players focus on a smaller set of well-known larger credits with regular issuance. What’s more, heavy reliance on matrix pricing models means that statement pricing is less reliable and therefore adds to market pricing distortions.

Contributors **Matt Fabian from Municipal Market Advisors (pg. 24)** and **Peter Hayes from Blackrock (pg. 6)** note that this “re-fragmenting” of the municipal market poses risks for those who venture into the market’s less active sectors. However, as both contributors—**along with UBS’s Ebby Gerry and Putnam’s Thalia Meehan (pg. 6)**—emphasize, these pricing and liquidity gaps also offer opportunities for those able to exploit the inefficiencies that will undoubtedly emerge.

Meanwhile, issuance practices are also destined to change in the years ahead as municipal borrowers seek alternative means of funding critical capital, maintenance and social spending needs. The Build America Bond (BAB) program represented the first major change in market issuance practices since the introduction of tobacco and pension bonds in the 1990s. While BABs were always intended as a temporary program incorporated into the post-crisis stimulus package, the next wave of structural changes in the municipal market is likely to prove more enduring. Increases in public-private partnerships (P3) and the reemergence of municipal bond banks are just two of the most obvious examples of the way municipalities will try to balance the credit and liquidity demands of investors with the funding cost and debt level challenges of state and local government. **Chris Mier from Loop Capital presents his view on pg. 27** that the whole notion of P3 is changing from its traditional focus on economic infrastructure to include social infrastructure, such as courthouses and correctional facilities, as well as specialized activities like fleet management and special events staging. These changes in practices will likely impact investible options and credit conditions, resulting in a greatly altered municipal market investment landscape.

Managing for the future

But there is also a secular shift going on that, while not unique to the tax-exempt market, will certainly have a profound impact on the holders of intermediate- and longer-dated municipal debt. Following a three-decade period marked by decelerating price pressures and declining bond yields, both inflation and interest rates have now reached a critical inflection point. As we recently pointed out in the *The Decade Ahead* report, published in early February, the combination of increased competition for resources (raw materials and labor) and heavily indebted central governments have created a near perfect breeding ground for a shift in the macro and policy backdrop. **In his**

essay devoted to “Municipal Market Investing” on pg. 29, Michael Crook from UBS’s Portfolio Advisory Group rightly points out that the ongoing search to replace lost income means that municipal investors bear greater exposure to price changes and increased volatility with bond yields, across the curve, hovering near generational lows. While rate increases may be neither immediate nor acute, the absence of a secular tailwind driving rates lower represents yet another dynamic that municipal investors must wrestle with over the current decade.

The ongoing search to replace lost income means that municipal investors bear greater exposure to price changes and increased volatility.

Wrapping up this inaugural issue, **Tom McLoughlin on pg. 37 neatly weaves together each of these risk factors** (credit, liquidity and market risk) as he highlights a dozen trends that are likely to play out over the next three years. To be sure, each of these challenges is manageable. However, the scope and scale of change suggests that investors in the municipal market need to take a fundamentally different approach toward the tax-exempt market going forward. The days of simply buying municipal bonds, holding them until maturity and largely forgetting about them are now gone. A much more engaged approach is necessary to control for the myriad risks that will surface episodically in the municipal space as well as to exploit the opportunities that will surface due to market inefficiencies. Those who have predicted the demise of the municipal market are greatly mistaken. It will remain a vibrant, adaptive and critical source of funding for a broad range of public spending needs. It will also continue to play a central role in the portfolios of individual investors seeking higher tax-exempt income and relative safety of principal. However, the way that investors approach this facet of fixed income must now change along with the market itself. In short, while the risks in the municipal market may well be manageable, it is clear that they must now be actively managed.

Dialogue

Tom McLoughlin, Head of Municipal Research for UBS Wealth Management Research–Americas, recently moderated a discussion among preeminent thinkers in the world of municipal bonds. The participants were: **Peter Hayes**, Portfolio Manager at BlackRock and head of its Municipal Bond Management Committee; **Thalia Meehan**, Managing Director of the Tax Exempt Group at Putnam Investments; and **Ebby Gerry**, head of UBS Global Asset Management’s Municipal Fixed Income Portfolio Management Team.

McLoughlin: How are you accommodating the heightened level of headline risk, including claims by some analysts that historic rates of default are less relevant indicators of risk in light of the states’ structural budget deficits? What steps have you taken in managing your portfolios?

Gerry

We start by asking ourselves: What is different about this most recent recession compared to previous economic downturns that would trigger rates of default exceeding historical rates? Yes, this economic decline is greater, and that will therefore cause a great number of defaults. However, the tools available to most municipal credits—such as tax increases, expenditure reductions and capital project deferrals—remain in place. And the will to use them is greater than ever. This is why I don’t believe the number of municipal defaults will rise to levels you see predicted in the media.

Real or not, headline risk is frequently overstated. We invest by separating the fact from fiction through fundamental credit analysis and weighing those results against the price of the security. This process may be unfamiliar to individual muni market participants because of the previous commoditization of the credits through bond insurance. Given its labor intensity and limited analytical resources, this process is very difficult for an individual investor.

The facts are that more defaults will occur. We are in different times and these times will involve increased defaults. However, the risk is not systemic and therefore, there are more opportunities. Along with their Financial Advisors, individual investors must position their portfolios to underweight true areas of distress and overweight areas devalued by negative and misleading headlines. It isn’t an all-or-nothing decision, but more a matter of relative value, and the question becomes what price should be paid for a given level of risk.

Meehan | We have tried to combat headline risk with hard numbers and broader context. For example, we have default data that show \$54.5 billion of muni bond defaults in total from 1990 to 2010. The vast majority of those defaults have been in lower-rated or non-rated project finance and real estate-related credits. Second, the top 500 issuers account for 64% of the \$2.9 trillion of muni debt outstanding. Put another way, 99% of the 50,000 issuers account for 34% of the market. It's a diverse market that should not be painted with a broad brush.

McLoughlin: Are there certain municipal sectors or asset classes that offer better value on a relative basis than others today? And are there others that you have avoided because they pose too much credit risk? Thalia?

Meehan | At current spread levels and factoring in credit fundamentals, we see better value in essential service revenue bonds in the triple 'B' and single 'A' rating categories. These include sectors such as healthcare, higher education bonds for private colleges and universities, utilities, etc. These sectors and rating categories continue to offer attractive relative spreads vs. 'AAA' bonds, and their underlying credit characteristics should also continue to modestly improve as general economic conditions improve.

On the other side of the ledger, we continue to see less value in general obligation bonds, particularly local GOs, given continued headline risk, as well as ongoing budget stresses and out-year pension funding issues. We are also underweight non-rated project finance-backed bonds, as well as land-secured debt—especially in Florida, where there have been a significant number of bond defaults, given the well-documented, particularly sharp real estate downturn.

McLoughlin: The municipal market seems ever more reliant on individual investors, yet they appear more skittish than ever about credit risk. And while many state and local governments issue bonds as long as 30 years, individuals often have a shorter time horizon. How does a money manager accommodate these disparate objectives?

Gerry | Individual investors have become more sensitive to purchasing longer-dated securities because of heightened interest rate risk and credit risk. Prior to today's uncertain economic forecast, individuals had a false sense of security that interest rates were only heading lower (downward), because the Federal Reserve made that fact blatantly clear. Also, bond insurance provided an environment in which credit volatility was minimal. These two factors together supported a belief that investors should simply buy and hold indefinitely.

But in today's economic environment what was once the norm is no longer true. The low rates and minimal credit volatility that once made investors comfortable has given way to an environment where anxiety is on the rise. These fears have created significant opportunities.

The lack of demand for longer-dated securities will need to be repriced by the market in order to attract demand. Much of this has already occurred, as the muni interest rate curve is extremely steep, with much higher rates in longer maturities. Managers can structure portfolios to take advantage of curve inefficiencies. You don't just build a laddered portfolio anymore. You can, for example, structure a 10-year average life portfolio in several ways, including a ladder, a barbell or a bullet. These terms refer to allocations across the maturity curve. As an institutional

money manager, we structure value-based portfolios along the curve, to take advantage of inefficiencies driven by supply-and-demand imbalances. Our quantitative analysis provides us a useful indicator as to where inefficiencies exist.

Similarly to the confidence relating to interest rates, investors often ignored credit risk because of the prevalence of monoline insurers. The landscape has certainly changed and bonds should be purchased based on the credit worthiness of the entity issuing the debt. Active managers have resources to do the fundamental credit analysis and transact at the appropriate price.

McLoughlin: The muni market appears increasingly bifurcated between well-known and frequent borrowers and those local governments that issue bonds less frequently—and therefore may be unfamiliar to many investors. Peter, for professional asset managers, what do you feel are the long-term implications of reduced liquidity in an increasingly bifurcated market?

Hayes

Reduced liquidity for lesser-known local issues is certainly a factor in today's market and a consequence of the credit crisis. Many of these issuers first gained access to the market through the use of monoline insurance. With the value of that insurance now diminished, the market looks to the credit strength of the underlying issuer, which in many cases is weaker or less well-known than larger, more frequent issuers. It's really a reflection of how the muni market has changed over the last few years. There are clearly some local governments with strong credit profiles, but there are also those that are very weak. The point is that it can be difficult for investors to differentiate unless they have the resources to conduct in-depth credit analysis and access to disclosure.

A great deal of the impact will be on issuers rather than investors, since smaller local municipalities will often have to pay higher borrowing costs to access the market today. The audience for these credits simply isn't as wide as it was when most were bought to market with insurance guarantees. This liquidity, however, will impact those investors that own bonds once wrapped by these guarantees. Ultimately, there may have to be alternative structures, such as a bond bank, which would allow issuers to borrow at more favorable rates

McLoughlin: For bond issues that trade infrequently, the independent bond pricing services must rely heavily on inferred valuations. Does this have any impact on the types of securities you decide to purchase and over what time frame?

Gerry

Individuals often fail to fully appreciate the nuances of third-party municipal bond pricing services. Many assume that the muni market is fairly liquid, and securities can be traded at or near their price valuation. In this very fragmented market, it is impossible for all securities to trade at proper levels. Due to this illiquidity, a bond's market quote has great potential to be significantly different than its intrinsic value. An active management thesis places a premium on market liquidity in a municipal market that at times can be very inefficient and illiquid. Illiquidity can become an opportunity and it is a daily requirement of money managers to track the market in order to understand price discrepancies.

Tom Doe, the CEO of Municipal Market Advisors, said it well during his recent SEC testimony. The muni market's relative illiquidity leads to poor price discovery for many bonds that trade infrequently. You can end up with a wide disparity between the evaluation price on a monthly

There are many issuers who provide very thorough disclosure consistently, and others who don't display best practices.

MEEHAN

statement and the price at which the trade is executed in the real market. Tom contended, and I'd agree, that the challenge is best overcome through the use of a professional asset manager who can leverage his or her relationships to ensure the best execution and do so at a time when the market is receptive to a sale.

McLoughlin: We've seen a dramatic reduction in new-issue volume in 2011. Is it a temporary phenomenon or should we be prepared for an extended period of less borrowing among state and local governments?

Meehan

Year-to-date new issuance is down year-over-year on the order of 50%, and it's hard to say whether it's temporary or not. A decrease was anticipated in part due to the "frontloading" of new supply into the fourth quarter of 2010 by issuers able to access the Build America Bond program prior to its expiration, and the first quarter tends to be a seasonally lighter period of issuance. That said, given the ongoing budget negotiations at the state and local levels, and a greater degree of scrutiny by lawmakers and taxpayers alike in the use of bonded debt, it's likely that overall issuance this year will be far less than the \$430 billion issued in 2010. Many firms that made 2011 estimates late in 2010 have revised those numbers down from \$350 billion to closer to \$275 billion. It could be even lower. One obvious example of much lower issuance is California, which will not issue in the first half of the year, and possibly not at all in 2011, depending on the outcome and timing of its budget negotiations.

While less supply is theoretically good for technicals in the muni market, our market does look to the new issue market to provide critical pricing data points that influence secondary market trading and prices. So supply will continue to be a very important variable for munis.

Hayes

The timing of issuance may also be important. Yes, it seems that in the near term, issuance will be well below historical levels and even dramatically lower than estimates for 2011. However, issuers eventually must seek capital and the muni market is essentially the only place for them to access that capital. If issuers wait until later this year and there's a rush to issue similar to 2010, the market will again become dislocated at current levels. What this really shows is a need for a program like the Build America Bond program, which gives issuers access to a broader investment audience. This will reduce volatility in the tax exempt market and lower borrowing costs for issuers. The difficulty will be getting Congress to recognize this in an environment of fiscal restraint.

McLoughlin: As an industry, we've seen SEC investigations into disclosures regarding unfunded pension liabilities and Congressional hearings on the efficacy of allowing states to file for bankruptcy. Ebby, how do you handicap the politics associated with public policy in your decision to invest in one type of bond over another?

Gerry

We invest in credits that demonstrate consistent financial management practices regardless of en vogue public policy—this minimizes consequences of radical policy decisions. We're not naïve to political winds and their effects on price volatility, simply more focused on core fundamental analysis and relative value. The political party in power when we buy a security may not be the party in power for the life of the bond. With that understanding, we value those credits that have institutionalized sound government financial management practices and have demonstrated consistent reasonable financial judgment during all economic cycles.

McLoughlin: How much risk do unfunded pension liabilities really pose to investors and the payment of debt service? Is the risk more general in nature—perhaps by dissuading certain investors from looking at munis as an eligible asset class at all? Peter, what's your take on this?

Hayes

To understand the risk unfunded pension liabilities pose to investors, one must recognize the time frame in which the liabilities are due and what measures can be taken to remedy a shortfall. Modeling such unfunded liability trends over many years can unjustifiably underestimate the ability and willingness of leaders to budget for evolving actuarial required contributions. This long-term challenge is often incorrectly associated with near-term budget stress based on the fear that increased pension contributions will impede day-to-day operations. In contrast, debt service requirements are known in advance, senior to operations and sometimes senior to pension payments. Coupled with the importance of market access to municipalities, this greatly reduces the likelihood of a missed debt service payment.

The implication for investors is one of increased risk aversion since there's an element of market uncertainty. Municipalities may have to contend with increased borrowing costs and greater demand for transparency. Investors leaving the market will most likely be a short-term phenomenon as structural imbalances are corrected and price discovery grows more efficient. Exceptions may be found in states that are especially affected by unfunded pension liabilities where this process may take an extended period of time.

McLoughlin: Moody's Investors Service and Loop Capital both recently issued reports using the concept of "economic debt" to capture the burden posed by bonded debt and unfunded pension liabilities. Loop Capital also included structural deficits as part of the mix. How useful do you think such a measurement is? And is it fair to put pension obligations in the same category as bonded indebtedness?

Hayes

The idea of economic debt is very useful and one that we have considered for some time. Moving beyond budget cycles and looking at the total debt burden placed on residents is necessary in assessing the ability of an entity to pay its obligations, as well as comparing its relative strength within a peer group. In contrast, monitoring structural imbalances provides a tool to observe the ability of government to address problems as well as a proxy to recognize the volatility of revenue and expenses.

Viewing bonded indebtedness and pension obligations—more specifically, unfunded pension liabilities—requires an understanding of their nature. While bonded indebtedness is planned for and known in advance, pension obligations vary. The unfunded pension liability can vary depending on discount rates, asset growth rates and the percentage of actuarial required contribution met. It's also important to understand the imperativeness to fund near-term principal and interest payments in comparison to the year-to-year flexibility of pension funding, increasing the volatility of the aggregate number.

McLoughlin: Continuing disclosure in the muni market is improving but it's still widely regarded as inadequate relative to the information provided by corporate borrowers. Thalia, do you see the muni market ever being subjected to the same regulatory oversight as the corporate market?

Meehan

I would agree that continuing disclosure has improved over my 25 years in the industry, in part due to the efforts of industry groups, and more recently due to the introduction of the EMMA (electronic municipal market access) system by the Municipal Securities Rulemaking Board (MSRB). However, it's still much more inconsistent versus the corporate market. By that I mean there are many issuers who provide very thorough disclosure consistently, and others who don't display best practices. That inconsistency can impact secondary market liquidity, as well as market access and borrowing costs. The muni market is again drawing increased attention and scrutiny from the SEC and Washington broadly, which could lead to more regulatory oversight, particularly if issuers don't continue to improve their efforts on a voluntary basis. Until most, if not all, are providing consistent, thorough disclosure under the current regulatory construct, there will be pressure to increase regulatory requirements—especially during times of perceived market stress.

McLoughlin: Are there any popular myths or misconceptions about munis that you'd like to take this opportunity to clarify?

Hayes

One of the biggest myths that seems to persist among investors is that the municipal market is homogenous. Not so. The universe of this \$2.9 trillion market is vast and composed of many different sectors, structures and issuers. Analysts who are not familiar with the muni market tend to talk about defaults as being widespread and base future projections on that assumption. Defaults do occur in the high-yield segment, but this is a small portion of the overall market and considered far more risky than the vast majority of municipal credits. However, the default rates for tax-backed general obligation bonds, like states and cities, is historically extremely low and expected to remain that way despite the headlines and fiscal stress they're enduring. In fact, this is true of the market rated 'BBB' or higher in the revenue sector as well, especially when compared to the corporate bond market. It's important for investors to distinguish between the high-yield, speculative portion of the market where the risks are high and defaults do occur, just as they do in the taxable high-yield market, and the high-quality part of the market, where the history of timely payment is strong and defaults are few.

The other misconception that investors often have is that long-term pension liabilities are the same problem as the structural budget deficits that occur from economic cyclical. This is not the case, as states and cities have far more flexibility in dealing with budget deficits in a variety of ways. A balanced budget is key to timely payment of debt service, ratings and capital market access. The pension issue, while problematic, will occur over a much longer time horizon unless reform takes place now. In fact, many states have already taken steps to reform issues around pension and benefit liabilities. Absent this reform, it could impact markets and ratings, but not for several years.

Gerry

I completely agree that the misconception that the muni market is homogenous and liquidity can lead to bad decisions in the area of credit. And this belief also can cause poor decisions related to: allocating along the yield curve; evaluating call features; understanding the effect of the deminimus discount rule (tax implications of bonds purchased at deep discounts); and believing that securities are efficiently priced. Research and market information is needed in all these areas.

One of the biggest myths that seems to persist among investors is that the municipal market is homogenous.

Not so.

HAYES



PERSPECTIVES

Public pension programs under greater scrutiny

In the wake of the national economic recession, state and local governments are reexamining the financial burden imposed by public employee retirement and other post-employment benefit programs. Greater life expectancy among beneficiaries, lower investment returns and poorly negotiated collective bargaining agreements all have played a role in raising the contribution requirements in this era of diminishing government resources.

By Tom McLoughlin, UBS Wealth Management Research

In the 1960s and 1970s, states and their local governments struck an implicit bargain with public sector employees. In return for salaries that were lower than what might be found in the private sector, the employee could expect greater benefits, such as inexpensive health-care coverage and an earlier retirement. While such a bargain deferred a substantial amount of civil service costs to subsequent generations, the financial burden was

manageable as long as salaries were relatively low and the cost of medical care reasonable. The exercise of fiscal discipline also was an essential component if the discrepancy between public and private sector wages was to be preserved. Over time, this fiscal discipline was sacrificed too easily; the result is an accumulated pension liability that all too often is underfunded.

Parity between the public and private sectors

Higher salaries and benefits have a disproportionate impact on state and municipal budgets because personnel costs comprise such a substantial amount of governmental expenditures. This is not particularly surprising given the labor-intensive nature of public service delivery. Based on data provided by the Bureau of Economic Analysis (BEA), wages and benefits for state and local government workers were \$1.1 trillion, roughly half of all spending by state and local governments in 2008.¹

Public sector compensation is now higher than in the private sector. According to the BEA, average compensation in the public sector in 2008 was \$67,812; the total includes \$52,051 in wages and \$15,761 in benefits. Private sector compensation was lower, with average compensation of \$59,909. The lower private sector compensation incorporates a slightly lower average salary of \$50,028 and substantially fewer benefits (\$9,881).² The BEA data actually may understate the disparity. The data disregards pension contributions that may have been due but were unfunded in a given year due to budget constraints (see Fig. 1).

As private sector workers struggle to find new employment, often with fewer benefits, popular support for traditional public employee benefits has dissipated. Given the increasing disparity in the benefits offered to public sector workers versus their private sector cousins, it's easy to understand why. The percentage of private sector employees enrolled in a defined benefit plan has dropped substantially over the past 30 years. According to information published by *The Arizona Republic*, the US Bureau of Labor Statistics reported that 84% of private sector employees participated in defined benefit plans in 1980. That figure had dropped to just 21% by March 2009—yet 84% of public sector employees were still the beneficiaries of defined benefit plans. Unsurprisingly, the willingness of taxpayers to endorse generous benefit programs for public employees has given way to widespread resistance to property tax hikes and income tax increases. Persistently high unemployment levels and declining property values have altered the political calculus for many elected officials.

Required pension contributions: an inexact science

The calculation of a government's pension liability relies on numerous assumptions and is therefore inexact. For

our purposes here, we can classify the assumptions into two broad categories: demographic and economic.

Demographic assumptions begin with the projected life expectancy of the employee after retirement. In plain terms, the longer an individual lives after retirement, the greater the liability to the government providing a defined monthly benefit. As life expectancy increases, the estimated accrued liability on the state or local government's balance sheet also increases.

The actuary responsible for the forecast also must estimate the average age and duration of employment for government employees. As the duration of employment increases, so does the individual's monthly benefit upon retirement. Governments are permitted to amortize their contributions over time, and often do so over a period as long as 30 years. The amortization period is critical to the calculation; shorter amortization periods increase the amount required to be paid each year to ensure full funding over a shorter period of time.

Economic assumptions are equally important and often generate more media coverage. The first and arguably most important economic assumption is the assumed return on invested assets, or "discount rate." Public pension funds discount their future pension liabilities at the same rate they expect to earn every year on invested assets.³ In other words, when a government uses a higher discount rate, they are explicitly forecasting higher returns on their invested assets, thereby reducing the amount of cash they have to contribute today. All else being equal, the use of a higher discount rate will result in lower current contributions.

Fig. 2 illustrates the discount rates employed by a variety of state pension systems. In a recent review of 244 public sector pension plans, Loop Capital reports an average assumed investment return of 7.81% and a median assumed investment return of 8.0%.⁴ Advocates of higher discount rates argue that defined benefit programs operate over many years and manage assets whose performance must be judged in that context. For example, the National Association of State Retirement Administrators reports the median annualized investment return for the 20-year period ending December 31, 2009 was 8.1%.⁵ Of course, returns were substantially lower over shorter time periods (see Fig. 3).

Critics argue that high discount rates distort the true severity of the public's liability. Two financial crises in a single decade, each of which was accompanied by a stock market correction, have led to profound skepticism as to whether governments can rely on equity investments to generate the types of investment returns once commonly forecast. These critics argue that the strong legal protection offered to retired public employees make pension obligations a risk-free investment for the beneficiary.⁶

Unlike other post-employment benefits such as subsidized medical and dental coverage, pension payments generally are accorded more deference as a permanent obligation. Indeed, most state courts have affirmed pensioners' rights to receive post-employment pension payments as a type of deferred compensation. And while the precise priority of these payments vis-à-vis other state obligations varies, pension payments do enjoy protected status.⁷ Proponents of lower discount rates argue that certainty of payment is sufficiently high that governments should use a rate comparable to long-term Treasury bonds to estimate projected returns. Doing so, of course, would increase the unfunded—but actuarially accrued—liability. Moody's Investors Service has estimated that a reduction in the discount rate from 8.0% to 7.0% would alone reduce a typical state's pension funding ratio from 70% to 63%.⁸

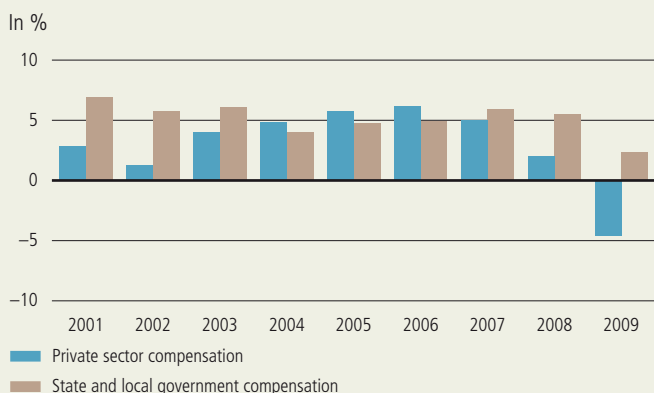
The current challenge

In the aggregate, the funding status of state and local government pension programs has declined during the

past decade. Many public pension plans increased the benefits accorded to their members a decade ago as the stock market roared ahead, fueled by a boom in high-tech stocks. The subsequent correction dramatically reduced pension fund assets just as the stock market was entering a decade of relatively poor performance. According to data compiled by the Pew Center on the States, more than half the states had fully funded pension systems in 2000. By 2006, just six states could make that claim, despite the preservation of high discount rates. And only four state pension plans were fully funded two years later.⁹

Subsequent media coverage has highlighted pervasive structural deficits at the state level and contributed to widespread concern that the unfunded pension liabilities will jeopardize the payment of debt service. The presence of an unfunded liability does not pose an immediate threat to the payment of general obligation debt service. State and local governments currently devote an average of 3.8% of their operating budgets to pension funding.¹⁰ Moreover, the static funding ratio of the average plan provides 13 years of coverage (see Fig. 4).¹¹ By any measure, this is a conservative calculation; a static funding ratio is one that illustrates how long a pension plan can pay benefits absent any further contributions, investment returns or benefit increases. Further contributions from both employers and employees are anticipated and investment returns, even at a risk-free rate, will further extend the life of existing plans.

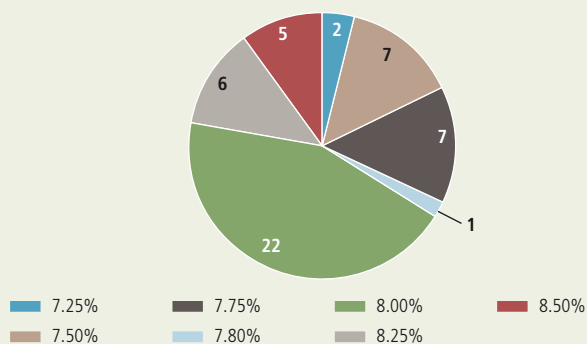
Fig. 1: Changes in compensation by sector



Source: Bureau of Economic Analysis, 5 August 2010

Fig. 2: State pension funds' assumed investment returns

Number of states



Note: Data based upon the largest active plan in each state.
Source: Pew Center on the States, 2010

Rather than rely on improved performance of equity markets to increase the funding ratio, Utah introduced a new program to limit its future liability.

Of course, some existing plans exhibit greater stress than others. According to the Center for Retirement Research at Boston College, a few pension systems will deplete their cash reserves inside of 15 years even after the inclusion of projected investment returns. To take one example, the Connecticut State Employee Retirement System will exhaust its assets in 2021 if projected returns are as low as 6%.¹²

Reforms are essential...and inevitable.

Fifteen states passed legislation to reform some aspect of their state-run retirement systems in 2009, compared with 12 in 2008 and 11 in 2007.¹³ Initial efforts were tentative and devoted primarily to restraining the growth in expenditures associated with pension obligations. Benefits for new employees, unprotected by existing collective bargaining agreements, have been reduced in many states as an initial step. Mandatory contributions toward the retirement program from existing employees followed.

The introduction of higher retirement ages and the elimination or reduction of cost-of-living adjustments (COLAs) has also been implemented. All too often, these COLAs were not tied to the level of inflation so increased benefits were offered even in the absence of significant inflation. Public employee unions have responded in some instances with lawsuits contesting the validity of these benefit reductions and these are now winding their way through state courts.

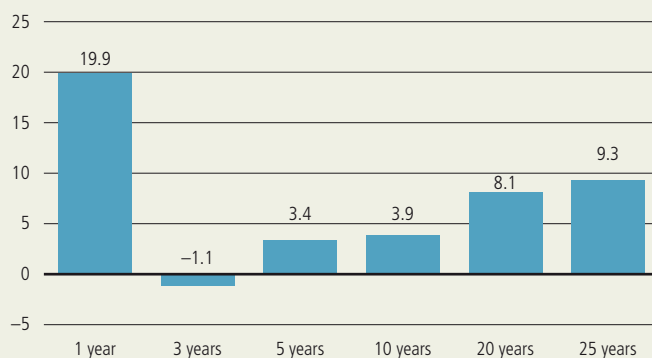
Many governments also introduced restraints on the use of overtime by employees to increase compensation prior to retirement, a practice known as "salary spiking." By spiking their annual compensation through overtime work immediately prior to retirement, public employees often were able to significantly increase their benefit levels. The practice amounts to overt manipulation of union contracts at the expense of taxpayers and unfortunately persists in many jurisdictions.

Future outlook

While these efforts are certainly necessary, they will not alone resolve the funding dilemma facing state and local governments around the country. More dramatic reforms are necessary. Utah has provided one example by replacing its defined benefit program with a retirement program similar to a conventional 401(k) plan for new employees. The sponsor of the legislation reportedly was motivated by a decline in the state's pension funding ratio due to stock market volatility in late 2008 and early 2009. Utah

Fig. 3: Median public pension investment returns

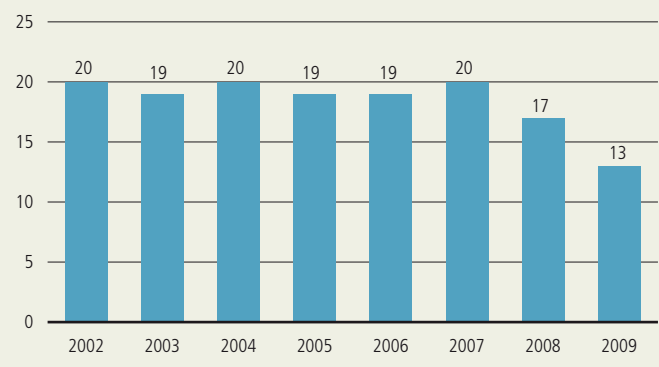
Through 31 December 2009, in %



Sources: National Association of State Retirement Administrators, based on data derived from Callan Associates.

Fig. 4: Static ratio of average plan assets to liabilities

Market assets of public plans over annual benefit payments, 2002–2009



Source: Can State and Local Pensions Muddle Through?, Alicia H. Munnell et al, Center for Retirement Research, Boston College, Number 15, March 2011.

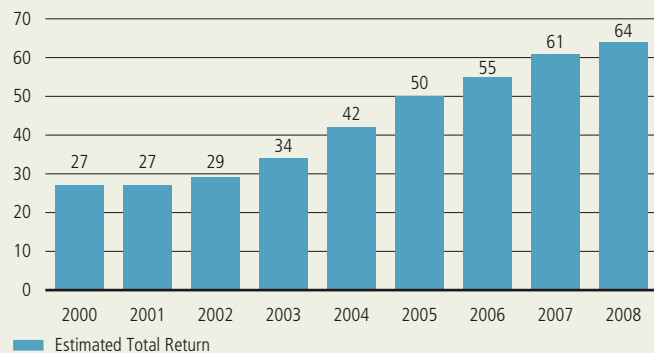
was employing a 7.75% discount rate to calculate its pension liabilities. Based on information provided by the state retirement system, a 6% return over the next 25 years would trigger a \$14.4 billion future unfunded liability.

Rather than rely on improved performance of equity markets to increase the funding ratio, Utah introduced a new program to limit its future liability. The state will contribute 10% of each new worker's salary to a retirement account (12% for police officers and firefighters). Employees are not permitted to borrow from the account and are subject to certain investment restrictions. They can also opt out of the program entirely, in which case the state simply contributes the 10% to the individual's traditional 401(k) plan. Existing employees are unaffected by the change because the state constitution prohibits any radical changes to the retirement plans of existing employees, absent an overriding fiscal emergency. The advantage to the state of Utah is the ability to pay its retirement obligations to new employees without incurring the risk that a change in future operating assumptions will increase its liability.

The implementation of defined contribution plans similar to those currently employed by Utah is the next logical step and one that will be adopted by more states in the next few years. Higher employee contributions and the adoption of hybrid plans, whereby the state's obligation to each employee is capped, are also being investigated by many states. There is no feasible alternative in the face of increasing pension liabilities and resistance to higher taxation.

Fig. 5: Aggregate 50-state annual required contribution

In USD billions



Source: Pew Center on the States, 2010

The fate of other post-employment benefits (OPEBs), such as retiree medical and dental coverage is easy to envision. Unlike pension obligations, which are accorded statutory or constitutional protection (depending on the state), OPEBs are rarely protected from diminution. For state and local governments, this presents an opportunity. Public employee unions are more likely to renegotiate existing pension benefits in return for the preservation of subsidized medical coverage during retirement. The degree of leverage this provides is an important tool for state and local government administrators and one that has been used heretofore only infrequently.

Meanwhile, governments are likely to reduce the benefits currently offered to family members and to require higher co-pays of its plan beneficiaries. States have only recently begun to seriously address the issue of unfunded pension liabilities since the political calculus has shifted in the face of taxpayer resistance to higher taxation. As elected officials are obliged to choose more often between mandatory pension contributions and discretionary funding for capital projects or social services, the movement toward reform will gain further momentum. Protests in Wisconsin notwithstanding, organized labor is on the defensive. Proposed legislation to curtail collective bargaining was the impetus for protests in Madison; the state's public employee unions had already conceded the necessity for higher employee contributions toward their retirement and healthcare coverage.

There is little question that the growth in unfunded pension liabilities has resulted in a barrage of media coverage, most of which has been unfavorable for government. Headlines that predict an imminent collapse of government finances are highly inflammatory and, more important, incorrect. Unfunded pension liabilities represent a serious challenge that must be addressed now by state and local governments. They do not present an immediate liquidity crisis provided reforms are enacted, a trend already under way.

Definitions of DBPs and DCPs

Defined benefit plans guarantee public employees a permanent monthly income upon retirement. The amount of the benefit depends on a variety of factors but the most common are the number of years of service and the highest salary received by that person while employed. Most defined benefit plans provide substantially better retirement benefits after certain milestones are reached (such as 20 or 25 years of service). The sponsoring government or the public employee retirement system administrator makes the investment decisions and diffuses the risk of specific investments across a large group of individuals. Once common to private industry, these types of retirement programs have largely given way to defined contribution plans.

Defined contribution plans, by contrast, provide a benefit wholly dependent on the amount of assets accumulated by the employee over time. The employee's contribution is made from salary deductions,

usually on a pre-tax basis. Matching contributions made by the employer are subject to a prescribed limit. These types of plans are similar to the plans currently offered by most large private sector employers. The individual employee is most often responsible for the investment decisions and the monthly benefit in retirement depends on the amount of the original contribution and resulting investment performance.



Source: UBS WMR

Capital corner



Federal support for fiscally strapped states is going to look a lot different in the current 112th Congress than it did in the 111th. The federal stimulus spigot has been turned off and even long-standing federal programs are being reviewed through a new fiscal microscope.

By Peter Rowan, UBS US Office of Public Policy

Stimulus support coming to an end

The 2009 stimulus package was designed as a short-term boost to the economy and in many cases directed federal dollars through the states. Now, two years since its inception, the flow of stimulus funds to the states has slowed significantly. In the short term, as the economy recovers and projected state budget shortfalls begin to slowly shrink, the sharp drop in federal stimulus support will offset any modest improvements in state tax receipts. In addition to the decline in direct support from the stimulus funds, even baseline federal spending programs, some of which assist states, are being whittled down by a Congress keenly focused on better managing the nation's budget deficit. The lack of federal support for states will prolong the need for the tough spending (and borrowing) decisions currently being made in state capitals.

Federal bond subsidies

As 2010 came to an end, the ability to issue new tax-able Build America Bonds (BABs) expired. Congressional Republicans, newly emboldened by the November elections, were not eager to extend any elements of the 2009 stimulus bill, where BABs originated. Also, from a policy

perspective, many of them viewed BABs as an enabler of excess state and municipal spending. While numerous proposals have been offered in Congress to bring back BABs, federal and state cost concerns will likely prevent the bonds as we know them from returning this year. Even though BABs are unlikely to return, new federal support for bonds could be achieved as part of transportation legislation. Senator Ron Wyden (D-OR) is working on a new bond to finance transportation projects (called Transportation and Regional Infrastructure Project, or TRIP, bonds). Even though TRIPs are currently structured as tax-credit bonds, when Congress gets around to addressing the nation's transportation needs, a more limited and rebranded version of the direct-subsidy BAB will definitely be under consideration and could gain bipartisan support.

Public pensions

With the political fallout of the 2008 financial bailout fresh in their minds, a few Republicans have been trying to get out in front of what they suspect could be the next plea for federal dollars—public pension fund relief. Two ideas have been kicking around Washington to address this potential issue. The first would allow states to declare

bankruptcy, as municipalities can, and perhaps shed some pension obligations through the courts. This idea has not gained much traction in Washington and is unlikely to become law. The second proposal has growing support and could receive more attention later in the year. It would do two things: attempt to prohibit a federal bailout of state and local pension funds and require new consistency and disclosure of public pension fund liabilities.

The Governmental Accounting Standards Board (GASB) is already headed in this direction with the development of new standards for pension fund accounting expected to be finalized in the next year or two. However, the GASB standards would be less prescriptive than the legislative effort which would require showing liabilities using a discount rate based on Treasury yields. Under the legislation, failure to comply with the new disclosure mandate would threaten the borrower's ability to issue tax-exempt bonds. While the prospect of this legislation becoming law is limited, there is a good chance the House will approve it and backers will have a few opportunities to try and force the issue in the Senate. The first opportunity to do so could come during negotiations over increasing the government's debt ceiling, likely to take place in June and July.

Deficit reduction and tax reform

Two significant efforts are under way in Washington—one to deal with the federal government's bright red balance

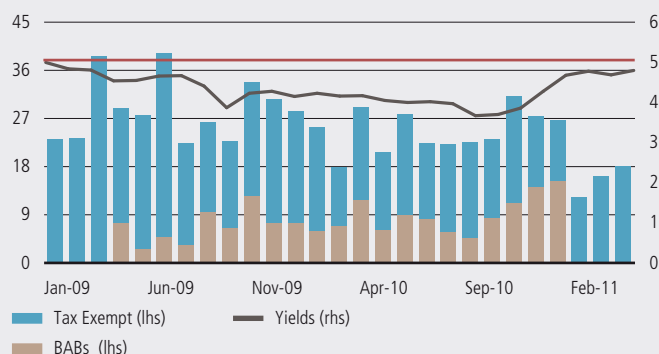
sheet and the other to overhaul the unpopular tax code. Some level of deficit reduction will take place this year; what level that will be and what shape it will take is an unknown. In an effort to flesh out savings for the government, some have suggested looking at the current tax treatment of municipal bonds. The Congressional Budget Office recently suggested replacing the tax exemption of municipal bonds with a 15% subsidy on interest costs which would save the federal government \$143 billion over 10 years—real money for reformers to consider. However, while budget hawks may consider it, we do not believe that a switch to direct subsidies is likely to pass the full Congress anytime soon, particularly not for a subsidy rate as low as 15%.

Deficit reduction won't be lawmakers' only bite at the reform apple. A broad tax reform debate has begun and a review of the tax treatment of municipal bonds will be considered. One recently released tax reform proposal, would replace tax-exempt bonds with tax credit bonds. Late last year, the chairs of President Obama's National Commission on Fiscal Responsibility and Reform suggested taxing the interest on all newly issued bonds. These proposals have garnered headlines, and may continue to do so as Congress explores how to lower income tax rates without adding to the deficit. We do not anticipate, however, that tax-exempt bonds will be eliminated as part of tax reform this year. Despite a lot of activity this summer, including discussions on the tax treatment of municipal bonds, 2013 may be a more realistic goal for passage of new tax reform legislation.

As partisan politics takes center stage before the next presidential election, states and local governments must be prepared for less federal aid and more congressional scrutiny of their accumulated pension liabilities. Investors, for their part, will be faced with more media coverage regarding the impact of lower federal spending on financially strapped governments around the country. The ability to discern the difference between adverse media coverage and substantive credit risk will be more important than ever.

BABs versus total supply and 30-year AAA tax-exempt yield

Left hand axis in billions, right hand axis in %



Note: For the purposes of this chart and the time period covered, a small portion of taxable muni issuance was in non-BAB form.

Source: Bond Buyer, MMD Interactive, UBS WMR as of 31 March 2011

The Metropolitan Washington Airports Authority: How one major borrower successfully navigated the financial crisis

Beginning in 2008, the financial crisis rocked airports nationwide, as passenger activity declined year over year. Airports experienced a growth in passenger traffic in 2010 not seen since 2007. More specifically, Reagan National and Dulles International served 18.1 and 23.7 million passengers respectively — a 3.1 and 2.3% increase over the prior year. This is a welcome statistic for airports, hopefully signaling a turn from the recession for the entire aviation industry.

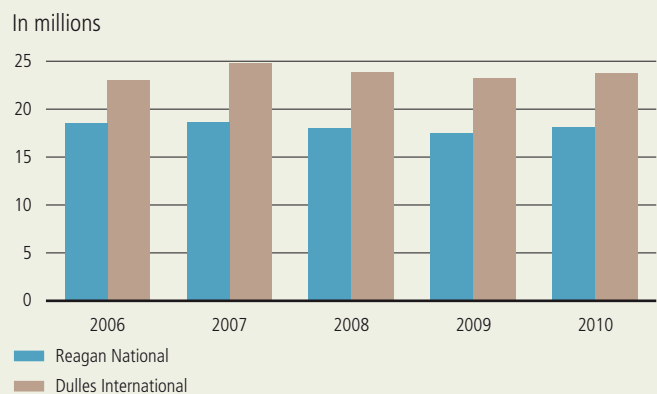
By Andrew T. Rountree, CPA, Vice President for Finance and Chief Financial Officer, Metropolitan Washington Airports Authority

The Metropolitan Washington Airports Authority (the Authority) has operated Ronald Reagan Washington National Airport (Reagan National) and Washington Dulles International (Dulles International) Airports (collectively, the airports) since 1987. The airports are leased from the federal government.¹ The airports provide domestic and international air service for the mid-Atlantic region, including the nation's capital.

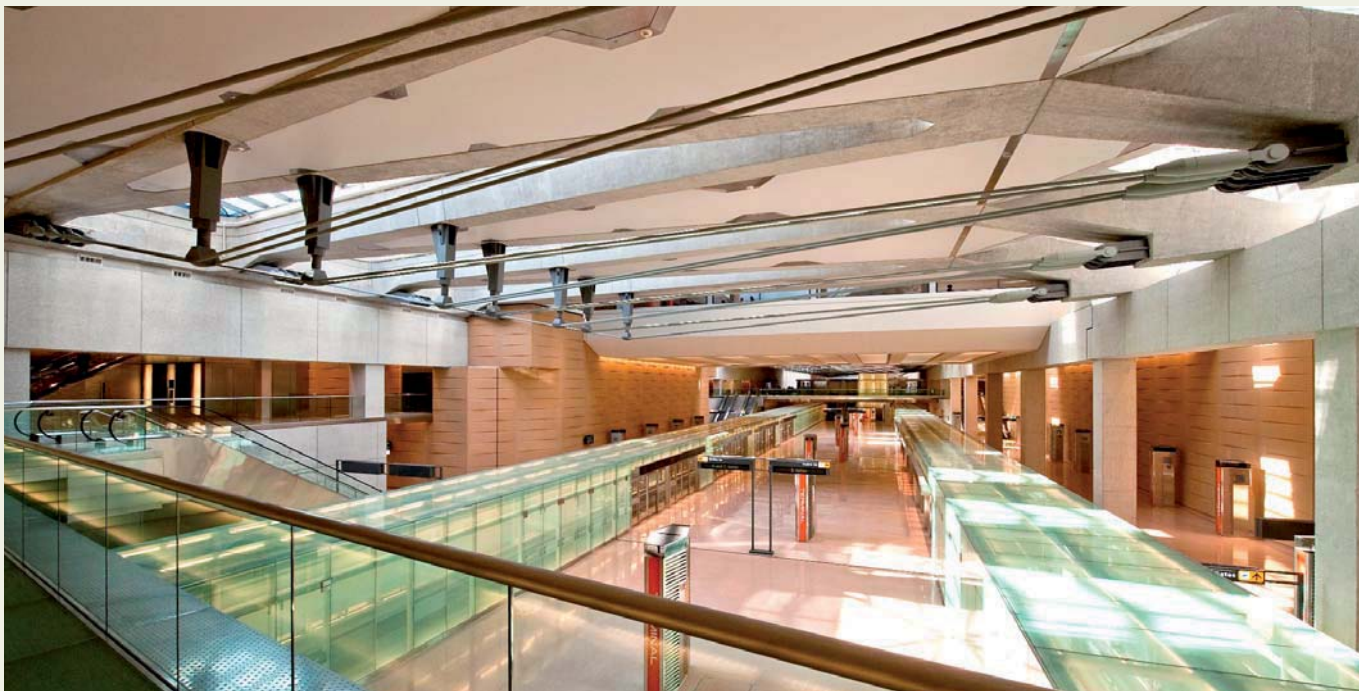
Capital Program

The Authority has funded a significant capital construction program (capital program) since its inception.² The capital program has provided funds for the construction of new terminals at Reagan National as well as a new

Fig. 1: Passenger traffic at Washington's airports



Source: Metropolitan Washington Airports Authority Office of Finance, from 2006 to 2010



©Metropolitan Washington Airports Authority. Used with permission.

concourse, runway and international arrivals facility at Dulles International. The construction of the Aerotrains at Dulles, a \$1.5 billion underground light rail system, has been the most recent addition. The airports' infrastructure has been funded through a combination of grants (10%), passenger facility charges (20%), and general airport revenue bonds (70%). Clearly, municipal bonds have been an invaluable tool in shaping the capital investment at the airports.

The capital program was expanded significantly in December 2006 by an agreement with the Commonwealth of Virginia to construct a 23-mile Metrorail extension to Dulles International and nearby communities. To complete this project, the Authority assumed responsibility for the Dulles Toll Road. Toll revenues support the operation and maintenance of the road and provide debt service for outstanding toll road revenue bonds, the largest funding source for the Metrorail Project. The rail extension project is estimated to cost approximately \$6.2 billion. The Federal Transit Administration will contribute \$900 million and the Commonwealth of Virginia will chip in \$275 million. Local counties that will benefit from the project also plan to share some of the financial burden with the counties of

Fairfax and Loudoun, absorbing 16.1% and 4.8% of project costs, respectively. The airports will pay 4.1 percent. Rail service to Dulles International was envisioned as early as 1962 when the airport was dedicated by President John F. Kennedy, but a funding source was not formalized until 2008, in the midst of the greatest financial crisis in 50 years.

Navigating the financial crisis

The Authority's navigation through the financial crisis has not been unique. Many large and frequent municipal bond issuers were forced to make adjustments and walk through a minefield of financial obstacles. For the Authority, the financial crisis and ensuing recession required active management in three major areas. First, the capital program was strategically scaled such that projected airport rates and charges would remain competitive while still accommodating future growth in passenger enplanements. Second, the Authority exercised fiscal restraint; budgetary controls over operating and maintenance programs were established early. Third, the borrowing program was actively adjusted to ensure construction needs were funded in an environment where market access was a paramount consideration.

The Authority's navigation through the financial crisis has not been unique. Many large and frequent municipal bond issuers were forced to make adjustments and walk through a minefield of financial obstacles.

In 2006, the capital program included \$2.4 billion for a new international concourse. Two years later, in the middle of the financial crisis and economic recession, the project was postponed indefinitely. Commencement of construction will depend upon projected increases in air traffic demand. The willingness and ability of the Authority to scale back on its adopted capital improvement program, and to do so for one of its higher profile improvements, is illustrative of the flexibility that governmental bodies must exhibit to survive in an uncertain credit environment.

The Authority has a mature aviation capital program. Not surprisingly, it also has a correspondingly high debt level. The Authority's total aviation-related debt as of December 31, 2010, was over \$5 billion. The Authority has issued \$1.3 billion of debt for the Dulles Transportation Corridor Program, which is less than half of the planned debt upon completion of the project by 2017.

Fortunately, the Authority averted the need for unpaid furloughs and personnel layoffs by implementing enhanced budgetary controls. Vacancies were filled and significant expenditures were undertaken only with the direct approval of the chief executive officer or chief operating officer. Other steps also were taken; the Authority extended the useful life of its equipment whenever possible and existing contracts were reexamined for potential savings. The philosophy of conservative fiscal management was balanced against the necessity to provide the traveling public with safe and reliable service.

Active liability management

Insufficient investor demand contributed to a failed auction of \$70 million in tax-exempt auction rate securities in February 2008. Existing bondholders were forced to hold the securities, and the interest rates paid by the Authority

went to a higher bank rate—over 7 percent. Having anticipated such an event, the Authority converted its entire portfolio of auction rate securities to weekly variable rate demand bond obligations by March 2008, with an initial rate set at 2.3 percent. The experience with auction rates was an important lesson; variable rate debt is a powerful tool, but also one that carries its own risks.

In June 2008, the Authority solidified liquidity for the capital program by refunding \$220 million of commercial paper for future use. Having evaluated bond insurance bids from Berkshire Hathaway, FSA and Assured Guaranty, it was not economically feasible to use credit enhancement for this sale. In the future, the Airports Authority's underlying ratings ('AA', 'Aa3', 'AA-') would continue to be important for market access.

In October 2008, the Authority delayed a planned bond sale as market conditions stayed challenging, with no airport issuer testing the long-term alternative minimum tax (AMT) bond market during this period. Again, the ability to defer bond issues until market conditions improved was an essential component to the maintenance of a stable credit profile.

The American Recovery and Reinvestment Act's (ARRA) AMT holiday (the ability to offer non-AMT or AMT-free debt) provided a needed market boost. Ultimately, the Authority accessed the municipal bond market five times for its aviation program from March 2009 through November 2010 for over \$1.6 billion in total new construction and refunding bonds, offering both variable and fixed-rate bonds. Each issue included non-AMT bonds (including open market purchases, which allowed the replacement of higher interest AMT debt with lower interest non-AMT debt).

The provisions of the ARRA were also instrumental in the Authority's 2009 inaugural sale of bonds in support of the Dulles Transportation Corridor Metrorail extension. This \$963 million toll road revenue bond sale was the largest single sale in the Authority's history; it was recognized as *The Bond Buyer's Deal of the Year* in 2009 for its innovations in funding transportation improvements. In 2010, the Authority issued an additional \$343 million of toll road revenue bonds. The 2009 and 2010 bond issues combined included \$650 million worth of Build America Bonds (BABs), again taking full advantage of the ARRA.

The importance of individual investors was demonstrated throughout the challenging markets of 2009 and 2010; they provided the anchor for the Authority's aviation program. The initial pricing schedule for the March 2009 bond series provided for a two-day retail order period. Approximately \$65 million of bonds were sold to retail investors during the first day with roughly one-third of the bonds being sold on an uninsured basis. Given the strong retail participation and the overall positive tone in the market, institutional pricing was accelerated by one day with retail investors receiving priority. Ultimately, of the \$1.6 billion in Series 2009 and 2010 Bonds; \$240 million were sold to households (i.e., retail or retail aggregators).

The Authority has long valued its strong relationships with investors, banks, underwriters, financial advisors and other analysts that comprise the financial community. To keep this community informed: Preliminary Official Statements are disseminated well in advance of a pricing; a website (BuyMWAA Bonds.com) was developed to communicate with investors about bond sales; and Authority representatives actively participate in regional and national advertising campaigns and investor tours. Annual financial disclosures are augmented with monthly information. The Authority provides its monthly reports on request and posts monthly financial and key project data on its website (www.mwaa.com).

The Authority's success during the financial crisis is attributable to 10 key initiatives:

1. A flexible capital program, matching the program to activity and corresponding revenue
2. Strong program management, managing projects on schedule and on budget
3. Active budgetary control, avoiding unnecessary obligations and expenses
4. Sufficient operating and capital liquidity, maintaining adequate operating and construction funds
5. Flexibility in market access, adjusting the timing of its bond sales as necessary
6. Protection of bond ratings, maintaining strong underlying bond ratings
7. Proactive marketing of bonds to institutional and individual investors, i.e., understanding the importance of marketing opportunities
8. Taking advantage of favorable federal legislation ARRA opportunities—and using these opportunities to issue AMT-free bonds and BABs
9. Providing timely investor information, including frequent updates of relevant financial information
10. Strong cultivation of investment banking and financial advisory relationships, to help encourage innovative responses to the financial crisis



PERSPECTIVES

Municipal bond pricing: Market versus matrix

Statement valuations are the primary means by which the municipal industry communicates with its investors. Like stock market prices, rising bond valuations imply things are going well for an individual issuer and that investors are actively buying, while falling values speak to trouble and selling pressure. But this can be a misleading comparison as most municipal bonds rarely trade at all. And in the absence of actual trades, the independent firms hired to create these evaluations every day for each of the 1.5 million outstanding municipal securities rely on matrix-based techniques. Matrices extrapolate the assumed price of one bond based on how similar bonds are trading in the market; strong trading in a Georgia sewer bond will not only increase the prices of other Georgia sewer bonds, but also for similarly secured utility bonds nationwide, for non-utility bonds within Georgia, and for all bonds with a similar maturity or rating.

By Matt Fabian, Municipal Market Advisors

In other words, every day, the municipal bonds that trade, and in particular the ones that trade the most, have an extraordinary influence on the statement values of the rest of the market. Of course, the municipal bonds trading most frequently and in largest volumes are the new loans being issued in the primary market. So, in contrast to the Treasury market where trading in on-the-run securities influences prices for newly auctioned bills, the municipal primary market (which averages approximately \$1 billion of new loans each day) will regularly reprice the entire \$2.9 trillion universe of outstanding bonds.

Under normal conditions, this system provides acceptable and often reasonable results for the purposes of most individual investors, although it also invites problems. For example, if a particular insurance company completes a merger and has a strong interest in spending its cash on munis, it could bid very aggressively for a large high-grade bond sale, rally the primary market and by extension, bump up price matrices and statement valuations. Of course, this bump has little connection to the value individual investors might receive were they to sell their own bonds on the same day; the difference can be unnerving, particularly for those investors who are already anxious over the value of their holdings.

There are other implications as well. Remember that, fundamentally, the municipal market's over-the-counter, deeply heterogeneous nature means trading values depend as much on situational idiosyncrasies (like the trading parties involved, the day of the week, the size of trade, etc.) as on perceived credit quality, bond structure, and market dynamics. Anecdotal factors are a principal reason why statement evaluations may diverge from real trading value.

And finally, but importantly, note that tax-exempt mutual funds use these same independent evaluations to populate their net asset values (NAVs), meaning the statement value of fund shares can similarly be skewed based on primary market dynamics. Again, this can be problematic when funds need to sell bonds to raise cash as happened recently (see below). Trends of late, in particular regarding bond insurance and fears of credit collapse, have antagonized these issues.

Market illiquidity: Amid systemic worry over default, institutional demand for municipals has abated following

the loss of bond insurance, the end of leveraged institutional demand and rate-hedging vehicles, and the sunset of the Build America Bond program. This means fewer buyers, less predictable prices, more cautious bond dealers and, above all, far less secondary market trading and "real" price discovery. This has exaggerated the situational factors noted above and made life far more difficult for the evaluators. It has also meant that investor statements are more reliant on hypothetical matrices than on real

These run-ups have repeatedly collapsed into sharp corrections, only to be grabbed again for another rally weeks later.

trading activity, increasing divergence between the two. For active municipal managers, this exacerbates pricing inefficiencies, which can create buying or selling opportunities, but it also means another dimension of considerations when making choices for their own portfolios.

Rise of fundamental credit research: In the mid-2000s, with 'AAA' bond insurance wrapping over half of the outstanding municipal market, evaluators' jobs were substantially easier. Market participants were more accepting of the idea that an insurer's guaranty trumped the bond issuer's underlying security, and so trading values often paid little attention to local credit differences. This has entirely changed, with underlying credit now sometimes more important than structural factors like maturity and coupon. In the long term, these are likely good developments for the market and the country; sharper credit discipline will help restrain borrowing by weaker local governments. However, with 50,000 issuers, credit distinctions are difficult to understand, track and systematize in an evaluator's matrix. And investor demand for any one security has become much less predictable as the perception of credit: 1) is subject to continual revision with news headlines, financial releases and market rumors; and 2) can vary widely from analyst to analyst, manager to manager, firm to firm.

More market skew from boom-bust cycles: Another product of the insurers' downgrades is the greatly reduced supply of municipal bonds that can be marketed as "high grade." This is a problem for investors who are increasingly anxious to avoid default risk. The net effect has been for the few highly rated loans in the primary market to experience exceptional demand, driving prices to more aggressive levels than seen previously. When tested with selling or supply, these run-ups have repeatedly collapsed into sharp corrections, only to be grabbed again for another rally weeks later. This boom-bust cycling in the primary market has meant far more volatile statement valuations for all investors month-to-month, quarter-to-quarter—a condition which plays on media-fed fears over credit.

Evaluation volatility means NAV volatility: In the first half of 2010, an extreme scarcity of tax-exempt bond issuance—caused in part by the Build America Bond program—worsened the boom-bust cycling outlined above. Muni mutual funds drew in massive new cash from investors attracted to the positive price momentum in their NAVs, and spending that cash in turn tightened spreads and drove yields to record lows in the summer. The cycle turned in late autumn, when issuers and gainstakers emerged, the Treasury faced a series of difficult auctions and the tobacco sector was downgraded. NAVs plummeted and investors fled the funds, fearing that defaults were imminent. The popular media exacerbated

that mistake and made things much worse; outflows have now reversed nearly half of the fund industry's municipal asset growth since the beginning of 2009. Investors holding these funds likely can have even less information as to why exactly NAVs have become far jumpier than true underlying credit conditions would allow.

In the absence of a centralized exchange, the municipal market is obliged to rely upon inferential pricing techniques. When market conditions are volatile due to uneven investor demand or idiosyncratic default risk, bond valuations are subject to far greater variances. Investors must be prepared for the likelihood that statement valuations and prices obtained in the market may differ materially.

Public-private partnerships: What's happening now?

The tumultuous environment in financial markets and the economy over the last few years has generated renewed enthusiasm for public-private partnerships, broadening the array of activities dramatically. Now, privatization of activities, procurement and correctional institutions joins parking meters and bridges as typical activities.

By **Chris Mier** and **Rohit Syal**, Loop Capital Markets LLC

The US has been slower than other nations to support the development of infrastructure through the adoption of public-private partnership (P3) models. Unlike other countries, the US has a well-developed and relatively liquid municipal bond market which, along with income tax exemption on municipal bonds, has traditionally provided a very efficient source of financing for states and municipalities.

The role of P3s has changed over the last few years. Before the recent recession, P3s were generally cast as deliberate exercises in redefining the proper role of government in the community. Now with budgets being

battered at every level by the effects of the crisis in state and local government finances that followed the economic slowdown, P3s have taken on the more expedient role of being a possible mechanism for restoring balanced budgets, in addition to their traditional function of delivering new infrastructure projects.

Municipalities are now considering P3s much more seriously. The types of deals being considered have also widened considerably from the traditional focus on economic infrastructure to include social infrastructure, such as courthouses and prisons, and activities such as fleet



management and the Taste of Chicago summer festival.

State and local budget challenges have contributed to increased activity in the P3 market. More than half of the states have passed legislation enabling various state agencies and constituent entities to enter into P3 contracts with the private sector. Several others, including Illinois, Pennsylvania and Ohio, are in the process of enacting such legislation. There is a decent pipeline of new infrastructure projects being considered for P3s, especially in the transportation sector. At the same time, financial expediency is forcing municipalities to look at P3s as a tool to monetize some of their existing revenue-producing assets, e.g., parking.

Others have gone even further by employing deficit financing techniques such as sale leasebacks under the guise of P3s. Arizona made quite a splash with its sale leaseback of 32 public buildings, including the state capitol, for \$735 million. Other states have similarly put public buildings, or activities, on the block. Ohio has announced its intention to privatize correctional facilities.

While P3s are generally not promoted or deployed as a short-term remedy for budget squeezes, financial managers, and to some extent politicians, are nonetheless taking a close look at such opportunities. There are some assets, such as parking meters and garages, that can be managed more efficiently by private firms than by the public sector. The decision to lease those assets should be influenced more by the prospect of operational improvements than the budget relief that privatization can often be structured to provide. State budget officials and CFOs might disagree, but focusing on long-term costs and benefits will result in a better—and longer lasting—partnership between public and private sectors than rushing to turn a long-term asset into a short-term windfall.

One area that used to generate great enthusiasm, but has now become a victim of the fiscal problems facing all levels of government, is high speed rail (HSR). With voters having delivered the message of budget control in this past November's elections, the governors of Florida, Ohio and Wisconsin are now refusing federal money. The California project under consideration has been criticized for linking two locations that may not generate much ridership. Private sector developers are interested, but the size of investment for two corridors that really need HSR—San Diego to San Francisco and Boston to D.C.—require much larger federal grants than the \$8 billion President Obama has laid out for this initiative. Despite

the initial excitement surrounding HSR, the reality is that these projects need debt and equity capital from numerous sources, including big public subsidies. Additionally, a stable and predictable public policy framework is required, given the significant level of complexity surrounding HSR deals. Forecasting ridership is far from straightforward and there are many things that can go wrong—but this doesn't mean the US can't do HSR P3s. Other countries like France are doing them. Projects need to be carefully selected, however, and procurement processes well-managed if HSR is to become a reality.

As the P3 market evolves geographically, activity has moved beyond Florida and Texas; other states have followed their lead to implement meaningful P3 programs. States such as California, Georgia, Maryland, Michigan, New Jersey, New York, Puerto Rico, Texas and Virginia are all moving ahead with a variety of projects. This broad range of activity wouldn't have been happening three years ago. In short, what works for one state might not work for another. However, the federal government could do worse than find a model that rewards those states for being innovative and forward thinking.

Any partnership between the public and private sectors requires proper transparency and accountability to citizens. This often results in lengthening the time requirements on getting proper support for a transaction, but it is important to do it. While there are no easy answers, the private sector needs to better communicate the potential benefits of P3s. Early deals in the industry arguably gave the impression that P3s were essentially all privatizations for existing infrastructure. Those early deals involved the leasing of existing assets, but they also required the private sector to undertake expansions and additions to capacity. The current Puerto Rico toll road leases involve new construction as well as the lease of existing roads.

It is important for citizens, public officials and financial market professionals to understand that P3s extend far beyond simple privatizations. Instead, the message to communicate to state legislators and the general public is that P3s reduce project lifecycle costs. They result in projects being completed more quickly than they otherwise would have been, and the infusion of private capital they bring means that state funds are freed up for other projects. Most important, P3s are about adding new capacity—and actively managing that capacity—whether it's the nation's most congested corridors or the crumbling water infrastructure.



PERSPECTIVES

Municipal market investing: The case for professional management

Historically, most investors have considered high-quality municipal bonds to be safe, sleep-well-at-night investments. To a large extent this belief has proven true. Thirty years of low default levels, declining interest rates and strong economic growth has provided a significant tailwind for the sub-asset class. However, the municipal bond market has recently experienced a number of important structural shifts that warrant investor consideration. The net result is a market that offers tactical opportunities, but requires greater flexibility, specificity and expertise than what one typically associates with more traditional buy-and-hold laddered bond strategies. Moreover, we believe that in the current environment, most investors will find that the benefits of professional management significantly outweigh the costs.

By Michael Crook, UBS WMA Portfolio Advisory Group

Signs of regime shift

As media headlines have made investors acutely aware, many states are currently experiencing fiscal stress. We maintain that market fears over possible municipal default levels have been significantly overblown. Nonetheless, both local governments and investors will confront a more challenging debt finance landscape for many years to come. In response, dislocations will likely continue across multiple dimensions of muni bond markets, including interest rate direction, credit pricing and quality, and market liquidity.

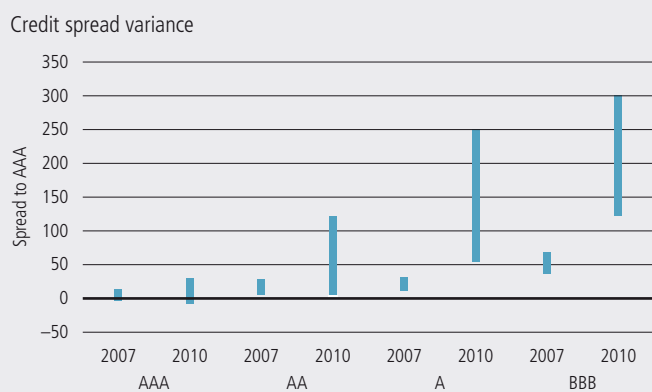
First and foremost, we believe it likely that the 30-year declining interest rate environment has ended. Although we don't anticipate a rapid or disorderly rise in interest rates, we do believe that interest rates will gradually increase as the global economic recovery continues to take hold and inflation returns to levels more consistent with historical norms. Many investors share this view, and markets currently expect 10-year rates to increase 50 and 100 bps over the next 12 and 24 months, respectively. Such rate increases have the potential to significantly reduce—and in some cases, push into negative territory—total returns in bond portfolios.

Second, the pricing and rating of credit quality has deteriorated in the investment-grade rated municipal market. In July 2007, 69% of outstanding municipal bonds were rated AAA, 18% were rated AA and only 13% were rated

either A or BBB. As of December 2010, 16% were rated AAA, 54% AA, and 30% were rated A or BBB. To a large extent, this reflects the removal of monoline insurers from the market. Within single credit ratings, the distribution of credit spreads is also very high (Fig. 1). Similarly rated issuers are currently experiencing highly divergent borrowing costs, reducing the usefulness of credit ratings for bond analysis. Additionally, long-standing credit spread relationships have broken down. BBB spreads remain significantly lower than their financial crisis highs, but higher-quality, A-rated spreads have recently surpassed their 2008 levels. Consequently, bond-specific credit analysis and implementation flexibility have become increasingly important for investors who are seeking to avoid the price declines that follow ratings downgrades.

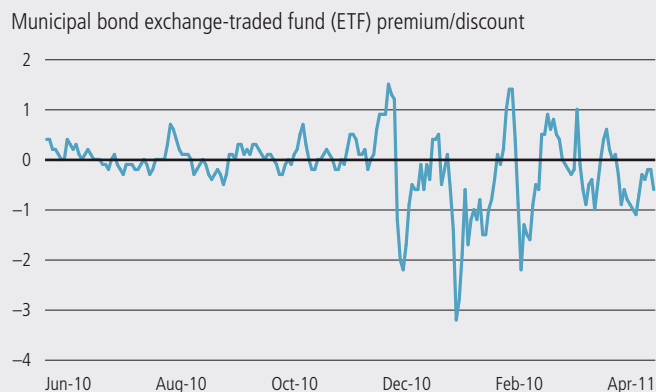
Finally, while the municipal bond market has always been relatively illiquid, market liquidity has deteriorated further over the past 6-12 months. This means that many bonds do not trade frequently, resulting in poor price discovery (i.e., the value of specific bonds is not clear) and large bid-ask spreads—a treacherous environment for non-professional investors. Indexes attempt to solve the price discovery problem by using models to approximate the value of securities based on duration, credit rating, optionality and other risk factors. These pricing models work reasonably well in normal periods. Recently, however, market indexes have consistently overestimated market value of the constituent bonds they purport to represent.

Fig. 1: Municipal credit spread variance has increased



Source: Barclay's 10-year Municipal Bond Index and UBS Global Asset Management market observations, as of 31 December 2010

Fig. 2: Municipal ETF tracking error has increased



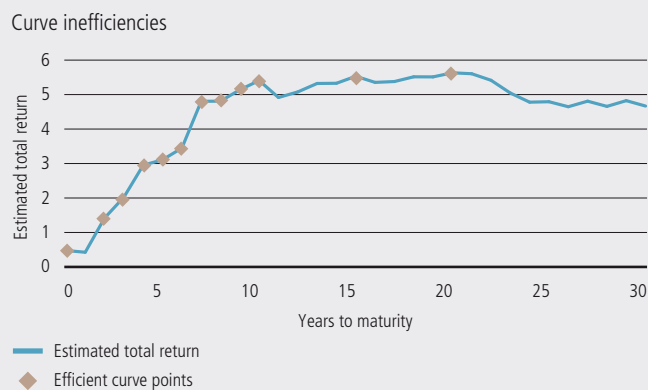
Source: iShares, Bloomberg, as of 31 March 2011

Many investors consider avoiding defaults to be the fundamental role of credit analysis, but avoiding credit downgrades and taking advantage of prospective upgrades is also important.

We believe that this valuation gap comes primarily from the illiquidity of the underlying bonds.

One method to gauge the degree of market illiquidity is through the muni bond exchange traded fund (ETF) market. The share prices of municipal bond ETFs currently trade at a discount to the reported value of their underlying securities (the Net Asset Value, or NAV) (Fig. 2). If the (model-based) NAV accurately reflected the market price for the bonds, this discount would, in theory, represent an arbitrage opportunity. Investors could buy the ETF at a discount, redeem it for the underlying securities and immediately sell the securities in the market at the current NAV for a profit. In turn, this activity would cause the valuation spread between the ETF and the underlying bonds to diminish. Since this has not happened, it would appear that the underlying assets are worth less than the pricing models suggest.

Fig. 3: Municipal curve is becoming increasingly inefficient



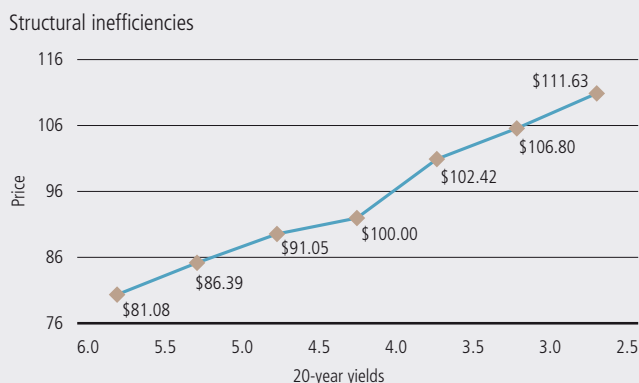
Note: For illustrative purposes only.

Source: UBS Global Asset Management proprietary model, as of 31 December 2010

Long-standing structural inefficiency

On top of the more recent market shifts that we believe strongly support the case for active bond management, a number of long-standing structural factors favor active management within the municipal bond space. First, the unique investor base for municipal bonds—almost exclusively individuals who own the securities directly, through mutual funds or money market funds—creates unique yield curve inefficiencies. ETFs and yield-seeking mutual fund managers can also distort relative market prices. Fig. 3 shows 12-month total returns, as estimated by UBS Global Asset Management, across the muni bond curve, assuming interest rates remain stable. It is clear that inefficiencies exist, especially at the 10-year spot where individuals generally build ladder portfolios, and in the long end of the curve where many mutual fund managers seek to add yield.

Fig. 4: Structural inefficiencies create opportunities



Note: The graph represents what UBS Global Asset Management (GAM) believes will be, according to their valuation models, the expected price change as of 31 December 2010, of an AAA 20-year bond with an embedded five-year call resulting from various changes in interest rates. The information presented reflects UBS GAM's expectations for prospective return and risk using current market assumptions. There is no assurance that these projections will be realized. Source: UBS GAM proprietary model

Structural inefficiencies also exist. Many individual investors are reluctant to purchase bonds at a premium, creating opportunities for investors without such biases. Fig. 4 illustrates the effect of interest rate changes on a 20-year bond with a 5-year call. In absolute terms, a bond trading at par experiences a larger price change (-8.95%) from a 50bps interest rate increase than from a 50bps rate decline (+2.42%). For investors concerned with total returns and price stability instead of headline yield numbers, exploiting this inefficiency to purchase bonds with more favorable characteristics makes sense.

It is clear that inefficiencies exist, especially at the 10-year spot where individuals generally build ladder portfolios, and in the long end of the curve where many mutual fund managers seek to add yield.

Many investors consider avoiding defaults to be the fundamental role of credit analysis, but avoiding credit downgrades and taking advantage of prospective upgrades is also important. Due to the divergent fiscal situations of issuers, municipal investors should no longer rely purely on credit ratings for decision making. Therefore, we expect bond-specific credit analysis to be increasingly important for performance.

Finally, execution expertise will drive total returns. Market illiquidity results in large bid-ask spreads. By monitoring the market, investment managers can benefit from opportunistically buying and selling when the market is in their favor. For instance, forced and concentrated selling by ETFs experiencing redemptions can frequently represent buying opportunities for professional managers.

Conclusion

Successful municipal bond investment increasingly requires finely tuned implementation that can respond to and take advantage of ever-shifting, bond-specific credit analysis, market inefficiencies and execution expertise. In general, we recommend investors seek high-quality professional management through separately managed accounts, certain mutual funds or a highly experienced financial advisor. Utilizing professional management can result in higher gross fees, but in our view the net out-performance added through high-quality active municipal bond management should meaningfully outweigh the additional cost. By contrast, at this time we do not advise passive implementation, whether through static ladders, barbells, or benchmark-tracking ETFs or mutual funds.

PERSPECTIVES

Just say ‘no’ to the state bankruptcy option

Given the economic downturn, it is not a surprise that many have expressed concern about lower state revenues and higher state expenses—especially costs of infrastructure, education, healthcare and public safety—combined with the staggering predictions as to unfunded pension costs. However, suggesting as some have that states should declare themselves bankrupt under a federal law can cause unnecessary panic and unwarranted questioning of state and local government debt obligations.

By James E. Spiotto, Esq., Partner, Chapman and Cutler LLP



This is particularly unfortunate since state obligations properly have been viewed as safe investments with little risk of default. Importantly, no state has defaulted in the payment of its general obligation bonds since the late 1800s, and the repudiation of the debt incurred after the Civil War. A notable exception was Arkansas in 1933, which defaulted on its general obligation bonds but later refunded the debt, thus ameliorating the default.

The United States House of Representatives Judiciary Committee, Subcommittee on Courts, recently held a hearing on the possibility of enacting a federal statute that would create a state bankruptcy chapter. During those hearings, while certain testimony tended to argue in favor of the bankruptcy option, most concluded that the bankruptcy court was not a good avenue for troubled states. Expecting a bankruptcy judge, often an individual with little or no experience in public finance, to solve complex fiscal problems is not realistic.

The history of states meeting their financial obligations has permitted them to play an important role in the development and financing of this country's infrastructure. Up until now, the threat of a state not fully honoring its general obligation bonds, but instead "readjusting them" through a bankruptcy, was not considered a possibility. Indeed, currently, the inability of a state to institute a bankruptcy proceeding is an important part of the calculus upon which the cost of state financings are based. Fortunately, there is an understandable leanness on the part of states to jump into the uncharted waters of bankruptcy when the cause of financial difficulty can be traced to several discreet problems (i.e., pension and other entitlements) that can be dealt with separately without affecting all of the state's relationships.

Constitutional provisions would limit the scope of any state bankruptcy option

The enactment of a bankruptcy vehicle for states would face a number of legal limitations. As a threshold matter, the dual sovereignty of the federal and state governments precludes the former from imposing a mandatory bankruptcy procedure on the latter. While Article I, Section 8 of the US Constitution gives Congress the power to "establish uniform laws on the subject of bankruptcies throughout the United States," that power may not interfere with the power reserved to the states by the Tenth Amendment.

The US Supreme Court, in several important decisions,¹ has scrutinized the provisions of the Bankruptcy Code relating to municipal bankruptcy and annunciated principles that likely would apply to any state bankruptcy option. As a consequence, we can assume that bankruptcy could not be imposed without the state's consent. Similarly, we can assume the bankruptcy court could not constitutionally interfere with the revenues, politics or day-to-day operations of the state nor could the court replace, by its rulings or appointments, any elected or appointed officials. Therefore, a constitutional state bankruptcy provision would not permit a bankruptcy judge to take over the reigns of state government and impose the court's views on which jobs should be cut and entitlements eliminated. Thus, the state bankruptcy option would not provide an immediate fix to the pension problem and would not be the panacea suggested by some commentators.

Interestingly, a state currently may pursue changes to contracts that are not sustainable or affordable and which impair its ability to provide essential governmental services. The US Supreme Court has held that an impairment to a contract may be upheld where reasonable and necessary to serve an important public purpose.² If a state were able to demonstrate that it was in the impossible situation of choosing between providing essential governmental services and paying pensions and that it could not raise taxes further to fulfill both obligations, a court could find that legislation dealing with and adjusting the pension contracts is valid under the US Constitution's Contract Clause. This refutes the argument that state bankruptcy legislation must be enacted at the federal level because the states themselves cannot act to deal with pensions. Benefits can be adjusted to the extent the labor costs or pension or other contractual obligations prevent the providing of essential governmental services where no further tax increase is possible. Under the right set of facts, where the record demonstrates that the state cannot in good faith marshal any additional revenues or cut any state services without impairing the public welfare, it should be permitted to act without the baggage of federal bankruptcy legislation.

The Constitutional limits on municipal bankruptcy have contributed to the infrequent exercise of this remedy by units of local government. There have been only 623 municipal bankruptcies filed in the US since the adoption of

The state pension authority would be a quasi-judicial body...that would have the power to compel the state and its unions to settle pension disputes.

the authorizing legislation in 1937, and only 252 Chapter 9 cases filed since 1980, compared to over 11,000 Chapter 11 cases instituted by corporate debtors in 2010. For the most part, Chapter 9 filings have been by small municipalities or special tax districts or utilities rather than major municipalities. In other words, Chapter 9 has been used essentially to terminate a vehicle that has outlived its usefulness. Thus, investors can also take comfort from the fact that, even where a bankruptcy option exists, it has been seldom utilized by municipalities. Further, statutory liens and special revenues have continued to be protected by the courts even in the face of a municipal bankruptcy filing.

State pension authority

As an alternative to the bankruptcy option, the states themselves can create state authorities established to: 1) examine the state's pension obligations and the resources available to meet them; and 2) if necessary, adjust the pension obligations to an affordable level in light of the other requirements of government. An authority structure could be devised by and for the individual states, thus respecting their sovereign nature. The state pension authority would be a quasi-judicial body, like a court with specialized expertise and independence that would have the power to compel the state and its unions to settle pension disputes. It would adjudicate labor costs or benefits on an objective, independent basis considering whether those costs were sustainable and affordable, and would not interfere with the state providing essential governmental services or determining whether the costs created a governmental emergency. Thus, successful relationships with creditors and others would not be upset.

Independent federal commission

As another alternative to state bankruptcy, Congress could establish an independent body—for example, the State Public Pension Funding Commission—before which states could voluntarily bring an action to restructure their pension obligations. This commission, much like courts established under Article I of the US Constitution, would be created pursuant to the bankruptcy clause to hear cases brought by financially challenged states. The commission would be composed of experienced, qualified and independent professionals. To protect state sovereignty, only a state could bring an action before the commission. To bring an action before the commission, a state would be required to establish that it is incapable of paying its debts as they mature and provide essential governmental services (i.e., a governmental emergency) without relief. On a finding of governmental emergency, the commission could then determine after hearing from the state and the designated representative of the workers what sustainable and affordable labor cost and pension benefit is achievable without impairing essential governmental services. Once this question is determined, it would be clear whether the state would make the existing payments or would have to adjust them. The commission could then issue an order restructuring the state's pension benefits and other post-employment benefits to a level that would allow the state to continue to provide essential state services while making manageable payments to its pension fund. The commission's decision would be appealable to a court established under Article III of the US Constitution, such as the US Court of Appeals for the Federal Circuit.

Conclusion

The current crises of unfunded pension liabilities, aging infrastructure and increased costs of health, education and safety needs must lead to new, creative ways for states to meet their obligations to provide essential and improving services for a better tomorrow. Bankruptcy courts and tribunals do not provide bridge financing or interim provision of essential services. Bankruptcy affects virtually all constituents—taxpayers, government workers and suppliers—as well as essential services. It is an expensive, time-consuming, disruptive process that can only be used as a last resort when no feasible alternative exists. Better options need to be considered and put in place before the situation deteriorates. In the past, our country has relied on “blue ribbon” panels to help resolve difficult issues. A state or federal commission dedicated to examining the sustainability of existing pension obligations on an impartial basis is far preferable to the cumbersome and inappropriate bankruptcy option. The mechanism ultimately selected should be designed to deal surgically with the pension or other financial problem in a discreet method that does not adversely affect that which works. This will lead to a new, effective mechanism that is less expensive, less intrusive and more focused on precisely what is broken.

If history is a guide, the states will again weather the storm and find creative ways to deal with the reality of less revenue and increased demand for public services. Unless we embark upon a radical departure from who and what we are, state and local governments will do whatever it takes to meet their public debt obligations to ensure for this and future generations their ability to have access to the municipal bond markets at a low cost. In this way, they will continue to be able to determine locally the level

of infrastructure and services desired by their constituents rather than, as exists in virtually all other countries, having such policy dictated from on high.

For a more extensive discussion of these topics, please see the presentation by the author, “Unfunded Pension Obligations: Is Chapter 9 the Ultimate Remedy? Is there a Better Resolution Mechanism?” and “Historical and Legal Strengths of State and Local Government Debt Financing,” both of which are available at www.chapman.com/publications.php.

PERSPECTIVES

US local government tax-supported rating outlook

The coming year will present familiar, if intensifying, challenges to credits in the US local tax-supported sector. Fitch expects 2011-2012 downgrade activity to match or exceed 2010 levels (when 8% of credits reviewed were downgraded), and anticipates more rapid deterioration of credit quality as pressures persist and options for combating such pressures are fewer, given the many tough decisions already made. Fitch expects that most downgrades will be in the one- to two-notch range and that more severe downgrades will be the exception rather than the rule.

By Amy Laskey, Fitch Ratings

Key rating drivers

- Management's ability to anticipate and willingness to respond to expenditure demands and declining revenue will be a fundamental determinant of the direction of credit quality
- The extent, severity and impact of intergovernmental downloading will vary among states but may be great in some cases
- Local governments that fail to adequately address pension costs will experience negative rating pressure
- Debt service coverage on non-property, tax-related special tax bonds (such as sales tax and excise tax-supported bonds) is expected to be stable to increasing, given improvement in most economic indicators

Key issues

Primary importance of management: While management has always been one of the main pillars of municipal credit analysis, the importance of a competent, conservative and sophisticated management team will be even more pivotal as local governments navigate unprecedented challenges to credit quality.

The ability to realistically forecast declining and sometimes

unpredictable revenues while correctly gauging spending levels will be key to maintaining budgetary integrity. Similarly, management's skill in monitoring and adjusting to budgetary variances throughout the year will strongly influence financial performance.

Governments' willingness to take difficult measures to maintain financial stability will be paramount. Adherence to sound financial policies is both more difficult and more critical in the current environment than during the economic expansion of most of the past decade, when such adherence was fairly commonplace. Now, however, with many governments having relaxed or completely suspended policies that contributed to strong credit quality (such as fund balance requirements and limits on debt service relative to spending), such actions will likely lead to weaker credit profiles.

Negative assessed valuation trends: Many issuers project increases in assessed valuation (AV), reflecting their expectations of a near-term housing market recovery; however, Fitch expects that the majority of issuers will continue to experience AV declines as prior years' depressed housing prices, reassessments and assessment

appeals continue to work their way through the assessment system. Fitch believes there will be widely divergent levels of severity based on regional conditions.

In addition, Fitch believes that housing values will be slow to recover and that many regions will continue to see declines; Fitch projects an additional 10% national decline in home prices in the next two years. The ability to offset AV declines by raising millage rates (the rates at which property taxes are levied) varies by state. Fitch expects tax rate adjustments, even when legally permissible, to continue to be politically and practically difficult in the current economic environment.

Intergovernmental downloading: Municipalities will see significant reductions in intergovernmental revenue as states propose fiscal 2012 budgets that make deep spending cuts for programs carried out by local units. These will be the most difficult for school districts and local governments with social service responsibilities.

As more responsibilities are pushed down to the local level, municipalities will be forced to make hard choices regarding spending priorities and suffer the political consequences. In some cases, the choice to reduce services is severely limited, such as school districts with mandated class size requirements or counties with required social service responsibilities.

Declining reserves: Generally speaking, local governments have historically maintained sufficient reserve levels to provide a budgetary cushion, ensure adequate liquidity and guard against unforeseen circumstances. As revenues have dropped, many governments have, either by design or necessity, drawn upon reserves to make up the shortfall under the premise that reserves are for “rainy days” and the revenue declines are temporary. However, the protracted nature of the downturn has led to an increasing number of local governments reducing or exhausting these reserves.

The improving economy has so far had a positive effect on non-property tax receipts, such as sales tax revenues, which should partially offset the reduction in property taxes and intergovernmental revenue and reduce the need to rely on reserves. Nevertheless, most local governments will be forced to make the difficult choice between raising

taxes and cutting spending to restore budgetary balance or continuing to rely on reserves to make up the gap.

Reliance on negotiated labor savings: Labor costs represent the lion’s share of budgetary expenditures for most local governments. With the backdrop of high unemployment and overall economic stress, labor unions have been more willing to agree to concessions, including contract re-openers, wage freezes or even decreases, unpaid furlough days and healthcare and pension cost-sharing to forestall layoffs. In some cases, changes have been imposed without the cooperation of labor, leaving the benefits vulnerable to legal challenges. Several states have proposed or implemented adjustments to the collective bargaining process that may result in greater flexibility to make these kinds of changes.

While benefit-related negotiated changes may reasonably be expected to be permanent, once revenues pick up, labor unions will likely expect restoration of wage increases before reserve levels are replenished. Fitch believes this pressure will be somewhat offset by the increased focus on public sector compensation (including benefits) and continued elevated unemployment rates, but the balance between the competing forces of labor pressure and public sentiment will vary by jurisdiction. Fitch believes this will contribute to a broader debate about the appropriate balance between taxation and service provision.

Escalating pension costs: Investment losses and, in some cases, historical underfunding of pension annual required contributions (ARCs) have led to large unfunded liabilities and burgeoning current ARC payments. Several states have enacted laws requiring funding of the ARC to ensure that payments become or remain current. As a majority of local governments participate in state plans that are under pressure, increases in these budget items for local governments are often out of their control and difficult to accurately forecast. However, Fitch believes that the vast majority of governments will withstand the substantial pressures they face from their pension obligations. State proposals to increase employee contributions should somewhat lessen the burden on local governments.

State and local governments in the Great Depression and the Great Recession

Cadmus Hicks, Nuveen Asset Management

Despite the catastrophic collapse in economic activity during the Great Depression, state and local governments demonstrated a strong determination to avoid default, whenever possible, and an eagerness to repay past due obligations when default could not be avoided.¹

- From 1929 to 1937, the principal amount of bonds that went into default was equal to about 7% of the average amount of debt outstanding in the early 1930s.
- Because most issues did not stay in default for long, the maximum amount of past due principal and interest payments approximated just 1.7% of the outstanding debt, or 16% of average annual debt service.
- While a total of \$1.35 billion of bonds went into default, by 1939 only \$200 million remained in default. Those recoveries occurred despite the fact that in 1940 the average unemployment rate remained above 14%.
- Of the 48 cities with populations over 25,000 that defaulted, all were out of default by 1938, and all repaid the full amount of principal due on their debt (although some adjusted their interest payments).
- Permanent losses totaled about \$100 million, or 0.5% of the amount of debt outstanding. Those losses were mostly attributable to small units of government, particularly special purpose districts.

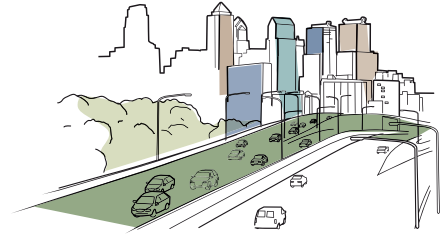
Relative to their predecessors during the Great Depression, state and local governments that endured the Great Recession have enjoyed several advantages.

- ***The economic decline has not been as severe.*** From 1929 to 1933, real gross domestic product plummeted by 26.7%. From 2007 to 2009, real GDP fell by 2.6%—but in 2010 it grew by 2.9%.²
- ***The American Recovery and Reinvestment Act (ARRA) helped carry states through the worst of the recession.*** ARRA provided \$144 billion in relief for state and local governments, most of which was received in 2009 and 2010, with some remaining for 2011. This aid was equivalent to over 6% of all state

and local government expenditures in 2010.

- ***The states began the recession with healthy fund balances.*** At the end of 2007, aggregate fund balances for all states were equal to 10.1% of annual general fund expenditures, up from 3.2% at the end of 2003.³
- ***Local tax revenue continued to grow.*** While state tax revenue dropped by 9.9% from 2007 to 2009 (with revenue from individual income tax down 14.8%), local tax revenue actually grew by 12.2% during the same period, due largely to a 17.7% increase in property tax revenue. In 2010, as local tax revenue stagnated (up just 0.2% from 2009), state tax revenue rose by 4.3%, which is opportune as the benefits from ARRA come to an end.⁴
- ***Declines in real estate values do not require corresponding declines in property tax revenue.*** Due to delays in the reassessment of property values, it is likely that the property tax base of many local governments and school districts will decline in the next few years. However, property tax revenue is not likely to mirror the 30% decline in house prices since 2006 because property tax revenue did not rise as fast as housing values during the boom years. From July 1996 to July 2006, seasonally adjusted house prices in the Standard & Poor's/Case-Shiller price index of 10 metropolitan areas rose by 11.2% per year, while property tax revenues over the same period rose by 6.1% per year.⁵ Property tax revenue is a function of property values and levy rates. As property values rose, many municipalities lowered levy rates, to keep tax bills from ballooning. Now, levy rates can be raised so that taxes remain fairly steady.

While the aggregate statistics for state and local governments indicate a much healthier economic and fiscal environment than that which existed in the 1930s, investors need to discriminate among individual issuers, many of whom may face strains that go beyond what the averages would suggest. Nonetheless, even for those issuers in particularly difficult circumstances, the considerations that limited defaults and promoted strong recovery rates during the Great Depression are likely to have a powerful influence on policymakers today. The need to provide essential services and maintain the infrastructure necessary to provide both a healthy business environment and a desirable quality of life for residents makes it imperative for most governmental units to preserve the capacity to borrow on reasonable terms.



IN CLOSING

Risk assessment and trends to watch

We would be remiss in concluding this inaugural issue without providing an abbreviated overview of the risks associated with municipal bond ownership. In addition, we provide our forecast of some of the trends that we believe are likely to play out over the next three years.

By Tom McLoughlin, UBS Wealth Management Research

As the nation emerges from the debilitating effects of a financial crisis and economic recession, municipal bond investors find themselves exposed to new risks. The three principal risks assumed by bond investors—credit risk, liquidity risk and market risk—were held in check for many years by a favorable interest rate environment and a robust bond insurance industry. The new era, one we might call, “The Era of Relative Illiquidity,” has dawned and is likely to persist for some time. Credit risk must now be assessed independently and without the benefit of credit enhancement. This means it’s more important than ever before to assess liquidity risk, which is commonly associated with holding bonds issued by less familiar borrowers. Market risk associated with higher interest rates is endemic to all fixed income securities but is amplified by the absence of deep investor demand for long-dated municipal bonds.

Credit risk

Credit risk is the threat posed by a borrower’s inability or unwillingness to meet its debt service obligations in a timely manner. As such, it represents—literally—the

principal risk assumed by any bond investor. Ratings published by nationally recognized statistical rating organizations (i.e., the ratings agencies) purport to measure the relative credit risk of a particular bond through the assignment of a rating. For years, the ratings agencies applied a unique scale to state and local government debt. Municipal bond ratings were based on a relative measurement of risk; investors could compare and contrast the financial strength of disparate communities across the United States. As such, creditworthy municipal governments often received ratings that were arguably much more conservative than the ratings applied in the corporate bond market.

In the wake of the financial crisis, Congress exerted political pressure to encourage the ratings agencies to apply a consistent global rating scale. In theory, the application of a consistent standard would allow investors to compare the true credit risk of a corporation to that of a city government. By measuring the absolute loss given probability of default, rather than the relative risk of default between one city and another, the global rating scale is intended to

offer a uniform measure of credit risk. In practice, however, the recalibration of ratings to a single global scale has increased the difficulty for municipal investors in some respects. Eliminating the fine rating distinctions among myriad general obligation and utility revenue credits leaves individual investors with less guidance about the degree of relative risk posed by one security over another.

Liquidity risk

The municipal market, with approximately 10 times the number of borrowers than in the US corporate market, lacks a centralized exchange through which fixed income securities can be traded easily. The bond insurance industry was the principal means by which the market commoditized credit. In its absence, the market has become bifurcated.

Borrowers who are relatively well known, and whose bonds are frequently traded, have access to a deeper reservoir of investor demand. Investors often place a higher value on these borrowers and demand less in yield because they anticipate that the bonds can be liquidated more easily. Conversely, state and local governments that rarely seek access to the municipal bond market are at a competitive disadvantage. The disparity in the degree of market access enjoyed by some issuers over others is compounded by the relatively opaque disclosure regime prevalent in the municipal market.

For buyers who anticipate holding their securities to maturity, the illiquidity of some bonds represents an opportunity to purchase securities at a competitive discount. Of course, the advantage only lasts as long as one holds the bonds. Institutional investors may also profitably engage in a total return strategy, but the economies of scale available to professional asset managers are not easily replicable by the typical household investor.

Market risk

Market risk is the probability that a financial instrument's value will change over time due to any number of exogenous factors. For fixed income investors, the potential for a change in interest rates represents the most prominent type of market risk. In *The Decade Ahead*, we forecast the end of a 30-year secular decline in interest rates. Treasury bond yields are expected to rise as sovereign debt investors seek global diversification. Unprecedented monetary

stimulus by the Federal Reserve eventually will create enough inflation to necessitate higher rates, thereby diminishing the total return for fixed income investors. Fixed rate municipal bonds are not immune from the adverse impact of rising rates.

The challenge for state and local governments will be compounded by the disparity between the desire among state and local governments for long-term financing and the preference among most individual investors for short- and intermediate-term bonds. Long-term mutual funds and insurance companies are the only natural buyers for tax-exempt bonds with durations in excess of 15 years. Households, on the other hand, constitute the single biggest category of municipal bond investor and generally prefer bonds with shorter durations. As interest rates rise in the future, the disparity between borrowers' needs for long-term financing and investors' desire to protect against duration risk will create friction for the market as a whole.

A dozen likely trends to watch

1. *The municipal market will remain bifurcated.*

Investors can no longer rely on the presence of bond insurance to provide credit protection and a higher degree of liquidity for their individual bond holdings. While frequently traded bonds enjoy a competitive advantage in the market, smaller and less familiar borrowers struggle to find buyers at equivalent prices. As Matt Fabian points out in his article on bond valuations, the market will wrestle with the challenge of inferential pricing until another means of commoditizing this disparate market is identified. For individual investors who seek higher yields, this presents an opportunity—provided careful credit analysis is performed and the bond is held to maturity. For their part, active bond fund managers also can exploit these pricing inefficiencies to amplify total returns.

2. *Credit spreads will remain wide.*

The credit spread compression evident in the municipal bond market until the latter half of 2007 was a function of lower absolute interest rates and a high degree of bond insurance penetration. Neither characteristic prevails today. As Fig. 1 illustrates, investors demand significantly more in yield from lower-rated securities than they did in the years preceding the financial crisis.

3. Regulatory scrutiny will increase.

The Securities And Exchange Commission (SEC) charged the state of New Jersey with securities fraud in August 2010. The SEC accused the state of failing to disclose relevant information regarding its failure to make scheduled contributions to the state's two largest pension funds from 2001-2007. The decision by the SEC to issue a cease-and-desist order heralds a new era of federal oversight and investigation. The municipal market has long been criticized for inadequate secondary market disclosure practices. And yet, the market relies on individual household investment to an extraordinary degree. We expect Congress and the SEC to exert more pressure on state and local governments to improve their disclosure practices. Additionally, we expect further improvement in the quality and timeliness of disclosure as the consequences for failure become more serious.

4. State budgets constrained by Medicaid.

Medicaid, a means-tested healthcare program jointly funded by the federal and state governments, is the principal source of medical coverage for lower income Americans. State spending on Medicaid is growing more rapidly than any other single component of state budgets and is increasing at a faster growth rate than the economy as a whole. The American Recovery and Reinvestment Act of 2009 (ARRA) provided states with sufficient financial aid to maintain Medicaid coverage during the Great Recession for unemployed individuals and those with lower incomes. The expiration of ARRA will result in lower federal aid for states and will force state legislatures to make difficult budget decisions. We expect state governments to wrestle with efforts to contain the growth in Medicaid expenditures while simultaneously seeking to reduce expenditures elsewhere. Assistance to local governments may be among those categories hardest hit.

5. Public sector retirement benefits will be curtailed.

State governments will undertake substantial public pension reforms in the next three years. Initial reforms were limited to greater employee contributions, higher retirement ages and the elimination of cost-of-living adjustments. More recent reforms have included the establishment of defined contribution plans for new employees in lieu of traditional defined benefit plans. Post-employment benefits will also be reexamined and those benefits will be reduced.

In the meantime, we anticipate that Congress will demand more transparent disclosure from state and local pension funds regarding the size of their unfunded pension liability. The natural corollary to any debate over unfunded pension liabilities is the discount rate being employed to estimate future investment earnings. Any attempt to legislate a lower discount rate, however ill-advised, would result in a higher current contribution requirement and less cash for current infrastructure investment and other needs.

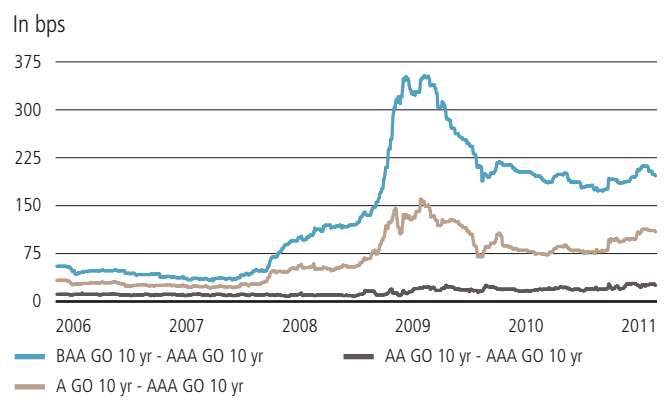
6. Privatization projects will be pursued.

Structural budget deficits and popular resistance to higher taxation will encourage more states to pursue public-private partnership initiatives. As Chris Mier points out in his essay on privatization, initial attempts to simply monetize infrastructure assets will evolve into a more comprehensive program of private sector management of public services. As existing assets such as parking garages and toll roads are privatized, tax-exempt bonds that were issued to fund those projects will be redeemed or defeased. For new projects, private participation forecloses the possibility of tax-exempt financing, in most cases. The supply of tax-exempt debt will be constrained as a result.

7. Federal tax exemption will be scrutinized.

Congress will debate the merits of eliminating the federal tax exemption for interest payments on municipal bonds. While the probability of a complete elimination is still not high, the situation in Washington, D.C. is

Fig. 1: Credit quality spreads



Source: TM3, UBS WMR as of 18 April 2011

highly fluid. Political support for the elimination of the federal tax exemption on a prospective basis is growing in Washington as Congress seeks to balance the need for revenue without tax increases. Investors should expect more restrictions on the sale of tax-exempt bonds in the years ahead and the promulgation of alternatives such as tax-credit bonds. In the event federal tax exemption is eliminated at some point, look for a broad rally in existing tax exempt bonds as investors flock to outstanding bonds in search of increasingly scarce securities.

8. Creative ways of homogenizing debt will emerge.

Municipal bond banks and state conduit agencies will enjoy a renaissance. These institutions represent a means by which less familiar names can be aggregated under the auspices of a more familiar issuer. They provide market access at a more attractive all-in cost of capital for smaller borrowers than would otherwise be available due to limited investor appetite. While neither the bond bank nor the conduit represents credit substitution, they can enhance the marketability of bonds issued by less familiar borrowers.

9. Smaller borrowers will rely on bank loans.

Smaller units of government, long accustomed to accessing the capital markets, will forego the sale of bonds in favor of bank loans. Rather than access the municipal market and incur the costs related to the sale of bonds, smaller local governments will choose direct loans more often. Banks' appetite for lending will, therefore, become all the more relevant for these issuers. We expect this to add to the longer-term downward pressure for new-issue municipal supply, at least at the margin.

10. Some municipal sectors will exhibit higher defaults.

Certain municipal sectors, such as healthcare, housing and land-based assessment transactions, will experience higher defaults. Although municipal bankruptcy will remain relatively rare, investors should expect dramatic media coverage when it happens. Jefferson County (AL), Detroit (MI) and Harrisburg (PA) have flirted with insolvency for years. To the extent any of these issuers files for Chapter 9 protection, or another one-off situation develops, investors should not be surprised.

11. Term bonds will increase in popularity; shorter amortization schedules may also gain favor.

Large and sophisticated borrowers will reexamine the efficacy of selling serial bonds and experiment with term bonds. Bullet maturities are quite common in the corporate bond market but used sparingly in municipal finance. The conditions that led to the use of serial bonds—an array of different investors with varying investment objectives and time horizons in a more liquid market—are dissipating today. Term bonds are likely to require periodic refinancing and will introduce a degree of liquidity risk to the market as borrowers must rely on periodic market access. Should this prediction prove true, one of the long-standing credit strengths of the municipal market relative to corporate and sovereign borrowers—level principal and interest payments over a longer-term time horizon—could gradually erode over time.

12. The use of index floating rate securities is likely to increase.

The wreckage of the auction rate securities market has left an indelible imprint on lenders and borrowers alike. There are few local governments that appear willing to venture forth into the variable rate market. Those that do are usually extending their existing letters of credit as a means of forestalling termination payments or collateral pledges on synthetic fixed rate securities. But the attraction posed by short-term financing in a steep yield curve environment cannot be overlooked. We expect to see more securities structured as index floaters, a type of security whose current interest rate is tied to a well-established index. These instruments will be driven by investor demand for protection against the prospect of higher interest rates. Derivative products, such as swap contracts, are likely to remain out of favor for quite some time, so the sale of any variable rate instrument will expose state and local issuers to some degree of interest rate risk.

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Endnotes

Public pension programs under greater scrutiny

- ¹ As reported by Chris Edwards, Director of Tax Policy Studies at the Cato Institute, *The Cato Journal*, Vol. 30, No. 1 (Winter 2010) based on 2008 data provided by the US Bureau of Economic Research.
- ² *Ibid.*
- ³ Howard Bornstein, Stan Markuze, Cameron Percy, Lisha Wang and Moritz Zander. Stanford Institute of Economic Policy Research, April 2010.
- ⁴ Ann Kibler, Tiffany Glover and Chris Mier, 2010 State Pension Funding Review, Loop Capital, October 22, 2010.
- ⁵ Median public pension investment returns through December 31, 2009, National Association of State Retirement Administrators, based on information compiled by Callan and Associates.
- ⁶ Robert Novy-Marx and Joshua D. Rauh, "The Liabilities and Risks of State-Sponsored Pension Plans." Revised October 13, 2010.
- ⁷ The California Supreme Court, for example, has taken a firm stand in support of the contractual protections provided to participating plan beneficiaries. "A public employee's pension constitutes an element of compensation, and a vested contractual right to pension benefits accrues upon acceptance of employment. Such a pension right may not be destroyed, once vested, without impairing a contractual obligation of the employing public entity." (*Betts v. Board of Administration* (1978) 21 Cal.3d 859.)
- ⁸ Moody's Investors Service, "Combining Debt and Pension Liabilities of US States Enhance Comparability," January 26, 2011.
- ⁹ Florida, New York, Washington and Wisconsin. Pew Center on the States. "The Trillion Dollar Gap," February 2010.
- ¹⁰ Iris Lav and Elizabeth McNichol, "Misunderstandings Regarding State Debt, Pensions, and Retiree Health Costs Create Unnecessary Alarm," Center on Budget and Policy Priorities, January 20, 2011. The Center for Retirement Research at Boston College estimates that the average annual retirement contribution was approximately 12% of payroll in 2009. This represents a rather substantial increase from the 6% level in the 2001-2002 period.
- ¹¹ Alicia Munnell, Jean-Pierre Aubry, Josh Hurwitz and Laura Quimby in "Can State and Local Pensions Muddle Through?" Center for Retirement Research, Boston College, March 2011.
- ¹² *Ibid.*
- ¹³ Pew Center on the States, February 2010.

How one major borrower successfully navigated the financial crisis

- ¹ Metropolitan Washington Airports Act of 1986, Title VI of Public Law 99-500.
- ² Capital Program investment at Reagan National and Dulles International has been approximately \$1.3 billion, and \$5.1 billion, respectively.

Just say "no" to the state bankruptcy option

- ¹ *Ashton v. Cameron County Water Improvement Dist. No. 1*, 298 US 513, 80 L. Ed. 1309, 56 S. Ct. 892 (1936), reh'g denied 299 US 619, 81 L. Ed. 457, 57 S. Ct. 5 (1936); *United States v. Bekins*, 304 US 27, 82 L. Ed. 1137, 58 S. Ct. 811 (1938), reh'g denied 304 US 589, 82 L. Ed. 1549, 8 S. Ct. 1043 (1938).
- ² *US Trust Company v. New Jersey*, 431 US 1, 52 L. Ed. 2d 92, 97 S. Ct. 1505 (1977).

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- ¹ *The Postwar Quality of State and Local Debt*, George Hempel, New York: National Bureau of Economic Research, Distributed by Columbia University Press.
- ² US Department of Commerce: Bureau of Economic Analysis <http://research.stlouisfed.org/fred2/series/GDPCA?cid=106>
- ³ The Fiscal Survey of States, National Association of State Budget Officers (NASBO) and the National Governors Association (NGA). <http://www.nasbo.org/>
- ⁴ US Census Bureau, <http://www.census.gov/govs/qtax/>
- ⁵ Standard & Poor's/Case-Shiller Index of Housing Prices, http://www2.standardandpoors.com/spf/pdf/index/CS_HomePrice_History_032544.xls

Appendix

		Rating Agencies		Credit Ratings
		S&P	Moody's	Fitch/BCA Definition
Investment Grade	AAA	Aaa	AAA	Issuers have exceptionally strong credit quality. AAA is the best credit quality.
	AA+	Aa1	AA+	Issuers have very strong credit quality.
	AA	Aa2	AA	
	AA-	Aa3	AA-	
	A+	A1	A+	Issuers have high credit quality.
	A	A2	A	
	A-	A3	A-	
	BBB+	Baa1	BBB+	Issuers have adequate credit quality. This is the lowest Investment Grade category.
	BBB	Baa2	BBB	
BBB-	Baa3	BBB-		
Non-Investment Grade	BB+	Ba1	BB+	Issuers have weak credit quality. This is the highest Speculative Grade category.
	BB	Ba2	BB	
	BB-	Ba3	BB-	
	B+	B1	B+	Issuers have very weak credit quality.
	B	B2	B	
	B-	B3	B-	
	CCC+	Caa1	CCC+	Issuers have extremely weak credit quality.
	CCC	Caa2	CCC	
	CCC-	Caa3	CCC-	
	CC	Ca	CC+	Issuers have very high risk of default.
	C		CC	
			CC-	
D	C	DDD	Obligor failed to make payment on one or more of its financial commitments. this is the lowest quality of the Speculative Grade category.	

UBS FS and/or its affiliates trade as principal in the fixed income securities discussed in this report.

Appendix

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