ROCKFLEET financial services

Rockfleet Financial Services, Inc.
515 Madison Avenue, 27th Fl
New York, NY 10022
Phone: 212-888-1301
Fax: 212-572-9814
Email: sales@rockfleetfinancial.com
www.rockfleetfinancial.com

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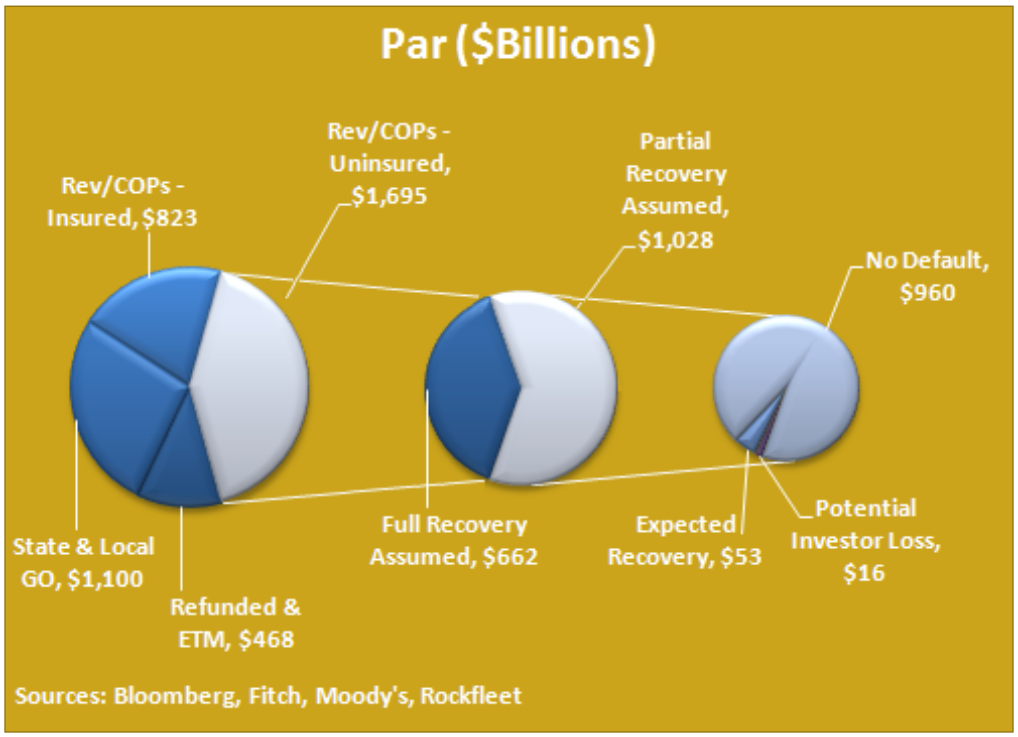
$10-20 Billion or Hundreds of Billions?

Recovery Amount is an Important Factor

Many have voiced their opinions on why "hundreds of billions" of defaults in municipal securities within the year is an inaccurate reflection of the market. Promoting outlandish default predictions does a disservice to the investing public, as well as to the issuers, rating agencies, insurers, credit analysts, portfolio managers, and other market participants who work diligently to provide their respective services.

We analyzed the numbers to determine what's really at risk, using a more pragmatic approach. While bankruptcy and default statistics are important, the ultimate recovery rate to the investor is what's really at stake, and where the focus should lie. We have concluded that investors may suffer unrecoverable losses in the range of $10-20 billion over the next ten years.



Historical Perspective

Projections, results and assumptions contained within this report reflect past performance of the referenced securities and classifications. While past performance is no guarantee of future results, actuarial science remains the best way we have to assess risk.

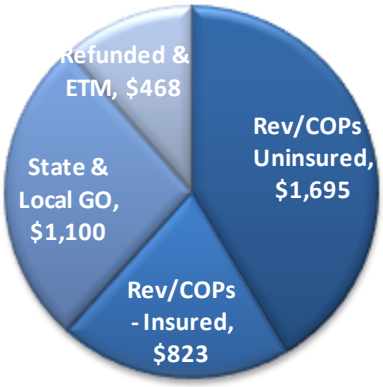
Methodology

Put simply, the calculation is the result of the process of elimination. We begin with a universe of slightly over $4 trillion in outstanding municipal debt, according to Bloomberg data as of April 4, 2011. The amount outstanding includes the accreted maturity value of zero coupon bonds. Just under $14 billion of warrants, special obligations and BANs/TANs/TRANs, etc. were not included in the analysis.

Prerefunded and Escrowed to Maturity

By their nature, prerefunded bonds and those escrowed to maturity ("ETM") cannot default. This represents approximately $468 billion of outstanding municipal debt.

Par ($Billions)



Sources: Bloomberg, Fitch, Moody's,

Bond Insurance

As of the date of this report, it is believed all monoline insurers are paying claims. We must caveat that based upon legal bankruptcies, it is possible this could change. Assuming the monoline insurers will continue to pay claims, approximately $823 billion of revenue bonds were also eliminated, leaving a residual of $2.8 trillion to further analyze.

Liquidity Facilities

According to Bloomberg data, approximately $362 billion of outstanding municipal securities have some sort of liquidity facility. Dexia and other European banks have left the market and we cannot account for future global disruption. That, combined with U.S. banking sector consolidation, has reduced the number of alternatives for issuers. By all accounts, letters of credit ("LOCs") can be obtained, but at higher rates. In its "Municipal Bond Credit Report—Fourth Quarter and Full Year 2010" report, SIFMA reports that as of December 2010, $101.3 billion in LOCs are scheduled to expire in 2011. $34 billion of this amount is scheduled in April, May and June; therefore, the next few months will be telling. With the uncertainty surrounding LOCs and that standby bonds purchase agreements ("SBPAs") are revocable, securities with liquidity facilities were left in for further analysis.

Corporate Actions

This analysis does not take into account calls, puts or maturing bonds that will be rolling off in the near future, in keeping with our conservative approach.

Senior versus Subordinated Debt

This analysis does not differentiate between senior and subordinated debt.

State and Local General Obligations

States and local municipalities are experiencing significant challenges. Jefferson County and cities such as Detroit and Harrisburg continue to make headlines. However, these entities have a myriad of options.

In its March 2011 report, "Fiscal Distress and Chapter 9 Bankruptcy," Principal Global Investors notes that, "[s]hort of defaulting or filing bankruptcy, local governments have a variety of options they may pursue to meet the full and timely payment of their various obligations. Typically, the municipal response to fiscal stress is to cut services, reduce expenses, or raise taxes. Other actions taken over past budgetary cycles include drawing down the general fund and reserve account balances, postponing payments on non-debt obligations, refunding debt to restructure payment requirements, or using grants or loans from government entities or commercial lenders to bridge the financial crisis. To improve the funded status of their pension plans, state and local governments can enact reforms affecting current or future public employees. A majority of governments have already started this process and it is expected many more will follow. Specific changes implemented include increased employee or employer contributions, reduced benefits, increased retirement age and vesting periods, and elimination of cost of living adjustments. In addition, states have the authority to institute oversight boards or receivers for distressed communities."

Both state and local general obligation ("GO") bonds have an expected recovery rate of 100%. That is, full recovery is eventually expected from a resumption in debt service payments. State and local GOs are presumed to be paid fully eventually for the reasons noted above, with the only losses stemming from the time value of money on the delayed payments. In the case of Orange County, the principal payment was extended by one year on $2 billion of short-term obligations, but investors received a higher interest rate as compensation.

State and local GOs total $1.1 trillion, leaving a balance of $1.695 trillion to be further analyzed.

Recovery Classes — Full Recovery

Fitch Ratings, in its January 9, 2007 report, "Default Risk and Recovery Rates on U.S. Municipal Bonds," (the "2007 Fitch Report") identifies six recovery classes, and assigns expected recovery rates to each class.

In addition to the GOs already addressed, Recovery Class 1 contains state sales tax and federal agency guaranteed debt. It is assumed that states will recover within one year.

Recovery Class 2, in addition to state GO, contains tax-backed debt, public college tuition revenue, single family housing, local transit, and water, sewer and gas. Fitch assumes a two year recovery in this class.

Recovery Class 3 includes lease/appropriation-backed, airports, marine ports, and public power distribution, and assumes a longer recovery period of up to five years.

Recovery Classes 1 through 3 all assume full recovery from a resumption in debt service payments. These total another $662 billion where, if they defaulted, 100% recovery is expected, leaving just over $1 trillion where only partial recovery is expected on defaulted securities.

Recovery Classes — Partial Recovery

Fitch's Recovery Classes 4 through 6 differ from the first three in that they are 1) enterprises that, should they cease to operate, bondholders can expect various levels of recovery

Defaulted state and local issuers are expected to fully pay principal and interest payments on their GO debt after the resumption of debt service payments.

	RE-COV-ERY CLASS	1 Recovery is assumed from a resumption in debt service	2 Recovery is assumed from a resumption in debt service	3 Recovery is assumed from a resumption in debt service	4 Moderate recovery prospects	5 May resume debt service payments after extensive delay	6 Recovery prospects similar to corporate debt
DEFAULT CLASS	Rate	100%	100%	100%	90%	70%	40%
1 GO, tax-backed, most appropriation-backed debt of state and local governments, GO and revenue of long-standing essential purpose enterprises either monopolies or strong protection vs competition.	Rated 0.28% Un-rated 2.79%	GO, bond bank	Ad valorem-backed lease revenue, gas contracts, single family housing, misc tax, municipal utilities, municipal utility districts, pension, pollution control, school districts, water and sewer	COPs, government-paid lease, lease revenue	Higher education, nuclear power		
2 Enterprises that serve essential purposes but not fully insulated from competition or fluctuation in demand.	Rated 0.50% Un-rated 4.97%		Public transportation, solid waste	Airport, appropriations, economic/ industrial development, ports, marinas	Charter schools, CDDs, Mello-Roos, metro dev districts, not-for profit cultural/human service provider, parking, public facilities, public power sys, secondary education, state multi-family housing, TIFs, telecom, toll roads, toll bridges, tunnels		Hospital
3 Enterprises that must compete versus private sector entities or securities with volatile revenue streams.	Rated 4.46% Un-rated 44.59 %				Assisted living, CCRCs, independent living facilities, local multi-family housing, look-alike CCRC, nursing home, private/religious schools, tobacco MSAs, non-toll highways		Indian tribal gaming, misc, mobile home housing, student housing, student loan revenue

Sources: Bloomberg, Fitch, Moody's, Rockfleet

Recovery classes 4 through 6 reflect an extended period of time before repayment can be expected.

from the resale value of the assets; or 2) securities where bondholders do not have a lien on assets, but resumption in debt service may be expected after an extended delay.

Fitch's Recovery Class 4 includes CCRCs; nursing homes; private colleges/secondary school—GO debt, leases, and tuition-backed; state and local multi-family housing; TIFs; TABs; museums; stadiums; parking facilities; established bridges and toll roads; public power generation; and waste disposal. Fitch assumes a modest recovery of 90% in this category.

Recovery Class 5, with an expected 70% recovery rate, comprises military housing and startup bridges and toll roads. Bloomberg doesn't differentiate between established and startup bridges and toll roads, nor does it have a category for military housing. Therefore, Class 5 contains no bond sectors.

Recovery Class 6, with an expected recovery rate of 40% to approximate corporate debt, consists of hospitals, private college auxiliary revenue, private prisons, stadiums, and private gaming.

In the 2010 Moody's Report, it is stated that the median trading price 30 days after the default rate is 59.9 cents on the dollar. Based upon their individual circumstances, investors should determine if it's worth selling the securities and accepting a guaranteed loss, or based upon the classifications above, if they should consider holding the securities until the default is resolved.

Investors holding defaulted securities should determine if they should sell at a guaranteed loss, or hold the securities for potential future recovery.

Default Classes

Default Class 1 consists of GO, tax-backed, and most appropriation-backed debt of state and local governments, and GO and revenue debt of long-standing essential purpose enterprises, either a monopoly or with strong protection from competition. Examples include public colleges' and universities' GO, leases, and tuition revenues; insured and single-family housing; water, sewer and gas; and public power distribution.

Default Class 2 consists of enterprises that serve essential purposes, but are not fully insulated from competition or fluctuations in demand, such as public power generation, waste disposal, private colleges and secondary schools, state multi-family housing, TIFs, TABs, museums, stadiums, aquariums, hospitals, airports, marine ports, parking facilities, and established bridges and toll roads.

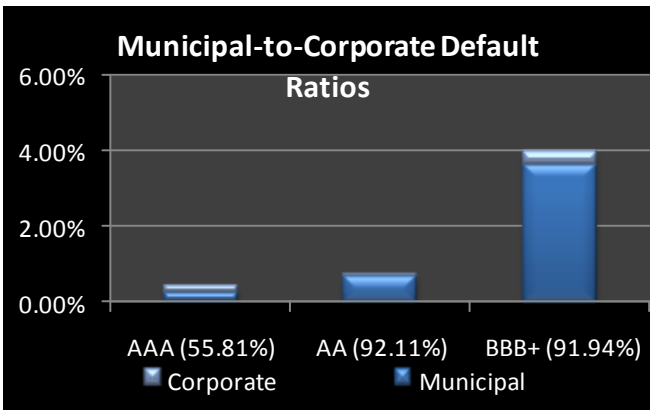
Default Class 3 consists of enterprises that must compete against the private sector or securities with volatile revenue streams. These include CCRCs, nursing homes, private college auxiliary revenue, local multi-family housing, start-up bridges and tollroads, industrial development bonds, tobacco securitization, and tribal gaming bonds.

The $1 trillion to be analyzed were grouped into these three default classes as closely as possible. Bloomberg doesn't utilize the exact same classifications, as can be seen from the chart on the preceding page.

Calculating the Default Rate

To determine how much of the $1 trillion may default and what is the expected recovery for those defaults, we utilized the six Fitch recovery classifications in conjunction with the three default risk classifications from the 2007 Fitch Report.

The 2007 Fitch Report cites cumulative 5-15 year default rates (1987-2002) of 0.24%, 0.70%, and 3.65% for Default Classes 1, 2, and 3, respectively. Fitch compares Default Class 1 to a corporate AAA bond with a 10-year default rate of 0.43%, Default Class 2 to a corporate AA bond with a 10-year default rate of 0.76%, and Default Class 3 to a corporate BBB+ bond with a 10-year default rate of 3.97%. The municipal-to-corporate ratios for the three classes are 55.81%, 92.11%, and 91.94%, respectively.



A combination of historical municipal and corporate default data is used to assign future probability.

Why is the comparison to corporate debt relevant? Some believe that state and local recovery will lag national recovery. According to U.S. Census Bureau data,

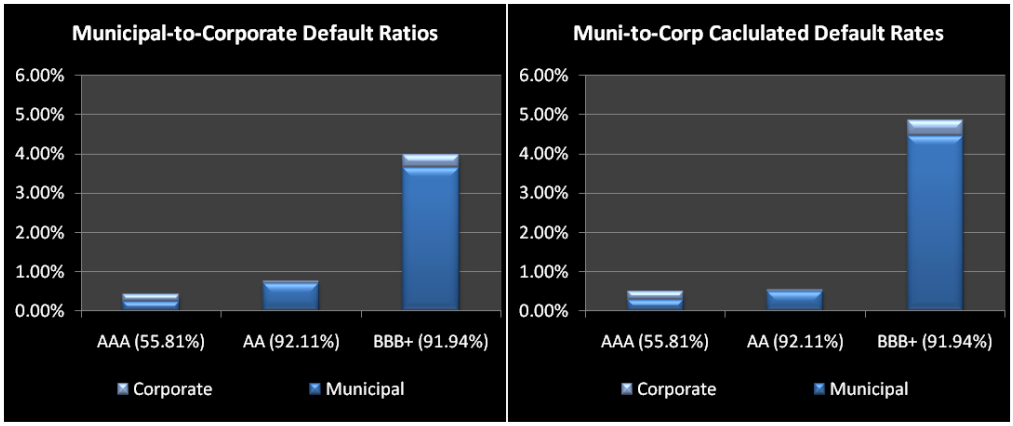
total state and local tax revenue rose to $380.3 billion in 4Q'10, compared with $372.2 billion in 4Q'09. However, local governments tend to be more dependent upon property taxes. So while reporting the second highest quarter of property tax collections in history in 4Q'10, at $177.1 billion, that amount represents a decline from $182.5 billion collected in 4Q'09. Rating downgrades are expected to exceed rating upgrades again in 2011.

The historical municipal-to-corporate default ratio is applied to more recent corporate data to calculate probable municipal default rates.

Fitch distributed updated statistics in its March 25, 2011 report, "Fitch Ratings U.S. Public Finance 2010 Transition and Default Study," showing cumulative 10-year default rates of 0% for municipal securities rated AAA, AA, or A. Given current conditions, we thought 0% might be a little low, even if historically accurate.

In its February 2010 report, "U.S. Municipal Bond Defaults and Recoveries, 1970-2009," (the "2010 Moody's Report"), Moody's Investors Services reports 2009 corporate default rates of 0.50% for AAA, 0.54% for AA, and 4.85% for BBB+ rated bonds. While 2010 data was presented, it shows a decrease in corporate default rates from 2009 to 2010, with more decreases projected for 2011. Therefore, for a more conservative approach, we used the higher 2009 corporate default rates.

The municipal-to-corporate ratios from the 2007 Fitch Report (55.81%, 92.11%, and 91.94%) were applied to Moody's 2009 corporate rates from the 2010 Moody's Report to determine the default rates for the analysis — 0.28%, 0.50%, and 4.46% for municipal Default Classes 1, 2, and 3, respectively, as shown in the charts.



Fitch estimates that non-rated and below investment grade municipal securities default at 10 times the rate of investment grade securities.

Investment Grade versus Unrated/Below Investment Grade

The 2007 Fitch Report notes that bonds without an investment grade rating are ten times more likely to default than grade bonds. The $1 trillion, grouped into the default and recovery categories as shown in the chart, were further refined into investment grade or unrated/below investment grade. To each subset of bonds, the appropriate default rate was assigned.

Default Estimates

Of the $1 trillion (or more precisely, $1.028 trillion), $960 billion is not expected to default over the next ten years.

Recovery Estimates

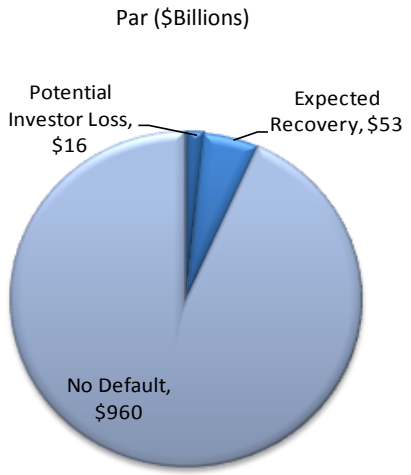
To the remaining $69 billion that may potentially default over the next ten years, the expected recovery rates were applied. It is assumed that $53 billion will be recovered when the issuer resumes debt service payments or through the sale of the entities' assets.

Potential Investor Loss

As historical data is being used to predict future results, and certain assumptions have been taken, as described above, there is certainly room for error. However, we believe there is a reasonable expectation that potential unrecoverable investor losses may be in the range of $10-20 billion over the next ten years.

Additional Investor Compensation

It is important to note that the majority of these losses will be in unrated, below investment grade bonds. By their nature, investors have been receiving higher yields for these securities during the holding period, and have therefore already received partial compensation for these losses in advance. ♣



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