

Friday, February 8, 2019

ILCMA 2019 Winter Conference

Unraveling the Mystery of Bond Ratings – Moody's Exposed

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Bond Rating Trends in Illinois

- Moody's in its December 14, 2018 Sector In-Depth concluded that:
 - High pension burdens are the primary credit challenge for most Illinois cities.
 - Pension benefits are established by state statute and not the communities that have to pay them;
 - Illinois Supreme Court has overturned funding solutions by citing constitution protections (e.g. Chicago Park District);
 - Increasing unfunded pension liabilities have weakened the credit quality of Illinois communities;
 - While some of the communities with exceptional credit quality have largely weathered the storm; pension burdens are high and could result in downgrades in the future.
- Downgrades have outpaced upgrades for Moody's rated Illinois Cities over the past five years¹:
 - 2018: 17 Downgrades / 2 Upgrades
 - 2017: 23 Downgrades / 1 Upgrade
 - 2016: 21 Downgrades / 1 Upgrade
 - 2015: 7 Downgrades / 3 Upgrades
 - 2014: 10 Downgrades / 2 Upgrades.

1. As reported in Moody's December 14, 2018 Sector-In-Depth: Ability to absorb pension costs supports exceptional credit quality for some cities.

Moody's Rating Methodology

- In January of 2014, Moody's released its updated rating methodology for US Local Government General Obligation Debt.
 - Primary purpose of the methodology change was to enhance the transparency of the rating process.
 - Added a rating scorecard.
 - Changed the relative weighting for the various rating factors.

New Methodology Weights

Factor	Previous Methodology Weight	New Methodology Weight
Economy/Tax Base	40%	30%
Finances	30%	30%
Management	20%	20%
Debt/Pensions	10%	20%

Source: Moody's Request for Comment: US Government General Obligation Bond Methodology, August 14, 2013.

- Increase of Debt/Pension Factor to 20% from 10%.
 - Growing unfunded liabilities for the local government sector.
 - Potential for large pension liabilities to constrict financial flexibility.
- Decrease of Economy/Tax Base Factor to 30% from 40%.
 - Based on Moody's belief that state imposed tax caps, public sentiment against tax increases and other factors impede the transfer of resources from the local economy to government revenues.

Rating Factor Comparison: Moody's Vs. S&P

S&P's Local Government G.O. Rating Factors⁽¹⁾

Institutional Framework (Weight: 10%)	Economy (Weight: 30%)	Management (Weight: 20%)	Financial Measures (Weight: 30%)			Debt & Contingent Liabilities (Weight: 10%)
			Liquidity (Weight: 10%)	Budgetary Performance (Weight: 10%)	Budgetary Flexibility (Weight: 10%)	

Moody's Local Government G.O. Rating Factors⁽²⁾

Economy / Tax Base (Weight: 30%)			Finances (Weight: 30%)				Management (Weight: 20%)		Debt & Pensions (Weight: 20%)			
Tax Base Size (10%)	Full Value Per Capita (10%)	Wealth (10%)	Fund Balance (10%)	Fund Balance Trend (5%)	Cash Balance (10%)	Cash Balance Trend (5%)	Institutional Framework (10%)	Operating History (10%)	Debt to Full Value (5%)	Debt to Revenue (5%)	Adj. Net Pension Liability to Full Value (5%)	Adj. Net Pension Liability to Revenue (5%)

(1) Source: S&P U.S. Local Governments General Obligation Rating: Methodology and Assumptions, September 12, 2013.

(2) Source: Moody's Investors Service, Request for Comment: US Local Government General Obligation Bond Methodology, August 14, 2013.

- While some of the category labels seem similar, it is important to understand the differences between the two methodologies.
 - Moody's management factor includes items not considered management by S&P.
 - Pensions are given a full 10% of the rating by Moody's and considered qualitative adjustments by S&P.
 - Finances are weighted at 30% by both, but 10% of S&P's financial score is considered a management factor by Moody's.

Moody's Rating Factors

- The introduction of the scorecard with Moody's new methodology introduced the weighting of the various sub-factors within each rating factor.
- In many instances, the scorecard indicated rating has not matched the actual rating.
- Introduced the Moody's Adjusted Net Pension Liability (ANPL).
 - Attempt to standardize the process to calculate pension liabilities nationally and across sectors.
- The new methodology added two sub factors for analyzing pension obligations.
 - ANPL / Full Value
 - ANPL / Operating Revenue

Scorecard Factors and Weights			
Local Governments			
Broad Rating Factors	Factor Weighting	Rating Subfactors	Subfactor Weighting
Economy/Tax Base	30%	Tax Base Size (full value)	10%
		Full Value Per Capita	10%
		Wealth (median family income)	10%
Finances	30%	Fund Balance (% of revenues)	10%
		Fund Balance Trend (5-year change)	5%
		Cash Balance (% of revenues)	10%
		Cash Balance Trend (5-year change)	5%
Management	20%	Institutional Framework	10%
		Operating History	10%
Debt/Pensions	20%	Debt to Full Value	5%
		Debt to Revenue	5%
		Moody's-adjusted Net Pension Liability (3-year average) to Full Value	5%
		Moody's-adjusted Net Pension Liability (3-year average) to Revenue	5%

Source: Moody's Request for Comment: US Government General Obligation Bond Methodology, August 14, 2013.

Moody's Adjusted Net Pension Liabilities (ANPL)

- Comparison of unfunded liabilities across pension plans is difficult due to the varying assumptions used to calculate each plan's liabilities.
- Under GASB standards, public pension plans with the same benefit obligations and similar asset values may report differing unfunded liabilities due to differing assumptions in the actuarial rate of return.
- Moody's adjusts each issuer's stated pension plan liabilities using a common discount rate in order to provide greater transparency and comparability of pension liability measures for use in the credit rating process.
- The market value of plan assets is then subtracted from the Adjusted Pension Liability in order to determine the ANPL.

Calculating ANPL

- First estimate the duration of the liabilities using information disclosed under GASB standards.
 - If issuer has not applied GASB 68, a 13 year duration is used.
- Move the reported liabilities forward in time using the reported Single Equivalent Discount Rate and the estimated duration calculated in step 1.
- Next, calculate the present value of that result using the FTSE Pension Liability Index. This results in the Adjusted Liability.
 - FTSE Pension Liability Index is available at: <https://www.soa.org/sections/retirement/ftse-pension-discount-curve/>
- Subtract the market value of plan assets from the Adjusted Liability to equal the ANPL.

EXHIBIT 4

Label	Line Item	Value - Hypothetical Example	Source
A	Measurement Date	6/30/2017	Reported
B	Single Equivalent Discount Rate	7.25%	Reported
C	Total Pension Liability	\$10,000,000	Reported
D	Plan Fiduciary Net Position (i.e., market value)	\$7,500,000	Reported
E	Net Pension Liability	\$2,500,000	Reported = C less D
F	Net Pension Liability (Single Equivalent Discount Rate minus 100 bp)	\$3,850,000	Reported
G	Total Pension Liability (Single Equivalent Discount Rate minus 100 bp)	\$11,350,000	= F less E, plus C
H	Estimated Liability Duration	13.50	= $100 * (G \text{ less } C, \text{ divided by } C)$
I	FTSE Pension Liability Index as of Measurement Date	3.87%	Published monthly by the Society of Actuaries
J	Moody's Adjusted Liability	\$15,399,794	= $C * (1+B)^H * (1+I)^{-H}$
K	Moody's Adjusted Net Pension Liability (ANPL)	\$7,899,794	= J less D

Source: Moody's Cross Sector Rating Methodology: Adjustments to US State and Local Government Reported Pension Data, December 19, 2017.

How does Moody's use ANPL?

	<i>Very Strong</i>	<i>Strong</i>	<i>Moderate</i>	<i>Weak</i>	<i>Poor</i>	<i>Very Poor</i>	
	Aaa	Aa	A	Baa	Ba	B & Below	Weight
Debt/Pensions (20%)							
Net Direct Debt / Full Value	< 0.75%	0.75% ≤ n < 1.75%	1.75% ≤ n < 4.00%	4.00% ≤ n < 10.00%	10.00% ≤ n < 15.00%	> 15.00%	5%
Net Direct Debt / Operating Revenues	< 0.33x	0.33x ≤ n < 0.67x	0.67x ≤ n < 3.00x	3.00x ≤ n < 5.00x	5.00x ≤ n < 7.00x	> 7.00x	5%
3-Year Average of Moody's Adjusted Net Pension Liability / Full Value	< 1.13%	1.13% ≤ n < 2.63%	2.63% ≤ n < 6.00%	6.00% ≤ n < 15.00%	15.00% ≤ n < 22.50%	> 22.50%	5%
3-Year Average of Moody's Adjusted Net Pension Liability / Operating Revenues	< 0.50x	0.50x ≤ n < 1.00x	1.00x ≤ n < 4.50x	4.50x ≤ n < 7.50x	7.50x ≤ n < 10.50x	> 10.50x	5%

Source: Moody's Request for Comment: US Government General Obligation Bond Methodology, August 14, 2013.

- A three year average of the ANPL is compared as a percentage of both Full Value and Operating Revenues.
- According to Moody's, through 2017 the ANPL for Aaa Illinois cities is 2.7x operating revenues, compared with a median of 1.5x operating revenues for cities nationwide. ¹
- Across all rating categories, Illinois cities had a median pension burden of 3.1x operating revenues compared with a median burden of 1.5x operating revenues nationally. ¹

1. As reported in Moody's December 14, 2018 Sector-In-Depth: Ability to absorb pension costs supports exceptional credit quality for some cities.

The “Tread Water” Indicator

- Moody’s has implemented its Tread Water indicator in order to measure the strength or weakness of pension contributions relative to reported plan funding needs.
- The Tread Water indicator is a estimate of the annual pension contribution necessary to prevent growth in unfunded liabilities.
 - Uses current plan assumptions.
- Contributions that exceed the Tread Water indicator reflect positive amortization of reported unfunded liabilities.
- Contributions that lag the Tread Water indicator suggest that the ongoing pension contribution does not cover the cost of implied interest on unfunded liabilities.
 - Ongoing contribution weakness signals that government pension cost may rise in the future.

Calculating “Tread Water”

- Net Pension Liability
 - x Single Equivalent Discount Rate
Implied Interest on Net Pension Liability

- Service Cost
 - Employee Contributions
Employer Service Cost

- Implied Interest on Net Pension Liability
 - + Employer Service Cost
Tread Water Indicator

EXHIBIT 7

Label	Line Item	Value of Plan - Hypothetical Example	Source
A	Total Pension Liability (beginning of year)	\$50,000,000	Reported
B	Plan Fiduciary Net Position (beginning of year)	\$40,000,000	Reported
C	Net Pension Liability (beginning of year)	\$10,000,000	= A less B
D	Single Equivalent Discount Rate (prior year)	7.50%	Reported
E	Implied Interest on Net Pension Liability	\$750,000	= C * D
F	Service Cost	\$500,000	Reported
G	Employee Contributions	\$200,000	Reported
H	Employer Service Cost	\$300,000	= F less G
I	Tread Water Indicator	\$1,050,000	= E plus H

Source: Moody’s Cross Sector Rating Methodology: Adjustments to US State and Local Government Reported Pension Data, December 19, 2017.

Preparing for your rating call/meeting.

- Request questions/topics from the rating analyst ahead of the conference call.
 - Review the questions and prepare responses.
 - Possibly send the responses to the analyst ahead of the call.
- Understand the rating methodology.
 - What factors are the rating agencies considering?
 - How you do compare?
- Prepare for a thorough discussion on your credit strengths.
 - Discuss any positive economic trends.
 - New developments and potential impact to the community.
 - Financial performance.
 - New policies and practices.
- How are you mitigating pension funding concerns?
- Be positive – the glass is at least half full.
- Who is participating on the call?
 - Manager.
 - Finance Director.
 - Economic Development.
 - Elected Official.
 - Others.

Pension Funding Strategies

- Moody's believes that high pension burdens are the primary credit challenge for most Illinois cities.¹
 - Credits will be pressured in the future if cities do not continue to absorb growing employer contributions.
 - Current state minimum funding levels for public safety pensions backload employer contributions.
- Many issuers are taking steps to increase contributions in order to slow or stop the growth of unfunded liabilities.
 - Assuming 100% funding for public safety plans vs. the 90% state minimum.
 - Lowering the assumed investment rate of return.
 - Shortening the amortization period.
 - Pledging additional revenues.

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Alternative Funding Method: Pension Obligation Bonds

With pensions weighing on the finances of municipalities, many are exploring the idea of an alternative financing mechanism called Pension Obligation Bonds (“POBs”). Below we present a brief explanation of them.

- It can be argued that the unfunded pension liabilities of Illinois communities represent “hard” liabilities or debt.
- These liabilities pay interest like debt (e.g. interest rate of 7.00%).
- The payment to amortize this liability can and mostly does increase significantly overtime.
- One alternative to how a municipality currently pays the liability would be to issue taxable bonds at an interest rate lower than the rate charged by the pension systems.
 - Bond proceeds are deposited into the pension funds leading to higher funding levels (e.g. 100% funded).
 - Can generate savings if investment targets are met.
 - The community can structure the taxable bonds to mitigate or eliminate the increasing payment to amortize the liability
 - This is an arbitrage play!
- There are risks to the bonding approach; most significantly that the average earnings on the proceeds would not achieve the bond rate over the length of the transaction.

This discussion is not exhaustive so, if interested in learning more, we encourage you to talk to your public finance professionals.

Credit Concerns Related to Pension Funding Strategies.

- Benefits established by state statute and controlled by state legislature.
 - Mismatch between the elected officials that grant benefits and those who finance them.
- Moody's believes that with a successful lobbying effort, it is conceivable that the state could extend the statutory amortization target beyond 2040.¹
 - Cost deferrals such as this tend to exacerbate the current pension funding challenges in exchange for short term budget relief.
- POBs can create credit challenges:
 - Bonds structured beyond the current amortization period in order to provide immediate budget relief.
 - Bond proceeds used to pay “normal cost” rather than just the unfunded portion of the liability.
 - Complex investment strategies with bond proceeds.

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