



Rating Agency Methodologies

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INVESTORS SERVICE



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Moody's sector outlook and our approach to rating local governments

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Agenda

1. Local government outlooks
2. Overview of the general obligation methodology
3. Moody's rating process
4. Q&A

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Local government outlooks

Local governments stable in 2022

Includes cities, counties, school districts, water & sewer systems



Modest revenue growth expected

Overall solid economic conditions, and the strong residential real estate support 1% to 3% revenue growth in 2022



Federal funding provides stability and opportunity

Combined \$680 billion of federal aid flowing to local governments between American Rescue Plan Act and Infrastructure Investment & Jobs Act provides budgetary relief and support capital investment; infrastructure spending to rise



Moderating fixed costs

Strong 2021 pension returns and influx of federal funding provide near term relief of fixed costs, but unfunded liabilities are still significant



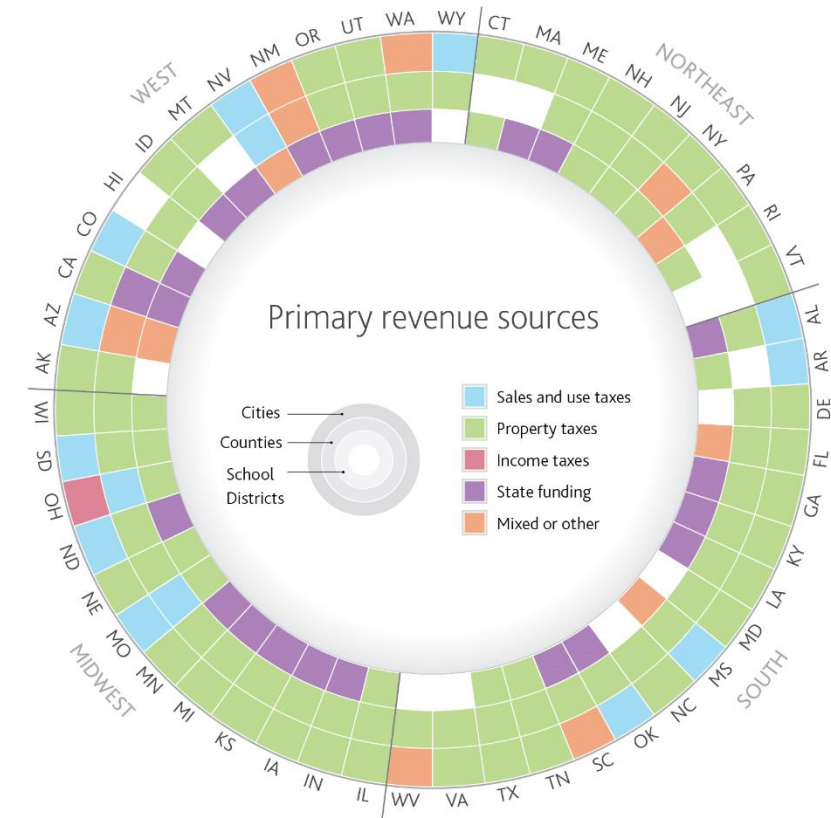
ESG risks persist

Physical climate, social and cyber risks are growing for municipalities, largely mitigated by strong governance

Economic conditions drive solid revenue projections

1% to 3% growth expected in 2022

- » Property taxes grow with increased home values, but weak commercial values offset modestly
- » 4.4% real GDP growth supports sales and income tax receipts
- » State funding remains strong for K-12
- » Water & Sewer utilities benefit from stable demand and revenue

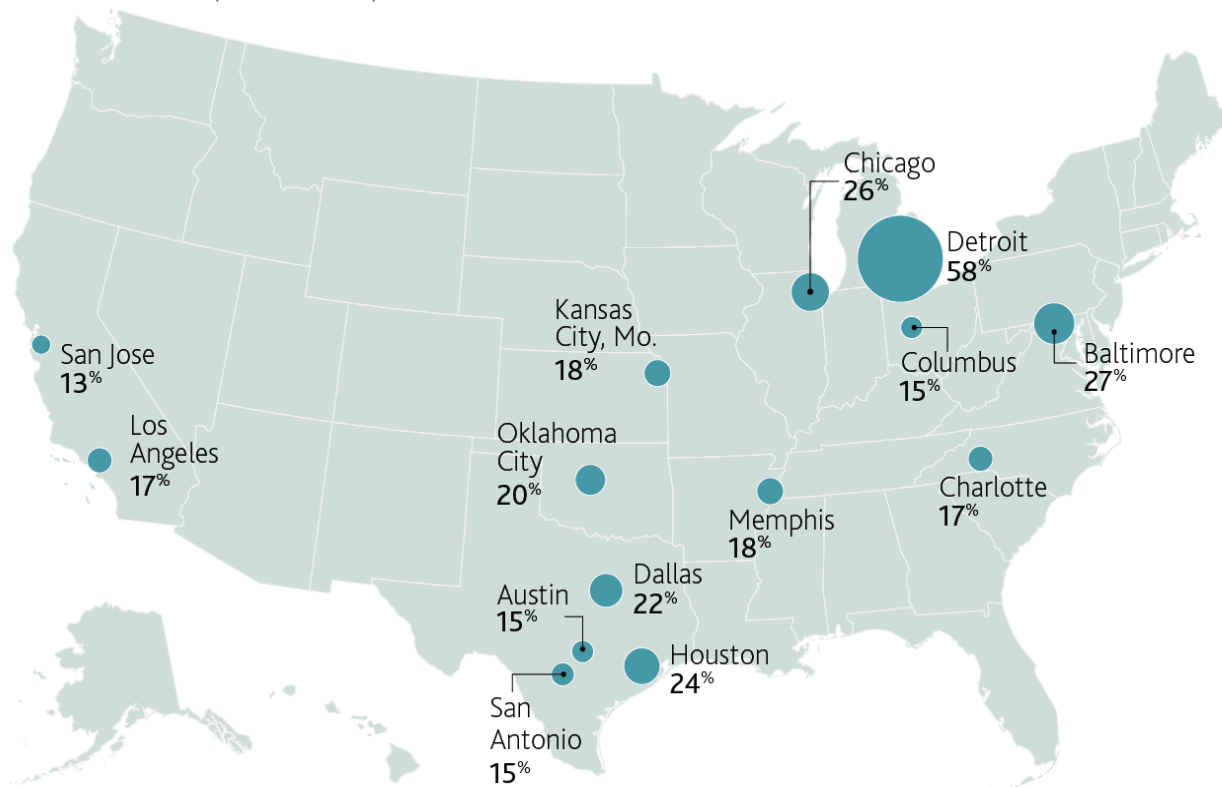


Federal funding provides relief, opportunity & safeguard

Municipalities are now better positioned to face budgetary, environmental, social & infrastructure challenges

FEDERAL AID FOR LARGE CITIES

% OF REVENUE (FISCAL 2020)



Under the Coronavirus Local Fiscal Recovery Fund, some of the largest cities by debt outstanding will receive amounts equal to more than 20% of fiscal 2020 operating revenue. Poverty and housing overcrowding are factors involved in determining the allocations.

Revenue is operating revenue. Calculations exclude separate funds for schools and the aid to revenue ratio may be low for cities combined with their school system.

Sources: US Department of the Treasury and Moody's Investors Service

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Overview of the general obligation methodology

Moody's general obligation methodology & scorecard

- » Used to evaluate the credit quality of GO debt issued by U.S. local governments other than K-12 public school districts
- » GO scorecard provides summarized guidance for the factors that we generally consider most important in assigning ratings.
 - Provide a starting point for a more thorough analysis.
 - Enhance the transparency of our rating process.
 - Include some qualitative metrics in addition to quantitative factors.
 - Formally incorporate historical trend analysis.
 - Capture key considerations that correspond to particular rating categories.

Factor 1: economy & tax base (30%)

FACTOR 1

Economy/Tax Base (30%)

	Aaa	Aa	A	Baa	Ba	B & Below	Weight
Tax Base Size: Full Value	> \$12B	\$12B ≥ n > \$1.4B	\$1.4B ≥ n > \$240M	\$240M ≥ n > \$120M	\$120M ≥ n > \$60M	≤ \$60M	10%
Full Value Per Capita	> \$150,000	\$150,000 ≥ n > \$65,000	\$65,000 ≥ n > \$35,000	\$35,000 ≥ n > \$20,000	\$20,000 ≥ n > \$10,000	≤ \$10,000	10%
Socioeconomic Indices: MFI	> 150% of US median	150% to 90% of US median	90% to 75% of US median	75% to 50% of US median	50% to 40% of US median	≤ 40% of US median	10%

Source: Moody's Investor Service

- » Full Value (10%) measures market value of taxable property.
- » Full Value Per Capita (10%) measures resources per resident.
- » Median Family Income (10%) measures resident income levels.

Factor 2: finances (30%)

FACTOR 2

Finances (30%)

	Aaa	Aa	A	Baa	Ba	B & Below	Weight
Fund Balance as % of Revenues	> 30%	$30\% \geq n > 15\%$	$15\% \geq n > 5\%$	$5\% \geq n > 0\%$	$0\% \geq n > -2.5\%$	$\leq -2.5\%$	10%
5-Year Dollar Change in Fund Balance as % of Revenues	> 25%	$25\% \geq n > 10\%$	$10\% \geq n > 0\%$	$0\% \geq n > -10\%$	$-10\% \geq n > -18\%$	$\leq -18\%$	5%
Cash Balance as % of Revenues	> 25%	$25\% \geq n > 10\%$	$10\% \geq n > 5\%$	$5\% \geq n > 0\%$	$0\% \geq n > -2.5\%$	$\leq -2.5\%$	10%
5-Year Dollar Change in Cash Balance as % of Revenues	> 25%	$25\% \geq n > 10\%$	$10\% \geq n > 0\%$	$0\% \geq n > -10\%$	$-10\% \geq n > -18\%$	$\leq -18\%$	5%

Source: Moody's Investor Service

- » Fund Balance (15%) measures financial resources, relative to operating revenue, both at a point in time and over a five-year period.
- » Cash Balance (15%) measures liquidity, relative to operating revenue, both at a point in time and over a five-year period.

Factor 3: management (20%)

FACTOR 3

Management (20%)

	Aaa	Aa	A	Baa	Ba	B & Below	Weight
Institutional Framework	Very strong legal ability to match resources with spending	Strong legal ability to match resources with spending	Moderate legal ability to match resources with spending	Limited legal ability to match resources with spending	Poor legal ability to match resources with spending	Very poor or no legal ability to match resources with spending	10%
Operating History: 5-Year Average of Operating Revenues / Operating Expenditures	> 1.05x	$1.05x \geq n > 1.02x$	$1.02x \geq n > 0.98x$	$0.98x \geq n > 0.95x$	$0.95x \geq n > 0.92x$	$\leq 0.92x$	10%

Source: Moody's Investor Service

- » Institutional Framework (10%) measures the sector's legal ability to match revenues and expenditures.
- » Operating History (10%) compares revenues and expenditures over a five-year period.

Institutional Framework

Assigned to every state/sector combination

Operating Revenue Flexibility		Revenue Raising Ability			Expenditure Predictability	
		Strong ability to raise revenues	Moderate ability to raise revenues	Weak ability to raise revenues		
Revenue Predictability	Major revenue sources tend to be highly stable and predictable	Aaa	Aa	A		Major expenditures tend to be highly stable and predictable
	Major revenue sources tend to be moderately stable and predictable	Aa	A	Baa		Major expenditures tend to be moderately stable and predictable
	Major revenue sources tend to be somewhat unstable and unpredictable	A	Baa	Ba or B and Below		Major expenditures tend to be somewhat unstable and unpredictable
		Strong ability to reduce expenditures	Moderate ability to reduce expenditures	Weak ability to reduce expenditures	Operating Expenditure Flexibility	
		Expenditure Reduction Ability				

Factor 4: debt & pensions (20%)

FACTOR 4

Debt/Pensions (20%)

	Aaa	Aa	A	Baa	Ba	B & Below	Weight
Net Direct Debt / Full Value	< 0.75%	$0.75\% \leq n < 1.75\%$	$1.75\% \leq n < 4\%$	$4\% \leq n < 10\%$	$10\% \leq n < 15\%$	$\geq 15\%$	5%
Net Direct Debt / Operating Revenues	< 0.33x	$0.33x \leq n < 0.67x$	$0.67x \leq n < 3x$	$3x \leq n < 5x$	$5x \leq n < 7x$	$\geq 7x$	5%
3-Year Average of Moody's Adjusted Net Pension Liability / Full Value	< 0.9%	$0.9\% \leq n < 2.1\%$	$2.1\% \leq n < 4.8\%$	$4.8\% \leq n < 12\%$	$12\% \leq n < 18\%$	$\geq 18\%$	5%
3-Year Average of Moody's Adjusted Net Pension Liability / Operating Revenues	< 0.4x	$0.4x \leq n < 0.8x$	$0.8x \leq n < 3.6x$	$3.6x \leq n < 6x$	$6x \leq n < 8.4x$	$\geq 8.4x$	5%

Source: Moody's Investor Service

- » Debt (10%) measures long-term debt outstanding relative to tax base value and operating revenue.
- » Pensions (10%) measures Moody's Adjusted Net Pension Liability (ANPL) relative to tax base value and operating revenue over a three-year period.

What is the Moody's ANPL?

Adjusted Net Pension Liability

We adjust reported pension data to improve the comparability of financial data among peers.

- » **Why?** To bring greater transparency and consistency to the analysis of pension liabilities and to enhance the analytical value of financial data for credit analysis.
- » ANPL doesn't replace your reported net pension liability – it just allows us to compare you with other issuers better.

Calculating ANPL

Adjusted Net Pension Liability

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 less C, 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

Notching factors

Factors that are not likely to apply to all issuers, but can impact credit quality

Scorecard: US Local Government General Obligation Bonds

Adjustments/Notching Factors

<i>Description</i>	<i>Direction</i>
Economy/Tax Base	
Institutional presence	up
Regional economic center	up
Economic concentration	down
Outsized unemployment or poverty levels	down
Other analyst adjustment to Economy/Tax Base factor (specify)	up/down
Finances	
Outsized contingent liability risk	down
Unusually volatile revenue structure	down
Other analyst adjustment to Finances factor (specify)	up/down
Management	
State oversight or support	up/down
Unusually strong or weak budgetary management and planning	up/down
Other analyst adjustment to Management factor (specify)	up/down
Debt/Pensions	
Unusually strong or weak security features	up/down
Unusual risk posed by debt/pension structure	down
History of missed debt service payments	down
Other analyst adjustment to Debt/Pensions factor (specify)	up/down
Other	
Credit event/trend not yet reflected in existing data sets	up/down

Scorecard-indicated outcome

EXHIBIT 4

Scorecard-Indicated Outcome	Overall Weighted Score
Aaa	0.5 to 1.5
Aa1	1.5 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.5
A1	2.5 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.5
Baa1	3.5 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.5
Ba1	4.5 to 4.83
Ba2	4.83 to 5.17
Ba3	5.17 to 5.5
B1	5.5 to 5.83
B2	5.83 to 6.17
B3 and below	6.17 to 6.5

Source: Moody's Investor Service

Hypothetical scorecard – Anytown, USA

Provides a composite score of a local government's credit profile based on the weighted factors we consider most important, universal and measurable, as well as possible notching factors dependent on individual credit strengths and weaknesses

Anytown, USA

Rating Factors

	Measure	Score
Economy/Tax Base (30%) ^[1]		
Tax Base Size: Full Value (in 000s)	\$1,496,412	Aa
Full Value Per Capita	\$63,340	A
Median Family Income (% of US Median)	85.3%	A
Finances (30%)		
Fund Balance as a % of Revenues	28.6%	Aa
5-Year Dollar Change in Fund Balance as % of Revenues	1.0%	A
Cash Balance as a % of Revenues	26.2%	Aaa
5-Year Dollar Change in Cash Balance as % of Revenues	0.0%	Baa
Management (20%)		
Institutional Framework	A	A
Operating History: 5-Year Average of Operating Revenues / Operating Expenditures (x)	1.0x	A
Debt and Pensions (20%)		
Net Direct Debt / Full Value (%)	2.6%	A
Net Direct Debt / Operating Revenues (x)	1.9x	A
3-Year Average of Moody's Adjusted Net Pension Liability / Full Value (%)	2.0%	Aa
3-Year Average of Moody's Adjusted Net Pension Liability / Operating Revenues (x)	1.5x	A
Scorecard-Indicated Outcome		A1
Assigned Rating		Aa3

Scorecard is only the beginning...

Limited to major rating drivers that are common to most issuers

- » Not a calculator – the scorecard outcome will not match the actual rating in many cases.
 - **Why?** Our methodology considers forward-looking elements that may not be captured in historical data.
- » Not an exhaustive list of factors that we consider in every rating.
- » May adjust up or down from scorecard-indicated outcome based on additional factors.
 - **Why?** In some circumstances, there may be additional factors that are not reflected in the scorecard.

Getting to the assigned rating

Determined by rating committee

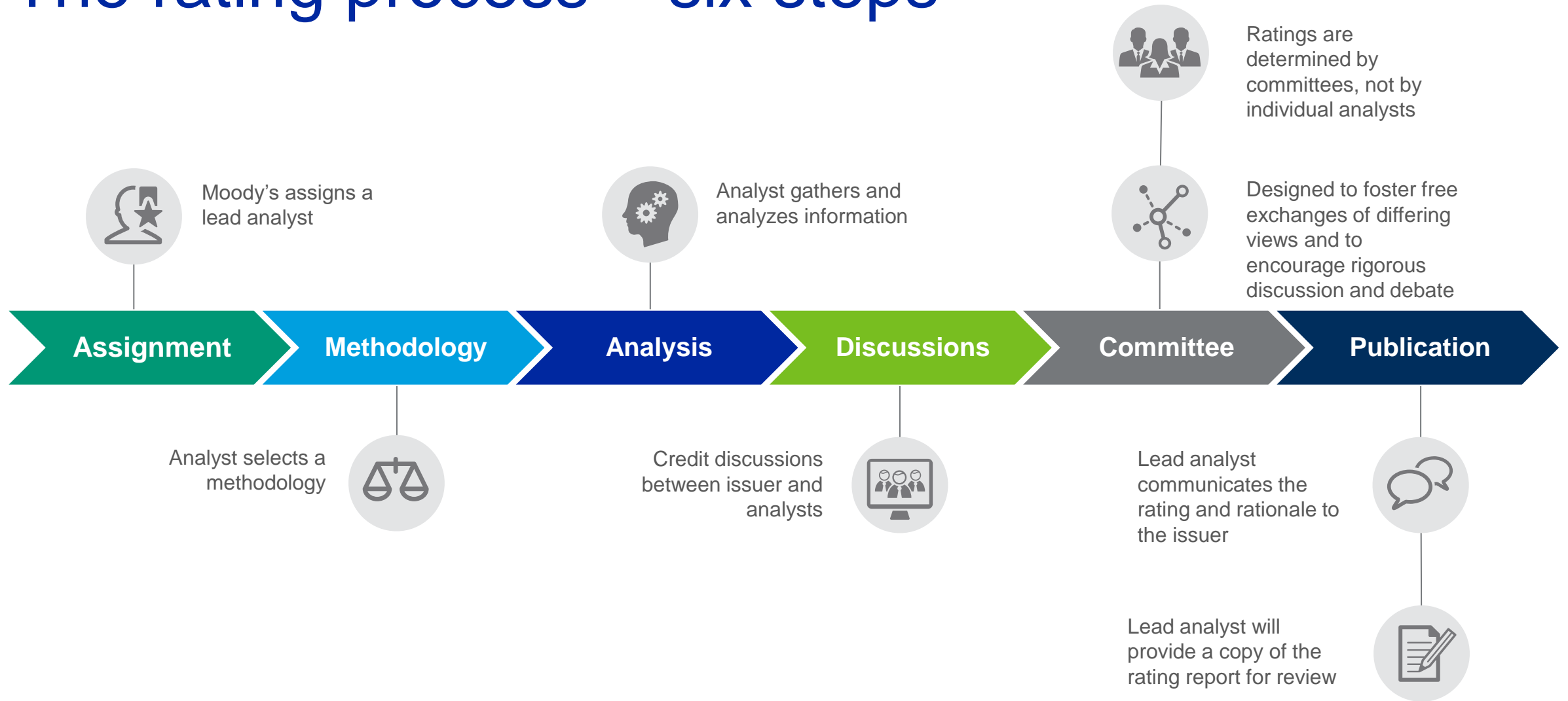
- » Rating committee ultimately determines any notching adjustments based on issuer-specific information.
- » Final rating considers, but is not bound by, the adjusted scorecard-indicated outcome.



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Moody's rating process

The rating process – six steps



Common methodologies & securities

GO debt issued by US local governments	Municipal utility revenue debt	US public finance special tax methodology
Secured by full faith and credit, property tax, first budget obligation, etc.	Secured by net revenues of utility.	Non-property taxes, typically derived from consumer behavior (sales, hotel, casino, food & beverage).
<ul style="list-style-type: none"> » Comprises majority of debt issued by local governments. » Other ratings and securities are notched from GO rating. 	<ul style="list-style-type: none"> » Typically rated within two notches of the GO if tied to a city or county. » Some are standalone issuers. 	<ul style="list-style-type: none"> » Issued by both state and local governments. » Represents less than 3% of US state and local government portfolio. » Usually capped at GO rating, but often rated lower.

The rating call

Conversation, not interrogation!

- » Calls are integral to the rating process. They allow the analyst to get a deeper understanding of **YOU** to help accurately present it to committee.
- » Lead analyst will typically send out a list of questions prior to the rating call to help guide the discussion.
 - Topics can include details of the new sale, financial performance, and other factors relevant to credit quality.
 - Lead analyst will explain the rating process and highlight key issues that are likely to drive the rating outcome.
- » Meant to be conversational – analysts are happy to answer any questions or review additional information.
- » It's helpful when the issuer begins with an overview, addressing matters such as governance practices, strategic plans or priorities, and other relevant credit factors.

Preparing for the rating committee

Step 3. Completes the appropriate scorecard based on the methodology and includes any proposed adjustment factors.



Step 1. Lead analyst analyzes all the issuer-specific information in its entirety and prepares a presentation for rating committee.



Step 4. Decide on a rating recommendation.



Step 2. Review peer comparisons in the state and across the nation.



The rating committee & next steps

Rating committees consist of analysts and managers with:



- Relevant and complementary areas of expertise and a diversity of opinions.
- Geographic diversity.
- Subject matter expertise, e.g., a Corporate Finance Group gaming analyst might participate on an Atlantic City committee.

What happens after the rating committee?



- The lead analyst informs the issuer verbally of the rating and rationale.
- By policy, we do not disclose specific committee details, including the lead analyst's rating recommendation, names of committee participants, or committee's vote tally.

The publication process



Step 1

Scheduling

The lead analyst will typically schedule with the issuer and/or the advisors in advance a time period for review.



Step 2

Issuer review

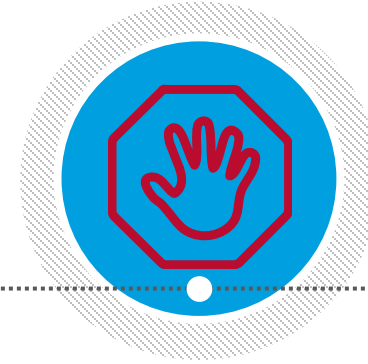
Before we publicly disseminate the press release and credit opinion, the lead analyst provides a drafts of each document to the issuer for review.



Step 3

Two-hour window

Issuers have a window of up to two hours to review draft press release to identify any inaccuracies or any confidential information that should be corrected or deleted prior to publication.



Step 4

Ratings are confidential

Rating actions must remain confidential until they are published on Moodys.com.



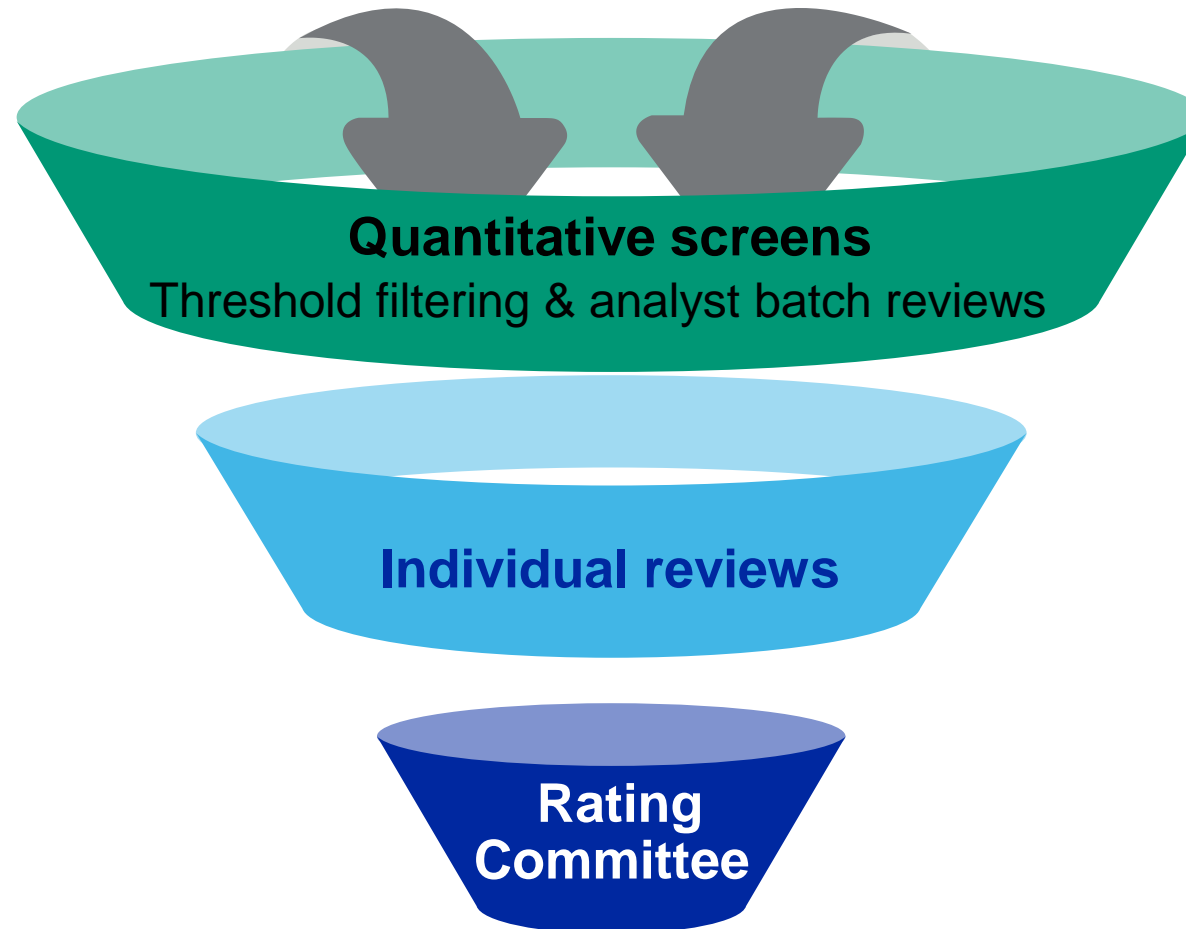
Step 5

Final publication

After issuer review and any resulting edits, the rating and report are publicly posted on Moodys.com and disseminated to various financial news outlets. Then the issuer receives a copy of the announcement when it is public.

Moody's rating management process

Moody's monitors each rating at least annually or more often as circumstances warrant. The process begins with the receipt of audited annual financial statements and involves multiple screens.



Questions and Answers

Moody's sector outlook and our approach to rating local governments

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