

**RATING
METHODOLOGY**

24 July 2024

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Rating Methodology
US Cities and Counties

This rating methodology replaces the *US Cities and Counties Methodology* published on November 2, 2022. While this methodology reflects the same core principles as the 2022 methodology, we have expanded the types of instruments rated using this methodology to include special tax debt instruments of these issuers, and we have expanded the existing instrument rating sections in this methodology to include our approach to these special tax debt instruments relative to a city's or county's issuer rating. We have also made editorial changes to enhance readability.

We continue to assign ratings using the *US Public Finance Special Tax Debt* methodology for special tax debt instruments that we do not rate in relation to an issuer rating of a US city or county, US K-12 public school district or US state or territory. For additional information, please see the related [Request for Comment](#), published on January 16, 2024, and [Results of Consultation](#), published on July 24, 2024.

Scope

This methodology is used to assign issuer ratings to US cities, counties and other general government entities below the level of a state or territory (including towns, townships, villages, boroughs and parishes). In the sections that follow, we refer to all of these entities as cities and counties. This methodology also applies to US Native American tribal nations.

Cities and counties rated using this methodology are self-governing municipal entities that provide general public services to residents within defined geographic boundaries. These cities and counties have the legal ability to issue debt and may impose taxes, fees, fines or service charges. They may also have other legal means of financing public services and paying debt service. Cities and counties rated using this methodology have the power to issue debt on their own behalf or are the obligor of debt issued through an authority or dedicated financing vehicle.

This methodology is also used to assign ratings to the following types of city and county debt instruments: (i) general obligation unlimited tax; (ii) general obligation limited tax; (iii) general promises to pay; (iv) lease and contingent obligations; and (v) debt instruments supported by a pledge of special tax revenues where the credit profile of the city or county is a highly relevant driver of the instrument. Lease and contingent obligations also include moral obligations, non-lease annual appropriation obligations, abatement lease-backed obligations and comparable debt.

Special tax obligations rated using this methodology are debt instruments secured by a pledge of a city's or county's taxes other than real property taxes (e.g., sales taxes), including fees, transaction-based charges, allocations or disbursements the city or county receives, and similar types of revenue (collectively, special taxes).

This methodology also applies to the debt instruments of city or county enterprises, component units and other related entities that benefit from a city's or county's general obligation pledge or general promise to pay, or from a lease, appropriation or moral obligation or pledged special tax revenue of the city or county, provided that the credit profile of the city or county is closely related to the instrument. Key characteristics of a related entity for which the city's or county's credit profile is closely tied include a close governance relationship where key decision-makers are the same in the related entity and the city or county, or are appointed by city or county leaders, or where the city or county has assigned pledged revenues to the related entity to repay the debt but retains ownership and control of the pledged revenues. Cities and counties that provide kindergarten through 12th grade (K-12) education directly or that issue debt on behalf of a school district are rated using this methodology. In most US states, K-12 public education is provided by K-12 public school districts that are separate from the city or county, and these school districts are rated using a separate methodology.¹

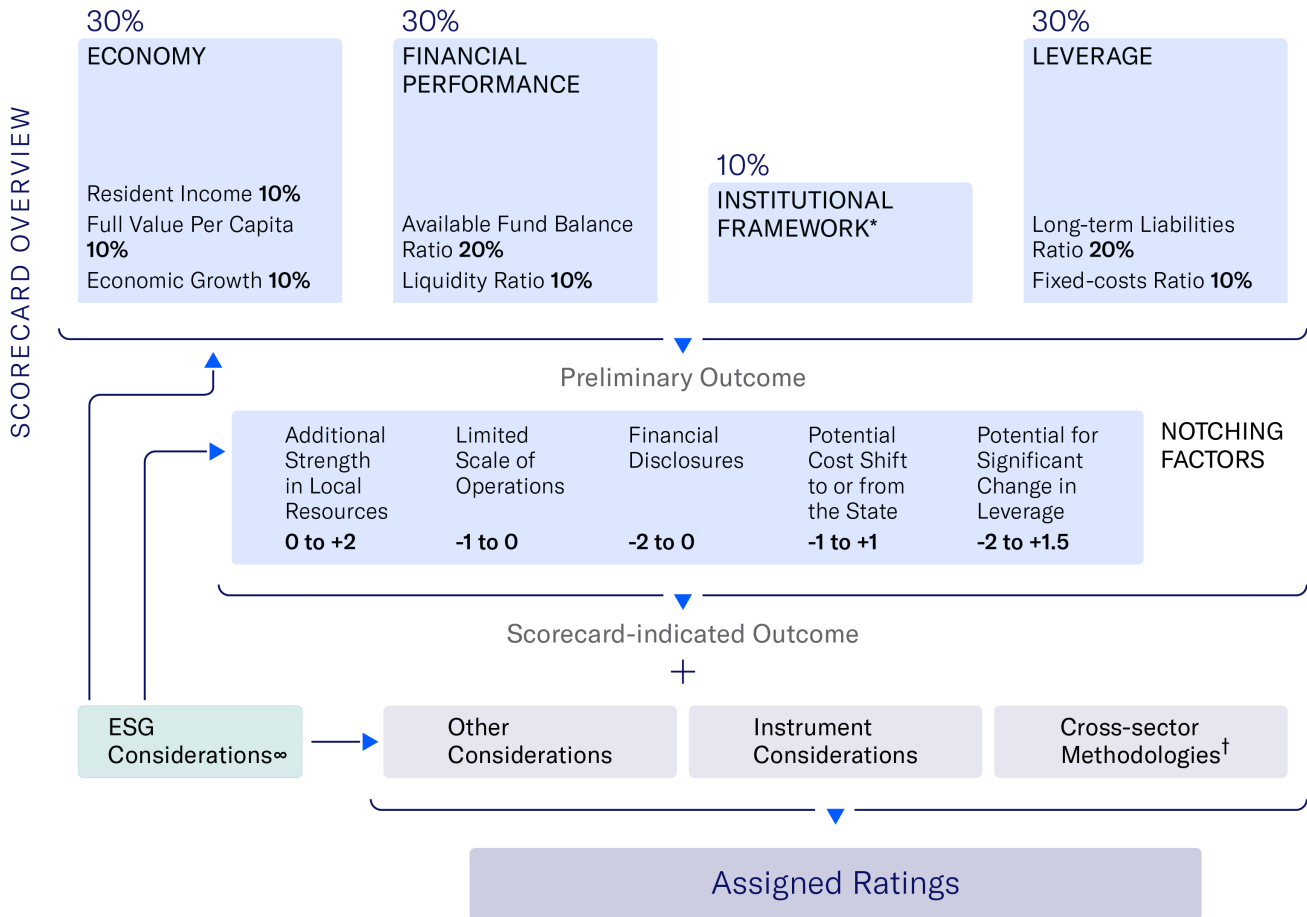
Obligations supported solely by the enterprise revenues of a city or county (e.g., a water or sewer enterprise) are rated using separate methodologies. Also, certain special tax obligations are rated using a separate methodology, e.g., where the special tax revenue is levied on an area that is significantly narrower than the city's or county's total economic base. In addition, this methodology is not used to rate debt supported solely by independent special purpose entities (e.g., a standalone park district or a tax increment district) or the debt of component units of a city or county supported exclusively by a pledge of the tax or other revenue of the special purpose entity or component unit (e.g., a municipal utility). Independent special purpose entities rated using separate methodologies include those with autonomous decision-making powers, especially over borrowing and use of bond proceeds, clear operational separation from the city or county, independent authority to levy or collect pledged revenues and meaningful operating risk beyond that of the related city or county. Such entities include standalone toll roads, municipal airports, public hospitals, public colleges and universities, ports, housing authorities, library districts and fire protection districts, which are rated using separate methodologies.

Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of US cities and counties, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

The following schematic illustrates our general framework for the analysis of cities and counties, which includes the use of a scorecard. The scorecard-indicated outcome is not expected to match the actual rating for each issuer. For more information, see the "Other considerations" and "Limitations" sections.

Exhibit 1
Illustration of the US cities and counties methodology framework



* This factor has no sub-factors.

[∞] Environmental, social and governance (ESG) considerations, including, where available, our opinions of exposure to them as expressed in Issuer Profile Scores (IPSs), may affect scorecard factors and other considerations outside of the scorecard. For more information, see the "Other considerations" section.

[†] Some of the methodological considerations described in one or more cross-sector methodologies may be relevant to ratings in this sector. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

Source: Moody's Ratings

US cities and counties scorecard

For general information about how we use the scorecard and for a discussion of scorecard mechanics, please see the “Using the scorecard to arrive at a scorecard-indicated outcome” section. The scorecard does not include or address every factor that a rating committee may consider in assigning ratings in this sector. Please see the “Other considerations” and “Limitations” sections.

Exhibit 2

US cities and counties scorecard

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor: Economy (30%)									
Resident Income (MHI Adjusted for RPP/US MHI) ^[1]	10%	≥ 120%	100% - 120%	80% - 100%	65% - 80%	50% - 65%	35% - 50%	20% - 35%	< 20%
Full Value per Capita (Full Valuation of the Tax Base / Population) ^[2]	10%	≥ \$180,000	\$100,000 - \$180,000	\$60,000 - \$100,000	\$40,000 - \$60,000	\$25,000 - \$40,000	\$15,000 - \$25,000	\$9,000 - \$15,000	< \$9,000
Economic Growth (Difference Between Five-Year Compound Annual Growth in Real GDP and Five-Year CAGR in Real US GDP) ^[3]	10%	≥ 0%	(1)% - 0%	(2.5)% - (1)%	(4.5)% - (2.5)%	(7)% - (4.5)%	(10)% - (7)%	(15)% - (10)%	< (15)%
Factor: Financial Performance (30%)									
Available Fund Balance Ratio (Available Fund Balance + Net Current Assets/Revenue) ^[4]	20%	≥ 35%	25% - 35%	15% - 25%	5% - 15%	0% - 5%	(5)% - 0%	(10)% - (5)%	< (10)%
Liquidity Ratio (Unrestricted Cash/Revenue) ^[5]	10%	≥ 40%	30% - 40%	20% - 30%	12.5% - 20%	5% - 12.5%	0% - 5%	(5)% - 0%	< (5)%

	Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor: Institutional Framework (10%)									
	10%	The majority of revenue is not subject to externally imposed caps and the governing body can increase revenue meaningfully without limitation or without approval of voters or other governments. And The ability to meaningfully reduce expenditures is not constrained by externally imposed mandates or restrictions.	The majority of revenue is subject to externally imposed caps but the governing body can increase revenue meaningfully without the approval of voters or other governments. Or The ability to meaningfully reduce expenditures is mildly constrained by externally imposed mandates or restrictions.	The majority of revenue is subject to externally imposed caps but the governing body can increase revenue moderately without the approval of voters or other governments. Or The ability to meaningfully reduce expenditures is moderately constrained by externally imposed mandates or restrictions.	The majority of revenue is subject to externally imposed caps and the governing body can increase revenue only minimally without the approval of voters or other governments. Or The ability to meaningfully reduce expenditures is heavily constrained by externally imposed mandates or restrictions.	The majority of revenue is subject to externally imposed caps and the governing body cannot increase revenue without the approval of voters or other governments. Or The ability to meaningfully reduce expenditures is very heavily constrained by externally imposed mandates or restrictions.	The majority of revenue is subject to externally imposed caps and the governing body cannot increase revenue. Or The ability to meaningfully reduce expenditures is extremely constrained by externally imposed mandates or restrictions.	Not applicable.	Not applicable.
Factor: Leverage (30%)									
Long-term Liabilities Ratio ((Debt + ANPL + Adjusted Net OPEB + Other Long-Term Liabilities)/Revenue) ^[6]	20%	≤ 100%	100% - 200%	200% - 350%	350% - 500%	500% - 700%	700% - 900%	900% - 1,100%	> 1,100%
Fixed-costs Ratio (Adjusted Fixed Costs/Revenue) ^[7]	10%	≤ 10%	10% - 15%	15% - 20%	20% - 25%	25% - 35%	35% - 45%	45% - 55%	> 55%
Preliminary outcome									

Notching factors
Additional Strength in Local Resources
0 to +2 notches
Limited Scale of Operations
-1 to 0 notches
Financial Disclosures
-2 to 0 notches
Potential Cost Shift to or from the State
-1 to +1 notches
Potential for Significant Change in Leverage
-2 to +1.5 notches
Scorecard-indicated outcome

[1] For the linear scoring scale, the Aaa endpoint value is 200%. A value of 200% or better equates to a numeric score of 0.5. The Ca endpoint value is 0%. A value of 0% or worse equates to a numeric score of 20.5

[2] For the linear scoring scale, the Aaa endpoint value is \$400,000. A value of \$400,000 or better equates to a numeric score of 0.5. The Ca endpoint value is \$7,500. A value of \$7,500 or worse equates to a numeric score of 20.5.

[3] For the linear scoring scale, the Aaa endpoint is 2%. A value of 2% equates to a numeric score of 0.5. The Ca endpoint value is (20)%. A value of (20)% or worse equates to a numeric score of 20.5.

[4] For the linear scoring scale, the Aaa endpoint value is 50%. A value of 50% or better equates to a numeric score of 0.5. The Ca endpoint value is (15)%. A value of (15)% or worse equates to a numeric score of 20.5.

[5] For the linear scoring scale, the Aaa endpoint value is 60%. A value of 60% or better equates to a numeric score of 0.5. The Ca endpoint value is (10)%. A value of (10)% or worse equates to a numeric score of 20.5.

[6] For the linear scoring scale, the Aaa endpoint value is 0%. A value of 0% or better equates to a numeric score of 0.5. The Ca endpoint value is 1,300%. A value of 1,300% or worse equates to a numeric score of 20.5.

[7] For the linear scoring scale, the Aaa endpoint value is 0%. A value of 0% or better equates to a numeric score of 0.5. The Ca endpoint value is 65%. A value of 65% or worse equates to a numeric score of 20.5.

Source: Moody's Ratings

Sector overview

US cities and counties provide basic services, which often include police and fire protection, courts and jails, public record-keeping, social services, park services and public works, including streets and roads.

Some cities and counties provide a narrow range of services, while others provide more comprehensive services as part of their primary government activities, including water, sewer, power or other utility services, healthcare services, economic development or transportation services (e.g., airport, port and transit services).

Cities and counties fund the services they provide with an array of revenues, including property taxes, sales taxes, income taxes, state and federal aid, departmental income (such as fines and fees) or direct charges for services.

Cities and counties issue a wide array of debt instruments that may be structured with quite different revenue pledges; e.g., a broad pledge such as a general obligation pledge, a narrower pledge, or a pledge limited to the enterprise revenues of a city or county, such as water and sewer revenue bonds. As described in the "Scope" section, we use separate methodologies to rate debt supported solely by enterprise revenues of a city or county.

Nonetheless, we consider the enterprise activities of cities and counties to be among the core services they provide. As described in the sections that follow, we assess US cities and counties in their totality and include their governmental and business-type financial results, assets and liabilities in our analysis of the fundamental credit strength of the city or county.

A city's or county's institutional framework is established and defined by its respective state constitution, laws or court decisions. In some US states, cities are subordinate to a county as a unit of local government, and in other states, cities operate independently of county governments.

Typically, cities and counties are governed by a chief executive and an elected body.

Discussion of the scorecard factors

In this section, we explain our general approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators.

Factor: Economy (30% weight)

Why it matters

A city's or county's economy provides important indications of its capacity to generate revenue at the local level.

This factor comprises three quantitative sub-factors:

Resident Income: Median Household Income (MHI) Adjusted for Regional Price Parity (RPP) / US MHI

The ratio of adjusted MHI of a city or county to the MHI of the US provides an indication of the relative strength of a local government's capacity to generate revenue at the local level. A city or county with relatively high MHI typically has greater capacity to raise revenue from local sources in order to pay debt service and to fund services and infrastructure that attract residents and businesses to the community. A city or county with relatively low MHI may have more limited capacity to support revenue growth. Low MHI may also signal a greater demand for city or county spending on social services.

We use MHI to compare resident income across cities and counties because this statistic includes the income of all residents of a housing unit regardless of their relationships, including families, single persons living alone and unrelated roommates. Adjusting MHI for RPP is important because it allows for comparability across the US by adjusting for regional differences in the cost of living. RPP reflects the average prices paid by consumers in a region of the US, compared to the national average.

Full Value per Capita: Full Valuation of the Tax Base / Population

The ratio of the full valuation of the property tax base to the population of a city or county provides another indication of the relative strength of a local government's capacity to generate revenue, but from a different perspective. This ratio is an important indicator of a city's or county's economic strength and capacity to generate revenue, even beyond levying taxes on real estate values.

Economic Growth: Difference Between Five-Year Compound Annual Growth Rate (CAGR) in Real Gross Domestic Product (GDP) and Five-Year CAGR in US Real GDP

Economic growth is an important indicator of a city's or county's ability to continue generating the revenue necessary for the programs and services it provides. Cities and counties within growing regional economies are more likely to retain residents and businesses and attract additional residents and businesses who will pay taxes, utility fees and other sources of government revenue. In general, a city or county with a more productive regional economy over a multiyear period is better able to generate adequate revenue on an ongoing basis. Cities and counties in regions with robust, sustained GDP growth are typically better positioned to grow revenue and build reserves against economic shocks. Comparing the GDP growth of a city's or county's region to US GDP growth provides an important indication into city or county economic strength above or below national economic fluctuations.

How we assess it for the scorecard

Scoring for this factor is based on three quantitative sub-factors: Resident Income, Full Value per Capita and Economic Growth.

Resident Income — MHI Adjusted for RPP / US MHI

The numerator is the MHI of a city or county, which we adjust for regional price differences. We make this adjustment by dividing the issuer's MHI by the RPP for the metropolitan statistical area (MSA). Because RPP is expressed relative to a benchmark of 100 for the US, we first divide RPP by 100.

For cities and counties that are outside of an MSA, we adjust based on the respective state's statewide non-metropolitan portion RPP. The denominator is US MHI. We use the American Community Survey (ACS) from the US Census Bureau, where available, or a successor report as our source of MHI data. The US Bureau of Economic Analysis or a successor agency is our source for RPP data. Where MHI is not available for a city or county, we typically use the MHI of an overlying or other local government located near the city or county (e.g., a neighboring town or most-proximate school district). In cases where we use a proxy entity, we also use that proxy's per capita income and population data in our scorecard metrics.

Full Value per Capita — Full Valuation of the Tax Base / Population

The numerator is the full market valuation of taxable property in the city or county, and the denominator is the population of the city or county.

For the numerator, we use the full market valuation of each city or county. Cities and counties often calculate full market value as a multiple of assessed value or of the book value of taxable properties in a city or county, but calculation methods vary by state, and we use assessed value where full market value is not available. Where either full market valuation or population data are not available, we use the full value per capita of a proxy, for example, a nearby local government entity whose tax base characteristics or demographic data reflect those of the entity being evaluated.

Economic Growth – Difference Between Five-Year CAGR in Real GDP and Five-Year CAGR in US Real GDP:

For cities and counties, we use the difference between the five-year CAGR in real GDP of the city's or county's MSA and the five-year CAGR of US real GDP. For cities and counties outside of an MSA, we use the relevant county real GDP. The US Bureau of Economic Analysis is typically our source for GDP data.

Factor: Financial Performance (30% weight)

Why it matters

Operational and financial strength is a significant driver of credit quality. The financial performance of a city or county, inclusive of its governmental funds and business-type activities, greatly influences its ability to meet existing financial obligations and its flexibility to adjust to new obligations or unexpected contingencies, such as unanticipated revenue shortfalls or cost increases.

This factor comprises two quantitative sub-factors:

Available Fund Balance Ratio: (Available Fund Balance + Net Current Assets) / Revenue

The ratio of available fund balance and net current assets to revenue provides a useful indication of whether a city's or county's resources would be sufficient to bridge temporary budget imbalances. The Available Fund Balance Ratio uses the available fund balance of total governmental funds and the net current assets of business-type activities and internal services funds.

The sum of a city's or county's available fund balance and net current assets represents the resources available to fund services and unforeseen contingencies, including, for example, a budget shortfall. The available fund balance includes cash as well as receivables, payables and other current assets and liabilities across total governmental funds that are likely to become cash inflows or outflows in the short term. Net current assets includes cash as well as receivables, payables and other unrestricted current assets and liabilities across business-type activities that are likely to become cash inflows or outflows in the short term. Comparing the sum of available fund balance and net current assets to revenue provides insights into the strength of a city's or county's near-term resources relative to the scale of the city's or county's primary governmental activities. We use the term primary government to refer to a city's or county's governmental and business-type activities. The primary government presentation typically includes blended component units but not discretely presented component units.

Liquidity Ratio: Unrestricted Cash / Revenue

The ratio of unrestricted cash to revenue provides another important perspective into financial flexibility. Unrestricted cash is a city's or county's most readily available liquid resource. Accruals can cause available fund balance to diverge from unrestricted cash, because the available fund balance reflects receivables, payables, and other current assets and liabilities that are not incorporated into unrestricted cash. For example, a large receivable for taxes or state aid could lead to a high available fund balance position, but a city or county could have a weak unrestricted cash position; in such cases, the city's or county's unrestricted cash position may provide a better indicator of its immediate financial flexibility. Alternatively, a city or county could have a high unrestricted cash position because it has deferred certain expenditures into the next fiscal year. In this case, its lower available fund balance would reflect the payable that will eventually reduce the unrestricted cash position.

How we assess it for the scorecard

Scoring for this factor is based on two quantitative sub-factors: Available Fund Balance Ratio and Liquidity Ratio. In our assessment of the scorecard sub-factors, we incorporate total governmental funds and business-type activities to capture a broad view of a city's or county's activities, assets and liabilities.

Available Fund Balance Ratio: (Available Fund Balance + Net Current Assets) / Revenue

The numerator is a city's or county's available fund balance plus its net current assets.

Available fund balance is the sum of a city's or county's available fund balance across all governmental funds. The available fund balance equals the sum of all fund balances that are classified as unassigned, assigned or committed in the total governmental funds section of a city's or county's audited financial statements. We exclude any non-spendable fund balance that is in the total governmental funds section, and typically exclude restricted fund balance in that section.

We define net current assets as unrestricted current assets minus current liabilities from a city's or county's business-type activities and internal services funds. Long-term liabilities, including the current portion that we incorporate into the Long-term Liabilities Ratio, where disclosed, are not incorporated into the calculation of net current assets. This approach results in comparability between net current assets and available fund balance, even though each measure is derived from a different accounting presentation.

The denominator is revenue, which is the sum of revenue from total governmental funds, operating and non-operating revenue from total business-type activities, and non-operating revenue from internal services funds, excluding transfers and one-time revenue, e.g., bond proceeds or capital contributions. The netting out of transfer activity minimizes double-counting, i.e., we do not count a transfer as revenue because it is likely already counted as revenue elsewhere in the financial statements. In excluding transfer revenue, we also minimize revenue volatility stemming from activity outside normal governmental activities.

For cities and counties that do not report governmental activities on a modified accrual basis, we frequently cannot calculate or estimate available fund balance. In these cases, scoring for this sub-factor is based on net cash as a proxy for available fund balance. We also apply downward notching if certain financial information is not disclosed, as described in the "Notching Factors" section. For cities and counties that do not report business-type activities on an accrual basis, we frequently cannot calculate or estimate net current assets. In both these cases, scoring for this sub-factor is also based on net cash.

Exhibit 3

Illustrative example of available fund balance calculation

Fund or activity	Total governmental	Internal service	Business-type	Fund balance ratio
Typical accounting standard (in millions of dollars)	Modified Accrual	Accrual	Accrual	
Non-spendable fund balance	Typically excluded	n/a	n/a	
Restricted fund balance	Typically excluded	n/a	n/a	
Committed fund balance	\$3.5	n/a	n/a	
Assigned fund balance	\$36.1	n/a	n/a	
Unassigned fund balance	\$26.9	n/a	n/a	
Sub-total: governmental fund balance	\$66.5	\$0.0	\$0.0	\$66.5
Total unrestricted current assets	n/a	\$21.0	\$132.2	
Total current liabilities	n/a	(\$8.4)	(\$55.1)	
Add back: current portion of long-term debt	n/a	\$0.0	\$16.0	
Add back: current portion of other long-term liabilities	n/a	\$0.0	\$4.7	
Sub-total: net current assets	\$0.0	\$12.6	\$97.8	\$110.4
Fund balance ratio numerator	\$66.5	\$12.6	\$97.8	\$176.9
Total revenues	\$164.7	n/a	n/a	
Total operating revenues	n/a	Typically excluded	\$255.0	
Non-operating revenues	n/a	\$0.5	\$6.7	
Revenue denominator	\$164.7	\$0.5	\$261.7	\$426.9
Fund balance ratio				41.4%

Source: Moody's Ratings

Liquidity Ratio: Unrestricted Cash / Revenue

The numerator is the sum of unrestricted cash in total governmental activities, total business type activities and the internal services fund, net of short-term debt. For this calculation, we consider short-term debt to be debt issued for operations maturing within one year, such as cash flow notes or tax anticipation notes. The denominator is revenue.

Factor: Institutional Framework (10% weight)

Why it matters

The institutional framework is important because it affects the ability of a city or county to match recurring revenue with expenditures. The statutory and legal framework under which a city or county operates defines the scope of services it is required to provide and establishes its revenue structure. These determine how much flexibility a city or county has to increase revenue or reduce spending.

Some cities and counties have broader latitude than others in determining the bulk of their revenue. For example, the ability to raise property tax revenue through a tax rate increase may be subject to the approval of the city or county governing body alone, or it may also need the approval of local voters or another level of government. Cities and counties that can increase revenue without the approval of voters or other governments are more easily able to accommodate changes in expenditures. In addition, the revenue-raising ability of a city or county may be subject to local tax rate caps or levy limits. Other forms of city or county revenue may include sales taxes, income taxes, utility rates and various fees. The state ultimately controls the extent to which a city or county may determine its revenue. This is not the case for US Native American tribal nations, which are under the jurisdiction of the federal

government. Tribal nations have the right to make and enforce laws, to levy taxes and authorize expenditures, and to license and regulate activities within their borders.

In addition, cities and counties operate within different expenditure-cutting frameworks, e.g., cities and counties that are required to provide mandated services, such as public health or education, regardless of revenue, typically have lower flexibility to reduce costs than those that are not required to provide services, or that are only required to provide services if the state provides funding for those services.

How we assess it for the scorecard

In our assessment of this qualitative factor, we consider whether the institutional framework gives the city or county control over the majority of its revenue across governmental and business-type activities, and whether this revenue is subject to caps (such as on property taxes or utility rates), or other limitations. We consider whether revenue increases are subject only to the approval of the city's or county's own governing board, or additionally require the approval of local voters or another level of government. If approval is required by external parties, we consider the extent to which the city or county can increase revenue within the constraints. We also consider the extent to which a city or county can reduce expenditures outside externally imposed mandates and restrictions, e.g., outside any spending requirements, such as aid to local schools or support to public health systems. If our assessment of revenue characteristics is different from expenditure characteristics, we typically assign the factor score to the alpha category that reflects the more meaningful characteristic.

Most cities and counties in a given state receive the same score for this factor, except where the revenue-raising or expenditure-cutting framework of a category of cities or counties is materially different from others in the state under state law. We typically perform an assessment of city and county institutional frameworks on a statewide basis once a year.

Factor: Leverage (30% weight)

Why it matters

Leverage measures provide important indications of a city's or county's capacity to invest in capital assets and pay annual fixed costs, including debt service, while meeting its core responsibility to provide municipal services.

The more leveraged a city or county is, the less flexibility it has to pay debt service and meet its other obligations. High and rising costs related to debt service, retirement benefits or other large long-term liabilities can crowd out other service priorities, reducing a local government's ability to deliver on its core service mission. As a city's or county's financial capacity to deliver on its core service mission declines, the risk rises that it will default and seek to restructure its debt. High leverage may also diminish a city's or county's access to credit markets either due to statutory debt limits or a lack of investor willingness to extend credit.

This factor comprises two quantitative sub-factors:

Long-term Liabilities Ratio: (Debt + Adjusted Net Pension Liabilities + Adjusted Net OPEB Liabilities + Other Long-Term Liabilities) / Revenue

Debt, unfunded pension liabilities and unfunded other post-employment benefit (OPEB) liabilities typically represent the primary long-term financial obligations of a city or county; other types of material long-term liabilities may include compensated absences, claims and judgments, or liabilities related to environmental remediation. OPEB liabilities most often relate to retiree healthcare benefits. This factor provides a comprehensive view of a city's or county's leverage compared to the revenue that will support those obligations.

The ratio of the sum of debt, adjusted net pension liabilities (ANPL), adjusted net OPEB liabilities and other long-term liabilities from total governmental funds and business-type activities to revenue is an important indicator of total leverage.

Fixed-costs Ratio: Adjusted Fixed Costs / Revenue

The ratio of adjusted fixed costs to revenue provides an important indication of the annual financial burden associated with a city's or county's debt, pensions, OPEB obligations and other miscellaneous long-term liabilities relative to its revenue. The ratio also provides by proxy the percentage of revenue that remains available for the entity to provide core services after fixed costs are paid. A city or county with high fixed costs faces a greater challenge adjusting its expenditures than one with low fixed costs.

How we assess it for the scorecard

Scoring for this factor is based on two quantitative sub-factors: the Long-term Liabilities Ratio; and the Fixed-costs Ratio.

Long-term Liabilities Ratio: (Debt + Adjusted Net Pension Liabilities + Adjusted Net OPEB Liabilities + Other Long-Term Liabilities) / Revenue

The numerator is the sum of a city's or county's debt outstanding, ANPL, adjusted net OPEB liabilities and other long-term liabilities. When incorporating these four elements into the numerator, we typically include all long-term liabilities of a city or county reported in the governmental and business-type activities entries of the audited financial statements (i.e., the primary government, as reported). The denominator is revenue.

A city's or county's debt includes its long-term bonds and other obligations. Debt includes all forms of debt on a city's or county's governmental activities and business-type activities balance sheets and may include other obligations that are not reported on the balance sheet. Examples of debt include general obligation bonds; general promises to pay; lease-backed, appropriation and moral obligations; bond anticipation notes; special tax debt; revenue bonds; loans from the state; and leases.

A city's or county's debt also typically includes guarantees that it has provided for another entity's debt. We also typically include public-private partnership (P3 or PPP) agreements that contractually obligate the city or county to make scheduled payments. We typically include guarantees and P3 obligations in our assessment, regardless of their treatment in a city's or county's financial statements.²

Debt excludes debt such as short-term cash flow notes that are considered liabilities in calculating the Available Fund Balance Ratio and Liquidity Ratio but includes short-term debt that is not deducted from these ratios. Typically, we include bond anticipation notes in debt and exclude it from the Financial Performance ratios.

For a description of how we calculate or estimate ANPL and adjusted net OPEB liabilities, please see our cross-sector methodology that describes our adjustments to pension and OPEB data reported by Governmental Accounting Standards Board (GASB) issuers.³

Other long-term liabilities typically comprise the miscellaneous liabilities reported under the governmental and business-type activities entries in a city's or county's financial statements that are not included in debt, ANPL or adjusted net OPEB liabilities. These liabilities typically include compensated absences, claims and judgments, or liabilities related to environmental remediation.

Fixed-costs Ratio: Adjusted Fixed Costs / Revenue

For any period, the numerator is the sum of a city's or county's implied debt service, its pension tread water indicator, its OPEB contributions and its implied carrying costs for other long-term liabilities. The denominator is revenue. The four components of the numerator are described below.

Implied debt service

A city's or county's implied debt service represents the annual cost to amortize its debt over 20 years with level payments. The metric amounts to an implied carrying cost for debt. We use a 20-year amortization period to reflect the typical composite useful life of capital assets financed by cities and counties, which range from assets with long expected useful lives, such as police stations, to assets with short useful lives, such as sanitation trucks and technology improvements. The 20-year amortization period also provides a general composite of the weighted average maturity of a city's or county's debt.

We use a city's or county's implied debt service rather than its actual debt service as an input to the fixed-costs ratio for two key reasons. First, implied debt service provides a comparable measure of annual debt carrying costs across cities and counties. Using actual debt service in the ratio could have the effect of rewarding the backloading of debt amortization — in these cases, the current year ratio would understate the city's or county's growing fixed cost burden. Using actual debt service could also penalize more rapid debt amortization, because the current fixed-costs ratio would appear relatively weak. Second, implied debt service avoids potentially misleading volatility in actual debt service payments that can be caused by refunding (i.e., debt refinancing) activity.

We calculate or estimate implied debt service in several steps (see the exhibit below):

- » **Step 1:** We assign a common implied interest rate to all cities and counties, approximately annually. We base the implied interest rate each year upon a 10-year rolling average of a high-grade municipal bond index, such as the Bond Buyer 20-bond GO index or a comparable index, as of the end of the prior calendar year (see line A).
- » **Step 2:** A level-dollar amortization divisor is calculated, using a 20-year period, with debt service payments made annually, and the implied interest rate calculated in Step 1 (see line B).
- » **Step 3:** The city's or county's debt outstanding, as defined in the numerator of the Long-term Liabilities Ratio, at the beginning of the fiscal year (i.e., its outstanding debt at the end of the prior year) is divided by the amortization divisor calculated in Step 2. The result is the implied debt service (see lines C and D).

Exhibit 4

Example calculation of implied debt service

Line item	Example issuer information	Value	Typical source
A	Implied interest rate (10-year rolling average as of end of prior calendar year)	3.70%	Bond Buyer 20-bond GO or comparable index
B	Amortization divisor	13.964	$= \{1 - [1 / (1 + A)^{20}]\} / A$
C	Debt outstanding, end of prior fiscal year	1,000,000	Audited financial statements
D	Implied debt service	\$71,613	$= C / B$

Source: Moody's Ratings

In addition, we apply the same approach described above for calculating or estimating implied carrying costs of debt to our calculation of the implied carrying costs of other miscellaneous long-term liabilities, excluding ANPL and adjusted net OPEBs, for governmental and business-type activities.

Pension tread water indicator

The pension tread water indicator represents our estimate of the pension contribution necessary to prevent reported unfunded pension liabilities from growing, year over year, in nominal dollars, if all actuarial assumptions are met.⁴ The pension tread water indicator is the sum of two components: the employer portion of the service cost and the implied interest on the reported net pension liability at the beginning of the plan's fiscal year.

OPEB contributions

The input to the fixed-costs ratio for OPEBs is a city's or county's actual contribution in a given period, typically the fiscal year. In the event a city or county issues pension or OPEB funding bonds, the deposit of the proceeds into a retirement system or trust is not considered a contribution in our analysis of fixed costs, nor in our analysis of pension contributions relative to the pension tread water indicator.

Notching factors

The scorecard includes notching factors. Our assessment of these notching factors may result in upward or downward adjustments to the preliminary outcome that results from the four weighted scorecard factors. Adjustments may be made in half-notch or whole-notch increments based on the notching factors listed in the table below.

In aggregate, the notching factors can result in a total of up to four and one-half upward notches or up to six downward notches from the preliminary outcome (the scorecard notching range) to arrive at the scorecard-indicated outcome. In cases where we consider that the credit weakness or credit strength represented by a notching factor, or by these factors in aggregate, is greater than the scorecard notching range, we incorporate this view into the city's or county's rating, which may be different from the scorecard-indicated outcome.

Exhibit 5

Notching factor table

Notching factor	Notching range
Additional Strength in Local Resources	0 to +2
Limited Scale of Operations	-1 to 0
Financial Disclosures	-2 to 0
Potential Cost Shift to or from the State	-1 to +1
Potential for Significant Change in Leverage	-2 to +1.5

Source: Moody's Ratings

Additional Strength in Local Resources**Why it matters**

For some cities or counties, very high aggregate property values or extremely high resident income levels may provide credit strength that is not fully reflected in the Resident Income or Full Value per Capita sub-factors. Cities or counties with very high property values or extremely high adjusted MHI have greater revenue-generating capacity than most other cities or counties. For example, where the values of second homes and commercial properties augment the tax base, this strength may not be fully reflected in the weighted sub-factors.

How we assess it for the scorecard

In assessing this notching factor, we consider the following two metrics. Notching for this factor is cumulative. Notching for this factor is only upward, in part because extraordinarily weak adjusted MHI and Full Value per Capita are overweighted in the scorecard.⁵

- » **Extremely high adjusted MHI.** We use the Resident Income sub-factor (the ratio of MHI (adjusted for RPP) to US MHI). We apply a one-half upward notch if the value is 200% to 250%. We apply one upward notch if the value is greater than 250%.
- » **Very high full value per capita.** We use the Full Value per Capita sub-factor. This notching factor results in an adjustment of up to one upward notch for cities or counties whose ratios are high relative to peers. We apply a one-half upward notch if the full value per capita is \$400,000 to \$800,000 and one upward notch if it is greater than \$800,000.

Limited Scale of Operations**Why it matters**

Small scale is important because cities or counties with very small budgets are at greater risk of a budgetary disruption than cities or counties with large budgets, which typically have greater economies of scale. Event risks, such as an unexpected capital need or an adverse litigation outcome, can disrupt the budget of a city or county whose scale of operations is limited.

How we assess it for the scorecard

Scale is assessed using total revenue. This notching factor results in a downward adjustment of one-half notch for cities or counties whose revenue is between \$4 million and \$8 million and one notch for cities or counties whose revenue is less than \$4 million. This notching factor does not result in upward notching because large size on its own does not reduce credit risk for cities and counties.

Financial Disclosures**Why it matters**

Scorecard ratios may not accurately reflect all elements of a city's or county's financial position where certain financial disclosures are not provided in an issuer's financial statements, potentially understating credit risk.

How we assess it for the scorecard

Notching for this factor is applied cumulatively as explained below and is capped at two downward notches.

Cash basis reporting

For cities or counties that do not report non-cash assets and liabilities including receivables and payables, typically because they report on a cash basis, we apply one downward notch to reflect the risk that net cash may not be an accurate representation of the city's or county's available fund balance ratio.

Pension liabilities and pension costs

There is up to one cumulative downward notch related to pension disclosures.

For cities or counties whose financial statements do not follow GASB rules for the reporting of pension liabilities, we may use estimates for certain pension characteristics. We typically estimate pension liabilities based on partial information where we have data on one pension plan but not on the issuer's other plans. In such cases, we apply a one-half downward notch to reflect that adjusted liability values may be an imprecise reflection of the issuer's actual liabilities.

For cities or counties whose financial statements do not comply with GASB rules for the reporting of pension costs, we may not have sufficient information to calculate or estimate a pension tread water indicator. In these cases, we use actual pension contributions to calculate the Fixed-costs Ratio sub-factor, and we apply a one-half downward notch to reflect that actual pension contributions may be an imprecise or understated reflection of pension funding needs. Pension system financial reporting, which we often rely on to calculate the tread water indicator, can lag behind a city's or county's own financial reporting. In these cases, we may rely on a fixed-costs ratio that incorporates the tread water indicator from the prior year, but would not apply downward notching.

OPEB liabilities and OPEB contributions

There is up to one cumulative downward notch related to OPEB disclosures.

We typically estimate OPEB liabilities based on partial information where we have data on one OPEB plan but not on the issuer's other plans, and in such cases, we apply a one-half downward notch. We typically use a value of zero for a missing OPEB liability input where a city or county does not report this information, and in such cases, we typically apply a one-half downward notch.

We typically use a value of zero for a missing OPEB contribution input where a city or county provides OPEB benefits but does not report this information, and then apply a one-half downward notch.

Depreciation of capital assets

For cities or counties that do not report gross capital asset values or depreciation, we do not have sufficient information to assess the Potential for Significant Change in Leverage notching factor (see below), and we apply a one-half downward notch.

Potential Cost Shift to or from the State

Why it matters

In some cases, the state has recently taken or we expect that it may take future action to shift certain costs to a city or county or to absorb costs on its behalf, detracting from or adding to the city's or county's financial flexibility. A state may also take such action on a group of cities or counties or on all cities or counties in the state. These shifts can affect our view of a city's or county's credit strength, even where not yet reflected in historical metrics and where they cannot be quantified in our forward view of metrics.

A state is more likely to pass down costs during times of state budgetary stress and is more likely to provide additional funding when it is in a relatively strong financial position or has a political incentive to support certain local programs. For example, a state could shift pension costs to a city or county by requiring them to pay a higher proportion of annual pension contributions. As another example, a state could appropriate less money than in previous years for capital work or for certain forms of state aid. Conversely, states on occasion may take on a greater proportion of pension costs or capital funding or may provide additional aid or material new forms of aid.

How we assess it for the scorecard

In assessing the likelihood of a state government shifting material costs toward or away from cities or counties, we consider the state's budgetary position, spending priorities and political incentives to provide or reduce financial support for cities or counties. We also consider whether any shift in material costs is likely to be temporary or long-lasting, and whether it indicates a secular trend. We typically perform this assessment on a statewide basis, unless a potential state action affects only a subset of cities or counties, and we typically conduct the assessment once a year.

This notching factor may result in a downward or upward adjustment of up to one notch. Where notching is applied, it is typically applied to all of a state's cities or counties that we expect will be affected by the cost shift.

Potential for Significant Change in Leverage

Why it matters

The potential for a significant increase in leverage or fixed costs due to pension asset risk, slow or negative pension amortization or unmet capital needs can weaken a city's or county's ability to meet its obligations. These forward-looking risks may not be fully incorporated into the preliminary scorecard outcome. Alternatively, some cities and counties have comparatively much lower exposure to a significant change in leverage because they have no pension asset risk or have minimally depreciated capital assets.

How we assess it for the scorecard

Our assessment, based on total primary government reporting, uses the following metrics, if data are available. If data for one or more of the following metrics are not available, we would apply no notching based on the relevant metric in this notching factor and score this notching factor without those inputs. In addition, we would apply the Financial Disclosures notching factor, discussed above. Notching for this factor is cumulative and is capped at two downward notches or one and one-half upward notches.

- » **Pension asset shock indicator (PASI).** We use the pension asset shock indicator to assess a city's or county's exposure to potential pension system investment losses.⁶ Cities and counties often have their own pension systems, but some participate in statewide pension systems as well. The PASI is expressed as a probability. It represents the likelihood that a city's or county's pension system(s) will experience investment losses in a given year that amount to 25% or more of the city or county's revenue. If a city or county has a PASI of 18%-23%, we notch downward by one-half notch. If a city or county has a PASI of 23% or higher, we apply one downward notch. While dependent on the combination of inputs, a PASI of 18% (i.e., an 18% likelihood of an investment loss equal to 25% of revenue) roughly translates to a 10% likelihood of losses amounting to 50% of a sponsoring government's revenue. A PASI of 23% roughly translates to a 15% likelihood of losses amounting to 50% of a sponsoring government's revenue, and a 5% likelihood of losses amounting to 100% of revenue.
- » **Pension tread water gap.** The pension tread water gap reflects the difference between a city's or county's pension tread water indicator (or contribution benchmark)⁷ and its actual pension contributions. To arrive at the pension tread water gap, we use a ratio; the numerator is the pension tread water indicator minus the city's or county's actual pension contributions in the most recent year, and the denominator is revenue. If a city's or county's tread water gap is equal to 5%-10% of its revenue, we notch downward by one-half notch. We notch downward an additional one-half notch for each five-percentage-point increase in the gap (i.e., 10%-15%, 15%-20%, 20% or higher), up to a maximum of two downward notches.
- » **Defined contribution plan.** If the city or county does not have a defined benefit plan and instead has a defined contribution or similar plan, we apply one upward notch to reflect the lack of exposure to pension risk.
- » **Capital asset depreciation ratio.** We use a ratio of accumulated depreciation to gross depreciable assets in a given year. If the ratio is lower than 25%, we notch upward by one-half notch to reflect the city's or county's very low level of capital asset depreciation. If the ratio is equal to 25%-65%, we do not apply notching. If the ratio is 65% or higher, we notch downward by one-half notch. A ratio above 65% indicates that reinvestment in capital assets (excluding non-depreciable assets such as land and construction-in-progress) is lagging behind depreciation. A ratio above 65% is also a signal of likely future debt issuance to improve or replace capital assets.

Exhibit 6

Notching factor: Potential for Significant Change in Leverage

Notching metric	Level of notching							
	+1	+0.5	0	-0.5	-1.0	-1.5	-2.0	
Pension asset shock indicator (PASI)	n/a	n/a	< 18%	18% - 23%	≥ 23%	n/a	n/a	
Pension tread water gap	n/a	n/a	< 5%	5% - 10%	10% - 15%	15% - 20%	≥ 20%	
Defined contribution plan	Yes	n/a	n/a	n/a	n/a	n/a	n/a	
Capital asset depreciation ratio	n/a	< 25%	25% - 65%	≥ 65%	n/a	n/a	n/a	
						Sub-total before cap	+1.5 to -3.5	
						Total factor notching	+1.5 to -2	

Source: Moody's Ratings

Other considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors can include financial controls and the quality of financial reporting; the quality and experience of management; assessments of governance as well as environmental and social considerations; and possible interference from other levels of government. Regulatory, litigation, liquidity and technology risk as well as changes in demographic and macroeconomic trends can also affect ratings.

The following are examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Environmental, social and governance considerations

Where environmental, social and governance (ESG) issues are meaningful for credit profiles, we incorporate them into our ratings analysis in a variety of ways in the application of our sector-specific methodologies. As one part of our overall credit analysis, we consider how ESG considerations could affect the qualitative and quantitative factors and sub-factors in the scorecard.

Even where ESG considerations do not affect the measures in the scorecard, or where they cannot be quantified, we incorporate them into our overall analysis of credit drivers that are meaningful to the rating. As a result, we may incorporate these ESG risks qualitatively outside of the scorecard. As part of our ratings analysis, we may establish Issuer Profile Scores (IPs), which indicate our opinion of the extent to which a given issuer is exposed to E, S and G risks (incorporating ESG-specific mitigants) or benefits from its exposure to E, S or G. The IPs are inputs to credit ratings. For more information, please see our methodology that describes our general principles for assessing ESG risks.²

Environmental considerations, such as exposure to natural disaster risk, and social considerations, such as the risk of labor strikes, may influence credit strength.

Cities and counties may be directly exposed to extreme weather events due to climate change, such as floods, which may affect credit quality. Government facilities or investments in physical assets could be affected by physical risks and by other sources of environmental risk. Coastal cities and counties, in particular, are highly exposed to numerous environmental risks. Environmental hazards, such as hurricanes or wildfires, can result in an immediate adverse impact on economic activity and result in revenue disruption, while longer-term environmental trends, such as rising sea levels, can cause more prolonged pressure on budgeting and spending priorities.

Social considerations for cities and counties include positive and adverse trends in the statistical characteristics of populations (such as the percentage of the population at working age), labor market conditions, housing affordability and the poverty rate. For example, new home construction or business growth can improve a city's or county's revenue-generating capacity. As another example, a regional economic center may generate revenue from daytime visitors such as employees or shoppers who are not part of the city's or county's reported population. In contrast, unusually high unemployment or increasing poverty levels can strain a city's or county's capacity to generate revenue and provide social services. For example, where housing affordability is low, such risks can influence population and business retention, dampen property tax revenues and increase the cost of social services. They may lead to a declining tax base, diminished economic growth and higher social spending over time.

Some governance considerations are reflected in the qualitative Institutional Framework factor, including revenue-raising and spending flexibility. Additional considerations may include debt management, multiyear fiscal planning, the timeliness of information disclosure, and legislation or other legal action that materially affects a city's or county's expenditures or revenue, such as a lawsuit that challenges a levy. We may also consider management's ability to develop and adhere to budgets that provide for capital investment while managing debt levels and unfunded retirement liabilities. Weak or opaque governance can negatively affect a city's or county's performance, which can reduce taxpayer willingness to support the city's or county's revenue needs and can constrain capital market access. Conversely, very strong governance can lead to outcomes that foster economic growth or to measures that effectively mitigate certain kinds of credit-negative governance exposures.

ESG considerations are not always negative, and they can be a source of credit strength in some instances. For example, a strong labor market, and relatively good housing affordability can drive strong tax revenue trends and foster economic growth. External support, such as state or federal government funds for natural disaster relief, can help to mitigate the credit impact of ESG exposures.

Liquidity

Liquidity is an important rating consideration for all issuers, and extremely weak liquidity can heavily affect ratings in many cases. However, the relative strength or weakness of liquidity may not have a substantial impact in discriminating between two issuers with an otherwise similar credit profile. Liquidity can be particularly important where issuers have large short-term demands on liquidity, for example where tax revenues are highly seasonal. While liquidity is specifically considered in the scorecard, when it is very weak, near-term default risk may be elevated and the impact liquidity has on ratings may be much greater than the standard scorecard weight would imply. We form an opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash.

In our forward view of liquidity, we typically consider the city's or county's own sources of liquidity as well as its market access. In our assessment, we may use scenario analysis, including a scenario where market access is lost.

In addition, cash flow or deficit financing could indicate an unbalanced budget or financial stress. For distressed cities or counties, access to financing from public markets or banks could be a stopgap to defer a liquidity crisis. The loss of such market access could be a prelude to debt restructuring and possibly a default.

History of missed debt service payments

A past default on rated or unrated obligations indicates a heightened risk of failure to meet financial obligations going forward, especially if the credit drivers of the default have not been cured. In addition, a history of default can indicate weak or wavering willingness to take necessary steps to avoid a future default. We include in this category missed or materially late payments on any of a city's or county's long-term bonds or short-term notes, reflecting an inability or unwillingness to pay, and we typically include defaults on contingent obligations, including moral obligations. We place less emphasis on this consideration in cases where a city or county has demonstrated an ability and willingness to address the credit drivers behind a default.

Unusual strengths or weaknesses related to budgets

Unusually volatile or unpredictable revenue sources or expenditures can result in budget imbalances and reduce fund balance and cash reserve stability. We may consider recent or expected volatility in revenue or expenditures that is not already captured in the scorecard. We may also qualitatively consider a city's or county's financial flexibility to the extent that it is not captured in the scorecard.

Revenue or expenditure timing issues may overstate or understate fund balance or cash at year end, and we may consider the issuer's financial position at other points of the year. We also qualitatively assess the extent of pass-through revenue, such as state aid earmarked for a county's schools, that is captured as revenue in scorecard metrics but is not available for primary government activities.

In addition, high delinquencies in revenue collection can be an indication of low affordability of government service charges, low support for the government or weaknesses in the administration of revenue collection, all of which can constrain a city's or county's credit strength. Collection rates have been typically high in this sector, approaching 100%.

Strengths or weaknesses related to economic concentration

Economic concentration can be an important consideration because cities and counties that rely heavily on a single taxpayer or industry can be particularly vulnerable to revenue losses, especially if the industry is weak or volatile. Sometimes these losses are sudden, such as when a large local employer closes on short notice. We consider the economic drivers of each key industry and the likely trajectory of those drivers.

In addition, the presence of some types of industries in a city or county, such as state government, higher education or the military, can stabilize or strengthen a city's or county's economic base by supporting steady population growth and acting as a draw for economic activity from students, military personnel and their visitors. In our analysis, we typically consider the likelihood that the activity will continue to contribute materially to the city's or county's population and economy.

Fund-specific financial considerations

The scorecard metrics incorporate all governmental and business-type activities. These metrics capture the fundamental credit strength of a city or county across all of its primary activities. However, in some cases, the incorporation of all governmental and business-type activities in scorecard metrics may obscure strengths or weaknesses of the overall credit profile.

For example, our analysis typically includes consideration of restrictions on the ability to move money across governmental activities funds and business-type activities funds. Where meaningful restrictions exist, the scorecard metrics may overstate the fund balance and liquidity available to a city or county for general purposes. Airport funds may fall into this category due to Federal Aviation Administration (FAA) restrictions on the use of airport revenues.

In addition, fund balances and cash balances that are reported as restricted are considered qualitatively. For example, we typically consider restricted fund balances that are available for core governmental operations (e.g., fund balances dedicated to public safety operations) or rainy day funds as providing additional financial flexibility not reflected in the scorecard. In contrast, we typically do not consider restricted fund balances consisting of bond proceeds to be resources that provide additional operating flexibility.

Competitive enterprise risk in governmental or business-type activities

While scorecard metrics incorporate all governmental or business-type activities reported in financial statements, market competition in certain of these activities may present additional credit risk that is not fully captured in the scorecard-indicated outcome. For example, the operation or ownership of a hospital, nursing home, sports stadium or economic development project is typically affected by competitors' service mix, pricing and market share. Where a function of a city or county is exposed to competitive market risks, we may additionally consider historical and forward-looking metrics that are outside the scorecard, e.g., metrics related to that enterprise's sector, as well as the extent of competition and the enterprise fund's financial condition.

Credit strength or weakness associated with component units or other related entities

A city or county may be closely related to a separate entity, such as a discretely presented component unit. Some cities or counties may support that entity through managerial oversight, direct financial assistance or by issuing debt on behalf of the entity. The willingness to extend such extraordinary support often reflects a particular priority (e.g., economic development). Depending upon the circumstances, this support can be temporary or extended. Extraordinary support that is material in relation to the city's or county's own financial and economic resources could weaken its credit profile.

In such scenarios, we assess, among other things, the financial condition of the separate entity as an indicator of the likelihood that the city or county will need to support it, the extent of such support and the effect on the city's or county's credit quality.

An unexpected call on a contingent liability of a city or county, such as a debt service guarantee, can also reduce credit strength. We typically would consider the guaranteed entity's amount of debt, market access, debt structure and legal issues that could limit the flexibility of the city or county in the event it had to pay the entity's debt service or manage its operations.

There may also be circumstances in which a default of a separate entity that is outside the primary government, even if the debt is not guaranteed or is otherwise non-recourse to the city or county, may reflect poorly on the city's or county's overall governance and debt management practices and may negatively affect credit quality.

In addition, there may be circumstances where a separate entity outside the primary government enhances a city's or county's credit quality by providing ongoing support. For example, a utility system that is a component unit of a city or county could provide a recurring and predictable source of revenue for the city or county. In these cases, we would assess the financial condition of the entity as an indicator of its capacity to continue providing revenue.

Related local governments

In some cases, other governments related to a city or county affect its credit strength. The same taxpayers that support the debt and activities of the city or county typically also support the debt and activities of overlapping local government entities, such as a local school district. The expenses and the debt, pension and OPEB burdens of these overlapping entities can elevate total tax rates or bills, thus impeding the willingness or ability of a city or county to generate additional revenue, even where legally permitted to do so.

Some cities or counties are members of a regional government or enterprise, e.g., a regional jail that provides jail services to member towns. Such cities or counties can face unique risks, such as the possibility of a change in the proportionate membership of participating jurisdictions, which can change the percentage of expenses billed to the remaining members.

Likelihood of receiving extraordinary or ongoing support

Some cities and counties receive extraordinary support from a higher level of government, such as the state, or, more rarely, from the federal government, typically to help the city or county avoid a default on debt obligations. In some cases, extraordinary support may come from another local government. For example, a county may provide assistance to a nearby city undergoing financial distress.

The circumstances surrounding extraordinary support for a city or county are often very situation-specific. For example, a state may provide meaningful financial or managerial support to a city or county undergoing stress, thereby bolstering a weak fundamental credit profile and materially lowering the risk of a payment default. Conversely, a temporary infusion of state funds may bolster financial performance in the short term but leave a city or county exposed to rapid financial deterioration if the state aid does not continue.

We typically assess whether the support has been received or is imminent, whether it will be ongoing and whether it will be sufficient to stabilize the city or county. We would typically give positive consideration where the support is material and not already reflected in scorecard metrics. We also consider the associated benefits or risks of dependence on such support. Alternatively, many cities and counties receive annual funding from their state government for programs such as education and transportation. This type of state funding is often earmarked, and we do not consider it to be extraordinary support.

Financial controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including the proper tone at the top, centralized oversight of operations, and consistency in accounting policies and procedures. Auditors' reports on the effectiveness of internal controls, auditors' comments in financial reports and unusual restatements of financial statements or delays in regulatory filings may indicate weaknesses in internal controls.

Unusual risk or benefit posed by long-term liabilities

Most cities and counties issue fixed-rate debt that amortizes over a multiyear period. Cities and counties that have variable-rate debt, debt with bullet maturities or capital appreciation bonds, derivatives such as interest rate swaps or other forms of debt that are subject to remarketing risk may be more exposed to liquidity demands or may require market access for refinancing, which can place downward pressure on credit quality. Liquidity and market access risks can also arise with variable-rate demand obligations and bonds that contain provisions that allow debtholders to put bonds back to the issuer. The potential adverse credit effects of variable-rate demand obligations are assessed in the context of the overall credit profile and circumstances of each issuer. In addition, a large amount of short-term debt without sufficient offsetting liquidity can expose a city or county to market access risks.

A city or county that is rapidly paying off debt or other long-term liabilities with recurring revenue typically has greater financial flexibility, which may result from a conservative financial policy and may indicate strengthening credit. Conversely, if a city's or county's current debt service costs are very high and are causing financial stress that is not fully captured in the implied debt service input to the Fixed Costs Ratio in the scorecard, the actual rating may be lower than the scorecard-indicated outcome.

Also, we may conclude that a city's or county's adjusted net pension or adjusted net OPEB liability is likely to grow due to pension funding law or policy, resulting in insufficient contributions, overly optimistic assumptions for the return on pension plan assets or other factors. Conversely, we may conclude that a city's or county's adjusted net pension or adjusted net OPEB liability is likely to diminish in light of pension benefit changes or larger contributions. We may also incorporate a qualitative assessment of the trajectory of net pension and net OPEB liabilities over the medium- to long-term.

Expected decline or improvement in instrument-level credit quality

Expectations of a marked decline in credit quality (e.g., debt service coverage) on any debt pledge of a city or county could indicate weakening credit quality of the city or county itself that is not yet reflected in the scorecard. Conversely, an expected material improvement in instrument-level credit quality may indicate improving credit quality of the city or county. Overall, a change in the credit quality of any instrument of a city or county could indicate shifts in the credit quality of the city or county itself, e.g., through financial or governance ties between the instrument and the city's or county's overall operational and financial strength.

Considerations specific to US Native American tribal nations

Unlike cities and counties, US Native American tribal nations operate under the jurisdiction of the federal government and not under the jurisdiction of any state. Tribal nations have the right to make and enforce laws, to levy taxes and authorize expenditures, and to license and regulate activities within their borders. An additional consideration is the extent to which a tribal nation has waived its sovereign immunity with respect to creditor protections. In the absence of such a waiver, creditors may not have the ability to enforce their rights, potentially leading to a significantly higher expectation of loss upon an event of default, which we would incorporate in the issuer rating.

Event risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in a city's or county's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard-indicated outcome. Event risks — which are varied and can include natural disasters, sudden changes in state law or regulation, material litigation, pandemics or cybercrime events — can have a material credit impact on even a stable city or county.

Additional metrics

The metrics included in the scorecard are those that are generally most important in assigning ratings to issuers in this sector; however, we may use additional metrics to inform our analysis in specific cases. These additional metrics may be important to our forward view of metrics that are in the scorecard or other rating factors.

Using the scorecard to arrive at a scorecard-indicated outcome

1. Measurement or estimation of factors in the scorecard

In the "Discussion of the scorecard factors" section, we explain our analytical approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators. When a factor comprises sub-factors, we score at the sub-factor level. Some factors do not have sub-factors, in which case we score at the factor level.

The information used in assessing the sub-factors is generally found in or calculated from information in the city's or county's audited financial statements or regulatory filings, derived from other observations or estimated by Moody's analysts. We may also incorporate non-public information.

Scorecard metrics typically include the accounts reported in the governmental and business-type activities entries of a city's or county's audited financial statements (i.e., the primary government's audited financial statements, as reported). Typical examples of governmental funds include a city's or county's General Fund and Debt Service Fund. Typical examples of business-type activity funds include water and sewer enterprise funds. The actual governmental or business-type activity funds that pertain to a specific city or county may vary.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a city's or county's performance as well as for peer comparisons. Financial ratios, unless otherwise indicated, are typically calculated based on an annual or 12-month period. However, the factors in the scorecard can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historical and expected future performance for periods of several years or more.

Information on how we calculate metrics that relate to pension and OPEB obligations can be found in our cross-sector methodology that describes our adjustments to pension and OPEB data reported by GASB issuers.⁹ Financial metrics may incorporate analytical adjustments that are specific to a particular city or county.

2. Mapping scorecard factors to a numeric score

After estimating or calculating each factor or sub-factor, each outcome is mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, Caa or Ca, also called alpha categories) and to a numeric score.

Qualitative factors are scored based on the description by broad rating category in the scorecard. The numeric value of each alpha score is based on the scale below.

Exhibit 7

Numeric equivalents for qualitative factor and sub-factor scores

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

Source: Moody's Ratings

Quantitative factors are scored on a linear continuum. For each metric, the scorecard shows the range by alpha category. We use the scale below and linear interpolation to convert the metric, based on its placement within the scorecard range, to a numeric score, which may be a fraction. As a purely theoretical example, if there were a ratio of revenue to interest for which the Baa range was 50x to 100x, then the numeric score for an issuer with revenue/interest of 99x, relatively strong within this range, would score closer to 7.5, and an issuer with revenue/interest of 51x, relatively weak within this range, would score closer to 10.5. In the text or table footnotes, we define the endpoints of the line (i.e., the value of the metric that constitutes the lowest possible numeric score, and the value that constitutes the highest possible numeric score).

Exhibit 8

Ranges of numeric equivalents for quantitative factor and sub-factor scores

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
0.5 - 1.5	1.5 - 4.5	4.5 - 7.5	7.5 - 10.5	10.5 - 13.5	13.5 - 16.5	16.5 - 19.5	19.5 - 20.5

Source: Moody's Ratings

3. Determining the overall scorecard-indicated outcome

The numeric score for each sub-factor (or each factor, when the factor has no sub-factors) is multiplied by the weight for that sub-factor (or factor). A further weighting is then applied by scoring category as shown in the table below.

Exhibit 9

Weighting by scoring category

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	1	1	1	1	4	8	8

Source: Moody's Ratings

We weight the three lowest scoring categories more heavily than higher scores in this scorecard because a serious weakness in one area often cannot be completely offset by strength in another.

The actual weighting applied to each sub-factor is the product of that sub-factor's standard weighting and its overweighting, divided by the sum of these products for all of the sub-factors (an adjustment that brings the sum of all the sub-factor weightings back to 100%).

The numeric score for each sub-factor is multiplied by the adjusted weight for that sub-factor, with the results then summed to produce an aggregate numeric score before notching factors (the preliminary outcome). We then consider whether the preliminary outcome that results from the weighted factors should be notched upward or downward in order to arrive at an aggregate numeric score after notching factors. Numerically, a downward notch adds 1 to the score, and an upward notch subtracts 1 from the score. In aggregate, the notching factors can result in a total of up to four and one-half upward notches or up to six downward notches from the preliminary outcome to arrive at the scorecard-indicated outcome.

The aggregate numeric score before and after notching factors can be mapped to an alphanumeric. For example, an issuer with an aggregate numeric score before notching factors of 11.7 would have a Ba2 preliminary outcome, based on the ranges in the table below. If the combined notching factors totaled two upward notches, the aggregate numeric score after notching factors would be 9.7, which would map to a Baa3 scorecard-indicated outcome.

Exhibit 10

Scorecard-indicated outcome

Aggregate numeric score	Scorecard-indicated outcome
$x \leq 1.5$	Aaa
$1.5 < x \leq 2.5$	Aa1
$2.5 < x \leq 3.5$	Aa2
$3.5 < x \leq 4.5$	Aa3
$4.5 < x \leq 5.5$	A1
$5.5 < x \leq 6.5$	A2
$6.5 < x \leq 7.5$	A3
$7.5 < x \leq 8.5$	Baa1
$8.5 < x \leq 9.5$	Baa2
$9.5 < x \leq 10.5$	Baa3
$10.5 < x \leq 11.5$	Ba1
$11.5 < x \leq 12.5$	Ba2
$12.5 < x \leq 13.5$	Ba3
$13.5 < x \leq 14.5$	B1
$14.5 < x \leq 15.5$	B2
$15.5 < x \leq 16.5$	B3
$16.5 < x \leq 17.5$	Caa1
$17.5 < x \leq 18.5$	Caa2
$18.5 < x \leq 19.5$	Caa3
$19.5 < x \leq 20.5$	Ca
$x > 20.5$	C

Source: Moody's Ratings

In general, the scorecard-indicated outcome is oriented to the issuer rating.

Assigning issuer-level and instrument-level ratings

After considering the scorecard-indicated outcome, other considerations and relevant cross-sector methodologies, we typically assign an issuer rating to a city or county.

Individual debt instrument ratings assigned using this methodology for general obligation unlimited tax, general obligation limited tax, general promises to pay, lease and contingent obligations, and special tax pledges may be assigned at the same level or higher or lower than the issuer rating. These differences reflect our assessment of differences in expected loss related to an instrument's priority of claim as well as our assessment of the specific pledge included in the instrument's terms. Broad guidance for decisions on assigning instrument ratings relative to the issuer rating can be found in the appendix. Guidance for rating city and county short-term debt is provided in our methodologies for short-term obligations, and guidance for the ratings of city and county long-term debt instruments not discussed in the appendix is provided in the relevant security-specific methodologies.¹⁰

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.¹¹

Limitations

In the preceding sections, we have discussed the scorecard factors and many of the other considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

Limitations of the scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple tool that can be used in most cases to approximate credit profiles of issuers in this sector and to explain, in summary form, many of the factors that are generally most important in assigning ratings to these issuers. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be

fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each factor and sub-factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual issuer's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other considerations" section, may be important for ratings, and their relative importance may also vary from issuer to issuer or from instrument to instrument. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.¹² Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

General limitations of the methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Cities and counties may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

Appendix: Assigning instrument ratings for US cities and counties

In this appendix, we describe our general principles for assessing how an instrument's particular characteristics affect its credit risk, more specifically the instrument's probability of default and loss upon an event of default. Credit risk of individual debt instruments of cities and counties may be different from what is reflected in the issuer rating.

We also provide guidance for assigning individual debt instrument ratings relative to the issuer rating based on these considerations. Differences, if any, in credit risk among instruments of the same issuer may arise from the specific pledge included in the instrument's terms, the instrument's priority of claim and the nature of the instrument (e.g., whether it is a contingent or a non-contingent obligation). As a result, instrument considerations may lead to an instrument rating at the same level as the issuer rating or the application of upward or downward notches from the issuer rating.

Analytic elements and why they are important

In this section, we describe some of the analytic elements of the typical structural features of debt instruments in the sector, and why they are important. Individual instruments may include a variety of permutations of these analytic elements. We divide instruments into three groups of pledges that are typical in the sector: (i) real property-based pledges; (ii) non-contingent general promises to pay and contingent obligations; and (iii) special tax pledges.

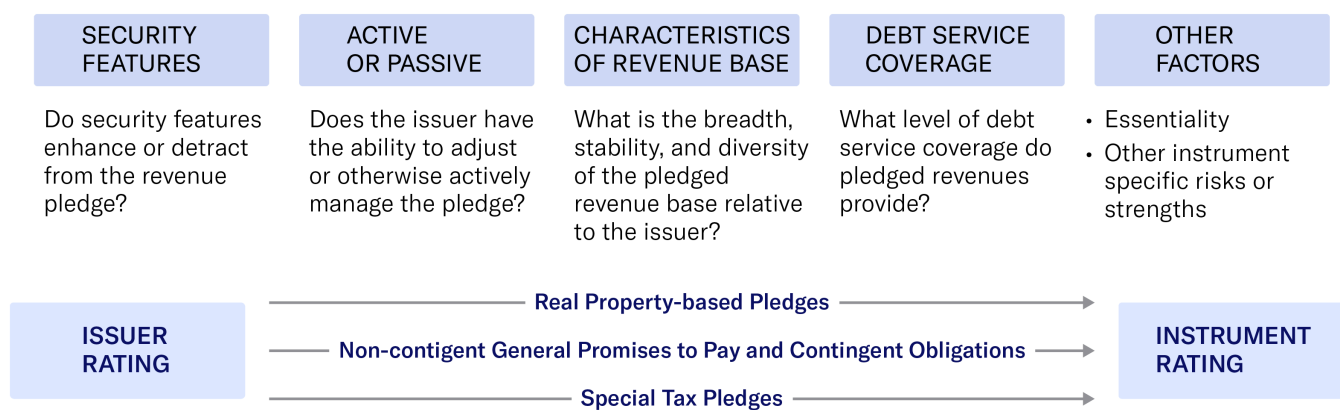
For each instrument type, we evaluate the instrument's security features, including whether the debt obligation is contingent or non-contingent. We also consider whether the pledge, if any, is active or passive. Based on these characteristics, we may also assess the characteristics of the revenue base available to pay debt service on the debt instrument, debt service coverage and other factors. We consider the aggregate (typically cumulative) effect of these structural analytic elements to arrive at the assigned instrument rating. In most cases, notching for the various analytic elements is cumulative; however, there may be circumstances where one analytic element mitigates or exacerbates the credit effect of another analytic element.

Some instruments may have characteristics of more than one instrument type, and we may consider elements from more than one approach in determining the extent of notching. For example, a city or county may pledge specific special taxes and real property tax for the repayment of a debt issuance. In assigning instrument ratings we also consider the relative risk of a city's or county's various types of debt instruments, i.e., any differences in probability of default or severity of loss to creditors in the event of a default, within the context of the issuer's entire debt portfolio. For example, we would consider the relative rating relationship between a contingent obligation and a narrow special tax instrument.

The exhibit below illustrates the general analytical considerations to determine the instrument level assigned relative to the issuer rating.

Exhibit 11

General approach for assigning instrument ratings



Source: Moody's Ratings

Security Features

Why it matters

Security features set the framework for our overall debt instrument analysis because these features may enhance or weaken the instrument's credit risk relative to the credit risk indicated by the issuer rating. Security Features include the specific revenue pledge, if any, that an issuer grants to bondholders.

A fundamental security consideration is whether the pledge is contingent or non-contingent. Contingent obligations are typically weaker than non-contingent obligations, all else being equal (as described below). Contingent debt is an obligation where the bondholder has no long-term claim and the stated promise to pay depends on an additional action by the issuer or on the availability of a pledged asset. A typical contingency requires an issuer to appropriate funds to pay debt service annually; each appropriation renews the pledge for another year. There are other types of contingencies, such as a requirement for a leased asset to remain available for a city's or county's use or occupancy in order for a city or county to remain obligated to make lease payments.¹³ Typically, contingent obligations are not considered debt under state statutes, which is often a reason why these instruments are employed; they also do not typically require voter approval. It is important to look through the nominal debt type to the underlying characteristics of the pledge to understand whether it is contingent or non-contingent.

The physical and legal separation of pledged revenue from the issuer's control is another important security feature. This can be accomplished through the combination of a lockbox and a valid security interest, such as a lien that is granted pursuant to statute and that makes holders of the pledge secured creditors. Both are important security features because a lockbox provides physical separation and a security interest provides legal separation through a property interest in pledged revenues. Other securitization or structural features that create physical and legal separation may also achieve the same result.

In the case of a lockbox, funds from tax collections or intergovernmental transfers are transferred directly from a third-party tax collector or grantor, often another government, to the trustee for the bonds. The lockbox segregates the revenue dedicated to debt service from the issuer's accounts and control. The lockbox feature can lessen the likelihood of default because it creates a separation from the issuer's operations and other funds. When combined with legal separation, a lockbox can also be a positive credit factor in recovery, as described below. In some states, certain pledges are secured by statute when executed properly. Such statutorily secured debt is reasonably expected to have lower probability of default and higher recovery in an insolvency scenario than unsecured debt. While these structures are largely untested in a default scenario, under federal bankruptcy law secured debtholders have priority over unsecured debtholders and other unsecured creditors in a reorganization. Together, a lockbox and statutory provisions for secured status, like a lien, may enhance recovery prospects compared with other debt. Both features are necessary to provide separation of the pledged revenue from the issuer's control and a security interest that makes the bondholders' interest in the pledged revenue that of a secured creditor.

We typically consider these security features to be ineffective where the issuing government has the ability to change the flow of funds to the lockbox, where the third party collecting pledged revenues has not carried out its lockbox obligations or in similar circumstances where we consider the legal separation to be weak. We also typically consider these security features to be ineffective where there are historical or ongoing significant legal challenges.

Active or Passive Pledges

Why it matters

The active or passive nature of a pledge is important because it can differentiate whether the issuer has promised to raise revenue to pay debt service or otherwise has the legal ability to do so. In this context, a pledge means the revenue that is effectively designated in the transaction documents as being available to pay debt service on the instrument. This designation may be explicit, such as a pledge of real estate tax revenue or of a 2% hotel tax revenue, or implicit, such as a general promise to pay from revenue that is not specifically pledged to other debt obligations. We consider a pledge to be active if the issuer can increase the revenue stream (e.g., by raising tax rates or fees) without meaningful limitation or additional approvals from voters or other governments. We consider a pledge to be passive if the issuer can increase the pledged revenue stream only after securing voter approval or other external approvals, often from the state government, or if there are specific legal or practical limitations on the pledged revenue stream, e.g., tax rate limitations.

In these cases, revenue to pay debt service typically depends on the performance of the revenue base, e.g., economic growth, and thus is more vulnerable than the issuer's overall revenue to economic decline.

For special tax pledges, our treatment of active versus passive pledges does not differentiate between those where the issuer has promised to raise revenue and those where the issuer has the legal ability to raise revenue but has not promised to do so, because adjusting the rate or amount of the revenue pledged to the instrument is not generally the principal mechanism by which most governments actively manage special tax pledges.

Characteristics of the Revenue Base

Why it matters

The promise to pay and the revenue pledge, if any, embedded in the instrument delineate the relationship between the issuer's total revenue and economic base, which are considered in its issuer rating, and the revenue base that is available to pay debt service of a specific instrument.

The breadth, stability and diversity of the revenue base available for debt service relative to the issuer's total revenue base provide important indications of the relative strength or weakness of the obligation. If the revenue base from which debt service will be paid is materially more narrow or less stable than the broad revenue base that is reflected in the issuer rating, a bondholder may face more risk than is indicated in the issuer rating, e.g., bondholders may have limited recourse if the specific pledged revenue is insufficient to meet debt service on the related obligations. However, in some cases, a technically narrower pledge can still be robust.

Debt Service Coverage

Why it matters

For some instrument types, debt service coverage is an important indicator of the sufficiency of the available revenue to meet debt service payments, e.g., where the dedicated revenue stream is limited. If there is material excess revenue, the relevant bonds have lower exposure to potential variations in the revenue stream.

Debt service coverage is also an important indicator of revenue sufficiency where pledged revenues are more sensitive to economic changes and other disruptions, e.g., with special tax revenue pledges.

Other Factors

Why it matters

Additional factors, some of which vary by pledge or security type, may also affect the risk of a given debt instrument relative to the credit strength of the issuer. Following are some examples:

- » For contingent obligations, where there is one or more leased or financed asset or function, essentiality is important because it can indicate the likelihood that an issuer will choose to appropriate funds to pay the lease. For an abatement lease, the more important the pledged asset or function is to the borrower, the more likely it is that the borrower will ensure that it is repaired in an abatement circumstance.
- » In some instruments, there may be a sunset provision in the pledge that precedes the maturity of the debt obligation.
- » Where a pledge type is subject to unanticipated legal challenges, an individual debt instrument may be vulnerable to non-payment even if the issuer is not undergoing stress.
- » Where an issuer's debt includes a significant amount of derivatives such as interest rate swaps that are exposed to liquidity demands or that may require market access for refinancing, this may result in meaningful additional risk to the holders of the instrument.
- » For US Native American tribal nations, if a nation were to waive its sovereign immunity with respect to a specific instrument but not with respect to creditor interests in general, the instrument rating would reflect the positive credit impact of this waived immunity.

General guidance for assigning individual debt instrument ratings

In assigning instrument ratings, we consider all of the analytic elements relevant to the specific debt issuance and their impact. In this section and the pledge-specific sections that follow, we provide guidance on the typical range of notching for common security types. For each major security type, the guidance for assigning a rating is described by analytic element and is typically cumulative. However, actual ratings may be different from the guidance where there is unusual strength or weakness in the legal structure or revenue base, in the terms of the debt instruments, or in the relation of an issuer to the obligation, e.g., where the issuer or instrument is in financial distress.

Other issuer-specific or instrument-specific considerations may also be relevant.

Where an issuer is undergoing financial distress, we may widen or narrow the rating differentials between the issuer rating and the rating of any specific obligations, based on our view of the relative probabilities of default and relative loss rates upon default. In these instances, the anticipated recovery rate for an obligation would be a more important rating consideration than our general principles for assigning instrument-level ratings. Our views of relative expected loss would generally be informed by state or federal case law within the relevant jurisdiction and other meaningful issuer-specific risk factors that may indicate the issuer's relative willingness and ability to pay various types of obligations.

Outside of a stress scenario, upward notching of an instrument above the issuer rating is typically limited to one notch, because there is inherent uncertainty in the potential for any structural feature to reduce loss severity relative to the typically broad revenue pledge associated with instruments rated at par with the issuer rating and uncertainty given limited default and recovery experience.

The guidance below for assigning instrument-level ratings is divided into three groups of pledges that are typical in this sector: (i) real property-based pledges; (ii) exhibit promises to pay and contingent obligations; and (iii) special tax pledges.

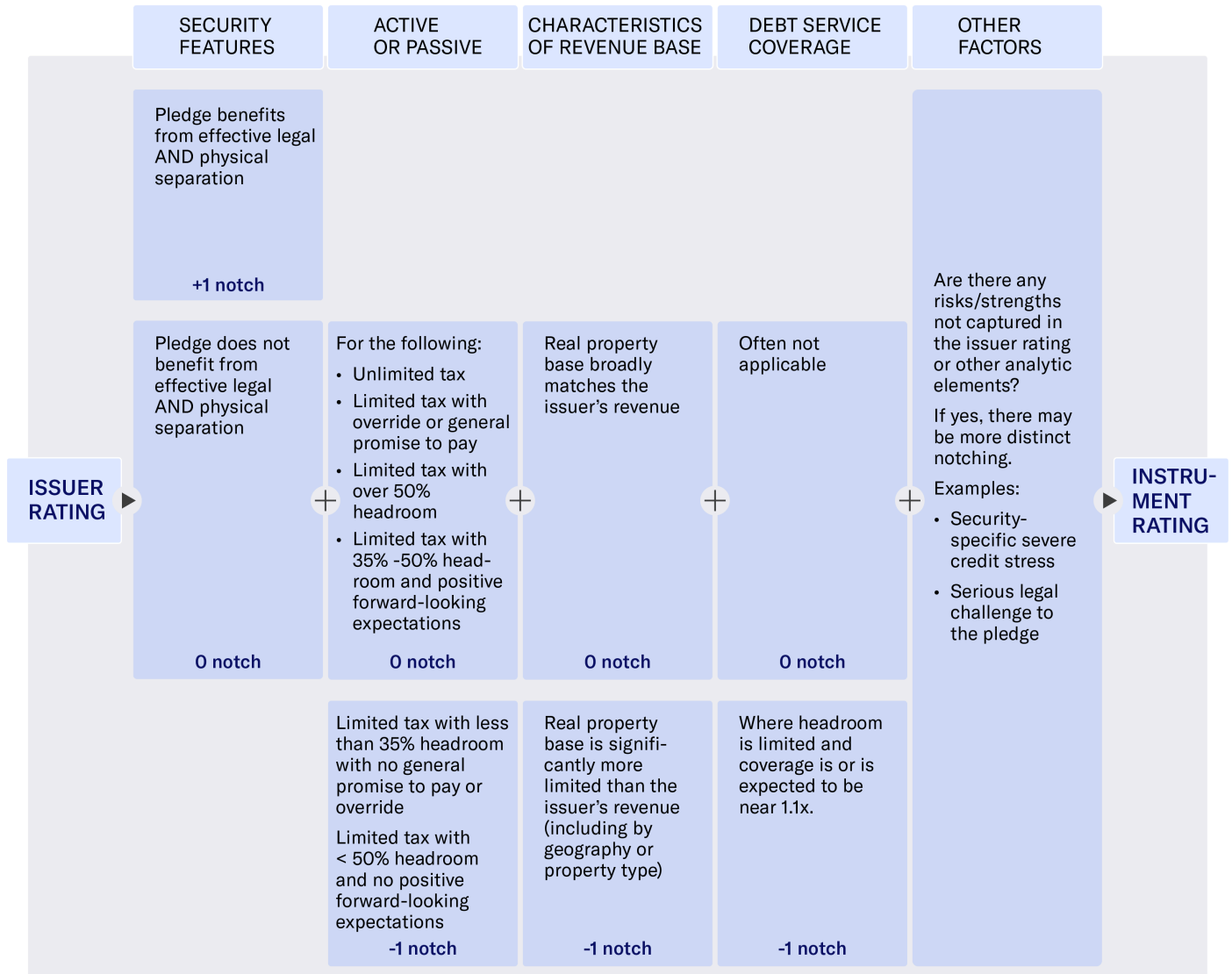
Real property-based pledges

In a real property-based pledge, the issuer pledges taxes that are levied on real property or other real property-related revenue. Typically, a city's or county's tax base includes property that is categorized in many sub-groupings, including real, personal, tangible and mineral property. The type of property subject to ad valorem taxation varies by state. These pledges can be active or passive but are, by definition, non-contingent. Examples of real property-based pledges include general obligation unlimited tax (GOULT) and general obligation limited tax (GOLT) pledges.

Overall, a major consideration for all securities within the real property-based pledge grouping is whether the city or county can adjust without limit the tax rate that generates the pledged revenue. We also consider how meaningful the limitation is. Where we consider the limitation to be material, the instrument rating is typically one notch below the issuer rating.

Exhibit 12

Real property-based pledges: Illustrative notching



Source: Moody's Ratings

General obligation unlimited tax pledge

While a GOULT pledge often includes a general promise of the issuer to pay the obligation (the specific language may vary; an example is a full faith and credit pledge), the key differentiating feature is the pledge to levy ad valorem taxes, without limit as to rate or amount, sufficient to make timely payment of debt service. Ad valorem taxes are based on the value of property. Because of the breadth of the pledge, most GOULT instrument ratings are at the same level as the issuer rating.

How we assess it

Security Features

Where a GOULT pledge provides physical and legal separation of pledged revenue from the issuer's control, typically through a lockbox and valid security interest, such as a lien, and we consider these to be effective, there is typically one upward notch for this analytic element. While the presence of only one of these elements may provide a modest benefit, it is not sufficient to provide uplift from the issuer rating.

We may not consider these security features to be effective where the responsible governments have not carried out their lockbox obligations, where we think the legal separation is weak or where there have been successful legal challenges to the separation.

Active or Passive Pledge

These are, by definition, active pledges. There is no notching for this analytic element.

Characteristics of the Revenue Base

Where the GOULT pledge encompasses all or substantially all of the issuer's tax base, there is no notching for this analytic element. Where we consider that the revenue pertaining to the specific GOULT pledge is significantly more limited than the issuer's revenue base (e.g., from a more limited geographic base or property type), there may be one downward notch for this analytic element, although there may be more than one downward notch if the revenue base is exceptionally limited. Where this more limited tax base is still robust, there may be no downward notching for this analytic element.

Debt Service Coverage

Not applicable.

Other Factors

We also consider risks in the structural features of the pledge that are not already reflected in the issuer rating or other analytic elements. If the risks are material, cumulative notching may reflect one or more additional downward notches, depending on the severity of the risks.

For example, a serious legal challenge to the validity of the GOULT pledge could lead to downward notching for this analytic element.

General obligation limited tax pledge

A GOLT pledge is a general obligation of a city or county that includes a limited rather than an unlimited tax pledge. The nature of the limit for a GOLT varies. It can be imposed on the tax rate or on the levy amount that is available to pay the related debt service. In other cases, there may be a limit on the issuer's overall property tax levy, e.g., a limit on the rate, on the annual rate of growth or on the total amount of tax revenue collected. Although some of these limitations result in materially weaker credit strength, in many other cases, the tax limit does not materially constrain an issuer's ability to pay debt service and therefore does not result in a material difference in the credit risk of the instrument relative to the issuer rating.

There are various structural features that can reduce or eliminate the difference in credit risk between GOULT and GOLT pledges. For example, an issuer may be able to override the stated limit, or it may issue GOLT debt that is also secured by a broad revenue pledge. In addition, some issuers' GOLT pledges have headroom within the limit that we think will be sufficient to cover projected growth in GOLT debt service or withstand potential decreases in net revenue (due to, for example, decreases in the assessed valuation of real property). If there are no sufficient mitigants, a GOLT instrument is typically rated one notch below the issuer rating.

How we assess it

Security Features

Where a GOLT pledge includes both a lockbox and a valid security interest, such as a lien, and we consider these to be effective, there would typically be one upward notch for this analytic element. While the presence of only one of these elements may provide a modest benefit, one without the other is not sufficient to provide uplift from the issuer rating.

We may not consider these security features to be effective where the responsible governments have not carried out their lockbox obligations, where we think the legal separation is weak or where there are historical or ongoing significant legal challenges.

Active or Passive Pledge

Where an issuer has a meaningful ability to raise taxes within the stated limit (i.e., meaningful headroom) or can override the limit, or where an additional pledge not subject to the cap (e.g., a general promise to pay) is broad enough to mitigate the limit, we consider the pledge to be active. In these cases, there is no downward notching for this analytic element. The absence of meaningful headroom

typically leads to one downward notch for this analytic element. We typically consider headroom of 50% or more of maximum annual debt service (MADS) to be meaningful (see box). Where headroom is at least 35% and up to 50%, we may consider it sufficiently meaningful based on our forward view of the issuer's revenue and economic base.

How we estimate or calculate headroom for raising tax revenue

We estimate or calculate headroom based on the ratio of the incremental revenue permitted by the limit to MADS for the pledge (e.g., GOLT).

The numerator is the current taxable assessed valuation related to the pledge multiplied by the maximum allowable tax rate for the debt ("projected maximum levy," or revenue) minus the "current levy used for debt service." The denominator is the MADS amount in dollars on all of the issuer's parity debt.

$$\text{(Projected Maximum Levy – Current Levy Used for Debt Service) / MADS}$$

If the levy is not used exclusively for debt service, we would use the maximum allowable levy in the "projected maximum levy" calculation and the portion of this levy used for debt service in the "current levy used for debt service."

In addition, if a limited tax pledge includes both property and non-property tax revenue, we include both types of revenue in the "projected maximum levy" calculation.

In our forward-looking view of this metric, we may incorporate a projection of additional parity debt and resultant MADS, and we may project taxable assessed value, particularly if we expect that the city's or county's tax base will decline.

Characteristics of the Revenue Base

Where the GOLT pledge encompasses all or substantially all of the issuer's tax base, there is no notching for this analytic element. Where revenue pertaining to the specific GOLT pledge is significantly more limited than the issuer's revenue base (e.g., from a more limited geographic base or property type or from a material decline in assessed valuation), there may be one downward notch for this analytic element and there may be more than one downward notch if the revenue base is exceptionally limited. Where this more limited tax base is still robust, however, there may be no downward notching for this analytic element.

Debt Service Coverage

For GOLT pledges that we consider active because of (i) an ability to override a limitation; (ii) a broad additional pledge; or (iii) meaningful headroom, this analytic element does not apply.

Where headroom is limited, we typically assess debt service coverage on a current and forward-looking basis. In cases where the debt service coverage of the pledge is materially lower than the issuer's general ability to meet all of its obligations, we may notch the instrument rating down to reflect this risk to the extent it is not already captured in the issuer rating or other analytic elements.

One downward notch is typical for this analytic element where there is no meaningful headroom and debt service coverage is expected to be near or below 1.1x. More than one downward notch may be applied where there is no meaningful headroom and debt service coverage is expected to be below 1x.

Other Factors

We also consider strengths or risks in the structural features of the pledge that are not already reflected in the issuer rating or other analytic elements. If the strengths are material, cumulative notching may reflect one upward notch. If the risks are material, cumulative notching may reflect one or more additional downward notches, depending on the severity of the risks.

For example, a serious legal challenge to the validity of the GOLT pledge or a sunset provision in the pledge that precedes the maturity of the debt obligation could lead to downward notching for this analytic element.

Non-contingent general promises to pay and contingent obligations

This grouping includes (i) general promises to pay where there is a non-contingent pledge to pay debt service that may specifically include all or some of the issuer's revenue, and (ii) contingent obligations.

Non-contingent general promises to pay

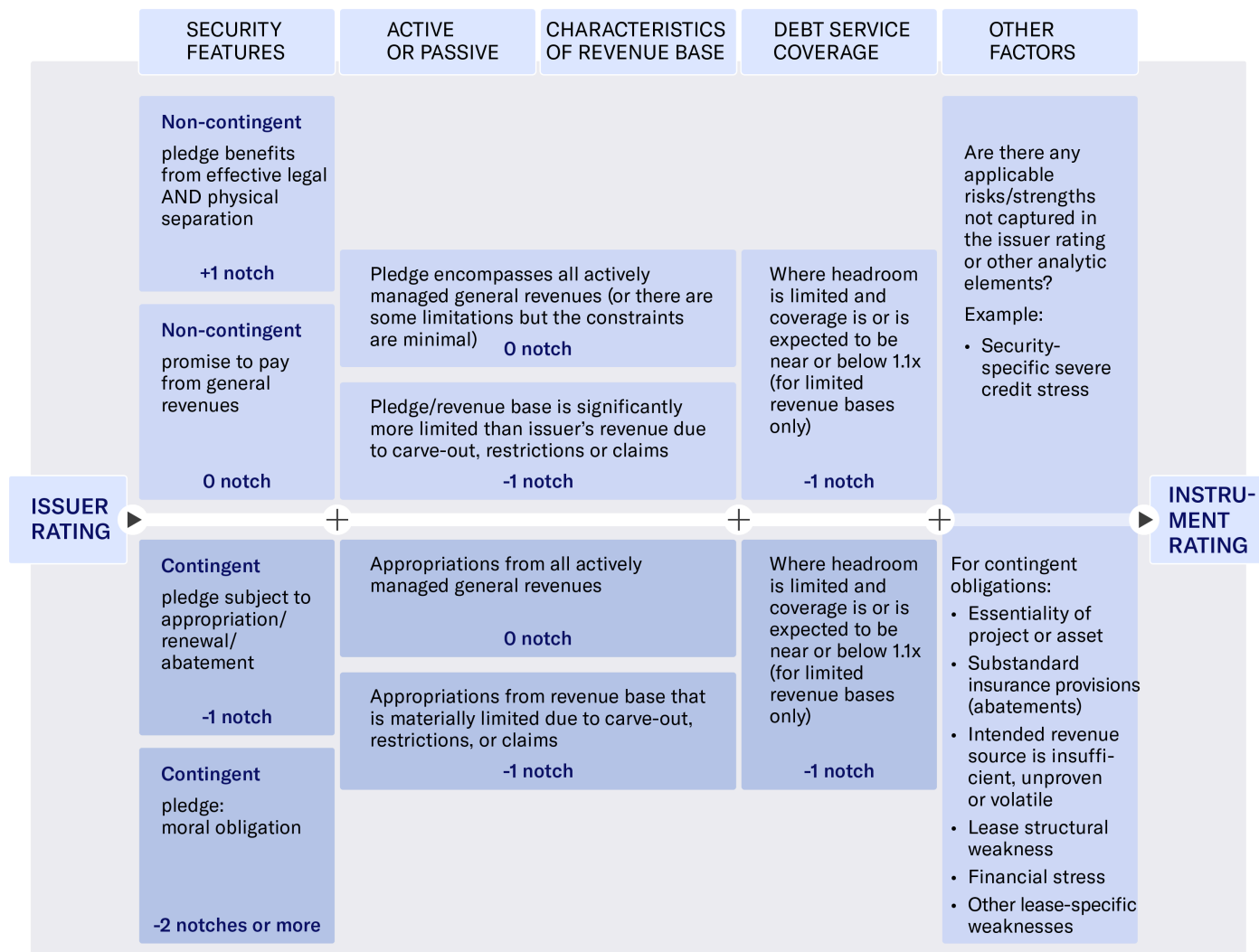
Some obligations represent a non-contingent general promise to pay. In some cases, these instruments are called "general obligations," but the instrument does not include a property-tax pledge. In other cases, pledges specifically exclude some or all tax revenues. Many obligations in this group contain broad language describing the promise (e.g., "full faith and credit" or similar wording) but do not include a specific pledge of a property tax or other revenue. Because these promises to pay are non-contingent, we may consider them to be as strong as the issuer rating. In other cases, the general promise to pay is weaker than the issuer rating because there are material carve-outs of revenue. As there is wide variation in the language used, we look at the substance of the issuer's obligation.

This category includes: (i) non-ad valorem debt, which is typically a non-contingent promise to pay debt service with the explicit exclusion of revenue derived from ad valorem property taxes; (ii) non-tax debt, which is typically a non-contingent promise to pay debt service from general revenue with the explicit exclusion of all revenue derived from taxes.

In cases where language such as "full faith and credit" requires the issuer to levy ad valorem taxes sufficient to pay the obligation under the laws of the state, we consider these to be real property-based pledges.

Exhibit 13

Non-contingent general promises to pay and contingent obligations: Illustrative notching



Source: Moody's Ratings

How we assess it

Security Features

There is typically no notching for this analytic element, because general promises to pay are non-specific as to revenue, by definition. However, we assess the security features of each transaction in order to determine if they provide material benefit to creditors.

Active or Passive Pledge and Characteristics of the Revenue Base

We consider these two analytic elements together.

Where the pledge or general promise to pay encompasses all of the issuer's revenue base, there is no notching for these analytic elements. If the revenue base is subject to some limitations but the constraints are not meaningful, there is also no notching for these analytic elements.

Where the relevant revenue base is meaningfully narrow, there is typically one downward notch for these analytic elements, although there may be more than one downward notch if the revenue base is exceptionally narrow.

We also consider the extent to which the issuer has active control over the ability to raise revenues in the relevant pledge.

Debt Service Coverage

For non-contingent pledges, there is no upward notching for this analytic element. Where the pledge is substantially reduced by carve-outs or other competing claims that render the pledged revenue significantly more limited than the city's or county's revenue, we typically assess debt service coverage on a current and forward-looking basis. One downward notch is typical for this analytic element where there are material revenue carve-outs and debt service coverage is expected to be near or below 1.1x. More than one downward notch is likely to be applied where there are material revenue carve-outs and debt service coverage is expected to be below 1x.

Other Factors

We also consider strengths or risks in the structural features of the pledge that are not already reflected in the issuer rating or other analytic elements. If the strengths are material, they may offset downward notching related to other analytic elements. If the risks are material, cumulative notching may reflect one or more additional downward notches, depending on the severity of the risks. For example, security-specific severe credit stress or a legal structure or security type with a poor track record in default could lead to downward notching for this analytic element. In addition, a serious legal challenge to the validity of a non-contingent general promise to pay could lead to downward notching for this analytic element.

Contingent obligations

In almost all cases, we notch down from the issuer rating for a city's or county's contingent obligations. Examples of contingent obligations include appropriation lease-backed obligations, abatement lease-backed obligations, non-lease annual appropriation obligations and moral obligations.

For cities and counties, a typical contingent obligation is an appropriation lease-backed instrument. The city or county usually does not pledge any specific revenue to the lease and instead annually appropriates funds to pay debt service. The city or county obligates itself to make lease payments pursuant to a capital lease between itself (as lessee) and, usually, a special purpose entity lessor created and controlled by the lessee. This lease payment revenue is used to pay debt service on the lease-backed instrument.

In the case of an appropriation lease, the city or county has a legal right to choose not to appropriate the funds, thereby not renewing the lease. The city or county generally covenants to take proactive steps to make the annual lease payment and lease renewal, although with the explicit recognition that it is legally entitled to choose not to appropriate funds for the lease payment, or renew the lease. Issuers typically appropriate the funds annually as part of the regular budget cycle. The same kind of appropriation structure can exist without a lease or leased asset.

A second common type of contingent obligation is an abatement lease, where the lessee's requirement to make the lease payment is contingent upon the continued availability of the leased asset for use or occupancy. If the use of the asset is compromised because the asset is damaged or destroyed (e.g., a government building is partially destroyed by an earthquake), the lessee would be required to abate, meaning to reduce, the lease payment in proportion to the reduction in use.

Issuers may also issue non-lease annual appropriation obligations. These obligations are typically backed solely by the issuing government's covenant to take certain administrative steps to consider appropriating for debt service in each budget cycle. The appropriations are typically made through the government's annual budget process. Once the appropriation is made, it is absolute and unconditional for the time period to which the appropriation applies (typically one year). After one year, the annual option to not appropriate renews. Annual appropriation obligations do not include recourse to an asset among the remedies in case of a default. Appropriation-backed instruments are often issued as certificates of participation.

A fourth type of contingent obligation is a moral obligation. An example of a moral obligation structure would be where a city or county promises to consider supporting a contingent obligation, under certain circumstances, by appropriating funds for the replenishment of a debt service reserve. A moral obligation pledge is neither a guarantee to pay debt service nor a promise to replenish a debt service reserve nor a legally enforceable obligation to pay. Rather, it is a declaration that the city or county intends to support the debt and will consider making appropriations and providing funding under certain circumstances.

Based on these contingencies, these four types of contingent obligations are not typically defined as debt under state law and would therefore be excluded from statutory and constitutional restrictions on debt issuance that apply to cities or counties. However, we consider such obligations to be the debt of the city or county.

Contingent obligations are not typically defined as debt under state law and would therefore be excluded from statutory and constitutional restrictions on debt issuance that apply to cities or counties. However, we consider such obligations to be the debt of the city or county in our analysis of the likelihood of repayment.

In all cases, contingent debt includes a contractual out, either through failure to appropriate or abatement, and therefore lacks a firm pledge of revenue over the life of the debt. Even in cases where an issuer plans to use certain revenue flows for contingent lease payments or debt service, unless they are pledged for the life of the instrument, this intention does not improve credit quality. However, where the issuer signals an intention to use limited revenue to pay the contingent obligation, this may indicate additional risk for the lease bonds. An example is where the issuer intends to pay from expected project revenue (e.g., an economic development project that involves market risk), as opposed to general revenue.

The number of downward notches for appropriation and abatement obligation bonds is usually limited to one or two, depending on our assessment of the essentiality of the pledged asset or financed project to the city's or county's operations. In most cases there is a fundamental connection between the financed asset and the fundamental operations of the city or county, providing a strong incentive for cities or counties to appropriate funds for debt service payments. For moral obligation pledges, the typical notching is two or more downward notches, depending on the legal structure and assets involved.

Not all leases are contingent obligations. Non-contingent leases are rated based on the long-term pledge, e.g., general promise to pay or GOULT.

The exhibit below shows the typical notching between the city's or county's issuer rating and the rating on non-contingent lease-backed obligations, contingent obligations and moral obligations.

Exhibit 14

Typical downward notching from the issuer rating
For non-contingent lease-backed obligations, contingent obligations and moral obligations

Security Type		Non-Contingent Lease-Backed Obligations	Contingent Lease-Backed and Annual Appropriation Obligations		Moral Obligations	
Essentiality		N/A	More	Less	More*	Less
Notches from Issuer Rating	Zero	X				
	One		X			
	Two			X	X	
	Three or more				X	X

*For moral obligations, we may apply two or three downward notches from the issuer rating for more essential assets, depending on the legal structure.

Source: Moody's Ratings

How we assess it

Security Features

A contingent pledge is notched downward for security features.

A contingent pledge subject to appropriation, renewal or abatement typically leads to one downward notch for this analytic element. An exception is if an instrument also carries a backup general obligation pledge (GOULT, GOLT or full faith and credit pledge) or other non-contingent pledge, in which case we rate the instrument based on the stronger of the two pledges.

Where the contingent pledge is a moral obligation, there are typically two downward notches for this analytic element, and there may be more than two downward notches where the legal structure is unusually weak. In a typical moral obligation structure, a parent government undertakes to consider appropriating funds for the replenishment of a debt service reserve under certain circumstances. An unusually weak moral obligation structure might include numerous conditions that must be met for the government to consider appropriating, or the timing of debt service payments may not align well with the timing during which the city or county could appropriate funds for debt payment or replenishment of a debt service reserve. The greater notching for moral obligations, relative to leases and appropriation obligations, reflects several characteristics of moral obligations, including that they are typically contingent upon legislative approval and are only called upon if the underlying revenue streams are insufficient.

Active or Passive Pledge and Characteristics of the Revenue Base

We consider these two analytic elements together.

Where the issuer's entire revenue base is available for annual appropriation, including cases where the revenue base is subject to some limitations but those constraints are not meaningful, there is typically no downward notching for these analytic elements.

However, there would typically be one downward notch for these analytic elements where the available revenue base is meaningfully narrow, although there may be more than one downward notch if the revenue base is exceptionally narrow.

Debt Service Coverage

Where the available revenue base for debt service is significantly more limited than the issuer's revenue base, we typically assess debt service coverage on a current and forward-looking basis. One downward notch is typical for this analytic element where debt service coverage is assessed and expected to be near or below 1.1x and above 1x. More than one downward notch will likely be applied where debt service coverage is assessed and expected to be below 1x.

Other Factors

We also consider strengths or risks in the structural features of the pledge that are not already reflected in the issuer rating or other analytic elements. If the strengths are material, there may be one upward notch, although this would be unlikely to offset the downward notching for contingency risk. If the risks are material, cumulative notching may reflect one or more additional downward notches, depending on the severity of the risks.

Essentiality

For contingent obligations, the essentiality of the underlying assets or financed project or function to the issuer's core operations is a major consideration. We consider essentiality to be a strong indicator of the issuer's incentive to appropriate funds for these contingent payments.

While essentiality falls on a continuum, we typically classify it in two categories. We generally consider an asset or project that is critical to the issuer's core operations or administration as more essential (e.g., construction of administrative buildings, capital improvements on roads and financing of equipment that directly supports city or county operations). In these cases, the asset or project also cannot be separated from the issuer (is not severable) and has no commercial or enterprise risk. With more essential assets, there is no notching for the essentiality consideration.

Less essential assets or projects are not critical to city or county core operations or administration, are severable, or have commercial or enterprise risk, e.g., an economic development project or a project that depends on vendor performance. In these cases, a future

administration may no longer choose to support the project, appropriate funds for debt service, or repair the asset following an abatement event. In these cases, there are typically one or more downward notches for the essentiality consideration.

Some cities and counties issue non-lease annual appropriation obligations. These obligations do not include recourse to an asset among the remedies in case of a default and are typically backed solely by the issuing government's covenant to take certain administrative steps to consider appropriating for debt service in each budget cycle. Creditor recourse is often very limited in the event of non-payment. We typically look at the programs or functions being funded with the contingent obligation and assess their essentiality.

The exhibit below provides a summary of typical notching for the essentiality consideration. Actual notching is based on our view of the circumstances of the issuer, the terms and conditions of the obligation and the issuer's incentives or disincentives to honor the obligation. If there is a mix of more and less essential assets associated with an individual instrument or master lease structure, we generally characterize the essentiality of the entire asset pool by the single most essential asset.

Exhibit 15

Typical notching for essentiality

More essential	Less essential
Asset, project or function is critical to core operations or administration, not severable, and has no commercial or enterprise risk.	Asset, project or function is not critical to core operations or administration, is severable, or has commercial or enterprise risk.
Examples (Illustrative; categorization could vary based on specific circumstances)	
» Public safety buildings or functions (courthouses, jails, police/fire stations, etc.)	» Facilities for economic development, tourism or recreation (hotels, convention centers, golf courses, sport stadiums, recreational, athletic, or cultural, etc.)
» Public infrastructure including roads, water/sewer/electric facilities	» Projects dependent on commercial/vendor performance*
» Administrative, educational or health facilities or functions	» Facilities supporting less essential services (animal shelters, ice rinks, marinas, community/senior centers, theaters or concert halls, etc.)
» Facilities supporting other core services (affordable/senior housing, nursing homes, libraries, school buildings, etc.)	» Parks and vacant land
» Improvements, equipment or technology not severable from core operations or essential facilities (parking garages, HVAC, etc.)	» Improvements, equipment and technology severable from core operations or supporting less essential facilities or functions (parking garages, etc.)
Typical notching for essentiality	
No notching	One or more downward notches

*Vendors are not the lessors or owners of projects, but their performance may affect the anticipated impact of the lease payments on a city's or county's budget. A city's or county's payment obligation is not explicitly conditioned on vendor performance.

Source: Moody's Ratings

Additional abatement risk considerations

For contingent obligations that are subject to abatement, there is typically one downward notch from the issuer rating due to abatement risk because the leased asset's availability for a city's or county's use or occupancy is a source of credit risk. In the absence of both the ability to substitute an asset and standard insurance provisions, such as title insurance and renters' interruption insurance, there may be one additional downward notch from the issuer rating.

Intended revenue source

In some cases, issuers may have an intended source of revenue to support contingent obligations, even if the pledge is to pay these obligations with all available revenue. The intention to use a specified revenue source does not offset the contingent nature of the obligation, regardless of how stable the revenue source is. Where the intended revenue source is unproven or volatile, the issuer may not expect or be prepared to pay debt service from other sources. In these cases, we may apply one or more downward notches for this analytic element.

Structural weakness

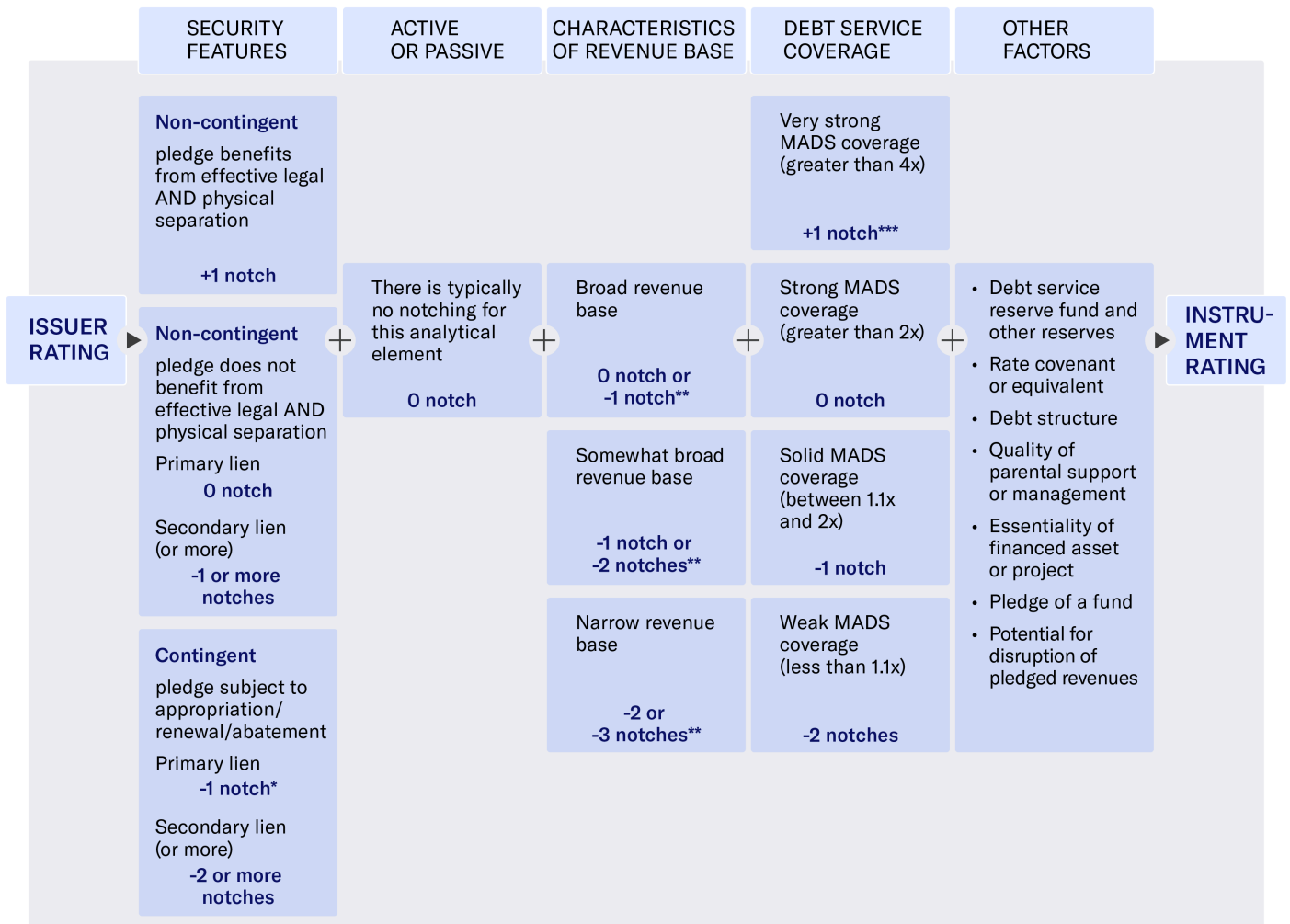
For any contingent pledge, where there is a material structural weakness, such as lack of clarity in the legal documents on the pledge and its mechanics, cumulative notching may reflect one or more additional downward notches, depending on the severity of the risks. Also, unusual complexity in the financing structure, such as inclusion of a non-governmental third party in the transaction, or a serious legal challenge to the validity of a contingent pledge could lead to downward notching for this analytic element.

Pledges of special taxes, fees and assessments

Special tax debt encompasses debt backed by pledges of taxes other than real property taxes, as well as assessments or fees levied on economic activity, transaction-based charges, and similar types of revenue other than real property taxes (collectively, special taxes). These pledges may benefit from physical and legal separation, and may be contingent or non-contingent. Examples of such pledges include taxes, assessments or fees on a variety of consumer purchases, such as retail sales, hotel stays, food and beverage sales or gasoline sales; income taxes; business taxes; real property transfer taxes; assessments on payrolls, insurance policies or other non-property bases; and fixed or formulaic allocations of such special taxes from a higher level of government.

Exhibit 16

Special tax pledges: Illustrative notching



* Where a special tax pledge is both subject to appropriation and subordinate to one or more other liens on the revenues, we assess the combined risk of these features, which may result in only one downward notch.

** Based on revenue trend and volatility.

*** We apply upward notching from the issuer rating only when the instrument benefits from effective physical and legal separation. We typically limit the number of upward notches to one above the issuer rating.

Source: Moody's Ratings

For the majority of special tax debt instruments, we limit the number of upward notches to one above the issuer rating. We only apply upward notching from the issuer rating when the instrument benefits from effective physical and legal separation. We also typically limit downward notches to four below the issuer rating. Rating a special tax instrument that is more than four notches below the city's

or county's rating would typically reflect an idiosyncratic weakness in the pledge that does not reflect a deterioration in the city's or county's governance or other aspect of fundamental credit quality.

How we assess it

Security Features

Where a special tax pledge provides effective physical and legal separation of the pledged revenue for debt service, there is typically one upward notch for this analytic element. Effective separation is reached where the debt structure includes both a lockbox and a valid security interest, such as a lien. While the presence of only one of these elements may provide a modest benefit, one without the other is not sufficient to provide uplift from the issuer rating.

We may consider these security features to be ineffective where the issuing government has the ability to change the flow of funds to the lockbox, where the third party collecting pledged revenues has not carried out its lockbox obligations, where we consider the legal separation to be weak, or where there are historical or ongoing significant legal challenges.

Where the special tax pledge is contingent, i.e., subject to appropriation, renewal or abatement, there is typically one downward notch for this analytic element, effectively limiting the instrument rating to one notch below the issuer rating. In assessing contingency for pledges subject to appropriation or renewal, we may consider whether the tax, assessment or fee has been authorized by voters and may not notch down for this analytical element, for example, where voter authorization for a special tax pledge also includes prioritization of the revenue for debt service over other uses, or where such authorization directs pledged revenue toward a specific purpose and materially reduces the risk of non-appropriation for debt service.

Where a special tax pledge is both contingent and the notching guidance suggests one or more downward notches for other analytic elements, we assess the combined risk of all these elements and may not apply additional notching for contingency. For clarity, contingent instrument ratings are typically at least one notch below the issuer rating.

Where the lien on the pledged special tax revenues is subordinate to one or more other liens on the revenues, there is typically one separate downward notch for this analytic element. Where we consider that the default probability and expected loss severity of the subordinate lien are not meaningfully different from the senior lien, we may assign the same rating to both senior and subordinate instruments, for example, where senior lien debt represents a small share of the combined senior and subordinate debt. Where default probability and expected loss severity are materially higher for the subordinated debt in relation to the senior lien, for example in cases where debt is deeply subordinated (e.g., subordinated debt represents a small share of the combined senior and subordinate debt), the ratings of subordinated lien instruments may be more than one notch below the senior lien instruments. Where a special tax pledge is subject to appropriation and is subordinate to one or more other liens on the revenues, we assess the combined risk of these features.

Active or Passive Pledge

Where a city or county has the legal and practical ability to raise the rate or amount of the pledged special tax revenue, we consider the pledge to be active. Where a city or county has limited-to-no authority to raise the rate or amount of the pledged special tax revenue, or where it maintains revenue-raising authority but confronts significant practical impediments to raising the rate or amount (e.g., significant public resistance to rate increases), we consider the pledge to be passive.

There is typically no downward notching for this analytical element, however, because adjusting the rate or amount of the revenue pledged to the instrument is not generally the principal mechanism by which most cities and counties actively manage special tax pledges. Where a special tax revenue source is subject to downward pressure due, for example, to a decline in the economic activity generating that revenue, a city or county may be reluctant to raise the rate or amount of the special tax if that increase could further depress economic activity. Therefore, governments typically manage these pledges through a variety of other mechanisms unrelated to the tax rate or amount, including debt refinancings, supplementing the special tax revenue with unpledged revenue, and through the use of dedicated and non-dedicated reserves.

Characteristics of the Revenue Base

We assess characteristics of the revenue base for special tax debt instruments using the following two dimensions: (i) the breadth and diversity of the economic base generating the pledged revenue; and (ii) the trend of growth and volatility of the pledged revenues, both

historical and forward-looking. This assessment considers the relative strength of the tax being pledged based on what is being taxed, as well as the historical tax revenue volatility through different economic cycles, and expectations for future performance.

Our assessment of the breadth and diversity of the economic base generating the revenues is primarily based on the nature of the pledged revenue. Where a special tax instrument includes a pledge of multiple types of taxes, assessments or fees, our classification is typically based on the dominant type, although our final assessment may also reflect any strength from the diversity of multiple types of revenues.

The exhibit below illustrates how we typically classify the most common types of special tax revenue sources (Broad, Somewhat Broad or Narrow). Types of special taxes not included in this list are classified in the same category as the tax types most similar to them.

Exhibit 17

Classification of revenue types

Broad	Somewhat Broad	Narrow
» Sales and use tax	» Utility franchise tax or fees	» Hotel tax or fee
» Income or payroll tax	» Utility user tax, fees and surcharges	» Cigarette tax
» Corporate gross receipts tax	» Gasoline tax	» Gaming tax (other than lottery)
		» Lottery tax
» Assessments on payrolls, insurance policies or other non-property bases	» Restaurant food or beverage tax	» Extraction and production of natural resource tax
» Allocations of broad taxes from higher levels of government	» Motor vehicle registration and similar surcharges or fees	» Real estate transaction tax
	» Liquor tax	» Parking tax
		» Motor vehicle rental tax
	» Allocations of somewhat broad taxes from higher levels of government	» Court fines and fees
		» Allocations of narrow taxes from higher levels of government
Typical notching for revenue type		
No notching	One downward notch	Two downward notches

Source: Moody's Ratings

In our forward-looking assessment of revenue growth trend and volatility, we typically consider relative special tax revenue performance trends during past economic cycles to assess elasticity of demand and to project future performance. We typically consider the revenue trend to be declining where there have been multiple consecutive years of historical decline in revenue over the past 10 years or where we expect steady future decline due to change in the underlying economic activity. We typically consider revenue to be volatile where an annual change in pledged revenue during the past 10 years substantially deviates from the average annual rate of change, or where we project substantial deviation in the future. In periods of high volatility and in sensitivity analysis projecting high volatility, we assess the estimated positive or negative impact on debt service coverage. Where a special tax has not been levied for 10 years, we evaluate the history of similar revenues to estimate the trend and volatility. In our assessment, we may also consider an issuer's regular set-aside of revenue to smooth out volatility.

Where we assess the breadth of the economic base generating the revenues to be Broad and the revenue trend to be consistently neutral or growing with limited volatility relative to similar revenue types, there is typically no downward notching for this analytical element. Where we assess the breadth of the economic base generating the revenues to be Broad and the revenue trend to be steadily declining or volatile relative to similar revenue types, there is typically one downward notch for this analytical element. For example, payroll taxes in a certain city may be significantly more volatile than payroll taxes across the sector.

Where we assess the breadth of the economic base generating the revenues to be Somewhat Broad and the revenue trend to be consistently neutral or growing with limited volatility relative to similar revenue types, there is typically one downward notch for this analytical element. Where we assess the breadth of the economic base generating the revenues to be Somewhat Broad and the revenue trend to be steadily declining or volatile relative to similar revenue types, there are typically two downward notches for this analytical element.

Where we assess the breadth of the economic base generating the revenues to be Narrow and the revenue trend to be consistently neutral or growing with limited volatility relative to similar revenue types, there are typically two downward notches for this analytical element. Where we assess the breadth of the economic base generating the revenues to be Narrow and the revenue trend to be declining or volatile relative to similar revenue types, there are typically three downward notches for this analytical element. There are also circumstances where exposure to an economically sensitive revenue source is reflected in an issuer rating that is lower than it would be in the absence of such exposure. In these cases, we may apply fewer downward notches for this analytical element, because the risk is incorporated in the issuer rating.

Exhibit 18

Breadth of the economic base

Economic base	Revenue trend	Typical notching outcome
Broad	Consistently neutral or growing with limited volatility relative to other revenue types in this class.	0
	Steadily declining or volatile relative to other revenue types in this class.	-1
Somewhat Broad	Consistently neutral or growing with limited volatility relative to other revenue types in this class.	-1
	Steadily declining or volatile relative to other revenue types in this class.	-2
Narrow	Consistently neutral or growing with limited volatility relative to other revenue types in this class.	-2
	Declining or volatile relative to other revenue types in this class.	-3

Source: Moody's Ratings

For special taxes that are a fixed dollar allocation or based on a formula that does not reflect the underlying economic trend, we typically consider the trend and volatility of the broader revenue base as a proxy for the specific instrument.

Our assessment of the special tax's economic base is considered relative to the economic base of the parent government (e.g., the city, county or state as a whole). For example, if it is somewhat more limited than the parent government's total economic base but not substantially more so, we may assess the breadth of the economic base as Somewhat Broad or Narrow where the revenue would otherwise be assessed as Broad. Where a special tax is levied on an economic base that is significantly more limited than the parent government's total economic base, the instrument would be out of scope for this methodology (see the "Scope" section).

Debt Service Coverage

We typically calculate debt service coverage by dividing the most recent fiscal year's collected and legally available pledged special tax revenues by the maximum annual debt service (MADS). We define maximum annual debt service as the largest single-year future principal and interest debt service payment on all outstanding parity bonds. We often also calculate coverage based on our projections, which typically include expected near-term changes in revenue or debt (and thus MADS). For subordinate lien bonds, we calculate debt service coverage by dividing the relevant year's pledged and collected special tax revenues by the combined senior and subordinate maximum annual debt service.

Where the pledge comprises a fixed allocation of annual revenue collected by another government, we may calculate coverage based on the total amount of the special tax revenue that is collected by the other government divided by the total allocation to the receiving government or governments, or we may make a qualitative assessment of the robustness of coverage. Assessing coverage this way provides a clearer view of the sufficiency of the revenue base from which the fixed allocation is drawn and any risks to the allocation based on the other government's revenue collections. To illustrate a coverage calculation: a US state statutorily promises to provide 20 local governments with a fixed amount of \$100,000 annually (for a total of \$2 million) from a special tax whose total collections equal \$4 million. One of the local governments, a city, then pledges its annual allocation to a debt instrument and structures it so that debt service matches the allocation, resulting in 1x coverage based on the allocation. In this case, we would calculate coverage based on the total revenues collected by the state divided by the total allocations the state has agreed to make (i.e., \$4 million divided by \$2 million), resulting in 2x coverage. Where we do not have sufficient information to calculate exact coverage in this way, we may use available information to make a qualitative assessment of total state revenue collections relative to total local government allocations.

Our thresholds for downward notching for special tax instrument debt service coverage incorporate our assessment that special tax revenue is typically less predictable than tax revenue that is not dependent on economic activity. Where debt service coverage is

greater than 2x, there is typically no downward notching for this analytical element. Where debt service coverage is 1.1x to 2x, there is typically one downward notch for this analytical element. Where debt service coverage is less than 1.1x and above 1x, there are typically two downward notches for this analytical element. There may be additional downward notches where we project coverage is likely to remain at low levels or to fall below sum sufficiency in the future. If coverage is below 2x for a subordinate lien obligation and we do not expect further material narrowing, we may not notch down for coverage where we have already applied one or more downward notches for subordination.

Where coverage is very strong, for example more than 4x, and we assess that high coverage will remain stable and that it effectively offsets a revenue weakness, there may be additional uplift, typically by one notch, up to the issuer rating. However, where contingency risk is present, we typically limit uplift to one notch below the issuer rating to maintain the credit distinction between instruments with and without contingency risk.

Additionally, we assess the strength of the restrictions that the transaction documents place on the issuance of additional debt supported by the revenue pledge, if any. For some special tax instruments, transaction documents do not allow for the issuance of additional parity debt, which is known as a closed lien. Where the transaction has a closed lien, there may be one upward notch for this analytical element where coverage is between 2x and 4x, reflecting the inability of the issuer to reduce coverage with additional leverage.

Where the special tax debt instruments are open-lien, i.e., where the transaction documents allow for the issuance of additional parity debt, we assess the strength of the additional bonds test (ABT). The typical ABT requires historical pledged revenues to cover MADS for the current and projected additional debt by a specific minimum coverage ratio before the additional debt may be issued, although the measurement of the ABT may vary by debt transaction. The limits that the ABT places on additional leverage informs our forward-looking view of coverage. For example, where current coverage is greater than 2x but the ABT allows for additional leverage, we may notch downward by one notch where additional leverage is expected and likely to reduce coverage below 2x. Comparing two debt instruments with the same type of revenue pledge and similarly high coverage, the instrument with a 3x ABT, for example, is more likely to retain high credit quality over the long term and be rated closer to its respective issuer rating than the one with a 1.5x ABT, all else being equal.

Other Factors

We also consider strengths or risks of the instrument that are not already reflected in the issuer rating or other analytic elements. If the strengths are material, they may offset downward notching related to other analytic elements; however, we do not apply any upward notching that would result in the assignment of a rating above the issuer rating, absent physical and legal separation, or result in a rating less than one notch below the issuer rating if contingency risk is unmitigated. If the cumulative risks from other factors are material, we may apply one or more additional downward notches. For example, where there is potential for disruption of the pledged revenues, we may apply additional downward notches, or where we have observed proactive support from the parent to improve bondholder security, we may apply an additional upward notch.

Debt service reserve or other funds

The transaction documents for a special tax debt instrument may include the requirement that the trustee hold a specified amount in a debt service reserve fund (DSRF), from which the trustee pays debt service if special tax revenues are insufficient. The DSRF covenant ordinarily requires the issuer to replenish any draws from the DSRF using pledged revenues, if available after the payment of debt service. DSRF requirements may be initially funded with cash or with surety policies from an insurer. We generally consider cash-funded reserve funds as stronger than those funded with a surety, although we typically treat surety-funded DSRF requirements the same as cash-funded DSRF requirements where the surety provider is rated investment-grade. We also typically consider cash-funded "springing reserves" only in circumstances where they are fully funded. Once funded, we assess these reserves using the same criteria as a standard DSRF. Springing reserves are funded only under specific conditions. The transaction documents may also include requirements that the trustee hold amounts in other funds that are also available to pay debt service, such as a rate stabilization fund. We may also consider the strength of other funds that are pledged to the debt instrument. In cases where funds are available but not pledged to the debt instrument, we may consider this as a form of parental support, unless these funds are already considered in the parent's issuer rating.

Where we assess downward notching for revenue volatility or debt service coverage and there is a strong debt service reserve fund requirement funded with cash or a surety provided by an investment-grade insurer, or there are other funds pledged to pay debt service, we may offset one of the downward notches. We consider a DSRF to be strong where it is at or close to the common "three-pronged test," i.e., the lesser of 10% of principal, MADS, or 1.25x average annual debt service, because this threshold would typically provide at least one year of debt service and often several additional years.

Rate covenant or equivalent

Some special tax debt instruments include a requirement to set rates or a levy that guarantees a minimum debt service coverage level. These requirements can be presented in the transaction's legal documentation in the form of a rate covenant, or in the authorizing documentation for the special tax. For example, where pledged insurance assessments are authorized specifically to repay the debt, there is typically an automatic annual adjustment to reset the rate so that collections match the annual debt service payments.

Rate requirements typically use annual debt service to calculate coverage rather than maximum debt service. Therefore, we may apply a downward notch for low maximum annual debt service coverage of the debt instrument. However, an effective rate covenant or automatic adjustment mechanism allows the rate to be set without regulatory or political approvals, which increases the certainty that future revenue growth will match increases in the debt service schedule and balance weak trends or volatility in the underlying revenue base. Where we consider the adjustment mechanism to be effective, we may offset downward notching assessed for Characteristics of the Revenue Base, or narrow MADS coverage, by one to two notches.

Debt structure

Most special tax debt instruments are structured as fixed-rate debt that amortizes over a multiyear period. Some special tax debt instruments may be structured as variable-rate, include bullet maturities or capital appreciation features, or include derivatives such as interest rate swaps, and may introduce additional risk as a result. These types of structures may be subject to remarketing risk because they require market access for refinancing, or they may be exposed to liquidity demands. Liquidity and market access risks can also arise with variable-rate demand obligations and bonds that contain provisions that allow debtholders to put bonds back to the issuer. The potential adverse credit effects of variable-rate demand obligations are typically assessed in the overall credit profile and circumstances of each issuer and are reflected in the issuer rating. However, where the city's or county's special tax debt includes riskier structures than the city's or county's overall debt profile, there may be one to two additional downward notches.

Quality of parental support or management

A special tax debt instrument may experience financial stress (generally due to insufficient pledged revenues) that increases the probability of default. A city or county often provides support for a special tax debt instrument experiencing financial stress, either through direct financial support or by actively managing the competing demands on the special tax. Where a city or county has a track record of providing support for a special tax debt instrument experiencing stress or a clear willingness and ability to support stressed instruments, we may offset downward notching assessed for characteristics of the revenue base or debt service coverage by one or more notches. Where such parental support is unlikely for a special tax debt instrument experiencing stress, there may be one or more additional downward notches. Indicators of parental support and active management include a track record of appropriating additional resources above the pledged revenue, refinancings to improve debt service coverage, or resolutions of support.

Essentiality of financed asset or project

For contingent obligations, the essentiality of the underlying assets or financed project or function to the issuer's core operations is a major consideration. We consider essentiality to be a strong indicator of the issuer's incentive to appropriate funds for these contingent payments. To the extent that a special tax pledge is contingent, we may apply an additional one to two downward notches for less essential assets or projects using the same framework discussed in the contingent obligations category (see "Non-contingent general promises to pay and contingent obligations" section).

Pledge of a fund

Although most issuers of special tax debt instruments pledge a stream of tax revenues, a city or county may pledge a particular fund that receives the revenues generated by one or more special taxes. For example, a county may pledge any collections held in

a transportation fund, typically motor vehicle fuel taxes or vehicle registration fees. We typically view the pledge of a fund as the equivalent to a pledge of the revenue streams the fund receives for our analysis of the security features, active or passive nature of the pledge, characteristics of the revenue base, and coverage. However, a pledge of a fund often allows an issuer additional discretion over the revenues that flow into the pledged fund. There may be additional upward or downward notches, typically by one to two notches, where a city's or county's discretion over the flow of funds could increase or decrease the availability of revenues for debt service. We may consider a pledge of a fund that includes a substantial share of a city's or county's operating revenues to be closer to a general promise to pay and the instrument rating would be assigned based on that pledge type.

Potential for disruption of pledged revenues

A special tax debt instrument may encounter extreme uncertainty in the continued steady flow of pledged revenues in the future. For example, the debt may be structured so that the revenue pledged to the debt instrument sunsets prior to final maturity and requires legislative action to renew. The pledged special tax revenue may have the potential to be materially diminished by non-economic events, for example due to a rate reduction, tax holidays, changes in the regulatory environment for the relevant products or services, or a sudden secular decline in consumer demand for those products or services underlying the tax. Where there is a strong risk of disruption of revenues that is not already captured in our assessment of the pledged revenue's breadth, trends and volatility, there may be one or more additional downward notches.

For example, federal grant anticipation revenue vehicles (GARVEEs) that are solely backed by anticipated federal highway or transit grants are notched down for this consideration, typically by two notches, to reflect federal reauthorization risk and federal budget shutdown risk. Federal transportation funding is subject to periodic reauthorization, which has varied in amount and duration over time, and the government is under no legal obligation to continue the federal aid highway program. We do not consider high debt service coverage and a high ABT, which are common in GARVEE instruments, to be effective offsets to reauthorization and federal budget risk, therefore we do not typically notch up for those considerations.

Our assessments of GARVEEs incorporate a view that GARVEE reauthorization risk is partially mitigated by the federal government's established commitment to finance essential transportation infrastructure and a long history of uninterrupted federal funding, despite steady declines in federal gasoline tax collections.

GARVEEs are repaid with an allocation of federal revenue that becomes revenue of the issuer once eligible projects have been completed. While city or county issuance of GARVEE bonds is rare, when this occurs, the city or county pledges its allocation and is therefore the relevant issuer rating from which to notch. Typically, the city or county owns the pledged revenue, retains control over borrowing amounts, timing, and transaction structure, and we have historically seen issuing governments step in with revenue or cash flow management when federal funds were disrupted. For GARVEEs that have a secondary pledge of revenue from the issuing city or county, in addition to the primary pledge of federal highway or transit grants, we typically assess the secondary special tax pledge as discussed in this appendix and do not factor in reauthorization risk. Revenue that is available but has not been pledged is not considered an effective secondary pledge. For more information about our approach to assessing GARVEEs, please see our methodology for rating US states and territories, which are more frequent issuers of this type of pledge.¹⁴

Moody's related publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings, please click [here](#).

For further information, please refer to *Rating Symbols and Definitions*, which is available [here](#).

Endnotes

- [1](#) See our methodology that describes our approach for rating K-12 school districts. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [2](#) See the "Other considerations" section for analytic considerations related to extraordinary or ongoing support that may affect the rating.
- [3](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [4](#) For more information about our adjustments, see our cross-sector methodology that describes our adjustments to pension and OPEB data reported by GASB issuers. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [5](#) Overweighting is described in the "Determining the overall scorecard-indicated outcome" section.
- [6](#) For more information about the pension asset shock indicator, see our cross-sector methodology that describes our adjustments to pension and OPEB data reported by GASB issuers. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [7](#) For more information about the tread water indicator, see our cross-sector methodology that describes our adjustments to pension and OPEB data reported by GASB issuers. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [8](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [9](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [10](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [11](#) A link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.
- [12](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [13](#) Please see *Rating Symbols and Definitions* for more information on what we consider to be a default.
- [14](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.

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