

**RATING
METHODOLOGY**

24 July 2024

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Rating Methodology
US States and Territories

This rating methodology replaces the *US States and Territories Methodology* published on March 22, 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 state's or territory'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 state or territory, a US city or county or US K-12 public school district. 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 applies to US states and territories, including debt issuances that are backed by a state's or territory's general obligation pledge and general promise to pay. This methodology also applies to lease, appropriation, moral obligation and comparable debt obligations. Also rated using this methodology are debt instruments supported by a pledge of special tax revenues where the credit profile of the state or territory is a highly relevant driver of the instrument. Lease and contingent obligations 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 state's or territory's taxes other than real property taxes (e.g., sales taxes), including fees, transaction-based charges, allocations or disbursements received, and similar types of revenue (collectively, special taxes).

This methodology also applies to the debt instruments of state or territory enterprises, component units and other related entities that benefit from a state's or territory's general obligation pledge or general promise to pay, or from a lease, appropriation or moral obligation or pledged special tax revenue of the state or territory, provided that the credit profile of the state or territory is closely related to the instrument. Key characteristics of a related entity for which the credit profile of the state or territory is closely tied include a close governance relationship where key decision-makers are the same in the related entity and the state or territory, or are appointed by state or territory leaders, or where the state or territory has assigned pledged revenues to the related entity to repay the debt but retains ownership and control of the pledged revenues.

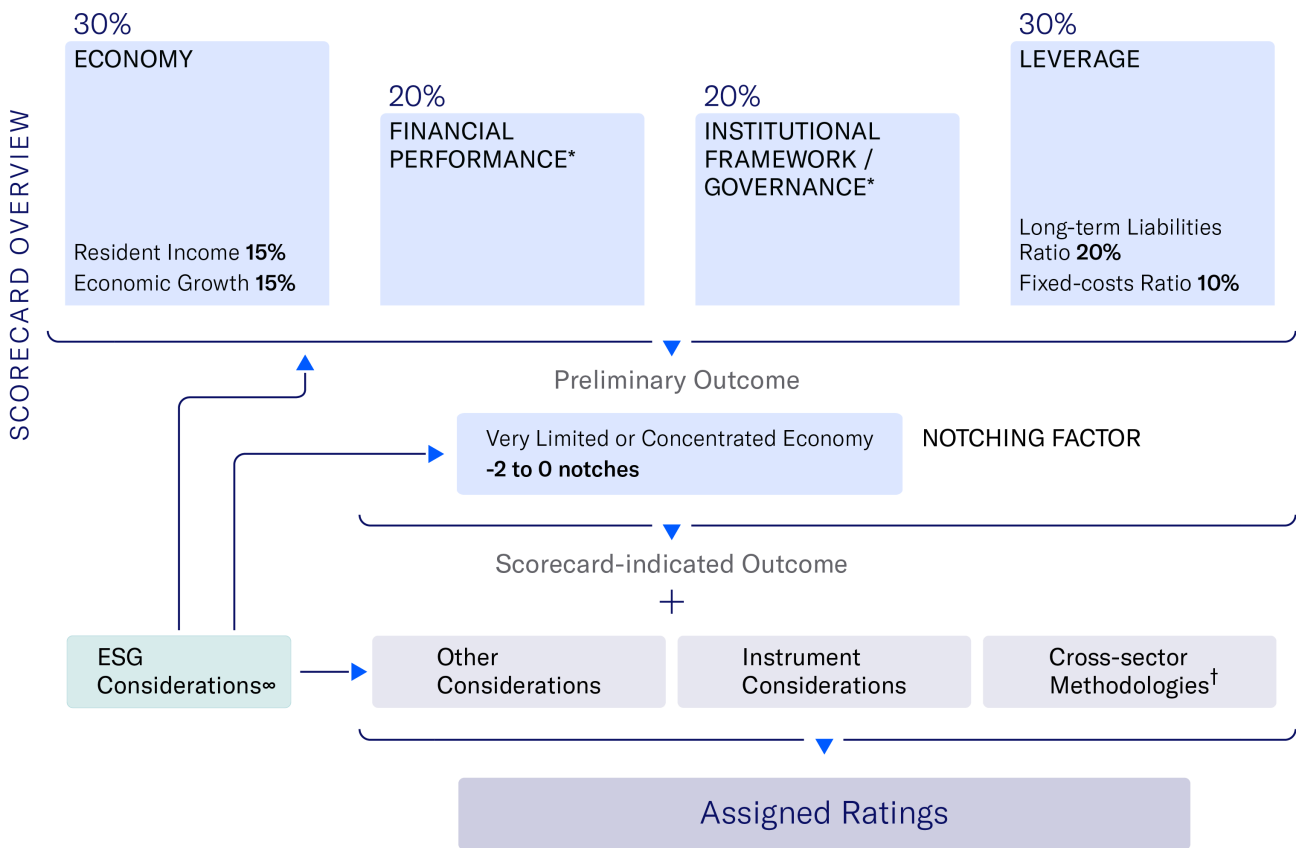
US state or territory short-term debt is rated using a separate methodology. Also rated using separate methodologies are state aid intercept programs and special tax debt instruments that are not rated in relation to an issuer rating of a US state or territory, e.g., where the special tax revenue is levied on an area that is significantly narrower than the state's or territory's total economic base. States and territories outside of the US are rated using a separate methodology for regional and local governments.¹

Rating approach

In this rating methodology, we explain our general approach to assessing credit risk of US states and territories, 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 US states and territories, 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 states and territories 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 (IPs), 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 states and territories 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 states and territories scorecard

| | Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|--------|---|---|--|--|--|---|--|---|
| Factor: Economy (30%) | | | | | | | | | |
| Resident Income (RPP-Adjusted Per Capita Income / US Per Capita Income) ^[1] | 15% | ≥ 100% | 85% - 100% | 70% - 85% | 60% - 70% | 50% - 60% | 40% - 50% | 30% - 40% | < 30% |
| Economic Growth (Difference Between Five Year Compound Annual Growth in Real GDP and Five-Year CAGR in Real US GDP) ^[2] | 15% | ≥ 0% | (1)% - 0% | (2)% - (1)% | (3)% - (2)% | (4)% - (3)% | (5)% - (4)% | (6)% - (5)% | < (6)% |
| Factor: Financial Performance (20%) | | | | | | | | | |
| Financial Performance | 20% | Fund balance approximates or exceeds 15% of own-source revenue and liquidity is very strong; revenue and expenditures are expected to remain in structural balance. | Fund balance approximates or exceeds 10% of own-source revenue and liquidity is strong, or fund balance is below 10% of own-source revenue and liquidity is very strong; revenue and expenditures face a modest structural imbalance, with an expected return to balance. | Fund balance approximates or exceeds 5% of own-source revenue and liquidity is adequate, or fund balance is below 5% of own-source revenue and liquidity is strong; revenue and expenditures face a noteworthy structural imbalance, with an expected return to balance. | Fund balance approximates or exceeds 0% of own-source revenue and liquidity is somewhat weak, or fund balance is below 0% of own-source revenue and liquidity is adequate; revenue and expenditures face a significant structural imbalance, with a potential return to balance. | Fund balance is between 0% and minus 5% of own-source revenue and liquidity is weak, or fund balance is below minus 5% of own-source revenue and liquidity is somewhat weak; revenue and expenditures face significant structural imbalance, with a limited path toward balance. | Fund balance is between minus 5% and minus 10% of own-source revenue and liquidity is very weak, or fund balance is below minus 10% of own-source revenue and liquidity is weak; revenue and expenditures face significant structural imbalance that undermines the delivery of core government services. | Heightened likelihood of default due to fund balance that is below minus 10% of own-source revenue, extremely weak liquidity or overwhelming structural imbalance of revenue and expenditures. | Heightened likelihood of default with significant impairment to creditors due to fund balance that is below minus 10% of own-source revenue, extremely weak liquidity or overwhelming structural imbalance of revenue and expenditures. |

| | Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|--|--------|--|--|--|---|--|---|---|--|
| Factor: Institutional Framework / Governance (20%) | | | | | | | | | |
| Institutional Framework / Governance | 20% | Extremely strong fiscal planning and operational management, with financial projections that are routinely conservative; and consistent long-term planning and in-year monitoring; and extremely conservative debt and liability management; strong revenue-generating flexibility and strong expenditure flexibility. | Strong fiscal planning and operational management, with financial projections that are typically conservative; and consistent long-term planning and in-year monitoring; and conservative debt and liability management; strong revenue-generating flexibility and moderate expenditure flexibility, or strong revenue-generating flexibility. | Adequate fiscal planning and operational management, with financial projections that are somewhat conservative; and inconsistent long-term planning and in-year monitoring; somewhat conservative debt and liability management; moderate revenue-generating flexibility and moderate expenditure flexibility. | Moderately weak fiscal planning and operational management, with somewhat optimistic financial projections; inconsistent long-term planning and in-year monitoring; some debt and liability management weaknesses; moderate revenue-generating flexibility and weak expenditure flexibility, or moderate expenditure flexibility and weak revenue-generating flexibility. | Weak fiscal planning and operational management, with meaningfully optimistic financial projections; long-term planning or monitoring is rarely used; weak debt and liability management; or weak revenue-generating flexibility and weak expenditure flexibility. | Very weak fiscal planning and operational management, with extremely optimistic financial projections; or no long-term planning or monitoring; or very weak debt and liability management; or very weak revenue-generating flexibility and very weak expenditure flexibility. | Extremely weak fiscal planning or operational management heightens likelihood of default; or has not demonstrated ability or willingness to generate any revenue increases. | Extremely weak or essentially non-existent planning or operational management heightens likelihood of default with significant impairment for creditors; or revenue-raising ability is fundamentally constrained, with little prospect of improvement. |
| Factor: Leverage (30%) | | | | | | | | | |
| Long-term Liabilities Ratio ((Debt + ANPL + Adjusted Net OPEB + Other Long-term Liabilities) / Own-Source Revenue) ^[3] | 20% | ≤ 100% | 100% - 200% | 200% - 350% | 350% - 500% | 500% - 700% | 700% - 900% | 900% - 1,100% | > 1,100% |
| Fixed-costs Ratio (Adjusted Fixed Costs / Own-Source Revenue) ^[4] | 10% | ≤ 10% | 10% - 15% | 15% - 20% | 20% - 25% | 25% - 35% | 35% - 45% | 45% - 55% | > 55% |
| Preliminary outcome | | | | | | | | | |
| Notching factor | | | | | | | | | |
| Very Limited or Concentrated Economy | | | | | | | | | |
| 0 to -2 | | | | | | | | | |
| Scorecard-Indicated outcome | | | | | | | | | |

[1] For the linear scoring scale, the Aaa endpoint value is 120%. A value of 120% or better 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 24.5.

[2] For the linear scoring scale, the Aaa endpoint value is 2%. A value of 2% or better equates to a numeric score of 0.5. The Ca endpoint value is (7)%. A value of (7)% or worse equates to a numeric score of 24.5.

[3] 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 24.5.

[4] 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 24.5.

Source: Moody's Ratings

Sector overview

US states are sovereign entities, each with its own government and constitution, that delegate certain powers to the US government under the US Constitution. US territories are administrative units that may have their own governments and constitutions, but are fully under the jurisdiction of the US government. US territories also lack voting representation in the US Congress.

States have tended to exhibit high credit quality, reflecting broad powers to control their financial positions and service their debt. Territories have tended to be rated significantly lower than states, reflecting their typically narrower powers, smaller and less diversified economies and weaker financial management. In this section and those that follow, where we refer to states, we mean US states, and where we refer to territories, we mean US territories.

States and territories derive revenue from sources including personal income taxes, corporate income taxes, sales and other special taxes, user fees, federal aid, federal grants and property taxes. The mix of revenue varies by state and territory. States' sovereign powers allow them to raise or lower tax rates and to implement new taxes and fees, but they have limited discretion over the amount of federal revenue they receive. States have significant discretion over much of their budgetary spending. States also have the ability to push certain responsibilities and their associated costs down to lower levels of government.

Territories have been granted relatively broad taxing powers by Congress and benefit from an exemption from most forms of federal taxation. But their ability to raise revenue is often constrained by the small size and volatility of their economies. Some territories are responsible for the services provided by both states and local governments, so they lack the ability to control expenditures by pushing responsibilities down to lower levels of government.

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 state's or territory's economy is critical to its ability to generate tax revenue, which supports the government's budgetary goals and allows it to pay its debt, pension and other obligations. Taxes on retail sales and income are a primary source of states' revenue, and higher per capita income, in addition to indicating residents' ability to pay taxes, is closely associated with economic strength. The growth rate of the state's economy is also an important indicator of economic strength. Robust and growing economies are capable of producing more tax revenue than small, poor or concentrated ones, and a growing economy makes it easier for a state to keep taxes affordable.

This factor comprises two quantitative sub-factors:

Resident Income: Per Capita Income (PCI) Adjusted for Regional Price Parity (RPP) / US PCI

The resident income levels in a state or territory relative to those in the US provide important indications of a state's or territory's ability to raise own-source revenue. Own-source revenue is the total revenue, typically reported in the governmental funds section of the audited financial statements, minus revenue received from the federal government. Federal funding may include revenue under different categories, such as earmarked grants, annual disbursements and one-time payments. Income is a proxy for the revenue-generating potential of a state's economy, because states whose taxpayers have higher income are generally able to generate more tax revenue than states with lower-income taxpayers.

Using PCI adjusted for regional price parity (RPP) provides for greater comparability across the US, because RPP adjusts for regional differences in the cost of living. Where two states have the same PCI and state-level tax rates but one state has a higher cost of living, tax revenue represents a higher percentage of disposable income in that state.

Where PCI data is unavailable, which is typically the case with territories, nominal gross domestic product (GDP) per capita is another useful proxy for the revenue-generating potential of the economy. We then compare a territory's per capita GDP to that of the US for the same period.

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 state's or territory's ability to continue generating the revenue necessary for the programs and services it provides, because states where the economy shows solid growth are more likely to attract additional residents and businesses who will pay taxes. In general, a state or territory with a more productive tax base over a multi-year period is better able to generate adequate own-source revenue on an ongoing basis. States and territories with robust, sustained GDP growth are typically better able to meet or exceed budgetary goals, manage their debt burdens and build reserves against economic shocks. Comparing a state's or territory's GDP growth to US GDP growth provides an important indication of a state's or territory's economic strength above or below national economic fluctuations.

How we assess it for the scorecard

Scoring for this factor is based on two quantitative sub-factors: Resident Income - PCI Adjusted for RPP/US PCI; and Economic Growth - Five-Year Change in Real GDP Compared to Five-Year Change in US Real GDP

Resident Income - PCI Adjusted for RPP / US PCI

For states, the numerator is the PCI of the state, which we adjust for regional price differences. We make this adjustment by dividing the issuer's PCI by the RPP for the state. Because RPP is expressed relative to a benchmark of 100 for the US, we first divide RPP by 100. The denominator is US PCI. The US Bureau of Economic Analysis or a successor agency is our source for RPP and PCI data. For territories where PCI data is unavailable, the numerator is GDP per capita, which is typically reported by the World Bank, and the denominator is US GDP per capita.

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

For states and territories, we use the difference between the five-year CAGR in real GDP and the five-year CAGR of US real GDP.

Factor: Financial Performance (20% weight)

Why it matters

The strength of a state's or territory's financial performance is important because fund balances and liquid reserves represent the resources available to fund the budget in the event of unforeseen contingencies such as revenue shortfalls and spending overruns. A state's or territory's finances also provide a base from which to balance current budgetary priorities and future obligations. States or territories that fail to maintain structurally balanced budgets over a prolonged period risk accumulating unaffordable liabilities, depleting their liquid reserves or encountering a budget emergency, forcing them to prioritize some outlays over others.

The fund balance provides an important indication of whether a state or territory has a financial cushion against unexpected events. The fund balance typically includes cash as well as receivables, payables and other current assets and liabilities that are likely to become cash inflows or outflows in the short term. Comparing the fund balance to own-source revenue provides insights into the strength of resources relative to the scale of the state's or territory's recurring revenue.

Liquidity is important to help states or territories bridge temporary budgetary imbalances. Larger liquid reserves provide states and territories more time to manage their cash flows and address deficits, which are at greater risk of becoming long-term liabilities if they coincide with low liquidity.

Liquidity provides an important perspective in conjunction with a state's or territory's fund balance. While these indicators are related, they may diverge because the fund balance reflects accruals that are not incorporated into liquidity. For example, a large receivable for a federal grant could lead to a high fund balance, but the state or territory could have limited liquidity because the state has not yet received the grant; in such cases, its liquidity may provide a better indicator of immediate financial flexibility than the fund balance. Alternatively, a state or territory could have strong liquidity because it has deferred certain expenditures into the next fiscal year. In this case, the lower fund balance, which reflects the associated payable, provides a more accurate picture of finances because the expenditure will eventually reduce liquidity.

Structural balance is an important indicator of the ongoing relationship between funding inflows and outflows. A lack of balance entails a greater risk that deficits will be converted into long-term liabilities and will make a return to a budgetary balance more difficult.

State and territory inflows are comprised mostly of taxes and federal aid and are driven by tax policy, the economy and the federal government's funding for Medicaid (the program that provides health care for low-income residents) and transportation infrastructure. State and territory outflows largely consist of outlays for health care, public education, prisons, highways, debt service and pension contributions.

States and territories have substantial discretion over their inflows and outflows. Those that remain in structural balance either match inflows to outflows or manage their budgets to keep revenue higher than expenditures. Governments generally have the authority to set policy and enact new taxes, increase tax rates in order to raise revenue, or to cut tax rates. The size of a state's or territory's budget is essentially a policy decision, and cutting spending on programs such as aid to localities, Medicaid recipients or public schools can be politically difficult. Nonetheless, some states and territories may spend more than they collect in revenue through practices such as depleting liquid reserves or converting deficits into long-term liabilities by underfunding pensions, deferring payments to vendors or underinvesting in infrastructure. These practices represent a structural imbalance and can pose long-term risks to a state's or territory's credit profile.

How we assess it for the scorecard

In our qualitative assessment of this factor, we consider the overall robustness of a state's or territory's fund balance, liquidity and structural balance.

As part of our assessment, we compare the fund balance to the state's or territory's own-source revenue. In this comparison, we consider the sum of all amounts in funds that are classified as unassigned, assigned or committed in the total governmental funds section of a state's or territory's audited financial statements. We exclude any fund balance that is categorized as non-spendable in the total governmental funds section, and exclude amounts in restricted funds in that section except in certain circumstances. For example, if the financial statements identify the restricted fund balance as being restricted for budget stabilization or budget reserves, we consider that amount part of the available fund balance. We also include in the fund balance the net current assets of the internal services fund, from which a state or territory typically accounts for services provided to various departments on a cost-reimbursement basis. These net current assets are unrestricted current assets in the internal services fund minus current liabilities, excluding the current portion of long-term debt from current liabilities.

In assessing financial performance, we consider the proportion of revenue states and territories derive from economically sensitive sources, such as taxes on oil production or gaming, which tend to be more volatile than taxes on retail sales or personal income. Where such economically sensitive revenue comprises a principal source of total state or territory revenue, we typically consider that a higher fund balance or liquidity level than described in the scorecard is necessary to achieve a given score for this factor. In addition, our assessment is typically informed by the state's or territory's past fund balance amounts and by our view of likely fund balance levels in the future, based on the fiscal climate, economic trends and the track record of financial management.

We make an overall qualitative assessment of the strength of a state's or territory's liquidity. Liquidity strength is generally aligned with fund balance strength, but there are times when a state may be stronger in one category than the other. Typically, we see higher cash balances than fund balances because fund balances incorporate liabilities that will reduce cash. Where liquidity is meaningfully and sustainably higher than the fund balance, we may score the Financial Performance factor higher than would otherwise be indicated by the fund balance ratio alone.

We assess unrestricted cash in the total governmental funds section of a state's or territory's financial statements. Considerations typically include an analysis of sources and uses of cash, the breadth and depth of a state's or territory's market access, and the ability of a state or territory to meet its near-term obligations in a scenario of a temporary inability to access capital markets due, for example, to market dislocation. Our assessment is typically also informed by a comparison of the amount of unrestricted cash in total governmental funds and unrestricted cash from the internal services fund to own-source revenue. We exclude from unrestricted cash any short-term debt in those funds that we consider to be debt issued for operations and maturing within one year, such as cash flow notes or tax anticipation notes.

Our assessment of structural balance is qualitative and forward-looking and is informed by the state's or territory's track record of matching revenue to expenditures. We consider the size of any imbalance in the budget, and how quickly a state or territory is likely to attain balance. Our assessment typically centers on a state's or territory's recurring revenue and recurring expenditures, and the

levels that would be necessary to maintain structural balance in the current year, the year ahead, and over the longer term. In assessing structural balance, we also consider the difference between a state's actual pension contribution and the amount necessary to prevent reported unfunded pension liabilities from growing if all actuarial assumptions are met.² Depending on our assessment of structural balance, we may score the Financial Performance factor higher or lower than would otherwise be indicated in the fund balance ratio alone.

Generally, we do not expect a given state's or territory's qualitative factor score to match exactly each of the attributes listed for a given scoring category. For example, a state or territory with consistent structural balance may temporarily have a lower ratio of fund balance to own-source revenue. As another example, a state or territory may currently demonstrate strong liquidity that we think would be eroded over time due to a persistent weakness in its structural balance. We typically assign the factor score to the alpha category for which the state or territory has the greatest number of characteristics. However, there may be cases where one characteristic is sufficiently important to the state's or territory's credit profile that it has a large influence on the factor score.

Factor: Institutional Framework / Governance (20% weight)

Why it matters

The institutional framework governing a state or territory provides important indications of whether it will balance its budget, take on liabilities that are affordable and maintain adequate liquidity. A state's or territory's constitutional and legal framework, under which the government creates a budget and manages its finances, influences its ability to provide services to citizens and pay debt obligations.

Core aspects of a state's or territory's institutional framework and governance are its fiscal track record and planning, and financial flexibility, including operational management, budget monitoring, debt management, and the ability to generate revenue and control expenditures.

A state's or territory's track record of adhering to stated fiscal policies, plans and commitments provides insight into its elected officials' and appointed executives' likely future performance, including in stressed situations. A state's or territory's operational management, financial projections, long-term planning and close monitoring of inflows and outflows of funds are key to better fiscal performance over the long term.

A state's or territory's ability to manage its budget is also typically associated with stable or decreasing debt levels relative to its economy. Lower debt levels over time typically allow greater flexibility for a state or territory to withstand economic shocks. We typically take a broad view of all of a state's or territory's obligations to assess overall debt management. These obligations may include legally non-recourse debt, which typically is not a general or full faith and credit obligation and can be issued by the state or territory directly or indirectly through an affiliated entity. Non-recourse debt instruments do not carry a promise of broader support from the state or territory, but may have implications for the broader credit standing.

States have significant flexibility over their revenue and expenditures, and almost always have the legal and political means provided by the institutional framework to maintain strong credit profiles. Past use of these means can be a strong indicator of likely future performance. Territories also have tools to balance their budgets, but they face greater credit challenges than states due to their narrower legal powers.

How we assess it for the scorecard

Institutional Framework / Governance

In assessing institutional framework and governance, we consider a state's or territory's fiscal track record and planning, and financial flexibility. Our qualitative assessment of fiscal planning and operational management typically incorporates the strength of the state's or territory's multi-year fiscal projections, its established policies and practices, consensus revenue forecasts, and how conservative the budgetary assumptions are. Consensus revenue forecasting involves estimates from several executive and legislative agencies. We consider whether the state or territory regularly sets and meets annual and multi-year budget targets, the extent to which it monitors inflows and outflows within the fiscal year, and whether its operational management incorporates mid-year corrections when budgetary targets are not being met. We also consider the state's or territory's debt and liability management, including whether it has a track record of underfunding pension plans or increasing non-pension liabilities more rapidly than assets.

We also consider the state's or territory's financial flexibility, including its revenue-generating ability and expenditure flexibility. In our assessment, we consider the existing legal and constitutional framework, as well as any meaningful practical or political constraints. Our assessment of revenue-generating ability incorporates a review of restrictions such as tax limits or a super-majority legislative requirement to raise taxes. We also consider any constitutional or legal spending requirements or structural hurdles, such as statutory pension contribution requirements. We view other laws that enhance financial flexibility, such as rainy day fund requirements or executive authority to make midyear budget adjustments, as a positive.

We view a lack of sovereign powers or US congressional representation as a weakness that constrains financial flexibility for a territory and typically leads to an Institutional Framework/Governance factor score of no higher than Baa.

Some states and territories have the flexibility to change their legal frameworks with regard to fiscal management, in which case we consider the magnitude and type of change, and how it affects the strength of the institutional framework and governance.

Factor: Leverage (30% weight)

Why it matters

Leverage metrics provide important indications of a state's or territory's capacity to invest in capital assets and pay annual fixed costs, including debt service, while providing core services.

Debt, unfunded pension liabilities, unfunded other post-employment benefit (OPEB) liabilities and other long-term liabilities can curtail a state's or territory's budgetary flexibility. Large long-term liabilities can translate into large outlays to meet fixed or rising debt service and pension costs, which can crowd out other budgetary priorities and force states or territories to raise taxes or cut other spending. In addition, other types of long-term liabilities such as compensated absences and claims and judgments can also negatively affect credit strength where material. As a state's or territory's financial capacity to deliver on its core services declines, the risk rises that it will default and seek to restructure its debt.

The factor comprises two quantitative sub-factors:

Long-Term Liabilities Ratio: (Total Net Tax-Supported Debt + Adjusted Net Pension Liabilities + Adjusted Net OPEB Liabilities + Other Long-Term Liabilities) / Own-Source Revenue

The ratio of total net tax-supported debt, adjusted net pension liabilities (ANPL), adjusted net OPEB liabilities and other long-term liabilities to own-source revenue is an important indicator of leverage.

Fixed-costs Ratio: (Adjusted Fixed Costs / Own-Source Revenue)

The ratio of fixed costs to a state's or territory's own-source revenue is an important indicator of the financial burden of a state's or territory's debt service, pension and OPEB obligations, and other long-term liabilities relative to its own-source revenue. The ratio is also a proxy for the percentage of own-source revenue that remains for core services after fixed costs are paid. A state or territory with high fixed costs faces a greater challenge adjusting expenditures with revenue 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: (Total Net Tax-Supported Debt + Adjusted Net Pension Liabilities + Adjusted Net OPEB Liabilities + Other Long-Term Liabilities) / Own-Source Revenue

The numerator is the sum of the state's or territory's total net tax-supported debt, adjusted net pension liability (ANPL), adjusted net OPEB liability and other long-term obligations. By incorporating these four elements into the numerator, we typically include all long-term liabilities of a state or territory reported in the governmental activities entry of the audited financial statements. The denominator is own-source revenue.

Total net tax-supported debt (NTSD) is debt secured by statewide taxes and other general resources, net of obligations that are self-supporting from pledged sources other than state taxes or resources such as utility or local government revenue. Total NTSD typically includes public-private partnership (P3 or PPP) agreements that include contractual obligations of the government to make scheduled payments. We typically incorporate debt that the state or territory is supporting from its taxes or general resources even if that debt

is not reported in the state's or territory's financial statements. Obligations of non-governmental activities that are fully and reliably supported by other pledged funding sources, such as revenue of higher education systems, utilities and enterprises, typically are not included in total NTSD.

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 are typically composed of the total amount of liabilities reported under the governmental activities entry in a state's or territory's financial statements for obligations such as claims and judgments, compensated absences and environmental remediation. We may also include long-term liabilities that are reported in other activities in other sections of the financial statement where they reflect similar obligations, such as claims and judgments and environmental remediation, in order to improve comparability across states and territories.

Fixed-costs Ratio: (Adjusted Fixed Costs / Own-Source Revenue)

The numerator is adjusted fixed costs, which is the sum of a state's or territory's implied debt service, its pension tread water indicator, and its OPEB contributions. The denominator is own-source revenue. The three components of the numerator are described below.

Implied debt service

A state's or territory's implied debt service represents the annual cost to amortize its long-term liabilities, excluding those related to pensions and OPEB, over 20 years with level payments. The metric incorporates an assumed debt service cost and assumed carrying cost of other long-term liabilities. We use a 20-year amortization period to reflect the typical composite useful life of capital assets financed by states and territories, which range from assets with long expected useful lives, such as government buildings, to assets with typically short useful lives, such as technology. The 20-year amortization period also represents a general composite of the weighted average maturity of a state's or territory's long-term liabilities outstanding.

We use the government'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 states and territories. Using actual debt service in the ratio could have the effect of rewarding the backloading of debt amortization — in such cases, the current year ratio would understate the state's or territory'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.

As part of our implied debt service measure, we incorporate an amortized, estimated current cost to the state or territory of paying down its other long-term liabilities (e.g., compensated absences), which provides a comparable annual carrying cost of those liabilities. Carrying costs for pensions and OPEBs are excluded from our implied debt service measure.

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 states and territories, 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 sum of the state's or territory's debt and other long-term liabilities outstanding 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 3

Example calculation of implied debt service

| Line item | Example state 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 and other long-term liabilities outstanding, end of prior fiscal year | \$1,000,000 | Audited financial statements |
| D | Implied debt service | \$71,613 | $= C / B$ |

Source: Moody's Ratings

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 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 state's or territory's actual contribution in a given period, typically the fiscal year. In the event a state or territory 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 one notching factor. Our assessment of the notching factor may result in 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 considerations described below.

In aggregate, the notching factors can result in a total of up to two downward notches from the preliminary outcome to arrive at the scorecard-indicated outcome. In cases where we consider that the credit weakness represented by a notching factor is greater than the scorecard range, we incorporate this view into the state's or territory's rating, which may be different from the scorecard-indicated outcome.

Very Limited or Concentrated Economy**Why it matters**

A state or territory with very limited economic activity is more exposed to budgetary volatility resulting from economic shocks. In addition, large exposure to one industry (e.g., tourism) or one revenue source (e.g., oil and gas excise taxes) can result in outsize economic and budgetary volatility driven by changes in that industry or revenue source. A larger or more diverse economy benefits from greater economies of scale.

How we assess it for the scorecard

We consider the size of a state's or territory's GDP and the proportion of the GDP or revenue base contributed by the largest industries or sectors. This notching factor may result in a downward adjustment of one notch for states or territories whose GDP is less than \$10 billion. For a state or territory that receives this notch, we may apply up to one additional downward notch, in half notch increments, where the economy demonstrates unusual concentration or volatility. We view concentration and volatility as particular risks to very small economies, and therefore typically notch down for concentration or volatility alone only in rare cases. We may use scenario analysis in assessing the potential credit impact on the economy from a downturn or structural change in the relevant industry.

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, technology and reputational 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.⁵

States and territories may be directly exposed to extreme weather events due to climate change, such as floods, and this may affect credit quality. State facilities or investments in physical assets could be affected by physical risks and by other sources of environmental risk. Territories, in particular, are highly exposed to numerous environmental risks. Environmental hazards, such as hurricanes, 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 states and territories include adverse trends in demographics, labor and income, and housing affordability. For example, where housing affordability is low, such risks can influence population and business retention, dampen property tax revenue and increase the cost of social services. Such risks may lead to a declining tax base, diminished economic growth, higher social spending and less political influence at the federal level over time.

Some governance considerations are reflected in the qualitative Institutional Framework/Governance factor, including revenue-raising flexibility, debt management, multi-year fiscal planning and timely disclosure of information. Weak or opaque governance can negatively affect a state's or territory's performance, which can reduce taxpayer willingness to support the state's or territory'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 ESG exposures.

External support, such as federal government funds for natural disaster relief, can help to mitigate the credit impact of ESG exposures.

ESG considerations are not always negative, and they can be a source of credit strength in some instances. For example, robust demographic growth, strong labor and income indices, high educational attainment and relatively good housing affordability can all drive strong tax revenue trends and foster economic growth.

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 state's or territory'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.

Most states and many territories access the capital markets. While the majority of states and territories borrow for long-term capital projects, sometimes their borrowings are for cash flow or deficit financing, which could indicate an unbalanced budget or financial stress. For distressed states or territories, 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.

Also, a past default, whether on rated or unrated obligations, often indicates a heightened risk of failure to meet financial obligations, 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 state's or territory's long-term bonds or short-term notes, reflecting an inability or unwillingness to pay, and we typically include defaults on contingent obligations. We place less emphasis on this consideration in cases where a state or territory has demonstrated an ability and willingness to address the credit drivers behind a default.

Likelihood of providing extraordinary or ongoing support

A key credit strength of US states is the ability to push obligations to downstream entities, such as school districts or public universities, at will. It is generally a strength of states that the decision to cut funding or alter respective shares of pension contributions is purely at the state's discretion. While many states use this discretion to protect their own operating funds at the expense of their local governments, others have shown a willingness to take on some local governments' problems as their own.

A state's or territory's willingness to extend extraordinary support is often related to its commitment to a particular policy (e.g., education) and may also be specific to the situation of the component unit (e.g., university system), business-type activity (e.g., highway authority) or the municipality or school district that is undergoing financial or operational stress. In some cases, a state or territory may provide meaningful financial or managerial support to a related public entity undergoing stress, thereby bolstering the entity's weak fundamental credit profile. This support, if material in relation to the state's or territory's finances, can weaken the credit strength of the state or territory.

States may extend support through an explicit guarantee. A guarantee to pay the debt or manage the operations of an entity outside the state's or territory's primary activities sometimes reduces credit strength. For example, where a state begins paying debt service for a state university, the action could impact the state's credit strength. We typically would consider the amount and structure of the entity's debt and any material legal, policy or political issues that could limit the financial flexibility of the state or territory in the event its guarantee was invoked or we consider it is about to be invoked.

States may extend support without an explicit guarantee, including support for debt that may be non-recourse to the state's or territory's general credit. There are cases where we consider it likely that a state or territory will support a related entity, whether contractually required to or not. State-related entities are backed solely by a pledge of that particular entity or its revenue and not backed by the general credit of the state. Where this occurs, we may use scenario analysis to quantify the potential credit impact on the state or territory. Examples include a state's or territory's decision to provide financial or other operational support to transportation, economic development or public utility enterprises that are outside the state's or territory's primary governmental operations. Our assessment of the likelihood of support is informed by, among other things, the liquidity of the state's or territory's non-governmental operations as well as the long-term liability burdens those operations carry. Our analysis also considers the amount of support that the state-related entity is likely to need, and the impact of extending the support on the state's or territory's financial flexibility and leverage metrics. We may also assess the impact qualitatively, for example, where the range of support scenarios is very wide.

There are also instances where a state or territory may be able to provide extraordinary or ongoing support to a state- or territory-related entity without a negative effect on the credit strength of the state or territory. For example, providing a temporary infusion of state funds to provide aid to localities after a hurricane or to bolster an economic development agency's financial performance in the short term may not, as a one-time event, be material relative to a state's or territory's budget and may be sufficient to stabilize the agency. Also, many component units of states and territories operate without receiving material financial support from the parent government. We typically assess the type, magnitude and likely recurrence of the support. We also typically consider the potential benefit to the state's or territory's credit profile if we expect support that is currently being extended to end.

Likelihood of receiving extraordinary or ongoing support

States typically receive annual funding from the federal government for programs such as healthcare and transportation. This type of federal funding is often earmarked, and we do not consider it to be extraordinary support. Due in part to the constitutional framework of the US, including the enumerated separation of powers across levels of government, we do not typically expect states would receive extraordinary support from the federal government, e.g., support that would help them avoid a default on debt obligations. However, we would consider any extraordinary federal support that we view as reliable and meaningful.

Unusual risk or benefit posed by long-term liabilities

We may conclude that a state's or territory'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. In addition, a state or territory may need to support a public pension plan unrelated to its direct employees, for example, an underfunded teacher pension plan whose unfunded liabilities are not currently incorporated in the state's long-term liabilities ratio. Conversely, we may conclude that a state's or territory'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.

In addition, most states and territories issue fixed-rate debt that amortizes over a multi-year period. States and territories 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 notes without sufficient offsetting liquidity can expose a state or territory to market access risks.

A state or territory 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 state's or territory'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 issuer rating may be lower than the scorecard-indicated outcome.

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. A lack of timeliness or transparency of information disclosure may indicate a material credit weakness.

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 state or territory could indicate weakening credit quality of the state or territory 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 state or territory. Overall, a change in the credit quality of any instrument of a state or territory could indicate shifts in the credit quality of the state or territory itself, e.g., through financial or governance ties between the instrument and the state's or territory's overall operational and financial strength.

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.

Event risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in a state's or territory'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, material litigation, pandemics or significant cybercrime events — can have a material credit impact on even a stable state or territory.

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 state's or territory's financial statements or disclosures, regulatory filings, derived from other observations or estimated by Moody's analysts. We may also incorporate non-public information.

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 state's or territory'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.

Metrics that relate to pension and OPEB obligations are calculated based on our cross-sector methodology that describes our adjustments to pension and OPEB data reported by GASB issuers.⁶ Financial metrics may incorporate analytical adjustments that are specific to a particular state or territory.

We may also make other analytical adjustments that are specific to a particular state or territory.

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.

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 9.5, and an issuer with revenue/interest of 51x, relatively weak within this range, would score closer to 12.5. 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).

For numeric scoring of the weighted factors and sub-factors, each alpha category has an equal width of three, based on the scale below.

Exhibit 4

Ranges of numeric equivalents for factor and sub-factor scores

| Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|-----------|-----------|-----------|------------|-------------|-------------|-------------|-------------|
| 0.5 - 3.5 | 3.5 - 6.5 | 6.5 - 9.5 | 9.5 - 12.5 | 12.5 - 15.5 | 15.5 - 18.5 | 18.5 - 21.5 | 21.5 - 24.5 |

Source: Moody's Ratings

Qualitative factors and sub-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, which is based on the midpoints of the scale above.

Exhibit 5

Numeric equivalents for qualitative factor and sub-factor scores

| Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|-----|----|---|-----|----|----|-----|----|
| 2 | 5 | 8 | 11 | 14 | 17 | 20 | 23 |

Source: Moody's Ratings

3. Determining the overall scorecard-indicated outcome

In general, the scorecard-indicated outcome is oriented to the general obligation or issuer rating of the state.

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).

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), 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 downward in order to arrive at an aggregate numeric score after the notching factor on Very Limited or Concentrated Economy. Numerically, a downward notch adds 1 to the score, and an upward notch subtracts 1 from the score. The notching factor can result in a total of up to two downward notches from the preliminary outcome to arrive at the scorecard-indicated outcome.

How we convert the aggregate numeric score to a preliminary score

As described above, we use a scale for weighted-factor scoring whereby each rating category, including Aaa and Ca, has an equal width of three.

Before notching, we narrow the scoring bands for Aaa and Ca to a width of one and leave the widths of the other alpha categories at three. We do this because, unlike the other alpha categories, each of which has three alphanumeric ratings, the Aaa and Ca categories have only one rating. This conversion allows for numeric whole and half-notches to have an impact throughout the rating scale that matches the meaning of whole and half-notches described above.

To accomplish the conversion, any aggregate numeric score lower than 2.5 is increased to 2.5, and any aggregate numeric score greater than 22.5 is reduced to 22.5. The resultant score then falls along a scale ranging from 2.5 to 22.5. Next, for ease of use and to make the midpoint of the Aaa scoring band equal to the number 1, we subtract 2 from the resultant score to arrive at a preliminary score (before notching factors), which falls along a scale ranging from 0.5 to 20.5.

We then apply the notching factor. After applying any downward notching adjustments to the preliminary score, we arrive at the overall numeric score, which can range from 0.5 to 21.5. For Aaa, 0.5 is the upper endpoint. For C, the lower endpoint is 21.5. This overall numeric score is then mapped back to our alphanumeric scale using the exhibit below to arrive at the scorecard-indicated outcome.

For example, if the preliminary score were 11.7, corresponding to Ba2 in the exhibit below, and the result of the notching factor were 1.5 downward notches, the overall numeric score would be 13.2, which would correspond to a scorecard-indicated outcome of Ba3.

Exhibit 6

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 the US state or territory.

Individual debt instrument ratings for general promises to pay, contingent obligations, annual appropriation obligations, general obligation unlimited tax, general obligation limited tax may be assigned at the same level or higher or lower than the issuer rating to reflect our assessment of differences in expected loss related to an instrument's priority of claim as well as 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 Appendix A. Guidance for rating state and territory short-term debt is provided in our methodologies for short-term obligations, and guidance for the ratings of state and territory long-term debt instruments not discussed in Appendix A is provided in the relevant security-specific methodologies.⁷

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.⁸

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.⁹ Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers 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. US states and territories 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 A: Assigning instrument ratings for US states and territories

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 US states and territories 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 (i.e., 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 for US states and territories, and why they are important. Individual instruments may include permutations of these analytic elements. We divide US states' and territories' instruments into three groups of pledges that are typical in the sector: (i) non-contingent general promises to pay and contingent obligations, which in aggregate typically comprise most state and territory debt; (ii) real property-based pledges; and (iii) special tax pledges.

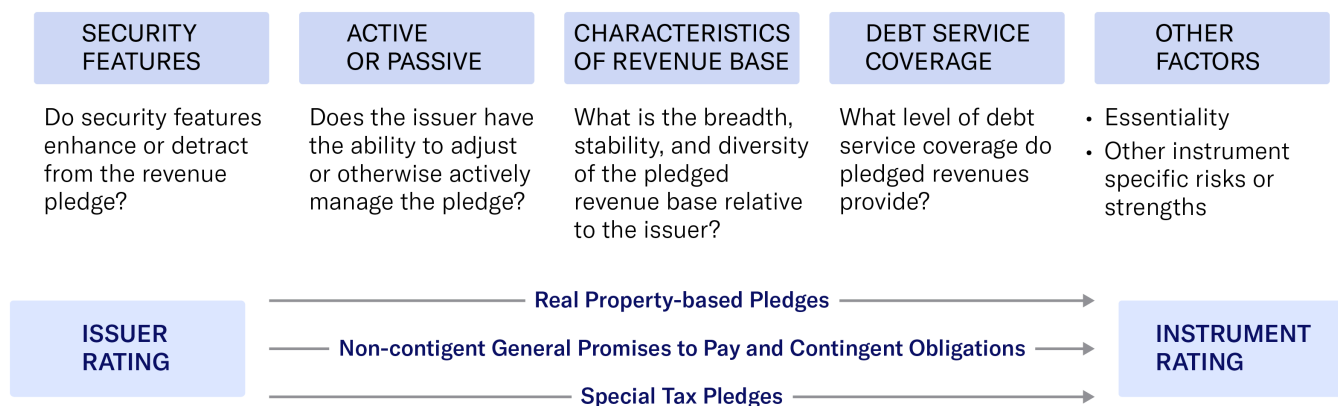
For each instrument type, we evaluate the instrument's security features, including whether the debt obligation is contingent or non-contingent. We also consider whether the pledge, if any, is active or passive. Based on these characteristics, we may also assess the characteristics of the revenue base 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 state or territory 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 US state's or territory'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 7

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 a state or territory 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 pay (as described below). Contingent debt is an obligation where the bondholder has no long-term claim and the stated promise to pay depends on additional action, typically an annual appropriation, or the availability of the asset. A typical contingency requires a state or territory 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 use or occupancy in order for the state or territory to remain obligated to make lease payments.¹⁰ 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.

Where present, the physical and legal separation of pledged revenue from a state's or territory's control is an important security feature. With physical separation, the issuer does not have custody of the money. With legal separation, the legal structure insulates the money.

Physical separation can be accomplished through the federal government or a trustee collecting or holding the revenue and transferring it directly to the payment of debt service, e.g., where funds from certain intergovernmental transfers are transferred directly from a third-party tax collector or grantor, often the federal government, to the trustee for the bonds. This feature can lessen the likelihood of default because it creates a separation between the revenue dedicated to debt service from the issuer's operations and other funds. We do not consider this effective where the separation is among funds that remain under the issuer's control, i.e., funds held by the issuer in a segregated account.

Legal separation, which has historically been used infrequently, can be accomplished through the constitutional dedication of the pledged revenue stream to the debt.

Overall, physical and legal separation of pledged revenue from the issuer's control is rare for states or territories. Where separation exists, it can enhance recovery prospects in the event of default, compared with other debt.

Active or Passive Pledges

Why it matters

The active or passive nature of a pledge is important because it can differentiate whether the state or territory has promised or has the ability to raise revenue to pay debt service or otherwise needs additional approvals 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 the federal government. We consider most pledges from a state active because of the broad powers of states, including their ability to raise revenue, and the long history of states raising revenue to pay their obligations. We consider pledges to be passive if the issuer can increase the revenue stream only after securing voter approval or other external approvals, or if there are specific legal or practical limitations on the pledged or available 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 to economic decline than the issuer's total revenue.

For non-contingent general promises to pay, real property-based pledges and most contingent obligations, we view as active both pledges where the issuer has promised to raise revenue and pledges where the issuer has the legal ability to raise revenue but has not promised to do so. 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 for payment of debt service relative to the issuer's 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 limited 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 nominally 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 or passive. 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.
- » 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 a state or territory has put in place an exceptionally strong incentive to appropriate, such as statutory provisions that limit the use of funds for operations until an appropriation for debt service has been made, the strong incentive to appropriate may result in uplift.
- » Where a state's or territory's debt includes a significant amount of derivatives such as interest rate swaps that are exposed to liquidity demands or may require market access for refinancing, this may result in meaningful additional risk to the holders of the instrument.

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 a US state or territory 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 state's or territory'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 the sector: (i) non-contingent general promises to pay and contingent obligations; (ii) real property-based pledges; and (iii) special tax pledges.

Non-contingent general promises to pay and contingent obligations

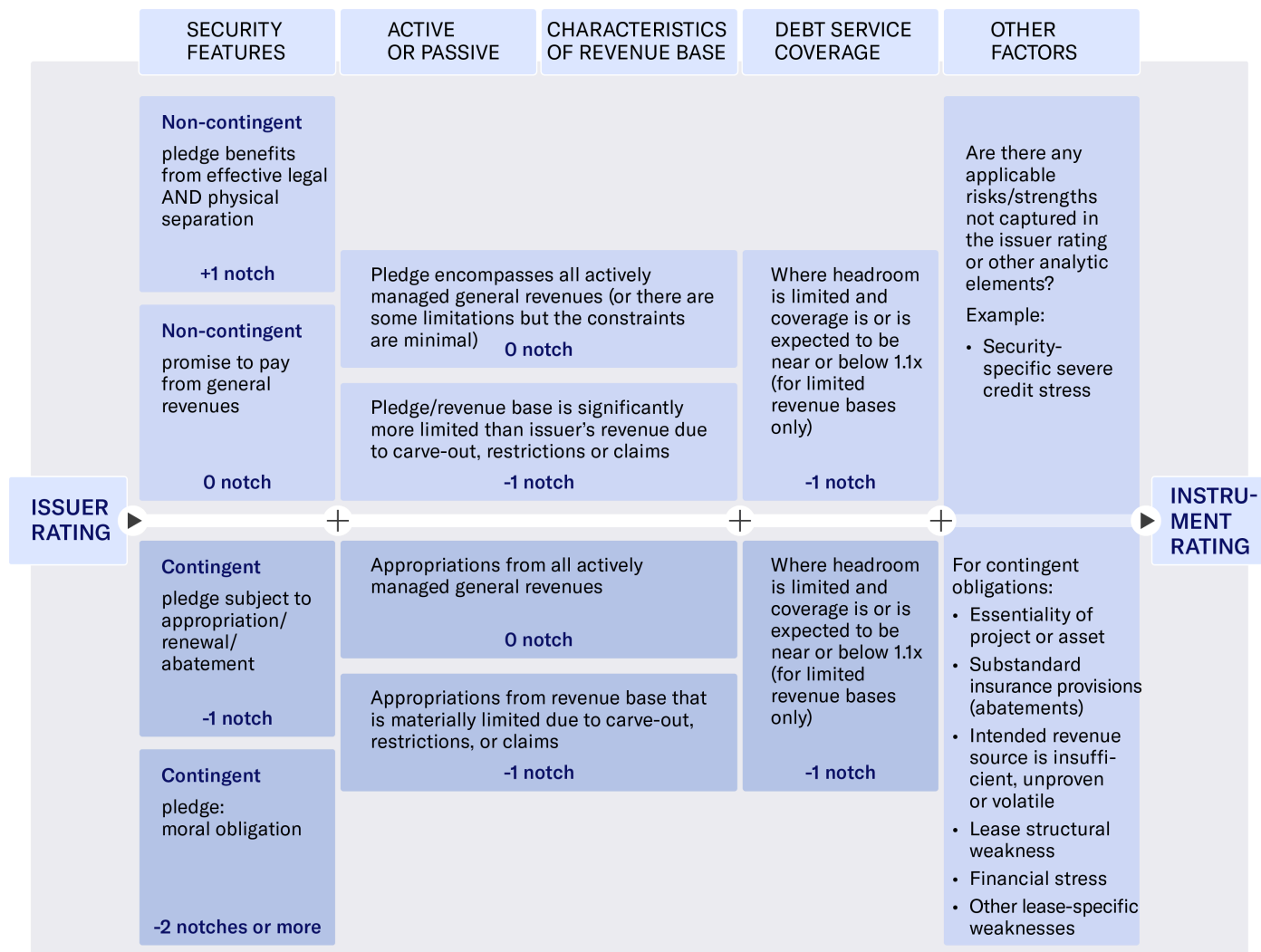
This grouping includes (i) general promises to pay where there is a non-contingent pledge to pay debt service that may specifically include all or some of the issuer's revenue; and (ii) contingent obligations. Most state and territory debt belongs to this grouping.

Non-contingent general promises to pay

Many obligations represent a non-contingent general promise to pay. Often, these instruments are called "general obligations," but the instrument does not include a property-tax pledge. In other cases, pledges specifically exclude taxation. 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 particular revenue. Because these promises to pay are non-contingent and states have broad powers to raise revenue, we typically consider them to be very strong pledges. In other cases, material carve-outs of revenue that is pledged to other debt effectively limit the breadth of the general promise to pay. As there is wide variation in the language used, we assess the substance of the issuer's obligation.

Exhibit 8

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 (e.g., it is limited by the exclusion of certain significant revenue streams, by meaningful tax limitations, by a materially smaller size or by pledges of specific revenue to other obligations), 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 revenue 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 state's or territory'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

We typically notch down from the issuer rating for a state's or territory's contingent obligations. Examples of contingent obligations include appropriation lease-backed obligations, abatement lease-backed obligations, non-lease annual appropriation obligations and moral obligations. Not all leases are contingent obligations. Non-contingent leases are rated based on the long-term pledge, e.g., general obligation. Special tax obligations with annual appropriation features are addressed in our methodology on special tax bonds issued in the US public sector. In the municipal market, appropriation-backed instruments are often issued as certificates of participation.

For states and territories, the most common type of contingent obligations issued are 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.

States and territories also issue appropriation lease-backed instruments. The state or territory usually does not pledge any specific revenue to the lease and instead annually appropriates funds to pay debt service. The state or territory 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 state or territory has a legal right to choose not to appropriate the funds, thereby not renewing the lease. The state or territory 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.

A less common type of contingent obligation that states and territories issue is an abatement lease, where 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 (e.g., a state office 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.

A fourth type of contingent obligation is a moral obligation. An example of a moral obligation structure would be where a state or territory promises to consider supporting a contingent obligation, under certain circumstances, by appropriating funds for the

replenishment of a debt service reserve. Some states pledge their moral obligation on behalf of the state's housing finance authority, bond bank or other state-associated entity; these moral obligation pledges are typically a promise to consider paying or supporting payment of the outstanding debt of the entity. 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 state or territory intends to support the debt and will consider making appropriations and providing funding under certain circumstances.

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 states or territories. However, we consider such obligations to be the debt of the state or territory in our analysis of the likelihood of repayment.

Contingent obligations are typically weaker from a legal perspective than debt secured by a general obligation or full faith and credit pledge, due to the contingent nature of appropriation and abatement features and the more limited creditor recourse in the event of default.

In all cases, contingent debt includes a legal 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. An exception to this would be a case where a state or territory has put in place an exceptionally strong incentive to appropriate, such as statutory provisions that limit the use of funds for operations until an appropriation for debt service has been made. However, where the issuer signals an intention to use limited revenue to pay the contingent obligation, this may indicate additional risk for the obligations. 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 its own-source 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 state's or territory's operations. In most cases, there is a fundamental connection between the financed asset and the fundamental operations of the state or territory, providing a strong incentive for the state or territory to appropriate funds for debt service payments. For moral obligation pledges, the typical notching is two or more, depending on the legal structure and assets involved.

The exhibit below shows the typical notching between the state's or territory's issuer rating and non-contingent lease-backed obligations, contingent obligations and moral obligations inclusive of the essentiality consideration, which is explained in greater detail below.

Exhibit 9

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 pledge (full faith and credit, general obligation 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 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 state or territory could appropriate funds for payment of debt 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 state's or territory's entire revenue base is available for annual appropriation, including cases where the revenue 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 is meaningfully narrow, although there may be more than one downward notch if the revenue base is exceptionally narrow.

Debt Service Coverage

For contingent pledges, there is no upward notching for this analytic element. Where the available revenue for debt service is significantly more limited than the state's or territory'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 debt service coverage is assessed and expected to be near or below 1.1x. 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 obligation that are not already reflected in the issuer rating or other analytic elements. If the strengths are material, there may be one or more upward notches, although any strengths will rarely offset contingency risk to the full extent. If the risks are material, cumulative notching may reflect one or more additional downward notches, depending on the severity of the risks.

The largest share of contingent obligations issued by states is 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.

Essentiality

For contingent obligations, the essentiality of the underlying assets, financed project or function to the state's or territory's core operations is a major consideration. We consider essentiality to be a strong indicator of a state's or territory'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 state or territory core operations or administration as more essential (e.g., public infrastructure such as courthouses). In these cases, the asset or project also cannot be separated from the core operations or administration of the state or territory (it 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 those that are not critical to state or territory 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.

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 state or territory, the terms and conditions of the obligation and the state's or territory's incentives or disincentives to honor the obligation. For example, a change in law that weakens a state's or territory's incentive to provide a given social service could diminish the essentiality of a lease tied to that service's operations. 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. In the case of a large statewide master lease program, we may characterize the entire asset pool as more essential even if the individual assets would be considered less essential, because the all-or-nothing payment requirement of a master lease reduces the risk of non-appropriation.

Exhibit 10

Typical notching for essentiality

| More essential | Less essential |
|--|---|
| Asset/function is critical to a state's or territory's core operations or administration, not severable, and has no commercial or enterprise risk. | Asset/function is not critical to a state's or territory's core operations or administration, is severable, or has commercial or enterprise risk. |
| Examples (Illustrative; categorization could vary based on specific circumstances) | |
| » Public safety facilities/functions (courthouses, prisons, etc.) | » Facilities, improvements or purpose for economic development, tourism, recreation, or other less essential services (hotels, convention centers, golf courses, sports stadiums, etc.) |
| » Administrative, educational or health facility/function | » Projects that incorporate commercial/vendor performance* |
| » Public infrastructure (roads, water/sewer facilities, etc.) | » Improvements, equipment or technology severable from core operations or supporting less essential services |
| » Improvements, equipment or technology not severable from core operations or essential facilities (parking garages, HVAC, etc.) | |
| Typical notching for essentiality | |
| No notching | One or more downward notches |

* Vendors are not the lessors or owners of projects, but their performance could cause costs (lease payments) to increase on a state's or territory's budget. Typically, a state's or territory'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 state's or territory'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, states or territories may have an intended source of revenue to support contingent obligations. There are instances where a state or territory has constitutional or statutory protections or mechanisms related to the use of intended revenue that are strong enough to warrant an upward notch for this analytic element; this strength may offset all or part of downward notching related to the contingent nature of the obligation. This could apply, for example, where a state cannot appropriate substantial funds for operations until sufficient funds for debt service have been set aside. Often, where these strong protections exist, they mitigate the impact of any downward notching related to essentiality.

On the other hand, the mere intention to use a specified revenue source without constitutional or statutory protections 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 state or territory 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.

Real property-based pledges

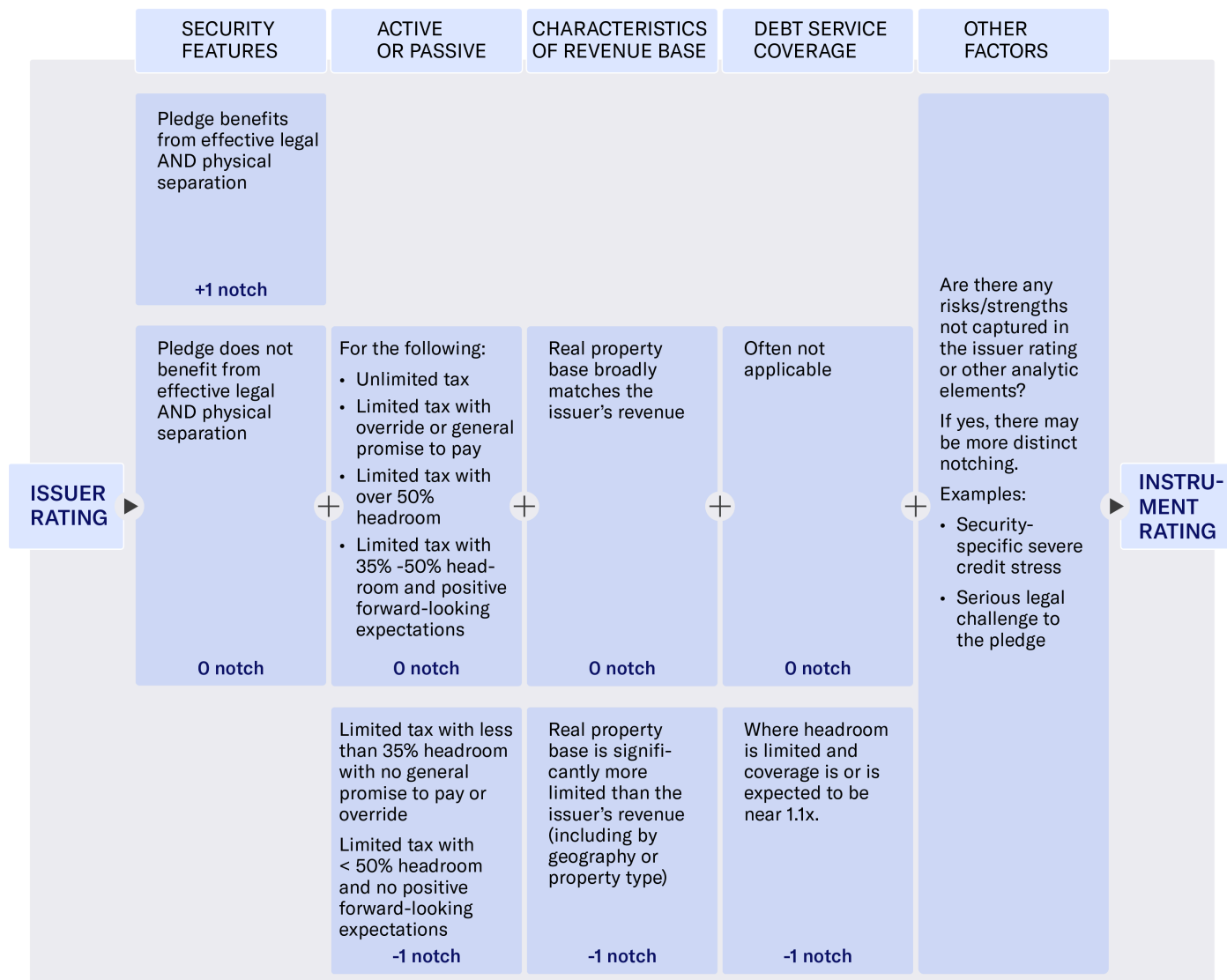
In a real property-based pledge, the issuer pledges taxes that are levied on real property or other real property-related revenue. These pledges can be active or passive but are, by definition, non-contingent.

While rare, some states and territories issue debt secured by an unlimited tax on real property, and less frequently, some states issue debt with a limited tax on real property. Typically, a state's or territory's tax base includes property that is categorized in many sub-groupings, including real, personal, tangible and mineral property. In most cases, state and territory debt with a real property-based pledge is also secured by a full faith and credit pledge.

Overall, a major consideration for all securities within the real property-based pledge grouping is whether the state or territory has promised to adjust without limit the tax rate that generates the pledged revenue and, where it exists, 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 11

Real property-based pledges: Illustrative notching



Source: Moody's Ratings

Ad valorem (general obligation) tax pledges

While many states pledge a general promise of the issuer to pay the obligation (the specific language may vary; an example is a full faith and credit pledge), some also secure debt with an explicit general obligation (GO) pledge to levy ad valorem taxes. Ad valorem taxes are based on the value of real property. These ad valorem bonds are often without limit as to rate or amount, sufficient to make timely payment of debt service. Because of the breadth and strength of the pledge, most unlimited tax ad valorem instrument ratings are at the same level as the issuer rating.

States and territories less frequently issue a general obligation debt instrument with a limited rather than an unlimited real property tax pledge. The nature of the limit varies. It can be imposed on the tax rate or on the levy amount that is available to pay the related debt service. Although some of these limitations result in materially weaker credit strength, in many other cases, the tax limit does not materially constrain a state's or territory'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 unlimited and limited ad valorem pledges. For example, a state or territory may be able to override the stated limit, or it may issue limited tax debt that is also secured by a broad revenue pledge. In addition, some state or territory limited ad valorem pledges have headroom within the limit that we consider would be sufficient to cover projected growth in debt service. If there are no sufficient mitigants, a limited tax ad valorem instrument is typically rated one notch below the issuer rating.

How we assess it

Security Features

Where a state or territory ad valorem 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 typically would include a constitutional dedication of the pledged revenue stream to the debt and physical separation such as the federal government's or a trustee's collecting or holding the revenue and transferring it directly to the payment of debt service.

We may not consider these security features to be effective where we think the physical or legal separation does not materially strengthen the instrument's credit strength compared to the issuer rating, or where there have been successful legal challenges to the separation.

Active or Passive Pledge

Unlimited general obligation pledges are, by definition, active pledges. There is no notching for this analytic element. For limited general obligation pledges, where a state or territory has an ability to raise taxes within the stated limit that is meaningful relative to the maximum annual debt service of the obligation (i.e., meaningful headroom) or can override the limit, or where an additional pledge (e.g., a general promise to pay) mitigates 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.

Characteristics of the Revenue Base

Where a general obligation 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 general obligation 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, however, there may be no downward notching for this analytic element.

Debt Service Coverage

This analytic element is not applicable for unlimited general obligation pledges. For limited general obligation pledges, 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.

For clarity, the guidance for this analytic element does not apply where there is an additional pledge (e.g., a general promise to pay).

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 general obligation pledge (unlimited or limited) could lead to downward notching for this analytic element.

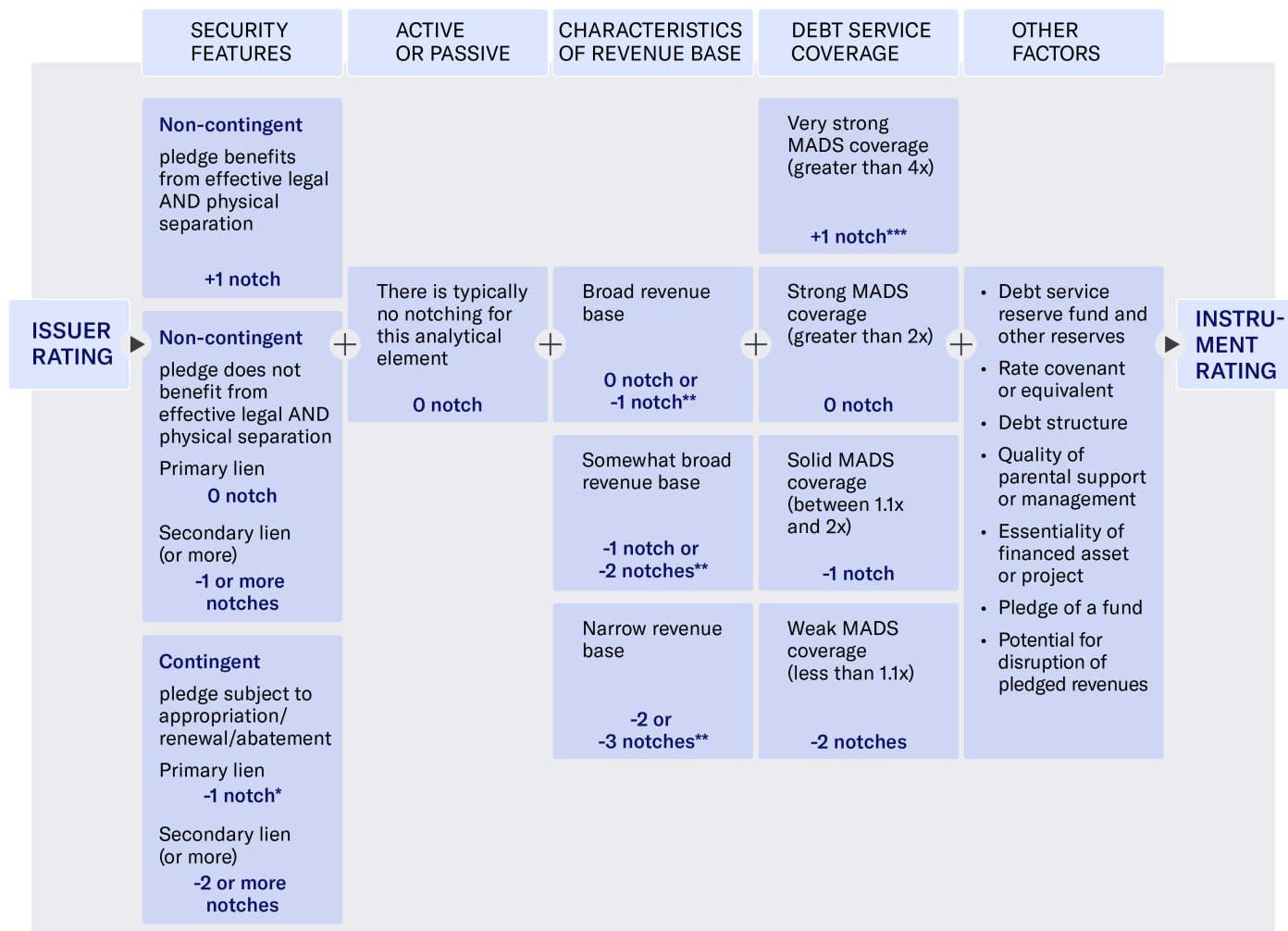
Pledges of special taxes, fees and assessments

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 12

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 state's or territory's rating would typically reflect an idiosyncratic weakness in the pledge that does not reflect a deterioration in the state's or territory'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 state or territory 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 state or territory 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 state or territory 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 13

Classification of revenue types

| Broad | Somewhat Broad | Narrow |
|---|--|--|
| » Sales and use tax | » Utility income or service tax | » Hotel tax or fee |
| » Income or payroll tax | » Gasoline tax | » Cigarette tax |
| » Corporate gross receipts tax | » Restaurant food or beverage tax | » Gaming tax (other than lottery) |
| » Assessments on payrolls, insurance policies or other non-property bases | » Motor vehicle registration and similar surcharges or fees | » Lottery tax |
| » Allocations of broad taxes from higher levels of government | » Liquor tax | » Extraction and production of natural resource tax |
| | » Allocations of somewhat broad taxes from higher levels of government | » Real estate transaction tax |
| | | » Parking tax |
| | | » Motor vehicle rental tax |
| | | » 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 state 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 14

Breadth of the economic base

| Economic base | Revenue trend | Typical notching outcome |
|----------------|--|--------------------------|
| Broad | Consistently neutral or growing with limited volatility relative to similar revenue types. | 0 |
| | Steadily declining or volatile relative to similar revenue types. | -1 |
| Somewhat Broad | Consistently neutral or growing with limited volatility relative to similar revenue types. | -1 |
| | Steadily declining or volatile relative to similar revenue types. | -2 |
| Narrow | Consistently neutral or growing with limited volatility relative to similar revenue types. | -2 |
| | Declining or volatile relative to similar revenue types. | -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 state or territory 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, we may calculate coverage based on the total amount of the special tax revenue that is collected divided by the total allocation to the pledge, 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 total revenue collections. To illustrate a coverage calculation: a state government pledges a fixed amount of \$40 million annually from a special tax with total collections of \$80 million. The pledge is structured so that debt service matches the allocation, resulting in 1x coverage. In this case, we would calculate coverage based on the total revenues collected divided by the allocation (i.e., \$80 million divided by \$40 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 revenue collections relative to the total allocation.

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, 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 state's or territory's special tax debt includes riskier structures than the state's or territory'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 state or territory 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 state or territory 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 state or territory may pledge a particular fund that receives the revenues generated by one or more special taxes. For example, a state or territory 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 state's or territory'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 state's or territory'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. 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.

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. In our coverage calculation of GARVEE instruments, the numerator is the issuer's obligation authority for the latest available year, and the denominator is MADS. Obligation authority is a limit on the amount of the federal government's obligation, or commitment, to pay a state or transit agency the federal share of project costs for a fiscal year. This amount may be different in the short term from actual receipts, which tend to fluctuate based on project work that can be variable. Receipts over the long term are typically more closely aligned with trends in obligation authority.

GARVEEs typically benefit from a requirement included in the bond documents that the state's or territory's department of transportation request reimbursement or set aside funds for debt service prior to any other use. Lack of prioritization is a credit negative and could result in downward adjustment.

Also, GARVEE bonds with maturities longer than the current maximum of 18 years would likely be notched downward to reflect the higher risk of a change in federal transportation funding policy. A sustained pattern of shorter federal re-authorizations may cause us to apply a downward adjustment for bonds with maturities longer than the historical median of 12 years.

Reauthorization or budget delays can also constrain the ability to process grants. A transaction with heightened administrative risk, e.g., with debt service payment dates that come due prior to an expected federal budget adoption, and without a debt service reserve fund, typically results in one additional downward notch.

GARVEEs are repaid with an allocation of federal revenue that becomes revenue of the issuer once eligible projects have been completed. The state or territory is the relevant issuer rating from which to notch because it 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 state or territory, 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.

With GARVEEs, some states ("donor states") receive less in federal highway funds than highway users have paid into the highway trust fund, while "donee states" receive more in highway funds than highway users are estimated to have paid. Donee states face some risk that a new authorization changes the distributions to more closely match payments into the fund. Where we view a new transportation funding authorization as reducing distributions to donee states, and where we assess the future revenue trend to be

more negative, we typically apply that projection in our notching assessments of characteristics of the revenue base and debt service coverage.

Appendix B: US state lottery prize receivables

This appendix provides an overview of our general approach to assessing credit risk of US state lottery prize receivables (LPRs). We use the term “states” to refer to states and territories in this appendix, unless otherwise indicated. LPRs are contractual obligations of a state lottery to make payments over time to a prizewinner who chooses an annuity rather than a lump sum payment, or to a third-party investor that has purchased a lottery prize annuity from a lottery winner. This analytic approach does not apply where the state has assigned its obligation to fund lottery prizes to a third party.

For example, some states pay a third-party annuity provider to assume the lottery prize payable and disclaim any further obligation. In these cases, the lottery prize receivable rating is based on the credit profile of the annuity provider and the strength of its obligation to pay the lottery prize. If the strength of the obligation is sufficiently strong, we use our methodology that discusses rating obligations based on credit substitution.

Our approach to these instruments is similar to our approach to assessing credit risk of rated lease, appropriation and moral obligation debt of US state and local governments, in that the issuer rating of the state is the starting point for our analysis.

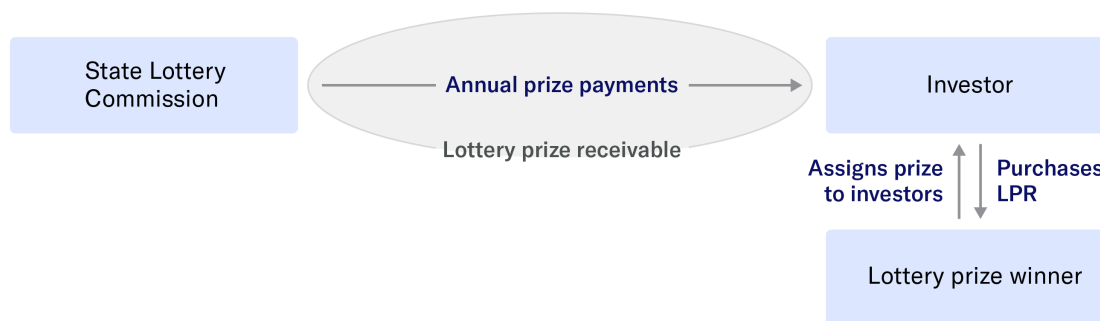
Mechanics of lottery prize receivables

Most US state lotteries offer winners the choice of receiving a lottery prize payment as a lump sum at the time the winner claims the prize, or as an annuity paid annually over a fixed time frame, usually 20 years. If the winner opts to receive the prize as an annuity, the winner does not typically have the right to alter the terms at a later date and receive the remainder of the payout from the state as a lump sum.

However, a winner can convert the annual prize payments into a lump sum at a later date by transferring the right to the remaining annuities to a third-party investor in exchange for a single cash payment. This generally requires, by state law, a court order assigning the prize annuity, or the LPR, to the investor.

Exhibit 15

The mechanics of lottery prize receivables assigned to an investor



Source: Moody's Ratings

LPR ratings reflect the credit quality of the stream of payments that are due to the investor or prizewinner. Lotteries are enterprises of the state, so risk to that state's general credit quality implies some risk to the state lottery as well. Holders of LPRs typically have no security interest in the lottery enterprise or the prize fund, nor are prizes typically backed by an obligation of the state beyond the lottery enterprise's obligation to pay. These weaknesses in security are generally mitigated by the importance of the state lottery as an ongoing source of revenue for the state and by certain protections, typically embedded in state statutes (or sometimes in the state's constitution), including one or more of the following:

- » A mandated flow of a minimum percentage of lottery ticket sales to pay prizes;
- » Required pre-funding of all prize liabilities, including annuitized prizes;
- » Maintenance of a prize fund that is statutorily separate from all other state finances;

- » A prohibition on the state from borrowing from funds set aside for lottery prize payments.

Due to the lack of a security interest and the ability of the state to change its statutes or even its constitution, the strength of the lottery enterprise and its contribution to state financial operations is the primary source of an LPR's credit strength. States have a financial incentive to maintain strong, well-funded lottery enterprises because the purchase of lottery tickets is voluntary, and the enterprise's revenue potential is highly influenced by public confidence in the state's ability to pay prizes. State lotteries pursue different strategies to generate a robust level of excess revenue, including the way that games are marketed and the percentage of revenue dedicated to payouts; however, ensuring confidence in the lottery is common to all of these strategies. States generally use excess lottery enterprise revenue (the amount in excess of the lottery's prize payouts and costs) for essential public services, such as education.

Another credit strength to the LPR is the pre-funding of all prize liabilities. States generally require, by law, that all lottery prizes be pre-funded, resulting in annuitized prize liabilities that are generally at least 100% funded over the life of the annuity and greatly overfunded for near-term payments. States generally calculate the prize liability based on the present value of the stream of annuity payments. In determining the present value, states often use a discount rate reflecting the interest rates earned by the investments held in the lottery prize fund, which typically consist of high-quality fixed-rate bonds or annuities purchased from a third party that match the cash flows of the corresponding annual prize payouts. For that reason, we typically use the state's valuation of the fund relative to the prize liability. However, if we consider the state's reporting is overly optimistic based on the types of securities in the prize fund or the discount rate used for the present value of the liability, we may adjust the state's valuation in our analysis.

Discussion of the lottery prize receivables factors

In this section, we explain our general approach for assessing each lottery prize receivables factor, and we describe why they are meaningful.

Factor: Position of the State Lottery Prize Receivables in the State Hierarchy of Debt and Spending Priorities

Why it matters

The LPR rating has a direct relationship to the state's fundamental credit quality, given that state lotteries are governed by US state governments, which have the authority to make statutory changes that could affect the functioning of lottery enterprises and their pre-funding requirements. State lotteries generally do not require ad hoc financial support from the state, and many states do not provide any specific financial backing to the lottery commission. Should the lottery commission encounter financial difficulties, however (resulting, for example, from unexpected losses on investments), the state has a strong incentive to support an enterprise that is likely to continue to generate excess revenues, because these revenues are usually valuable to state operations. While the need for support is generally unlikely, the position of LPRs in the hierarchy of a given state's debt and spending priorities is an important credit consideration. If a lottery enterprise encountered financial difficulties, the willingness of a state to use non-lottery resources to make payments to winners would compete with a state's other debt obligations, operating expenditures and funding priorities.

How we assess it

We typically assess the state's commitment to its lottery prize obligations relative to the issuer rating and its commitment to its general obligation (GO), appropriation and moral obligation debt, as well as other spending priorities.

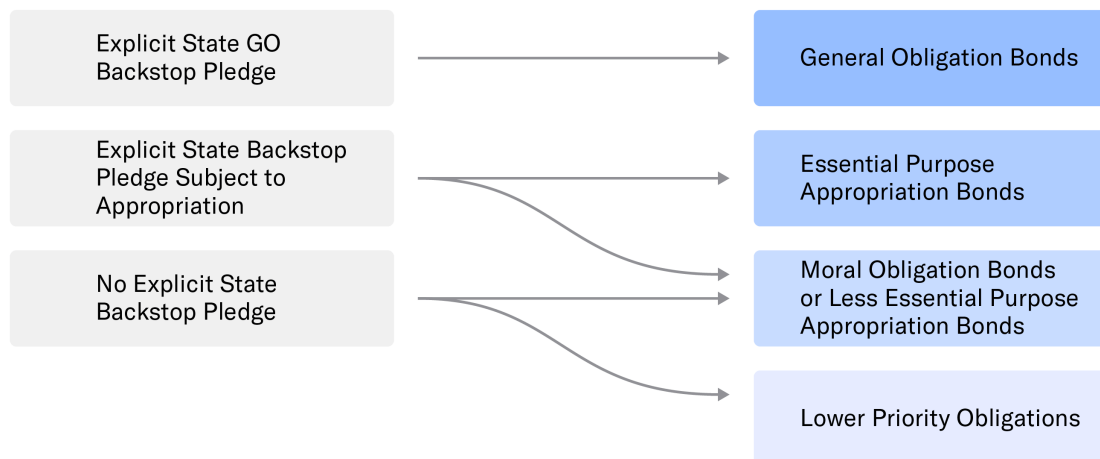
If the state has provided an explicit backstop pledge to the payment of lottery prizes, that pledge typically serves as a floor for the LPR rating. For example, if a state has pledged its general obligation to backstop lottery prize payments, the state's GO rating typically serves as the floor for the LPR rating. If the state has made a backstop pledge to make payments, but the payments are subject to appropriation, the rating on the state's appropriation bonds for essential purposes (or the rating that would apply to such appropriation bonds, in accordance with this methodology) typically serves as the floor for the LPR rating, as long as the excess revenue generated by the lottery is used for essential state services, such as education.

It is more common for states to provide no explicit pledge to backstop the lottery prize obligations. In these cases, the rating on the state's moral obligation debt (or the rating that would apply to such moral obligation bonds representing a similar commitment as the state's commitment to the lottery) usually serves as the rating floor, as long as either the value of the lottery enterprise to the state is high or the profitability of the lottery enterprise is strong (see "Factor: Value and Profitability of the State Lottery Enterprise").

The actual rating floor may be lower than the state's moral obligation rating. Please see the "Other considerations for LPR ratings" section below.

Exhibit 16

Hierarchy of state debt and spending priorities



Source: Moody's Ratings

Factor: Value and Profitability of the State Lottery Enterprise

Why it matters

The value of the lottery enterprise to the state provides an important counterbalance to the holder's lack of a security interest in the lottery enterprise or the prize fund. The annual transfer to the state of excess lottery revenue gives the state an incentive to maintain strong lottery enterprise operations and meet its lottery prize obligations.

The profitability of the lottery enterprise is also a source of credit strength for the LPR because the state is more likely to maintain strong lottery operations, including payment of all prize obligations, when the lottery enterprise produces high margins.

How we assess it

There are separate thresholds for the value of the state lottery enterprise and its profitability, and we distinguish between lottery enterprises that meet at least one of these thresholds and lottery enterprises that meet neither of these thresholds. For the purposes of this rating factor, meeting one of the tests is equivalent to meeting both of the tests.

Value of the state lottery enterprise

We assess the value of the lottery enterprise to the state based on the amount of excess revenue the state lottery enterprise transfers to the state annually. If the lottery transfers \$100 million or more to the state each year, the threshold is met and we score the value of the enterprise as high. If the lottery transfers less than \$100 million to the state each year, the threshold for high enterprise value is not met.

Profitability of the state lottery enterprise

We assess the profitability of the lottery enterprise based on the coverage of annual prize payments from annual revenue. If annual lottery prize revenue (net of payment of all non-prize administrative expenses) cover annual prize payments by at least 125%, the threshold is met and we consider the profitability of the enterprise to be strong. If coverage is less than 125%, the threshold for strong profitability is not met.

If either threshold is met, i.e., the value of the lottery enterprise is high or the profitability is strong, we typically set the floor for the LPR rating at the state's moral obligation rating, or assumed moral obligation rating.

If the lottery enterprise value is not high, the profitability is not strong and there is no explicit pledge from the state or that pledge is weak, we may set the floor of the LPR at a level below the state's moral obligation rating (i.e., more than two notches below the state issuer rating). In such cases, the LPR rating is primarily based on our overall view of the strength or weakness of the state's commitment to the lottery relative to its other priorities and the strategy and prospects of the lottery enterprise. In addition, the pre-funding level of the lottery prize fund, described in the following section, typically does not provide uplift to the rating.

Factor: Pre-funding Level and Investment Credit Quality of the Lottery Prize Fund

Why it matters

This factor provides important indications of a state lottery commission's ability to meet its future prize obligations. The pre-funding of lottery prize obligations in a separate lottery prize fund can provide further support to the LPR's credit strength in cases where the value of the lottery enterprise is high or the profitability is strong.

A lottery prize fund that covers most or all outstanding prize liabilities and that invests in high-quality assets provides a strong indication of the state's commitment to a healthy lottery enterprise. A fund that is invested in assets that are not related to the state's economy and finances (e.g., US Treasury bonds) helps to insulate the LPR from the state's own credit risk and the future operations of the lottery enterprise. When the fund does not cover the full amount of the LPR, the lottery commission must cover those liabilities with future lottery revenue or with support from the state. A poorly funded LPR may indicate that the state's dependence on lottery revenue transfers is growing to an unsustainable level, or it may indicate that there are problems with the fund's investments, which is of particular concern in cases where there is no explicit pledge from the state, or where the pledge is weak.

If an LPR is supported by a well-funded, high-quality lottery prize fund, it may have higher credit quality than suggested by the rating floor, and may even have higher credit quality than the state's issuer rating. However, the holder's lack of a security interest in the lottery prize fund, the strong linkages between the state and its lottery commission, and the state's ability to change the statutes that govern the lottery commission limit the additional credit strength provided by the fund and its investments.

How we assess it

Once the rating floor has been set (see "Factor: Position of the State Lottery Prize Receivables in the State Hierarchy of Debt and Spending Priorities" and the "Other considerations for LPR ratings" sections) and we have determined that the LPR is eligible for ratings uplift based on the value or profitability of the lottery enterprise (see "Factor: Value and Profitability of the State Lottery Enterprise"), we assess the additional credit strength provided by rated, fixed-income investments in the lottery prize fund. Depending on the level of these investments relative to the net present value of the lottery's payment obligations to prize holders, the LPR rating may receive uplift above the floor. The uplift is expressed in relation to the state's issuer rating. The credit quality of the investments in the fund acts as a cap on any uplift assigned under this factor.

Pre-funding level

In calculating the pre-funding level, we exclude any securities that are obligations of the state or its localities.

If rated lottery prize fund assets provide coverage of at least 110% of the net present value of all outstanding lottery prize obligations, we typically assign the LPR rating two notches above the state issuer rating, subject to the investment credit quality cap on uplift.

If rated lottery prize fund assets provide coverage of 95% or greater, but less than 110%, of the net present value of all outstanding lottery prize obligations, we typically assign the LPR rating one notch above the state issuer rating, subject to the investment credit quality cap on uplift.

If rated lottery prize fund assets provide coverage of 75% or greater, but less than 95%, of the net present value of all outstanding lottery prize obligations, we typically rate the LPR the same as the state issuer rating, subject to the investment credit quality cap on uplift.

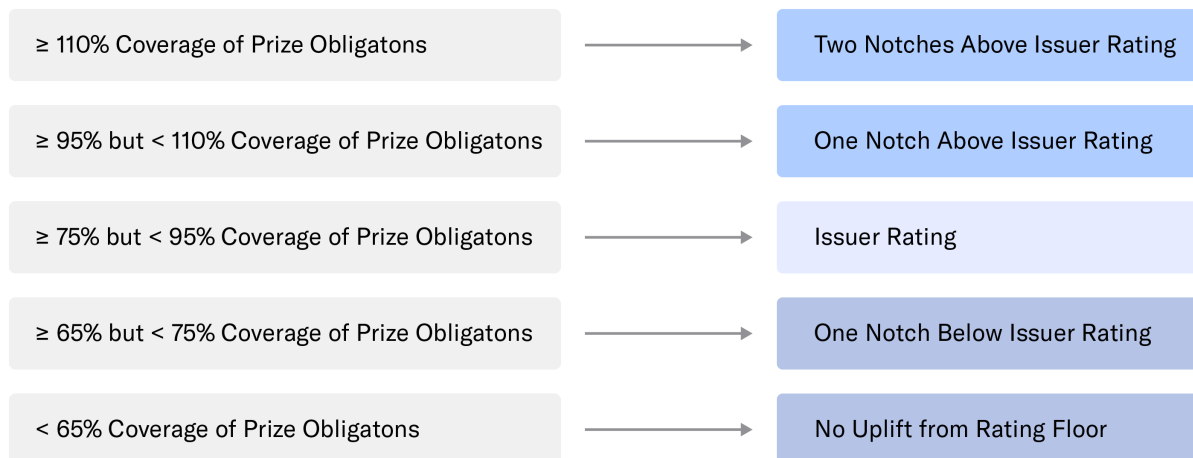
If lottery prize fund assets provide coverage of 65% or greater, but less than 75%, of the net present value of all outstanding lottery prize obligations, we typically assign the LPR rating one notch below the state issuer rating, subject to the investment credit quality cap on uplift and subject to the floor, as described above.

If lottery prize fund assets provide less than 65% coverage of the net present value of all outstanding lottery prize obligations, the LPR rating is not eligible for any uplift relative to the floor.

Our assessment of an LPR's eligibility for rating uplift relative to the floor is based on our forward view of the sustainable level of pre-funding. Our forward view may be informed by the historical pre-funding level, by the lottery commission's investment and funding strategy, by our expectations of future actions that the lottery commission may take, for example to increase or reduce fund assets, and by fixed-income market dynamics.

Exhibit 17

Potential uplift to the lottery prize receivable rating based on level of pre-funding



Source: Moody's Ratings

Investment credit quality of the lottery prize fund

The LPR rating uplift is subject to a cap based on the credit quality of the rated, fixed-income investments in the lottery prize fund. For example, if we consider that the applicable rating floor for the LPR is equivalent to the state's moral obligation bonds, and those bonds are rated Aa3, the state's issuer rating is Aa1, the funding level for the lottery prize fund is 110% and the credit quality of the lottery's investment portfolio is Aa2, the rating of the LPR would typically be Aa2.

In cases where the lottery prize fund provides more than 110% coverage of the net present value of lottery prize obligations, we rank order the fund's investments by rating and exclude the lowest-rated securities in the fund until the remaining assets are equal to 110% of net present value of the lottery prize obligations. This adjustment allows for more consistent comparisons of credit quality for lottery prize funds that have different coverage levels.

We assess the credit quality of the lottery prize fund by calculating or estimating the weighted average rating of the investments, based on the reported value of the investment and the 10-year idealized expected loss associated with the rating of that investment. Any uplift to the rating based on the pre-funding level is generally capped at the weighted average rating of the fund's fixed-income investments. Unrated investments are excluded from the calculation of the weighted average rating.

Other considerations for LPR ratings

We may assign LPR ratings below the normal rating floor if there is a weak or weakening state commitment to the lottery enterprise.

Signs of weakening commitment may include:

- » An ongoing or expected material deterioration of the value or profitability of the lottery enterprise to the state;
- » The borrowing of lottery funds by the state for non-lottery purposes;

- » A meaningful change in the percentage of lottery revenue dedicated to paying prizes, especially where the change is rapid or indicative of increased state reliance on transfers from the lottery fund;
- » A rapid deterioration of the credit quality of the fund's investments, especially if the credit quality of the investments is materially lower than the state's issuer rating;
- » Indications that the lottery is less attractive to the public, such as a deterioration in state lottery revenue, especially where the revenue deterioration is not related to changes in state GDP.

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](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [2](#) For more information, 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.
- [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](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [6](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [7](#) 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 *Rating Symbols and Definitions* 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](#) Please see *Rating Symbols and Definitions* for more information on what we consider to be a default.

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