

RATING METHODOLOGY

US States and Territories

Table of Contents:

INTRODUCTION	1
SCOPE OF THIS METHODOLOGY	3
ABOUT THIS RATING METHODOLOGY	4
DISCUSSION OF THE SCORECARD FACTORS	8
FACTORS 5, 6, 7, 8, 9 AND 10	13
FACTOR 5: GROWTH TREND	13
FACTOR 6: ECONOMIC OR REVENUE CONCENTRATION OR VOLATILITY	14
FACTOR 7: PENSION OR OPEB CHARACTERISTICS NOT REFLECTED IN CURRENT METRICS	14
FACTOR 8: WILLINGNESS TO ASSUME RESPONSIBILITY FOR DISTRESSED LOCAL GOVERNMENTS	14
FACTOR 9: IMPAIRED MARKET ACCESS	15
FACTOR 10: FINANCIAL STABILITY LIMITATIONS, ASSUMPTIONS AND OTHER RATING CONSIDERATIONS	15
APPENDIX: US STATES AND TERRITORIES SCORECARD	18
MOODY'S RELATED PUBLICATIONS	20

Analyst Contacts:

NEW YORK	+1.212.553.1653
Emily Raimes	+1.212.553.7203
<i>Vice President – Senior Credit Officer/Manager</i>	
emily.raimes@moodys.com	
Nicholas Samuels	+1.212.553.7121
<i>Vice President – Senior Credit Officer</i>	
nicholas.samuels@moodys.com	
Timothy Blake	+1.212.553.4524
<i>Managing Director – Public Finance</i>	
timothy.blake@moodys.com	

This rating methodology replaces the *US States Rating Methodology*, last revised in April 2013. The primary revisions to the methodology are an expansion of the scorecard to Ca; the elimination of alphanumeric thresholds in the scorecard's Aa category; the addition, elimination and combination of some sub-factors; changes in some factor and sub-factor weights; and a reduction in the number of notching factors.

Introduction

This rating methodology explains our general approach to assessing credit risk for rated US states and US territories.

Highlights of this report include:

- » The scope of this methodology
- » A summary of the rating methodology
- » A description of factors that drive credit quality and ratings
- » Insights into the rating methodology assumptions and limitations, including a discussion of certain rating considerations that are not included in the scorecard

This document provides general guidance intended to help the reader understand how qualitative and quantitative risk characteristics are likely to affect rating outcomes for US states and territories.

This methodology does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. For instance, our analysis for ratings in this sector covers factors that are common across all public sector entities but that are not explained in detail in this document, such as interactions with other levels of government, as well as environmental, social and governance considerations.¹ However, this methodology should enable the reader to understand the qualitative and quantitative considerations, including financial information and metrics, that are usually most important for ratings in this sector.

¹ Please see the "Limitations, Assumptions and Other Rating Considerations" section of this document.

This methodology includes a scorecard,² which is a relatively simple reference tool that can be used in most cases to approximate credit profiles in this sector and to explain, in summary form, the factors that are generally most important in assigning ratings to issuers in this sector. However, scorecard-indicated outcomes may not map closely to actual ratings. The scorecard is a summary that does not include every rating consideration, and other quantitative or qualitative considerations that may not lend themselves to a transparent presentation in a scorecard format can also affect ratings. In addition, some rating factors that are not important for the sector as a whole may be very important for a specific issuer. Furthermore, the weights shown for each factor in the scorecard represent an approximation of their importance for rating decisions, but actual importance may vary substantially.

Ratings reflect our expectations for an issuer's future performance, its exposure to credit risks and its ability to mitigate these risks. We seek to incorporate all material credit considerations and take the most forward-looking perspective that visibility into these risks permits. In most cases, nearer-term risks are clearer and usually most meaningful for issuers' credit profiles. Ratings also consider longer-term risks and mitigants.

We may use the scorecard that is part of this methodology over various historical or forward-looking time periods. Uncertainty increases as the forward horizon lengthens, which limits the meaningfulness of precise measures, both as scorecard inputs and in other rating considerations. When developing a forward-looking view, we often incorporate a directional view of risks and mitigants in a qualitative way. In any case, predicting the future is subject to substantial uncertainty.

As a result of the scorecard's limitations, the scorecard-indicated outcome is not expected to match the actual rating of each issuer.

This methodology describes the analytical framework used in determining credit ratings in this sector. In some instances, our analysis is also guided by additional methodologies that describe our approach for analytical considerations that are not specific to any single sector. Examples of such considerations include the following: the assignment of short-term ratings, the relative ranking of different classes of debt and hybrid securities, how sovereign credit quality affects non-sovereign issuers, and the assessment of credit support from other entities. A link to an index of documents that describe our approach to such cross-sector methodological considerations can be found in the "Moody's Related Publications" section of this report.

This scorecard contains four factors that are important in our assessments for rating US states and territories:

- » Economy
- » Finances
- » Governance
- » Debt and Pensions

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

² In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.

These factors, which comprise a number of sub-factors, produce a preliminary scorecard-indicated outcome. This preliminary outcome may be adjusted up or down in half-notch increments, based on six notching adjustments:

- » Growth Trend
- » Economic or Revenue Concentration or Volatility
- » Pension or OPEB³ Characteristics Not Reflected in Current Metrics
- » Willingness to Assume Responsibility for Distressed Local Governments
- » Impaired Market Access
- » Financial Stability

The combination of these 10 factors results in the scorecard-indicated outcome.

Scope of This Methodology

This methodology applies to the general obligation debt of US states and territories. States are sovereign entities, each with its own government and constitution, that delegate certain powers to the US federal government under the US Constitution. US territories are organizations that may have their own governments and constitutions, but do not have sovereign powers and are fully under the jurisdiction of the US federal government. US territories also lack voting representation in the US legislature.

States have tended to be very highly rated, reflecting their broad powers to control their own financial positions and service debt. Territories are often rated lower than states, reflecting their smaller and narrower economies, and weaker financial practices.

We use this methodology to assign ratings to states' or territories' general obligation (GO) bonds, which are secured by the full faith and credit of the borrower. State GO bond ratings may also be the foundation for ratings of other types of securities covered under separate methodologies,⁴ such as leases or special tax bonds, for which the general credit quality of the state or territory is a consideration. For states or territories that do not issue GO bonds, but for which we still use a reference rating to rate other types of securities, we may use this methodology to assign an issuer rating, which reflects the equivalent credit risk of a GO rating.

Our credit analysis in this methodology broadly contemplates a full faith and credit obligation of the borrower, regardless of the specific legal details of a state's or territory's GO pledge or whether a GO pledge exists for a given issuer. Please see the "Other Rating Considerations" section for more details.

³ Other postemployment benefits

⁴ Please see the "Moody's Related Publications" section of this document for a link to an index of our sector and cross-sector methodologies.

About This Rating Methodology

This report explains the rating methodology for states,⁵ summarized in the six sections below.

1. Identification of the Scorecard Factors

The scorecard in this rating methodology is composed of four factors, some of which have sub-factors. Factors 5 to 10 may be used to make notching adjustments to the preliminary scorecard outcome.

EXHIBIT 1

US States and Territories Scorecard

Rating Factors	Factor Weightings	Sub-factors	Sub-factor Weightings
Economy	25%	Per Capita Income Relative to US Average	12.5%
		Nominal Gross Domestic Product	12.5%
Finances	30%	Structural Balance	10%
		Fixed Costs / State Own-Source Revenue	10%
		Liquidity and Fund Balance	10%
Governance	20%	Governance / Constitutional Framework	20%
Debt and Pensions	25%	(Moody's-adjusted Net Pension Liability + Net Tax-Supported Debt) / State GDP	25%
Total	100%	Total	100%

Preliminary Score (Before Notching Factors)

Notching Factors

Growth Trend	(notching adjustment)
Economic or Revenue Concentration or Volatility	(notching adjustment)
Pension or OPEB* Characteristics Not Reflected in Current Metrics	(notching adjustment)
Willingness to Assume Responsibility for Distressed Local Governments	(notching adjustment)
Impaired Market Access	(notching adjustment)
Financial Stability	(notching adjustment)

Scorecard-Indicated Outcome

*Other postemployment benefits

⁵ From here on, we will use the term "states" to refer to states and territories unless otherwise indicated.

2. Measurement or Estimation of Factors in the Scorecard

We explain our general approach for scoring each scorecard factor and, for factors 1 to 4, show the weights used in the scorecard. We also provide a rationale for why scorecard components are meaningful as credit indicators. The information used in assessing the sub-factors is generally found in or calculated from information in the state's financial statements or disclosures, derived from other observations or estimated by Moody's analysts.

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 performance as well as for peer comparisons. Financial ratios, unless otherwise indicated, are typically calculated based on an annual 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.

All of the quantitative credit metrics incorporate our standard adjustments to pension liabilities. For an explanation of our standard pension adjustments, please see our cross-sector methodology that explains our adjustments to US state and local government reported pension data. A link to this document can be found in the "Moody's Related Publications" section of this report. We may also make other analytical adjustments that are specific to a particular state.

3. Mapping Scorecard Factors to a Numeric Score

After estimating or calculating each sub-factor, the outcomes for each of the sub-factors of the four weighted factors are 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.

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

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.

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

4. Determining the Overall Scorecard-Indicated Outcome⁶

The numeric score for each factor or sub-factor is multiplied by the weight for that factor or sub-factor, with the results then summed to produce an aggregate numeric score. This aggregate numeric score will initially fall along the equal-width scale ranging from 0.5 to 24.5. As described below, we then convert the aggregate numeric score to a scale ranging from 0.5 to 20.5. The result of this conversion is the preliminary score (before notching factors). The alphanumeric-equivalent of the preliminary score can be mapped using Exhibit 2.

We then consider whether the preliminary score should be notched upward or downward, based on the notching factors (see Exhibit 1).

Notching factors are scored in upward or downward notches, in whole or half-notch increments. Overall, notching factors directly adjust the alphanumeric-equivalent of the preliminary score. The meaning of a downward whole notch is that it would in all cases lower the alphanumeric-equivalent of the preliminary score by one alphanumeric category (e.g., from Aaa to Aa1, or from Aa1 to Aa2). Numerically, a downward whole notch adds 1.0 to the preliminary score, and an upward whole notch subtracts 1.0 from the preliminary score.

The meaning of a downward half-notch is that it would lower the alphanumeric-equivalent of the preliminary score by one alphanumeric category only if the preliminary score is weak within its category;⁷ if the preliminary score is strong within its category, a downward half-notch will not change the alphanumeric-equivalent. Numerically, a downward half-notch adds 0.5 to the preliminary score, and an upward half-notch subtracts 0.5 from the preliminary score.

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 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 will then fall 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 one, we subtract 2 from the resultant score to arrive at a preliminary score (before notching factors), which will fall along a scale ranging from 0.5 to 20.5.

We then apply the notching factors. After applying all of the upward and downward notching adjustments to the preliminary score, we arrive at the overall numeric score, which can range from 0.5 to 21.5.⁸ This

⁶ In general, the scorecard-indicated outcome is oriented to the general obligation or issuer rating of the state.

⁷ For example, as shown in Exhibit 2, numeric scores from 8.5 up to and including 9.5 are in the Baa2 range. If the preliminary numeric score were 8.9, a negative half-notch would increase the score to 9.4, which is still in the Baa2 range. If the preliminary score were 9.3, a negative half-notch would raise the score to 9.8, which is in the Baa3 range.

⁸ For Aaa, 0.5 is the upper endpoint. For C, the lower endpoint is 21.5.

overall numeric score is then mapped back to our alphanumeric scale using Exhibit 2 to arrive at the scorecard-indicated outcome.

For example, if the preliminary score were 11.7, corresponding to Ba2 in Exhibit 2 below, and the net result of the notching factors were 1.5 upward notches, the overall numeric score would be 10.2, which would correspond to a scorecard-indicated outcome of Baa3.

EXHIBIT 2

Scorecard-Indicated Outcome

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

5. Limitations, Assumptions and Other Rating Considerations

This section, which follows the detailed description of the scorecard factors, provides some insight into certain reasons why scorecard-indicated outcomes may not map closely to actual ratings. We also discuss limitations and assumptions that pertain to the overall rating methodology and some of the additional factors that are not explicitly addressed in the scorecard but can be important in determining ratings.

6. Appendix

The appendix shows the full scorecard.

Discussion of the Scorecard Factors

Factor 1: Economy (25% Weight)

Why It Matters

A state's economy is critical because it is the source from which it derives its operating revenue, largely through taxes on income and retail sales. An economy that is large, growing and diverse is capable of producing more tax revenue than an economy that is small, poor and concentrated. States with robust, growing economies and strong per capita incomes are better able to support liabilities over the long term.

This factor has two sub-factors:

Per Capita Income Relative to US Average

Per capita income measures the income of taxpayers in a state. Higher-income taxpayers are generally capable of paying higher taxes than lower-income taxpayers, and income is a good proxy for the revenue-generating potential of a state's economy.

Nominal Gross Domestic Product

The size of an economy is a strong indicator of the breadth and diversity of a state and is a good proxy for its capacity to carry liabilities.

How We Assess It for the Scorecard

STATE PER CAPITA INCOME RELATIVE TO US PER CAPITA INCOME:

We compare a state's per capita income to the per capita income for the overall US population.⁹ The numerator is a state's per capita income in dollars, and the denominator is the US per capita income in dollars.

NOMINAL GDP:

We use a state's nominal gross domestic product in dollars.

⁹ The US per capita income is based on US states and the District of Columbia and does not include the population of US territories.

FACTOR 1

Economy (25%)

Sub-factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Per Capita Income Relative to US Average*	12.5%	Per capita income \geq 100% of US average.	Per capita income 80%-100% of US average.	Per capita income 50%-80% of US average.	Per capita income 40%-50% of US average.	Per capita income 30%-40% of US average.	Per capita income 20%-30% of US average.	Per capita income 10%-20% of US average.	Per capita income < 10% of US average.
Nominal GDP (USD Billion)**	12.5%	\geq \$70	\$40 - \$70	\$25 - \$40	\$10 - \$25	\$1 - \$10	\$0.5 - \$1	\$0.3- \$0.5	< \$0.3

* For the linear scoring scale, the Aaa endpoint value is 150%. A value of 150% or better equates to a numeric score of 0.5. The Ca endpoint value is zero. A value of zero equates to a numeric score of 24.5.

** For the linear scoring scale, the Aaa endpoint value is \$200 billion. A value of \$200 billion or better equates to a numeric score of 0.5. The Ca endpoint value is \$0.1 billion. A value of \$0.1 billion or worse equates to a numeric score of 24.5.

Factor 2: Finances (30% Weight)**Why It Matters**

The strength of a state's finances matters because it provides a state with a base from which to balance its current budgetary priorities and future obligations. States that consistently fail to balance their 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.

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

States have enormous discretion over their inflows and their outflows. States generally have the authority to enact new taxes or increase existing tax rates in order to increase revenue, or to cut tax rates. Although cutting aid to localities, Medicaid recipients or public schools can be politically difficult, the majority of state spending is legally discretionary, and the size of a state's budget is, in essence, a policy decision. Nearly every state has a constitutional requirement to balance its budget; all of the territories have this requirement. Nonetheless, states (and territories) frequently spend more than they collect in revenue through a variety of 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 long-term risks to a state's credit profile.

This factor has three sub-factors:

Structural Balance

The ongoing relationship between inflows and outflows is a strong indication of whether a state is balancing its budget, whether it is at risk of converting deficits into long-term liabilities and how difficult it would be to return to balance.

Fixed Costs Ratio

The ratio of fixed costs to a state's own-source revenue is an indication of a state's ability to reduce expenditures. A state with high fixed costs faces a greater challenge to adjusting outflows to match inflows than one with low fixed costs.

Liquidity and Fund Balance

Liquid reserves help a state bridge temporary budgetary imbalances. Deficits are at greater risk of transforming into long-term liabilities (such as unfunded pension benefits or long-term debt) if they coincide with low liquid reserves. Larger liquid reserves give states more time to run deficits before long-term credit risks start to grow significantly.

How We Assess It for the Scorecard

Structural Balance:

The measure of the strength of a state's finances is its ability to match outflows to inflows over time. In assessing this qualitative sub-factor, we consider the relationship between ongoing inflows and ongoing outflows, which may be coupled with an assessment of the likelihood that a state will achieve and maintain balance in the future.

This score is typically informed by the state's current and past budgets and by our assessment of potential budget scenarios in the future, based on the political climate, economic trends and the state's track record. Our assessment usually focuses on a state's recurring revenue, without the benefit of one-time items or use of liquid reserves, and a state's recurring expenditures. In most cases, we not only look at the level of recurring expenditures needed to maintain structural balance in the current year but also at the level needed over time (i.e., not the actual pension contribution, but the "tread water" indicator for pensions; see further discussion of this under the "Fixed Costs Ratio" section below).

Fixed Costs Ratio:

The numerator is fixed costs, and the denominator is a state's own-source revenue (governmental revenue minus federal aid) for the most recent fiscal year.

Fixed costs typically consist of debt service, the tread water indicator (the pension contribution necessary to prevent unfunded liabilities from growing, assuming all actuarial assumptions are met) and the amount paid for other postemployment benefits (OPEB), which are mostly retiree health insurance benefits, for the most recent fiscal year.

Liquidity and Fund Balance:

For this qualitative sub-factor, we typically consider a state's liquid reserves available to bridge budget shortfalls or other calls on current resources. This assessment usually begins with unassigned operating fund balances and incorporates additional funds at the state's disposal to meet short-term payables, often including borrowable cash balances held outside of the primary operating funds.

We assess this sub-factor qualitatively in part because many states have fund balances with unclear or tiered degrees of accessibility. For example, a state's general fund may be able to borrow money from a consolidated cash pool, but only with a formal line of credit from the treasurer and only if it repays the loan within that fiscal year. Further, under governmental generally accepted accounting principles, general fund balances frequently include accruals that distort the true availability of reserves, for instance by recording payables that states have the discretion not to pay.

This sub-factor also may incorporate a state's practice of cash-flow borrowing, either externally through the issuance of short-term notes or internally through interfund loans. Access to significant external or internal liquidity may be considered a credit strength, although the trend of borrowing from external or internal sources may indicate increasing liquidity strain, depending on the circumstance.

FACTOR 2

Finances (30%)

Sub-factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Structural Balance	10%	Budget is expected to remain in structural surplus.	Budget is in structural balance or modest imbalance with expected return to balance.	Budget is in moderate structural imbalance with expected return to balance.	Significant imbalance with identifiable path toward balance.	Significant imbalance with limited path toward balance.	Significant imbalance that undermines delivery of core government services.	Overwhelming imbalance, indicating inability to pay full debt service.	Overwhelming imbalance, indicating inability to pay most debt service.
Fixed Costs / State Own-Source Revenue*	10%	≤ 5%	5% - 15%	15% - 20%	20% - 25%	25% - 35%	35% - 50%	50% - 70%	> 70%
Liquidity and Fund Balance	10%	Ample General Fund liquidity; and good rainy day reserves.	Solid all-funds liquidity with little to no reliance on external or internal cash-flow borrowing; and moderate rainy day funds.	Adequate all-funds liquidity; some reliance on cash-flow borrowing; may have little to no rainy day funds.	Weakening liquidity; heavy reliance on cash-flow borrowing.	Weak liquidity; heavy reliance on cash-flow borrowing.	Poor liquidity; heavy reliance on cash-flow borrowing; market access intermittent, unreliable or in doubt.	Deep deficit fund balance and negative liquidity positions; or market access impaired.	Deep deficit fund balance or negative liquidity positions with little prospect of resolution.

* The numerator is fixed costs, and the denominator is state own-source revenue (governmental revenue minus federal aid) for the most recent fiscal year. For the linear scoring scale, the Aaa endpoint value is zero. A value of zero equates to a numeric score of 0.5. The Ca endpoint value is 90%. A value of 90% or better equates to a numeric score of 24.5.

Factor 3: Governance (20% Weight)**Why It Matters**

The constitutional and legal framework governing a state, along with the financial management and budgeting practices a state employs, provides important indications of whether it will balance its budget, accumulate unaffordable liabilities and maintain adequate liquidity. Because states enjoy significant flexibility over their revenue and expenditures, financial performance can be driven as much by management as by other underlying causes.

Ultimately, states almost always have the tools to maintain strong credit profiles; it is a question of whether they use these tools in ways that preserve or jeopardize their financial strength. Past use of such financial tools can be a strong indicator of likely future performance. Territories also have tools to balance their budgets, but they face greater credit challenges due to their limited economies.

How We Assess It for the Scorecard

Governance / Constitutional Framework:

Scoring for this qualitative sub-factor is typically based on an assessment of a state's revenue and expenditure flexibility under the state's existing legal and constitutional framework. We may consider constitutional restrictions (such as tax limits or a super-majority legislative requirement to raise taxes) and laws (such as rainy day fund requirements, statutory pension contribution rules or executive authority to make midyear budget adjustments). We also consider financial planning, policies and practices, which may include consensus revenue forecasts, debt affordability analyses or an assessment of whether budgeting is conservative.

States may have the flexibility to deviate from their own legal frameworks, which we often consider an indication of weak governance. A weak governance structure is generally reflected in ineffective institutions or long-standing practices, such as a history of underfunding the state's pension plans or regular borrowing for operating deficits, as opposed to the short-term political disagreements that may accompany budget creation and passage. However, the escalation of political disputes may also be an indication of a fundamentally weak governance structure.

FACTOR 3

Governance (20%)

Sub-factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Governance / Constitutional Framework	20%	Extremely strong revenue and expenditure flexibility; and extremely strong financial planning policies and practices.	Strong revenue and expenditure flexibility; and strong financial policies and practices.	Adequate revenue and expenditure flexibility; uneven financial planning policies and practices.	Weakening revenue and expenditure flexibility; uneven financial planning policies and practices.	Weak revenue and expenditure flexibility; financial planning policies and practices deviate from governance framework.	Protracted failure to exercise available fiscal tools laid out in governance framework.	Governance features that likely impair bond-holders.	Governance features that likely greatly impair bond-holders.

Factor 4: Debt and Pensions (25% Weight)

Why It Matters

This factor is critical because debt and pension obligations are the primary long-term liabilities that states have. As these liabilities grow, states face rising expenses to pay debt and pension benefits. High fixed debt service and pension costs can crowd out other budgetary priorities and force states to raise taxes in order to meet them. Debt and pensions can curtail a state's budgetary flexibility and heighten the risk that it will seek to deleverage through a debt restructuring.

The factor has one sub-factor:

(Moody's-adjusted Net Pension Liability + Net Tax-supported Debt) / State GDP

This ratio provides an indication of a state's ability to meet its debt and pension obligations with current and future tax revenue.

How We Assess It for the Scorecard

Moody's-adjusted Net Pension Liability + Net Tax-supported Debt) / State GDP:

The numerator is the Moody's-adjusted net pension liability (ANPL) plus total net tax-supported debt, and the denominator is state gross domestic product.

The adjusted net pension liability is the difference between the fair market value of a pension plan's assets and its adjusted liabilities. We adjust reported pension liabilities of US state and local governments per our cross-sector methodology.¹⁰

Net tax-supported debt is debt paid from statewide taxes and other general resources, net of obligations fully and reliably supported by pledged sources other than state taxes or operating resources, such as utility or local government revenue.

We use a state's gross domestic product as a proxy for its capacity to carry liabilities, because the economy drives current and future tax revenue.

FACTOR 4

Debt and Pensions (25%)

Sub-factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
(ANPL + Net Tax-Supported Debt) / State GDP*	25%	≤ 10%	10% - 20%	20% - 30%	30% - 40%	40% - 50%	50% - 75%	75% - 100%	> 100%

* ANPL stands for the Moody's-adjusted net pension liability. For the linear scoring scale, the Aaa endpoint value is zero. A value of zero equates to a numeric score of 0.5. The Ca endpoint value is 150%. A value of 150% or better equates to a numeric score of 24.5.

Factors 5, 6, 7, 8, 9 and 10

The following factors may result in upward or downward notching adjustments to the preliminary scorecard-indicated outcome that results from factors 1 to 4. These adjustments may be made in increments of one-half notch. In aggregate, these factors can result in a total of three notches up or six notches down from the preliminary scorecard-indicated outcome to arrive at the scorecard-indicated outcome. We seek to fully reflect our view of all material credit considerations in ratings. In the unusual circumstance that the importance of these factors in assessing the issuer's credit profile is greater than can be incorporated within this notching band, the issuer's assigned rating may be different from its scorecard-indicated outcome. As more fully described in "Limitations, Assumptions and Other Rating Considerations," factor weights may vary in our assessment of individual issuers.

Factor 5: Growth Trend

This factor provides an important indication of a state's ability to balance its budget. A growing economy can generate tax revenue growth that exceeds forecasts and helps a state balance its budget. A shrinking economy can contribute to revenue underperformance and force a state to either raise taxes or cut spending in order to balance its budget.

¹⁰ Please refer to our cross-sector methodology for adjustments to US state and local government reported pension data. A link to an index of our cross-sector methodologies can be found in the "Moody's Related Publications" section of this report.

Our assessment of this factor is primarily based on our expectations for growth in state GDP and employment in the near and medium term. We may adjust the preliminary scorecard-indicated outcome upward or downward by up to three notches, but in most cases by no more than one notch, depending on our view of the trajectory of the state's economy.

Factor 6: Economic or Revenue Concentration or Volatility

An economy with a large exposure to one industry (e.g., gaming) can lead to outsize economic volatility driven by changes in that industry. Similarly, a state budget with a large exposure to one revenue source (e.g., the oil and gas industry) can lead to outsize budgetary volatility driven by changes in that one industry.

Our assessment is typically based on the proportion of the state's GDP or revenue base that is represented by one industry or revenue source. If a state's economy or revenue structure is heavily concentrated or volatile, we may adjust the scorecard-indicated outcome downward by up to three notches, but in most cases by no more than one notch.

Factor 7: Pension or OPEB Characteristics Not Reflected in Current Metrics

We may conclude that a state's net pension liability is likely to grow due to pension funding law or policy, resulting in insufficient contributions, overly optimistic assumptions for the return on pension plan assets or other factors. Conversely, we may conclude that a state's net pension liability is likely to diminish in light of pension reforms that result in larger contributions or prevent the liability from growing.

OPEB liabilities, which are not reflected in the Debt and Pensions factor, may be significant and may greatly contribute to fixed costs. Also, pension and OPEB liabilities have different legal statuses in different states. For states whose pension and OPEB beneficiaries have stronger legal protections, we may consider these liabilities to be more inalterable and likely to pose greater credit risk.

In assessing this factor, we typically consider the impact of legislative changes or the funding environment on the net pension liability or OPEB. We may adjust the scorecard-indicated outcome upward or downward by up to three notches, but in most cases by no more than one notch, if we expect the impact to result in a materially positive or negative change in the net pension liability or OPEB in the near to medium term.

Factor 8: Willingness to Assume Responsibility for Distressed Local Governments

A key credit strength states have 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 and a weakness of local governments 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.

Our assessment of this factor is typically based on the budgetary or balance sheet impact of the state's assistance to distressed local governments. We may consider a downward notching adjustment to the preliminary scorecard-indicated outcome of up to three notches, but in most cases by no more than one notch, for states with many distressed local governments and a willingness or a legal requirement to expose themselves to that distress.

Factor 9: Impaired Market Access

Most states access the capital markets. While the majority of state borrowing is for long-term capital projects, sometimes it is for cash-flow borrowing and sometimes it is for deficit financing. For distressed states, access to financing from public markets or banks could be the final source of cash before a liquidity crisis. The loss of such market access could be a prelude to an attempted restructuring of debt.

We may adjust the preliminary scorecard-indicated outcome downward for a state that loses market access, because of the likelihood that such a development would precipitate a crisis and possibly a default. We assess market access based on a state's difficulty in placing its bonds and notes. This consideration may result in a downward adjustment of up to four notches in the scorecard (scored in whole notch increments).

Factor 10: Financial Stability

For states with a demonstrated record of extraordinary financial stability, the preliminary scorecard-indicated outcome may overstate the risks of such factors and sub-factors as high debt or pension obligations, low income or high fixed costs.

We assess financial stability primarily based on whether a state has low budgetary volatility and on its history of structural balance and maintenance of robust liquidity. We may notch the preliminary scorecard-indicated outcome upward by up to three notches, but in most cases by no more than one notch, if a state has demonstrated that it can operate stably through economic cycles despite certain risks reflected in the scorecard.

Limitations, Assumptions and Other Rating Considerations

Scorecard-indicated outcomes may not map closely to actual ratings. In this section, we discuss limitations and assumptions that pertain to the overall rating methodology and some of the additional factors that are not included in the scorecard but can be important in determining ratings.

Limitations

Ratings reflect our expectations for an issuer's future performance, its exposure to credit risks and its ability to mitigate these risks. We seek to incorporate all material credit considerations and take the most forward-looking perspective that visibility into these risks permits. In most cases, nearer-term risks are clearer and usually most meaningful for issuers' credit profiles. Ratings also consider longer-term risks and mitigants.

We may use the scorecard that is part of this methodology over various historical or forward-looking time periods. Uncertainty increases as the forward horizon lengthens, which limits the meaningfulness of precise measures, both as scorecard inputs and in other rating considerations. When developing a forward-looking view, we often incorporate a directional view of risks and mitigants in a qualitative way. In any case, predicting the future is subject to substantial uncertainty.

Ratings are forward-looking opinions of the relative risk of default and credit loss. The scorecard in this rating methodology is focused on indicators for relative credit strength. Credit loss and recovery considerations are typically more important as an issuer gets closer to default. Loss given default considerations may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds. These limitations cause 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 in the scorecard represent an approximation of their importance for rating decisions, but the actual importance of a particular factor may vary substantially based on the circumstances. For example, ratings can be heavily affected by extremely weak liquidity that magnifies default risk (thus, the weighting for liquidity in our assessment could be higher than the standard weighting in the scorecard); however, in other circumstances, it may have a less substantial impact in discriminating between two issuers with otherwise similarly strong credit profiles.

As another example, the Debt and Pensions factor combines the two principal forms of long-term liabilities (net pension liabilities and net tax-supported debt), because they typically represent the state's largest liabilities and are very high priorities to the state. Depending on the circumstances of a state and the legal structure surrounding its pension plan or its debt portfolio, we may decide that its net pension liability presents more risk than its debt, or vice versa. The composition of those liabilities, their specific characteristics and our view of their future trajectories may have an impact on the importance of the Debt and Pensions factor in our overall credit assessment.

Another example is the treatment of a state's income level in the scorecard, for which the indicator is per capita income relative to the US average. States with higher per capita income typically score higher for this sub-factor, because higher income implies stronger revenue potential. For states with tax rates that are already very high, however, the potential to generate additional revenue through still-higher tax rates may be more limited than the income levels imply, because of political resistance to raising already-high tax rates and because of the possibility that high tax rates by themselves could cause high earners to move to lower-tax states. In this circumstance, per capita income may take on less importance in our analysis, while considerations such as the state's revenue flexibility and the structural balance or imbalance of its budget may take on greater importance.

Relative importance may also vary for rating considerations that are not represented in the scorecard.

In the "Other Rating Considerations" section below, we provide additional examples of factors that may be important to ratings but are not included in the scorecard.

Assumptions

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, industry competition, disruptive technology, or regulatory and legal actions.

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, and the assumption that access to liquidity is a strong driver of credit risk.

Other Rating Considerations

Our credit analysis in this methodology broadly contemplates a full faith and credit obligation of the borrower, regardless of the specific legal details of a state's GO pledge or whether or not a GO pledge exists for a given issuer. There is currently insufficient evidence to warrant distinctions in ratings based on various legal characteristics or pledges (e.g., priority granted under a state constitution or a dedicated tax for debt service), given the potential difficulty of enforcing a claim against a state should it default, the narrowly tested nature of the regime for restructuring territories' debt, and the lack of a bankruptcy regime for states. It is possible that future legal or market developments would prompt us to conclude that states' GO

pledges can be sufficiently different to warrant rating distinctions based solely on the legal structure of a GO pledge.

Ratings reflect a number of additional considerations. The rating factors in the scorecard do not constitute an exhaustive treatment of all of the considerations that may be important for ratings of issuers in this sector. In choosing factors and metrics for the rating methodology scorecard, we did not explicitly include certain important factors that are common to all issuers in any sector, such as the quality and experience of management, the quality of financial reporting and information disclosure, as well as environmental, social and governance considerations, and macroeconomic trends, among others.

Ratings may also include additional factors that are difficult to quantify or that have a meaningful effect in differentiating credit quality only in some cases, but not all. Such factors include regulatory, litigation and reputational risks, changes to competitiveness of key industry sectors and interactions with different levels of government. For example, to the extent federal programs are a material contributor to a state's revenue or GDP, a potential material decrease in federal expenditures may lower our expectations for the state's financial metrics and give us less confidence in a specific budget or forecast scenario.

Environmental Considerations

Over time, the economic resiliency and financial strength of US states and territories could be affected by environmental risks associated with climate change, including increased severity of storms, the effect of rising sea levels, and increased frequency of higher temperatures, droughts and wildfires. Due to their geographic locations and generally less developed economies, US territories have greater exposure than states to environmental risks. US states have many credit strengths to help mitigate environmental risks, including economic resources, financial flexibility, governance strengths, and the establishment by some states of special reserve funds for hurricanes and other natural disasters. States and territories alike benefit from the availability of FEMA funding for natural disasters and the redistributive impact of federal tax and social policies.

Our view of environmental risks is incorporated in our expectations of future economic and financial metrics. These risks also affect our confidence level in an issuer's ability to generate sufficient revenue relative to its debt burden over the medium and longer term. The longer-term credit impact of environmental risks may be incorporated qualitatively in our ratings analysis outside of the scorecard. For example, we may incorporate our forward view of increasing severity of coastal storms and floods beyond the horizon for which we can accurately project the future financial impact of these risks.

Appendix: US States and Territories Scorecard

	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor 1: Economy (25%)									
Per Capita Income Relative to US Average*1	12.5%	Per capita income \geq 100% of US average.	Per capita income 80%-100% of US average.	Per capita income 50%-80% of US average.	Per capita income 40%-50% of US average.	Per capita income 30%-40% of US average.	Per capita income 20%-30% of US average.	Per capita income 10%-20% of US average.	Per capita income $<$ 10% of US average.
Nominal GDP (USD Billion)*2	12.5%	\geq \$70	\$40 - \$70	\$25 - \$40	\$10 - \$25	\$1 - \$10	\$0.5 - \$1	\$0.3- \$0.5	$<$ \$0.3
Factor 2: Finances (30%)									
Structural Balance	10%	Budget is expected to remain in structural surplus.	Budget is in structural balance or modest imbalance with expected return to balance.	Budget is in moderate structural imbalance with expected return to balance.	Significant imbalance with identifiable path toward balance.	Significant imbalance with limited path toward balance.	Significant imbalance that undermines delivery of core government services.	Overwhelming imbalance, indicating inability to pay full debt service.	Overwhelming imbalance, indicating inability to pay most debt service.
Fixed Costs / State Own-Source Revenue*3	10%	\leq 5%	5% - 15%	15% - 20%	20% - 25%	25% - 35%	35% - 50%	50% - 70%	$>$ 70%
Liquidity and Fund Balance	10%	Ample General Fund liquidity; and good rainy day reserves.	Solid all-funds liquidity with little to no reliance on external or internal cash-flow borrowing; and moderate rainy day funds.	Adequate all-funds liquidity; some reliance on cash-flow borrowing; may have little to no rainy day funds.	Weakening liquidity; heavy reliance on cash-flow borrowing.	Weak liquidity; heavy reliance on cash-flow borrowing.	Poor liquidity; heavy reliance on cash-flow borrowing, market access intermittent, unreliable or in doubt.	Deep deficit fund balance and negative liquidity positions; or market access impaired.	Deep deficit fund balance or negative liquidity positions with little prospect of resolution.
Factor 3: Governance (20%)									
Governance/ Constitutional Framework	20%	Extremely strong revenue and expenditure flexibility; and extremely strong financial planning policies and practices.	Strong revenue and expenditure flexibility; and strong financial planning policies and practices.	Adequate revenue and expenditure flexibility; uneven financial planning policies and practices.	Weakening revenue and expenditure flexibility; uneven financial planning policies and practices.	Weak revenue and expenditure flexibility; financial planning policies and practices deviate from governance framework.	Protracted failure to exercise available fiscal tools laid out in governance framework.	Governance features that likely impair bondholders.	Governance features that likely greatly impair bondholders.

	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Factor 4: Debt and Pensions (25%)									
(ANPL + Net Tax-Supported Debt) / State GDP*4	25%	≤ 10%	10% - 20%	20% - 30%	30% - 40%	40% - 50%	50% - 75%	75% - 100%	> 100%
Notching Factors									
Growth Trend									(notching adjustment)
Economic or Revenue Concentration or Volatility									(notching adjustment)
Pension or OPEB Characteristics Not Reflected in Current Metrics									(notching adjustment)
Willingness to Assume Responsibility for Distressed Local Governments									(notching adjustment)
Impaired Market Access									(notching adjustment)
Financial Stability									(notching adjustment)

*1 For the linear scoring scale, the Aaa endpoint value is 150%. A value of 150% or better equates to a numeric score of 0.5. The Ca endpoint value is zero. A value of zero equates to a numeric score of 24.5.

*2 For the linear scoring scale, the Aaa endpoint value is \$200 billion. A value of \$200 billion or better equates to a numeric score of 0.5. The Ca endpoint value is \$0.1 billion. A value of \$0.1 billion or worse equates to a numeric score of 24.5.

*3 The numerator is fixed costs, and the denominator is state own-source revenue (governmental revenue minus federal aid) for the most recent fiscal year. For the linear scoring scale, the Aaa endpoint value is zero. A value of zero equates to a numeric score of 0.5. The Ca endpoint value is 90%. A value of 90% or better equates to a numeric score of 24.5.

*4 ANPL stands for the Moody's-adjusted net pension liability. For the linear scoring scale, the Aaa endpoint value is zero. A value of zero equates to a numeric score of 0.5. The Ca endpoint value is 150%. A value of 150% or better equates to a numeric score of 24.5.

Moody's Related Publications

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

For data summarizing the historical robustness and predictive power of credit ratings assigned using this credit rating methodology, see [link](#).

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

Report Number 1084466

AuthorsDan Seymour
Geordie Thompson**Production Specialist**

Kerstin Thoma

© 2018 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MOODY'S PUBLICATIONS MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.