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RATING METHODOLOGY

Rate this Research

Mass Transit Enterprises Methodology

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This rating methodology replaces "Global Mass Transit Enterprises" last revised on June 21, 2017. We have clarified the calculation of a scorecard metric (budget flexibility) and a notching adjustment related to pension funding level to specify the difference in the pension data points used between US and non-US issuers. We have also re-named the methodology *Mass Transit Enterprises Methodology*.

Introduction

This methodology explains how we evaluate the credit quality of mass transit enterprise issuers globally. Mass transit enterprises are government-owned or managed entities that provide local passenger transport services to the public, primarily within a metropolitan area. For example, this methodology applies to revenue bonds issued in the US and secured by mass transit issuers' operating revenues, which may be a combination of farebox revenues, dedicated taxes, and operating grants. This methodology also applies to sub-sovereign mass transit enterprises globally.

The purpose of this methodology is to provide a reference tool that market participants can use to approximate most credit profiles of entities within the mass transit sector. The scorecard provides summarized guidance for the factors that we generally consider most important in assigning ratings to debt issued by these entities.

However, the scorecard is a summary that does not include every rating consideration. The weights the scorecard shows for each factor represent an approximation of their importance for rating decisions. In addition, the scorecard uses historical results while our ratings are based on our forward-looking expectations. As a result, we would not expect the scorecard-indicated outcome to match the actual rating in every case.

THIS RATING METHODOLOGY WAS UPDATED ON SEPTEMBER 27, 2019. WE HAVE UPDATED SOME OUTDATED REFERENCES AND ALSO MADE SOME MINOR FORMATTING CHANGES.

This methodology is not intended to apply to the following types of issuers, which are rated under separate methodologies[1]:

» US mass transit issuers with debt secured solely by dedicated taxes, typically sales taxes.

» Privately owned transit providers, including those that operate competitive services and those that operate under a concession or similar agreement with a governmental entity.

» Entities that primarily provide transport services between regions or metropolitan areas, such as railways.

The primary factors that drive our credit analysis in this methodology are:

1. Size
2. Market position
3. Financial flexibility
4. Debt and financial metrics

We intend for this methodology to help investors, issuers, and other interested market participants understand how key quantitative and qualitative risk factors are likely to affect ratings in the mass transit enterprise sector. It does not offer an exhaustive treatment of all factors that are reflected in our ratings, but should enable the reader to understand the considerations that are usually most important.

We present a full scorecard (see Appendix A) which creates ranges for several key factors and assigns a weight to each of those factors. The scorecard is not an exhaustive treatment of all factors that we consider in arriving at a rating but is designed to assist the reader to understand the qualitative and quantitative considerations that are most significant in enterprise mass transit ratings, and their respective weights.

Sector Overview

The sector is composed of governmental entities providing public transportation services within one metropolitan employment area. Because these services are essential to local and regional economies, they are heavily subsidized by government grants and/or dedicated taxes. Passenger-derived fares comprise less than 50% of operating revenues in most cases. The mass transit sector covers several modes of transportation, including bus, rail, and light rail, across a wide range of operational scope, and budgets. Some mass transit issuers may also operate other transportation- related activities such as toll roads or parking; however, the mass transit business contributes the vast majority of revenues.

Mass transit enterprise issuers operate with little direct competition, however mass transit service may be more essential to some service areas than others. "Utilization", or the annual ridership relative to the service area population, can range very widely.

Mass transit issuers are heavily subsidized by various levels of government due to the public policy goal of maintaining affordable fares and the economic incentives of providing high service levels. Mass transit issuers receive grants to support both capital and operating needs from many levels of government, including federal/central, state/regional and/or local. Capital grants are an important funding mechanism for most mass transit issuers, and as a result they are generally less leveraged than other capital intensive enterprises. Operating grants from governments range from less than 5% to more than 70% of revenues,

[1] A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

reflecting both the issuers' relatively low flexibility to adjust operating revenues through fares, and their overall dependence on grants and dedicated taxes, if available.

While this external operating support provides significant financial stability for some issuers, it also results in lower financial margins for the sector. Most supporting governments provide subsidies to help mass transit issuers reach a sum-sufficient financial position, but may reduce support when the issuer performs well or has access to cash reserves. As a result, liquidity measures and coverage metrics for mass transit issuers are generally lower than other enterprise sectors. Given the unique funding framework for mass transit issuers, our analysis emphasizes the stability and predictability of the issuer's governmental support structure, and the level of available budget flexibility that may not be reflected in coverage and liquidity metrics.

Mass transit issuers' budget flexibility is influenced by the high percentage of labor-related costs relative to other public enterprise sectors such as water and sewer, public power or toll roads. The personnel-intensive nature of transit operations is important to mass transit issuer's credit profiles in two ways. First, high staffing levels drive up long-term pension costs and other post-employment benefits (OPEB) compared to other enterprises. Second, to the extent that personnel is represented by collective bargaining units, the issuer may have relatively low flexibility to control cost growth or cut costs mid-year without negatively affecting service levels. Some issuers have reduced their direct labor costs by contracting out the operations of their rolling stock.

Sub-Sovereign Transit Issuers and Baseline Credit Assessments

The mass transit sector includes both issuers based in the US and non-US sub-sovereign mass transit enterprises which are classified as government-related issuers (GRIs). The ratings of these GRIs can be more transparently explained by four components: (1) the GRI's standalone credit risk, as expressed by the baseline credit assessment (BCA) using a 21-point scale that ranges from aaa to c (similar to our credit rating scale except that all letters are in lower case); (2) the supporting government's rating; (3) an estimate of the default correlation between the GRI and the government; and (4) an estimate of the likelihood of extraordinary government support to the GRI.[2] This mass transit enterprises methodology will be used to determine these issuers' BCA and our rating methodology that describes our general approach for assessing government-related issuers will be applied to determine the rating.

The Scorecard

The mass transit scorecard (see Exhibit 1 and Appendix A) is a tool to provide a composite score of a mass transit system's credit profile based on the weighted factors we consider most important, universal and measurable.[3] It also identifies possible notching factors dependent on individual credit strengths and weaknesses. While not the final determinant of a rating outcome, this scoring process is a valuable tool for assessing the comparability of different issuers and sectors and benchmarking ratings. The scorecard is designed to enhance the transparency of our approach by identifying critical factors as a starting point for analysis, along with additional considerations that may affect the final rating assignment.

[2] For more information, see our cross-sector methodology that describes our general approach for assessing government-related issuers. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[3] The scorecard published in this methodology is a summary of more granular assessments of the "above-the-line" quantitative factors. For simplicity, we define the thresholds for each quantitative sub-factor within the broader categories of Aaa, Aa, A, etc. However, the output for the scorecard actually calculates at the more refined level of Aa1, Aa2, and Aa3, all the way down the rating scale to the C category.

The scorecard is not a calculator. Its purpose is to provide a standard platform from which to begin viewing and comparing mass transit credits, not to determine the final rating. The scorecard acts as a starting point for a more thorough and individual analysis.

EXHIBIT 1

Mass Transit Scorecard Factors

Broad Scorecard Factors	Factor Weighting	Subfactor	Measure	Subfactor Weighting
Size	15%	Issuer Size	Annual Ridership	10%
		Market Size	Service Area Population	5%
Market Position	35%	Operating Environment	Stability and predictability of federal, state and local transportation policy and funding subsidies	20%
		Service Area Characteristics	Job and population trends	5%
		Market Share	Utilization	10%
Financial Flexibility	20%	Level of self-support	Farebox Recovery Ratio	10%
		Budget flexibility	3-Yr Avg Fixed Costs as % of Operating Expenditures	10%
Debt & Financial Metrics	30%	Leverage	Debt / Revenues	15%
		Budget Balance	(US) 3-Yr Avg Annual Coverage by Net Revenues (Int'l) 3-Yr Avg Interest as a % of Operating Revenues	5%
			3-Yr Avg Net Margin (Operating surplus / revenues)	5%
		Liquidity	Days Cash on Hand	5%
Total	100%			100%

The scorecard-indicated outcome will not always match the actual rating. Reasons include the following:

» Our methodology considers forward-looking elements that may not be captured in historical data we typically use in the scorecard

» The scorecard is a summary that does not include every rating consideration

» In some circumstances, the importance of a factor may differ from its prescribed weight in this methodology

Our scorecard metrics are intentionally limited to major rating drivers common to most issuers. Outside of these drivers we may adjust the scorecard for a variety of "below-the-line" adjustments. These are more idiosyncratic factors that do not apply to every issuer, but that can impact credit strength. The scorecard score is the result of the calculated "above-the-line" score combined with any "below-the-line" notching adjustments. The scorecard score is a guideline for discussion, but does not determine the final rating. The rating is determined by a committee which considers, but is not bound by, the scorecard score.

Discussion of Key Scorecard Factors

To arrive at a scorecard-indicated outcome, we begin by assigning a score for each subfactor. We have chosen qualitative and quantitative measures that act as proxies for a variety of market characteristics, operating environments, and budgetary and financial conditions that otherwise are difficult to measure objectively and consistently. Based on the scores and weights for each subfactor, a preliminary score is produced that translates to a given rating level.

We may then move the score up or down a certain number of rating notches based on additional "below-the-line" factors that impact a particular mass transit system's credit quality in ways not captured in the scorecard. These "below-the-line" adjustments represent our analytic judgment regarding financial strengths or challenges that are unique to the issuer, risks driven by a specific event, extreme strengths or challenges that create "outliers", or forward-looking considerations of how ratios may change in the future. Because mass transit credit profiles vary widely in size, scope of operations, and governance structure, there are idiosyncrasies that can make one factor, regardless of its scorecard weight, more important than other factors. These considerations may prompt us to consider ratings that differ from the scorecard-indicated outcome.

Below we discuss each factor and subfactor, and the below-the-line adjustments and other considerations we analyze within each category of this methodology.

EXHIBIT 2

Factor 1: Size (15%)

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
Issuer Size	Annual Ridership	10.0%	> 500 million	500 million ≥ n > 100 million	100 million ≥ n > 10 million	10 million ≥ n > 1 million	1 million ≥ n > 750,000	≤ 750,000
Market Size	Service Area Population	5.0%	> 5 million	5 million ≥ n > 1 million	1 million ≥ n > 300,000	300,000 ≥ n > 100,000	100,000 ≥ n > 50,000	≤ 50,000

Why It Matters

Size is a key driver in determining the market and service base strength of the mass transit issuer. When assessing size, we consider both annual ridership and service area population, which together signal revenue generating capacity and the issuer's economic and political importance.

Greater size is also often correlated with other credit strengths, such as a larger, more sophisticated staff, more equipment redundancies to reduce service interruptions, and a higher level of passenger and/or service area diversity, which provides stability through economic cycles. Additionally, size provides economies of scale to drive lower unit operating costs and improve cost efficiencies. Larger issuers can invest in more efficient technology, procurement and sourcing. Such investments can result in lower relative costs, key in maintaining public support and financial flexibility.

How We Assess It for the Scorecard

Subfactor 1a: Annual Ridership (10%)

Input: The number of unconnected passenger trips taken on the system each year

This metric includes unconnected trips on all modes of transportation, including but not limited to bus, rail, and ferry, but excluding toll transactions of any related enterprises. For mass transit systems, ridership is the most direct measure of operating size, because a relatively high share of revenues come from grants and subsidies that are not directly related to service activities.

Subfactor 1b: Service Area Population (5%)

Input: The number of residents in the issuer's service area

Below-the-line adjustments

Particularly strong or weak ridership/population trends that are not currently reflected in the data set. We may adjust up or down to incorporate any ridership or population trends that suggest a fundamental shift in the size and regional importance of the mass transit system. This may not include temporary fluctuations that reflect service changes to increase revenues or cut costs during economic cycles.

EXHIBIT 3

Factor 2: Market Position (35%)

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
Operating Environment	Stability and predictability of federal, state, provincial and local transportation policy and funding subsidies	20%	Highly supportive and predictable: Very strong political support for transit subsidies and fare increases; steady historic and projected subsidy growth; subsidies from entities with very strong financial positions	Very supportive and predictable: Strong political support for transit subsidies and fare increases; stable historic and projected subsidy growth; subsidies from entities with strong financial positions	Predictable but less supportive: Moderate political support for transit subsidies and fare increases; small, short declines in historic or projected subsidy growth; subsidies from entities with average financial positions	Less predictable or unsupportive: Occasionally weak, but mostly stable, political support for transit subsidies and fare increases; small, steady declines in historic or projected subsidy growth; subsidies from entities with below-average financial positions	Unpredictable and unsupportive: Minimal political support for transit subsidies and fare increases; slow but steady declines in historic or projected subsidy growth; subsidies from entities with weak financial positions	Unpredictable and very unsupportive: Unreliable political support for transit subsidies and fare increases; steady declines in historic or projected subsidy growth; subsidies from entities with very weak financial positions
Service Area Characteristics	Job and population trends	5%	Highly diversified economy; strong historical and projected job and/or population growth	Well-diversified economy; flat to moderate historic and projected job and/or population growth	Developed and reasonably diversified economy; generally flat historic and projected job and/or population growth	Stable economy with some industry concentration; slight declines in historic and/or projected job and population growth	Evolving economy with industry concentration; slow but steady declines or volatility in historic and/or projected job and population growth	Very weak economy with industry concentration; steady declines or volatility in historic and/or projected job and population growth
Market Share	Utilization	10%	> 150	150 ≥ n > 75	75 ≥ n > 15	15 ≥ n > 5	5 ≥ n > 3	≤ 3

Why It Matters

Market position describes a mass transit issuer's ability to attract and maintain demand and thus create and maintain revenues. Market position is also an indicator of the issuer's stability, resilience, and potential for further growth. This factor is comprised of three subfactors: (1) the operating environment; (2) service area characteristics; and (3) market share.

How We Assess It for the Scorecard

Subfactor 2a: Operating Environment (20%)

Operating environment is a qualitative factor that measures three components: the level of political support for operating subsidies and fare increases, the historic and projected trend of subsidies, and the financial strength of the support providers. Signals of political support include outcomes of voter referenda for transit-dedicated taxes, public opinion regarding fare increases, and the extent to which transportation and

transit concerns are a priority to the subsidizing government. Another sign of political support is the extent to which supporting governments have discussed balancing their own budget pressures by reducing transit support.

The historic and projected trend of subsidies measures the predictability and stability of the operating grants that are critical to mass transit issuers' financial conditions. We exclude capital subsidies and grants that move in line with the issuer's capital project cycle, and are thus more volatile by nature. On a historic basis analysts will consider the extent to which subsidy levels have fluctuated during economic cycles or periods of governmental budgetary stress. Subsidy levels can also be influenced by changing ridership or usage levels, or changes in relative market share compared to other regional transit providers that may share grant distributions.

The financial strength of the subsidy providers is based on the analysts' qualitative judgment about the group of governments providing subsidies. For example, mass transit issuers in the US typically receive subsidies from many levels of governments, including federal, state, and local. Given that each transit issuer has a unique mix of subsidy providers, there is no set formula for determining the collective financial strength. Analysts will consider the partners' overall financial strength, as well as any weak links that could open a funding gap.

The operating environment for many mass transit issuers is strong, reflecting the fact that transit issuers receive significant funding from federal or central government sources and have fairly consistent levels of state/provincial/regional and local support. In addition, both US and sub-sovereign mass transit issuers have similar political environments that enjoy strong, well-established and consistent public policy support for transportation and mass transit projects.

Subfactor 2b: Service Area Characteristics (5%)

To measure the strength of service area characteristics, we assess economic diversity and population and job growth trends as indicators of the likely stability and growth potential of the system's market and revenue base. Although there are no specific metrics cited in this subfactor – due to the lack of consistent data sources across the wide range of sizes and geographies - analysts base their assessment on available data that are best aligned to each mass transit issuer.

Subfactor 2c: Market Share (10%)

Input: The ratio of annual ridership to total service area population, commonly referred to as "Utilization"

Utilization indicates the extent to which the service area relies on the mass transit system for its transportation needs. As such, it represents the system's essentiality to the local economy and is typically related to the level of ongoing public and political support it is likely to receive.

Below-the-line adjustments

Challenges adopting adequate fare increases. We will adjust down if an issuer has been unable or unwilling to adopt sufficient fare increases that support stable financial performance.

Very strong or weak governance and oversight structure. We will adjust up or down to incorporate any governance or oversight features that strengthen or challenge an issuer's sound operations and financial stability. For example, we may add an upward adjustment if a supporting government has explicitly committed to minimum service levels or revenue support levels. On the other hand, we may add a downward adjustment if a supporting government has the option to withdraw from the partnership agreement without penalty.

EXHIBIT 4

Factor 3: Financial Flexibility (20%)

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
Level of self-support	Farebox Recovery Ratio	10.0%	> 50%	50% ≥ n > 40%	40% ≥ n > 25%	25% ≥ n > 15%	15% ≥ n > 10%	≤ 10%
Budget flexibility	3-Yr Avg Fixed Costs as a % of total operating expenditures	10.0%	< 10%	10% ≤ n < 15%	15% ≤ n < 20%	20% ≤ n < 30%	30% ≤ n < 40%	≥ 40%

Why It Matters

More than other public sector enterprises, mass transit issuers are financially constrained by public policy to provide affordable transportation and the structure of governmental operating support that exists as a result. Government operating support and subsidies typically provide a mass transit system with sum-sufficient resources, but do not enhance their ability to respond to contingencies. As a result of these narrow margins, it is important to measure a mass transit issuer's ability to adjust revenues and expenditures in response to unanticipated budget shocks. The extent to which the budget can be balanced with fare increases or spending cuts provides important additional flexibility for issuers that generally have lower debt service coverage and liquidity profiles than other enterprises.

How We Assess It for the Scorecard

Subfactor 3a: Farebox Recovery Ratio (10%)

Input: Total fare revenues as a percentage of operating expenditures

The farebox recovery ratio represents the mass transit issuer's ability to support its operations with its own revenue stream. Farebox recovery ratios are generally relatively low, with an industry median of approximately 38%, and range from 20% to 65%.

In this ratio, we include fare revenues from transit, rail, bus or similar operations, but exclude operating revenues from ancillary businesses such as parking enterprises, concession services or real estate development/rental. If an issuer has strong revenue diversity or taxing authority that provides above-average flexibility and stability, this will be captured as a below-the-line consideration (see discussion below).

Subfactor 3b: Fixed Costs as a % of Total Operating Expenditures (3-Year Average) (10%)

Input: Annual debt service, the actuarially determined pension contribution (ADC) or similar funding metric, and the reported pay-as-you-go portion of other post-employment benefits (OPEB) as a percentage of total operating expenditures. We use reported pension expense, excluding extraordinary gains and losses, rather than pension contributions for non-US issuers rated under this methodology.

The fixed cost ratio represents the percentage of the budget which cannot be easily reduced through cutbacks in operations because it is determined by long-term contracts. We use a three-year average of the ratio to partially balance potential volatility and improve consistency across issuers with different debt profiles, particularly issuers that do not amortize the principal portion of their debt.

Below-the-line adjustments

Above average revenue diversity. We adjust upward for issuers that have at least 15% of revenues from other low-volatility enterprises, such as a parking enterprise that increases revenue diversity and overall stability.

Independent taxing authority. We adjust upward for issuers that have independent taxing authority that increases revenue stability, such as through a property tax.

Collective bargaining or high labor costs that decrease financial or operational flexibility. We adjust down if an issuer's labor costs are relatively inflexible or the presence of collective bargaining units has reduced budgetary or operating flexibility meaningfully. Compared to other enterprise sectors, mass transit issuers have higher personnel costs as a percentage of operating expenditures. While high labor costs can reduce budget flexibility, particularly if governed by collective bargaining agreements or other operating contracts, most transit issuers retain the flexibility to reduce service levels as a way to lower costs.

Operating grants are more than 70% of revenues. We adjust down for issuers that have a very high reliance on operating grants (over 70% of revenues), or whose level of operating support is vulnerable to event risk. For example, if an issuer fails to meet operating requirements that may be necessary to maintain financial support, we would adjust down accordingly.

EXHIBIT 5

Factor4: Debt and Financial Metrics (30%)

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
Leverage	Net Debt / Revenues	15.0%	< 0.25x	0.25x ≤ n < 0.75x	0.75x ≤ n < 1.50x	1.50x ≤ n < 2.50x	2.50x ≤ n < 3.50x	≥ 3.50x
Budget Balance	(US) 3-Yr Avg Annual Debt Service Coverage by Net Revenues (Int'l) 3-Yr Avg Interest as a % of Operating Revenues	5.0%	US: > 2.0x Int'l: < 1%	2.0x ≥ n > 1.75x 1% ≤ n < 3%	1.75x ≥ n > 1.25x 3% ≤ n < 7%	1.25x ≥ n > 1.0x 7% ≤ n < 12%	1.0x ≥ n > 0.5x 12% ≤ n < 20%	≤ 0.5x ≥ 20%
	3-Yr Avg Net Margin (Operating Surplus / Revenues)	5.0%	> 15%	15% ≥ n > 7%	7% ≥ n > 5%	5% ≥ n > 2.5%	2.5% ≥ n > 0%	≤ 0%
Liquidity	Days Cash on Hand	5.0%	> 225 days	225 days ≥ n > 150 days	150 days ≥ n > 60 days	60 days ≥ n > 15 days	15 days ≥ n > 7 days	≤ 7 days

Why It Matters

A mass transit issuer's debt and financial metrics are key indicators of its ability to generate cash flow, retain flexibility in the event of contingencies, maintain its assets, and meet debt obligations over the short and long term. The financial ratios also provide an indication of the issuer's ability and willingness to balance its budget and offset revenue volatility with proactive controls on spending rather than relying on cash reserves. Leverage metrics also measure an issuer's flexibility to invest in future capital maintenance and expansion, which are necessary to maintain and grow future cash flow, without jeopardizing its financial position.

The four ratios used as indicators for leverage and financial strength are: (1) debt/revenues; (2) three-year average of either debt service coverage by net revenues (for issuers that amortize debt principal) or interest payments as a percentage of revenues (for issuers that do not amortize debt principal); (3) three-year average net margin; and (4) days cash on hand. We use three-year averages for coverage and net margin

metrics to assess the financial trend and to offset the expected variation in annual operating grants and subsidies. For the other ratios we use annual or trailing 12 month numbers.

As discussed above, mass transit issuers generally have lower financial margins because of public policy that prioritizes low fares. As a result, coverage metrics, net margin and liquidity tend to be lower than other enterprise sectors. On the other hand, due to the high level of capital grant funding and subsidization, mass transit issuers' leverage metrics are lower than other sectors.

How We Assess It for the Scorecard

Subfactor 4a: Net Debt / Revenues (15%)

Input: Total net debt as a percentage of total annual revenues, excluding capital grants

Net debt includes short- and long-term obligations, leases, and capital leases, and nets out any debt service reserve funds or sinking funds. In addition to measuring leverage position and flexibility to invest in capital projects, this metric may also indicate the extent to which debt will consume a greater portion of the issuer's budget in future years. As a result, this metric can balance the relatively high current-year coverage enjoyed by issuers with escalating debt service schedules.

Subfactor 4b: Debt Service Coverage by Net Revenues (3-Year Average) or Interest as a % of Operating Revenues (3-Year Average) (5%)

We look at debt service coverage by net revenues for issuers with debt structures that amortize principal and interest as a percentage of operating revenues for issuers that do not amortize principal. Our approach is based on whether principal is amortizing or not. Mass transit issuers located in the US typically amortize principal, and those located outside the US do not. An issuer whose debt amortizes in line with US structures would likely be scored under the "US" debt service coverage criteria, regardless of its domicile.

Net Revenue Debt Service Coverage Input: Net revenues divided by annual principal and interest requirements for an entity's senior and subordinate debt for the same fiscal year

Debt service coverage is a core statistic assessing the financial health of a mass transit issuer's revenue system. The magnitude by which net revenues are sufficient to cover debt service shows an issuer's margin to tolerate business risks or declines in demand while still assuring repayment of debt. Higher coverage levels indicate greater flexibility to withstand volatile revenues, unexpected outflows, or customer resistance to higher fares.

The debt service coverage ratio (DSCR) is calculated according to prevailing accounting standards (GAAP in the US and IFRS in most other countries) with Moody's standard adjustments. The GAAP-based (or IFRS based) net revenue DSCR provides a standardized ratio permitting peer comparison across mass transit issuers. We calculate net revenues as gross revenues and income, including operating revenues plus interest income, operating grants, and dedicated taxes, less operating and maintenance expenses net of depreciation.

While not part of the scorecard, we also examine each issuer's covenanted debt service coverage ratio in relation to the minimum required level, if any. Most US mass transit issuers pledge revenues on a gross basis to bondholders, and may specify certain revenues that are or are not available. Therefore, bond covenant coverage calculations do not reflect the issuer's ability to afford all operating costs and obligations, and are not comparable across peers.

Interest as a % of Revenues Input: Annual interest requirements for an entity's senior and subordinate debt, divided by total operating revenues for the same fiscal year

Similar to the debt service coverage ratio, the interest burden ratio also measures the transit issuer's flexibility to afford debt obligations. Since increases in interest payments call for either corresponding decreases in program spending or increases in revenue flows, the relative share of operating revenue consumed by interest payments is an important consideration for our analysts; the lower the ratio, the lower the risk.

Subfactor 4c: Net Margin (3-Year Average) (5%)

Input: Net revenues divided by gross revenues and income

Net margin is another measure of the issuer's ability to balance its budget and generate sufficient cash flow to offset operating contingencies and reinvest in capital assets. Given that mass transit issuers' level of leverage varies greatly across the sector, the comparison of operating surplus to debt service (as in the coverage ratio) does not always correspond to an issuer's flexibility to adjust for non-debt related budget demands. By comparing an issuer's operating surplus to its total revenues, we also improve comparability across issuers with different debt structures (e.g. amortizing debt service versus non-amortizing) and balance for those issuers that have pledged a portion of capital grants to their debt repayment.

We calculate net revenues as gross revenues and income, including operating revenues plus interest income, operating grants, and dedicated taxes, less operating and maintenance expenses net of depreciation.

Subfactor 4d: Days Cash on Hand (10%)

Input: Unrestricted cash and liquid investments times 365 divided by operating expenses

Cash is the paramount resource mass transit systems have to meet expenses, cope with emergencies, and navigate business interruptions. Issuers with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. A low cash balance indicates poor flexibility to manage contingencies.

We include any cash or cash-equivalents that are both unrestricted and liquid. The measure does not include cash held in a debt service reserve fund, unspent bond proceeds, or cash that is restricted for capital. Some issuers have alternate liquidity available in the form of unrestricted lines of credit or other in other forms they can draw on. We will consider these and make below-the-line adjustments on a case-by-case basis.

Below-the-line adjustments

Strong/weak asset condition that will improve/weaken future debt profile and/or operating efficiency. We adjust down for issuers that have weak asset condition and up for issuers that have a majority of new, high quality facilities. Asset condition, and/or the presence of any deferred maintenance, reflect the issuer's need for additional borrowing and ability to maximize financial margins through efficient operations. However, these factors are difficult to quantify given diverse accounting methods for depreciation, the likelihood that key transit structures have already fully depreciated, and variations that occur during large capital expansion programs. In our assessment of asset condition, we will consider various ratios including age of plant (accumulated depreciation / annual depreciation expense) and capital spending (cash outflow for capital assets / annual depreciation expense), as well as more qualitative information provided in issuers' capital planning documents and independent engineering reports.

The size of the adjustment will depend on where the issuer is in its capital planning and borrowing program. For example, an issuer that has identified significant deferred maintenance but has not yet developed a

capital plan or issued debt for this will receive a larger downward adjustment than an issuer that has already issued most of its debt for maintenance projects. This approach will eliminate any "double-counting" that would occur for issuers whose Net Debt/Revenues and Debt Service Coverage metrics already incorporate their borrowing for maintenance projects.

Large capital program and/or future borrowing plans. We adjust down for issuers whose capital programs and borrowing plans are likely to increase substantially their debt profiles going forward. This adjustment will capture expansion projects and additional borrowing for other purposes, that may not be captured in the Asset Condition adjustment above.

Pension: 3-Yr Avg ANPL over 125% of revenues or significant under-payment of actuarial funding requirement. For issuers covered by this methodology in the US, we also adjust down if an issuer has a large pension liability or a trend of underfunding its pension obligations relative to the ADC, or similar actuarial funding requirements. [4] We use reported pension expense, excluding extraordinary gains and losses, for non-US issuers. The difference in approach is due to different reporting standards.

Large exposure to puttable debt, swaps, counterparty risk, refinancing risk or other unusual debt structure. We adjust down if the issuer's debt structure includes significant exposure to puttable debt, swaps, or refinancing risk.

Other below-the-line adjustments

Unusually strong or weak financial and capital planning. We notch up or down in cases of very strong or weak financial or capital planning. Weak financial and capital planning can increase the likelihood that an issuer will have to rely on one-time resources to balance unexpected events or manage new business trends, that future operations will be less efficient, and that financing will be relatively more expensive. On the other hand, particularly sophisticated or forward-looking financial and capital planning indicate more stable finances, higher operating efficiency and relatively lower debt levels.

Weak legal provisions (additional bonds test below 1.25x, net revenue pledge, or lack of DSRF). We notch down for issuers that offer bondholder protections that are meaningfully weaker than the sector norm. This includes a very low additional bonds test or absence of a debt service reserve fund.

Most US mass transit issuers pledge a gross lien on revenues, before operating expenses. We review debt service coverage by net revenues to assess the issuer's ability to meet all requirements to maintain its capital assets and continue as a going concern. However, a gross lien provides some cash flow protection to bondholders, and a net lien may be notched down as slightly weaker.

The assessment of legal provisions will vary somewhat by region and local industry practices. For example, sub-sovereign mass transit issuers typically pledge a senior unsecured security. For these issuers, we will compare any relative strengths and weaknesses in bondholder security to similarly-structured securities, rather than to US peers, which typically provide a revenue pledge.

Credit event / trend not yet reflected in existing data set. We will adjust up or down for any credit events or trends that may change the issuer's profile in the near future, but are not yet reflected in the scorecard metrics.

[4] For more information, see our cross-sector methodology that describes our adjustments to US state and local government reported pension data. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Assumptions, Limitations and Rating Considerations That Are Not Covered in the Scorecard

The proposed rating methodology scorecard represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that might enable the scorecard to map more closely to actual ratings.

Accordingly, the four factors in the scorecard do not constitute an exhaustive treatment of all the considerations that are important for mass transit ratings. In addition, our ratings incorporate expectations for future performance, while the financial information that is used in the scorecard is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we cannot disclose. In other cases, we estimate future results based upon past performance, sector trends, or other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

Assumptions that may cause our forward-looking expectations to be incorrect include unanticipated changes in any of the following factors: the macroeconomic environment and general financial market conditions, new technology, and 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, that legal priority of claim affects average recovery on different classes of debt sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that lack of access to liquidity is a strong driver of credit risk.

In choosing metrics for this rating methodology scorecard, we did not explicitly include certain important factors that are common to issuers in any industry, such as the quality and experience of management, assessments of governance and the quality of financial reporting and information disclosure. Ranking these factors by rating category in a scorecard would in some cases suggest too much precision in the relative ranking of particular issuers against all issuers that are rated in various sectors.

Ratings may 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 possible government interference in some countries. Regulatory, litigation, liquidity, technology and reputational risks as well as changes to consumer spending patterns, competitor strategies, and macroeconomic trends also affect ratings. While these are important considerations, it is not possible to precisely express those in the proposed rating methodology scorecard without making it excessively complex and significantly less transparent.

This variation in weighting rating considerations can also apply to factors that we choose not to represent in the scorecard. For example, liquidity is a consideration frequently critical to ratings and which may not, in other circumstances, have a substantial impact in discriminating between two issuers with a similar credit profile. As an example of the limitations, ratings can be heavily affected by extremely weak liquidity that magnifies default risk. For example, an issuer with a projected covenant breach may be rated lower than a similar issuer that has ample covenant headroom. However, two identical issuers might be rated the same if their only differentiating feature is that one has a good liquidity position while the other has an extremely good liquidity position, unless these are very low rated issuers for which liquidity can play an outsized role in avoiding default.

Appendix A: Mass Transit Enterprise Scorecard

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
	Numerical Score		0.7-1.7	1.7-4.7	4.7-7.7	7.7-10.7	10.7-13.7	13.7-21.7
Size:		15%						
Subfactor	**Measure**	**Weight**	**Aaa**	**Aa**	**A**	**Baa**	**Ba**	**B and Below**
Issuer Size	Annual Ridership	10.0%	> 500 million	500 million ≥ n > 100 million	100 million ≥ n > 10 million	10 million ≥ n > 1 million	1 million ≥ n > 750,000	≤ 750,000
Market Size	Service Area Population	5.0%	> 5 million	5 million ≥ n > 1 million	1 million ≥ n > 300,000	300,000 ≥ n > 100,000	100,000 ≥ n > 50,000	≤ 50,000
Market Position:		35%						
Subfactor	**Measure**	**Weight**	**Aaa**	**Aa**	**A**	**Baa**	**Ba**	**B and Below**
Operating Environment	Stability and predictability of federal, state, provincial and local transportation policy and funding subsidies	20.0%	Highly supportive and predictable: Very strong political support for transit subsidies and fare increases; steady historic and projected subsidy growth; subsidies from entities with very strong financial positions	Very supportive and predictable: Strong political support for transit subsidies and fare increases; stable historic and projected subsidy growth; subsidies from entities with strong financial positions	Predictable but less supportive: Moderate political support for transit subsidies and fare increases; small, short declines in historic or projected subsidy growth; subsidies from entities with average financial positions	Less predictable or unsupportive: Occasionally weak, but mostly stable, political support for transit subsidies and fare increases; small, steady declines in historic or projected subsidy growth; subsidies from entities with below-average financial positions	Unpredictable and unsupportive: Minimal political support for transit subsidies and fare increases; slow but steady declines in historic or projected subsidy growth; subsidies from entities with weak financial positions	Unpredictable and very unsupportive: Unreliable political support for transit subsidies and fare increases; steady declines in historic or projected subsidy growth; subsidies from entities with very weak financial positions
Service Area Characteristics	Job and population trends	5.0%	Highly diversified economy; strong historical and projected job and/or population growth	Well-diversified economy; flat to moderate historic and projected job and/or population growth	Developed and reasonably diversified economy; generally flat historic and projected job and/or population growth	Stable economy with some industry concentration; slight declines in historic and/or projected job and population growth	Evolving economy with industry concentration; slow but steady declines or volatility in historic and/or projected job and population growth	Very weak economy with industry concentration; steady declines or volatility in historic and/or projected job and population growth
Market Share	Utilization	10.0%	> 150	150 ≥ n > 75	75 ≥ n > 15	15 ≥ n > 5	5 ≥ n > 3	≤ 3

Financial Flexibility: 20%

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
Level of self-support	Farebox Recovery Ratio	10.0%	> 50%	50% ≥ n > 40%	40% ≥ n > 25%	25% ≥ n > 15%	15% ≥ n > 10%	≤ 10%
Budget flexibility	3-Yr Avg Fixed Costs as a % of total operating expenditures	10.0%	< 10%	10% ≤ n < 15%	15% ≤ n < 20%	20% ≤ n < 30%	30% ≤ n < 40%	≥ 40%

Debt & Financial Metrics: 30%

Subfactor	Measure	Weight	Aaa	Aa	A	Baa	Ba	B and Below
Leverage	Net Debt / Revenues	15.0%	< 0.25x	0.25x ≤ n < 0.75x	0.75x ≤ n < 1.50x	1.50x ≤ n < 2.50x	2.50x ≤ n < 3.50x	≥ 3.50x
Budget Balance	(US) 3-Yr Avg Annual Debt Service Coverage by Net Revenues (Int'l) 3-Yr Avg Interest as a % of Operating Revenues	5.0%	US: > 2.0x Int'l: < 1%	2.0x ≥ n > 1.75x 1% ≤ n < 3%	1.75x ≥ n > 1.25x 3% ≤ n < 7%	1.25x ≥ n > 1.0x 7% ≤ n < 12%	1.0x ≥ n > 0.5x 12% ≤ n < 20%	≤ 0.5x ≥ 20%
	3-Yr Avg Net Margin (Operating Surplus / Revenues)	5.0%	> 15%	15% ≥ n > 7%	7% ≥ n > 5%	5% ≥ n > 2.5%	2.5% ≥ n > 0%	≤ 0%
Liquidity	Days Cash on Hand	5.0%	> 225 days	225 days ≥ n > 150 days	150 days ≥ n > 60 days	60 days ≥ n > 15 days	15 days ≥ n > 7 days	≤ 7 days

Adjustments / Notching Factors
Factor 1: Size
1) Particularly strong or weak ridership/population trends that are not currently reflected in data set
Factor 2: Market Position
1) Challenges adopting adequate fare increases
2) Very strong or weak governance and oversight structure
Factor 3: Budget Flexibility
1) Above average revenue diversity
2) Independent taxing authority
3) Collective bargaining or high labor costs that decrease financial or operational flexibility
4) Operating grants are more than 70% of revenues, or may decline due to event risk
5) Other analyst adjustment to Budget Flexibility (Specify)
Factor 4: Debt and Financial Metrics
1) Strong/weak asset condition that will improve/weaken future debt profile and/or operating efficiency
2) Large capital program and/or future borrowing plans
3) 3-Yr Avg ANPL over 125% of revenues or significant under-payment of actuarial funding requirement
4) Large exposure to puttable debt, SWAPs, counterparty risk, refinancing risk or other unusual debt structure
5) Alternate liquidity available
6) Other analyst adjustment to Debt & Financial Metrics (Specify)
Other
1) Unusually strong or weak operational and capital planning
2) Weak legal provisions (additional bonds test below 1.25x, net revenue pledge, or lack of DSRF)
3) Credit Event / Trend not yet reflected in existing data set
4) Other analyst adjustment

Appendix B: Numerical Scores of Final Scorecard-Indicated Outcome

Scorecard-Indicated Outcome	Overall Weighted Average
Aaa	0.0 – 1.7
Aa1	1.7 – 2.7
Aa2	2.7 – 3.7
Aa3	3.7 – 4.7
A1	4.7 – 5.7
A2	5.7 – 6.7
A3	6.7 – 7.7
Baa1	7.7 – 8.7
Baa2	8.7 – 9.7
Baa3	9.7 – 10.7
Ba1	10.7 – 11.7
Ba2	11.7 – 12.7
Ba3	12.7 – 13.7
B1	13.7 – 14.7
B2	14.7 – 15.7
B3	15.7 – 16.7
Caa1	16.7 – 17.7
Caa2	17.7 – 18.7
Caa3	18.7 – 19.7
Ca	19.7 – 20.7
C	20.7 – 21.7

Moody's Related Publications

Credit ratings are primarily determined by sector credit rating methodologies. 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. An index of sector and cross-sector credit rating 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.

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