

MOODY'S

INVESTORS SERVICE

RATING METHODOLOGY

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Analyst Contacts

Raffaella Altamura +44.20.7772.8613
VP-Sr Credit Officer
raffaella.altamura@moodys.com

Ursula Cassinerio +1.212.553.3530
AVP-Analyst
ursula.cassinerio@moodys.com

Joanna Fic +44.20.7772.5571
Senior Vice President
joanna.fic@moodys.com

Erica Gauto Flesch, CFA +34.91.768.8308
VP-Senior Analyst
erica.gautoflesch@moodys.com

Adrian Garza, CFA +52.55.1253.5709
VP-Sr Credit Officer
adrianjavier.garza@moodys.com

John Medina +1.212.553.3604
VP-Sr Credit Officer
john.medina@moodys.com

» Analyst Contacts continued on last page

Rating Methodology

Privately Managed Toll Roads

This rating methodology replaces the *Privately Managed Toll Roads Methodology* published in December 2020. We have reordered and have made editorial updates to various sections of the methodology. These updates do not change our methodological approach.

Scope

This methodology applies to privately managed toll road operators globally. Issuers in this sector are primarily* engaged in the operation and maintenance of roads and road-related assets, including bridges and tunnels, and their principal source of revenue is typically the collection of tolls. Privately managed toll roads are typically operated under a concession agreement with the relevant government or other concession-granting authority. Privately managed toll road operators that are corporates or projects (i.e., corporate financed or project financed) are rated using this methodology.

Operators of toll roads that are operational, i.e., they have completed construction of their core assets and are able to demonstrate a track record of tolled traffic, are rated using this methodology, as are toll roads in the construction or start-up phases. In addition, this methodology applies to toll roads that receive a payment from a government for each vehicle using the road, often called a shadow toll road.

This methodology also applies to privately managed car parking businesses that operate predominantly under concession arrangements or long-term ownership rights. The principal source of revenue for these issuers is payments from users of the asset.

The majority of issuers rated using this methodology are privately owned. For clarity, a toll road operator or a car parking facility operator with any percentage of private ownership would be rated using this methodology. This methodology also applies to companies classified as government-related issuers (GRI).¹

The privately managed toll roads and car parking businesses rated using this methodology may have different ownership structures; however they all have at least some profit motive. Toll roads and car parking facilities that are government-owned and operated or are operated by a related governmental agency (e.g., a toll road authority) and do not have a profit motive

*The determination of an issuer's primary business is generally based on the preponderance of the issuer's business risks, which are usually proportionate to the issuer's revenues, earnings and cash flows.

are rated using our methodology for publicly managed toll roads.² Road projects that do not have demand risk are financed through a public-private partnership model and are rated using our methodologies for public-private partnerships (P3/PPP/PFI). Privately managed car parking businesses that do not operate predominantly under concession arrangements or long-term ownership rights are rated under a separate methodology.

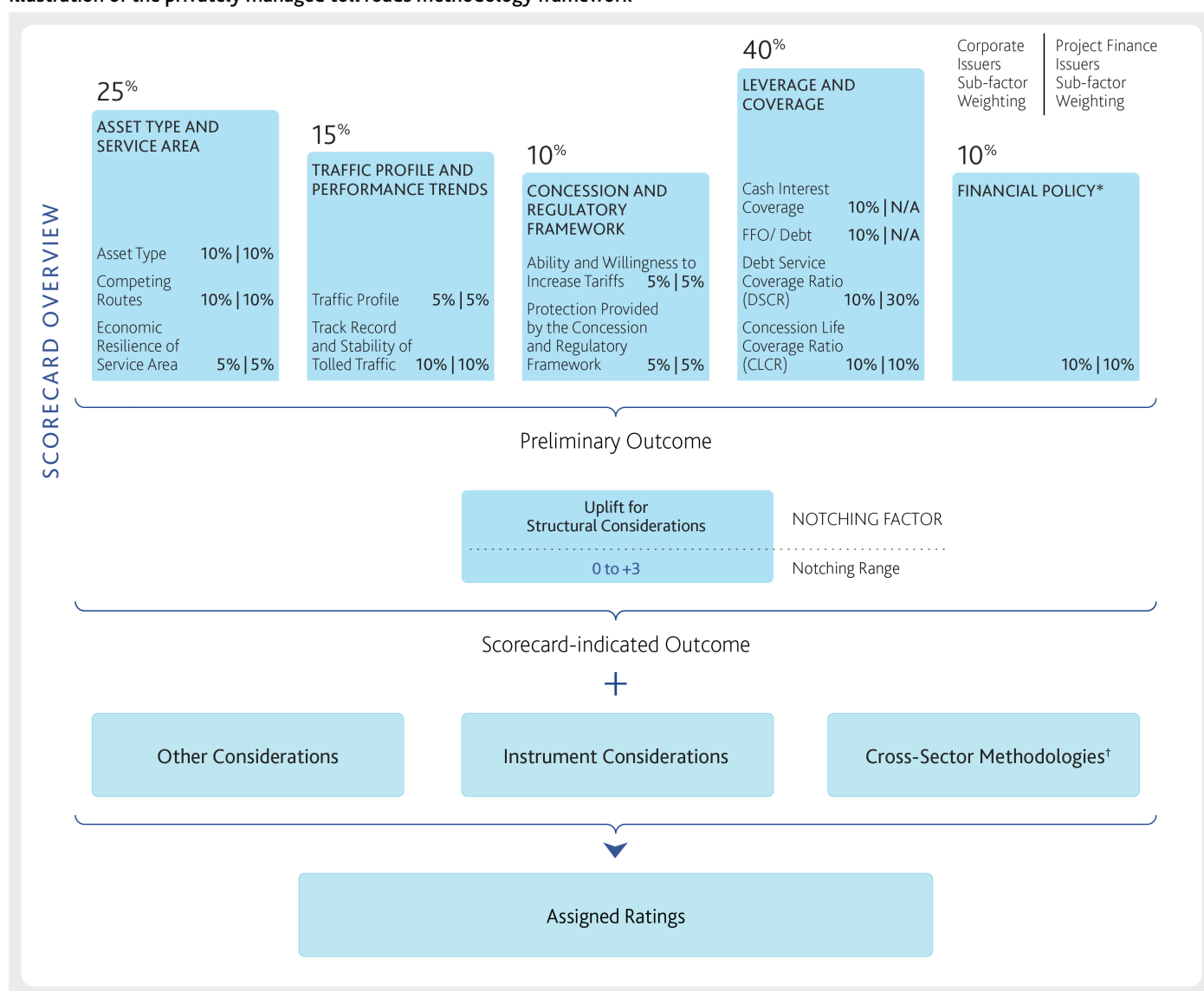
Rating approach

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

The following schematic illustrates our general framework for the analysis of issuers in the privately managed toll road sector, which includes the use of a scorecard.³ The scorecard includes a notching factor that may result in an upward notching adjustment to the preliminary outcome based on structural considerations, which are usually only meaningful for project-finance issuers. The scorecard-indicated outcome is not expected to match the actual rating for each company. For more information, see the "Other considerations" and "Limitations" sections.

Exhibit 1

Illustration of the privately managed toll roads methodology framework



* This factor has no sub-factors.

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

Source: Moody's Investors Service

Privately managed toll roads scorecard

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

Exhibit 2

Privately managed toll roads scorecard

| Sub-factor Weight for Corporates / Project Finance | | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|--|-----------|--|---|--|---|---|---|--|--|
| Factor: Asset Type and Service Area (25%) | | | | | | | | | |
| Asset Type | 10% / 10% | Multi-national network of major trunk/national routes; essential service (e.g. multi-national country-wide large motorway networks). | Large network of major trunk/national routes; essential service (e.g. country-wide large motorway network). | Essential transport link; may be single or small number of large trunk/national or urban routes. | Essential transport link; may be small trunk/national route or critical urban link (e.g. tunnel or bridge). | Single asset or small number of roads in a small economic service area; essential within its service area. | Single asset or small number of roads highly exposed to local economy; or asset has limited essentiality. | Small single asset in a deteriorating market; or asset has highly questionable essentiality. | Small single asset in an unproven or extremely weak market; or asset is demonstrably non-essential. |
| Competing Routes | 10% / 10% | No current or potential competing routes (multi-modal or other roads). | Well-established and stable competitive environment; and no changes to key modes for the foreseeable future; and other existing routes similarly tolled, at sufficient distance, or of lower quality to pose limited competitive threat even in times of economic stress. | Competition may somewhat intensify over the long term; existing alternative roads of good quality and within distance would be expected to provide diversion of traffic only in times of serious economic stress or easily absorb growing traffic in service area; gradual expected traffic decline < 10% over 10 years. | Competition may intensify over the long term; alternative existing roads of high quality or expected to be upgraded and likely to attract traffic in periods of economic stress and/or easily absorb growing traffic in service area; gradual expected traffic decline 10%-15% over 10 years. | Changing competitive environment; new routes will likely impact traffic at notable level when opened; alternative existing roads have ample capacity for traffic in the corridor/service area; expected medium-term traffic decline when new roads open is 10%-20%. | Rapidly changing competitive environment; expected medium-term traffic decline is > 20%. | Rapidly changing competitive environment; expected near-term traffic decline is > 20%. | Competitive environment is significantly eroding traffic; expected near-term traffic decline is > 25%. |

| Sub-factor Weight for Corporates / Project Finance | | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|---------|--|--|--|---|--|---|---|--|
| Economic Resilience of Service Area | 5% / 5% | Very large, highly developed and well-diversified economic base; and very long track record (> 10 years) of solid, predictable growth with little volatility; and favorable economic environment with no history of negative shocks; and strong and predictable demographics. | Large, highly developed and well-diversified economic base; and long track record of predictable economic growth with little volatility; and favorable economic environment and well-proven demographics. | Highly developed and diversified economic base; long track record of economic growth with little volatility; evolving economic environment and demographics with uncertain direction over long term. | Developed and diversified economic base but with moderate volatility, with an economic outlook that may be flat or deteriorating moderately; strong economic base but lacks diversification; demographics with uncertain direction over medium term. | Developed and reasonably diversified economic base but with poor economic outlook; may be vulnerable to shocks; evolving economic base or growing from a low base; demographics likely to show some deterioration over the medium term. | Weak or very concentrated economic base; or vulnerable to shocks; or demographics likely to show some deterioration over the near term. | Weak and deteriorating economic base; or highly vulnerable to shocks; or unfavorable demographic trends. | Extremely weak economic base with limited recovery prospects; or extremely vulnerable to shocks; or very unfavorable demographic trends. |
| Factor: Traffic Profile and Performance Trends (15%) | | | | | | | | | |
| Traffic Profile | 5% / 5% | Traffic unlikely to suffer volume decline at times of economic contraction; typically, very high proportion of light vehicle, primarily commuter, traffic. | Traffic likely to suffer temporary (six months to a year) and very modest volume decline at times of economic contraction with a full and quick recovery once economic conditions improve; typically, high proportion of light vehicle, primarily commuter, traffic. | Traffic likely to suffer modest volume declines at times of economic contraction and expected to fully and quickly rebound once economic conditions improve; typically, a traffic mix with approximately 3/4 light vehicles, with a significant proportion being commuter traffic. | Traffic likely to suffer moderate volume decline at times of economic contraction with medium-term recovery prospects; typically, a traffic mix weighted more to light vehicles, with a significant proportion being commuter traffic; heavy vehicles account for up to 1/3 of total traffic. | Traffic likely to suffer significant volume declines at times of economic contraction with a protracted recovery period; typically, traffic mix balanced between light and heavy vehicles; commuter traffic is a meaningful share of light vehicles. | Traffic likely to suffer very significant volume declines at times of economic contraction with a protracted recovery period; typically, traffic mix balanced between light and heavy vehicles; commuter traffic is a meaningful share of light vehicles. | Regardless of mix, high proportion of traffic is subject to significant volatility (e.g., seasonal / leisure traffic); or prospects for recovery after a downturn are likely only over the medium to long term. | Very high proportion of traffic subject to significant volatility; or traffic is likely to be prone to material irreversible shifts. |

| Sub-factor Weight for Corporates / Project Finance | | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|---|-----------|---|--|--|---|---|--|--|--|
| Factor: Traffic Profile and Performance Trends (15%) | | | | | | | | | |
| Track Record and Stability of Tolled Traffic | 10% / 10% | Very long and stable track record of tolled traffic (> 20 years); and no history of negative shock. | Long and stable track record of tolled traffic (15 - 20 years); and positive traffic trends. | Stable track record of tolled traffic (10 - 15 years); low volatility in traffic. | Track record of tolled traffic (5 - 10 years) with growth in line with or above expectations; or long track record of tolled traffic but with history of modest declines (< 10% over the medium term). | Limited track record of tolled traffic (< 5 years) with growth above expectations; or long track record of tolled traffic but with history of significant declines (> 10% over the medium term). | Limited track record of tolled traffic (< 5 years) with growth in line with expectations; or long track record of tolled traffic but with history of very significant declines (> 15% over the medium term). | Limited track record of tolled traffic (< 5 years) with growth below expectations; or track record of tolled traffic is highly volatile; or data of questionable quality. | Essentially no track record or data of tolled traffic; or track record of tolled traffic is consistently and materially below expectations. |
| Factor: Concession and Regulatory Framework (10%) | | | | | | | | | |
| Ability and Willingness to Increase Tariffs | 5% / 5% | Operator is entitled to adjust tariffs freely and has a successful track record of implementing increases as necessary; and no expectation of future impediments or negative repercussions. | Established model allows for inflation linked or other similarly indexed tariff increases and a fair and timely cost recovery for additional works over the entire concession life; and no history or expectation of negative repercussions or interference. | Established model allows for inflation linked or other similarly indexed tariff increases but subject to approval or periodic reviews; history and expectation of timely adjustments as necessary; no expectation of negative repercussions or interference. | Established model allows for inflation linked or other similarly indexed tariff increases but subject to approval or periodic reviews with some uncertainty as to the level and/or timing of tariff adjustments; expectation of limited negative repercussions or interference. | Tariff formula may not be set for the life of the concession but periodically renegotiated; or limited precedents of tariff increases and/or transparency; or expectation that changes or delays in tariffs will result in moderate negative repercussions or interference. | Tariff increases are subject to negotiation; and uncertainty on ability or willingness to increase tariffs; or expectation that changes or delays in tariffs will result in material negative repercussions or interference. | Tariff increases are subject to protracted negotiation and uncertainty regarding ability and willingness to increase tariffs, and delays result in expected tariffs; or expectation of persistent and material negative repercussions or interference. | Significant history or expectation that tariffs will not increase even when allowed or that government will systematically interfere in setting tariffs. |

| Sub-factor Weight for Corporates / Project Finance | | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|--|-----------|--|--|--|---|--|--|--|---|
| Factor: Concession and Regulatory Framework (10%) | | | | | | | | | |
| Protection Provided by the Concession and Regulatory Framework | 5% / 5% | Terms and conditions are clearly defined in the concession agreement and cannot be amended without full consent of creditors; and full and immediate compensation mechanism for all type of events including changes in business circumstances that has been tested within the concession or regulatory framework. | Under the concession agreement, changes entail full and automatic compensation to maintain at least actual and projected performance; and timely compensation expected for many events, including changes in business circumstances. | Concession agreement provides for fair compensation in case of adverse changes, although compensation levels may not be fully defined; established track record and expectation of timely and transparent application with no negative impact on credit metrics; compensation expected for many events, including changes in business circumstances. | Concession agreement provides for compensation in case of adverse changes, but with limited clarity or guidelines; compensation may only be available for specific circumstances and is subject to negotiation; some precedent of adequate compensation within the relevant concession or regulatory framework. | Some entitlement to compensation in case of adverse changes, but with no clarity on amounts; compensation is subject to negotiation; no specific provisions or protection under general law; no precedents within the relevant concession or regulatory framework. | Limited entitlement to compensation in case of adverse changes; or compensation regime is unclear and subject to political interference. | Very limited entitlement to compensation in case of adverse changes; or history or expectation of unilateral changes to terms and conditions of concession agreement with limited compensation. | No protection in concession agreement or legal framework against events outside concessionaire's control; or history or expectation of unilateral changes to terms and conditions of concession agreement without compensation. |
| Factor: Leverage and Coverage (40%) | | | | | | | | | |
| Cash Interest Coverage ^{*1} | 10% / n/a | ≥ 10x | 7x - 10x | 4.5x - 7x | 2.5x - 4.5x | 1.8x - 2.5x | 1.5x - 1.8x | 1.2x - 1.5x | < 1.2x |
| FFO / Debt ^{*2} | 10% / n/a | ≥ 40% | 25% - 40% | 14% - 25% | 8% - 14% | 6% - 8% | 4% - 6% | 2% - 4% | < 2% |
| DSCR ^{*3, 4} | 10% / 30% | ≥ 8x | 5x - 8x | 3x - 5x | 1.8x - 3x | 1.3x - 1.8x | 1x - 1.3x | 0.9x - 1x | < 0.9x |
| CLCR ^{*5, 6} | 10% / 10% | ≥ 10x | 5x - 10x | 3.3x - 5x | 2.5x - 3.3x | 1.7x - 2.5x | 1.25x - 1.7x | 1.1x - 1.25x | < 1.1x |

Factor: Financial Policy (10%)

| Sub-factor Weight for Corporates / Project Finance | | Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|--|-----------|--|--|---|---|---|--|--|--|
| Financial Policy | 10% / 10% | Expected to have extremely conservative financial policies (including risk and liquidity management); very stable metrics; essentially no event risk that would cause a rating transition; and public commitment to a very strong credit profile over the long term. | Expected to have very conservative financial policies (including risk and liquidity management); stable metrics; minimal event risk that would cause a rating transition; and public commitment to a strong credit profile over the long term. | Expected to have predictable financial policies (including risk and liquidity management) that preserve creditor interests; although modest event risk exists, the effect on leverage is likely to be small and temporary; strong commitment to a solid credit profile. | Expected to have financial policies (including risk and liquidity management) that balance the interests of creditors and shareholders; some risk that debt-funded acquisitions or shareholder distributions could lead to a weaker credit profile. | Expected to have financial policies (including risk and liquidity management) that tend to favor shareholders over creditors; above-average financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes. | Expected to have financial policies (including risk and liquidity management) that favor shareholders over creditors; high financial risk resulting from shareholder distributions, acquisitions or other significant capital structure changes. | Expected to have financial policies (including risk and liquidity management) that create elevated risk of debt restructuring in varied economic environments. | Expected to have financial policies (including risk and liquidity management) that create elevated risk of debt restructuring even in healthy economic environments. |

Notching factor**Uplift for Structural Considerations**

0 to +3 notches

[1] For the linear scoring scale, the Aaa endpoint value is 15x. A value of 15x or better equates to a numeric score of 0.5. The Ca endpoint value is 0x. A value of 0x or worse equates to a numeric score of 20.5.

[2] For the linear scoring scale, the Aaa endpoint value is 50%. A value of 50% or better equates to a numeric score of 0.5. The Ca endpoint value is 0%. A value of 0% or worse equates to a numeric score of 20.5.

[3] For the linear scoring scale, the Aaa endpoint value is 10x. A value of 10x or better equates to a numeric score of 0.5. The Ca endpoint value is 0x. A value of 0x or worse equates to a numeric score of 20.5.

[4] This ratio is defined as follows:

-Corporate: $(\text{FFO} + \text{Interest Expense} - \text{Maintenance Capex}) / \text{Debt Service Annuity}$, where Debt Service Annuity is calculated with the following formula: $((\text{ST Debt} + \text{LT Debt, gross}) \times \text{Discount Rate}) / (1 - (1/(1 + \text{Discount Rate})^{\text{remaining concession life}}))$.

-Project finance (fully-amortizing mortgage-style principal repayment): $\text{CFADS} / (\text{Interest plus Principal Payment})$, where CFADS equals Cash Flows From Operations + cash interest paid less maintenance capex plus/minus transfers from/to maintenance, operating and ramp-up reserves, if relevant.

[5] For the linear scoring scale, the Aaa endpoint value is 15x. A value of 15x or better equates to a numeric score of 0.5. The Ca endpoint value is 1x. A value of 1x or worse equates to a numeric score of 20.5.

[6] This ratio is defined as follows:

-Corporate (standard calculation): $\text{NPV of CFADS} / \text{Gross Debt Note}$ that transfers from/to timing reserves are not relevant for corporate toll roads.

-Corporate (steady-state): $(1 / (\text{Discount Rate} - \text{Growth Rate})) * (\text{FFO} + \text{Interest Expense} - \text{Maintenance Capex}) * (1 - ((1 + \text{Growth Rate}) / (1 + \text{Discount Rate}))^{\text{Years Remaining in the Concession}}) / \text{Gross Debt}$.

-Project finance: $((\text{NPV of CFADS}) \text{ plus Debt Service Reserve Fund}) / \text{Gross Debt}$.

Source: Moody's Investors Service

Sector overview

Privately managed toll road operators represent a diverse group of issuers differentiated by traffic profile, concession and regulatory framework, asset type and geographic service area. Some are single-asset operators and some have stakes in a number of different concessions. Toll roads may be financed using a corporate model or a project finance model (see the “Leverage and Coverage” factor discussion); specific considerations apply to certain issuers regarding the credit quality of the off-taker and the timeliness of payments.

Privately managed toll road operators have a fairly simple business model characterized by a high conversion of revenues to operating cash flows. High leverage, often stemming from high capital costs and the purchase of concessions with long tenors, is another characteristic of this sector.

Toll roads are generally essential assets, typically characterized by low business risk. Privately managed toll road operators typically do not own the road assets. The sector's generally low business risk derives from many toll road operators having near-monopoly positions in their service area due to high barriers to entry into the sector. Stable and generally well-established regulatory frameworks at the national, state, regional, provincial or municipal level can provide a level of predictability because concessions dictate tariffs and capital requirements, and, in some cases, provide compensation to the toll road operator if traffic is lower than anticipated or in the event of termination under certain scenarios.

However, when the fundamentals of a toll road operator do not meet this profile (e.g., if the operator faces substantial competition from existing or new alternative routes, including from free roads), business risk could be materially higher. Operators with toll roads in the construction or ramp-up phase typically have higher credit risk. Credit quality in the sector also varies between regions and is greatly affected by the economic health and activity of a service area.

Discussion of the scorecard factors

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

Factor: Asset Type and Service Area (25% weight)

Why it matters

Asset type and service area provide important indications of a toll road's essentiality to the region it serves, competitive strength in attracting and maintaining demand, and the diversity of its service area.

This factor comprises three sub-factors:

Asset Type

Asset type is important because operators of larger toll roads or networks of roads that are strategic components of a country's highway system benefit from scale, typically serve an area with greater economic diversity, and generally have more stable and predictable cash flow.

Competing Routes

The competitive environment of a toll road, including existing or potential alternative modes of transport, is a meaningful consideration because it influences the extent to which a toll road's traffic demand and revenue could grow or decline.

Economic Resilience of Service Area

The economic strength, stability and diversity of the service area are important indicators of long-term demand for a toll road and its resilience to economic downturns.

How we assess it for the scorecard

Scoring for this factor is based on three sub-factors: Asset Type; Competing Routes; and Economic Resilience of Service Area.

ASSET TYPE:

We assess this sub-factor based on the size and number of routes operated and how essential they are to the broader road network of a country or region. Privately managed toll road asset types range from large, country-wide networks to a small single asset, such as a bridge. A road's length, the population centers it serves and the types of routes it connects to may also be relevant to our assessment.

A large network of major or national highways comprising essential roads within a country would typically receive a higher score for this sub-factor than a road in a small economic service area that does not form an important part of a wider transportation network. However, a smaller but vital toll road that connects portions of prominent transportation routes between two large countries, for example, would also typically receive a higher score for this sub-factor.

COMPETING ROUTES:

We assess the toll road's proximity to competing facilities and other modes of transport that are viable alternative routes. We also typically consider the relative cost, typical travel time, quality and safety of these alternatives in assessing the likely impact on traffic volume.

Expected changes in the number and types of competing facilities, and the lasting effect of such changes are typically also assessed. For example, the opening of a new competing route may have a sudden and lasting adverse effect on traffic, or a national policy to promote other modes of transport (e.g., rail freight) may result in longer-term traffic erosion. A toll road whose traffic profile is already deteriorating due to competing routes (or due to the implementation of a policy to promote an alternative mode of transport) and where further deterioration is likely to rapidly materialize would typically receive a lower score for this sub-factor.

In assessing the risk of traffic declines owing to competing routes, we consider the toll road's past performance where data are available. For assets with a limited operating track record or no operating track record, we typically consider traffic dynamics in a comparable corridor where data are available, as well as characteristics such as price competitiveness, convenience for drivers and congestion levels.

The competitive position of a newly constructed road or road under construction is difficult to predict, even where there are third-party traffic studies. In assessing this sub-factor for these roads, we typically consider the likely traffic profile as well as downside scenarios. In most cases, the uncertainty of the competitive profile would weigh on the score for this sub-factor. New toll roads that are constructed to address expected future demand rather than relieving current congestion tend to have the least predictable competitive positions due to the absence of historical traffic data to support traffic forecasts and a reliance on uncertain future economic growth and demographic trends.

ECONOMIC RESILIENCE OF SERVICE AREA:

We assess the diversity and stability of the economic service area, its track record of economic growth, historical vulnerability to negative shocks and recovery trends, as well as overall demographic trends in the region. Toll roads whose service areas are developed and diversified national economies typically receive higher scores for this sub-factor. Where the economic fundamentals of the country or region are weak or deteriorating, we may assign a lower score for this sub-factor.

While an asset's performance is typically influenced by the performance of the local economy, in some cases it may also depend on economic activity outside its core area of operations (e.g., in the case of routes linking different economic regions or countries). In such cases, we may incorporate the economic track record of these economic regions or countries into our assessment.

In our assessment, we may also consider the quality and availability of economic data. Where data are unavailable or of low quality, the score may be negatively affected.

Factor: Traffic Profile and Performance Trends (15% weight)**Why it matters**

The traffic profile and performance trends of a privately managed toll road provide important indications of its revenue stability and resilience based on its mix of light and heavy vehicle traffic, length of time in operation and stability of tolled traffic.

Privately managed toll road operators have typically exhibited high operating profit margins and robust cash flow. Traffic flows, along with tariffs (see the Concession and Regulatory Framework factor discussion), are core revenue components. The type and volume of users on a toll road provide important information about the resilience and potential volatility of revenue when economic activity contracts.

This factor comprises two sub-factors:

Traffic Profile

The mix of light and heavy vehicle traffic on a road or network can influence its revenue stability and economic resilience. Commuter traffic tends to be less volatile than freight and leisure traffic, although the balance is subject to the economic fluctuations of the service area. Heavy vehicle or freight traffic, a distinguishing characteristic of long haul traffic, is generally less stable than commuter traffic, particularly when economic activity slows; however, in some cases, such as the Covid-19 pandemic, commuter traffic can be more volatile than heavy vehicle or freight traffic. In addition, freight traffic may generate a disproportionate share of a road's revenue due to higher toll rates, so a relatively small decline in freight traffic can have a significant effect on toll revenue.

Leisure traffic, which is likely to be highly seasonal and economically sensitive, generally adds volatility to the revenue profile of a road.

Traffic density is another indicator of the road's or network's essentiality that we may consider. In general, high density of traffic indicates essentiality and demand resilience. A road or network supporting very large traffic flows is generally less subject to future revenue volatility than a single asset with low traffic flows. However, where high traffic density leads to congestion and delays, it could limit future traffic growth.

Track Record and Stability of Tolloed Traffic

A long and stable track record of tolloed traffic is generally an important indicator of a toll road operator's capacity to attract and retain users, particularly during economic downturns. A road's essentiality, the economic stability of its service area, a continued lack of competing routes (whether by road or other modes of transportation) and the resilience of the user profile contribute to a long and stable record of tolloed traffic.

How we assess it for the scorecard

Scoring for this factor is based on two sub-factors: Traffic Profile; and Track Record and Stability of Tolloed Traffic.

TRAFFIC PROFILE:

In assessing the resilience of the traffic to economic cycles, we consider the breakdown of light and heavy vehicle traffic on a road or network, based on data typically published by toll road operators. We may also consider traffic density. In addition, we typically assess commuter traffic versus leisure or other traffic as a share of an operator's total traffic, based on our understanding of the service area and of major origination and destination points along the route. We may also consider non-public information about passenger and commercial vehicle usage patterns in relation to the frequency and length of trips. Traffic profiles that are the least vulnerable and most resilient are often those underpinned by a high proportion of passenger commuter traffic, and such toll roads typically receive higher scores for this sub-factor.

Our assessment of traffic density is typically informed by annual average daily traffic (AADT) per lane kilometer/mile in both directions.

TRACK RECORD AND STABILITY OF TOLLOED TRAFFIC:

We assess this sub-factor qualitatively by considering the asset's length of time in operation together with historical demand and revenue trends. We may consider overall traffic trends and toll patterns of the tolloed route or of competing and alternative routes, as well as the operator's track record of tolloed traffic (i.e., its ability to demonstrate long-term acceptance of tariff levels and tariff changes).

Operators with higher scores for this sub-factor typically have a long record of growth in tolloed traffic, without major adverse shocks. An operator with no track record of tolloed traffic would typically receive a lower score for this sub-factor. In such cases, we may take a more conservative view of future traffic trends than indicated in the business plan. Similarly, we consider that operators whose traffic

volumes have been subject to a significant downward adjustment over a fairly limited period of time lack long-term stability and predictability, and as such, typically score lower for this sub-factor.

Factor: Concession and Regulatory Framework (10% weight)

Why it matters

The concession agreement is important because it defines the rights granted to the toll road operator, which, in conjunction with the regulatory environment, set the parameters under which the operator can realize the economic value of a road asset. The extent to which a privately managed toll road operator is willing and able to increase tariffs is a critical indicator of its ability to adapt to changes in business conditions, including its ability to raise tariffs to offset a loss of traffic. For toll road operators, tariff increases are a straightforward tool to adjust long-term cash flow levels.

The concessionaire's entitlement to compensation following a change in the terms and conditions of the concession and the protection incorporated in the concession and regulatory framework against events that are outside the concessionaire's control greatly influence the economics of its operations. Also important is the extent to which creditors can maintain control over changes to the terms and conditions of the concession.

These considerations are particularly relevant for privately managed toll road operators, because changes to concession agreements very often require negotiations between the concessionaire and the government or other concession-granting authorities. The terms and conditions of a concession agreement are typically specific to each toll road, and they vary based on the type of asset and the relevant jurisdiction, among other specifics. In general, some terms of the concession may be amended as a result of the agreement between the grantor and the concessionaire, for example if certain thresholds are breached or certain conditions are met.

Toll road concessions are typically negotiated relationships between the government and the concessionaire, although in some jurisdictions, the government may impose changes to the terms of the regulatory framework unilaterally. In cases where the government or the concessionaire may change the terms and conditions of the agreement, whether the impact of such changes is positive, neutral or detrimental to creditors generally depends on the specifics of the agreement entered into for a particular concession. However, other considerations, such as the arbitration process for disagreement and the rule of law, may also be important.

How we assess it for the scorecard

ABILITY AND WILLINGNESS TO INCREASE TARIFFS:

We assess the toll road operator's level of discretion in raising tariffs to maintain the economic profile of the business, based on the terms of the concession. The greater the extent to which the decision lies with the operator, the higher the potential flexibility afforded by the concession agreement. While the operator's right may be clearly entrenched in the terms of the concession, the actual ability to change tariffs may be impaired by social considerations, including political interference, and so we also assess the risk of delays or blockages in implementation of tariff changes. We also consider the toll road operator's willingness to change tariffs and the likelihood that users of the asset will accept a toll increase. A decision to adjust the tariffs, or not, may be driven by the expected repercussions, which could include, for example, a negative impact on traffic volumes if people instead opt for an alternative mode of transport.

The most commonly used tariff adjustment mechanisms include: (i) formula-driven adjustments (e.g., entirely inflation-based); (ii) adjustments based entirely on periodic reviews with the government; and (iii) a hybrid of the two previous types, which entails a periodic review of the different parameters entered into the formula.

A toll road operator that (i) has an unrestricted ability to raise tariffs, or (ii) where tariffs are raised on a regular basis in accordance with an inflation index, in each case with no expectation of interference, would typically receive a higher score for this sub-factor than an operator with a significant history or expectation of (i) government interference or (ii) that tariffs will not increase even when allowed.

PROTECTION PROVIDED BY THE CONCESSION AND REGULATORY FRAMEWORK:

In assessing this sub-factor, we consider the likely impact on toll road revenue from any changes to the concession initiated by the government or the concessionaire, including any required compensation or equivalent adjustments. We consider whether the compensation set by the concession agreement is sufficient to maintain financial metrics. In addition, we assess the timeliness and process of determining any compensation.

Issuers whose concession agreements contain no protections or compensation and where the jurisdiction has a track record of unilateral changes being made to the terms and conditions of the issuer's concession or of other concessions for toll roads or similar sectors typically receive lower scores for this sub-factor. By comparison, issuers with a concession agreement that requires compensation without any clear guidelines within the agreement or the wider legal framework, but with existing relevant precedents of adequate compensation in the jurisdiction typically receive higher scores. Issuers whose concession agreement requires the full consent of creditors for any amendment and for which there is a clear mechanism for full and immediate compensation for all type of events without a risk of impediments typically receive the highest scores for this sub-factor.

Factor: Leverage and Coverage (40% weight)

Why it matters

Leverage and coverage measures are critical indicators of a toll road operator's financial flexibility and long-term viability, including the ability to adapt to changes in the economic and regulatory environments in which it operates. All else being equal, leverage and coverage metrics provide indications of an issuer's financial flexibility, ability to withstand lower revenue or higher costs and the ability to generate sufficient cash flow to support operations, meet debt-service obligations and maintain assets over the long term.

We distinguish between toll roads that use a corporate-financing structure and those that use a project-financing structure. The financing structure is important because corporate toll road operators typically have much greater flexibility, e.g., a wide latitude to transform their business, buy and sell assets, take on additional leverage and refinance their debt. Project financing structures typically limit the scope of the toll road operator's business activities and its ability to incur additional debt.

This factor comprises four sub-factors. The first two factors, Cash Interest Coverage and Funds from Operations/Debt, apply only to corporate toll road issuers. The remaining two sub-factors, Debt Service Coverage Ratio and Concession Life Coverage Ratio, apply to both types of toll road issuers, but the ratios are calculated differently.

Cash Interest Coverage

The ratio of funds from operations plus interest expense to interest expense minus material non-cash interest ($\text{FFO} + \text{Interest Expense} / \text{Interest Expense} - \text{Material Non-Cash Interest}$) is an indicator of a toll road operator's ability to pay its cost of debt from its operating cash flow.

Funds from Operations / Debt

The ratio of funds from operations to gross debt (FFO/Debt) is an indicator of the cash generating ability of a toll road operator compared to its total debt and provides information about the size of an issuer's debt relative to that of its peers.

Debt Service Coverage Ratio

The debt service coverage ratio (DSCR) is an indicator of an issuer's ability to pay its debt service from available cash flow. An issuer that maintains a high DSCR with a comfortable excess coverage margin is typically better able to withstand cyclical declines in demand or short-term cash flow disruptions.

For corporate toll road operators, we use debt service annuity as the denominator instead of the debt service (interest plus principal) reported by the company, which allows for an assessment, on a forward-looking basis, of the company's ability to service more normalized debt obligations, as they would manifest themselves over the remaining life of the concession under a scenario where outstanding debt is fully repaid prior to expiry of the concession(s).

While DSCR is not generally used in assessing non-financial corporate issuers, a key advantage of its use for corporate toll road issuers is that it enables a comparison with project finance toll road operators. Given the long-term funding horizon of a toll road concessionaire, this ratio allows us to better compare a concessionaire with bullet maturities in its capital structure and a concessionaire with fully amortizing debt.

Concession Life Coverage Ratio

The concession life coverage ratio (CLCR) provides an important indication of an issuer's capacity to pay its debt service over the remaining life of the concession.

How we assess it for the scorecard

In assessing privately managed toll road operators, we use project financing metrics where (i) the debt is fully amortizing; and (ii) the financing contains many of the structural features that may provide protection to creditors listed in the "Uplift for Structural Considerations" notching factor section. Toll road operators that do not have many of these structural features are assessed using corporate financing metrics.

Corporate Financed Toll Roads

For corporate toll road operators, our assessment is based on four sub-factors: Cash Interest Coverage; FFO/Debt; Debt Service Coverage Ratio (DSCR); and Concession Life Coverage Ratio (CLCR).

CASH INTEREST COVERAGE:

The numerator is funds from operations plus interest expense, and the denominator is interest expense minus material non-cash interest. We exclude non-cash interest from our calculation or estimation of interest expense for toll road operators that have a material portion of their debt funding in the form of non-conventional instruments, such as zero-coupon, capital accretion or index-linked bonds (or have a similar position through swap arrangements).

FFO/DEBT:

The numerator is FFO, and the denominator is gross debt.

DEBT SERVICE COVERAGE RATIO:

The numerator is FFO plus interest expense minus maintenance capital expenditures, which are the ongoing maintenance expenditures required to operate the road or network.

For the DSCR of corporate toll road operators, we often estimate a steady-state capital expenditure need. As a result, we exclude capital expenditures to upgrade or expand a road or network, and we do not incorporate revenue growth into our calculation. We may estimate a toll road operator's maintenance capital expenditures based on its particular circumstances rather than using historical data where we believe that our estimates better reflect the maintenance requirements of a toll road operator over the life of a concession. Please see Appendix B for a description of certain accounting considerations under International Financial Reporting Standards (IFRS).

The denominator is debt service annuity, which is the annuity-type payment of interest and principal required to pay outstanding debt over the remaining life of the concession. We calculate or estimate debt service annuity using a standard formula for the present value (PV) of an annuity payment, using a hypothetical scenario: (i) annual debt service is a constant figure; (ii) interest rates (the discount rate used in the formula) are constant; and (iii) the full amount of debt outstanding at the end of the prior financial year (i.e., the PV of future payments today) is paid over the remaining life of the concession. Where the company holds a number of concessions with different maturities, we use a weighted average remaining concession life.

The formula for debt service annuity payment is as follows:

$$((\text{ST Debt} + \text{LT Debt, gross}) \times \text{Discount Rate}) / (1 - (1 / (1 + \text{Discount Rate})^{\text{remaining concession life}}))$$

The discount rate is typically either (i) the company's actual cost of debt, if largely fixed over the life of the concession; or (ii) an assumption for the long-term average cost of debt for the issuer's rating category.

CONCESSION LIFE COVERAGE RATIO:

The numerator is the net present value of future FFO plus interest expense minus maintenance capital expenditure, and the denominator is gross debt. For corporate toll roads, the formula is as follows:

$$(1 / (\text{Discount Rate} - \text{Growth Rate}) \times (\text{FFO} + \text{Interest Expense} - \text{Maintenance Capex}) \times (1 - ((1 + \text{Growth Rate}) / (1 + \text{Discount Rate}))^{\text{years remaining in the concession (Y)}}), \text{divided by Gross Debt}$$

We use the same discount rate that we use in the DSCR.

We use this formula in our assessment of corporate issuers where we expect stable and gradual increases in revenue. The growth rate applied in our revenue calculation is based on (i) expected tariff growth without new investments, which for many operators can be based on an inflation assumption, as tariff changes are often a percentage of inflation specified in the concession agreement; and (ii) our estimate of incremental traffic volumes over the life of the concession. While privately managed toll roads typically operate under a concession-based model, this methodology may also be used to assess the credit quality of companies that own the assets in perpetuity. In these cases, we assume that the company's debt will amortize on a straight line basis for 100 years.

For corporate issuers where we do not expect such stability we may use the CLCR for project finance toll road operators (see the "Project Financed Toll Roads" section). The CLCR for project finance toll road operators is useful to capture varying cash flow profiles due to, for example, step changes in tariffs, changes in traffic patterns and expansions in the toll road or network. It is also useful for toll road operators that hold a portfolio of concessions with different maturities, because it captures the changes in cash flow due to the maturity of an individual concession.

We may also use the project finance CLCR for corporate toll roads where we assess that the remaining tenor of the issuer's concession(s) has reduced to a point where the project finance CLCR, which allows us to capture specific forward-looking cash flow estimates, provides a better representation of our assessment of the issuer's capacity to pay its debt within the remaining concession life.

Project Financed Toll Roads

For project finance toll roads, we use two sub-factors: the Debt Service Coverage Ratio (DSCR) and the Concession Life Coverage Ratio (CLCR).

In general, the focus of our assessment of leverage and coverage financial metrics is forward-looking. We generally use cash flow projections based on our own assessment of the most likely financial and operating parameters and sensitivities. We also typically consider a number of downside or sensitivity scenarios to test the resiliency of the project's cash flows. Our central scenario and sensitivities may be informed by third-party technical or market consultants, and they may be different from the owner's or sponsor's projections. For projects that have a track record, historical performance generally has a strong influence on our view of likely future results, unless there is a material change in the project's operating parameters or market dynamics. As a result, historical results are among the drivers that can cause changes to our central scenario and downside or sensitivity scenarios over time.

DEBT SERVICE COVERAGE RATIO:

The scoring of this sub-factor is primarily based on the average annual or minimum annual DSCR over the remaining debt tenor.

The scoring of the projected DSCR may be based on the forecast minimum annual DSCR, or it may primarily be based on the average but informed by the minimum, or vice versa. Our assessment of the level of DSCR used for scoring this sub-factor may also be informed by the expected variability of the DSCR and a comparison of the average annual and minimum annual DSCRs over the relevant projection period. The assigned score ultimately represents our forward-looking view of the DSCR level that represents the overall risk in the projected trajectory of the project's ability to service its debt. For example, our calculation may exclude periods where principal amortization is minimal and the resulting annual DSCR is unrepresentative.

To calculate the DSCR for any 12-month period, the numerator is cash flow available for debt service (CFADS), and the denominator is interest and principal.

CFADS equals cash flow from operations (before interest) minus maintenance capital expenditure plus (or minus) transfers from (or to) timing reserves, if relevant. In circumstances where growth capital expenditures is expected at financial close, we typically include it in this formula. We include movement in reserves such as maintenance, operational and ramp-up reserves, but we do not include movement in the debt service reserve. Transfers from reserve accounts have a positive effect on CFADS, while transfers to reserve accounts have a negative effect on CFADS. Because the calculation of CFADS is based on operating cash flow, this numerator incorporates movements in working capital.

Interest and principal equals cash interest and principal in the relevant period. Interest excludes interest income (which is included in the numerator).

CONCESSION LIFE COVERAGE RATIO:

The numerator is the sum of (i) the net present value of future CFADS through the life of the concession and (ii) the debt service reserve account, and the denominator is gross debt.

We make adjustments to the inputs by adding any balance outstanding in the debt service reserve account to the net present value of CFADS, because those funds are specifically set aside for debt repayment (a feature not present in typical corporate toll roads) and using the cost of the rated debt as the discount rate.

Factor: Financial Policy (10% weight)

Why it matters

Financial policy encompasses management and board tolerance for financial risk and commitment to a strong credit profile. It is an important rating determinant, because it directly affects debt levels, credit quality, the future direction for the company and the risk of adverse changes in financing and capital structure.

Financial risk tolerance serves as a guidepost to investment and capital allocation. An expectation that management will be committed to sustaining an improved credit profile is often necessary to support an upgrade. For example, we may not upgrade the ratings of a company that has built flexibility within its rating category if we believe the company will use that flexibility to fund a strategic acquisition, cash distribution to shareholders, spin-off or other leveraging transaction. Conversely, a company's credit rating may be better able to withstand a moderate leveraging event if management places a high priority on returning financial metrics to pre-transaction levels and has consistently demonstrated the commitment to do so through prior actions. Liquidity management⁴ is an important aspect of overall risk management and can provide insight into risk tolerance.

The generally stable and highly cash flow generative business model of a privately managed toll road operator often creates significant capacity to incur debt financing. Management may choose to use this capacity to diversify into new business ventures to perpetuate a company's existence beyond the toll road concession's life, which may entail higher risk than the core toll road operations. Thus, the way an operator uses its debt capacity as well as the limitations on incurring leverage and pursuing other activities, which may be contractual or self-imposed, are material considerations in assessing its creditworthiness.

How we assess it for the scorecard

We assess the issuer's desired capital structure or targeted credit profile, its history of prior actions, including its track record of risk and liquidity management, and its adherence to its commitments. Attention is paid to management's operating performance and use of cash flow through different phases of economic and industry cycles, as well as management's actions in advance of new road construction or expansion projects, where significant capital expenditure may be required. Also of interest is the way in which management responds to key events, such as changes in the credit markets and liquidity environment, legal actions, competitive challenges, regulatory pressures or upcoming capital expenditure requirements. Considerations include a company's public commitments in this area, its track record for adhering to commitments and our views on the ability of the company to achieve its targets.

When considering event risks in the context of scoring financial policy, we assess the likelihood and potential negative impact of M&A or other types of balance-sheet-transforming events. Management's appetite for M&A activity is assessed, with a focus on the type of transactions (i.e., core competency or new business) and funding decisions. Frequency and materiality of acquisitions and previous financing choices are evaluated. A history of debt-financed or credit-transforming acquisitions will generally result in a lower score for this factor. We may also consider negative repercussions caused by shareholders' willingness to sell the company.

We also consider a company's and its owners' past record of balancing shareholder returns and debtholders' interests. A track record of favoring shareholder returns at the expense of debtholders is likely to be viewed negatively in scoring this factor.

For project financed toll roads, given their single purpose nature, it is typical for all the excess cash flow generation to be distributed, and we typically score this sub-factor in the "Ba" category. However, in cases with a history of demonstrated conservative tendencies, such an issuer may be scored higher on this factor. It is important to note, however, that in most, if not all, cases of project finance toll roads the financing structure sets limits on shareholders' ability to extract excessive returns or to make acquisitions. These structural enhancements are key to credit quality and are assessed as a notching adjustment to the preliminary outcome that results from the

five weighted factors. Hence, these considerations are not evaluated under this factor to avoid double counting. The discussion on structural enhancements is found in the section on the "Uplift for Structural Considerations" notching factor.

Notching factor

Our assessment of the Uplift for Structural Considerations notching factor may result in an upward adjustment to the preliminary outcome that results from the five weighted scorecard factors. Adjustments may be made in half-notch or whole-notch increments.

In aggregate, structural features that we consider effective may result in up to three upward notches from the preliminary outcome to arrive at the scorecard-indicated outcome. However, typical uplift is between one and two notches. In cases where we consider that the credit weakness or credit strength represented by this notching factor is greater than the scorecard range, we incorporate this view into the rating, which may be different from the scorecard-indicated outcome.

This notching factor is mainly relevant for toll road operators with project financing.

Uplift for Structural Considerations

Why it matters

A privately managed toll road operator's debt structure may contain structural features that can provide creditors meaningful protection against losses. These features are important because they can restrict the issuer's ability to take actions that could increase credit risk, thereby reducing the likelihood of default or increasing the likelihood of higher recovery in the event of default, or both. Privately managed toll road operators use a broad array of financing structures. While many finance their operations through the issuance of more typical senior unsecured or secured debt instruments, others have financings that contain structural features to reduce business risk or leverage.

How we assess it for the scorecard

We typically consider the extent to which structural features (i) reduce the likelihood of default; and (ii) give creditors either the right, or ability, to influence a toll road operator's decision to take corrective action to stop or reverse credit deterioration. The impact of these structural features on notching is based on a holistic assessment of their effectiveness.

STRUCTURAL FEATURES THAT REDUCE THE LIKELIHOOD OF DEFAULT:

In assessing structural features that reduce the likelihood of default, we typically assess the following:

Restrictions on business activities

- » The extent to which an issuer is prohibited from engaging in new activities or making acquisitions.

Restrictions on raising additional debt

- » Whether restrictions on additional indebtedness reduce the risk that additional obligations could cause a payment default.

Distribution lock-up tests

- » The extent to which an issuer is prohibited from distributing cash to shareholders in periods of financial stress.

Limits on debt structure

- » Whether the issuer is required to remove or mitigate certain financial risks, such as interest rate, currency or refinancing risk. Refinancing risk can include restrictions on debt maturity concentration and the implementation of a fully amortizing debt structure, which by itself can result in one notch of ratings uplift. Covenants can also restrict the issuer's use of derivative products, thus reducing the likelihood of additional or sizeable claims on the business.

Reserves to cover large future or unforeseen costs

- » The presence of dedicated timing reserves for large-cost items, e.g., a one-off capital expenditure.

STRUCTURAL FEATURES THAT GIVE CREDITORS THE RIGHT, OR ABILITY, TO INFLUENCE AN OPERATOR'S DECISION TO TAKE CORRECTIVE ACTION:

We assess the ability of debtholders to force owners to reduce debt before equity value is lost and debt is impaired, and to take action to repay debt through the enforcement of security provisions if this is not achieved. Financing document events of default or other events giving rise to debtholder controls and the consequences of their breach or trigger are key elements of this protection. To provide effective protection to creditors, these features work within the context of the business being financed, in most cases to allow the operating businesses to continue as going concerns and to allow debt service to be paid through available liquidity facilities while action is being taken.

In assessing structural features that provide control rights, we typically consider the following:

Effectiveness of control rights

- » The extent to which the exercise of control rights may be impeded (e.g., local jurisdiction laws or certain regulatory restrictions).
- » The proposed terms and conditions in conjunction with opinions of counsel to ascertain whether the proposed control rights are likely to operate as intended.

Length of the control period

- » The length of time creditors have to exercise control rights before the issuer loses the right to generate cash flow from the assets (e.g., before an insolvency process or before a concession is terminated).

Dedicated liquidity support

- » The extent to which dedicated liquidity support covers ongoing debt service while control rights are exercised. To be considered effective, such dedicated liquidity would be available for use in circumstances where control rights are exercised.

To be considered effective, structural features typically include the following:

- » The entity subject to the financing and the restrictions is separated from the wider ownership group and any wider business group. The separation is achieved through legal means related to the creation of the issuer or restrictions in the financial structure.
- » All creditors are subject to common terms that ensure that an individual creditor or a group of creditors cannot take unilateral action to destabilize the financing.
- » Creditor step-in rights are specifically permitted under the concession or legal framework, as well as the financing documents. In our assessment, we consider security arrangements to be one element, albeit usually a critical element, of a wider package of features designed to improve creditors' ability to detect early potential problems and rectify them if possible (in the first instance by retaining cash surpluses within the company). In addition, if remedial action is not possible or fails, the security arrangements are used to maximize recovery prospects.

We also consider the quality of security arrangements on material collateral. Security is sometimes not allowed or is not enforceable on certain assets, the title of which may be retained by the state or other granting authority, or where the company is restricted from giving security over its assets by a pre-existing statute.

Ratings fully incorporate our view of the actual structural or contractual features in a particular transaction. In rare cases, contractual features may provide greater uplift to the issuer's credit quality than what is reflected in the scorecard.

Other considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors include financial controls and the quality of financial reporting; corporate legal structure; the quality and experience of management; assessments of corporate governance as well as environmental and social considerations; exposure to

uncertain licensing regimes; and possible government interference in some countries. Regulatory, litigation, liquidity, technology and reputational risk as well as changes to consumer and business spending patterns, competitor strategies and macroeconomic trends also affect ratings.

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

Construction and Ramp-up Risk

In assessing the credit profile of a privately managed toll road operator in the construction phase or start-up phase, we consider the incremental risks related to construction as well as traffic and revenue forecasts and the expected ramp-up period of toll roads not yet in operation. These risks typically result in weaker credit profiles than those of toll roads in steady-state operation.

CONSTRUCTION RISK

The construction phase for a new toll road project typically runs between three and five years from financial close. Cash flows to pay debt service begin only once the road is operating and, as such, the risks associated with the construction phase are an important part of our analysis. We assess the likelihood of a project being completed on time and within budget.

We typically consider the general guiding principles discussed in our methodology for privately financed public infrastructure projects (PFI/PPP/P3)⁵ in the construction period to help assess the magnitude of construction risk. Among the risks related to the asset and physical construction, we typically analyze the following:

- » The complexity of the project being built (e.g., a simple road versus bridge or tunnel, or a combination of the above).
- » Site preparation requirements, including excavation, tunneling, boring, waterproofing or other similarly complex type of work.
- » Acquisition of rights-of-way.
- » Construction techniques and materials, and the use of proven versus new technology.
- » Logistics, including flexibility of access to the site or construction constraints during the construction period.
- » Contractor experience and performance, and the toll road operator's experience in construction oversight.

The more complex the elements of a toll road project are, the higher is the likelihood of construction delays and cost overruns. In such cases, the assigned rating would likely be lower than the scorecard-indicated outcome and would incorporate the features that, in our assessment, could substantially increase the project budget, delay project completion and thus threaten the start date for the operating period.

Contractual, legal and financial provisions are also important considerations. These typically include:

- » Concession agreement risk-sharing, e.g., which parties are responsible for right-of-way acquisition, geological/archeological risk or expropriation risk.
- » Construction contract provisions, such as whether it is a fixed-price, date-certain contract versus one based on the cost of materials and labor; the conditions for the contractor to pay liquidated damages for delays or non-performance; force majeure events; and the liability caps for the contractor.
- » Schedule cushion for possible construction delays, either to reach substantial completion or long stop dates.⁶
- » The amount and timing of equity contributions to the project versus debt funding.
- » Available liquidity during this phase, including the amount, type and financial strength of the liquidity support available to the issuer in the event of cost overruns and delays.

The complexity of the project and the risks borne by the concessionaire are the primary elements that determine the level of protection that is necessary for adequate risk reduction.

TRAFFIC AND REVENUE FORECASTING AND RAMP-UP RISK

We typically use traffic and revenue (T&R) projections provided by an independent third-party consultant to evaluate operating risk for a new toll road that is either under construction or at the beginning of operations, commonly referred to as the ramp-up phase. These reports provide a starting point for our analysis of the toll road's potential cash generation over the life of the concession, which is important for its future ability to support its debt.

However, consultants' forecasts are based on multiple assumptions and complex variables that will likely change over time. Thus, even experienced traffic consultants that use reliable historical data and tested econometric modeling techniques generate T&R projections containing considerable uncertainties. We typically consider a number of downside and breakeven scenarios, starting from the consultant's base case, to test the resiliency of the project to stress, including the sufficiency of its liquidity to meet debt service during the ramp-up period if traffic is lower than forecast.

The availability and frequency of traffic information after the initial T&R study may also have an impact on the rating. In the absence of updated studies, we may revise our expectations regarding operating performance based on relevant available data.

Based on our experience, if during the early years of operation, a toll road does not perform within a relatively close range of its initial forecast, the steady-state traffic level for such roads may be well below the forecast level for many years, or even decades. As a result, privately managed toll road operator's ratings may exhibit higher volatility in the first years of operations than toll roads in a steady state.

Structural elements such as additional liquidity in the form of letters of credit from strong banks, contingent equity, and ramp-up and debt service reserves may mitigate credit risk during the start-up period. In our view, these features are key elements of a toll road financing at this stage. We assess the adequacy of such liquidity in relation to expected traffic levels, as well as the issues surrounding the certainty of funding based on the form of liquidity provided.

Regulatory Considerations

Issuers in the privately managed toll road sector are subject to varying degrees of regulatory oversight. Effects of these regulations may entail limitations on operations, higher costs, and higher potential for technology disruptions and demand substitution. Regional differences in regulation, implementation or enforcement may advantage or disadvantage particular issuers.

Our view of future regulations plays an important role in our expectations of future financial metrics as well as our confidence level in the ability of an issuer to generate sufficient cash flows relative to its debt burden over the medium and longer term. Regulatory considerations also play a role in our assessment of an issuer's concession and regulatory framework. In some circumstances, regulatory considerations may also be a rating factor outside the scorecard, for instance when regulatory change is swift.

Additional Metrics

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

Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of issuers in the privately managed toll road sector. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.⁷

Privately managed toll road operators are susceptible to local air quality and traffic control measures that seek to reduce air pollution. Moreover, changes in regulation of the automotive and petroleum industries can increase the cost of purchasing or operating vehicles, which could lead to lower traffic volumes. As environmental regulations in the automotive and petroleum industries increase in scope or where meaningful regional differences in regulation exist, they may have a differentiating impact on privately managed toll road operators. Changes in technology, such as the commercialization of competitively priced low-emission or no-emission vehicles, may mitigate the effect on demand for privately managed toll roads. Toll road traffic can also be affected by extreme weather, natural

disasters or pandemics. Mitigants may include insurance, regulations in some jurisdictions that allow the recovery of unforeseen costs or losses, and state intervention.

For issuers in this sector, we also consider social issues that could have a material impact, either positive or negative, on their ability to service debt. Toll roads are exposed to the risk of political interference in the toll-setting process, which is somewhat mitigated by tariff-adjustment formulas and procedures typically included in concession agreements. In some jurisdictions, toll roads are susceptible to protests that can lead to partial or total disruption of traffic and short-term revenue declines. In addition, while demographics are considered in the Economic Resilience of Service Area sub-factor, the full credit impact of demographic shifts, such as high population growth that could lead to additional demand or the need for additional infrastructure, or an aging population that could lead to lower transportation demand in the future, barring technological advances (e.g., automated vehicles) may increase the weight we place on this consideration, and our long-term view of the effect of demographic shifts on credit metrics may be incorporated qualitatively.

Financial Controls

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

Management Strategy

The quality of management is an important factor supporting a company's credit strength. Assessing the execution of business plans over time can be helpful in assessing management's business strategies, policies and philosophies and in evaluating management performance relative to performance of competitors and our projections. Management's track record of adhering to stated plans, commitments and guidelines provides insight into management's likely future performance, including in stressed situations.

Liquidity

Liquidity is an important rating consideration for all privately managed toll road operators, although it may not have a substantial impact in discriminating between two issuers with a similar credit profile. Liquidity can be particularly important for non-investment grade toll road operators where issuers typically have less operating and financial flexibility, and ratings can be heavily affected by extremely weak liquidity. We form an opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash. For more details on our approach, please see our liquidity cross-sector methodology.⁸

Excess Cash Balances

Some issuers in this sector may maintain cash balances (meaning liquid short-term investments as well as cash) that are far in excess of their operating needs. This excess cash can be an important credit consideration; however, the underlying policy and motivations of the issuer in holding high cash balances are often as or more important in our analysis than the level of cash held. We have observed significant variation in company behavior based on differences in financial philosophy, investment opportunities, availability of committed revolving credit facilities and shareholder pressures.

Most issuers need to retain some level of cash in their business for operational purposes. The level of cash required to run a business can vary based on the region(s) of operation and the specific sub-sectors in which the issuer operates. Some issuers have very predictable cash needs and others have much broader intra-period swings, for instance related to mark-to-market collateral requirements under hedging instruments. Some companies may hold large levels of cash at times because they operate without committed, long-term bank borrowing facilities. Some companies may hold cash on the balance sheet to meet long-term contractual liabilities, whereas other companies with the same types of liabilities have deposited cash into trust accounts that are off balance sheet. The level of cash that issuers are willing to hold can also vary over time based on the cost of borrowing and macroeconomic conditions. The same issuer may place a high value on cash holdings in a major recession or financial crisis but seek to pare cash when inflation is high. As a result, cash on the balance sheet is most often considered qualitatively, by assessing the issuer's track record and financial and liquidity policies rather than by measuring how a point-in-time cash balance would affect a specific metric.

Across all corporate sectors, an important shareholder-focused motivation for cash holdings, sometimes over very long periods, is cash for acquisitions. In these cases, we do not typically consider that netting cash against the issuer's current level of debt is analytically meaningful; however, the cash may be a material mitigant in our scenario analyses of potential acquisitions, share buybacks or

special dividends. Tax minimization strategies have at times been another primary motivation for holding large cash balances. Given shareholder pressures to return excess cash holdings, when these motivations for holding excess cash are eliminated, we generally expect that a large portion of excess cash will be used for dividends and share repurchases.

By contrast, some issuers maintain large cash holdings for long periods of time in excess of their operating and liquidity needs solely due to conservative financial policies, which provides a stronger indication of an enduring approach that will benefit creditors. For instance, some companies have a policy to routinely pre-fund upcoming required debt payments well in advance of the stated maturity. Such companies may also have clearly stated financial targets based on net debt metrics and a track record of maintaining their financial profile within those targets.

While the scorecard in this methodology uses leverage and coverage ratios with total (or gross) debt rather than net debt, we do consider excess cash holdings in our rating analysis, including in our assessment of the financial and liquidity policy. For issuers where we have clarity into the extent to which cash will remain on the balance sheet and/or be used for creditor-friendly purposes, excess cash may be considered in a more quantitative manner. While we consider excess cash in our credit assessment for ratings, we do not typically adjust the balance sheet debt for any specific amount because this implies greater precision than we think is appropriate for the uncertain future uses of cash. However, when cash holdings are unusually large relative to debt, we may refer to debt net of cash, or net of a portion of cash, in our credit analysis and press releases in order to provide additional insight into our qualitative assessment of the credit benefit. Alternatively, creditor-friendly use of cash may be factored into our forward view of metrics, for instance when the cash is expected to be used for debt-repayment. We may also cite rating threshold levels for certain issuers based on net debt ratios, particularly when these issuers have publicly stated financial targets based on net debt metrics.

Even when the eventual use for excess cash is likely to be for purposes that do not benefit debtholders, large holdings provide some beneficial cushion against credit deterioration, and cash balances are often considered in our analysis of near-term liquidity sources and uses. Such downside protection is usually more important for low rated issuers than for highly rated issuers due to differences in credit stability and the typically shorter distance from potential default for issuers at the lower end of the ratings spectrum.

Non-wholly Owned Subsidiaries

Some companies in the privately managed toll roads sector choose to dilute their equity stake in certain material subsidiaries, for example through an initial public offering, which may in some cases negatively impact future financial flexibility. While improving cash holdings on a one-off basis, selling minority interests in subsidiaries may have a negative impact on cash flows available to the parent company that may not be fully reflected in consolidated financial statements.⁹ The parent's share of dividend flows from a non-wholly owned subsidiary is reduced, and minority stakes can increase structural subordination, since dividend flows to minority interest holders are made before the cash flows are available to service debt at the parent company. While less frequent, sale of a minority stake may be accompanied by policies protective of the subsidiary that further limit the parent's financial flexibility, for instance restrictions on cash pooling with other members of the corporate family, limitations on dividends and distributions, or arms-length business requirements. Minority stakeholders may have seats on the board of the subsidiary. In many cases, we consider the impact of non-wholly owned subsidiaries qualitatively. However, in some cases we may find that an additional view of financial results, such as analyzing cash flows on a proportional consolidation basis, may be very useful to augment our analysis based on consolidated financial statements. When equity dilution or structural subordination arising from non-wholly owned subsidiaries is material and negative, the credit impact is captured in ratings but may not be fully reflected in scorecard-indicated outcomes.

For companies that hold material minority interest stakes, consolidated funds from operations typically includes the dividends received from the minority subsidiary, while none of its debt is consolidated. When such dividends are material to the company's cash flows, these cash flows may be subject to interruption if they are required for the minority subsidiary's debt service, capital expenditures or other cash needs. When minority interest dividends are material, we may also find that proportional consolidation or another additional view of financial results is useful to augment our analysis of consolidated financials. We would generally also consider structural subordination in these cases.¹⁰ When these credit considerations are material, their impact is captured in ratings but may not be fully reflected in scorecard-indicated outcomes.

Impact of Other Businesses

Where a toll road operator has or will seek to diversify its operations to non-core motorway activities, we seek to determine the impact of the presence of such businesses on the overall credit profile. For example, where a toll road company operates different toll road

concessions with similar risk profiles, we would view these concessions as being part of core businesses. Where a concession or ancillary business displays materially different business risk characteristics due, for example, to different competitive dynamics than the core toll road business, we typically form a blended assessment of the company's business profile and the stability of its cash flows. In particular, investments into businesses that entail higher risk than the core toll road concession would likely result in a rating lower than the scorecard-indicated outcome.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in an issuer's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard-indicated outcome. Event risks — which are varied and can range from leveraged recapitalizations to sudden regulatory changes or liabilities from an accident — can overwhelm even a stable, well-capitalized firm. Some other types of event risks include M&A, asset sales, spin-offs, shareholder distributions, litigation, pandemics, significant cyber-crime events and geopolitical conflicts.

Off-taker Credit Quality

The sole source of revenue for shadow toll road operators is typically the project's off-taker. As a result, shadow toll road operators generally have a high dependence on the credit quality of the off-taker, which typically acts as a constraint on the rating. However, there may be some de-linkage when an off-taker is undergoing stress, when there is often case-specific information. For instance, we may have a better view of the likelihood that the off-taker payments would continue in a distress scenario.

In addition to credit quality, our assessment of off-taker risk may include considerations related to the strategic importance of the project to the off-taker, the track record of timely payments and the relationship between the project and the off-taker, especially any indications of off-taker satisfaction or dissatisfaction with the project's operations or the value of the road asset to the off-taker.

Parental Support

Ownership can provide ratings lift for a particular company in the privately managed toll roads sector if it is owned by a highly rated owner(s) and is viewed to be of strategic importance to those owners. In our analysis of parental support, we consider whether the parent has the financial capacity and strategic incentives to provide support to the issuer in times of stress or financial need (e.g., a major capital investment or advantaged operating agreement), or has already done so in the past. Conversely, if the parent puts a high dividend burden on the issuer, which in turn reduces its flexibility, the ratings would reflect this risk.

Government-related issuers may receive ratings uplift due to expected government support. However, for certain issuers, government ownership can have a negative impact on the underlying Baseline Credit Assessment.¹¹ For example, price controls, onerous taxation and high distributions can have a negative effect on an issuer's underlying credit profile.

Using the scorecard to arrive at a scorecard-indicated outcome

1. Measurement or estimation of factors in the scorecard

In the "Discussion of the scorecard factors" section, we explain our analytical approach for scoring each scorecard factor or sub-factor,¹² and we describe why they are meaningful as credit indicators.

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

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of an issuer's performance as well as for peer comparisons. For corporate issuers, historical financial metrics, unless otherwise indicated, are typically calculated based on an annual or 12-month period. As described in the "Discussion of the scorecard factors" section, the debt service coverage and concession life coverage ratios are typically calculated on a forward-looking basis. 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 for corporate issuers incorporate our standard adjustments¹³ to income statement, cash flow statement and balance sheet amounts for items such as underfunded pension obligations and operating leases. We may also make other analytical adjustments that are specific to a particular corporate or project finance toll road issuer.

2. Mapping scorecard factors to a numeric score

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

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

Exhibit 3

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

Source: Moody's Investors Service

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

Exhibit 4

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

Source: Moody's Investors Service

3. Determining the overall scorecard-indicated outcome

The numeric score for each sub-factor (or each factor, when the factor has no sub-factors) is multiplied by the weight for that sub-factor (or factor), with the results then summed to produce an aggregate numeric score.

A further weighting is then applied by rating category as shown in the table below:

Exhibit 5

| Aaa | Aa | A | Baa | Ba | B | Caa | Ca |
|-----|----|---|------|----|---|-----|----|
| 1 | 1 | 1 | 1.15 | 2 | 3 | 5 | 7 |

Source: Moody's Investors Service

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

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

The numeric score for each sub-factor is multiplied by the adjusted weight for that sub-factor, with the results then summed to produce an aggregate numeric score before notching factors (the preliminary outcome). We then consider whether the preliminary outcome that results from the weighted factors should be notched upward or downward¹⁴ in order to arrive at an aggregate numeric

score after notching factors. The Uplift for Structural Considerations notching factor can result in a total of up to three upward notches from the preliminary outcome to arrive at the scorecard-indicated outcome.

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

Exhibit 6

Scorecard-indicated outcome

| Scorecard-indicated outcome | Aggregate 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 | $x > 20.5$ |

Source: Moody's Investors Service

In general, the scorecard-indicated outcome is oriented to the corporate family rating (CFR) or senior unsecured rating for corporate issuers and to the senior secured rating for project finance issuers. For issuers that benefit from rating uplift from parental support, government ownership or other institutional support, we consider the underlying credit strength or Baseline Credit Assessment for comparison to the scorecard-indicated outcome. For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers.¹⁵

Assigning issuer-level and instrument-level ratings

After considering the scorecard-indicated outcome, other considerations and relevant cross-sector methodologies, for corporate issuers we typically assign a CFR to speculative-grade issuers or a senior unsecured rating for investment-grade issuers and, for project finance issuers, we typically assign a senior secured rating. For issuers that benefit from rating uplift from government ownership, we may assign a Baseline Credit Assessment.¹⁶

Individual debt instrument ratings may be notched up or down from the CFR or the senior secured rating or senior unsecured rating to reflect our assessment of differences in expected loss related to an instrument's seniority level and collateral. The documents that provide broad guidance for such notching decisions are the rating methodology on loss given default for speculative-grade non-financial companies, the methodology for notching corporate instrument ratings based on differences in security and priority of claim, and the methodology for assigning short-term ratings.¹⁷

Key rating assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.¹⁸

Limitations

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

Limitations of the scorecard

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

The scorecard in this rating methodology is a relatively simple reference tool that can be used in most cases to approximate credit profiles of issuers in this sector and to explain, in summary form, many of the factors that are generally most important in assigning ratings to these issuers. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

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

Factors that are outside the scorecard, including those discussed above in the "Other considerations" section, may be important for ratings, and their relative importance may also vary from company to company. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.¹⁹ Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, the relative ranking of different classes of debt and hybrid securities, and the assignment of short-term ratings.

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

General limitations of the methodology

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

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

Appendix A: Managed toll lanes

In this appendix, we describe some additional considerations for assessing the credit quality of privately managed toll lanes.

Within the toll road sector, managed toll lanes (express lanes) are built adjacent to non-tolled lanes to alleviate congestion in urban and suburban areas. Managed lanes typically use congestion or dynamic pricing, whereby tolls are raised or lowered in order to maintain speeds and traffic on the managed lanes at or above a minimum level. The tolling regime typically includes a toll rate floor and a soft toll rate cap that may be exceeded, if necessary, to maintain minimum speeds, typically during peak periods.

Credit strengths of managed toll lane projects typically include (i) the road has at least two lanes in each direction; (ii) the issuer has an unlimited ability to adjust tolls to maintain minimum speeds; (iii) the road is located along very congested routes in densely populated and growing major metropolitan areas where drivers find value in the higher reliability that the managed lane provides to their trip time; (iv) there are few entry and exit points with clear barrier separation from the adjacent free lanes; and (v) only certain types of free users are permitted (i.e., buses or high occupancy vehicles).

Credit risks associated with a single-asset, managed toll lane project typically include (i) the feasibility of achieving the demand forecast, given the adjacent free lanes; (ii) high leverage with back-loaded principal amortization and construction risk for greenfield projects.

Our assessment of privately managed toll lanes may reflect the additional considerations below.

Asset Type

In addition to considering asset size, we assess a managed toll lane project's essentiality. Scoring incorporates our view that, as congestion relievers, managed toll lane projects are built to add capacity and generate more than half of their revenues during a smaller window of time, i.e., during peak traffic hours.

Competing Routes

Managed toll lane projects are particularly exposed to competing routes in the form of adjacent free lanes. As a result, traffic and revenue for managed toll lane projects are more sensitive to traffic declines in the corridor. As congestion declines, users typically can move to the adjacent free lanes, an option that users of a traditional toll road typically do not have. Dynamic tolling results in decreases in traffic having a disproportionate impact on revenue as both the toll price and demand decline in tandem, whereas the price typically does not vary with demand for traditional toll roads. The opposite is also the case. When congestion is high and prices increase to maintain minimum speeds, revenue can increase notably despite traffic levels remaining the same. This pricing power during congested periods may balance the outsized downside revenue performance during times of weaker traffic demand and congestion. As a result, we may incorporate multiple stress scenarios into our forward view of Leverage and Coverage metrics.

Track Record and Stability of Tolled Traffic

The lack of an operating track record typically results in a lower score for the Track Record and Stability of Tolled Traffic sub-factor. However, the scoring for this sub-factor may be higher for a managed toll lane project where traffic data for the corridor demonstrate congestion patterns and the demand for increased capacity. Our analysis also incorporates our view that the congestion relief from new managed toll lane capacity can increase the appeal of the route to drivers until overall corridor congestion increases again.

Construction Risk

The construction of managed toll lane projects may be more complex than a greenfield road project and often takes several years, since the goal of construction efficiency is typically balanced against the goal of limiting the impact on the existing congested road, which is often located in a densely populated area.

Appendix B: Accounting considerations under IFRS

In this appendix, we discuss some of the accounting considerations under International Financial Reporting Standards (IFRS) that are relevant for analyzing privately managed toll road operators.²⁰

International Financial Reporting Interpretations Committee (IFRIC) 12 "Service Concession Arrangements" provides a guidance on the accounting by private sector entities for concession arrangements. The application of IFRIC 12 determines whether a toll road is classified as a financial asset or an intangible asset. The toll road asset under concession would be recognized as an intangible asset if the operator has a right to charge users of the public service. A right to charge users is not an unconditional right to receive cash because the amounts are contingent on the extent that the public uses the service. In contrast, the toll road asset is seen as a financial asset if the operator has an unconditional right to receive cash from, or at the discretion of, the concession grantor. In the latter case, the concession asset would be recognized as an interest-bearing financial receivable. IFRIC 12 allows for the possibility that conditional and unconditional rights to receive cash may co-exist within a single contract.

Financial statements vary materially depending on whether the operator recognizes a financial asset or an intangible asset. In particular, there is generally a difference between EBITDA and FFO under the two models throughout the life of the concession. This difference could be material and it arises because, under the financial asset model, the cash inflows are reported partly as a repayment of the receivable (and consequently excluded from EBITDA and FFO) and partly as front-loaded interest income (which is included in EBITDA and FFO). Notwithstanding the underlying economic drivers of the differing accounting outcomes of the two models, a consistent and comparable measurement of cash flow, as represented by FFO, is of great importance for our analysis given the financial metrics we typically use to assess the creditworthiness of a privately managed toll road operator.

Our preferred approach is to use audited financial statements to calculate financial metrics, although we recognize that differences in the reported amounts could be material. Where the potential differences are significant and there is enough data available in the public domain, we may consider appropriate adjustments to revenues, operating expenditures and interest income, and as such, include the total cash inflow in EBITDA and FFO, in order to apply these to the ratios in a manner that is comparable across the peer group of rated privately managed toll road operators. More generally, in our assessment we consider the actual economics of the business notwithstanding the accounting presentation.

Another area of potential differences in accounting that has been addressed by IFRIC 12 relates to expenditures required to maintain or restore the condition of the asset. Where the toll road operator is required by the service concession agreement to maintain or restore the infrastructure asset to a specific level of serviceability or condition at the end of the concession life and before the asset is handed to the grantor, the expenditure should, in theory, be classified within operating cash flows. However, where a company classifies these expenditures as something other than an operating cash flow item, we typically make an adjustment to re-classify the expenditure to operating cash flows.

We recognize that maintenance obligations of a toll road will vary depending on, for example, the type of asset, type of terrain it covers, its geographic location, type and density of traffic and even on the weather. In our analysis and calculation or estimation of financial metrics, we use audited financial statements as a starting point to determine the relevant amounts of maintenance expenditure. We may also discuss with the rated toll road operator their total maintenance investment needs over the life of the concession and use third-party reports to guide our estimate of the maintenance expenditure amounts on a case-by-case basis.

Moody's related publications

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

Authors:

Raffaella Altamura

Laura Barrientos

Endnotes

- [1](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [2](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [3](#) In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.
- [4](#) Liquidity management is distinct from the level of liquidity, which is discussed in the "Other considerations" section.
- [5](#) PFI stands for private finance initiatives, and PPP or P3 stands for public-private partnerships. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [6](#) Both terms are defined in the legal documentation of a privately managed toll road project. The substantial completion date typically refers to the date on which the asset is required to be commercially operable. The long stop date is the date by which the concession grantor may be entitled to terminate the concession if construction and acceptance are not complete.
- [7](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [8](#) A link to a list of our cross-sector methodologies can be found in the "Moody's related publications" section.
- [9](#) For example, in the case of an equity stake reduction in a subsidiary down to 75%, in the parent's financial statements, all revenue and EBITDA of the subsidiary would typically still be consolidated at the group level.
- [10](#) Proportional consolidation brings a portion of the minority subsidiary's debt onto the balance sheet, but this debt is structurally senior to debt at the parent company, because it is closer to the assets and cash flows of the minority subsidiary.
- [11](#) For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology that describes our approach for assessing government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.
- [12](#) When a factor comprises sub-factors, we score at the sub-factor level. Some factors do not have sub-factors, in which case we score at the factor level.
- [13](#) For an explanation of our standard adjustments, please see the cross-sector methodology that describes our financial statement adjustments in the analysis of non-financial corporations.
- [14](#) Numerically, a downward notch adds 1 to the score, and an upward notch subtracts 1 from the score.
- [15](#) A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.
- [16](#) For an explanation of the Baseline Credit Assessment, please refer to *Rating Symbols and Definitions* and to our cross-sector methodology for government-related issuers. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.
- [17](#) A link to a list of our sector and cross-sector rating methodologies can be found in the "Moody's related publications" section.
- [18](#) A link to *Rating Symbols and Definitions* can be found in the "Moody's related publications" section.
- [19](#) A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- [20](#) See our cross-sector methodology that describes our financial statement adjustments in the analysis of non-financial corporations.

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Analyst Contacts

Andrew Blease +33.1.5330.3372
Associate Managing
Director
andrew.blease@moodys.com

Kurt Krummenacker +1.212.553.7207
Associate Managing
Director
kurt.krummenacker@moodys.com

Kevin Maddick +44.20.7772.5218
Associate Managing
Director
kevin.maddick@moodys.com

Cintia Nazima +1.212.553.1631
AVP - Analyst
cintia.nazima@moodys.com

A. J. Sabatelle +1.212.553.4136
Associate Managing
Director
angelo.sabatelle@moodys.com

Cristiane Spercel +55.11.3043.7333
Senior Vice President/
Manager
cristiane.spercel@moodys.com

Terry Fanous +61.2.9270.8164
MD-Public Proj & Infstr
Fin
terry.fanous@moodys.com

Ning Loh +852.3758.1668
Associate Managing
Director
ning.loh@moodys.com

Arnon Musiker +61.2.9270.8161
Senior Vice President/
Manager
arnon.musiker@moodys.com

Ivy Poon +852.3758.1336
VP-Sr Credit Officer
ivy.poon@moodys.com

Douglas Segars, CFA +44.20.7772.1584
MD-Infrastructure
Finance
douglas.segars@moodys.com

CLIENT SERVICES

Americas 1-212-553-1653

Asia Pacific 852-3551-3077

Japan 81-3-5408-4100

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