MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

# Privately Managed Airports and Related Issuers

Table of Contents:



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This rating methodology replaces "Privately Managed Airports and Related Issuers", last revised on December 19, 2014. We have updated some outdated links and removed certain issuer-specific information.

## Summary


This rating methodology explains our approach to assessing credit risk for companies in the privately managed airports industry globally. This document provides general guidance that helps companies, investors, and other interested market participants understand how qualitative and quantitative risk characteristics are likely to affect scorecard-indicated outcomes for companies in the privately managed airports industry. This document does not include an exhaustive treatment of all factors that are reflected in our ratings but should enable the reader to understand the qualitative considerations and financial information and ratios that are usually most important for ratings in this sector.[1]

This report includes a detailed scorecard. The scorecard is a reference tool that can be used to approximate credit profiles within the privately managed airport sector in most cases. The scorecard provides summarized guidance for the factors that are generally most important in assigning ratings to companies in the privately managed airport industry. However, the scorecard is a summary that does not include every rating consideration. The weights shown for each factor in the scorecard represent an approximation of their importance for rating decisions but actual importance may vary substantially. As a result, the scorecard-indicated outcome is not expected to match the actual rating of each company.

The scorecard contains seven factors that are important in our assessments for ratings in the privately managed airport sector:

1. Concession and Regulatory Framework
2. Market Position
3. Service Offering


THIS RATING METHODOLOGY WAS UPDATED ON JULY 18, 2019. WE HAVE UPDATED SOME REFERENCES AND MADE FORMATTING CHANGES.

[1] This update may not be effective in certain jurisdictions until certain requirements are met.

4. Capacity and Capital
5. Financial Policy
6. Leverage and Coverage

The scoring for factors 1-6 results in a preliminary scorecard-indicated outcome. In addition, we apply the following factor 7, which can result in upward notching for issuers that benefit from structural enhancements in their corporate structure or financing arrangements – this is mainly relevant to project financing.

7. Uplift for Structural Considerations

Some of these factors also encompass a number of sub-factors. An issuer's scoring on a particular scorecard factor or sub-factor often will not match its overall rating.

This rating methodology is not intended to be an exhaustive discussion of all factors that our analysts consider in assigning ratings in this sector. We note that our analysis for ratings in this sector covers factors that are common across all industries such as ownership, management, liquidity, corporate legal structure, governance and country related risks which are not explained in detail in this document, as well as other factors that can be meaningful on a company-specific basis. Our ratings consider these and other qualitative considerations that do not lend themselves to a transparent presentation in a scorecard format. The scorecard used for this methodology reflects a decision to favor a relatively simple and transparent presentation rather than a more complex one that would map scorecard-indicated outcomes more closely to actual ratings.

Highlights of this report include:

» An overview of the rated universe

» A summary of the rating methodology

» A description of factors that drive rating quality

» Comments on the rating methodology assumptions and limitations, including a discussion of rating considerations that are not included in the scorecard

The Appendices show the full scorecard (Appendix A) and special considerations for the assessment of air traffic control providers (Appendix B).

This methodology describes the analytical framework used in determining credit ratings. In some instances our analysis is also guided by additional publications which describe our approach for analytical considerations that are not specific to any single sector. Examples of such considerations include but are not limited to: the assignment of short-term ratings, the relative ranking of different classes of debt and hybrid securities, how sovereign credit quality affects non-sovereign issuers, and the assessment of credit support from other entities.[2]



## Rated Universe

This methodology is applicable to issuers whose principal line of business is the operation and maintenance of an airport or airport system and the provision of ancillary services, and which inherently have a profit maximisation motive. The principal source of revenue is derived from airport charges made to passengers

[2] The methodologies covering our approach to these cross-sector methodological considerations can be found under the Moody's Related Publications section.

and/or airlines for aircraft using the airport, the provision of retail and concession services to airport users, the provision of ancillary services to airport users, and in some cases the provision of retail and commercial property space for third-party users located at the airport (which could be unrelated to airport operations).

This methodology is also applicable to air traffic control providers – please Appendix B. For clarity, the scorecard and notching factors described herein apply to privately managed airports, while air traffic controllers are assessed without a scorecard.

Privately managed airport operators rated under this methodology may have different ownership structures. While the majority of the issuers are privately owned, this methodology is also applied to companies classified as government-related issuers (GRI). In such cases, this rating methodology for privately managed airports speaks to the baseline credit assessment (BCA), while the GRI rating methodology explains how we assess support that may lift the BCA to a higher rating.[3]

By contrast, airports that are government-owned and operated or are operated by a related governmental agency (e.g. an airport authority) are covered by a separate rating methodology.[4] The publicly-owned and operated model differs fundamentally from that of privately managed airports. In the former, airports do not have a profit maximisation motive but are operated for the public benefit of the municipal entity or entities that own them, and finance is only raised to meet expenditure required to fulfil the airport's development needs. Publicly-owned and operated airports typically benefit from an unfettered ability to set charges and fees in order to cover, on a sum-sufficient basis, current expected costs for both operations and maintenance (O&M) and debt service. This model has been primarily used in the US and Canada.

For privately managed airports, which have a profit maximisation motive, there is a stronger relationship between credit strength and observed financial ratios. In the government-operated sector, this relationship may be weaker since credit quality may hinge more on the ability and willingness to raise rates than on realised surpluses in prior fiscal rates that are carried forward.

This methodology is applied to single-asset operators and to companies operating a number of different airports. It also encompasses different types of financing used for privately managed airport assets, i.e. corporate and project finance.

Airport operators represent a diverse group of issuers differentiated by scale, market position and geographic service area. Airports range from issuers that operate all the international airports of a large sovereign nation to issuers that operate a small regional airport. Service areas correspondingly range from very large to relatively small. Nevertheless, in most cases, the airports managed by such issuers would be considered essential assets within the economic areas which they serve. Airports may be in competition with other airports or (to a lesser extent) other modes of transport, but the largest airports and systems serving major economic areas will have a strong element of monopoly power. Airport operators generally exhibit relatively low business risk compared to the broader universe of non-financial corporate issuers. This relatively low business risk is generally coupled with high leverage that often stems from significant capital expenditure to accommodate passenger growth and the optimization of the capital structure to reduce the cost of capital. Credit quality in the sector varies between regions and is affected by the economic health and activity of a service area.

3 For details, see our methodology for rating Government-Related Issuers (GRIs) under the Moody's Related Publications section.

4 For details, see our methodology for rating publicly managed airports and related issuers under the Moody's Related Publications section.

## About This Rating Methodology

This report explains the rating methodology for privately managed airports in several sections, which are summarized as follows:

### 1. Identification and Discussion of the Scorecard Factors

The scorecard in this rating methodology focuses on seven rating factors. The first six factors are comprised of sub-factors that provide further detail. The seventh factor is used to make notching adjustments for structural considerations, which are usually only meaningful for project finance entities.

EXHIBIT 1
**Privately Managed Airports Scorecard**

| Broad Factor | Factor Weighting | Sub-Factor | Sub-Factor Weighting |
|---|---|---|---|
| 1. Concession and Regulatory Framework | 15% | Ability to Increase Tariffs | 10% |
| | | Nature of Ownership / Control | 5% |
| 2. Market Position | 15% | Size of Service Area | 5% |
| | | Economic Strength and Diversity of Service Area | 5% |
| | | Competition for Travel | 5% |
| 3. Service Offering | 15% | Passenger Mix | 5% |
| | | Stability of Traffic Performance | 5% |
| | | Carrier Base | 5% |
| 4. Capacity and Capital | 5% | Ability to Accommodate Expected Traffic Growth | 5% |
| 5. Financial Policy | 10% | Financial Policy | 10% |
| 6. Leverage and Coverage | 40% | (FFO + Cash Interest Expense) / (Cash Interest Expense) | 10% |
| | | FFO / Debt | 10% |
| | | Moody's Debt Service Coverage Ratio | 15% |
| | | RCF / Debt | 5% |
| **Total** | **100%** | Total | **100%** |

### 2. Measurement or Estimation of Factors in the Scorecard

We explain our general approach for scoring each scorecard factor and show the weights used in the scorecard. We also provide a rationale for why each of these scorecard components is meaningful as a credit indicator. The information used in assessing the sub-factors is generally found in or calculated from information in company financial statements, derived from other observations or estimated by our analysts.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends in a company's performance as well as for peer comparisons. We utilize historical data (in most cases, the last twelve months of reported results) in this document to illustrate the application of the scorecard. All of the quantitative credit metrics incorporate our standard adjustments to the income statement, cash flow statement and balance sheet amounts for restructuring, impairment, off-balance sheet accounts, receivable securitization programs, under-funded pension obligations, and recurring operating leases.[5]

[5] For details, see our cross-sector methodology about our financial statement adjustments in the analysis of non-financial corporations under the Moody's Related Publications section.

In most cases, the illustrative examples in this document use historic financial data from a recent 12-month period with our standard adjustments. 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.

## 3. Mapping Scorecard Factors to the Rating Categories

After estimating or calculating each sub-factor, the scorecard-indicated outcomes for each of the sub-factors are mapped to a broad Moody's rating category (Aaa, Aa, A, Baa, Ba, B, or Caa).

## 4. Assumptions and Limitations and Rating Considerations Not Included in the Scorecard

This section discusses limitations in the use of the scorecard to map against actual ratings, some of the additional factors that are not included in the scorecard but can be important in determining ratings, and limitations and assumptions that pertain to the overall rating methodology.

## 5. Determining the Overall Scorecard-Indicated Outcome

To determine the overall scorecard-indicated outcome, we convert each of the sub-factor scores into a numeric value based upon the scale below.

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

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

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

We weight lower rating scores more heavily than higher scores in this scorecard because a serious weakness in one area often cannot be completely offset by strength in another. For example, the lack of flexibility normally associated with a high degree of leverage can increase risk more than would be reflected without the additional weighting for a speculative grade score on this measure.

The mapping exercise outlined above produces a final distribution of weights by rating category. These weights are then multiplied by a number which relates to a numeric value of the respective rating category with the results then summed to produce a composite weighted factor score.

The composite weighted factor score is then mapped back to an alphanumeric rating based on the ranges in the table below.

**Scorecard-Indicated Outcome**

| Scorecard-Indicated Outcome | Aggregate Weighted Total Factor Score |
|---|---|
| Aaa | x < 1.5 |
| Aa1 | 1.5 ≤ x < 2.5 |
| Aa2 | 2.5 ≤ x < 3.5 |
| Aa3 | 3.5 ≤ x < 4.5 |
| A1 | 4.5 ≤ x < 5.5 |
| A2 | 5.5 ≤ x < 6.5 |

**Scorecard-Indicated Outcome**

| Scorecard-Indicated Outcome | Aggregate Weighted Total Factor Score |
|---|---|
| A3 | 6.5 ≤ x < 7.5 |
| Baa1 | 7.5 ≤ x < 8.5 |
| Baa2 | 8.5 ≤ x < 9.5 |
| Baa3 | 9.5 ≤ x < 10.5 |
| Ba1 | 10.5 ≤ x < 11.5 |
| Ba2 | 11.5 ≤ x < 12.5 |
| Ba3 | 12.5 ≤ x < 13.5 |
| B1 | 13.5 ≤ x < 14.5 |
| B2 | 14.5 ≤ x < 15.5 |
| B3 | 15.5 ≤ x < 16.5 |
| Caa1 | 16.5 ≤ x < 17.5 |
| Caa2 | 17.5 ≤ x < 18.5 |
| Caa3 | 18.5 ≤ x < 19.5 |
| Ca | x ≥ 19.5 |

For example, an issuer with a composite weighted factor score of 8.7 for factors 1-6 would have a Baa2 preliminary scorecard-indicated outcome.

We apply a seventh factor called "Uplift for Structural Considerations" to the preliminary scorecard-indicated outcome score that results from factors 1-6, in order to arrive at a final scorecard-indicated outcome. Factor 7 can result in upward notching for issuers based on structural enhancements in financing arrangements, which are mainly relevant for project financings.

## 6. Appendices

The Appendices provide illustrative examples of scorecard-indicated outcomes based on historical financial information, as well as a discussion of the key rating considerations in assessing the credit quality of air traffic control providers.

## Factor 1: Concession and Regulatory Framework (15% Weight)

### Why it Matters

The extent to which an airport operator is free to raise or modify its aeronautical charges and its ability to manage key airport assets without constraint are critical elements in determining the credit rating of an airport.

Given the relatively scarce nature of airport sites and the significant environmental and political hurdles needed to be overcome to create new ones, all airports are likely to have some element of monopoly power. As a consequence, many airports are subject to a framework of regulation that oversees/determines the level and structure of the fees that they can charge. In practice, the spectrum of an airport's ability to set aviation charges varies from having complete discretion, through being required to set charges in accordance with an established, consistently applied framework of economic regulation, to facing considerable pressure from political agents to limit fee increases or to reduce charges, thereby creating unpredictability of airport revenues. Complete freedom to set charges provides an airport with significant current and future financial flexibility, while increasing degrees of price control have an incrementally more constraining impact on financial flexibility.

The length of time an airport operator has to enjoy the revenue earning capacity of key airport assets, as well as its ability to manage and, if necessary, sell these assets without constraint are key determinants of an issuer's operational and capital flexibility over the longer term. The nature of the ownership and/or rights of use of an airport's assets can vary from full ownership and control of all or at least all key assets, through some form of concession arrangement, to a lease or license arrangement that may be terminated relatively easily by the grantor.

### How We Assess it For the Scorecard

In assessing the concession and regulatory framework, we look at the following two Sub-factors:

- Ability to Increase Tariffs
- Nature of Ownership / Control

*Ability to Increase Tariffs*

Our assessment focuses primarily on the ability of the airport operator to increase tariffs. The greater the extent to which the decision lies with the operator, the higher the potential flexibility afforded to the issuer to exert its market power and achieve above average returns, typically leading to higher sub-factor scoring.

While an operator may be nominally entitled to change tariffs, the actual ability to increase tariffs may be untested or constrained by other market forces, such as the airlines' bargaining power.

In many cases, airports are subject to regulation. There may be an established framework of economic regulation that has proven to be transparent and provides for a consistent approach to setting rates. A good regulatory framework does not mean that charges would always be permitted to rise, but rather that they would be set fairly in relation to the issuer's costs and other revenues, and give rise to a fair return on capital employed. Other frameworks may be similar, but may lack a track record of implementation upon which to judge their effectiveness in practice. Government-owned airports may also face regulation of their fees and charges by a separate governmental entity. In some cases, this may lead to less transparency in the process than typically occurs in the regulation of private sector companies, even when rates are set at a fair level.

Finally, and irrespective of the rate setting arrangements, an issuer's ability to increase tariffs may be impaired by political interference, and a strong likelihood of delays or blockages in implementation of tariff changes typically leads to a low score in this sub-factor.

*Nature of Ownership / Control*

We assess the issuer's rights, as conveyed through ownership or legal arrangements, to operate the airport, and the period of time that the arrangements will last. An airport that owns critical assets, can operate them without impediment, and has full rights of disposal and/or redevelopment will typically have a high score in this sub-factor. If key assets are not owned outright, we assess the nature and term of the issuer's lease or concession, risks of termination and non-renewal, and whether third-parties control significant aviation assets that could constrain the issuer's ability to manage its operations and future growth. When the remaining life of an issuer's right to profit from the use of the airport assets is short and therefore limits its ability to repay or refinance its debt obligations, or when there is a material risk of lease termination, the issuer will likely score very low in this sub-factor.

FACTOR 1

## Concession and Regulatory Framework (15%)

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Ability to Increase Tariffs | 10% | Operator is entitled to adjust tariffs freely; and<br><br>Operator has a successful track record (>15 years), which is expected to continue, of implementing tariff increases in order to generate above average returns; and<br><br>No contractual or commercial impediments to raise charges in the short term | Operator is entitled to adjust tariffs freely; and<br><br>Operator has a successful track record (>10 years), which is expected to continue, of implementing tariff increases in order to generate sufficient or average returns; and<br><br>No contractual or commercial impediments to raise charges in the short term | Established and transparent framework of economic regulation (>10 years) allowing a fair return on invested capital<br><br>or<br><br>Operator is entitled to adjust tariffs freely but:<br>(i) The operator has a limited track record of implementing tariff increases in order to generate sufficient or average returns; or<br>(ii) The ability of the operator to raise charges is limited in the short term by the existence of multiannual contracts with airlines or an evenly-matched bargaining power between the airport and the airlines | Framework of economic regulation or government rate setting which is expected to allow a fair return on invested capital but which is somewhat untested or unclear in its application<br><br>or<br><br>Operator is entitled to adjust tariffs freely but:<br>(i) The operator has a limited track record of implementing tariff increases in order to generate sufficient or average returns; and<br>(ii) The ability of the operator to raise charges is limited in the short term by the existence of multiannual contracts with airlines, an evenly-matched bargaining power between the airport and the airlines, or the possible recourse to an existing framework of economic regulation if proposed increases are not accepted by airlines | Framework of economic regulation or government rate setting which may allow a fair return on invested capital but which places the entity in a position that it needs a material increase in revenues from growth in volume or other revenue sources to maintain a reasonable financial balance<br><br>or<br><br>Operator is entitled to adjust tariffs freely but:<br>(i)The operator has a limited track record of implementing tariff increases in order to generate sufficient or average returns; and<br>(ii) The ability of the operator to raise charges is limited in the short and medium term by the existence of long multiannual contracts with airlines, a bargaining power tilted towards the airlines, or the threat of regulation / intervention if increases are perceived as excessive | Charges are set by government or third-party agency on an arbitrary basis and not necessarily in line with fair investment criteria<br><br>or<br><br>While operator is legally entitled to adjust tariffs, there is a history and expectation of Government or third-party interference in tariff setting | There is a history or expectation of Government or other third -party intervention to impose reductions in charges or consistently deny increases in charges, in either case with an expected result of a material detrimental impact on the entity's financial position |

FACTOR 1

### Concession and Regulatory Framework (15%)

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Nature of Ownership / Control | 5% | All key airport assets held outright in perpetuity and controlled by airport management | All key airport assets controlled by airport management and held under a long term concession agreement with very limited grantor termination rights | All key airport assets controlled by airport management and held under a medium to long term concession agreement with limited grantor termination rights (e.g. for insolvency only) | All key airport assets controlled by airport management and held under a medium to long term concession agreement with grantor termination rights for under-performance, failure to meet certain financial parameters, or similar triggers | Certain key assets held and managed by third-parties (e.g. airport terminals, gates etc.), while other assets are held by the issuer in perpetuity, or controlled by the issuer under medium to long term leases or concession agreements | Key assets managed by the issuer are held under leases, concessions or license type arrangements with a limited remaining life | The airport is close to a breach under a material lease or concession arrangement that may lead to the termination of that contract |

## Factor 2: Market Position (15% Weight)

### Why it Matters

An airport's relative competitiveness for air traffic in its market, competition from other modes of transport, the size, economic base and other fundamental characteristics of the market it serves, as well as the stability and growth prospects of that market can vary meaningfully from issuer to issuer and are critical aspects of the airport's credit profile. Strong, stable demand for air travel is closely associated with the population size of the market served and its level of wealth. A vibrant local economy with a growing population and strong employment trends is an important characteristic in generating air travel demand. An airport that has a monopoly or dominant market position in a large, populous geographical area has a reduced risk of operational and financial volatility compared to an airport that must compete with similar or larger airports for the air service of a population. International gateway airports in particular may be somewhat more insulated from the impact of regional, or even national economic downturns because they operate in a more global market and typically also benefit from substantial origin and destination (O&D) passenger market. The volume of passengers, both connecting and O&D, provides a strong incentive for air carriers to serve international gateways with consistent and attractive service offerings.

### How We Assess it For the Scorecard

In assessing the market position of an issuer, we look at the following three sub-factors:

» Size of Service Area

» Economic Strength and Diversity of Service Area

» Competition for Travel

*Size of Service Area*

We assess the population size of the market area an airport serves as well as its scope – national, major metropolitan area, or smaller urban area/region.

Obtaining the population size of a defined region is usually fairly straight forward as such information is readily available from government sources. However, the assessment of the geographical area served is less clear-cut. For an issuer that provides all of the main commercial airport service in a country, the determination of population size is simple, but for major airports within a country, the service area may be larger than is evident simply from the population size of the city that the airport serves directly (for example a gateway international airport). Conversely, the service areas of two regional airports may have some overlap. Ultimately, scoring may require an element of estimation based on available population and traffic data. To the extent that an area is served by more than one airport, it will affect not only the assessment of the relevant population size, but also the scoring of the Competition for Travel sub-factor.

*Economic Strength and Diversity of Service Area*

In scoring this sub-factor, we assess the size, diversity and robustness of the service area. We consider the size and growth rate of the service area economy, the impact that economic cycles or shocks may have on air travel, and the diversity of the area's industries in order to assess the impact weakness in a single sector may have on the area economy and on the demand for air service.

Airports in large cities that serve as international gateways for an economically well-developed and diversified country tend to have a very strong market position, including direct access to major international destinations and an extensive network of domestic connections, and thus typically have a high score in this sub-factor. A large city in a developing economy heavily dependent on oil revenues would typically be scored lower than the same sized city in a highly developed and diverse economy. Small, undeveloped service areas highly dependent on a single, cyclical industry usually have low scores in this sub-factor.

*Competition for Travel*

For this sub-factor, we consider an airport's proximity to competing airports or other transportation modes and its market position relative to those facilities. When there are multiple airports in a region and when data is available, we assess an airport's market share by passenger volumes. Airports with very high market shares (typically in excess of 85%) are generally considered to have a dominant position within their air travel market[6]. The judgment as to whether modal competition is material typically depends on an airport's route network (e.g. long-haul versus short-haul) and the nature and state of local transport alternatives. For the sake of simplicity, the lower end of the scorecard focuses solely on air travel competition, because markets large enough to attract multiple airports typically have sufficient demand for multiple modes of transport. Nonetheless, our ratings consider all forms of competition that an airport may face.

An airport that has a monopoly or dominant market position in a given market would have a reduced risk of operational and financial volatility and would thus score higher than an airport that must compete with similar or larger airports for the air service of a population. While the vast majority of rated airports have a dominant position in their immediate metropolitan area, the outer edges of their service areas tend to overlap with the service areas of other, similar airports. In some cases two or more airports can serve one large, metropolitan area successfully, provided there is sufficient demand for service or the different airports segment the market in some way (e.g. one airport can serve as an international gateway and major connecting hub, while other, smaller airports can focus on servicing short haul leisure passengers and provide greater geographical convenience to certain portions of the metropolitan area). Their respective market positions are considered for scoring this sub-factor.

Airports also compete with other means of transport. Given the relatively small number of airports within any given region, air travel will generally not be competitive with road or rail traffic for distances under about 250-300 km (other than in nations with an under-developed or poorly maintained road and/or rail network).

[6] The revenue base of most rated airports primarily relates to passenger travel. When pertinent, we also consider the market position of air cargo.

Rail services can be competitive with air travel for long-distance travel times of under about 2½ to 3 hours. This is more common in regions of the world with fairly concentrated populations and well developed rail networks, such as Europe and Japan. The competition from rail is likely to be more intense where high speed rail services have been established, good examples being the Japanese Shinkansen network, the French TGV and the cross-English Channel high speed rail services. As Europe and parts of Asia (notably China) have active high speed rail building programs, competition for services may increase for certain airports in the future. Clearly, for very long distance travel (such as intercontinental trips) air travel is the only viable solution for most travelers. An airport would typically have a fairly wide route network and it would unlikely be exposed to rail travel on the majority of its route network.

FACTOR 2

## Market Position (15%)

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Size of Service Area | 5% | Network of airports that serves the entire needs of a large sovereign state | Serves major metropolitan area or region of over 5m people | Serves major metropolitan area or region of between 1.5m and 5m people | Serves significant urban area or region of between 0.5m and 1.5m people | Serves an urban area or region of between 0.25m and 0.5m people | Serves an urban area or region of between 0.1m and 0.25m people | Serves an urban area or region of less than 0.1m people |
| Economic Strength & Diversity of Service Area | 5% | Serves a large international gateway city with a highly diversified economy with solid historical and projected growth (e.g. a capital city of a G7 country) | Serves a large city or region with a strong and well diversified economic base with solid growth (e.g. major city in a large country or a capital city of a mid-sized European nation) | Serves a city or region with a developed and reasonably diversified economic base (e.g. regional city in a large country or a capital city of a smaller European nation) | Serves a city or region with a good economic base but subject to some industry concentration (e.g. a tourist region in an advanced economy) | Serves a small city or region, or a city or region with an evolving economy currently at a low base or with heavy industry concentration and hence susceptible to volatility | Serves a city or region with a weak or deteriorating economic base and very little diversification (e.g. a small island nation dependent on tourism) | Serves a city or region with a poor economic base with constrained recovery prospects and limited diversification |
| Competition for Travel | 5% | Has a virtual monopoly with no reasonable alternatives | Has a monopoly of air travel within its geographical area but exposed to material competition from other modes of transport or Has dominant position (typically in excess of 85%) for providing air travel within its geographical area with limited competition from weaker airports and no material competition from other modes of transport | Has a dominant position for providing air travel within its geographical area with limited competition from weaker airports but exposed to material competition from other modes of transport | Has a majority of air travel market within its geographical area but exposed to substantial competition within its geographical area | Has a minority of air travel market within its geographical area but not dominated by other airport providers | Has a minority of air travel market within its geographical area and is dominated by a competitor | Offers no substantial competitive air service or Has a rapidly shrinking minority share within its geographical area |

## Factor 3: Service Offering (15% weight)

### Why it Matters

Airports primarily generate revenues from the airlines that use their facilities and from those airlines' passengers. The attractiveness of an airport to airlines and the scope and stability of service offerings for passengers are a critically important factor in determining an airport's creditworthiness.

### How We Assess it For The Scorecard

In assessing the service offering of an issuer, we look at the following three sub-factors:

» Passenger Mix

» Stability of Traffic Performance

» Carrier Base

There are two main types of airports, O&D airports and hub airports (see definitions below), and these sub-factors incorporate the impact of the airport type on stability of traffic. An airport primarily serving passengers who have a need to travel to or from the geographic area served by the airport (called origin and destination or "O&D" traffic), is an O&D airport. Some airports host one or more airlines whose business model includes a comprehensive route network that concentrates air service from multiple cities (also called "feeder" traffic) to a single, reasonably central airport (the "hub airport") as a more cost-effective way to provide service than a point-to-point route network. Typically, at least 20% of a hub airport's passenger traffic is comprised of transfer passengers, but we may also consider other factors, including the revenue derived from these passengers.

Hub airports have certain advantages, including more passengers and the ability to draw passengers from a larger geographic area, due to more robust service offerings. However, passengers can quickly be lost if the airline chooses to change its operating patterns or if the airline fails. A hub airport that has incurred significant debt to finance a terminal with capacity to serve transiting passengers may be vulnerable if it is "de- hubbed", i.e. its anchor airline stops providing service or moves its hub to another airport, leading to a dramatic decrease in passenger volumes. Such collapses of traffic may be somewhat temporary (i.e. a high proportion of the natural transfer traffic within a nation may be picked up by another airline) or more permanent if the departing airline had been aggressive in capturing more distant transfer traffic. That part of an airport's revenue that is derived from transfer traffic is generally considered more at risk than revenue generated from O&D traffic, and airports with a higher proportion of O&D traffic tend to have a more resilient traffic profile.

*Passenger Mix*

For this sub-factor, we assess the share of origin and destination traffic as a percentage of total traffic. An airport's passenger mix provides an indication of its susceptibility to loss of connecting or transfer traffic.

*Stability of Traffic Performance*

For this sub-factor we consider historical passenger traffic information as a tool to assess the likely future traffic performance. As part of our assessment, we generally look at the historical standard deviation of the annual year on year growth rates of passenger traffic over a number of consecutive years (typically ten years or more). Generally, the longer the track record of stable and predictable passenger traffic, the more comfort we derive from traffic projections that remain in line with this track record. However, when traffic performance is expected to show increased volatility, for instance during periods of economic or political upheaval, in the aftermath of a disruptive event (e.g. air space closures after volcanic eruptions) or following the introduction of stricter, more cumbersome security measures to deter or prevent security threats, historical data may be less useful in scoring this sub-factor.

*Carrier Base*

For this sub-Factor, we assess the airport's exposure to the risks associated with the profile of the airlines operating at the airport, including their diversity or concentration and their credit profiles.

For hub airports there is almost always a meaningful concentration in one airline; thus, for simplicity, the scoring focuses on the main airline's credit profile and share of transit passengers as the main drivers of risk. However, if an airport were materially exposed to de-hubbing by a financially healthy airline, the issuer's final rating would reflect that risk.

For O&D airports, we assess the diversity of the airlines measured by their respective shares of passenger traffic. There are many benefits from diversity, including reduced dependence on a single airline for passenger traffic and gate fee revenues and reduced risk of a sharp decrease in traffic should an airline discontinue service or go out of business. Furthermore, a market place with substantial service from many airlines typically indicates the strength of the market, and a crowded marketplace prevents a single carrier from using market power to drive up airfares and suppress passenger traffic.

FACTOR 3

**Service Offering (15%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Passenger Mix | 5% | Share of origin and destination (O&D) passengers is greater than 95% | Share of O&D passengers is between 80% and 95% | Share of O&D passengers is between 70% and 80% | Share of O&D passengers is between 60% and 70% | Share of O&D passengers is between 50% to 60% | Share of O&D passengers is between 40% to 50% | Share of O&D passengers is less than 40% |
| Stability of traffic performance | 5% | Long track record (>10 years) of traffic performance with minimal volatility and no history of negative shocks (e.g. standard deviation of long term passenger growth < 2%); and observed volatility trends are expected to continue | Long track record of traffic performance with very low volatility and quick recovery from any negative shocks (e.g. standard deviation of long term passenger growth < 4%); and observed volatility trends are expected to continue | Long track record of traffic performance with low volatility (e.g. standard deviation of long term passenger growth < 6%); and observed volatility trends are expected to continue | Long track record of traffic performance with moderate volatility (e.g. standard deviation of long term passenger growth < 8%); and observed volatility trends are expected to continue | Long track record of traffic performance with substantial volatility (e.g. standard deviation of long term passenger growth < 10%) or<br><br>Future traffic performance is expected to show substantial volatility | Highly volatile traffic performance record (e.g. standard deviation of long term passenger growth > 10%) or<br><br>Future traffic performance is expected to be highly volatile | No historical data or start up airport<br>or<br><br>Data of questionable quality |
| Carrier base (hub airports) | | Primary carrier has credit profile of Ba or above and captures less than 50% of total transfer traffic | Primary carrier has credit profile of Ba or above and captures between 50% and 75% of total transfer traffic | Primary carrier has credit profile of B or below and captures less than 50% of total transfer traffic | Primary carrier has credit profile of Ba or above and captures more than 75% of total transfer traffic | Primary carrier has credit profile of B or below and captures between 50% and 75% of total transfer traffic | Primary carrier has credit profile of B or below and captures more than 75% of total transfer traffic | Primary carrier is expected to cease operations in the near future |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Carrier base (O&D airports) | 5% | Passenger traffic is diversified across a wide spectrum of domestic and international carriers with no carrier accounting for more than 10% of total passenger traffic | Primary carrier accounts for between 10% and 20% of total passenger traffic; remaining passenger traffic is spread out across a spectrum of domestic and international carriers | Primary carrier accounts for between 20% and 40% of total passenger traffic; remaining passenger traffic is well diversified across a number of other airlines | Primary carrier accounts for between 40% and 55% of total passenger traffic; remaining passenger traffic is diversified across a number of carriers | Primary carrier accounts for between 55% and 75% of total passenger traffic; remaining passenger traffic is spread out across a limited number of other carriers | Primary carrier accounts for between 75% and 90% of total passenger traffic; limited service from a number of other carriers | Primary carrier accounts for more than 90% of total passenger traffic |

## Factor 4: Capacity and Capital (5% weight)

### Why it Matters

Given the secular trend of global air travel growth and travelers' increasing expectations regarding airport amenities, most airports will be required to undertake capacity increases or significant renovation projects at some point in the future. Customer service can suffer if an airport does not have the necessary capacity to accommodate passenger growth. Whether the capacity is limited for airline operations, parking, terminal facilities or curbside access, such limitations can discourage airlines from continuing service at that airport and can cause significant political pressure. These major capital projects can be very costly and complex in nature, especially if they need to overcome particularly challenging physical conditions or accommodate other external constraints to construction and/or expansion. As a result, capacity and capital can have a material impact on an airport's credit profile.

### How We Assess it For The Scorecard

For this sub-factor, we assess the extent to which an airport's capacity can accommodate growth over the next five to ten years without requiring significant capital investment. We also consider the complexity of any capital plans that would be required to add necessary capacity, as well as the issuer's track record in managing such plans and delivering projects on time and within budget. Growth can also be constrained by government-imposed regulations on operations. Such restrictions may include limits on traffic movements, night time flying, transport access to the airport, and restrictions on additional land access. These limits may reduce the airport's ability to effectively serve the needs of the community and, therefore, reduce its economic value.

In assessing project management capabilities of the issuer, we assess the full life cycle of the process. Effective capital planning is one of the most important of management's responsibilities, because excessive capital spending is one of the most common causes for credit deterioration in the airport sector. A strong strategic, long-term vision for the airport would include a comprehensive plan for what facilities will be needed and how they can be provided in a cost effective manner, given the many constraints airports face. Flexibility of the plan to adapt to changing growth trends is a key element because so many aspects of the industry change over time and most major capital projects take five to ten years from planning to completion. Most highly rated airports strategically manage facility expansion and renovation to accommodate passenger growth and expectations regarding the airport environment, while retaining sufficient flexibility to provide for volatility in that expected growth. Airport capital projects tend to occur at discreet points, but they accommodate growth that occurs more gradually, so effective planning is key as major capital projects are often difficult to stop or change in scope once they have begun.

Project construction risk often stems from complexity, scope changes between design and completion, outdated or inaccurate cost estimates, material or labour cost escalations, poor contracting/bidding procedures, contractor management/oversight issues, environmental compliance, or community concerns. We evaluate both the complexity of the capital program and the airport's management experience and performance on recent projects of similar complexity.

FACTOR 4

**Capacity and Capital (5%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Ability to accommodate expected traffic growth | 5% | Ability to accommodate expected future growth is unconstrained and<br><br>No expansion capex required (maintenance capex only) | Ability to accommodate expected growth is unconstrained in the near and medium term; Accommodation of long-term growth requires moderate, standard capital improvements and<br><br>The entity has a long history of delivering projects on budget and on time | Accommodation of mid-term growth requires moderate, standard capital improvements; Accommodation of long-term growth may require significant capital investment or lifting of externally imposed operational restrictions. and<br><br>Project complexity is similar to projects the entity has completed on budget and on time in the past | Accommodation of near to mid-term growth requires significant capital investment or lifting of externally imposed operational restrictions and<br><br>Project complexity is typically similar to projects the entity has completed on budget and on time in the past | Government action or settlement agreement and/or physical limitations and/or obsolescence of key assets restrict growth or<br><br>Projects required to address limitations to accommodate growth are fairly complex relative to projects completed by the entity in the past | Government action or settlement agreement and/or physical limitations and/or obsolescence of key assets severely restrict growth or<br><br>Projects required to address limitations to accommodate growth are very complex relative to projects completed by the entity in the past and/or the entity has a history of significant cost overruns and poor project management | Operational restrictions and/or obsolescence of key assets make it difficult to sustain current levels of operations |

## Factor 5: Financial Policy (10% Weight)

### Why it Matters

Management and board tolerance for financial risk is a rating determinant as it directly affects debt levels, credit quality, and the risk of adverse changes in financing and capital structure.

Our assessment of financial policies includes the perceived tolerance of a company's governing board and management for financial risk and the future direction for the company's capital structure. Considerations include a company's public commitments in this area, its track record for adhering to commitments, and our views on the ability for the company to achieve its targets.

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 a company that has built flexibility within its rating category if we believe the company will use that flexibility to fund a strategic acquisition, distribute significant cash to shareholders, or conduct a 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 credit metrics to pre-transaction levels and has consistently demonstrated the commitment to do so through prior actions.

### How We Assess it For The Scorecard

*Financial Policy*

We assess the issuer's desired capital structure or targeted credit profile, history of prior actions and adherence to its commitments. Attention is paid to management's operating performance and use of cash flow through different phases of economic cycles. 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, and regulatory pressures.

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

The financial policy of airport operators with project financings typically includes the distribution of all excess cash flow, which reflects their single-purpose nature and has typically led to a Ba score for this sub-factor, although issuers with long and consistent track records of prudent financial policies may be scored higher on this factor. While most if not all airport project financing structures set limits on shareholders' ability to extract excessive returns or to make acquisitions, these and other structural enhancements that may be key to credit quality are assessed as a notching adjustment to the initial scorecard score in a separate factor, Uplift for Structural Considerations. Hence, these considerations are not evaluated under this factor to avoid double counting.

FACTOR 5

**Financial Policy (10%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Financial Policy | 10% | Long track record and expected maintenance of extremely conservative financial policy; very stable metrics; low debt levels for the industry; and<br><br>Public commitment to the highest credit quality over the long-term | Long track record and expected maintenance of a conservative financial policy; stable metrics; lower than average debt levels for the industry; and<br><br>Public commitment to a very high credit quality over the long-term | Extended track record and expected maintenance of a conservative financial policy; moderate debt leverage and a balance between shareholders and creditors;<br><br>Not likely to increase shareholder distributions and/or make acquisitions which could lead to a weaker credit profile;<br><br>Solid commitment to high credit quality | Track record and expected maintenance of a conservative financial policy; an average level of debt for the industry and a balance between shareholders and creditors;<br><br>Some risk that shareholder distributions and/or acquisitions could lead to a weaker credit profile;<br><br>Solid commitment to targeted metrics | Track record or expectation of maintenance of a financial policy that is likely to favor shareholders over creditors; higher than average, but not excessive, level of leverage;<br><br>Owners are likely to focus on extracting distributions and/or acquisitions but not at the expense of financial stability | Track record of aggressive financial policies or expected to have a financial policy that favors shareholders through high levels of leverage with only a modest cushion for creditors;<br><br>or<br><br>High financial risk resulting from shareholder distributions or acquisitions | Expected to have a financial policy unfavorable to creditors with a track record of or expected policy of maintaining excessively high debt leverage;<br><br>or<br><br>Elevated risk of debt restructuring |

## Factor 6: Leverage and Coverage (40% Weight)

### Why it Matters

The first five rating factors aim to capture the credit strengths and weaknesses afforded by the airport operator's fundamental business and its financial policies. An issuer's overall credit profile also incorporates its financial profile. All other things being equal, an issuer with substantially more debt than its peers relative to its cash flow will typically have a higher probability of default.

For the scorecard, we utilize metrics that indicate the absolute capacity of the issuer to service its debt and permit comparison of the size of its debt burden relative to its peers. Leverage and coverage ratios in this sector need to take into account the fact that the issuer may have an asset with a limited economic life such as a concession or lease of fixed duration. Ratings in this sector typically consider a combination of historical ratios and our forward-looking estimates, taking into account the remaining life of the concession/lease, or the implied perpetual concession in the cases of assets owned outright.

### How We Assess It For The Scorecard

To score this factor in the scorecard, we use four financial ratios:

» Cash Interest Coverage: (FFO + Cash Interest Expense[7]) / (Cash Interest Expense)

[7] Cash Interest Expense = Interest Expense – Non Cash Accretion. For issuers that use unconventional debt funding, such as zero-coupon, capital accretion, index-linked bonds or swap arrangements, we seek to make the appropriate adjustments to the ratio calculations by removing the non-cash expense element. For clarity, Non-Cash Accretion is deducted in the numerator only to the extent it has been added to FFO, and it is deducted from the denominator only to the extent that it has been included in Interest Expense.

» Funds from Operations (FFO) / Debt

» Moody's Debt Service Coverage Ratio ("Moody's DSCR")[8]

» Retained Cash Flow (RCF) / Debt

However, no single financial ratio can adequately convey the relative credit strength of these highly diverse companies. Our ratings consider the overall financial strength of a company, and in individual cases other financial indicators may also play an important role.

*Cash Interest Coverage:*

The cash interest coverage ratio is an indicator of an airport's ability to cover the cost of its borrowed capital. The numerator is Funds from Operations plus Cash Interest Expense, and the denominator is Cash Interest Expense. The calculation of Cash Interest Coverage utilizes cash interest rather than accrued interest in order to improve comparability among peers of the financial flexibility that an operator has in meeting interest payments due on its debt in this sector, where some issuers have material non-traditional financings.

*Funds from Operation (FFO) / Debt:*

This metric is an indicator for the cash generating ability of an airport operator compared to its total debt and provides information about the size of an issuer's debt relative to that of its peers[9]. The numerator is Funds from Operations, as defined above, and the denominator is Total Debt.

*Moody's Debt Service Coverage Ratio (DSCR):*

This ratio is a coverage ratio that aims to measure the amount of "headroom" afforded by the issuer's cash flows in servicing and ultimately repaying its debt burden, capturing the limited life of an issuer's cash-generating concession/lease.

The numerator is FFO, as defined above, plus Cash Interest Expense, and the denominator is Debt Service Annuity, where:

» **Debt Service Annuity**, refers to the annuity-type payment of interest and principal required to repay outstanding debt over the remaining life of the concession / lease, or implied perpetual concession in the cases of assets held in perpetuity. Debt Service Annuity is calculated using a standard formula that converts a present value ("PV") into an annuity payment with no residual value at maturity. In other words, we assume that: (1) annual debt service is a constant figure, (2) interest rates (the discount rate[10] used in the formula) are constant, and (3) the full amount of debt outstanding in the year of calculation (i.e. the PV of future payments) is paid down to zero over the remaining life of the concession.[11]

» Debt Service Annuity is calculated with the following formula: ((ST Debt + LT Debt, gross) x Discount Rate)) / ( 1 – (1/(1 + Discount Rate)$^{\text{remaining concession life}}$))

8 As outlined below this metric is not equivalent to a Debt Service Coverage Ratio as typically defined in a project finance debt structure

9 We use a measure of total (gross) debt for scoring this sub-factor, as operational airports do not typically carry large cash balances. However, analysts may find it analytically useful to also consider FFO / Net Debt when the track record of the issuer indicates material cash balances are held as part of pre-funding strategies, and this may be reflected in ratings.

10 The discount rate used is typically either (1) the company's actual future cost of debt, if the issuer has largely fixed the interest payable on its debt over the whole life of its concession / lease, or (2) an estimation for the long-term average cost of debt for the issuer's rating category.

11 Where an airport company holds its assets in perpetuity, we calculate the ratio based on a constant concession life of 100 years. Where the company holds a number of concessions with different maturities, we use a weighted-average remaining concession life.

This ratio is forward-looking in the sense that the denominator does not capture the actual debt service (interest plus principal due) reported by the issuer for a historical period, but defines debt service as an assumed annuity – as such, this ratio aims to capture the issuer's ability to service more "normalized" debt obligations, i.e. how debt repayment obligations would manifest themselves on average over the life of the concession/lease and assuming outstanding debt is fully repaid prior to expiry of the concession/lease.

*Retained Cash Flow (RCF) / Debt*

This ratio is an indicator of financial leverage as well as an indicator of the strength of an airport's cash flow after dividend payments are made. The higher the level of retained cash flow relative to an airport's debt, the more cash it has to support its capital expenditure program. For issuers with high leverage and complex structured financings, dividend obligations can sometimes be substantial, quasi-permanent outflows that can affect the ability to cover their debt obligations, and this ratio can also provide insight into their financial policies. The numerator of this ratio is FFO, as defined above, minus dividends, and the denominator is total debt.

FACTOR 6

**Leverage and Coverage (40%)**

| Sub-Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| (FFO + Cash Interest Expense) / (Cash Interest Expense) | 10% | ≥10x | 7-10x | 4.5-7x | 2.5-4.5x | 1.8-2.5x | 1.5-1.8x | <1.5x |
| FFO / Debt | 10% | ≥40% | 25-40% | 14-25% | 8-14% | 6-8% | 3-6% | <3% |
| Moody's DSCR[12] | 15% | ≥8x | 6-8x | 4.5-6x | 3-4.5x | 2-3x | 1.5-2x | <1.5x |
| RCF / Debt | 5% | ≥28% | 16-28% | 10-16% | 6-10% | 4-6% | 2-4% | <2% |

## Factor 7: Uplift for Structural Considerations

Issuers covered under this methodology employ different debt structures. While many airport operators may fund themselves with more typical senior unsecured/secured debt instruments, others may have agreed to creditor protection arrangements as a way of mitigating high leverage.

We believe that in the airport sector, structural enhancements may provide valuable protection to debt creditors. As such, they may be a source of rating uplift when compared to those issuers that do not grant such protections. The defined sources of ratings uplift, their potential characteristics, and their measurement, are set out below.

### How We Assess It

Our determination of the degree of ratings uplift that debt structural features provide an airport issuer is based primarily on an assessment of the following:

A. Factors that reduce the likelihood that an issuer will default on its debt, and

B. Factors that give creditors either the right, or ability, to influence the taking of corrective action to stop or reverse credit deterioration.

In order for structural features to provide ratings uplift, they typically must benefit all debt creditors, although individual creditors may be subject to different payment priorities.

12 (FFO + Cash Interest Expense ) / Debt Service Annuity. Debt Service Annuity is calculated with the following formula: ((ST Debt + LT Debt, gross) x Discount Rate)) / ( 1 – (1/(1 + Discount Rate)$^{\text{remaining concession life}}$)).

*A. Factors that reduce the likelihood that an issuer will default on its debt*

These comprise:

1. **Restriction on business activities**. Prohibiting an issuer from engaging in new activities or making acquisitions is seen as credit positive because it eliminates the business risk associated with corporate activity and ensures that all critical functionality is subject to the debt structural features.
2. **Restriction on raising additional debt**. Restricting additional indebtedness reduces the risk that additional obligations can cause a payment default.
3. **Distribution lock-up tests**. Prohibiting distributions to shareholders in a distressed scenario preserves cash within the business, thus reducing the risk of default.
4. **Limits on debt structure**. Requiring the issuer to remove or mitigate certain financial risks, such as interest rate, currency or refinancing risk. The latter can range from restrictions on debt maturity concentration to the implementation of a fully amortizing debt structure, which in itself can achieve a full notch of ratings uplift. Covenants can also restrict the issuer's use of derivative products, thus reducing the likelihood of additional and/or sizeable claims on the business.
5. **Reserves to cover large future or unforeseen costs**. Dedicated timing reserves for large-cost items, e.g., one-off capital expenditure.

***B. Factors that give creditors either the right, or ability, to influence the taking of corrective action – to stop or reverse credit deterioration***

An important element of leveraged infrastructure debt structures has been the ability of debt creditors to force owners to reduce debt ahead of the point where equity value is lost and debt is impaired, and to take action to repay debt through the enforcement of security if this is not achieved. The debt event of default tests and the consequences of these are key elements of this protection. To provide effective protection to creditors, these features need to work within the context of the business being financed, in most cases to allow the operating businesses to continue as a going concern and to allow debt service to be paid though available liquidity facilities while action is being taken.

The elements of debt structural features that provide control rights are assessed in the following areas:

1. **Effectiveness of control rights.** The degree to which the exercise of control rights may be impeded (e.g., local jurisdiction laws or certain regulatory restrictions). We assess the proposed terms and conditions in conjunction with legal guidance to ascertain whether the proposed control rights are likely to operate as intended.
2. **Length of the control period.** The length of time debt 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 / regulatory license is terminated).
3. **Dedicated liquidity support.** Dedicated liquidity support facilities to cover ongoing debt service while control rights are exercised. To be considered valuable, such dedicated liquidity would need to be available for use in circumstances where control rights are exercised.

In almost all cases, to be effective and/or to assure the structure has integrity, debt structural features need to include the following elements:

» The entity subject to the financing and the restrictions would be 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 and/or restrictions in the financial structure.

- » All debt creditors must be subject to common terms that ensure that individual creditors or creditors cannot take unilateral action to destabilize the financing.
- » Creditor step-in rights should be specifically permitted under the concession or legal framework, as well as the finance documents. Note that we give value to security arrangements only as 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). Further, if remedial action is not possible or fails, the security arrangements are used to maximize recovery prospects.

Structural features that provide a meaningful level of creditor protection would provide a notching uplift to the composite score generated from the scorecard factors, a final step to arrive at the scorecard-indicated outcome.

When assessing rating uplift we consider the package as a whole (i.e. elements of both A. and B. above) in order to gauge the overall effectiveness. For example, independent validation of compliance with financial ratio covenants may be an important consideration in assessing the ongoing effectiveness of such covenants.

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.

Structural enhancements that we view as very comprehensive and effective can deliver an uplift of up to three notches within the scorecard. However, the typical uplift would be in the range of zero to two notches. Due to the broad spectrum of possible financing structures (which can contain a variety of elements in an array of potential combinations), these enhancements are scored in increments of half-a-notch. While debt structural features could in theory be stronger than those we have encountered, more restrictive terms and conditions would constrain management abilities to pursue strategies and policies and may not be suited to certain types of businesses, so they have typically fallen within a moderately narrow range.

Ratings fully incorporate our view of the actual structural or contractual features in a particular transaction. In very rare cases contractual features may provide greater uplift to the issuer's credit quality than the 3 notches that is the limit within the scorecard.

## Assumptions and Limitations, and Rating Considerations That Are Not Covered in the Scorecard[13]

The scorecard in this rating methodology represents a decision to favor simplicity that enhances transparency and to avoid greater complexity that would enable the scorecard to map more closely to actual ratings. Accordingly, the seven rating factors in the scorecard do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in the privately managed airport sector. In addition, our ratings incorporate expectations for future performance, while the financial information that is used to illustrate the mapping in the scorecard in this document is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we can't disclose. In other cases, we estimate future results based upon past performance, industry trends,

[13] For clarity, while the scorecard above applies to privately managed airports, this section applies to all issuers rated using this methodology, including air traffic control providers.

competitor actions or other factors. In either case, predicting the future is subject to the risk of substantial inaccuracy.

Assumptions that may cause our forward-looking expectations to be incorrect include unanticipated changes in any of the following factors: the macroeconomic environment and general financial market conditions, industry competition, disruptive technology, regulatory and legal actions.

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, that legal priority of claim affects average recovery on different classes of debt sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that access to liquidity is a strong driver of credit risk.

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

Ratings may include additional factors that are difficult to quantify or that have a meaningful effect in differentiating credit quality only in some cases, but not all. Such factors include financial controls, 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. While these are important considerations, it is not possible to precisely express these in the rating methodology scorecard without making the scorecard excessively complex and significantly less transparent. Ratings may also reflect circumstances in which the weighting of a particular factor will be substantially different from the weighting suggested by the scorecard.

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

## Other Rating Considerations

Ratings consider a number of additional considerations. These include but are not limited to our assessment of the quality of management, corporate governance, financial controls, liquidity management, the impact of other businesses, event risk and seasonality.

### 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. A record of consistency provides us with insight into management's likely future performance in stressed situations and can be an indicator of management's tendency to depart significantly from its stated plans and guidelines.

## Corporate Governance

Among the areas of focus in corporate governance are audit committee financial expertise, the incentives created by executive compensation packages, related party transactions, interactions with outside auditors, and ownership structure.

## 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 centralized operations and the proper tone at the top and consistency in accounting policies and procedures. Auditors' comments in financial reports and unusual financial statement restatements or delays in regulatory filings may indicate weaknesses in internal controls.

## Liquidity Management

Liquidity is an important rating consideration for all privately managed airport operators. Liquidity can be particularly important for non-investment grade companies where issuers typically have less operating and financial flexibility. We form an opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash.

## Impact of Other Businesses

This methodology scorecard is applied to the assessment of issuers, whose primary activity is the operation of airports. Where the company has or will seek to diversify its operations to non-core airport activities[14], we seek to determine the impact of the presence of such business on the overall fundamentals. In particular, investments into businesses that entail higher risk than the core airport business would likely result in a lower rating 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. Typical special events include mergers and acquisitions, asset sales, spin-offs, capital restructuring programs, litigation and shareholder distributions.

[14] In this context, "non-core" activities is not intended to pick up investments in activities that are ancillary to the management and development of the airport sites.

## Appendix A: Privately Managed Airports Methodology Factor Scorecard

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| **Factor 1: Concession and Regulatory Framework (15%)** | | | | | | | | |
| Ability to Increase Tariffs | 10% | Operator is entitled to adjust tariffs freely; and<br><br>Operator has a successful track record (>15 years), which is expected to continue, of implementing tariff increases in order to generate above average returns; and<br><br>No contractual or commercial impediments to raise charges in the short term | Operator is entitled to adjust tariffs freely; and<br><br>Operator has a successful track record (>10 years), which is expected to continue, of implementing tariff increases in order to generate sufficient or average returns; and<br><br>No contractual or commercial impediments to raise charges in the short term | Established and transparent framework of economic regulation (>10 years) allowing a fair return on invested capital<br>or<br><br>Operator is entitled to adjust tariffs freely but:<br>(i) The operator has a limited track record of implementing tariff increases in order to generate sufficient or average returns; or<br>(ii) The ability of the operator to raise charges is limited in the short term by the existence of multiannual contracts with airlines or an evenly-matched bargaining power between the airport and the airlines | Framework of economic regulation or government rate setting which is expected to allow a fair return on invested capital but which is somewhat untested or unclear in its application<br>or<br><br>Operator is entitled to adjust tariffs freely but:<br>(i) The operator has a limited track record of implementing tariff increases in order to generate sufficient or average returns; and<br>(ii) The ability of the operator to raise charges is limited in the short term by the existence of multiannual contracts with airlines, an evenly-matched bargaining power between the airport and the airlines, or the possible recourse to an existing framework of economic regulation if proposed increases are not accepted by airlines | Framework of economic regulation or government rate setting which may allow a fair return on invested capital but which places the entity in a position that it needs a material increase in revenues from growth in volume or other revenue sources to maintain a reasonable financial balance<br>or<br><br>Operator is entitled to adjust tariffs freely but:<br>(i)The operator has a limited track record of implementing tariff increases in order to generate sufficient or average returns; and<br>(ii) The ability of the operator to raise charges is limited in the short and medium term by the existence of long multiannual contracts with airlines, a bargaining power tilted towards the airlines, or the threat of regulation / intervention if increases are perceived as excessive | Charges are set by government or third - party agency on an arbitrary basis and not necessarily in line with fair investment criteria<br>or<br>While operator is legally entitled to adjust tariffs, there is a history and expectation of Government or third - party interference in tariff setting | There is a history or expectation of Government or other third-party intervention to impose reductions in charges or consistently deny increases in charges, in either case with an expected result of a material detrimental impact on the entity's financial position |

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| Nature of Ownership / Control | 5% | All key airport assets held outright in perpetuity and controlled by airport management | All key airport assets controlled by airport management and held under a long term concession agreement with very limited grantor termination rights | All key airport assets controlled by airport management and held under a medium to long term concession agreement with limited grantor termination rights (e.g. for insolvency only) | All key airport assets controlled by airport management and held under a medium to long term concession agreement with grantor termination rights for under-performance, failure to meet certain financial parameters, or similar triggers | Certain key assets held and managed by third - parties (e.g. airport terminals, gates etc.), while other assets are held by the issuer in perpetuity, or controlled by the issuer under medium to long term leases or concession agreements | Key assets managed by the issuer are held under leases, concessions or license type arrangements with a limited remaining life | The airport is close to a breach under a material lease or concession arrangement that may lead to the termination of that contract |
| **Factor 2: Market Position (15%)** | | | | | | | | |
| Size of Service Area | 5% | Network of airports that serves the entire needs of a large sovereign state | Serves major metropolitan area or region of over 5m people | Serves major metropolitan area or region of between 1.5m and 5m people | Serves significant urban area or region of between 0.5m and 1.5m people | Serves an urban area or region of between 0.25m and 0.5m people | Serves an urban area or region of between 0.1m and 0.25m people | Serves an urban area or region of less than 0.1m people |
| Economic Strength & Diversity of Service Area | 5% | Serves a large international gateway city with a highly diversified economy with solid historical and projected growth (e.g. a capital city of a G7 country) | Serves a large city or region with a strong and well diversified economic base with solid growth (e.g. major city in a large country or a capital city of a mid-sized European nation) | Serves a city or region with a developed and reasonably diversified economic base (e.g. regional city in a large country or a capital city of a smaller European nation) | Serves a city or region with a good economic base but subject to some industry concentration (e.g. a tourist region in an advanced economy) | Serves a small city or region, or a city or region with an evolving economy currently at a low base or with heavy industry concentration and hence susceptible to volatility | Serves a city or region with a weak or deteriorating economic base and very little diversification (e.g. a small island nation dependent on tourism) | Serves a city or region with a poor economic base with constrained recovery prospects and limited diversification |
| Competition for Travel | 5% | Has a virtual monopoly with no reasonable alternatives | Has a monopoly of air travel within its geographical area but exposed to material competition from other modes of transport<br>or<br>Has dominant position (typically in excess of 85%) for providing air travel within its geographical area with limited competition from weaker airports and no material competition from other modes of transport | Has a dominant position for providing air travel within its geographical area with limited competition from weaker airports but exposed to material competition from other modes of transport | Has a majority of air travel market within its geographical area but exposed to substantial competition within its geographical area | Has a minority of air travel market within its geographical area but not dominated by other airport providers | Has a minority of air travel market within its geographical area and is dominated by a competitor | Offers no substantial competitive air service<br>or<br>Has a rapidly shrinking minority share within its geographical area |

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| **Factor 3: Service Offering (15%)** | | | | | | | | |
| Passenger Mix | 5% | Share of origin and destination (O&D) passengers is greater than 95% | Share of O&D passengers is between 80% and 95% | Share of O&D passengers is between 70% and 80% | Share of O&D passengers is between 60% and 70% | Share of O&D passengers is between 50% to 60% | Share of O&D passengers is between 40% to 50% | Share of O&D passengers is less than 40% |
| Stability of Traffic Performance | 5% | Long track record (>10 years) of traffic performance with minimal volatility and no history of negative shocks (e.g. standard deviation of long term passenger growth < 2%); and observed volatility trends are expected to continue | Long track record of traffic performance with very low volatility and quick recovery from any negative shocks (e.g. standard deviation of long term passenger growth < 4%); and observed volatility trends are expected to continue | Long track record of traffic performance with low volatility (e.g. standard deviation of long term passenger growth < 6%); and observed volatility trends are expected to continue | Long track record of traffic performance with moderate volatility (e.g. standard deviation of long term passenger growth < 8%); and observed volatility trends are expected to continue | Long track record of traffic performance with substantial volatility (e.g. standard deviation of long term passenger growth < 10%) or Future traffic performance is expected to show substantial volatility | Highly volatile traffic performance record (e.g. standard deviation of long term passenger growth > 10%) or Future traffic performance is expected to be highly volatile | No historical data or start up airport or Data of questionable quality |
| Carrier Base (hub airports) | | Primary carrier has credit profile of Ba or above and captures less than 50% of total transfer traffic | Primary carrier has credit profile of Ba or above and captures between 50% and 75% of total transfer traffic | Primary carrier has credit profile of B or below and captures less than 50% of total transfer traffic | Primary carrier has credit profile of Ba or above and captures more than 75% of total transfer traffic | Primary carrier has credit profile of B or below and captures between 50% and 75% of total transfer traffic | Primary carrier has credit profile of B or below and captures more than 75% of total transfer traffic | Primary carrier is expected to cease operations in the near future |
| Carrier Base (O&D airports) | 5% | Passenger traffic is diversified across a wide spectrum of domestic and international carriers with no carrier accounting for more than 10% of total passenger traffic | Primary carrier accounts for between 10% and 20% of total passenger traffic; remaining passenger traffic is spread out across a spectrum of domestic and international carriers | Primary carrier accounts for between 20% and 40% of total passenger traffic; remaining passenger traffic is well diversified across a number of other airlines | Primary carrier accounts for between 40% and 55% of total passenger traffic; remaining passenger traffic is diversified across a number of carriers | Primary carrier accounts for between 55% and 75% of total passenger traffic; remaining passenger traffic is spread out across a limited number of other carriers | Primary carrier accounts for between 75% and 90% of total passenger traffic; limited service from a number of other carriers | Primary carrier accounts for more than 90% of total passenger traffic |

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| **Factor 4: Capacity and Capital (5%)** | | | | | | | | |
| Ability to accommodate expected traffic growth | 5% | Ability to accommodate expected future growth is unconstrained and<br><br>No expansion capex required (maintenance capex only) | Ability to accommodate expected growth is unconstrained in the near and medium term; Accommodation of long-term growth requires moderate, standard capital improvements and<br><br>The entity has a long history of delivering projects on budget and on time | Accommodation of mid-term growth requires moderate, standard capital improvements; Accommodation of long-term growth may require significant capital investment or lifting of externally imposed operational restrictions. and<br><br>Project complexity is similar to projects the entity has completed on budget and on time in the past | Accommodation of near to mid-term growth requires significant capital investment or lifting of externally imposed operational restrictions and<br><br>Project complexity is typically similar to projects the entity has completed on budget and on time in the past | Government action or settlement agreement and/or physical limitations and/or obsolescence of key assets restrict growth or<br><br>Projects required to address limitations to accommodate growth are fairly complex relative to projects completed by the entity in the past | Government action or settlement agreement and/or physical limitations and/or obsolescence of key assets severely restrict growth or<br><br>Projects required to address limitations to accommodate growth are very complex relative to projects completed by the entity in the past and/or the entity has a history of significant cost overruns and poor project management | Operational restrictions and/or obsolescence of key assets make it difficult to sustain current levels of operations |
| **Factor 5: Financial Policy (10%)** | | | | | | | | |
| Financial Policy | 10% | Long track record and expected maintenance of extremely conservative financial policy; very stable metrics; low debt levels for the industry; and<br><br>Public commitment to the highest credit quality over the long-term | Long track record and expected maintenance of a conservative financial policy; stable metrics; lower than average debt levels for the industry; and<br><br>Public commitment to a very high credit quality over the long-term | Extended track record and expected maintenance of a conservative financial policy; moderate debt leverage and a balance between shareholders and creditors;<br><br>Not likely to increase shareholder distributions and/or make acquisitions which could lead to a weaker credit profile;<br><br>Solid commitment to high credit quality | Track record and expected maintenance of a conservative financial policy; an average level of debt for the industry and a balance between shareholders and creditors;<br><br>Some risk that shareholder distributions and/or acquisitions could lead to a weaker credit profile;<br><br>Solid commitment to targeted metrics | Track record or expectation of maintenance of a financial policy that is likely to favor shareholders over creditors; higher than average, but not excessive, level of leverage;<br><br>Owners are likely to focus on extracting distributions and/or acquisitions but not at the expense of financial stability | Track record of aggressive financial policies or expected to have a financial policy that favors shareholders through high levels of leverage with only a modest cushion for creditors;<br><br>or<br><br>High financial risk resulting from shareholder distributions or acquisitions | Expected to have a financial policy unfavorable to creditors with a track record of or expected policy of maintaining excessively high debt leverage;<br><br>or<br><br>Elevated risk of debt restructuring |

| | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa |
|---|---|---|---|---|---|---|---|---|
| **Factor 6: Leverage and Coverage (40%)** | | | | | | | | |
| (FFO + Cash Interest Expense) / (Cash Interest Expense)[15] | 10% | ≥10x | 7-10x | 4.5-7x | 2.5-4.5x | 1.8-2.5x | 1.5-1.8x | <1.5x |
| FFO / Debt | 10% | ≥40% | 25-40% | 14-25% | 8-14% | 6-8% | 3-6% | <3% |
| Moody's Debt Service Coverage Ratio[16] | 15% | ≥8x | 6-8x | 4.5-6x | 3-4.5x | 2-3x | 1.5-2x | <1.5x |
| RCF / Debt | 5% | ≥28% | 16-28% | 10-16% | 6-10% | 4-6% | 2-4% | <2% |
| **Factor 7: Uplift for Structural Considerations** | | | | | | | | |
| Number of Notches Provided by Debt Structural Features (0-3 notches) | | | | | | | | |

15 Cash Interest Expense = Interest Expense – Non Cash Accretion. For issuers that use unconventional debt funding, such as zero-coupon, capital accretion, index-linked bonds or swap arrangements, we seek to make the appropriate adjustments to the ratio calculations by removing the non-cash expense element. For clarity, Non-Cash Accretion is deducted in the numerator only to the extent it has been added to FFO, and it is deducted from the denominator only to the extent that it has been included in Interest Expense.

16 (FFO + Cash Interest Expense ) / Debt Service Annuity. Debt Service Annuity is calculated with the following formula: ((ST Debt + LT Debt, gross) x Discount Rate)) / ( 1 – (1/(1 + Discount Rate)$^{\text{remaining concession life}}$)).

## Appendix B: Rating Considerations for Air Traffic Control Providers

In this appendix we discuss key rating considerations in assessing the credit quality of air traffic control providers (ATCs, or ATC providers).

The business risk profile of ATC providers is materially different from privately owned airports, which generally face an element of national or international competition and also derive part of their earnings from the provision of competitive retail activities and other services.

In contrast, ATC providers operate as natural monopolies, with revenues typically determined through tariff formulas that may or may not be regulated. In addition, given the strategic importance of national airspace and support to military operations, ATC providers are – in most cases – also closely linked to national governments, even when they are not government-owned.

In our analysis of ATCs, we take into account a variety of qualitative and quantitative factors, some of which apply to the sector as a whole and some of which are specific to individual issuers. While ratings reflect all pertinent considerations, we have identified five rating factors, enumerated below, that have general applicability and form a framework for our analysis of the credit quality of issuers in this sector.

1. Legal and regulatory environment
2. Traffic risk and airline concentration
3. Operational characteristics of service area and investment requirements
4. Financial policy
5. Leverage and coverage metrics

This framework is subject to the same assumptions and limitations as the scorecard for privately managed airport issuers, and our analysis of ATCs incorporates the other ratings considerations for airports[17]. In addition, ratings of ATCs incorporate other issuer-specific considerations, including the link to national security policy and government ownership.[18]

### Legal and regulatory environment

The legislation/decrees under which ATCs are established and their legal form are foundational aspects of their credit quality. In general, ATCs are granted a monopoly position in navigational control of all aircraft operating within a nation's airspace. Their legal right to charge fees to all users of their airspace and the ability to enforce those charges are key considerations for their ability to generate sufficient revenues to recover costs, make investments and service their debt. ATCs may be government-owned or controlled, or they may have a more independent organizational structure. ATCs may be operated for the public good, they may operate as a type of cooperative, or they may be privately-owned or partially privatized companies. Nonetheless, ATCs generally have a strong link to their national government, since a well-regulated airspace is of great importance to efficient air travel (and hence to a well-functioning economy) and to domestic security.

The ability and willingness to charge sufficient tariffs is one of the most important factors in assessing an ATC's credit quality, because a delay in cost recovery may cause financial stress. As monopoly providers of essential infrastructure, the tariffs charged by many ATCs are regulated in some form. In addition to setting tariffs, there are a number of ways that regulatory decisions can affect an ATC provider's business position,

17 See section above, Assumptions and Limitations, and Rating Considerations That Are Not Covered in the Scorecard.
18 For details, see our methodology for rating Government-Related Issuers (GRIs) under the Moody's Related Publications section.

including how capital expenditure programs are determined and how the regulator judges the ATC's cost-effectiveness, including the setting of efficiency targets to reduce operating costs. However, the regulatory approach can vary and ranges from no external regulator and no or limited restrictions on tariff increases to a more incentive-based approach under the supervision of an independent regulator.

In assessing the framework for tariff-setting (whether a regulatory process, a board of directors' decision, or some other approach), we consider the transparency, consistency, predictability and supportiveness of the process, the timeliness of tariff-setting (including how quickly capital investments are recovered, how frequently tariffs are reviewed, the length of process and mechanisms for re-setting rates within a regulatory period), and the sufficiency of tariffs to cover the issuer's costs, pay its debt service, and permit necessary investments in the air traffic control infrastructure. We would also consider any political or commercial interference in the process of tariff setting, which is generally a material credit negative.

A regulatory framework may have multiple components. In addition, national regulators may provide detailed targets and design relevant incentive mechanisms specific to an ATC in that country.

The ability to set tariffs may also be affected by the value of the ATC's airspace to the global airline industry – see below.

Our assessment considers the track record for decision making and tariff-setting and also our forward-looking view on whether these conditions will continue to persist. Our assessment also considers the actions of management in establishing and maintaining constructive regulatory relationships.

A clearly defined tariff formula or overarching approach to tariff increases, either set out in national law or published as part of regulatory methodologies, are useful tools for investors to assess the predictability of future cash flows and, provided they are also supportive, are credit positive for ATCs. A framework that permitted an ATC to adjust rates within a regulatory period to compensate for changes in flight volumes such that revenues remain stable would generally also be considered as credit positive. Under an incentive-based approach, we consider the efficiency incentive targets set out by the regulator and the company's track record and expected future performance in achieving such targets. A poorly defined formula, a history of untimely, meagre, or unpredictable tariff-setting would typically have a material negative impact on ratings.

### Traffic risk and airline concentration

To assess the stability and predictability of revenues, we also take into account the ATC's exposure to fluctuation in traffic volumes, which are normally driven primarily by global or regional macroeconomic factors as well as local or regional developments, including geopolitical conditions. In addition, we also look at revenue concentration risk, e.g. exposure to a single or limited number of airlines.

We assess traffic risk in the context of the legal frameworks and regulatory price-setting mechanisms. These can include protection for traffic volume fluctuations. However, traffic decreases mean that the ATC's costs, which are largely fixed, must be recovered from a smaller number of flights, which could affect its customers (the airlines). ATC charges are typically an extremely small percentage of an airline's operating costs, which is an important mitigating factor.

We consider the exposure of an ATC to individual airlines, and when concentration is high, their credit quality. However, as with airports, exposure to credit quality may be materially mitigated by the attractiveness of the airspace to other airlines, who may increase their service offerings to replace those of a financially stressed or shrinking airline. Furthermore, counterparty risk may be transferred to a supranational collection agency or reduced through frequent and/or advance cash collection.

In assessing the implications that the loss of a key airline customer may pose, we consider the tariff adjustment mechanism that is available to the ATC provider, its liquidity in relation to any expected period of materially decreased traffic, the characteristics of the service area (which may drive demand for ATC services – see below), and other pertinent factors.

### Operational characteristics of service area (including necessity of flight path for the global economy) and investment requirements

The operational characteristics of the ATC service area are typically an extremely important driver of demand for ATC services that underpin its cost efficiency and its credit quality. They can also affect capacity and safety performance requirements for the ATC provider. ATCs that have a stable, high level of traffic (both O&D flights and over-flights) typically benefit from efficiencies of scale. ATCs whose geography makes their airspace a fuel-efficient path for flights to populous destinations have a more entrenched essentiality and monopoly position, as well as an at least theoretical ability to increase tariffs, because ATC charges are generally very small in comparison to the cost of fuel for an airline. Extensive airspace in an area with numerous over-flights will, however, require the ATC to have more complex systems and a larger number of personnel to ensure efficient and safe handling of flights. These requirements will likely result in higher total operational costs for the affected ATC business. While an ATC's costs are largely fixed in the short run, a rapid increase in the number of flights creates upward cost pressures in the medium term – both for personnel and capital investment for systems and monitoring equipment. Furthermore, in regulatory regimes requiring cost efficiency targets, larger and more complex ATCs may have greater pressure to reduce operating expenses, since more airlines will benefit (and may be more likely to petition the regulator). Nonetheless, an ATC provider covering a large area that cannot be avoided for certain routes, may be better protected against general volume and customer concentration risks.

As part of the operational risk characteristics we also assess the capex program and associated financing and execution risks. We primarily consider (1) the size of the program relative to the issuer's existing asset base (e.g. expressed in percentage of its Regulatory Asset Base or total fixed assets); and (2) its technical complexity, i.e. the type of assets to be built or developed and associated technical issues as well as the relative concentration of challenging projects within the issuer's total capex program.

The majority of investments for ATC providers are typically linked to the computer systems that process and manage flight data, whose integration into a live business not only poses technological risks, but may also have significant implications for airspace safety. In that respect, the track record of the ATC provider in implementing technological updates in a safe and controlled manner is an important aspect of our risk analysis.

### Financial policy

The financial policy of ATC providers is an important factor in ratings, as it directly affects ATCs' debt levels, tolerance for risk, potential for adverse changes in financing and capital structure, and thus credit quality. Financial policy is often tied to the issuer's legal structure and governance. Our assessment of an ATC's financial policies includes the perceived tolerance of a company's governing board and management for financial risk and the future direction for the company's capital structure, its public commitments to maintain credit quality, its track record for adhering to commitments, and our views on the ability for the company to execute its investment plans in line with financial targets.

In this context, we consider the company's approach to financing its activities, in particular the balance it strikes in apportioning risk between creditors vis a vis owners and other stakeholders (including employees and their unions). We assess both the company's historical track record of financing decisions, its stated objectives and the investment return requirements of its owners. While returns/distributions to owners may be enhanced by higher levels of leverage, this is usually to the detriment of credit quality. In addition, ownership is a key differentiating credit consideration – we would view shareholders with either short-term or opaque financial objectives or a lack of track record as providing a more uncertain basis for a balanced financial policy than shareholders with more long-term horizons, who may be willing to forego near-term distributions in order to increase the financial flexibility of the company.

A low risk financial policy can also be driven by government policy or legal framework that stipulates a certain financial structure or not-for-profit character of the ATC provider. For example, not-for-profit organizations with no shareholders do not face external pressure for significant returns, a credit positive. However, the absence of a first-loss-absorbing equity piece in the capital structure will normally require creditors to be exceptionally comfortable with the predictability of the legal or regulatory framework underpinning the revenue generation.

### Leverage and coverage metrics

While the above factors capture the credit strengths and weaknesses afforded by the ATC provider's fundamental business and its financial policies, a company's credit profile also considers its financial metrics. An issuer with substantially more debt than its peers relative to the value of its asset base will generally have a higher probability of default.

We consider the same leverage and coverage metrics as for airports but these metrics may be less meaningful for ATCs with a different business model and less competition. No single leverage or coverage ratio provides a complete credit picture in any case. We may also look at profitability margins, which can help indicate an ATC's ability to manage its operating expenses in relation to its revenue growth and stability. Our assessment of all ratios takes into account the peculiarities of different regulatory frameworks, which is one reason that it is not useful to publish scorecard scores for the ATCs.

In assessing the financial risk profile on ATC providers, we also consider metrics in relation to the entity's business risk, its profit motive, and its ability to increase revenues when costs are increasing. As providers of monopolistic services, ATCs generally have good visibility of revenues and cash flows for a few years into the future, whether revenues are regulated or self-determined. Although any published metrics will tend to focus on audited historical financial information, our analysis is primarily forward-looking.

### Structural considerations and sources of rating uplift from creditor protections

ATC providers may be financed using a variety of different techniques, ranging from a straight forward, unsecured debt structure with few, if any, covenants, to a more highly leveraged debt structure with tightly structured financial and operational covenants that significantly restrict management's flexibility to alter the business and financial risk profile. Such additional credit protection mechanisms are more akin to those of project financing transactions. Our assessment of these features for ATCs is similar to the considerations described above for Privately Managed Airports.[19]

19 Please refer to the section Uplift for Structural Considerations.

## Moody's Related Publications

Credit ratings are primarily determined by sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. An index of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which is available here.

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