

## Recommendations for the Setting and the Estimation of the WACC of Airport Managing Bodies

### Background

The goal of the Aviation Strategy is to strengthen the competitiveness and sustainability of the entire EU air transport value network. Tackling limits to growth in the air and on the ground, in particular by boosting the efficiency of airport services, is one of the three key priorities that the Commission has identified.

The Thessaloniki Forum of Airport Charges Regulators is tasked with working on and making recommendations for a better common implementation of the 2009/12/EC Directive on Airport Charges (the "ACD"). The ACD requires Member States to assign responsibility for supervising the setting of airport charges to Independent Supervisory Authorities (ISAs). Since the weighted average cost of capital (WACC) is a component of airport costs, and often a subject of disagreement between airports and their users, it is a subject upon which ISAs are regularly required to intervene. Therefore, the Thessaloniki Forum decided to offer a guide to estimate each of the parameters of the WACC based on widely established principles. We provide an introduction to the topic and theoretical background on the estimation of the WACC (Part I) and some acceptable practices which can be applied by ISAs and airport managing bodies generally (Part II).

The recommendations herein have been formulated by the WACC Working Group of the Thessaloniki Forum on Airport Charges, taking into consideration the views of representatives of the airport and airline communities, and have been adopted by the forum as a whole.

### Caveats

The recommendations do not represent the views of the European Commission and do not in any way change the requirements of the ACD.

This guide should not be used as a limitation or constraint for Member States to apply their own methodologies when circumstances, regulation or other causes recommend it.

These recommendations will be kept under review and changed as and when deemed necessary by the Thessaloniki Forum.

## Part I - Introduction and theoretical framework

### Weighted Average Cost of Capital (WACC)

1. The WACC borne by airport managing bodies is a component of the overall cost structure related to the facilities and services provided by an airport managing body. As such, when not embedded in national legislation or when the national legislation has not entitled the ISA to set *ex-ante* criteria for the definition of the WACC, the ISAs of the Member States should be required to take a view on it.
2. The cost of capital composed of equity and debt, borne by the airport managing body and, through airport charges, by the users of the airport, should fairly remunerate both, investors and creditors, through the application of the WACC, for the capital necessary to provide efficient and rationalized infrastructure for passengers, freight and users, in a multi-annual perspective.
3. The WACC should take into account a transparent remuneration of the non-diversifiable level of risk borne by shareholders and by holders of debt, reflecting the specific situation of the specific airport or airport managing body on the market locally and at a larger scale.
4. The WACC of an airport managing body is the weighted average of its cost of equity and its cost of debt. It should be calculated using the following equation:

$$WACC = K_e \cdot E/(D+E) + K_d \cdot (1-T) \cdot D/(D+E) \quad (\text{equation (i)})$$

Where:

- $K_e$  stands for the cost of equity,
- $K_d$  the cost of debt,
- $E$  the value of equity,
- $D$  the value of debt,
- $T$  the corporate tax rate.

Equation (i) does not prejudice the independence of parameters. In particular,  $K_e$  and  $K_d$  are related to the proportion of debt in total capital, known as gearing. Theoretically, if the proportion of debt in total capital varies over time, then also does the WACC.

### Capital Asset Pricing Model

5. Economic theory has defined a financial model known as “Capital Asset Pricing Model” (CAPM) from which the WACC can be derived. The CAPM is based on certain assumptions that are not fully met in practice, especially the following:
  - markets are constantly and perfectly balanced;
  - all economic agents are rational and have the same level of information, there are no transaction costs;
  - all assets are available on the market.

For a given listed firm subject to a given tax rate and with a given financial structure, the cost of equity can be estimated by an equation derived from the CAPM. This estimate depends on an assessment and a perception of the value of the firm by the market.

With regard to the theoretical validity of the CAPM, the numerical estimation of the cost of equity of a firm requires economic and financial expertise. In practice, the vast majority of practitioners and analysts use the CAPM that stands for a model of reference. CAPM is, therefore, an acceptable way of estimating the cost of capital of an airport managing body.

6. In spite of the previously mentioned theoretical limits, the equation that derives from the CAPM should be considered relevant to assess the cost of equity of an airport managing body. The cost of equity  $K_e$  should be estimated using the following equation derived from the CAPM:

$$\bullet \quad K_e = R_c + \beta_e \cdot (R_m - R_c) \quad (\text{equation (ii)})$$

Where:

- $R_c$  stands for the risk free rate. The parameter  $R_c$  can, but not exclusively, be represented by the rate on the issuance of mid-term government bills (for instance, maturity of one year) or long-term government bonds (for instance 10 years).
- $(R_m - R_c)$  stands for the equity market risk premium, with  $R_m$  the expected rate of return of an economic agent investing on the market. According to the modern economic theory of the portfolio, the market is supposed to include all classes of assets, which can justify, in practice, comparisons between industrial sectors.
- The beta parameter  $\beta_e$  measures, for a given firm considered as a financial asset, the variability of its rate of return in reference to the market as a whole. It is considered to measure the non-diversifiable risk of the asset and its sensitivity to the economy in general. The more the product market tends to concentration and monopoly and there is greater consistency in return, the lower is the numerical value of the  $\beta_e$  parameter.

More precisely:

- $\beta_e = 0$  stands for a risk free investment;
- $\beta_e < 1$  represents an investment with less risk than the market portfolio;
- $\beta_e = 1$  stands for an investment with the same risk as the market portfolio;
- $\beta_e > 1$  represents an investment with larger risk than the market portfolio.

## Part II - Recommendations

### Recommendations for Airport Managing Bodies

7. When the consultations referred to in article 6 (1) of the Directive are held, the airport managing body should provide the airport users or their representatives or associations with transparent information on the estimate and calculation method of the WACC.

Notwithstanding the foregoing, Member States may set out alternative processes depending on whether or not airports are subject to effective competition according to article 6 (5) of the Directive, or may provide *ex ante* criteria in national legislation.

8. This information should include each parameter required for the WACC estimation, specifically:
- a) Both estimates of the WACC of an airport managing body, before and after the application of the corporate tax in force in the Member State in which the airport is located, specifying the total corporate tax rate taken into account in the estimate;
  - b) The parameters required for the WACC estimation should take into account the expectations for the years in the regulated period and not only based on a reference year;
  - c) The airport managing body forecast of its WACC, of the proportion of equity in total capital and of the proportion of debt, for each year of a multi-annual period that should not be shorter than a three-year period;
  - d) The numerical value estimation of the cost of debt;

- e) The numerical value estimation of the cost of equity and of the following parameters as well as the statistical method and the sample used if any: the rate of risk free rate, the equity market risk premium and the beta parameter of the airport managing body;
  - f) A detailed justification of any parameter or premium that does not directly derive from the above equation (ii).
9. WACC details should be presented to users when WACC is used for calculating new charges or if users ask for it.

#### Recommendations for ISAs

10. In order to fully ensure the efficiency of the measures taken to comply with articles 6 (3) and 6 (5) of the Directive, the ISA should have its own financial expertise, or have access to neutral and independent financial expertise, which should include expertise on the WACC.
11. Given that the WACC represents the cost of remuneration of the holders of debt and shareholders of the airport managing body and, as such, is included in the cost structure related to airport charges, the ISA should set *ex ante* a predictable and reproducible method for calculating the WACC. Member States may entitle the ISA to set the WACC or criteria for its definition. ISAs should be entitled to analyse the WACC proposed by the airport managing body.

When, during a given regulatory period, a substantial change occurs in the regulatory, economic or technical environment of an airport managing body, that has proven substantial effect on the global value of its WACC, ISAs should take proportionate measures to take this change into account for their analyses.

12. The WACC analysis should include the following:

a) *RISK FREE RATE*

The numerical value of the risk free rate should be reviewed taking into account the forward rate on the issuance of government bonds of the Member State in which the airport is located, if the government bonds of such a Member State are considered risk free. This review should base on a historical review, take account of the historical context of the rates, and should not take into account atypical observations due to exceptional events. It can take into account estimates from international intergovernmental organizations such as the World Bank, the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the European Investment Bank and, when appropriate, from major financial rating agencies.

For estimating the risk free rate, ISAs may preferably base on the rate of 10 year bonds of the government of the Member State in which the airport is located, because of the long term investment horizon on which bases the CAPM. Depending on specific context or events, the estimate can also base on forecasts.

When the regulatory period is annual, it is acceptable practice to base the yield of the bond on the spot rate.

In the case of multiannual periods, an alternative approach could use implicit yields of the bond in order to reflect the uncertainty about future returns.

b) *BETA PARAMETER*

The numerical value of the beta parameter should be reviewed with regard to the actual level of risk borne by the airport managing body, considering that the level of commercial and traffic risk is strongly mitigated by the resilience of air transport demand and, in most cases, by the low level of competition to which the airport managing body is exposed.

The level of risk may be affected, in particular, by the relative overall size of the operation, the traffic mix, the existence of traffic volume risk, operator mix and/or capacity at the airport. Only the cost of equity related to the risk of the airport managing body activities should be taken into account, considering also the model of regulation applied to the specific airport.

As a consequence, in normal economic conditions, the levered beta of airport managing bodies which are regulated or state-owned should generally be low. As a general rule, when dealing with a regulated airport managing body, the risk should be lower than the market (value of beta parameter lower than 1).

The review should take into account the statistical method used to calculate the estimate of the beta parameter, the multi-year period and the frequency on which observations are made for the estimation sample, and, when appropriate, the confidence interval provided. The market portfolio used to calculate the beta should, preferably, be the national index of the Member State where the airport managing body is located.

For estimating the beta parameter, using betas of peer companies is an acceptable practice. The sample of comparable listed airport managing bodies that is used to estimate its beta parameter should be analysed with regard to the following criteria:

- The geographical area of the peer group used for the estimation may preferentially be restricted to the European Economic Area and Switzerland (EEA); but
- In the case of a too limited number of comparable peers in the EEA, the geographical area may be extended to countries with a comparable general economy and/or the peer group may be extended to other relevant sectors, such as the transport infrastructure sector.

Since the beta parameter is a function of the financial structure, the level of debt of the airport managing body is taken into account using the Hamada formula:

$$\beta_l = \beta_u \cdot (1 + D/E \cdot (1 - T)) \quad (\text{equation (iii)})$$

Where:

- $\beta_l$  stands for the levered beta of a given airport managing body,
- $\beta_u$  its unlevered beta,
- $E$  the value of equity,
- $D$  the value of debt,
- $T$  the corporate tax rate.

#### c) *EQUITY MARKET RISK PREMIUM*

The statistical method used by the airport managing body for calculating the numerical value of the equity market risk premium should be reviewed. This review should assess whether the method bases on long-term or mid-term historical data. For each airport, the consistency of the sample used for the estimation with the market on which the airport managing body operates should be analysed.

The market risk premium is a volatile variable and is prone to expert controversy including, for example, on whether the arithmetic or geometrical average of returns should be used for calculation purposes. For estimating the market risk premium related to the activity of an airport managing body, acceptable practices may:

- Restrict the geographical area used for the estimation to the Member State or the European Economic Area and Switzerland (EEA);
- Reflect historical analysis over a substantial period of time, i.e. several decades;
- Take into account a range of estimates;
- Include practitioner views or forward looking estimates;
- Use reference studies acknowledged by the financial and scientific literature.

d) *GEARING*

The gearing is a parameter that affects the value of the costs of debt and equity and moreover determines the weight of each financial source in the final cost of capital. Therefore, it is determinant to use an accurate estimation. For this purpose, the use of the gearing of the current capital structure of the regulated company could be suboptimal.

A notional gearing is a theoretical value, that may be set by the ISA, as opposed to the actual financial structure (gearing) of the regulated entity. A notional gearing different from the one used by the airport managing body can be used for analysing its WACC estimate. ISAs may also base their analysis on a range of values of a notional gearing.

e) *COST OF DEBT*

There are several methods for estimating the cost of debt that lead to similar results. Some acceptable practices that are considered valid by ISAs to review the cost of debt are shown below:

- Take into account the risk free rate and, where deemed necessary by the competent ISA, an additional spread, which can be capped by the ISA, estimated in accordance with credit rating activity at the time of the estimate;
- Reflect a review of observable market rates as well as a view on embedded debt; this review should tend to reflect the actual debt portfolio of the airport managing body and its refinancing opportunities;
- Estimate a value through comparison with other similar rated airport managing bodies.

f) The ISA should control the relevancy of any additional premium that does not directly derive from the above equation (ii) and may not take it into account for its estimate of the fair value of the WACC of an airport managing body.

13. The ISA should ensure that all the estimates of parameters necessary to calculate the WACC are periodically reviewed, and if necessary updated, on a multi-year basis.
14. Ongoing collaboration between ISAs would be beneficial to assist individual ISAs in estimating the WACC. ISAs should share comparable information on recent WACC decisions, methodologies and research. The Thessaloniki Forum can facilitate this.