REVIEW OF "IMPLICATIONS OF THE DE-MERGER OF THE FORMER AER RIANTA FOR THE REGULATION OF AIRPORT CHARGES IN IRELAND"

A Report for
Dublin Airport Authority

Prepared by NERA

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report, by NERA Economic Consulting for Dublin Airport Authority (DAA), reviews the report ***Implications of the de-merger of the former Aer Rianta for the regulation of airport charges in Ireland*** by DotEcon for the Commission for Aviation Regulation (CAR).

The demerger itself will not take place until a number of statutory pre-conditions have been met. These include a requirement that the Ministers for Finance and for Transport must each be satisfied as to the state of operational and financial readiness, including business planning, of Dublin, Shannon and Cork airports. The issues addressed in DotEcon's report, and this review of it, will not apply until these pre-conditions have been met and the demerger has taken place. The impact on DAA will also depend on other developments that may occur before the demerger, including CAR's current review of airport charges at Dublin. Both reports should be read in this context.

DotEcon's main conclusion is that the demerger does not, of itself, require any significant adjustment to airport charges at Dublin, even if it were to lead to a significant increase in DAA's costs. We believe this conclusion is unsupported. It is based on a blanket conclusion (that price caps should only reflect hypothetical "efficient" costs) that is not consistent with established regulatory practice.

DotEcon was given a very specific brief - to base its analysis on general principles of incentive regulation as applied by an independent regulator with a statutory mandate to promote economic efficiency. But in many cases we believe that the conclusion noted above would not be supported by a thorough analysis of its likely impact on the three different types of economic efficiency (allocative, productive and dynamic efficiency).

In the specific case of the demerger – if this takes place and the Government decides that all of Aer Rianta's debt should be allocated to DAA, and in the absence of any other changes affecting its financial position - we believe that DAA's cost of capital could increase by 0.3 percentage points or more. DotEcon argues that any such increase should not be reflected in DAA's new price cap, as this would reward an "inefficient" financing decision.

We do not agree that any increase in DAA's cost of capital necessarily represents inefficiency, as the increase in financing costs may be offset by benefits elsewhere. And even if such a decision was inefficient, DotEcon's conclusion would lead to the price cap being set below DAA's actual costs. The negative impact that this would have on economic efficiency is likely to outweigh any positive impacts (which mainly derive from the incentives provided to DAA's shareholder – ie the Government – to avoid similarly "inefficient" decisions in future).

The perspective of economic efficiency is important and relevant, as CAR still has a statutory objective to facilitate the efficient and economic development and operation of Dublin Airport which meet the requirements of current and prospective users. CAR has previously

interpreted a very similar objective as requiring it to promote economic efficiency, which would argue against implementing DotEcon′s recommended approach.

Equally important is the fact that CAR now has to balance economic efficiency against two new statutory objectives. One of these is to enable Dublin Airport Authority to operate and develop Dublin Airport in a sustainable and financially viable manner. It would seem difficult to reconcile a decision not to allow DAA a full return on capital with this new objective.

In addition, we believe that CAR′s other new objective - to protect the reasonable interests of current and prospective users - also requires it to attach considerable weight to DAA′s likely financial viability. Users′ interests are unlikely to be served by a policy which might increase the risk of financial distress (with all the disruption that would entail) or which threatens to starve DAA of investment funds, even if such a policy would lead to lower airport charges in the short term.

Finally, from the more general perspective of general public policy and good regulatory practice, we note that the implementation of DotEcon′s recommended approach would be likely to result in CAR stating, explicitly or implicitly, that it was disallowing some of DAA′s costs because it believed the Government had made an inefficient decision. Leaving aside questions already noted about whether such a decision really would be inefficient, this approach would expose a potential damaging inconsistency between the views of CAR and the Government.

Overall, therefore, for the reasons summarised above and explained in more detail in the main report, we believe that DotEcon′s main conclusion - that any increase in DAA′s cost of capital should not be reflected in its new price cap - is unsupported. It is also inconsistent with European regulatory precedent (including CAA, UK Competition Commission and CAR itself), as airports′ actual gearing levels have been used as the basis for estimating the cost of capital at price reviews.

1. INTRODUCTION

This report, by NERA Economic Consulting for Dublin Airport Authority (DAA), reviews the report ***Implications of the de-merger of the former Aer Rianta for the regulation of airport charges in Ireland*** by DotEcon for the Commission for Aviation Regulation (CAR). It was commissioned by CAR to help it consider the implications of the demerger, and in particular the allocation of assets and liabilities between the three airports, for its continued regulation of charges at Dublin Airport.

The demerger itself will not take place until a number of statutory pre-conditions have been met. These include a requirement that the Ministers for Finance and for Transport must each be satisfied as to the state of operational and financial readiness, including business planning, of Dublin, Shannon and Cork airports. The issues addressed in DotEcon's report and this review of it will not apply until these pre-conditions have been met and the demerger has taken place. The impact on DAA will also depend on other developments that may occur before the demerger, including CAR's current review of airport charges at Dublin. Both reports should be read in this context.

An important aspect of DotEcon's report is that it was given a very specific brief - to examine the implications of the demerger "on the basis of general principles of incentive regulation as applied by an independent regulator with a statutory mandate to promote economic efficiency". In Section 2, we review DotEcon's report from this perspective, considering first its overall approach to assessing economic efficiency and then examining in more detail its comments about the way in which regulation promotes economic efficiency and its analysis of DAA's cost of capital.

In Section 3, we then consider the issues examined by DotEcon from a wider perspective. This is important, as CAR's statutory objectives have been widened by the enactment of State Airports Act 2004. They now include new objectives to promote the reasonable interests of DAA's users and to enable DAA to operate in a sustainable and financially viable manner, alongside its original objective to facilitate the efficient and economic development of Dublin Airport. We therefore consider the implications of these new objectives, and public policy in general, for the issues examined in DotEcon's report.

Section 4 sets out our main conclusions.

In addition to the specific comments on DotEcon's analysis contained in the rest of this report, we note that DotEcon devotes a relatively high proportion of its report to a small number of examples taken from other regulator's documents and examples of other demergers. It is difficult to see the relevance of DotEcon's lengthy description of other demergers (BG-Centrica and BT-mmO_2), and the conclusions it draws from two specific documents published by the UK Civil Aviation Authority (CAA) at particular stages in the regulatory cycle do not stand up when placed in the wider context of the CAA's approach to the regulation of BAA and NATS in recent years.

2. ECONOMIC EFFICIENCY ASPECTS OF DOTECON'S ANALYSIS

DotEcon stresses that the brief provided by CAR was:

> *"to address the question of how, from an economic perspective, it should take account of the de-merger of the former ART, and the allocation of its assets and liabilities, to the new airport authorities. We were instructed to answer this question on the basis of general principles of incentive regulation as applied by an independent regulator with a statutory mandate to promote economic efficiency (which is the manner in which CAR interpreted its mandate under the 2001 Act)."* (para 15)

In this Section, we take this objective at face value and assess DotEcon's analysis on this basis. Then, in Section 3 below, we move on to consider whether this brief is a sensible one, and in particular to address the implications of CAR's revised statutory duties when considering the issues raised in DotEcon's report.

Our analysis starts, in Section 2.1, with an examination of DotEcon's approach to assessing economic efficiency. Section 2.2 then addresses DotEcon's assertion that economic efficiency does not require the regulator to take account of the financial structure of a regulated firm, and Section 2.3 considers DotEcon's analysis of DAA's cost of capital.

2.1. DotEcon's Approach to Assessing Economic Efficiency

Although DotEcon was asked to base its analysis on the "general principles of incentive regulation as applied by an independent regulator with a statutory mandate to promote economic efficiency", there is almost no discussion of regulatory principles (and very little discussion of regulatory practice) in DotEcon's report. Instead, it focuses almost exclusively on economic efficiency, and even then it rarely (if ever) acknowledges the fact that particular policies can have both positive and negative impacts on the individual components of economic efficiency.

Taking the example of the allowance for operating costs included in price caps: economic regulators may carry out more or less detailed analyses to examine the efficiency of regulated firms. But they then use the results to set a target rate of efficiency improvements that the firm should achieve from the starting point of its existing cost base. Economic regulators, including CAR, generally appreciate that firms cannot eradicate inefficiency overnight, for example because this may involve significant changes in working practices, delicate negotiations with trades unions, substantial changes to the firm's organisational structure and other major changes that need to be planned carefully and in many cases can only be implemented gradually.[1] Indeed, it is very common for regulators to assume that,

[1] This is both for practical reasons, including service continuity, and also to strike an appropriate balance between the cost savings achieved and any additional costs, such as redundancy payments, incurred.

while firms can make substantial progress in closing this "efficiency gap" during a single price control period, they cannot close that gap completely.

Instead of this approach, however, DotEcon appears to adopt a general view that inefficient costs should be excluded from the price cap altogether. This means that, for some and very possibly all of the price control period, the price cap will be below the regulated firm's actual level of costs, and therefore it will not be able to earn its cost of capital.[2]

DotEcon's justification for this approach appears to be based on an inaccurate approach to assessing economic efficiency. In an early footnote (footnote 8) in its report, DotEcon acknowledges that there are three main components to economic efficiency: productive efficiency, allocative efficiency and dynamic efficiency. Indeed, this coincides with CAR's own definition of economic efficiency, as set out in Section 2.2 of CP7/2004.

By paragraph 20, however, DotEcon appears to have abandoned this approach and, instead, it states that:

> *"**regulation should act to emulate competition in those areas where competition, for whatever reason, is not possible**".*

DotEcon also claims (in the same paragraph) that:

> *"**saying that regulators should pursue economic efficiency is simply another way of saying that regulation should produce outcomes that would be achieved by a well-functioning market.**"*

But this is not always true. Competition is not an end in itself. Rather, it is a means to an end, where that end is economic efficiency. Competition is merely preferred because it is generally felt to be more effective than economic regulation in promoting economic efficiency. But if there is a departure between the likely outcome of a notional competitive market and the likely result of an independent economic regulator seeking to promote economic efficiency, then DotEcon's brief clearly indicates that it should base its analysis on the latter. In our view, moreover, this requires a careful examination of the likely impact of particular options on each of the separate components of economic efficiency: allocative efficiency, productive efficiency and dynamic efficiency.

Having failed to take proper account of common regulatory practice and having adopted competition rather than economic efficiency as its benchmark, DotEcon then asserts in a

[2] The actual profits earned by a regulated firm will depend on a wide range of factors (including the accuracy of the regulator's assumptions). But common regulatory practice generally results in a price cap that will allow the regulated firm to earn its cost of capital if its meets challenging but achievable targets for efficiency improvements, demand growth and other relevant variables. DotEcon's approach (setting price caps immediately on the basis of efficient costs) would not allow the firm any chance of earning its cost of capital unless other factors (such as unexpectedly high demand growth) were very substantially in its favour.

number of places in its report that inefficient costs should be excluded from the price cap.[3] Examples of this include:

- paragraph 34, which asserts that "inefficiently incurred operating costs are generally excluded in the setting of a price cap". This statement is wrong both in theory and in practice;
- also in paragraph 34, a statement that a regulated firm should not be rewarded for inefficient financing decisions. This leads to a conclusion, stated in paragraph 60 and repeated in paragraphs 85 and 86, that DAA's price cap should not be amended even if the demerger increases DAA's cost of capital (we discuss in Section 2.3 below whether or not this is likely to occur);
- paragraph 29, which states that inefficient investments from the past should be written down;[4]
- a number of other, slightly ambiguous statements, such as paragraph 30 which states that the regulator's assessment of operating costs should be "based on" the efficient level of operating costs plus expected efficiency savings.[5]

In contrast, if we consider the implications for each category of economic efficiency, then it is far from clear that disallowing costs that the regulator believes are inefficient will always (if indeed ever) promote economic efficiency. Considering each type of economic efficiency in turn:

- it is clear that disallowing some of the firm's costs, even if the regulator does view them as inefficient, violates the requirements of <u>allocative</u> efficiency. It results in prices being below the actual cost of providing a good or service, and therefore a loss of economic efficiency may result;

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[3] Other possible justifications for DotEcon's approach here could include considerations of distribution or "fairness", or else a concern about providing incentives for future conduct (which we address below). But DotEcon frequently stresses the role of regulation "emulating" competition, for example in paragraphs 20 to 23, and points out in paragraph 17 that competition "drives out inefficient suppliers". In paragraphs 85 and 86, moreover, DotEcon makes a very clear link between the analogy of a competitive market and its conclusion that any increase in DAA's WACC should not be reflected in the price cap.

[4] This is a particularly contentious example. As argued later, the main possible justification for this approach in terms of economic efficiency (which must be set against other factors that argue against it) is that it provides incentives for the regulated firm to avoid inefficient investment in future. But it is not at all clear that these incentives are strengthened by disallowing investment costs that were incurred in a previous and different regulatory regime, and indeed such decisions might add to the nervousness of potential investors and funders and thus, for the reasons discussed below, lead to a deterioration in productive and dynamic efficiency.

[5] Occasionally, for example in paragraph 26, DotEcon appears to acknowledge that the price cap might allow for some inefficiencies. But most of the time it gives the opposite impression, and it certainly does not address how this approach can be consistent with its strong statements in relation to inefficient investment or the impact of an inefficient financial structure being excluded from the price cap.

- the impact on productive efficiency is indirect, of uncertain sign and probably small (there is little chance of a large positive impact, but some risk of a significant negative one). The possible positive and negative effects are that:
  - it is possible that a price cap that holds prices below costs will put extra pressure on the firm to improve its efficiency. Certainly, this may be true when compared with a very loose price cap. But it is not at all clear that a below-cost price cap offers any significant advantage over one that is still tight but is set at the "right" level (ie it allows the firm to recover its costs, but only if it achieves a challenging but achievable efficiency target),
  - on the other hand, and perhaps more realistically, potential investors and lenders may be concerned if they observe a regulator setting a price cap that does not allow the firm to recover its costs. This can harm productive efficiency either by increasing the firm's cost of capital or else by leading to a situation where potential cost-reducing investment does not take place;
- similarly, the impact on dynamic efficiency is also indirect, uncertain and probably small (though, again, the risk of a large negative impact appear much greater than the chances of a significant positive one). The two offsetting impacts are that:
  - by not allowing the firm to recover investment costs that the regulator views as "inefficient", this might discourage the regulated firm from incurring similar inefficient costs in future,[6]
  - as with productive efficiency, potential investors or lenders may be concerned if the regulator disallows certain investments, and this can result in either a higher cost of capital or a difficulty in carrying out potentially beneficial investment. This applies particularly in cases where the criteria that the regulator will use to decide whether investment is inefficient are not clear, and where past decisions have been vigorously disputed and cannot be explained by reference to objective criteria.

While this could explain why regulators take firms' actual costs (rather than notional efficient costs) as a starting point for setting price caps, a more important practical reason is that most economic regulators have other statutory duties or objectives which also point strongly in this direction. These usually include objectives in relation to allowing the firm to finance its regulated activities, similar to CAR's new statutory objective as discussed in Section 3.1.

In summary, therefore, we disagree with DotEcon's assertion (which is explicit in many places, and implicit or ambiguous in others) that price caps should exclude costs that the regulator believes are inefficient, even from the narrow point of view of an independent

[6] A possible objection to this argument that it is not necessary for the regulator to apply this principle retrospectively, especially to costs that have been incurred under previous and different regulatory regimes. All that is necessary, instead, is that the regulator signals that future inefficient costs will not be remunerated, and makes it clear how inefficiency will be assessed.

regulator seeking to promote economic efficiency. At best, this assertion is unsupported, and there are specific cases where we believe it would be more likely to have a negative impact on economic efficiency.

Partly because of its use of competition rather than economic efficiency as a benchmark, DotEcon has sought to provide simple and general answers to questions that involve delicate trade-offs and where the answer (based on the net effect of a combination of positive and negative impacts) is likely to vary from case to case. Focusing on the impact of allegedly "inefficient" financing decisions on DAA's WACC, which DotEcon states should not be taken into account when setting DAA's price cap:

- the potential negative effects on economic efficiency are likely to stem from the possible detriment to allocative efficiency from holding DAA's charges below its actual costs (taking account of its actual financial structure), plus the possible detriments to productive and dynamic efficiency from investor and lender nervousness if CAR makes decisions that do not allow DAA to recover its costs;
- the possible positive effects are from discouraging DAA or its shareholder from making similar "inefficient" decisions in future.

As the financial restructuring of the former Aer Rianta is a once-off event, with decisions taken moreover by Government, we consider that the potential efficiency benefits from CAR providing incentives in relation to future conduct are likely to be quite low. This makes it more likely, and indeed quite probable, that the negative impacts will outweigh the positive impacts and that the net effect of DotEcon's recommended course of action would be detrimental to economic efficiency.

In addition, as we note in Section 2.2, it is possible that the apparent "inefficiency" in DAA's financial structure (ie high gearing) could be offset by positive contributions to economic efficiency elsewhere. This would further reduce the likelihood that DotEcon's proposals could have a positive, rather than a negative, impact on economic efficiency. And as discussed in Section 3 there may be benefits other than economic efficiency (such as promoting regional policy objectives) that further weaken the case for the incentives that form the main possible justification for DotEcon's recommendation.

2.2. Why the Financial Structure Matters for Efficient Regulation

Price cap, or "incentive", regulation is widely regarded as superior to other forms of economic regulation (notably rate-of-return or cost-plus regulation) because of the stronger incentives placed upon regulated firms. In fact, there are a number of different ways in which price cap regulation, and the conduct of price cap reviews in particular, can affect the individual components of economic efficiency (see box). And as already noted in Section 2.1, different approaches to economic regulation may have both positive and negative impacts on specific types of economic efficiency.

How Price Cap Regulation Promotes Economic Efficiency

Allocative efficiency is promoted, as the price cap is reset at each periodic review so as to bring prices back into line with costs (though perhaps with some delay, for example if there is a rolling efficiency mechanism).

Productive efficiency is promoted mainly by providing regulated firms with strong incentives to improve efficiency (hence the alternative name: "incentive" regulation). Good regulation also contributes directly to productive efficiency, as noted below.

Dynamic efficiency is promoted by creating a regulatory environment in which firms have as much certainty as reasonably possible that efficient investment will be remunerated. This also helps to achieve productive efficiency, as regulatory uncertainty can lead to a high cost of capital and therefore inefficiently high costs, or it might stop some investment altogether.

One very important aspect of price cap regulation is the explicit acknowledgement that prices can diverge from costs, perhaps for a period of several years, if the regulator's assumptions (for example, in relation to efficiency gains or demand growth) prove inaccurate. At face value, this may lead to a loss of allocative efficiency. But those who prefer price cap regulation to, say, rate-of-return regulation would argue that this temporary inefficiency is a price worth paying for the superior incentives that price caps provide and therefore the much greater likelihood of achieving productive efficiency in the long run.

DotEcon's report includes almost no discussion of the way in which price regulation should be carried out in order to promote economic efficiency. This is a serious omission, as the potential benefits of price cap regulation may not be realised if it is carried out inappropriately, and particularly if it fails to provide investors and lenders with sufficient confidence that they will be able to earn a reasonable return on future investment. Both productive and dynamic efficiency can suffer, as some investment (including potential cost-reducing measures) may not take place at all, while other investments may be carried out only at an inefficiently high cost of capital.

We therefore disagree with DotEcon's assertion (in paragraph 38, with similar comments elsewhere) that "the impact of a regulated firm's financial structure on the setting of a price cap is limited". Even from the narrow point of view of economic efficiency, both productive and dynamic efficiency could be adversely affected by an approach to regulation that threatens either to reduce the profits of the regulated company or, more seriously, to increase the risk of bankruptcy.

In addition, DotEcon's conclusion does not take account of the possibility that a policy decision that increases the cost of capital for the three airports as a whole, and therefore might appear to be "inefficient" from the narrow point of view of the financial structure alone, could also bring substantial efficiency benefits in other areas that outweigh the additional financing costs. For the sake of argument, if we suppose that a decision to allocate all of Aer Rianta's debt to DAA allows the benefits from separating the three airports to be realised earlier than would otherwise be possible, then the overall impact of

this decision on economic efficiency might be positive even if the impact on financing costs, when considered in isolation, is negative.

While we conclude that the financial structure is relevant for economic efficiency, though it should not be considered in isolation, we also note that utility regulators in the UK and elsewhere almost invariably take account of the financial soundness of regulated firms when setting price caps. As discussed in Section 3.1, this reflects specific duties to ensure that firms can finance their regulated activities. But even in the absence of such duties, regulators might still conclude that economic efficiency requires them to take account of a firm's actual financial structure when setting its price cap.

2.3. The Cost of Capital

Finally, in this Section, we address the specific points raised by DotEcon in relation to DAA's cost of capital. In this context it is important to note, as discussed in Section 1, that the demerger itself, and therefore the financial implications discussed below, will not take place until a number of statutory pre-conditions have been met (and not before 30 April 2005 at the earliest). We have not taken account of other factors (such as possible asset sales) which could also affect DAA's financial position.

DotEcon acknowledges that, on the assumption that DAA takes on the whole of Aer Rianta's debt and in the absence of other changes, the demerger means that DAA's gearing is likely to be higher than that of Aer Rianta. While stating that a full analysis of the impact of this on DAA's weighted average cost-of-capital (WACC) is beyond the scope of its report, DotEcon presents some illustrative figures that show the WACC falling as the level of gearing increases. Despite this, its policy conclusions (for example in paragraphs 59 and 60) clearly reflect a view that DAA's WACC could increase rather than decrease as a result of the demerger. DotEcon then states that any such increase should not be reflected in DAA's price cap, though for the reasons set out in Sections 2.1 and 2.2 above we disagree with this conclusion.

We have examined the likely impact of the demerger on DAA's WACC. On the basis that DAA's gearing might increase from 48 per cent to 60 per cent, we estimate that DAA's WACC is likely to increase by around 0.3 per cent and possibly more. In summary, the main reasons for this increase are:

- the evidence suggests that at a 60 per cent gearing level, DAA could find it more difficult to retain a single A credit rating (even though it is state-owned). A lower credit rating (BBB+) would be likely to raise the cost of DAA's debt by 20-35 bps;
- by definition, the residual returns to equity holders will become more volatile at higher levels of gearing, leading also to an increase in DAA's cost of equity.

Further details of our analysis of DAA's WACC are set out in Appendices A and B. We regard 0.3 per cent as a conservative estimate of the impact. One reason for this is that the effects of capital allowances (which could reduce the tax shield benefits of higher gearing) and the possible need to include a liquidity premium in the cost of debt could both lead to an even larger impact on DAA's WACC. Moreover, if DAA's gearing rises above 60 per cent, which is possible as DAA may need to raise further debt finance for future investment programmes, then the likely impact on its WACC would be much higher than 0.3 per cent.

3. WIDER POLICY ASPECTS OF DOTECON'S ANALYSIS

Whereas Section 2 assessed DotEcon's analysis on the basis of its very specific brief (the general principles of incentive regulation as applied by an independent regulator with a statutory mandate to promote economic efficiency), in this Section we consider its conclusions in the light of wider considerations.

First, in Section 3.1, we assess the validity of DotEcon's conclusions in the light of CAR's revised statutory duties. Whereas previously CAR had a single statutory objective, which it interpreted as requiring it to maximise economic welfare through the pursuit of productive, dynamic and allocative efficiency, this has been supplemented by two additional objectives:

- "to protect the reasonable interests of current and prospective users of Dublin Airport in relation to Dublin Airport"; and
- "to enable Dublin Airport Authority to operate and develop Dublin Airport in a sustainable and financially viable manner."

Sections 3.2 and 3.3 then examine some of the wider public policy issues raised by DotEcon's analysis, dealing first with the desirability of using economic regulation as a way of providing incentives to Government, and then with other public policy considerations.

3.1. The Importance of CAR's New Statutory Objectives

In Section 2.2, we argued that taking account of a firm's financial situation when carrying out a price review may be consistent with promoting economic efficiency. Even if this is not the case, however, CAR now has a clear obligation to take account of DAA's financial situation, and in particular to consider when making a determination whether it is likely to enable DAA to operate and develop the airport in a sustainable and financially viable manner.

While CAR still has the ability to decide on the relative importance to attach to each of its three statutory objectives, it is clear that the Act envisages situations where CAR might depart from the requirements of economic efficiency in order to satisfy either or both of its other statutory objectives. Introducing the Bill at its Second Reading, for example, Minister Brennan stated that "It is my intention that these primary objectives will oblige the commission to balance economic efficiency and the reasonable interests of users and to ensure the airport's financial sustainability in a way that will promote its long term development, having regard to its contribution to the economy."

These new objectives might bring CAR more into line with economic regulators in the UK, who typically have duties to ensure that firms can finance their regulated activities (or, in some cases, not to make it "significantly difficult" for firms to finance their regulated

activities), alongside duties to protect the interests of consumers, promote economy and efficiency, and so on.

3.1.1. Enabling DAA to operate and develop the airport in a sustainable and financially viable manner

In practice, economic regulators in the UK have generally interpreted their duties in relation to enabling firms to finance their activities as requiring the companies to maintain an investment grade credit rating. Regulators have also taken account of specific covenants attached to a company's debt.

Appendix C summarises the way in which the UK regulators have taken account of the financial situation of regulated companies when carrying out the most recent price reviews. This usually involves at least a financial modelling exercise to ensure that the profile of cashflows expected to result from a proposed price cap will allow the company in question to meet certain minimum financial ratio tests (typically based on interest coverage and sometimes FFO to total debt).

Experience over a longer period of time has shown that, in most cases, the expected revenue stream from a proposed price cap will deliver acceptable financial ratios, in which case there has been no potential conflict between the regulator's duties in relation to firms' financial situations and other objectives (such as economic efficiency). But in a small number of cases, this has proved not to be the case. Regulators have reacted to such situations in two main ways:

- some have adopted a very transparent approach, making an explicit adjustment to the timing of regulated revenues in order to solve a short term potential problem. In some cases, this has been achieved by adjusting the time profile of regulatory depreciation. In others, there is simply an explicit transfer of funds between control periods;
- in other cases, and much less transparently, regulators appear to have taken account of firms' potential financial difficulties and, when confronted with a range of possible parameter values (for example, in relation to the cost of capital or potential efficiency improvements), adopted a more generous assumption than they might otherwise have chosen.

In the case of Dublin Airport, we have not carried out a detailed assessment of DAA's financial position and therefore cannot reach firm conclusions about the likely impact, in practice, of this new statutory objective for CAR. But the analysis set out in Appendix A points to the importance of DAA preserving a single A credit rating, even if it has a higher level of gearing, in order to be able finance new investment efficiently.

We agree with DotEcon's argument, in paragraph 38, that economic regulation should not remove the threat of bankruptcy for regulated firms. But, equally, there may be strong

economic efficiency arguments against pursuing an approach to economic regulation that disallows certain costs and thereby potentially increases the firm's risk of bankruptcy. To some extent, the degree of protection that should be afforded to regulated firms is a matter of judgement. We believe there is an economic efficiency argument for at least some protection. And the introduction of CAR's new statutory objective is a clear indication that CAR should provide protection even beyond this minimum point. But this will still fall a long way short of a guarantee that DAA cannot go bankrupt, and therefore the analogy with Soviet-type economies cited by DotEcon (in paragraph 39) is irrelevant.

Overall, therefore, we believe that CAR's new statutory objective in relation to DAA's sustainability and financial viability would make it difficult to justify an approach to regulation that did not allow DAA to earn its actual cost of capital (rather than a lower cost of capital based an a hypothetical "optimal" financial structure). Even if this were contrary to economic efficiency (which, for the reasons set out in Section 2.2, we do not believe is the case), the question of DAA's cost of capital is so closely related to CAR's new statutory objective that it is difficult to see how such an approach could be consistent with the new objective. This further weakens the case for DotEcon's recommendation that DAA's new price cap should not take account of the impact of the demerger on the company's WACC.

3.1.2. Protecting the reasonable interests of users

In addition, of course, CAR has another new statutory objective, to promote the reasonable interests of current and prospective users of Dublin Airport. The word "reasonable" is an important one here, and it might be difficult to argue therefore that this new duty required CAR to set prices that were below cost.

Perhaps more importantly, while users would clearly benefit from lower airport charges at Dublin if nothing else changed, they also have a strong interest in the quality and reliability of the services provided. Even low cost carriers, for example, are likely to attach considerable importance to their continued ability to achieve low turnaround times at Dublin and thereby use their fleets more efficiently. Day to day punctuality, and eventually airlines' ability to offer credible schedules, would suffer if flights were regularly delayed because of insufficient departure gates or parking bays, or because departing passengers were delayed in the terminal building.

In deciding what actions are in the best (reasonable) interests of airport users, therefore, CAR will need to assess the trade-off between the potential benefits from lower airport charges and the potentially more important disbenefits if charges are reduced to such a level that either:

- DAA cannot finance investment that is required to maintain service quality and provide additional capacity at Dublin Airport, or it can only finance this investment at a high cost (which itself might offset some or all of the original benefits from lower airport charges); or

- there is a material increase in the risk of DAA becoming bankrupt.

The experience of Railtrack's bankruptcy in Great Britain provides a clear demonstration of the costs and disruption that users can suffer as a result. While Railtrack was in administration, the company experienced very poor cost control and, for a period of about a year, was unable to take strategically important actions in a number of areas.[7] This reflected both the major distraction for senior management and also the Administrator's reluctance to make strategic decisions that might be reversed or regretted by a subsequent purchaser of the company.

An even more dramatic example of the trade-off between the level of charges and the risk of bankruptcy came in the case of UK air traffic control, where the newly part-privatised NATS asked for a relaxation of its price cap to reflect the fall in traffic following the September 2001 terrorist attacks. The economic regulator (the CAA) initially rejected this request, arguing that the root cause of the problem was NATS' initial financial structure rather than a demand shock. But the CAA eventually decided to allow a significant relaxation of the price cap for the last three years of the price control period, plus a subsequent uplift to NATS' regulated asset base, in order to establish a robust financial structure from which NATS could continue to implement its proposed investment programme.[8] CAA justified this decision as follows:

> *"**In reaching its decision on the exceptional user contribution sought by NATS as part of the Composite Solution, the CAA, given its statutory objectives, has taken account of the position that NATS was in, the alternatives available to the CAA and the views of users. The CAA understands that NATS' over-riding medium-term priorities are maintaining safety, reducing the flight delays it causes and investing to improve cost-effectiveness and to increase airspace capacity in line with expected demand from users. The CAA accepts NATS' assessment that the Composite Solution places NATS on a robust basis and is able to meet its obligations and gives NATS' management and shareholders the freedom and financial resources to focus on these priorities and to deliver results to the benefit of users.**"*[9]

Overall, therefore, we conclude that CAR's new objective in relation to the reasonable interests of users does not strengthen, and might actually weaken, DotEcon's conclusion that any increase in DAA's WACC should not be reflected in its new price cap. It might be difficult to argue that "reasonable" interests require prices to be set below costs, especially if

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7 In a July 2004 interview in ***The Spectator***, the outgoing Rail Regulator, Tom Winsor, stated that "Everything was made far worse by the lost year of Railtrack's administration, which ended up taking 360 days in which costs exploded, performance plummeted and the railway was in crisis." He estimated that Railtrack's administration "ended up costing the taxpayer £14 billion".

8 This was part of a "composite solution", which also included an injection of additional equity (from a new shareholder, BAA) and some adjustments to the terms of the original debt finance.

9 CAA, ***NATS' Application to Re-open the Eurocontrol Charge Control: CAA Decision***, March 2003, page ix.

this leads to difficulties in financing new investment or even an increased risk of bankruptcy or financial distress.

3.2. Should Regulation be used to Provide Incentives for Governments?

A further important issue raised by the analysis in Section 2 is the strength of the argument for regulators providing disincentives for future "inefficient" expenditure. This is a key potential justification for the practice of regulators disallowing (ie not including in the price cap calculations) certain items of expenditure that they deem inefficient. In terms of economic efficiency, the likely effectiveness of such incentives in preventing future inefficiencies is the main positive factor to offset the negative impact on allocative efficiency of prices being below actual costs, together with the possible negative impacts on productive and dynamic efficiency from lenders and investors being nervous about the impact of future regulatory decisions.

In the case of DAA's WACC, we argue in Section 2.1 that the benefits from providing incentives for DAA's shareholder (ie the Government) to avoid an "inefficient" financial structure are likely to be small, and therefore the economic efficiency justification for disallowing some of DAA's actual costs in this way is weak. In addition to the possible objections on economic efficiency grounds, DotEcon's conclusion raises interesting questions about the role of economic regulators, and in particular the possible justification for providing incentives for Government to behave in certain ways.

In the case of a privately-owned company, the argument for providing incentives and constraints is clear. In the absence of regulation, the company would be expected to maximise profits by, among other things, reducing output and increasing its prices above the competitive level. And if regulation is poorly designed, then there may still be opportunities for profit-seeking companies to exploit the regulatory framework, for example by over-investing if they are guaranteed a return on any investment that they carry out.

In the case of a state-owned company, however, and particularly where incentives are targeted on the company's shareholder (ie the Government) rather than its managers, the arguments for providing such incentives are far less clear. The Government should be expected to make rational decisions, based on criteria including economic efficiency. And to the extent that the Government makes a decision that entails some loss of economic efficiency, this would normally be expected to reflect other policy objectives (such as regional policy) rather than profit-seeking behaviour. It is far from obvious that economic regulators should carry out their functions in a way which threatens to override, or is at least inconsistent with, wider Government policy.

Aside from any economic efficiency arguments, therefore, we think the case for CAR basing regulatory decisions on the provision of incentives to DAA's shareholder is a weak one. As the provision of such incentives is one of DotEcon's main arguments for excluding the

impact of a higher WACC from DAA's new price cap, this further weakens the case for this particular recommendation.

3.3. Wider Public Policy Considerations

The Government's White Paper ***Regulating Better***, though it covers all forms of regulation (and not just economic regulation), sets out six principles of better regulation: necessity, effectiveness, proportionality, transparency, accountability and consistency. These are also acknowledged by CAR in CP6/2004.

In many cases, these principles are already addressed, in part at least, by the legal framework established by the Aviation Regulation Act and now the State Airports Act. The principle of consistency, however, raises some potentially relevant issues in relation to DotEcon's analysis.

The White Paper identifies two types of consistency that are important for better regulation. The first of these is "structural consistency", which applies between institutions (including both specialist regulatory bodies and government departments). But DotEcon's conclusions in relation to DAA's price cap threaten to open up divisions between CAR and the Government:

- on the one hand, the Government would be making a decision on the basis of economic efficiency and other policy objectives. As noted above, it might decide that allocating all of Aer Rianta's debt to DAA was appropriate, despite the fact that this would increase DAA's cost of capital, because of benefits from enhanced economic efficiency elsewhere or from other policy objectives;
- on the other hand, by refusing to take account of DAA's changed financial position when setting its new cap, CAR would be making an implicit statement (which would probably become an explicit one, once CAR explained the reasons for this decision) that it viewed the Government's decision as inefficient and it was therefore not allowing DAA to earn its actual cost of capital.

Clearly, this situation would not promote regulatory consistency between CAR and the Government. It might send a dangerous message to potential investors and lenders about differences of opinion and approach between the Government and the regulator. And it would establish an unhelpful precedent for CAR refusing to take account in its price determinations of costs imposed on DAA by general Government policy.[10]

[10] This is not to say that CAR should automatically "pass through" any additional costs imposed on DAA between price reviews (though there is a strong argument for this in the case of security costs). But failing to acknowledge these additional costs at the next scheduled price review would clearly demonstrate the lack of consistency between CAR and the Government.

We have already referred, in Section 3.1.2, to the interim price cap review carried out by the UK Civil Aviation Authority to rescue NATS from financial distress. Although the CAA eventually agreed to amend NATS' price cap, it initially resisted this request and indeed the Director of the CAA's Economic Regulation Group resigned from the three-man panel considering NATS' request because he felt that NATS should not be rescued in this way. The CAA's hardline approach, even in response to truly exceptional circumstances (ie the fall in traffic volumes after the September 2001 terrorist attacks), was due in large part to its belief that the underlying problem was not the demand shock but the failure of the UK Government to ensure that the newly part-privatised NATS had a sufficiently robust financial structure. If the CAA had stuck to its initial hard line, NATS could well have followed Railtrack into administration, and this would have provided a vivid demonstration of the potentially calamitous consequences of a lack of consistency between Government and the relevant independent regulator.

4. CONCLUSIONS

For the reasons set out in Section 2, we have strong grounds for believing that DotEcon's analysis, and in particular its conclusion that DAA's price cap should not be adjusted even if the demerger leads to an increase in its cost of capital, is unsupported. It appears to be based on a blanket conclusion – that price caps should reflect only hypothetical "efficient" costs – that is not consistent with established regulatory practice and, in some cases, unlikely to be supported by a proper analysis of the likely positive and negative impacts on each category of economic efficiency.

In the specific case of the demerger of the former Aer Rianta, we believe that a Government decision that resulted in an allocation of all of Aer Rianta's debt to DAA could increase its cost of capital, perhaps by 0.3 per cent or more. The economic efficiency benefits from ignoring this possible change when setting DAA's new price cap, which derive mainly from the incentives provided to DAA's shareholder (ie the Government) to avoid similarly "inefficient" decisions in future, are likely to be low.[11] They are likely to be outweighed, moreover, by the negative impacts on productive and dynamic efficiency resulting from CAR setting a price cap that is below DAA's actual costs.

This conclusion is important and relevant, as CAR still has a statutory objective to facilitate the efficient and economic development and operation of Dublin Airport which meet the requirements of current and prospective users. CAR chose to interpret its original statutory objective, which was similar to this, as requiring it to promote economic efficiency. If it adopts a similar approach in future, then the possible detriments to economic efficiency that we have identified in this report would argue against implementing DotEcon's recommended approach.

Equally important is the fact that CAR has two new statutory objectives. DotEcon's recommended approach would certainly appear inconsistent with the second of these – to enable DAA to operate and develop Dublin Airport in a sustainable and financially viable manner. And we have also argued, in Section 3.1.2, that it may well also be inconsistent with CAR's other new statutory objective – to protect the reasonable interests of current and prospective users of Dublin Airport.

Finally, considering more general principles of public policy and good regulatory practice, the implementation DotEcon's recommended approach would be likely to result in CAR stating, explicitly or implicitly, that it was disallowing some of DAA's costs because it believed the Government had made an inefficient decision. Leaving aside questions already noted about whether such a decision really would be inefficient, this approach would expose a potential damaging inconsistency between the views of CAR and the Government.

[11] It is not clear, moreover, that such incentives would be appropriate, as they are focused purely on DAA's financial structure and do not take account of potential efficiency benefits elsewhere in the airports industry.

APPENDIX A. IMPACT OF THE DE-MERGER ON THE COST OF CAPITAL OF THE NEW DAA

A.1. Comments on DotEcon's Analysis

DotEcon assumes that the de-merger will lead to an increase in the gearing level of DAA due to the loss of revenues from Cork and Shannon Airports and Aer Rianta's debt remaining with the DAA. DotEcon states that this increase in gearing *"**may have an impact on the WACC of the new DAA**"* (para 56) although it does not provide a clear view on the likely direction or the magnitude of this impact.

In examining the impact that this increase in the gearing level will have on DAA's WACC, DotEcon makes two apparently conflicting statements:

- in paragraph 57 DotEcon states that *"**(E)verything else being equal, increasing the proportion of debt in the overall finance mix would tend to lower the WACC because of the debt premium being significantly lower than the equity risk premium**"*. It then provides an illustrative example (Table 1, para. 58.) that shows the WACC decreasing at higher levels of leverage; but
- in paragraph 59 DotEcon then suggests that the WACC for DAA might increase as a result of an increase in gearing although it does not go into the details of why it may do so.

DotEcon does not draw any definitive conclusions on the impact of an increase in gearing on DAA's WACC. It states that:

> *"**It is beyond the scope of this paper to assess the likely impact of the proposed restructuring on the WACC of DAA" (para.59)**.*

Overall, DotEcon's analysis is very incomplete and there are a number of conceptual flaws in its analysis and selective references to regulatory precedent. We comment in more detail on these issues in the sections below.

In this context it is important to note, as discussed in Section 1 of the main report, that the demerger itself, and therefore the financial implications discussed below, will not take place until a number of statutory pre-conditions have been met (and not before 30 April 2005 at the earliest). We have not taken account of other factors (such as possible asset sales) which could also affect DAA's financial position.

A.2. NERA Analysis of the Impact of the Change in DAA's Gearing on the Cost of Capital of the New DAA

In order to assess the impact of the de-merger on DAA's WACC one needs first to examine the impact of the de-merger on DAA's gearing and then examine the impact of the change in gearing on the cost of debt for DAA and the cost of equity finance for DAA. These combined impacts should then be used to assess the overall impact on the WACC for DAA.

A.2.1. Analysis of the impact of the restructuring on DAA's gearing

DotEcon states that DAA's gearing is likely to increase but provides no assessment of the magnitude of this impact. It is therefore unable to assess the likely implications.

Our discussions with DAA suggest that, in the absence of any other changes, the restructuring could increase DAA's gearing from the current level of 48% to 60%. This estimate is based on 2004 debt (of 48% Net Debt/(Net Debt + Equity)) adjusted to exclude the assets of SAA and CAA and the associated reduction in reserves. It also assumes a possible CAA finance lease arrangement with DAA. This projection of 60% gearing is therefore dependent on the amount of any CAA finance lease agreement, the timing of the transfer of assets to Shannon and Cork entities, and any other changes that might occur in advance of the transfer of assets (for example, if the Group was to dispose of other assets).

In addition, DAA's gearing may change over the next price review period as a result of changes to the existing price cap (as a result of the forthcoming review), the need for new capital expenditure and investment requirements, market value of debt being affected by interest rates, and so on. Therefore, DAA's gearing over the price control period may be higher or lower than 60%.

A.2.2. DotEcon's analysis of the impact of DAA's gearing on the credit rating and cost of debt of DAA

DotEcon does not assess the impact of gearing on the cost of debt or the credit rating in a rigorous manner. It only states that: *"**the debt premium might increase as the risk faced by lenders increases with an increased reliance of a business on debt rather than equity" (par. 57).*** No empirical evidence is presented on the relationship between the level of gearing, the credit rating and the likely debt premium for DAA.

Beyond a critical point, an increasing amount of debt will ultimately increase the risk of bankruptcy. As a result an increase in gearing beyond this point will lead bond holders to require a higher return consistent with the credit quality of the bond issue. This explains the positive relationship between the cost of debt and gearing mentioned by DotEcon.

Our own analysis suggests the following:

- DAA is currently rated by S&P at single A with a negative outlook;[12]
- S&P rating for DAA is consistent with the ratings of other international airports at similar levels of gearing such as BAA, Auckland and Copenhagen (see Table A.1 below);
- at higher gearing levels of 60% plus, credit ratings for airports are generally in the BBB range (for example, Sydney and Zurich Airports, see Table A.1);
- other evidence on the relationship between gearing and credit ratings confirms that single A ratings are unlikely at gearing levels in excess of 60%, even with a strong business outlook. At higher gearing levels of 60% plus, credit ratings are generally in the BBB range (see Table B.1).

Table A.1
Gearing[13] and S&P Credit Rating for Selected Airports

	1998	1999	2000	2001	2002	2003	2004
BAA Plc	31%	31%	28%	26%	35%	39%	41%
	AA-	AA-	AA-	AA-	AA-	A+	A+
Kobenhavns Lufthavne	47%	49%	47%	54%	48%	56%	
						A	A
Unique Zurich Airport	46%	41%	40%	58%	64%	71%	
						BBB	BBB
Auckland International	42%	34%	37%	37%	17%	27%	39%
Airport Ltd	A+	A+	A+	A+	A+	A+	A+
Aeroports de Paris							
	AAA	AAA	AAA	AAA	AAA	AAA	AAA
Aer Rianta (DAA)				A+	A+	A	A
				46%	48%	48%	48%
Hong Kong Airport Authority						17%	
			A	A+	A+	A+	
Sydney Airport						68%	
						BBB-	

Source: NERA analysis of Bloomberg data, company annual reports and a Deutsche Bank presentation "Airport financing – an investor perspective", September 2003.

Overall, the evidence suggests it may be unlikely that DAA would retain its single A rating at a 60% gearing level. Its sovereign ownership would likely be perceived as a positive factor in rating assessments. However, Zurich and Sydney also have sovereign ownership stakes but have been assigned BBB ratings at gearing levels in excess of 60%. Our best estimate is a BBB+ rating for DAA at 60% gearing level and a BBB/BBB- rating at higher levels of gearing of 65-70%.

[12] Source: S&P (2004), "Aer Rianta 'A/A-' Ratings Affirmed Following Breakup Announcement; Outlook Negative", 15 July 2004.

[13] Defined as debt divided by the enterprise value.

The impact of BBB+ credit rating on DAA's cost of debt is likely to be 20-35bps (see Table B.2 and Table B.3). At a lower rating of BBB/BBB- market evidence shows that debt spreads can increase markedly as investors fear these bonds may lose their investment grade ratings should the business position of the company worsen or in the event of adverse market conditions. Table B.2 presents market evidence on debt premiums and shows that the debt premium is about 200 bps higher at a BBB- rating than at BBB+ rating.

A.2.3. Analysis of the change in DAA's gearing on the cost of equity

DotEcon provides no analysis of the impact of gearing on the cost of equity. It merely states in paragraph 58 that the restructuring *"**might also change the appropriate level of beta to be used in the calculation of WACC for DAA**"*. However, it gives no explanation for this effect.

Under the conventional finance theory there is a relationship between a cost of equity and gearing. As gearing increases there is a higher proportion of fixed charges to be paid for the cut of the company's profits in the form of interest payments. As a result the residual earnings to equity holders become increasingly volatile as gearing increases. On the assumption that investors are risk-averse, this causes them to require a higher return on equity. This explains the positive relationship between the cost of equity and gearing.

Empirical studies undertaken to examine the change in the cost of equity with gearing provide significant evidence that beta and the cost of equity do change as gearing increases. A selection of studies is presented in Table A.2.

Table A.2
Effect of Gearing on the Cost of Equity: Empirical Evidence

	Result Change in cost of equity (bp) for each 100bp increase in D/(D+E)
Theory	
Modigliani-Miller 1963[1]	62
Miller 1977[2]	237
Evidence	
Mehta, Moses, Deschamps and Walker (1980)	109
Gapenski (1986)	72
Brigham, Gapenski and Aberwald (1987)	117
Copeland and Weston (1995)	160
Graham (2002)	130

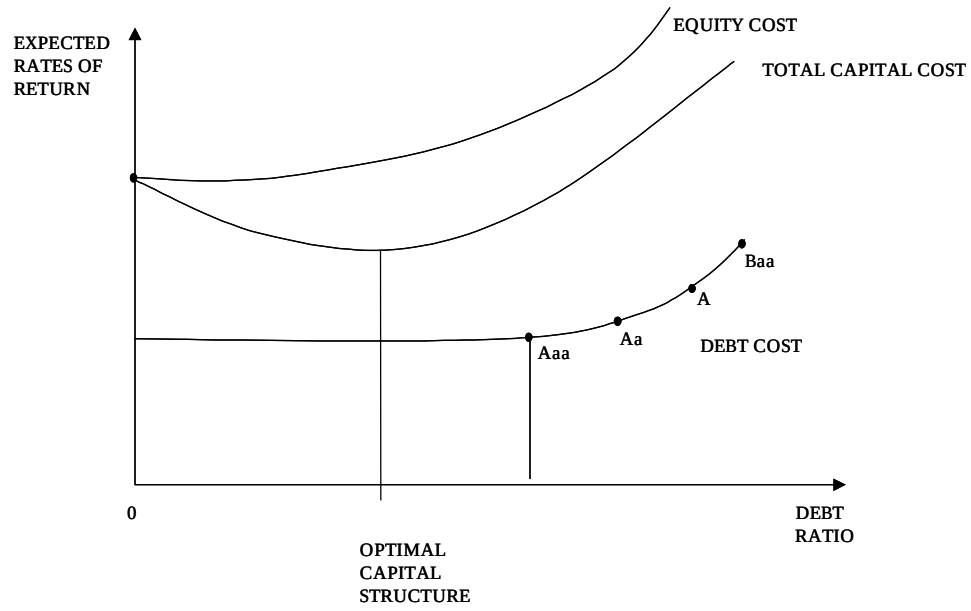
(1) Consistent with corporate tax rates at 1963. With current corporate tax rates the MM theory predicts an increase in the CoE of around 150bp for each % increase in debt/(debt + equity). Source: "Corporate Income Taxes and the Cost of Capital: A correction", with M.H.Miller, 1963, AER.
(2) Miller, M.H. (1977), "Debt and Taxes", Journal of Finance, 32(2), pp. 261-275.

A.2.4. Overall impact on WACC

We already considered the impact that an increase in DAA's gearing will have on its cost of equity and its cost of debt. Our analysis shows that DAA would face higher debt and equity costs if its gearing were to rise to 60% or above. Putting this analysis together we get the following implications for the overall cost of capital. As a company increases the relative amount of debt capital in its capital structure, total fixed charges increase, and the probability of failing to meet the growing fixed burden of charges also increases. The relationship between the average cost of capital and capital structure emerges directly from the assumed behaviour of debt and equity required returns.

An example of the general relationship between capital structure and the costs of equity and debt capital is shown graphically in Figure A.1 below.

Figure A.1
The Relationship between Capital Structure and the Cost of Capital



This figure shows the relationship between the required return on debt and equity capital for an example company as the firm progressively substitutes debt for equity capital. We show a situation where the average cost of capital declines as gearing increases, as the weight of low cost debt in the average increases.

There are a number of factors that impact on the relationship between the WACC and gearing. The main factor is corporate tax. DotEcon mentions the impact of the debt tax shield on WACC but does not go into its details.

Most tax systems give preferential tax treatment to debt financing in comparison with equity financing. The tax deductibility of interest payments means that the fraction of operating income diverted to the tax authority decreases as gearing increases. The net effect is to

reduce the slope of the relationship between the cost of equity and gearing as shown in Figure A.1 and to increase the level of gearing that is optimal.[14]

Table A.3 shows NERA's central case WACC estimates for DAA under alternative gearing scenarios. These calculations are based on CAR's assumptions for specific parameters, as used in its 2001 determination. The alternative gearing assumptions include DAA's current gearing level of 48%, DAA's possible gearing level post de-merger (60%) and an even higher gearing level of 70%, which might result, in the absence of any other changes, if DAA needed to raise further debt finance post de-merger.

We would like to note that alternative gearing assumptions not only have an impact on the cost of debt and cost of equity weightings in the final WACC calculation but also impact an equity beta feeding into the cost of equity (Table A.3, item g).

[14] It is recognised, however, that the corporate tax benefits of debt financing can be offset, at least partially, by the personal tax treatment of dividend and interest returns. Miller (1977) first noted the value of debt tax shields ***can*** disappear altogether when both personal and corporate income taxes are considered. This theory is based on the assumption that there are different personal tax rates on interest income across the economy. As the level of debt in the economy rises then firms and individuals with higher tax rates on debt would have to be attracted into the market for holding debt.[14] The Miller "equilibrium" predicts a steeper relationship between the cost of equity and gearing as shown in Figure A.1. The Miller (1977) theory is aggressive in that it predicts that the whole amount of the debt interest tax shield will be offset by higher personal taxes, whereas a number of more recent studies have predicted that the amount of offset may be partial.[14] A recent study by Graham (2002) suggests that personal taxes in the US offset 30-50% of the debt interest tax shield.

Table A.3
NERA Estimates of DAA WACC Under Alternative
Gearing Assumptions and CAR Parameter Values

Parameter	CAR 2001 assumptions	48% Gearing	60% Gearing	70% Gearing
a. Tax rate	13.20%	13.20%	13.20%	13.20%
b. Gearing (=D/(D+E))	50.00%	48.00%	60.00%	70.00%
c. D/E (=b/(1-b))	1.00	0.92	1.50	2.33
d. Real risk free rate	2.60%	2.60%	2.60%	2.60%
e. ERP	6.00%	6.00%	6.00%	6.00%
f. Asset beta	0.47	0.47	0.47	0.47
g. Equity beta (=f*(1+c))	0.93	0.89	1.16	1.55
h. Real post-tax cost of equity (=(g*e)+d)	8.18%	7.97%	9.58%	11.90%
i. Real pre-tax cost of equity (=h/(1-a))	9.42%	9.18%	11.03%	13.71%
j. Debt premium	1.10%	0.96%	1.38%	3.40%
k. Real cost of debt (=j+d)	3.70%	3.56%	3.98%	6.00%
l. Real post-tax WACC (=b*k*(1-a)+(1-b)*h)	5.7%	5.6%	5.9%	7.2%
m. Real pre-tax WACC (=b*k+(1-b)*i)	6.6%	6.5%	6.8%	8.3%

NERA Analysis

Adopting CAR's parameter assumptions, we conclude that an increase in DAA gearing level from 48% to 60% would increase DAA's WACC from 5.6% (post-tax, current gearing basis) to 5.9% (post-tax, expected post de-merger basis). A further increase in gearing to 70% would lead to a more substantial rise in post-tax WACC to 7.2%. However, this is only a central case assessment.

The WACC may not decline with increased debt as much as predicted by the conventional trade-off theory depicted in Figure A.1 because of the extent of non-tax costs such as capital allowances afforded to encourage new capital investment. The effect of non-tax costs is that the effective tax rates (ie the percentage of taxes paid in relation to regulatory profits) can be lower than the statutory rate in certain years, which reduces the value of the corporate tax shield. Airports can have significant capital allowances through large-scale capital investment programmes.

The finance literature also notes that market liquidity plays an important role in capital structure decisions. In the context of the Eurozone, it has been well documented that the cost of BBB rated debt and below is sometimes higher than appears to be justified on the basis of bankruptcy risk alone but that debt issues at these ratings often command a significant liquidity premium to compensate for low trading. Again this offsets any tax advantage from debt.

In addition, DAA may be required to maintain at least a single A credit rating status in order to be able to raise finance for future capital investment programme in all economic conditions. Key arguments for this conclusion are as follows:

- ***Investor appetite favours A rated long-term debt***: Empirical evidence suggests that there is relatively little investor appetite for long-term debt (>10 years), in either the Sterling or Euro markets, that cannot attain A rated debt or above.[15] Recent evidence from the debt capital markets suggests that the cost of BBB rated (structured) debt for UK water companies can be markedly higher (>1%) than the cost of A rated structured debt. Access to new debt finance for BBB rated companies can be restricted.

- ***Index linked corporate debt is only available at A ratings and above***: Index Linked (IL) debt is an attractive form of financing for due to its hedging properties against inflation and favourable repayment profiles.[16] To date, debt issues in the UK index linked market have currently been limited to companies rated at single A ratings and above. No company has raised IL debt at ratings below A-.

- ***Availability of new EIB debt appears limited below A ratings:*** The EIB remains one of the cheapest debt providers, and access to EIB debt is therefore important in order to achieve the lowest financing costs for new capital investment.

Therefore, overall we conclude that a 0.3% increase in real post-tax WACC (illustrated in Table A.3) is a low bound at 60% gearing.

A.2.5. Regulatory precedent

European regulators have generally used actual current gearing level to determining the allowed capital structure of airports in estimating the cost of capital:

- The UK CAA, in its 2001 consultation paper[17] prior to a major UK regulatory review concluded that: *"**for the purpose of price regulation gearing should be calculated as economic gearing, i.e. economic value of debt divided by the regulatory asset base.**" **(Annex, p. 25)***. In the case of BAA (2001) decision, CAA used a gearing level of 20-30% on the

[15] This appears to be driven by a number of factors that include: institutional restrictions on exposure to BBB rated debt and below; and, the relative immaturity of the UK and EU debt capital markets leading to increased liquidity premia on BBB rated debt and below.

[16] IL debt provides the option of matching index-linked revenues with index linked debt service repayments thus providing a hedge against inflation. IL debt has lower initial debt service repayments than nominal debt leading to better interest coverage ratios in early years. Strong demand for IL debt (as a result of institutional hedging requirements for pension funds and insurance companies), coupled with limited government long-term supply, means that there is often a cost advantage for IL debt over nominal debt.

[17] CAA (2001), "Economic Regulation and the Cost of Capital", November 2001

basis that BAA's actual economic gearing level over the price control period fell within this range.[18]

- The Competition Commission also used actual gearing levels in its 2002 decisions on BAA (25%) and MA (32.5%). It also applied an adjusted cost of capital estimate to Terminal 5 assets to account for increased gearing associated with its construction.
- CAR, in its 2001 decision on Aer Rianta cost of capital followed the CAA's (2001) approach and decided that: *"**In the absence of a known target capital structure, it is recommended that current gearing be used in the WACC calculation (p. 180, CP9/2001, Appendix I)***. Aer Rianta's observed gearing level was around 50% at the time of the price decision and the CAR therefore assumed a gearing of 50% for calculation of the regulatory WACC for Aer Rianta.

[18] The CAA did not make any comment as to whether they considered this range of gearing to be the "optimal gearing" for BAA.

APPENDIX B. FINANCIAL MARKETS EVIDENCE

Table B.1
S&P Total Debt to Capitalization (%) at Different Rating Categories: US Utilities

		Rating Category					
Company business risk profile		AAA	AA	A	BBB	BB	B
Well-above-average business position	1	47	53	58	64	70	-
	2	43	49	54	60	66	-
Above average	3	39	45	50	57	64	70
	4	35	41	46	53	61	68
Average	5	33	39	44	51	59	67
	6	30	36	43	50	57	65
Below average	7	27	34	41	49	56	64
	8	23	31	39	47	55	62
Well below average	9	-	-	35	43	51	58
	10	-	-	29	37	43	50

Source: Standard & Poor's "Corporate Ratings Criteria".

Table B.2
Bond issues by utility companies in the European market

Company	Issue date	Maturity date	Coupon	Gearing (D/(D+E))	Credit rating	Spread[1]
BAA Plc	27/11/2003	27/11/2013	5.75	0.41	A+	0.798
Transco Plc	02/10/1998	02/10/2028	6.20	0.80	A	0.955
Wessex Water Services Finance Plc	15/10/2003	14/10/2033	5.75	0.13	BBB+	1.315
Yorkshire Power Finance	04/02/1998	04/08/2028	7.25	N/a	BBB-	3.418

Source: NERA analysis of Bloomberg data.
(1) Spread over comparable government bond.

Table B.3
Reuters Transport Corporate Bond Spreads

Rating	1Y	2Y	3Y	5Y	7Y	10Y	30Y
Aaa/AAA	15	30	40	50	60	63	68
Aa1/AA+	20	35	45	60	70	72	78
Aa2/AA	25	40	50	65	80	82	88
Aa3/AA-	30	45	55	75	90	94	102
A1/A+	35	55	65	85	105	109	122
A2/A	40	65	75	100	115	124	142
A3/A-	50	70	85	110	125	139	158
Baa1/BBB+	65	80	100	119	139	147	165
Baa2/BBB	80	100	115	134	154	168	186
Baa3/BBB-	100	120	135	154	174	185	206
Ba1/BB+	560	510	460	410	360	385	295
Ba2/BB	900	850	800	600	550	645	460
Ba3/BB-	1200	1150	1050	900	800	795	850
B1/B+	1375	1275	1200	1100	1000	1090	1100
B2/B	1475	1365	1300	1250	1150	1190	1250
B3/B-	1575	1475	1425	1325	1225	1265	1350
Caa/CCC	2200	2000	1800	1700	1500	1400	1500

Source: Bondsonline.com; 12st October 2004.

APPENDIX C. THE IMPACT OF FINANCIAL STRUCTURE ON PRICE CAP REGULATION IN THE UK

C.1. Introduction

Price cap regulation in the UK is generally conducted in line with the "building blocks" approach. This involves estimating the total regulated revenue requirement as the sum of three elements (or "building blocks"):

- operating expenditure, after taking the scope for efficiency savings into account;
- either depreciation or renewals expenditure, depending on the approach taken by the relevant regulator; and
- a return on capital, calculated by multiplying the regulatory asset base (RAB) by the estimated weighted average cost of capital (WACC).

Using these results, UK regulators then undertake a process of financial modelling, aimed at examining the profile of the cashflows and a range of financial ratios implied by their determinations.

The consideration of financial ratios is to ensure that the final determination is consistent with ensuring the 'financeability' of the company. All utility regulators have statutory duties to ensure that companies can finance their regulated activities. Therefore, financial ratios are used to examine whether the companies will be able to finance their activities at a reasonable cost, including when new debt and/or equity finance needs to be raised.

If the determination results in financial ratios that are not consistent with the credit rating assumed in the estimation (ie in estimating the WACC), the company will face a higher cost of capital than allowed for by the price cap, and therefore, its ability to undertake its investment activities will be undermined.

In the next five sections we describe how financial ratios are used in the regulation of UK airports, rail infrastructure, water (and sewerage), electricity and gas.

C.2. Airports

Key References:

- CAA [1], ***Economic Regulation of BAA London Airports (Heathrow, Gatwick and Stansted) 2003 – 2008: CAA Decision***, February 2003.
- CAA [2], ***Economic Regulation of Manchester Airport 1st April 2003 – 31st March 2008: CAA Decision***, March 2003.
- CAA [3], ***Heathrow, Gatwick and Stansted Airports' Price Caps, 2003-2008: CAA Recommendations to the Competition Commission***, March 2002.
- CAA [4], ***Manchester Airport's Price Cap 2003 – 2008: CAA Recommendations to the Competition Commission***, March 2002.
- CC [1], ***BAA plc: A report on the economic regulation of the London airports companies (Heathrow Airport Ltd, Gatwick Airport Ltd and Stansted Airport Ltd),*** Competition Commission, October 2002.
- CC [2], ***Manchester Airport plc: A report on the economic regulation of Manchester Airport plc,*** Competition Commission, October 2002.

The March 2003 final determination by the CAA for Q5, following the recommendation of the Competition Commission,[19] takes account of the large financing requirement faced by BAA as a result of T5, and profiles returns for BAA over a period of 10 (rather than 5) years. Effectively the CAA's decision brings forward revenue from T5 before it is built. CAA's justification for this decision to smooth BAA's revenues over a longer period is that ***"Capital markets require regulatory credibility and regulatory commitment in order to finance projects of this scale and duration cost-effectively".***[20]

Significantly, the Competition Commission investigation which preceded the CAA's final determination allowed BAA a cost of capital some 2.5 per cent higher than the figure it originally judged appropriate (which itself was somewhat above the mid-point of the range of possible values identified by the Commission) in order to allow for the scale of the T5 project and the consequential increase in BAA's gearing.

> ***"We also, however, believe in the current circumstances of BAA, a further increase in the cost of capital would be appropriate. First, we believe that the scale of the T5 project and consequential increase in borrowings and gearing will increase BAA's***

19 CC [1], para 2.375, pg 97.

20 CAA [1], para 4.83, pg 47.

> ***risks: it represents a considerable investment, with very long-term returns, subject not only to construction risks, but also risks of uncertain demand. Although passenger demand to use Heathrow should be strong, growth in the number of passengers per ATM is necessary if the additional capacity of T5 is to be fully utilized, but passengers per ATM have recently declined, adding to project risks. An increase in the cost of capital would also allow for the foreclosure of the options for BAA to postpone or cancel the project in the light of more data on air travel demand following 11 September, and for the effect of higher gearing and cost of new equity in the event of any major shocks***."[21]

C.3. Rail infrastructure

Key References:

- ORR [1], ***Access Charges Review 2003: Final Conclusions***, December 2003.

Although the exact price cap setting process has been adjusted to reflect the specific industry circumstances, the Rail Regulator followed the "building block" approach in his 2003 review of network access charges. The process does explicitly incorporate a final step for ensuring that the determination is financeable for Network Rail.

The final conclusions provide for substantial investment by Network Rail in maintaining and renewing the rail network. Given the size of this investment, and the reliance on Network Rail bridging the gap between the spending and the track access revenues plus SRA grants through issuing debt, this final stage involves the Regulator ensuring that he is:

> *"…**confident that Network Rail has continued access to the debt markets and a sufficiently strong credit rating to enable it to borrow additional money at a reasonable cost.**"*[22]

In coming to his decision on this issue, the Regulator used a number of financial indicators in his 2003 review. These indicators are identified in Table C.1. The process for evaluating and testing these indicators is not explained in detail but it is noted that the Regulator is *"**satisfied that Network Rail will be able to finance the baseline expenditure requirements**"*.[23]

Table C.1
Relevant Financial Indicators

Indicator	Definition

[21] CC [1], para 2.327, pg 86.

[22] ORR [1], para 3.17, pg 33.

[23] ORR [1], para 15.14, pg 210.

Income to interest	Total revenues from track access charges and SRA grants
	Divided by
	Gross interest incurred before subtracting capitalised interest and interest income
Adjusted interest coverage	Post-tax operating cashflow less the portion of capital expenditure that
	maintains the RAB at a constant value (in real terms) over the regulatory period
	Divided by
	Gross interest incurred before subtracting capitalised interest and interest income
EBITDA interest coverage	Earnings from continuing operations before interest, taxes, depreciation and amortisation
	Divided by
	Gross interest before subtracting capitalised interest and interest income
EBIT interest coverage	Earnings from continuing operations before interest and tax
	Divided by
	Gross interest before subtracting capitalised interest and interest income
FFO interest coverage	Funds from operations (that is, net income from continuing operations plus depreciation, amortisation, deferred income taxes, and other non-cash items)
	Divided by
	Gross interest before subtracting capitalised interest and interest income
FFO to total debt	Funds from operations (as above)
	Divided by
	Long term debt plus current maturities, commercial paper, and other short-term borrowings
Net cashflow to capex	Net cash inflow from operating activities
	Divided by
	Total capital expenditure
Debt to RAB	Net debt (that is, long term debt plus current maturities, commercial paper, and other short-term borrowings, less investments and cash at bank and in hand)
	Divided by
	RAB plus value of enhancements not included in RAB

Source: ORR [1], Table 15.4, pg 211.

In coming to his conclusions over financeability, the Regulator focussed on three indicators in particular:

- Income to interest – ORR analysis indicated that this ratio will remain above 4 throughout the five year period;
- Adjusted interest coverage – in the Regulator's view his determination should not prohibit Network Rail from being able to keep this ratio above 1.5 throughout the control period; and
- Debt to RAB – analysis is said to indicate that this ratio will decline over the control period, from a peak of 0.8 in April 2004.

Above and beyond these comments, no further details are provided as to the anticipated levels of the indicators over the control period, or what levels the Regulator believes to be minimums to ensure financeability.

C.4. Water and Sewerage

Key References:

- OFWAT [1], ***Future water and sewerage charges 2000-05: Draft determinations***, July 1999.
- OFWAT [2], ***Future water and sewerage charges 2005-10: Draft determinations***, August 2004.

The magnitude of the investment requirements for both the UK water-only and water and sewerage companies (WOCs and WASCs) has meant that financeability has been an integral part of setting price caps in the water industry for a number of years. OFWAT has been clear in explicitly stating that companies should be able to maintain investment-grade credit ratings,[24] and that this is a consideration in coming to final determinations. In his draft determinations for the 2000-5 control period the Director of OFWAT noted that:

> *"**The Director must set price limits in the manner in which he judges best calculated to ensure that each company's functions are properly carried out and that it is able (in particular by securing reasonable returns on its capital) to finance that outcome. This is interpreted to mean not only that companies should receive a return on investment at least equal to the cost of capital but in addition [mean that] companies' revenues, profits and cash flows are such that they can finance the required capital investment as necessary in the debt markets. Borrowings (unlike equity) are usually subject to contractual arrangements, sometimes including financial covenants. Such considerations are sometimes referred to as bankability."**[25]*

This theme has continued into the latest price review. In the latest draft determinations for the control period 2005-10, the Director observes:

> *"**The continuing large capital programme places a financing strain on the companies and has made our approach to financeability and the cost of capital a critical issue at this review."**[26]*

In assessing the financeability of determinations, OFWAT (like other regulators) does not have a prescriptive view of the credit rating or financial position that the companies should achieve. Rather, based on a series of indicators, the Director has to satisfy himself that the companies will be seen as good credit quality – this in practice means that the company can

[24] OFWAT [2], pg 196.

[25] OFWAT [1], pg 127.

[26] OFWAT [2], pg 37.

retain an investment-grade rating. The indicators used by OFWAT in the latest draft determination are shown in Table C.2.[27]

Table C.2
Ranges for Financial Indicators

Ratio	Value
Cash interest cover (funds from operations:gross interest)	Around 3 times
Adjusted cash interest cover (funds from operations less capital charges:gross interest)	Around 1.6 times
Adjusted cash interest cover (funds from operations less capital maintenance expenditure:gross interest)	Around 2 times
Funds from operations:debt	Greater than 13%
Retained cashflow:debt	Greater than 7%
Gearing (net debt:regulatory capital value)	Below 65%

Source: OFWAT [1], Table 41, pg 198.

In coming to its conclusions, OFWAT considered the indicators as a package (rather than individually) and for each company in turn. Both the levels and trends of indicators were examined.

In selecting the six indicators the focus was on cashflow measures as it is these that the ratings companies, and wider financial community, also examine when coming to a view on the financial stability of a company. As in the earlier 1999 review, no consideration was given to a particular company's covenants (where these were not in line with the indicator package selected for the industry as a whole).

As a result of considering the impact of the "building blocks" determination on the financial indicators, OFWAT's latest draft determination allows for an increase in the price cap to reflect financeability concerns:[28]

> *"**In aggregate the price limits include around 0.5% in 2007-08 to maintain financeability, rising to around 1.0% by 2009-10.**"*[29]

C.5. Electricity

Prior to the most recent energy price control reviews (in electricity distribution and transmission, in 1999 and 2000 respectively) the use of financial ratios was generally limited to examining cashflows and profits (which were required to be sufficient to provide dividends that shareholders would have expected at privatisation).

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[27] Current cost dividend covers were also reviewed to provide a view of the long run sustainability of dividend payments.

[28] The draft determination allows for an annual average increase in price limits of 3.1 per cent before inflation.

[29] OFWAT [1], pg 199.

In more recent reviews, Ofgem has adopted a broadly consistent approach to assessing financial ratios, which involves examining a set of financial ratios (such as EBIT, EBITDA, FFO interest coverage and FFO to total debt) to see if they are adequate to maintain an investment grade credit rating for debt. There is no evidence that any of these acted as a constraint on Ofgem's proposals. However, in the 1998-2000 price control review of electricity distribution, Ofgem did make adjustments to the profile of depreciation because of concerns over the cashflow of three companies over the course of the current price control period. Ofgem's adjustment amounted to a revenue advancement (ie the NPV was unchanged).

C.5.1. Electricity Transmission (NGC)

Key References:

- Ofgem [1], ***The transmission price control Review of the National Grid Company from 2001, Initial thoughts consultation document***, March 2000.
- Ofgem [2], ***The transmission price control Review of the National Grid Company from 2001, Draft proposals***, June 2000.
- Ofgem [3], ***The transmission price control review of the National Grid Company from 2001, Transmission asset owner, Final proposals***, September 2000.

In the 2000 price control review of NGC (in its role as Transmission Asset Owner), Ofgem employed financial modelling in a manner consistent with that described (in more detail below) for the distribution companies. That is, using the level and trends in the same financial indicators, Ofgem examined, using several (unspecified) scenarios, the financial viability of NGC during the current price control period and beyond with a view to NGC being able to maintain an investment grade credit rating for its debt. Providing more detail than in the distribution review, Ofgem states that its test relates to the ***average*** of financial ratios over the ***whole*** price control period and that NGC's credit rating should remain "***comfortably within the investment grade category throughout the period***".[30]

None of the financial indicators acted as a constraint to Ofgem's proposals, see Table C.3. Rather, Ofgem states "***Given the strength of these financial ratios it could be argued that it would be possible for Ofgem to propose more significant reductions in revenue during the next price control period while still fulfilling its duties.***"[31] However, citing the importance of regulatory consistency, Ofgem decided not to set tighter controls on the basis of NGC's strong financial ratios.

[30] See Ofgem [1], paras 6.73 and 6.74, pg 65.

[31] Ofgem [3], para. 5.34, page 39.

Table C.3
Ofgem's Projections of NGC's Financial Ratios

Indicator	2005/06	Av. ½-05/06	Av. 06/07-09/10	Ofgem level
EBITDA Interest coverage (operating profit + depreciation) / interest	4.0	4.0	4.1	Min 2.25
EBIT Interest coverage (earnings before interest and tax PBIT) / Interest	2.8	2.9	2.8	Min 1.5
FFO interest coverage (FFO + interest) / Interest	3.4	3.4	3.6	Min 2
FFO / TO total debt (FFO / net debt)	16.9%	15.5%	18.4%	Min 12%
Gearing Net debt /(net debt + equity shareholders funds)*	60.0%	60.0%	60.0%	60.0%

***** ***(net debt + equity shareholders funds) is assumed to be equal to the regulatory value.***

FFO is funds from operations

Source: Ofgem [3], Table 5.5, pg 40.

C.5.2. Electricity Distribution

Key References:

- OFFER [5], ***Review of Public Electricity Suppliers 1998-2000: Distribution Price Control Review: Consultation Paper***, May 1999.
- Ofgem [4], ***Reviews of Public Electricity Suppliers 1998-2000: Distribution Price Control Review: Draft Proposals***, August 1999.
- Ofgem [5], ***Review of Public Electricity Suppliers 1998-2000: Distribution Price Control Review: Final Proposals***, December 1999.
- Ofgem [5], ***Review of Public Electricity Suppliers 1998-2000: Distribution Price Control Review: Final Proposals***, December 1999.

In the 1998-2000 distribution price control review, Ofgem used financial modelling to inform judgements about the effect of its proposals on the financial viability of each Public Electricity Supplier (PES). Ofgem focused its attention on the ability of each PES to maintain an investment grade credit rating (of BBB or above) on the basis of Ofgem's projections of efficient costs.

Describing the analysis of rating agencies, Ofgem states *"**parameters such as the coverage of fixed financial charges by cash flow and the ratio of free cash flow to total debt are considered more***

relevant and reliable than earnings coverage or balance sheet gearing."[32] In arriving at the appropriate financial indicators to use, Ofgem states, citing Standard & Poor data, that transmission and distribution businesses are able to sustain lower interest coverage and higher gearing, compared to businesses operating in a more competitive environment.

Table C.4 shows the financial indicators that Ofgem believes to be consistent with maintaining long-term ratings above the minimum investment grade. Ofgem states "***a variety of scenarios have been considered, using a range of data***" but provides few specific details.[33] Ofgem considered the financial indicators "***both during the period of the control and beyond*** 2005" and concludes that in "***no case has any of these factors acted as a constraint.***"[34] However, Ofgem decided to advance revenues as a result of specific circumstances explained below that affected the cashflows of several companies.

Table C.4
Ofgem's Financial Indicators

Indicator	Level
EBIT interest coverage	Min 1.5 x
EBITDA interest coverage	Min 2.25 x
FFO interest coverage	Min 2 x
FFO to total debt	Min 12%
Gearing (D/(D+E))	Max 65%

Source: Ofgem [5], Table 5.2, pg 47.

Also, in the same review, OFFER noted that depreciation of pre-privatisation assets had previously been allowed over a period of 11 to 15 years and that, for some companies, pre-privatisation assets would be fully depreciated before 2005. The associated depreciation would therefore disappear from their revenue allowance during the current period.[35] This decline in allowed costs would have led to a fall in revenues that Ofgem stated "***could impact adversely on the financial position of the RECs' distribution businesses in the short-term and put upward pressure on prices in the long term.***". Ofgem did not state explicitly what aspects of distribution businesses' financial position acted as a constraint. However, Ofgem did decide to make an adjustment to the profile of allowed revenues because of this problem.

Ofgem's adopted solution was to 'tilt' (ie accelerate) depreciation on post-Vesting assets, in order to raise the allowance for depreciation. Post-privatisation investments are now depreciated at a rate of 5 per cent per year,[36] rather than 3 per cent per year as OFFER had previously assumed (ie over asset lives of 20 years rather than 33 years). Ofgem also made a

32 OFFER [5], para. 6.71, pg 99.

33 Ofgem [5], para 5.42, pg 47.

34 Ofgem [5], para 5.45, pg 47.

35 OFFER [5], para.6.53, page 92.

36 Ofgem [5], para. 5.34, page 45.

one-off adjustment to price control revenues intended to ensure that, in present value terms, the distribution companies would be neutral to the change (ie the change amounted to a revenue advancement). Ofgem "smoothed" the one-off adjustment over a 15-year period. Three companies (NORWEB, SWALEC and SEEBOARD) were subject to this adjustment.

C.6. Gas

Key References:

- MMC [1] ***Gas and British Gas plc***, Volumes 1, 2 and 3, HMSO.
- MMC [2], ***British Gas plc***, 1997
- Ofgas [1], ***1997 Price Control R***eview British Gas' Transportation and Storage: The Director General's final proposals, August 1996.
- Ofgem [6], ***Review of Transco's Price Control from 2002: Final Proposals***, September 2001.
- Ofgem [7], ***Separation of Transco's distribution price control: Draft Proposals***, December 2002.
- Ofgem [8], ***Separation of Transco's distribution price control: Final Proposals***, June 2003.

In its 1997 review of Transco, Ofgas observes that a "***consideration in the choice of X is the likely effect on TransCo's key financial ratios of any particular profile of revenue.***"[37] However, Ofgas only gives explicit consideration to HCA profits – stating that its proposals "***should give British Gas' Directors the opportunity to project a rising contribution from TransCo to British Gas plc's dividend, should they choose to do so.***"[38] Ofgas also provides forecasts of operating cashflows, but does not explain how they may have influenced its proposals.

MMC examined alternative price profiles (ie combinations of P_0 and X factors) but believed it was desirable that the profile should result in a rate of return close to the cost of capital (of 7 per cent in this case) in each year of the period under review.[39]

Ofgem's approach to financial modelling (and the use of financial ratios) in the 2001 review of Transco was consistent with the approaches adopted by Ofgem for both NGC and the distribution companies (see above). The same financial ratios and the same minimum and maximum values were adopted, as presented in Table C.4 and Table C.3. Ofgem found that

[37] Ofgas [1], pg 63.

[38] ***Ibid, pg 63.***

[39] MMC [2] para. 2.174, pg 53.

its final proposals meant "***Transco should be able to retain a credit rating comfortably above the minimum investment grade.***"[40]

During this 2001 review of Transco, Ofgem discussed whether the "unfocused" approach should be retained to the valuation of Transco's assets or whether a focused approach should be applied, with the latter approach likely to reduce Transco's RAB by £2bn. Ofgem's decision to keep the "unfocused" approach, for purposes of retaining regulatory certainty, regarding this matter did not consider the impact on Transco's financial viability, but rather on "***a range of factors*** … ***including market evidence and 1991 asset values, regulatory consistency, the views of interested parties, and the views of the MMC.***"[41]

Ofgem's commitment to ensuring the financeability of its determinations was restated in its development of proposals regarding the separation of Transco's distribution price control in 2002/3. The Regulator argues that the "key test" of financeability is "whether the company can retain an investment grade credit rating".[42] To test for this, Ofgem proposes using the indicators shown in Table C.4.

Table C.5
Ofgem's Financial Indicators

Indicator	Level
FFO interest coverage	Min 2 x
FFO to net debt	Min 12%
Gearing	Max 60 to 70%

Source: Ofgem [7], Table 4.15, pg 35.

[40] Ofgem [6], para. 5.49, pg 86.

[41] Ofgem [6], para. 5.29, pg 80.

[42] Ofgem [7], para. 4.23, pg 34.