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## **Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector**

### **Introductory remarks**

In what follows I will address the issues raised by the Commission, broadly in accordance with the sequence in which the questions are asked. The concluding section pulls together a number of the main points in discussing how the Commission's estimate of the WACC might be most appropriately specified.

Throughout what follows, repeated attention is drawn to the principle of proportionality. This principle should apply to all aspects of the conduct of public policy, including the analysis and administrative effort devoted to specific issues such as WACC determination as well as to the economic impacts of policy measures judged in relation to the magnitudes of the perceived problems at which they might be addressed.

My understanding of the regulatory position is that, in assessing whether disclosed information points to a risk of excess profitability, the Commission compares both (i) *ex post* rates of return and (ii) *ex ante* projected or 'target' rates of return with its own WACC estimate or estimates. If that is correct, the fundamental question is of the form: "how much higher than the estimated WACC does the realised (*ex post*) or target (*ex ante*) rate of return need to be for serious questions of excess profitability to arise?"<sup>1</sup> That is, the substantive issue for evaluation is the size and significance of the deviations, not the actual WACC estimates *per se*.

On this basis, if an airport operator believes that it is appropriate to make returns in excess of the Commission's WACC estimate, one possible reason for this view is that the operator believes the Commission's estimate is too low, but that would be only one of several possible reasons that might be articulated in an information disclosure exercise. Since it is the airport, not the regulator, which determines prices, I think that it reasonable to expect that the burden of such articulation falls first on the airport operator, particularly in *ex ante* exercises. Other parties, including the Commission, can then assess the reasoning. In doing so, in the Commission's case it can be expected that particular attention will be paid to market power issues.

### **The role of information disclosure**

Information disclosure regimes of various types are, I think, an exercise in the application of the proportionality criterion in public policy, proportionality itself being one of the most fundamental, globally recognised norms for the conduct of regulation.

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<sup>1</sup> The answer can be expected to differ as between *ex post* and *ex ante* assessments, since these are two, distinct exercises that rely on different types of information.

The underlying issue to be addressed by this type of regulation is usually the risk<sup>2</sup>, or the eventuation of that risk, of adverse effects arising from the exercise of market power (AEEMP), where what is to be counted as an adverse effect is defined by the relevant legislation and is most frequently specified in terms of effects on the long term interests of consumers, whether as a result of high prices, inferior service quality, lack of innovation, dampening effects on competition going forward, and so on.

It is perhaps worth stating at the outset that the existence of some degree of market power, and indeed some level of exercise of such power, is not generally problematic. These are ubiquitous features of markets, including markets normally designated ‘competitive’, ‘effectively competitive’ or ‘workably competitive’. Such ubiquity in circumstances in which evolutionary selection mechanisms have been operating over long periods indicates that some level of market power is generally good for economic performance.<sup>3</sup>

I mention this point because use of the notion of absence of market power as a normative aspiration in practical contexts is, in my own experience, a persistent source of policy error in the translation of economic reasoning from the classroom to regulatory practice. New Zealand has inoculated itself against this intellectual virus by explicit reference to the notion of ‘workable competition’, although that concept is not without its own difficulties and the inoculation can only be expected to be partially effective.

It follows that best-practice policies that engage with market power issues, including policies that are directed against excessive pricing or excessive profitability, are focused on problems that are likely to occur only when market power and its exercise rise above threshold levels at which any further increases tend to become harmful, not when they deviate from zero. Anti-trust or competition law practice is the most obvious source of examples.

On this count alone it would be wrong to assume that any positive deviation of actual (*ex post*) or targeted (*ex ante*) rates of return from the WACC is indicative of excess profitability.

Since the risks of AEEMP vary across different economic contexts, proportionality indicates that there should be some tailoring of policy responses to reflect the severity of the risks. Broadly speaking, information disclosure regimes are an intermediate level of response to the relevant risks which lies between (a) the application of competition law and (b) more interventionist forms of policy, including regulatory determination of key variables such as prices/revenues and service quality. Their adoption therefore usually reflects assessments that the risks of AEEMP lie in some intermediate range.

Within each of three broad categories of policy approach – competition law, information disclosure and full price-quality regulation – there can also be significant variations in the risks of AEEMP. Thus: the stringency of the enforcement of competition law may vary with the assessed level of market power in a particular case; the scope of information disclosure requirements and the likely regulatory responses to the results of the relevant exercises may vary depending on context; and the scope and stringency of the controls imposed in a full

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<sup>2</sup> In this context I use the word ‘risk’ in an ordinary language sense rather than a technical sense. That is, it encompasses not only the chance of a particular type of harm occurring, but also the level of harm that occurs. Roughly, it can be regarded as the probability of an outcome multiplied by harm caused if the outcome eventuates. On that basis, a low probability outcome that leads to very great harm might be characterised as a high risk.

<sup>3</sup> Various branches of economic literature have developed theoretical reasoning to show why this is so.

regulatory regime may likewise vary to reflect the factual circumstances of an individual case.

### **The role and use of WACC estimates**

The role and use of WACC estimates also varies according to the perceived risks of AEEMP and the potential policy responses to eventuation of those risks.

At the competition law end of the spectrum, WACC estimates and the broader profitability assessment exercises of which they are part, tend to play a relatively minor role. Among other things this reflects the points that businesses operating in competitive environments only rarely plan or achieve rates of return that are equal (or very close) to WACCs and that usually the out-turn returns are above or below the WACC, sometimes by substantial margins. Correctly in my view, Courts in North America, Europe and elsewhere have generally been reluctant to sustain findings of ‘excessive pricing’ on the basis of comparisons between observed profitability and the WACC, except in circumstances where the deviations have been found to be egregiously large.

In contrast, at the ‘full’ regulation end of the spectrum, WACC estimates play a much larger role. Here the regulatory task is rather different: the regulator has to *determine* a price or allowed revenue, and capital costs are often a highly significant element of total costs-to-serve (since the price regulated sectors tend to be capital intensive). Notwithstanding the difficulties and inevitable errors that will be made, the regulator must routinely land upon a number or formula that determines allowable prices/revenues (something that is not normally required in competition law cases). There therefore tends to be a close, direct relationship between WACC estimates and regulatory decisions

In information disclosure regimes the responsibility for price and quality determination lies with the relevant businesses, and in this sense it is closer to the competition law end of the spectrum. However, it is usually the intention that the disclosure requirements are themselves a source of influence on the conduct of the businesses. More specifically it is intended that the influence should be to reduce the risks of AEEMP, and the degree of influence sought might therefore be expected to be proportionate to the perceived risks of AEEMP in the absence of the disclosure regime. The role of WACC estimates will therefore be intermediate in significance between that in competition law and that in full regulation, with some variation within this intermediate range to reflect the risks of AEEMP in the specific context in which information disclosure is required.

It naturally follows from these comments that the role and usage of WACC estimates should rest upon a general assessment of the risks of AEEMP in the economic context at hand. More specifically, such a general economic assessment of the relevant market context should inform the interpretation of the scale of deviations of business rates of return, whether calculated on an *ex ante* or an *ex post* basis, from WACC estimates. Put simply, a judgment has to be made as to whether or not any assessed deviation can reasonably be interpreted as indicating that profits are ‘excessive’, and such a judgment must, if it is not to be arbitrary, be based on some underlying analysis.

Three points can be noted at this stage:

- The general assessment of the risks of AEEMP is central to issues of WACC usage.

- Interpretation of deviations of business rates of return from the Commission’s WACC estimate(s) can be expected to differ as between *ex ante* and *ex post* exercises.
- Different conclusions from general assessments of AEEMP risks made in different contexts can imply different interpretations of any given, observed deviation between rates of return and estimated WACCs: for example, a modest deviation may be judged as indicating excessive profitability in contexts where full price regulation has been deemed to be appropriate (because of a very high level of market power), but not when market power is assessed to lie at some lower level.

By the same token, the effects of particular price disclosure requirements and of adoption of particular WACC estimates on business behaviour will depend upon all the factors that are relevant to the general assessment (i.e. all the factors capable of influencing the degree of market power and the risks of AEEMP), since these should be relevant for the regulator’s interpretation of information and subsequent regulatory conduct. Thus, consistent with observed variations in practice as between competition law enforcement and the setting of price controls, the sensitivity of business conduct to WACC estimates tends to be an increasing function of assessed market power and risks of AEEMP.

### **Centrality of a general assessment of risks of AEEMP**

What is required first, then, is an exercise to assess what would and what would not be the characteristics of proportionate information disclosure requirements and of appropriate policy responses of the Commission, taking account of the relevant economic trade-offs, including in particular a balancing of the risks of AEEMP and the costs imposed by regulatory requirements. The latter costs include adverse unintended consequences as well as more direct administrative burdens.

Moreover, the general exercise should inform not only the initial proportionality exercise – how stringent should the information disclosure regime be at the outset? – but also the associated enforcement question: what threshold deviations of the rates of return from WACC estimates are sufficient to trigger regulatory responses? Since economic contexts change over time, the answers to the latter question may also shift to reflect updated assessments that take account of those changes.

I suspect that these points may lie at the heart of some of the High Court’s apparent discomforts with aspects of WACC assessment, most particularly in relation to any Commission choice of a WACC estimate lying in the upper range of a distribution of possible estimates. The ‘excess profitability’ question raised by the legislation points to measurement based on the deviation of rates of return (assessed both *ex post* and *ex ante*) from the estimated WACC and to interpretation of such deviations on the basis of a full economic analysis of the relevant context. Adjustments to the WACC assessments themselves, for example by choosing a 75<sup>th</sup> percentile estimate rather than a 50<sup>th</sup> percentile estimate, may both create confusion as to what is going on<sup>4</sup> and give rise to a risk of an undue focus on narrowly technical, financial issues (e.g. uncertainties surrounding WACC estimates) to the neglect of wider economic factors that are, or should be, relevant to assessment in a particular case.

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<sup>4</sup> If  $\mathbf{r}$  is the estimated mean rate of return and  $\mathbf{c}$  is the estimated WACC, in each case made on an *ex ante* basis, estimates of the variability of  $\mathbf{r} - \mathbf{c}$  are manifestly a function of the risk characteristics of  $\mathbf{r}$  as well as of  $\mathbf{c}$ .

Uncertainties about the estimated WACC remain relevant factors in the assessment, but only as part of a wider analysis. For example, it is important to have some sense of the effects of market power on the probability distribution of an airport's profitability, and in particular to develop some appreciation of the riskiness of returns in circumstances where there is no adverse exercise of market power.

### **Use of WACC estimates in *ex ante* and *ex post* reviews**

Competition law is typically based on *ex post* review; price-quality regulation as conducted in NZ and comparable jurisdictions is principally focused on *ex ante* review. This reflects a general tendency for the balance between the two policy approaches to be responsive to the assessed risks of AEEMP in different contexts. A similar relationship between this balance (of *ex ante* and *ex post* assessment) and the risks of AEEMP can also be expected to be found within the 'information disclosure' category itself, depending upon the particularities of the context in which the disclosure approach is adopted.<sup>5</sup>

The types of information disclosed in *ex ante* and in *ex post* reviews exhibit significant differences. In the latter case, it is largely a matter of evaluating what has happened in the past, whereas the former involves a much greater reliance on forecasts of the future and/or of statements of intent as to future conduct. This gives rise to a difficult tension for *ex ante* disclosure processes. On the one hand, it is reasonable to infer that information relating to forecasts and intentions tends to be speculative in nature, and hence to give it less weight in deciding how a regulator should respond to it. On the other hand, as explained above, *ex ante* assessment tends itself to be given greater weight when risks of AEEMP are perceived to be reasonably high and when the additional administrative resources involved in undertaking the necessary exercises are warranted by the potential benefits of prophylactic regulatory influence.

In relation to WACC estimates, it can be noted that these themselves are derived from a series of propositions that contain significant, speculative elements. Among these are the validity of the CAPM model variant that is used in the process and the assumption that the WACC will remain the same over the relevant assessment period, neither of which has much substantive underpinning in empirical research on financial markets (the evidence leans toward conclusions that each of the propositions is unlikely to be true).

As will be discussed further below this is less of an issue when the assessment or forecasting periods are relatively short than when they are relatively long. In the former case the forecasting errors (e.g. errors in forecasts of future cash flows) will tend to be smaller and there will be greater scope for adjustments to assessments over time. As a rough rule of thumb I think that, in interpreting information disclosed it would be inadvisable to rely on forecasting and assessment periods longer than the pricing periods that would be adopted if the approach were one of full price regulation.

All this is not to say that *ex ante* information disclosed by an airport business concerning longer term prospects is of no value. Irrespective of whether its forecasts and stated intentions turn out to be accurate or not, it is of interest to both users of airports and

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<sup>5</sup> I understand that NZ airports have chosen to disclose information on a "building blocks" basis, which appears to be a convenient approach in the light of the legislation as a whole. It is to be noted, however, that, under an information disclosure regime, it is important to maintain the distinction between the WACC and the relevant target rate of return adopted in an *ex ante* business plan. These are different concepts.

regulatory bodies to learn of the business's own perceptions of the future, not least because these will provide at least some indication of what it is planning to do. This is helpful not only in informing the future decisions of airlines, but also in assisting constructive discourse between airlines and airports about future prospects. In the absence of such discourse an airport might, for example, proceed on the basis of questionable views as to what airlines anticipate and plan for the future, and discussions around published disclosures by the airport may provide scope for the correction of misapprehensions. In addition, *ex ante* information disclosure requirements may prompt an airport business to consider its own future plans more carefully.

### **Truncation and asymmetry in the distribution of returns**

Seeking to constrain profitability (via an information disclosure regime) to a level no higher, or not much higher, than the estimated WACC will tend to skew a business's anticipated probability distribution of rates of return on capital. The theoretical or conceptual basis for doing this is much less solid than it may appear at first sight. The underlying point is that AEEMPs can occur across a wide range of economic circumstances, not just when the contextual circumstances are favourable for high profitability.

Consider, the example of a substantial, negative demand shock, which leaves an airport with considerable excess capacity. Both competitive benchmarks and considerations of economic efficiency might suggest that prices should be reduced in such circumstances, but market power may be high. Indeed, conventional measures of market power could actually be higher than in pre-shock conditions, for example there could then be a larger wedge between (unregulated) prices and short-run marginal costs than previously. Put generally, a policy of targeting high profitability may be a poor way of targeting risks of AEEMPs.

The surrounding issues are often discussed in terms of asymmetries in returns created by regulatory intervention, but asymmetry *per se* is not the principal problem when it comes to considering such matters as the implications for investment. The bigger issue is that asymmetric regulation – regulatory action that tends to be focused only on the upper range of a returns distribution – tends to reduce the mean of the distribution of returns when the business concerned is exposed to non-trivial competitive pressures.

The application of great care is therefore required when using the WACC as an indicator of reasonable price levels under an information disclosure regime, particularly when the assessment is made on an *ex ante* basis. The forecasting information disclosed by businesses is generally focused most on a 'central' forecast and, in practice, it can be exceedingly difficult to incorporate regulatory risks into such a forecast any very explicit way.

To illustrate the sort of thing that can happen, consider an investment project under contemplation which is at the high risk end of the investment opportunities spectrum. If the project is added to the business plan, the spread of the returns distribution of the business as a whole will be increased. However, if regulatory policy is targeted simply at the upper end of the profitability spectrum, addition of the project will tend to increase the risk of regulatory intervention. The result could be a bias against more risky, possibly more innovative, projects: policy intended to target market power succeeds in reducing the mean rate of return, but may do so by creating unintended distortions in investment.

Similar points apply when the relevant cost of capital estimate (for the business as a whole) turns out, inadvertently, to be an underestimate: investment in low risk projects may still be profitable, but higher risk investments may become unprofitable.

### **Consultation processes and customer engagement more generally**

I am not familiar with the precise detail of consultation processes in NZ, but in general terms consumers can be expected to be a major source of relevant information for both the airport business itself and for the Commission.

Expenditures and revenues, and comparisons between them, themselves disclose only a fraction of the information that is potentially relevant to policymakers and regulators. This is an aspect of a universal assessment problem known as ‘under-determination’: a given set of financial indicators may be ‘caused’ by multiple, alternative combinations of background factors and influences. Thus, among other things, higher/lower returns might be associated with higher/lower efficiency or with lower/higher service standards or with varying combinations of the two.

Customers frequently have information that assists in alleviating the under-determination problems in assessment. This may include information about airports’ general efficiency, but frequently has most incremental value (for regulators) when it is related to service standards. Thus, it is important that airports actually provide what it is that customers want and are willing to pay for, and the best information about that tends to lie with customers themselves.

That said, there is a general information revelation problem: both sides may have relevant information, but may not wish to disclose that information fully, since information flows affect regulatory conduct and regulatory conduct affects outcomes for the relevant parties. Indeed, depending on circumstances, a regulator (capable of exercising a public form of market power) can be a harmful presence in information revelation processes, by promoting information flows that tend to be motivated by attempts to influence regulatory decisions.

### **Airport operators’ rights and the influence of the Commission’s WACC estimates**

Strict insistence on charge-setting rights on the part of airports – that is, insistence on setting charges without heed to the views of other parties, including the Commission – can be expected to tend to weaken the effects of the information disclosure regime, and hence to weaken the effects of the Commission’s WACC assessments on commercial conduct.

In practice, strict insistence on rights is not the norm in regulated sectors (although this is not to imply that the rights have no effect – for example they provide a fall-back position that has influence in the kind of give-and-take, implicit bargaining that occurs in practice). Whilst there are certainly examples of regulated businesses adopting legalistic, strict-rights approaches in their dealings with regulators, the general global experience is that these strategies are frequently considered sub-optimal for the investors whose money is at stake. That is because the regulatory strategies of businesses affect the conduct of the lawmakers and regulators and strict rights approaches tend to induce responses that are not necessarily favourable for investors. Laws and regulations can be changed and, ultimately, the monopoly power of the state tends to be rather greater than that of individual businesses.

Non-myopic businesses and regulators tend to know this, and the existence of a formal right to set charges as businesses think fit, without any regard to public policy objectives, is unlikely to be fatal to the Commission's ability to exert significant influence on commercial conduct via a disclosure regime

The rights do, however, provide checks and balances that serve to put bounds on the degree of influence of the Commission, which is how it should be (and how, as I understand it, public policy intends it to be).

### **Other matters affecting the influence on business conduct of the Commission's WACC decisions**

As indicated above, the issue for airport businesses is how the Commission is likely to approach its tasks as a whole and the profitability assessment is only one aspect of this wider exercise. The following questions illustrate the general point.

*How large would a positive deviation of rates of return from a Commission WACC estimate need to be before it was considered problematic by the Commission?* Looking at matters *ex post*, there is only a very small probability that out-turn profitability will be exactly equal to the targeted figure in business plans. The same is true when comparing *ex ante* 'targeted' rates of return with a WACC estimate. There therefore need to be criteria for judging 'abnormality', most obviously if judgments are made *ex post*, but also in *ex ante* assessment. If the criteria are stringent, i.e. if the Commission's conduct would be highly re-active to relatively small deviations between projected or out-turn returns and the Commission's WACC estimate, business conduct itself, including in relation to investment programmes, can obviously be expected to be more sensitive to the WACC estimate.

This takes matters back to the notion of proportionality in regulation. In the enforcement of competition law, Courts in Europe and North America have (rightly in my view) tended to be very reluctant to find violations on the basis of 'excessive pricing' unless there has been some egregious deviation between prices from costs or unless prices are judged to manifestly arbitrary in some way or another (these two aspects of matters are related to one another, but are not necessarily identical). On the other hand, in circumstances where price regulation is enforced the criteria for 'abnormality' tend to be more stringent, reflecting a view that the risks of AEEMP are considered greater in these cases and that observed, high levels of profitability (relative to the WACC) are much more likely to be mostly attributable to the exercise of market power (rather than to the range of other factors that may lead to high profitability in a workably competitive market).

*What regulatory view is taken of shortfalls in revenues below targeted costs of capital?* One possibility is that, when an *ex post* evaluation is made, any such shortfalls are treated as by-gones that should have no influence on the next period's forward looking assessments. In this case there is an obvious risk of creating asymmetries in the business's *ex ante* returns distribution in that sub-normal returns will be discounted whereas supernormal returns are likely to lead to more stringent regulation. Not only does this depress the mean rate of return – which, if carried too far, can have harmful effects on the level of investment as a whole – it can also skew the risk portfolio of projects undertaken.

Alternatively, sub-normal returns could be carried forward, in whole or in part, into subsequent assessment exercises, for example by capitalising them (in whole or in part) in the

later, opening RAVs. This would establish greater symmetry in the interpretation of information on realised returns, but would arguably move evaluation further away from benchmarks linked to notions of ‘workable competition’.

The two approaches could be expected to have differing implications for the sensitivity of business conduct to the WACC estimates, illustrating the general point that such sensitivity depends on factors other than the fine detail of the WACC estimation methods themselves.

*What signals are conveyed by the regulator in its conduct of the information disclosure exercise?* Businesses whose returns are significantly affected by regulatory decisions tend constantly to assess regulatory behaviour for signals as to the likely future conduct of the regulator, and the resulting assessments generally have significant effects on business conduct. All manner of behaviour can be relevant here and the interpretation of signals is not an exact science: there can be multiple, plausible interpretations of the same signals (reflecting the underlying indeterminacy problem in economics). Thus, if information disclosure exercises are frequent, thorough and extensive, it may signal:

- a) A regulator that is acting proportionately in the face of circumstances that indicate a high risk of AEEMP, or alternatively
- b) An excessively zealous regulator that is acting disproportionality.

Under the first interpretation, there is likely to be relatively high sensitivity of business conduct to the WACC estimate, in effect because the situation is one that is close to the borderline at which actual price regulation might be warranted. The implications of the second interpretation are less clear cut. Businesses might be reassured by a relatively generous WACC estimate – which, in effect, serves as a form of early compensation for the risks of disproportionate regulation – in which case the positive effect of the generosity on, say, investment might be substantial. On the other hand, in a Keynesian fashion, the related risks of arbitrariness and regulatory uncertainty may, depending on circumstances, come to dominate the decision calculus (just as the sensitivity of macro-level investment to the interest rate may be reduced in conditions of high macro-economic uncertainty). In that case a higher WACC may not have much effect on investment.

In sum, the implications of any WACC estimate can only be assessed holistically, taking account of information conditions and incentive structures in their entirety.

### **Implications of WACC estimates for investment**

As implied by the immediately preceding discussion investment incentives are clearly related to estimates of the cost of capital in an information disclosure regime both because of their direct effects (they carry implications about the Commission’s view of things in the immediate pricing period) and longer-term, indirect effects (they convey signals about the general regulatory approach which may have implications for future decisions, e.g. how the Commission might react to subsequent out-turns). Given the lead times and economic pay-off periods for major airport investments, it may easily be the case that the latter effects are the greater of the two although, as always, the balance will depend upon the specific, relevant facts and may well differ from one airport to another.

One relevant factor here is the rights position of airports under the current arrangements. In the shorter-term an airport could rely on its existing right to set its own charges, implying that

it could simply disregard, say, a very low Commission WACC estimate without giving rise to major short-term consequences for its own financial flows. In the longer-term, however, a shift toward actual price regulation would have the effect of removing the relevant property right and this longer-term consequence of the immediate WACC determination might easily be the more significant factor in investment decisions.

Looking at things more formally, consider the possible relationship between investment (INV) and the estimated cost of capital (ECC), the reality is that the relationship at any one point of time will depend upon a quite wide range of other, relevant factors, which can be designated by X:  $INV = F(ECC, X)$ . It is simply not possible in general to assess the partial relationship between ECC and INV without assessing the wider functional relationship – as the Courts might express things, it is necessary to take account of all the materially relevant information.

Suppositions to the contrary are usually based upon an implicit assumption that the relevant function is separable:  $INV = F(ECC) + G(X)$ . This is a reasonable assumption to make in the classroom, for educational purposes, but it is not one that can safely be relied upon when contextual economic realities are the focus of attention.

### **Harms resulting from over- or under-estimation the WACC**

The same reasoning – with H, harm, substituted for INV in the above function – implies that it is not possible to assess, with any reasonable precision, the harms likely to eventuate from under- or over-estimation of the WACC.

This issue has been extensively discussed by knowledgeable experts in some of the submissions to the Commission, and these provide partial insights into some of the factors and tendencies that can be expected to characterise the general relationship. Unless and until the full jigsaw is put together, taking account of the specific facts of the economic contexts of the different NZ airports, it is not possible to reach safe, final judgments. One tendency (e.g. toward higher or lower investment) may tend to work against another tendency, and the quantitative significances of different, counter-acting tendencies may vary from airport to airport and from time to time.

Notwithstanding these general points, it is possible to say a little more by looking at one or two special cases, defined by the addition of further assumptions. By way of illustration, consider an *ex ante* assessment policy based on a rather mechanistic policy that would see the imposition of a price cap in the event that the disclosed, target rate of return exceeded the estimated WACC by a designated percentage, say X%. This is akin to imposing a price cap based on allowed rate of return of  $WACC + X$ .

In this case, if the WACC were underestimated by an amount less than X, the business would still, on the plan, be able to earn a return in excess of WACC and little harm might eventuate. Indeed, investment could increase (this is an implication of the Averch-Johnson model which for many years was the reference point for analysis of rate-of-return regulation – and see the discussion of the Klevorick paper below). If, however, the error were larger than X the business plan would no longer be profitable and much larger consequences would likely follow, particularly in relation to cut-backs in investment expenditure.

## **A digression on some basic points of economics**

At this stage it might be helpful to the Commission to raise two other matters that do not appear to have featured prominently in the discussions to date, but which I think are highly relevant to the underlying issues and may throw a different light on some of the salient considerations.

The first matter can be introduced by noting that older work on the economics of rate of return regulation distinguishes between the allowed rate of return, used in determining allowed prices or revenues, and the cost of capital, with the former being typically higher than the latter. A theoretical rationale for both the distinction between the two concepts and for the relativity in their values was provided by Professor Klevorick<sup>6</sup>. Rate of return regulation has the feature of giving rise to a tendency to over-investment (“over-capitalisation”) that serves to increase costs, which in turn serve to increase the level of allowed prices. Crucially, the resulting cost inflation effects are greater the closer the allowed rate of return is set to the cost of capital. The mathematics is clear enough, although the result is counter-intuitive and consequently liable to neglect in the practical conduct of regulation.

The implication is that there is a relevant trade-off to consider. Other things equal, a lower allowed rate of return will have a direct (arithmetical), downward effect on allowed prices. However, other things are not equal: a lower allowed rate of return (for any given cost of capital) will put upward pressure on costs (and hence on prices) as a result of over-capitalisation. Klevorick’s paper analyses this trade-off and examines the factors that determine the ‘optimal’ allowed rate of return, i.e. the rate that maximises economic efficiency.

Whilst price cap regulation based on ex ante assessments is not identical to simple rate-of-return regulation, RAV-based approaches to the estimation of capital costs do have some of the same characteristics, albeit mitigated by ‘regulatory lags’. The conceptual distinction between the allowed rate of return and the cost of capital appears to have been lost in more recent regulatory practice, in which the arithmetical calculations link allowable revenues to WACC estimates. In my experience, the loss of the conceptual distinction has been to lead regulators to seek to ‘aim off’ (on the generous side) when estimating the cost of capital or, in the alternative, allowed operating expenditure.

Although the effects of ‘aiming off’ on business incentives may be similar to those of setting an allowed rate of return above the cost of capital, I think that this is a loss because the practices involved tend to be less transparent, not least to Courts who might be asked to pass judgments on how decisions are reached. The processes involved may or may not rely on implicit ‘know how’, but either way may appear arbitrary for want of any explicit examination underpinnings in more formal economic reasoning. And if the underlying reasoning has been lost, it becomes difficult to for a Court to understand the basis for the practice.

This difficulty is compounded by the obvious fact that, if the ‘aiming off’ is achieved by adopting a cost of capital estimate that is higher than the best or most likely estimate that

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<sup>6</sup> A.K. Klevorick, “The “Optimal” Fair Rate of Return”, *Bell Journal of Economics and Management Science*, Spring 1971.

available evidence suggests is appropriate, there is a tension with information disclosure objectives. Put simply, the question is why make an estimate that is higher than that which, using normal estimation techniques, the evidence would suggest is the most appropriate? As the current issues facing the Commission indicate, that is not a particularly easy question to answer.

The second economic matter that I think merits identification concerns the ‘investment demand curve’ of an unregulated business operating in a competitive market, a relationship that links the total level of investment that the business will make to the cost of capital, other things being assumed equal. It is reasonable to suppose that the function slopes downwards: lower costs of capital will lead the business to invest more. This follows from the multiple options that will typically be open to the business: it can take on different types and mixes of investment projects, at varying scales. When the cost of capital falls, as a result of changes in market conditions such as a lower risk-free rate or a reduction in the market equity premium, some investment that was marginally unprofitable will become marginally profitable and hence will be undertaken. In the simplest case (characterised, *inter alia*, by the assumption that all investment has similar risk characteristics), the level of investment is determined by the condition that the NPV of the marginal project is zero.

However, looking at the NPV of the investment programme as a whole on an *ex ante* basis, the downward slope of the investment function implies that the NPV of the investment programme as whole will be NPV positive. That is, anticipated profitability will tend to be above the cost of capital.

Whether things turn out to be this way *ex post* is another matter. Other factors and tendencies will be at work, the most cited of which include ‘appraisal optimism’ and other behavioural biases and aspirational effects (as when plans are intended to promote increased effort). The point here is simply that, in competitive conditions, it is not to be expected that inspection of an *ex ante* business plan will be characterised by the condition that the NPV (of the plan as a whole) is zero. It can be expected to be higher than that. Indeed, one of the most striking empirical patterns in economics is that virtually all major infrastructure investment projects typically leave the drawing board with  $NPV > 0$  and most end up, in reality, with  $NPV < 0$ .<sup>7</sup>

It might also be stressed that these two points have nothing to do with dynamic incentives, (e.g. for innovation), asymmetries arising from truncation of probabilistic distributions of future rates of return, or option value assessments when considering the prospects of sunk capital expenditures. All the latter are potentially relevant considerations, which have been raised in expert submissions, but the two points derive from much simpler, more static analysis.

### **Airports compared with other regulated sectors**

I turn now to the characteristics and risks of airport businesses compared with other network sectors and to the relevance of these differences for the WACC determination issues that are of principal interest.

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<sup>7</sup> For a very recent paper on this tendency see Flyvbjerg and Sunstein, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2654423](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2654423)

### *Competition and demand side substitution*

The first, most obvious point to note here is that airports are not necessarily naturally monopolistic in the way that, say, an electricity transmission or distribution system might be. For example, we tend to observe more significant demand-side substitution among airports by both airlines and passengers than, say, between electricity systems, although the quantitative significance of the difference depends upon factors such as population concentrations and the distances between those concentrations.<sup>8</sup>

Airlines have a degree of choice as to which airports they serve and the frequencies of their services. Thus, an airline might choose to establish a service between Australia and New Zealand via Auckland airport, relying on local connecting services for passengers wanting to travel to, say Wellington, or it might establish a direct service to Wellington. Passengers may choose the indirect route rather than a direct connection operated by a competing airline if the timings are more convenient or if the fare is lower. The establishment of a new direct route would then substitute, for some passengers at least, for the indirect connection, and Auckland airport could expect to lose some passenger traffic volume.

Similarly direct international routes to alternative NZ airports can, to at least some degree, be regarded as substitutes for overseas tourists and for airlines competing for tourist business. In this case the inter-airport competition is more direct, although again it is appropriate to note that the magnitudes of the relevant substitutabilities are contingent on geography.

Of course, not all passengers can easily substitute between the alternatives, but the numbers involved may be significant enough and their price sensitivity may be high enough for the potential switches to have material effects on airport pricing. In any market segment it is the sensitivity of such ‘marginal traffic’ to price changes that bears most heavily on price determination decisions.

The differences between airports and, say, electricity and gas transport systems (pipes and wires) is closely linked to the differences in the economic structure of the relevant networks. In an air transport system, airports are the ‘nodes’ of the network and air transport has the particular feature that the nodal facilities are owned and operated by different businesses. In contrast, in an electricity transmission system all the nodes (where there are connections to generating sets or to distribution networks) across a wide part of the system tend to be owned and operated by a single business. There is therefore no inter-nodal competition as such, at least within the geographic area covered by common ownership.

### *The ‘platform’ characteristics of airports*

Airports provide services to a range of different user groups, of which airlines and passengers are the usually the most discussed (although freight companies and retail service providers can also be of major commercial significance). The choices by airlines of airports to serve and of the frequency of services will depend on an airport’s ability to attract passenger volumes, whilst the choice of airport by passengers will depend on the availability of routes and connections offered by airlines and the frequencies of flights, as well as factors such as location, ease of access, on-site facilities offered, etc.

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<sup>8</sup> It might be expected, for example, that the levels of demand-side substitution for NZ’s three major airports are somewhat lower than for, say, some of the major (deregulated) airports in the UK, e.g. Birmingham and Manchester.

These interdependencies between airlines and passengers – other things equal passengers will be attracted by airports that offer more routes and higher frequencies (matters that are determined by airlines), airlines will be attracted by airports that can attract higher passenger volumes – are, in current economic jargon, referred to as cross-network effects, although the language here can be misleading. In this sub-branch of economic literature the word ‘network’ refers to economic linkages among and within the different groups of users, which is different meaning from that adopted when considering a physical structure of interconnected nodes.

In relation to investment in airport facilities a particular project may make an airport more attractive to customers, for example by providing more space, more on-site retail facilities, and easier access to the site (easier more convenient parking being an illustration). If in doing so the effect is to attract more potential passengers, the investment will, via the cross-network effects, also provide benefits to airlines and encourage the opening up of new routes and increased service frequencies. Similarly, investments in improving aeronautical facilities will, by encouraging greater usage by airlines, simultaneously provide benefits to passengers, e.g. via an increase in routes served or higher flight frequencies that a particular airport can offer.

Such cross-network effects are of much more significance in air transport than in electricity or gas networks. In the latter cases the end user expects relevant services to be continuously available at a particular location and is indifferent to the particular routes by which electric power, gas molecules and electronic signals reach the relevant location.

### *Complementary activities*

The ‘platform’ nature of airport service provision can have profound implications from pricing behaviour, even in circumstances in which a particular airport is not subject to significant competitive pressures from other airports, although the relevant effects tend to be amplified when competitive pressures do exist.

Thus, lower aeronautical charges reduce costs for airlines and tend to bring more passengers (and more people accompanying passengers to and from the airport) and hence greater revenues from the supply of services such as parking and retailing. This carries the implication that the elasticity of revenues with respect to aeronautical charges will be higher than would be the case in the absence of the complementary activities and, subject only to the further condition that the expansion in ancillary service provision yields a net income over incremental costs, that aeronautical charges are set lower than they would be in the absence of the cross-effects.<sup>9</sup>

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<sup>9</sup> The effect should be unsurprising. What matters to a business in the familiar textbook model of profit maximisation is its own-price elasticity of demand. Anything that increases the elasticity tends to lower prices. Competition is one such factor and we expect it to be associated with lower prices. But anything else that increases the elasticity will tend to have similar price effects. The situation can be looked at in two, equivalent ways. On a single till basis, we might say that the airport has lower market power overall because of the competition that exists in relation to its complementary services. On a dual till basis, we might say that the airport has significant market power in aeronautical services, but has reduced incentives to exploit it, on account of the effects of lower traffic volumes on complementary revenues.

It is therefore not unusual to find unregulated airports that have the market power that would enable them to set aeronautical charges in excess of a competitive or cost-based benchmark (assessed on a dual till basis) actually setting prices that are lower than that benchmark. Put another way, it is quite normal to find that rates of return calculated on aeronautical assets (as calculated on a dual till basis) are below estimated costs of capital.

In some situations it can even be the case that airport owners might be willing to pay airlines to bring extra business, implying negative rates of return on capital, although the circumstances in which this has actually been observed appear to be linked to the existence of local government ownership of assets and control of pricing. Such public sector owners may take wider effects into the decision calculus, seeking to attract more traffic to the airport not only because of revenues from directly complementary activities but also as a means of promoting local economic development via the more diffuse effects that the extra traffic volumes might bring.

Perhaps the major implication of these points is that the existence of complementary activities, leveraged by competitive pressures where they exist, serve to attenuate the magnitude of 'excessive pricing' risks. Hence, reverting to the notion of proportionality, they tend to reduce the role of information disclosure regimes and push them closer toward the end of the range at which they are used as an incremental augmentation to competition law processes rather than a lighter form of price and quality regulation. It is relevant to note, however, the magnitude of the effect tends to vary from one airport to another depending on the magnitudes of the net income contributions from complementary activities. Empirically, the latter can exhibit quite substantial inter-airport variations.

#### *Risky returns on capital*

Assessment of the risks in returns on capital from airport operations is a complex exercise, but it is safe to say that rather different factors are in play than in sectors such as electricity and gas transmission and distribution. A variety of factors relevant here including inter alia: inter-airport substitution/competition, the relative magnitudes of aeronautical and non-aeronautical revenues, and underlying volatility in demand for airport services at a more aggregate level, i.e. the demand for air transport to NZ as a whole rather than any one of NZ's airports considered individually.

In terms of the capital asset pricing models usually used to estimate WACCs, there is evidence that systematic risk is significantly higher for airports than for activities such as the transmission and distribution of electricity and gas, i.e. relevant beta values are higher. The statistical results are in line with more direct observations of individual airports. Thus Dublin airport, which enjoys a position of substantial market power in Ireland and is subject to price regulation, saw a fall in passenger traffic volumes of over 20% between 2008 and 2010.

Systematic risk differences should be captured directly by the WACC estimates based on the CAPM, but there are further points to consider. Systematic risk is itself a function of the regulatory approach that is adopted. Assuming for the moment that there is no idiosyncratic (i.e. non-systematic) risk, a shift from deregulated price setting toward regulated price setting will tend to reduce systematic risk, and hence to reduce the cost of capital, e.g. via truncation

of the upper end of the returns distribution.<sup>10</sup> At the same time it will reduce the mean rate of return, via elimination of the possibility of highly positive returns. These are distinct effects, but in regulatory practice the lower mean is sometimes taken into account via adjustments of the cost of capital.<sup>11</sup> This can be a source of confusion because it conflates differing effects. The problem is not so much that it increases the skewness (asymmetry) of the returns distribution, more that it reduces the mean. In general, the resulting problems tend to be greater the higher the level of systematic risk (they would disappear entirely if systematic risk were zero).

Idiosyncratic risk has no material effect on CAPM-based estimates of the WACC, but it does give rise to similar truncation effects when regulatory influences are in play. The position potentially becomes doubly confusing when cost-of-capital adjustments are used to compensate for truncation of the returns distribution. I understand that it is not Commerce Commission policy to do this, but I have seen it done in other jurisdictions and cross-jurisdictional comparisons could easily lead to the belief that the choice of a 75<sup>th</sup> percentile WACC estimate is from the same stable.

Suppose at this point, for the purposes of argument, that all risk is idiosyncratic. The underlying model says that risk is to be discounted in estimating the WACC, but then the regulator makes an *ad hoc* adjustment to the WACC to reflect effects that are created by idiosyncratic risk (in combination with the regulatory influence on pricing), with the adjustment being the larger the greater the idiosyncratic risk. An outside observer might then justifiably be puzzled.

#### *Effects of the existence of net revenues from unregulated, complementary services*

As indicated above the complementarities between different services are an important feature of airport economics, and there exist both pricing and investment complementarities. The dual till approach introduces a dividing line between revenues collected from providing core services to airlines and from providing complementary services (retailing facilities, car parking, etc.), reflecting a perception that the latter are significantly more exposed to competitive pressures than the former. That is, retail facilities at an airport compete to greater and lesser degrees with retailing at other locations, airport parking competes with off-airport parking, and so on.<sup>12</sup>

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<sup>10</sup> The CAPM is not the only analytic framework in which this occurs. Truncation of the distribution tends to reduce variance, so the effect will occur in any context in which investors place a negative valuation on variance.

<sup>11</sup> A good example of the practice is to be found in the estimation of cross-country differences in the averaged (cross-sector) cost of capital. The risk of direct or indirect expropriation of capital is relatively high in a number of countries and this is a factor that directly affects the anticipated mean of the returns of the relevant investors (in the limit, cash flow may simply be reduced to zero – an extreme form of truncation!). In the relevant tables this is reflected in a higher cost of capital for, say, Argentina than, say, for NZ, Australia, the UK or US.

<sup>12</sup> One of the important policy questions, particularly in dual-till approaches, is where to draw the dividing line between the tills, given that the degree of market power can be expected to vary across the range of services offered by an airport. For any given dividing line there is also a set of questions concerning risks of leveraging market power from some activities to others (and I note in passing that the incentives for leverage tend to be greater, and possibly much greater, in the presence of full price-quality regulation than under information disclosure requirements). Thus off-airport parking may compete with on-airport parking, but if the airport operator then levies excess or discriminatory charges for passenger shuttle access to the airport the competition may be restricted, distorted or eliminated. Alternative policy responses to such conduct include (a) re-drawing the dividing line between tills or (b) reliance on enforcement of competition law.

In consequence, there are substantial cross-effects between regulated (and here information disclosure is included as a limited form of regulation) and unregulated activities. Again these are much more pronounced than in other networks.

It is plausible to argue that the existence of complementary services renders the profitability of airports and airports' investment incentives less sensitive to downward pressures on aeronautical charges, whether the pressure comes from an information disclosure regime (possibly associated with a relatively low estimate of the WACC) or from more stringent forms of regulation. Thus, in considering whether to cut back on an investment programme in the face of lower aeronautical revenues, an airport will tend to give consideration to factors such as the negative effects that cutbacks might have on complementary service revenues. However, the effects here can be complex and require some scrutiny.

One of the relevant factors is the airport's commercial efficiency. If it is inefficient, the effect may be to promote greater cost efficiency, including in investment. More specifically, a less than efficient operator may not have devoted much effort to maximising the potential returns from complementary service activities.<sup>13</sup> In these circumstances downward pricing pressure may give rise to a re-focusing of commercial effort on increasing non-aeronautical returns, including by extra investment in such activities. If, as a result, the margins on the complementary activities are increased, this will in turn provide incentives for marginal investments on the aeronautical side, since extra traffic volumes will, via the cross-effects, become more profitable. It is, after all, by providing greater incentives for supply-side efficiency that inter-airport competition – which can be regarded as an alternative source of downward pricing pressure – has many of its most beneficial effects.

These points serve to emphasise the dependency of economic effects on the specifics of the relevant factual context. General propositions about effects of lower prices, in the sense of propositions that are not sensitive to context, are hard to come by.

#### *Required consultation with well-informed customers*

In contrast to the differentiating factor of complementary activities, the existence of a small number of well-informed customers with whom airports are required to consult is less of a distinguishing feature in air transport.<sup>14</sup> At least in those electricity and gas systems in which there is separation between retailing/marketing/supply businesses and network businesses, the former are the major customers of the latter and may be large, well-informed and relatively small in number (put another way, the demand side of the market for network services may exhibit relatively high levels of demand-side concentration).

It may be the case that there are some differences in incentives for airline participation in consultation processes, as compared with retail energy businesses, resulting from the different regulatory regimes to which the sectors are subject. Thus, behind the information

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<sup>13</sup> Empirical examples of this situation include British Rail, which used to own and operate a number of major hotels located at or close to rail stations. Subsequent privatisation indicates that new owners were able to substantially increase the value of the properties.

<sup>14</sup> I am implicitly assuming here that the maturity of the relevant arrangements in different sectors is broadly similar. Airlines have typically competed with each other for a longer period than, say, electricity and gas retailers, and hence have had a longer appreciation of the importance of cost reduction or containment. Retail energy competition has been a later development and retailers' active involvement in consultation processes is a more recent development.

disclosure arrangements is the threat (to airports) of a shift to price control, which may leverage the relevant payoffs from active participation. On the other hand, any influence that a major customer may be able to exert on regulatory decisions can be expected to be much more direct and rapid in their effects in a price-control context – a pricing decision will be a scheduled event and become quickly effective – than in an information disclosure context (where a change in the legislative framework would be required).

The more obvious implications of the relevant type market structure are, then, simply that:

- The small number of well-informed customers potentially aids information acquisition by a supervising, public authority.
- The small number of buyers and sellers makes information transfer easier between buyers and sellers: buyers can more easily inform the seller of their requirements and the seller can more easily inform buyers about the detail of what it is that they may realistically be able to offer, both now and in the future.
- When customers also have feasible substitution possibilities, i.e. they can credibly threaten to reduce their usage of the services of a particular network facilities provider, their buying power can serve to reduce the risks of AEEMPs.

To the extent that airports differ from network services providers in other sectors, this will largely be in consequence of greater substitution possibilities available to airlines (compared say with an electricity or gas retailer), not from the fact, taken in isolation, that customers are few in number and well-informed. Put another way, fewness and commercial sophistication can serve to leverage the effects of such demand-side substitution possibilities, but they do not tend, in and of themselves (i.e. in the absence of substitution possibilities), to have major effects on supply-side market power.

#### *The range of investments that airports can make*

The particular mix of different types of investment projects that might be undertaken by airports obviously differ physically from that in other network sectors, but the existence of a portfolio of alternative investment projects is not in itself a major differentiating feature. Electricity and gas network service providers also face choices that involve improvements to such things as security of supply, reliability of service and innovation.

At the risk of repetition, the influence of WACC estimates and usage on the balance of investment will depend on a range of contextual considerations, which it is therefore necessary to examine. For example, investment that affects security will be heavily influenced by specific regulatory requirements imposed by government and may be little influenced by any particular decisions that the Commission makes.

The point made earlier about potential effects of regulatory influences on prices/charges on the risk characteristics of investment programmes may also be worth re-stating again here. Tight constraints, which might arise in the event of low WACC estimates, can potentially tilt the investment programme away from projects with higher risks but higher mean rates of return and toward safer, low risk projects. Whilst this may have some negative effects for innovation, getting an appropriate balance should necessarily depend heavily on customers' preferences and requirements. Innovation itself has costs, and an investment programme that is too heavily tilted toward speculative ventures is unlikely to accord with legislative objectives.

### *Asset revaluations*

Similarly, the ability to gain from asset valuations is not a phenomenon that is wholly absent from other network sectors. In this case, railways again provide the most clear-cut example. Development of new rail connections has historically been characterised by business strategies based on the acquisition of land adjacent to nodal points in the network, so as to realise the returns from increased land values consequent on the construction of the new links. Less obviously, use of electricity pylons and poles to carry telecoms wires has had the effect of increasing the value of the relevant assets.

That said, the magnitude of the potential, measured relative to overall revenues, may be greater for airports than for network businesses in other sectors. In contexts where that is so, the earlier remarks on incentive effects associated with significant complementary activities will apply. It should, therefore, be a matter of interest to the Commission as to whether existing airport businesses are efficient in seeking to maximise the returns from assets that they own, including land.

### *The pricing period*

As noted earlier, ex ante information disclosure concerning business plans depends on forecasts, and the resulting information tends to be more speculative the further out into the future those plans stretch. I think it would therefore generally be unwise to put much weight on comparisons of (forecast) NPVs that are sensitive to projected cash flows and projected WACC estimates in a relatively distant future. The point is connected to the greater risks of unintended adverse consequences resulting from regulatory influence in circumstances where profitability outcomes are subject to substantial risk.

In regulatory arrangements that afford a public authority the power to determine prices and other matters (such as service qualities), the emphasis tends to be on the next four or five years and when things are stretched out for longer there tends to be provision for interim reviews. I understand that airports have a pricing horizon of about five years, and this appears consistent with practice in other sectors and jurisdictions.

### **The Commission's specified cost of capital**

As I understand it the purpose of information disclosure regulation is to ensure that sufficient information is available to interested parties to assess whether the purpose of Part 4 of the Commerce Act is being met. If that is right, the purpose of such information disclosure regulation is a limited one.

My general view is that there may be risk of conflating the distinct exercises of (a) acquiring and publishing information for the purpose of assessment and (b) interpreting that information when assessing whether the Part 4 purpose is met. Whilst the Part 4 purpose includes limiting the ability of suppliers to extract excessive profits, the question of whether and to what extent profits might be, or might expected to be, 'excessive' is part of the assessment exercise itself. As emphasised above:

- Any assessment exercise should properly take account of a range of relevant factors, which it is reasonable to expect will be brought to the attention of the Commission by the airports themselves, as part of any information disclosure exercise.
- The WACC by and of itself is not an appropriate benchmark for setting a threshold at which profits might reasonably be judged to be excessive.

I suspect that the issues under discussion arise because too much weight is being placed on one set of numbers, deriving from exercises to estimate the cost of capital, and too little weight is being placed on the contextual factors that can influence the interpretation of disclosed information. Put another way, there is an implicit assumption that the cost of capital to be published should be itself be based on judgments that, in effect, reflect views on how the information should be interpreted.

In my view, if the two stages – first information disclosure by the airports, second interpretation/assessment of information disclosed by other parties, including the Commission – were more clearly distinguished, things would go more easily.

It cannot be over-emphasised that a given difference between profitability and the cost of capital, i.e. one which is independent of relevant factual circumstances at a given time, cannot reasonably be taken to be the basis for a judgment that profits are excessive for Part 4 basis (the second of the above bullet points). The extent of any such divergence is one factor of relevance in assessment, but it is only one of many, and there is no particular reason to give it a privileged position, although the interpretation of divergences will properly differ as between *ex ante* and *ex post* assessments.

The position here, which relates to an information disclosure regime where there is a distinct sequence between disclosure and assessment of risks of AEEMP, is somewhat different from that in a context of regulatory determination of price-quality paths/caps. This is because, in the latter, there are direct and specified linkages between WACC estimates and the resulting determinations of caps (speaking loosely, there is an ‘adding up constraint’ on the regulator, at least in current practice in a number of comparable jurisdictions). The two stages of the exercise therefore tend to be a more bundled administrative process because of the semi-mechanistic (arithmetic) links between the WACC determination and the final determination. As discussed, the loss of the distinction (familiar to our predecessors) between the allowed rate of return and the cost of capital serves to encourage the practice of “massaging” cost of capital estimates (or other estimates) in order to meet the adding up constraints whilst reaching what a regulator considers to be a sound final determination.

I cannot but think that this development is an unfortunate one, but that it easily remediable (via reinstatement of a valid distinction between allowed rate of return and cost of capital). However, whatever the position in relation to regulatory decisions about price caps, there is no requirement for such massaging in an information disclosure regime. The legislation already allows for the conceptual separation of the information discovery and assessment: there is no forced link between the cost of capital and the resulting regulatory decision, and in particular there is no legislative requirement to deem any returns in excess of the cost of capital to be ‘excessive’. What is and what is not excessive is left to judgments that can be made on the basis of all the relevant factors that might reasonably be taken into account. In this the concept of ‘excessive profits’ allows the degree of freedom that a regulator needs in order to be able to make sound decisions in contexts where there is a realistic possibility that

market power will be insufficient to allow a business to recover its capital costs across all realistically possible circumstances.

Given these points, in my view the purpose of s53A would be best served by publication of the regulator's views on the relevant cost of capital, with no further judgments added. That would involve specification of such parameters of the probability distribution of the WACC as might feasibly be estimated. If legislation or administrative expediency requires a point estimate, this would amount to a single estimate of central tendency (estimate of the mean, median or mode), but additional information on parameters such as the estimated variance, upper and lower bounds, 5<sup>th</sup> and 95<sup>th</sup> deciles, skewness, etc. would be of value and would merit publication if considered sufficiently reliable.

It follows that I do not see merit in publishing a single point estimate that diverges from the midpoint of a range or a chosen measure of central tendency, but stress again that this view is based on the specific purposes of the information disclosure regime and its clear, conceptual distinction and separation between the information disclosure exercise itself and the judgments that might subsequently be made in the light of information disclosed.

To the extent that the Commission wishes to influence actual decisions via the information disclosure exercise in general, what I think is required is a separate exercise that sets out factors that will affect the interpretation of the resulting information and that may therefore influence the conduct of regulation in the future. In other jurisdictions this is provided by means of the publication of guidance.

Among other things, such guidance would be affected by the Commission's assessment of where airports lie in terms of the assessed risks of AEEMP, since it is those risks that should be central to determining the proportionality of any subsequent regulatory measures. In specific relation to profitability guidance might, for example, identify a series of thresholds for deviations of returns from, say, a central estimate of the WACC, which themselves would fall out of the Commission's wider appreciation of the relevant economic context(s), including factors such as the underlying uncertainties about profitability outcomes.

To illustrate a possible approach (and this is only an illustration), guidance might set out:

- A green band for deviations of profitability from the WACC in which any further regulatory action is highly unlikely.
- An amber band in which there is an increasing risk that the Commission would wish to increase the detail and scope of its information disclosure exercise.
- A red band in which, in the absence of convincing arguments to the contrary, the Commission would most likely consider introducing even more stringent forms of regulation, including price-quality path controls.

This type of approach would not be dissimilar to that taken toward predatory pricing in some jurisdictions, where the bands are made explicit in guidance. Thus, guidance in the EU in relation to judgements about allegedly predatory pricing takes the following type of form:

- Price,  $P$ , in excess of average total cost  $ATC$  is generally a safe harbour, other than in rather exceptional circumstances.
- $AVC < P < ATC$ , where  $AVC$  denotes average variable cost, implies increasing risk of a case being opened as price moves toward the  $AVC$  end of the range.

- $P < AVC$  is taken as presumptive of predation, although there is still a possibility of rebuttal.

Alternatively, a lighter form of guidance might simply do no more than make it explicit that (i) there can be a number of valid reasons why, in the relevant circumstances, targeted (*ex ante*) and realized (*ex post*) rates of return can differ from the Commission's WACC estimate(s) and (ii), where such deviations occur, information disclosure requirements imply that airport operators should, as a matter of routine, provide an account of the relevant causal factors or reasons (which can then be assessed by the Commission and others).