

Comments on Commerce Commission Input Methodologies Discussion Paper

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Introduction

In section two of its Input Methodologies Discussion Paper (Discussion Paper), the Commerce Commission (the Commission) explains its interpretation of the new purpose statement. The Commission draws from its experience in administering Part 2 of the Act to discuss a range of outcomes that are consistent with workably competitive markets and how workably competitive markets tend toward economically efficient outcomes. The Commission then sets out several “regulatory framework principles” and “implementation principles”. These principles are intended to guide how the Commission implements the Part 4 regime.

However, the economic concepts and principles discussed by the Commission in its framework section are not always carried through in the detail of its proposed input methodologies. Section three (Methodologies) and chapter 10 (Specified Airport Services) rely heavily on approaches previously adopted by the Commission, for instance in its Airport Inquiry, and on approaches adopted by regulators elsewhere. Though these sections contain references to economic efficiency and to workably competitive markets, the Discussion Paper does not consistently show how its proposed input methodologies would achieve the purpose of Part 4 (or the purpose of information disclosure).

These gaps mean that elements of the Commission’s proposed methodologies would promote outcomes which are not consistent with outcomes in workably competitive markets and which would not be to the long term benefit of consumers, and hence are inconsistent with the purpose of the Act.

In this paper, we:

- Suggest refinements to the Commission’s interpretation of the purpose of Part 4.
- Develop and apply criteria for assessing the Commission’s proposed ‘regulatory framework principles’ and “implementation principles”.
- Review specific methodologies and approaches proposed by the Commission against the purpose statement (and principles that reflect that purpose statement) to illustrate that aspects of these methodologies and approaches are not consistent with the purpose statements.

Purpose of Part 4

Interpretation of new purpose statement

The Commission breaks down the purpose statement into two parts to aid interpretation:

First, there is a central purpose “to promote the long-term benefit of consumers” in the relevant markets.

Second, there is the means of achieving the purpose – “by promoting outcomes that are consistent with outcomes produced in competitive markets”. In particular, the outcomes promoted must ensure that suppliers:

- a. have incentives to innovate and invest, including in replacement, upgraded, and new assets;
- b. have incentives to improve efficiency and provide services at a quality that reflects consumer demands;
- c. share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and
- d. are limited in their ability to extract excessive profits.

We agree that the purpose statement should be read as having a central purpose of promoting long-term benefits to consumers and that this purpose is to be achieved by the means of promoting outcomes consistent with outcomes produced in competitive markets. For clarity, we read the phrase “such that” in section 52A(1) as indicating that the objectives (a) to (d) are results to be achieved by the Commission (rather than a means) and, accordingly, are part of the central purpose of Part 4.

Because the purpose statement defines both the purpose *and* the means of achieving that purpose it raises direct implications for the design of the input methodologies, information disclosure, and for the Commission’s regulatory framework principles and implementation principles.

First, to achieve the purpose statement the Commission will need to be clear as to who are the consumers of regulated goods and services and (given the nature of the services) to address in its framework and implementation principles how it will resolve any divergence in interests between acquirers of the service and consumers.

Second, the framework principles and implementation principles should guide the Commission to design input methodologies that achieve the purpose (long-term benefit to consumers) by the means permitted by section 52A (promoting outcomes consistent with competitive markets). In broad terms, this means that the framework principles and implementation principles should lead the Commission to select input methodologies that:

1. Promote outcomes which are in the long-term benefit of consumers *and* ensure the matters in paragraph (a) to (d) of section 52A(1) are achieved; and
2. Attempt to achieve the outcomes in paragraph 1 above only by promoting outcomes consistent with outcomes produced in competitive markets; and
3. Do not promote outcomes consistent with outcomes produced in competitive markets if that outcome is not in the long-term benefit of consumers or would not ensure that matters in paragraph (a) to (d) are achieved; and
4. Do not attempt to promote outcomes that are in the long-term benefit of consumers and which would achieve the matters in paragraph (a) to (d) by *means* which do not promote outcomes that are consistent with outcomes produced in competitive markets.

Breaking out the requirements as in the bullets 1 to 4 above helps clarify that the purpose statement not only obliges the Commission to achieve certain outcomes, it also constrains the means by which the Commission can achieve those outcomes.

In addition, Section 52R requires that the input methodologies developed by the Commission not only must meet the criteria outlined above but must also “promote certainty for suppliers and consumers...”.

With regard to airports, a specific purpose statement applies to information disclosure. Section 53A stipulates that the purpose of information disclosure is:

to ensure that sufficient information is readily available to interested persons to assess whether the purpose of this part is being met.

Hence, the purpose of information disclosure, as it applies to airports, is to ensure that sufficient information is available to interested persons to *assess* whether the charges and services determined by the airports are in the long-term benefit of consumers and will ensure the matters in paragraph (a) to (d) of Section 52A(1) are achieved. The Commission, rightly in our view, interprets the long-term interest of consumers and the matters in paragraph (a) to (d) as being consistent with outcomes produced in workably competitive markets.

It is of course impossible to specify with any certainty what outcomes might result were aeronautical services produced in workably competitive markets. Too many factors come into play that are not measurable at reasonable cost or are ultimately subjective. Moreover, the relevant factors can each change over very short periods of time implying that any estimated outcome should also change. Reasonable people will disagree whether any particular outcome (within reason) is consistent with outcomes that might be anticipated to result from a hypothetically workably competitive market. The purpose of information disclosure is to provide information upon which interested parties can draw their own conclusions and inferences.

In the following sections we discuss whether the Commission has carried through its interpretation of the purpose statement (and the subsidiary purposes for information disclosure and input methodologies) into its definition of consumers and its regulatory framework principles and implementation principles.

Implication of purpose statement for definition of consumer

The first implication of the Commission's interpretation of the purpose statement is that the purpose statement requires the Commission to be clear as to who are the consumers of regulated goods and services. The Commission recognises this implication in paragraphs 2.9 to 2.11 of the Discussion document. In the case of specified airport services, the Commission holds the view that the use of term 'acquire' as well as the term 'consume' in the definition of consumer means that "consumer" refers to end-consumers such as airline passengers as well as to airlines.

We agree that consumer means passengers as well as airlines. However, the Commission does not explain how it will address situations where the long-term benefit to consumers diverges from the long-term benefit to airlines.

In workably competitive markets it may be less important to distinguish between benefits to 'consumers' and benefits to 'acquirers'. This is because in a workably competitive market, the prices paid in the market can be taken as good indicators of the (marginal) costs of producing the service, on the supply side, and the (marginal) value of consuming those services on the demand side. The demand and supply curves embody most of the relevant information about the value of the service in the wider economy. If a policy or regulatory action makes sense within a competitive market in terms of the prices in that market, after allowing for changes in the prices as a result of the policy or action, then it probably makes sense for the economy as a whole.

However, the markets relevant to the purpose statement are not workably competitive markets, as the Commission will implement regulation only in "markets where there is little or no competition and little or no likelihood of a substantial increase in competition." In markets in which there is little or no competition, the Commission cannot assume that an outcome that is a long-term benefit for acquirers of the service is also a long-term benefit for consumers, and it cannot assume that the set of long-term benefits sought by airlines would include all the long-term benefits sought by passengers.

Airports, for example, make major investments that improve the prospect of competition between the airlines (such as facilities for a new airline or a different mix of aircraft). Incumbent airlines, not surprisingly, have a history of opposing airport expansions that would allow increased competition between airlines. Investments by airports which allow increased competition between airlines promote outcomes for passengers consistent with outcomes produced by competitive markets but those outcomes may not be in the commercial interest of airlines currently using the airport. To provide certainty,

the Commission's principles should explain how the Commission would resolve any divergence in interests between acquirers of the service and consumers.

In implementing Part 2 of the Commerce Act, the Commission has long held the view, and the Courts have agreed, that the purpose of competition law is to protect the competitive process and not individual competitors.¹ This is because competition is expected to improve consumer welfare over time by allocating resources more efficiently, minimising costs, and encouraging innovation. In this sense, workably competitive markets tend to favour consumers (passengers) but not necessarily particular competitors in the market (in this case airlines) as consumers migrate to those firms that better meet their needs.

To provide certainty to suppliers and consumers, the Commission should clarify how it will resolve any conflict between the interests of airlines and the interests of passengers while best meeting the purpose statement.

Assessing merits of framework and implementing principles

Criteria for assessing principles

The second implication of the purpose statement specifying both the purpose and the means by which that purpose can be promoted, is that it provides high level guidance as to the outcomes which should result from the input methodologies. In this section we assess whether the Commission can be confident that its regulatory framework principles and its implementing principles will result in input methodologies that meet the requirements of the purpose statement for Part 4.

To provide the guidance the Commission (and regulated entities) would expect from its principles, we suggest that a well specified set of principles should exhibit the following characteristics:²

- *Be self-evident in their merit*; the principles should clearly and unambiguously reflect the purpose statement.

¹ Glazebrook J, *ANZCO Foods Waitara Ltd v AFFCO New Zealand Ltd* [2006] 3 NZLR 351, 242

² These five criteria are taken from Professor Jonathan Macey and Dr Graham Scott in their, *Peer Review of Conceptual Design and Guiding Principles*, prepared for the New Zealand electricity industry, June 2001.

- *Be enduring*; the principles should be pitched at a sufficiently high level that they are likely to withstand the test of time.
- *Be comprehensive*; the principles should be sufficiently encompassing so as to be applicable to unforeseen issues that may emerge in the future.
- *Be consistent with each other*; to provide confidence to all parties with regard to how the principles would be applied to a particular set of circumstances the principles should not conflict with each other, if the principles do conflict a further principle should specify how that conflict would be resolved.
- *Possess discriminatory power*; the principles should be sufficiently clear in meaning so that judgments can be made as to whether or not the rules (or proposed rule changes) are consistent with them.

Principles that meet these characteristics would provide confidence to all parties that input methodologies that met the principles would comply with the purpose statement and hence the principles themselves would promote certainty for suppliers and consumers.

Applying the criteria to the Commission’s framework principles

The Commission specifies and provides reasons for several economic framework principles. These principles, as summarised in paragraph 2.29 of the Discussion Document, are to:

- Promote allocative efficiency, subject to the opportunity for regulated businesses to earn normal returns (paragraphs 2.38 to 2.44 of the Discussion Document).
- Promote realistic and achievable gains in productive efficiency (paragraphs 2.45 to 2.51 of the Discussion Document).
- Promote dynamic efficiency by providing incentives for efficient investment and innovation (paragraphs 2.52 to 2.59 of the Discussion Document).

While we disagree with some of the detail of the Commission’s discussion of workably competitive markets, we view the principles as phrased in the bullet points above as meeting in broad terms the characteristics we set out above for assessing the principles. It is widely accepted in regulatory theory and practice that workably competitive markets tend toward economically efficient outcomes and therefore economic efficiency principles self-evidently reflect the purpose statement; the concepts of allocative, productive, and dynamic efficiency are long established in the economic literature and hence are enduring; the economic concepts are capable of broad application, including to unforeseen events; the Commission has recognised the potential conflict between allocative and dynamic efficiency and has resolved that conflict in favour of dynamic efficiency (through the opportunity to earn a normal return); and the principles possess a degree of discriminatory power as a more efficient outcome would be preferred to a less efficient outcome.

The Commission also discusses “the opportunity to earn a normal return” and two approaches termed NPV=0 and FCM. The Commission concludes that NPV=0 and

FCM “are useful concepts”. It is unclear from the Commission’s discussion whether it views a ‘useful concept’ as a component of its regulatory framework principles. It seems to us that the NPV=0 and FCM are more in the nature of a test to assess whether the application of a particular methodology, or set of methodologies, to a given set of circumstances achieves the principle of providing investors with an opportunity to earn at least a normal return without expecting to extract excessive profits from consumers. Consequently, we do not view the NPV=0 and FCM concepts as principles to be met in the design of input methodologies.³

Applying the criteria to the implementation principles

The Commission specifies the following implementation principles (paras 2.76 to 2.82):

- consistency
- flexibility
- cost-effectiveness
- transparency

The Commission states that these implementation principles “are derived from the purpose of Part 4 and its subparts”. However, the Commission does not explain how it arrived at these particular principles from its interpretation of the purpose statement.⁴ For instance, the Commission added ‘transparency’ in response to consultation feedback, but does not say whether this additional principle also flows from the purpose statement.

The Commission acknowledges that there is a conflict, or trade-off, between consistency and flexibility in its implementation principles. The Commission states that *‘regulatory commitment’...must be balanced against the need for regulation to adapt and remain applicable as industry and market conditions evolve over time*. However, the Commission does not explain how it will strike this balance, or how it derived from the purpose statement a requirement for flexibility. Section 52R requires that the input

³ After all, NPV=0 could be achieved by preventing any new investment, which is clearly not the intent of the Commission.

⁴ If the principles are intended only to be statements of good regulatory practice, rather than derived from the purpose statement, there are a range of principles that could apply and the Commission does not explain why it selected these specific principles. For an alternative set of regulatory principles, see for example the Code of Good Regulatory Practice <http://www.treasury.govt.nz/publications/guidance/regulatory/codepractice>.

methodologies developed by the Commission must “promote certainty for suppliers and consumers” but do not discuss the need for flexibility.

We agree with the Commission that both consistency and flexibility are important for regulatory implementation, but believe there to be better ways of describing the type of consistency and flexibility required, and by doing so it is possible to reduce the conflict between the principles. In the Commission’s discussion of certainty, it largely appears to equate certainty with “no-change”. However, investors do not expect a static world.

Regulatory certainty is important to investment decision-making because investors need to foresee with a degree of confidence how regulation is going to affect the performance of the investment in the future. This degree of confidence requires that regulation is *predictable*, not necessarily unchanging. That is, regulatory certainty is more appropriately interpreted as predictability rather than “no change”, from an economic efficiency perspective. Predictability is enhanced if regulatory decision-making is based on clear rules and if regulatory discretion is constrained.⁵ If the methodologies need to change (e.g., the methodology turns out not to promote outcomes consistent with workably competitive markets) the change should be predictable (i.e., the change is necessary so that the rule remains consistent with the purpose statement).

The Commission’s discussion of the application of the FCM concept provides an example of an aspect of the Commission’s approach that could readily be made more predictable. In chapter 2 and chapter 4, the Commission discusses the application of the concept on an *ex ante* basis. That is, that building block methodologies are typically applied so that a regulated entity can expect to achieve a normal return on efficient investment on an *ex ante* basis. However, in chapter 10, where the Commission discusses the application of these concepts to airports, there are no references to *expected* values. To remove this unnecessary uncertainty, the Commission should clarify that it views the FCM as a “useful concept” when applied on an *ex ante* basis.

In general, we believe further work is required on the implementation principles so that they clearly reflect the purpose statement; assist the Commission to respond in predictable ways; and assist investors to understand how the Commission would likely respond to a given set of circumstances.

⁵ See for example P. Spiller and Volgelsang, I., “The Institutional Foundations of Regulatory Commitment in the United Kingdom: The Case of Telecommunications“, *Journal of Institutional and Theoretical Economics*, Vol. 163, December 1997, pp 607-629; and Brian Levy and Spiller, P. T., “The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation, 10 *Journal of Law, Economics, and Organization*, N.1, 1994 pp 202-246; and Spiller, P.T., “Institutions and Regulatory Commitment in Privatizations,” *Industrial and Corporate Change*, (1993).

Asset valuation

With regard to asset valuation, the Commission says that it is inclined to:

- Value land and other “non-specialised” assets at opportunity cost,
- Set the value of specialized assets in 2010 at their 2002 optimized depreciated replacement cost plus subsequent revaluations “to the extent” that the revaluations “have been included as income for price-setting purposes”,⁶ and
- Increase the value of the regulated asset base after 2010 at the rate of consumer-price inflation.

We consider these issues in turn.

Land valuation

Commerce Commission’s approach may not be consistent with purpose statement

The Commission records that it has previously used what it refers to as “opportunity cost” to value airport land (paragraph 6.91). The Commission viewed “opportunity costs” as the market value of the land if it were used for the next most valuable use (that is, for a use other than in the supply of airport services). The Commission states that it is likely to adopt the same approach in future (paragraph 6.92).

The Commission accepts that its approach to valuation does not recognise that the land is used as an airport (6.93). However, the Commission holds the view that in a regulated market, “the value of an asset in its current use is contingent on the prices allowed by the regulator”. The Commission therefore did not agree that the valuation methodology should recognise the use of the land as an airport (e.g., through a replacement cost based methodology using market values). The Commission considers that such a valuation would be based on the expectations of monopoly rents (paragraph 6.93). It says, by contrast, that its approach “reflects the fact that land has an observable value in the market” (paragraph 6.91).

There are several significant flaws with the Commission’s reasoning.

⁶ Table X4. See also table X3 and Question 50.

First, the Commission's approach applies an incomplete interpretation of the economic concept of opportunity cost. By adopting an incomplete view of opportunity cost, the Commission arrives at a valuation of land which would in some circumstances materially diverge from values consistent with outcomes produced in workably competitive markets. In these circumstances, the Commission's approach would be contrary to the purpose statement as it would not promote outcomes "that are consistent with outcomes produced in competitive markets" and it would not ensure that the matters in paragraph (a) and (b) of section 52A are achieved.

Second, the Commission's assumption that methods of valuation which recognise the use of the land as an airport would necessarily be based on expectations of monopoly rents is not correct. It is correct that a discounted cash flow method of valuation would incorporate monopoly rents if airports were extracting monopoly rents from landing charges. However, other methods of valuation, such as replacement cost, including approximations of replacement cost such as used by airports' valuers, do not depend on an airport's future profits and thus do not incorporate expectations of monopoly profits. Hence, the Commission is discarding methods that would be materially better in terms of meeting the purpose statement in favour of a method which in some circumstances would not comply with the purpose statement.

Third, the Commission's approach does not recognise that airports incur costs to adapt or develop the land to make it suitable for use as an airport. These costs can include the cost of resource consents, levelling the land, reclaiming land from the sea, compression and drainage, and holding costs. These are costs that would not be necessary, or would not be incurred on the same scale, were the land to be used for some other purpose. A supplier of a service in workably competitive market would expect to achieve a return on efficient investments necessary to supply the service. By ignoring the costs incurred in developing airport land the Commission would not ensure that airport owners have the incentives to invest in improving airport land (that is, it could not ensure that paragraphs (a) and (b) of section 52A are met).

We discuss each one of these concerns in turn.

Concept of opportunity cost

The opportunity cost of any decision is the foregone value of the next best alternative that is not chosen by the decision-maker.⁷ Opportunity costs are therefore inherently

⁷ While opportunity cost is a central concept in economics, it seems it is not well understood even among economists. A survey of Phd economists and Phd students found that only 22% could answer correctly a relatively straightforward question on opportunity costs, <http://www2.gsu.edu/~wwwcec/docs/ferrarotaylorbep.pdf>

speculative because they represent the value the decision-maker anticipates might result from an alternative decision; the concept cannot be separated from the decision-process.⁸

Opportunity cost is potentially an important concept for the Commission in designing input methodologies. The concept may assist the Commission in evaluating whether decisions that will be made by entities affected by its input methodologies will result in scarce resources being used in their highest value use from the perspective of society. If resources would have a higher value in an alternative use, an opportunity exists to make some individuals better off in their own estimation while not worsening the lot of anyone else.

Perhaps more importantly for the task faced by the Commission, in a well functioning market, the observed market price of a good or a service will likely be closely tied to its opportunity cost. A seller of a good or service would continue to provide that good or service only if it could achieve a price that covered its opportunity costs (the highest value the firm could have achieved if it decided not to provide the service or make the product), and a buyer would continue to buy the good or service only if it were priced less than the buyer's anticipated benefit (and less than the buyers next preferred choice). In this way, workably competitive markets tend to align the perceptions of opportunity cost of the buyer and seller, otherwise opportunities would remain for some individuals to be made better off without worsening the lot of others.

A critical difficulty in applying the concept of opportunity cost to regulated services is that these services are not provided in workably competitive markets, and hence market prices do not exist from which to deduce opportunity costs. Nor are the opportunity costs of critical inputs directly observable. The Commission is right in a general sense when it says that "land has an observable value in the market". However, the value of land suitable and adapted for use as an airport is not directly observable in market trades and land currently used for another purpose may not have the same characteristics (location, size, levelness, etc) as land currently used for an airport.

In this regard, the Commission's rejection of the hypothetical efficient new entrant test (paragraphs 6.29 and 6.65–6.71) is perplexing, as this test is a valid means of estimating efficient opportunity costs in markets where inputs to goods and services are not actively traded. Concepts such as ODRC or TSLRIC are widely used in regulatory processes to estimate the value that would be attributed to assets were those assets used to provide

⁸ For a discussion on the difficulties of estimating opportunity costs which cannot be observed and that opportunity costs attach to decision-process, see James M. Buchanan, *Cost and Choice: An Inquiry in Economic Theory*, Vol. 6 of the *Collected Works* [1969], available at http://oll.libertyfund.org/index.php?option=com_staticxt&staticfile=show.php%3Ftitle=1068&Itemid=27

the same services in a workably competitive market. A price based on an ODRC or TSLRIC valuation “is consistent with the price that would prevail if the access provider faced effective competition, and usually promotes the long-term interest of end-users.”⁹

We expect that concepts such as replacement cost, including approximations of replacement cost such as used by airports’ valuers, will be more effective at estimating outcomes of workably competitive markets than the Commission’s approach of trying to estimate opportunity cost from a limited range of decisions. In its estimate of opportunity cost, the Commission considers only one cost out of a set of opportunity costs relevant to assessing the opportunity cost of providing land for aeronautical services. The opportunity cost for an airport owner is the highest value the owner could achieve if it decided not to provide the service; this opportunity cost is the maximum of the value that could be obtained by the supplier from:

- Selling its productive assets to someone else who can use those assets to provide the same service or product.
- Selling its productive assets to someone else who might use the assets for another purpose.
- Using its productive assets to produce some other good or service.

In the appendix we provide two illustrative examples to show that alternative use in the context of estimating opportunity cost includes the value of assets sold to another party to provide the same service in circumstances where there is continuing demand for that service.

The opportunity cost to airlines and passengers of a hypothetical decision by the owners of an airport to cease providing airport facilities and to use the land for another purpose would be the loss of profit to the airlines from not being able to provide services to that location or the costs involved to airlines and passengers in using an alternative site. Airport land values derived from the value of land currently being used in some alternative use (for example housing) would be representative of the opportunity cost of this hypothetical decision only where that land was similar in its important characteristics to the land used for the airport. The value of land in an alternative use would not be a measure of opportunity cost of land currently used as an airport, where the land used for the airport:

⁹ ACCC, *Access Pricing Principles – Telecommunications*, August 1997, Chapter 6.

- Had particular features (for example, location) which meant its best use was as an airport; or
- Required investment to adapt the land for use as an airport.

We explain in the following sections why these characteristics should be accounted for in any measure of the opportunity cost, or the true sacrifice to the economy, of decisions to retain assets in airport use.

Recognising land use does not result in monopoly profits

The Commission is mistaken in its view that all valuation methods which recognise the use of the land as an airport would “be based on expectations of monopoly rents”. It is common place in workably competitive markets that land may have particular features that mean it has a higher value in its current use than nearby land that is used for another purpose (or land that is used for the same purpose but is less productive or useful for that purpose). Examples that come readily to mind include:

- Land that is especially productive or suitable for particular agricultural or horticultural production, such as dairy or wine producing versus grazing.
- Sea front properties for commercial accommodation (e.g., hotels and resorts) and residential use, compared to properties without direct access to the shore.
- Retail properties facing busy pedestrian access ways compared to retail property located off the main thoroughfares.

In each of these examples, workable competitive markets would value the property in its current best use, rather than at the value attributed to nearby properties which do not have the same characteristics and are not used for the same purpose. The difference in the value of land in its most productive use and the value of land that is less productive (or alternatively, the value of land in a less productive use) is termed in economics a Ricardian rent. Ricardian, or scarcity rents, are present in workably competitive markets and are an important aspect of efficient resource allocation in market processes.

Economic theory, since Ricardo wrote *On the Principles of Political Economy and Taxation*, in 1817, has recognised that land which has particular advantages in terms of its productive capability or location will have a higher value in market economies than nearby land which does not have these features. As Ricardo observed nearly 200 years ago:

If all land had the same properties, if it were unlimited in quantity, and uniform in quality, no charge could be made for its use, unless where it possessed peculiar advantages of situation. It is only, then, because land is not unlimited in quantity and uniform in quality, and because in the progress of population, land of an inferior quality, or less advantageously situated, is called into cultivation, that rent is ever paid for the use of it. When in the progress of society, land of the second degree of fertility is taken into cultivation, rent immediately commences

on that of the first quality, and the amount of that rent will depend on the difference in the quality of these two portions of land.

The Commission appears to have blurred the economic concepts of monopoly rents (giving less and charging more) with the concept of scarcity rents. As the United Kingdom's Civil Aviation Authority discussed in its Issues for Airport Reviews, Consultation Paper, July 2000, the distinction between monopoly rents and scarcity rents is crucial especially where long-term capacity constraints may arise:

Airport regulation is different from the standard regulation of the utilities in that it is faced with likely long-term capacity constraints. In taking this into account, the distinction between monopoly rents and scarcity rents becomes crucial. Economic regulation aims to achieve the same outcome as under competitive conditions where undesirable monopoly rents arising from market power would disappear. On the other hand, competition does not erode scarcity rents which are the result of the uniqueness of a specific location that cannot be expanded. There are many examples of prices which contain comparable scarcity rents, eg rents in Oxford Street or the funds raised in the recent UMTS spectrum auctions. Mobile frequency spectrum or city ground space cannot (or only at a prohibitive price) be increased, but as demand attributes a high value to them a mechanism to allocate the scarce resource must be applied. (page 7)

The Commission's approach of valuing land by reference to an amount the land might be worth if used for some other purpose would only produce an outcome consistent with a workably competitive market if the next best alternative use of the land is equally productive as retaining the land as an airport. If land is more productively used as an airport, because say of its location, then land in that use would be valued higher in a workably competitive market than neighbouring land used for an alternative use.

Under the Commission's approach, land values for information disclosure purposes may diverge by a large amount from the values that would result in a workably competitive market. The Commission's approach therefore risks price outcomes which would be inconsistent with the two fundamental roles of prices in a market economy; that is to provide a means of allocating existing capacity between different users, and send signals to service providers about the timing and scope of investment in additional production capacity.

Specific investments in adapting land for airport use

A particular problem arises with the Commission's approach to valuing land where specific improvements have been made to the land to develop the asset for use as an airport. Economists use the term 'specific improvement' or 'specific assets' to mean improvements that enhance the revenue generating ability, or usefulness, of the asset in its current use, but which add no or only limited value to the asset in alternative uses.

In the context of airfield activities, such improvements might include reclaiming land from the sea or flattening hilly land. Other examples are reclaimed land for use by port companies, and land resulting from extensive works in constructing new roads. The common feature of all these cases is that work has been carried out to obtain land for a particular purpose and the land is applied to that purpose.

Valuing specific investments by reference to the value of the asset if it were to be used for a different purpose can create inefficient incentives. By definition, the value of the specific asset in an alternative use would be less than the cost of the specialised investment. Future investment would be discouraged, as the owners of the asset would know that they could not recover the amount spent on acquiring or constructing the asset. Consumer decisions (e.g., frequency and type of aircraft) would also likely be distorted, as would other long term investment decisions such as road access and regional development; as Ronald Coase pointed out 60 years ago, efficient decisions in relation to a product using fixed costs requires that its price equal its total opportunity cost (which includes fixed costs).¹⁰

Value of specialized assets in 2010

The Commission proposes that 2010 asset valuations should equal 2002 replacement-cost valuations plus subsequent increases in replacement cost “to the extent that they have been reflected in pricing.” The meaning of this proviso, however, is unclear, at least to us. Two interpretations are possible, one relating to *expected* increases in replacement cost since 2002, the other to *actual* increases since 2002.

The first interpretation, which is suggested by discussion in Chapter 6,¹¹ is that the 2010 starting valuation should equal 2010 replacement cost, if airports have been incorporating *expected* increases in replacement cost when setting prices since 2002. Airports may have done this by using a nominal WACC and reducing required revenue by the amount of expected revaluations. Or they may have used a kind of real WACC that was lower than the nominal WACC by the expected rate of revaluation. In either case, all post-2002 increases in replacement cost would be added to the 2002 replacement cost to get the 2010 starting valuation.

The second interpretation, which is suggested by Chapter 10, in which there are no references to *expected* revaluations,¹² is that the 2010 starting valuation should equal 2002 replacement cost plus the amount of revaluations by which airport had reduced its target revenue when setting prices. For an airport that had reduced prices by the amount of expected revaluations, this would mean that the 2010 valuation was equal to the 2002 replacement cost plus increases in replacement cost that had been forecast when prices were set.

¹⁰ R Coase. 1946. ‘The Marginal Cost Controversy’ *Economica* 13 pp169-182.

¹¹ See Paragraphs 6.40, 6.46, 6.56, and 6.80, which all refer to expected revaluations.

¹² See 10.85 and 10.96 and tables X3 and X4.

The former interpretation is more appropriate and may well be the one that the Commission has in mind, even though the Commission does not refer to expected revaluations when it discusses airports in Chapter 10. It is common for airports to set prices in advance for a period of several years on the basis of replacement cost at the beginning of the period and to reduce target revenue for the period by the expected increase in replacement cost over the period. In the next period, the airport resets prices based on actual replacement cost at the beginning of the next period, which may be higher or lower than had been expected at the beginning of the previous period. If the approach is applied consistently over time, and estimates are unbiased, then over the life of the assets, the airport can expect to recover its costs and customers can expect to pay no more than necessary. For airports that have followed this approach, the proposal, on this interpretation, also leads to a disclosed asset value (replacement cost) that is meaningful and, as is argued earlier, is related to outcomes in workably competitive markets.

On the second interpretation, the proposal is problematic. Consider an airport that has been setting prices as discussed above. Suppose that replacement cost in 2010 turns out to be higher than had been forecast when prices had previously been set. Then the airport will have an asset value for the purpose of information disclosure that is lower than replacement cost. If the airport continues to set prices on the basis of replacement cost, it will probably earn a high rate of return on the value of its assets according to its information disclosure. But this will not provide much useful information, because it reveals only that airports had not anticipated the actual extent of market valuation movements in the previous period, in the sense that the value of its assets had increased by more than expected.

If information disclosure were to function as *de facto* price control, the use of the low asset valuation would probably suggest to investors that their investment had been partially expropriated. They were expecting to charge on the basis of replacement cost, and then, when replacement cost rose more than expected, the rules were changed and they were required to charge on the basis of a lower asset value.

By contrast, suppose that replacement cost in 2010 turns out to be lower than had been expected when prices had previously been set. Then the airport will have an asset value for the purpose of information disclosure that is higher than replacement cost. This would in itself be unusual. In addition, the airport will probably earn a low rate of return on this high asset value, assuming the airport continues to set prices based on replacement cost. But, again, this will provide little useful information, because it does not mean that the airport did not expect to earn a reasonable return, only that it had over forecast market value changes for assets in the previous period.

Indexed historic cost versus replacement cost after 2010

Once 2010 information-disclosure asset values have been set, the Commission proposes to treat the 2010 value as a kind of historic cost and to ‘roll forward’ this value with the consumer price index, or some other index.

Using indexed historic cost after 2010 might have some advantages in terms of the Act. The reasons for changes in value would probably be easier to understand, especially for interested persons other than airlines. Values might also be less volatile, which would reduce the size of differences between forecast changes and actual changes. If unexpected increases in value lead to disclosure of a high return on investment, and that might trigger price control, the use of indexed historic cost might reduce the regulatory risk to which airports were exposed and therefore encourage investment.

However, in competitive markets prices have little relationship to historic costs. If costs increase in a competitive market, suppliers will earn a return on historic cost that is greater than the cost of capital. If costs decline (e.g. because technology changes) prices will give suppliers a return on historic cost that is lower than the cost of capital. Prices may diverge from indexed historic cost less quickly than they diverge from historic cost, but they will still tend to diverge, unless the index perfectly reflects changing market values. If airport charges are based on replacement cost, comparison of an estimate of the cost of capital with return on indexed historical cost, over a period significantly shorter than the life of the investment, will not in general be very informative. (This problem could be reduced, but not eliminated, by using an index of prices that was more closely related to airport replacement costs than the consumer price index.)

By contrast, prices based on replacement costs are likely to track prices in competitive markets more closely than prices based on historic cost. Rents in property markets, for example, are influenced by the replacement cost of buildings, but not by the buildings' historic costs or by historic costs indexed to the rate of consumer-price inflation.

Cost allocation

The Commission in its general input methodology sections of the Discussion Paper proposes the following approach to cost allocation (paragraph 5.158):

Business Units Common Cost & Economies of Scope	Regulated and Regulated Business Units	Regulated and Unregulated Business Units
Above the threshold	SAC across all regulated business units and FDC/FAC/ABC between regulated business units	FDC/FAC/ABC across all business units
Below the threshold	SAC across all regulated business units and FDC/FAC/ABC between regulated business units	SAC across all regulated business units

The Commission's discussion on cost allocation traverses situations where the regulated business operates other regulated businesses (column 2 from the left in the table above), and unregulated businesses (column 3). As the three airports referenced in Part 4 (Auckland, Wellington and Christchurch) do not currently operate other regulated businesses we focus our discussion on cost allocation in the latter set of circumstances (i.e. an airport operating non-regulated businesses).

The allocation of common costs between more than one regulated business may raise issues other than those we cover below. However, the points we raise in relation to the allocation of common costs between regulated and unregulated businesses hold regardless of whether the firm is operating one or more regulated businesses.

Relevant legislative and regulatory considerations

The following clauses from Part 4 relate to the development of the cost allocation input methodology.

The purpose of Part 4:

52A Purpose of Part

(1) The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—

(a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

- (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and*
- (c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and*
- (d) are limited in their ability to extract excessive profits.*

The purpose of input methodologies:

52R Purpose of input methodologies

The purpose of input methodologies is to promote certainty for suppliers and consumers in relation to the rules, requirements, and processes applying to the regulation, or proposed regulation, of goods or services under this Part.

The matters to be covered by input methodologies:

52T Matters covered by input methodologies

(1) The input methodologies relating to particular goods or services must include, to the extent applicable to the type of regulation under consideration,—

(a) methodologies for evaluating or determining the following matters in respect of the supply of the goods or services: ...

(iii) allocation of common costs, including between activities, businesses, consumer classes, and geographic areas: ...

(3) Any methodologies referred to in subsection (1)(a)(iii) must not unduly deter investment by a supplier of regulated goods or services in the provision of other goods or services.

The Government Policy Statement of August 2006 (2006 GPS)¹³ on incentives of regulated businesses to invest in infrastructure is also relevant. The 2006 GPS states:

7 The Government's economic policy objective is that regulated businesses have incentives to invest in replacement, upgraded and new infrastructure and in related businesses for the long term benefit of consumers. The Government considers that this objective will be achieved by:

(a) regulatory stability, transparency and certainty giving businesses the confidence to make long-life investments;

¹³ Minister of Commerce, *Statement to the Commerce Commission of economic policy of the Government: Incentives of regulated businesses to invest in infrastructure*, August 2006

*(b) regulated rates of return being commercially realistic and taking full account of the long-term risks to consumers of underinvestment in basic infrastructure; and
(c) regulated businesses being confident they will not be disadvantaged in their regulated businesses if they invest in other infrastructure and services.*

8 The Government also considers that it is important that regulatory control ensures that:

(a) the consumers of regulated businesses are not disadvantaged by the investments of regulated businesses in other infrastructure and services; ...

We draw the following important points from the legislation and the 2006 GPS:

- Under clause 52A (c) of the Part 4 purpose statement, the reference to the sharing with consumers of efficiency gains relates to such gains “*in the supply of the regulated goods or services*”, and makes no reference to any efficiency gains the same business may make in relation to the supply of non-regulated goods and services.
- The purpose of input methodologies is to promote certainty for suppliers and consumers, and thus an input methodology that provides a greater level of certainty than others (providing it meets other aspects of the purpose statements) should be preferred.
- The cost allocation input methodology is to address the allocation of “common costs”.
- The cost allocation input methodology “*must not unduly deter investment by a supplier of regulated goods or services in the provision of other goods or services.*” A cost allocation method would likely deter investment in non-regulated services if that method required the regulated business to recover some of the SAC of the regulated services from the non-regulated business, and that recovery was greater than what the non-regulated business could bear and still be profitable.
- Under the 2006 GPS, the Commission is obliged to take into account whether the manner in which it implements Part 4 will result in the suppliers of regulated services being “*confident they will not be disadvantaged in their regulated businesses if they invest in other infrastructure and service*”. Also under this GPS the Commission is obliged to take into account in its implementation of Part 4 whether regulation ensures “*the consumers of regulated businesses are not disadvantaged by the investments of regulated businesses in other infrastructure and service*”.

Cost concepts

The Commission describes (at paragraph 5.39 and following) the concepts of stand alone costs (SAC), incremental costs (IC), Ramsey based pricing, and accounting methods to allocate costs (FDC/FAC/ABC).

The Commission considers “common costs” to be those costs that lie between the SAC and IC for a given sets of services (paragraph 5.42). We use the term “common cost” in this way in our discussion below.

It follows that if a business is supplying one set of services only (e.g. specified airport services), its SAC and IC would be the same and it would have no “common costs” with other services. If however the same business were to supply another set of services (e.g. retail property services), it would have common costs to the extent to which its IC for the supply of each set of services is below the SAC for those services.

When identifying the IC for a set of services, a clear view needs to be taken as to which set of services are assumed to be incremental to other services. To use an airport example, the IC for airport-based retail property services would be higher if it is assumed the supplier is not also providing specified airport services (e.g. that the IC is equal to SAC) than if it is assumed that these property services are incremental to a business that is already providing specified airport services. Thus when applying the concept of IC clarity is required as to the nature of the business to which the particular services are assumed to be an increment

Under Part 4, the reference to “common costs” in clause 52T refers to businesses that are supplying regulated services, which implies the non-regulated services are incremental to the regulated services. This implication is supported by the proviso in clause 52T (3) and the 2006 GPS, as these provisos only make sense if the non-regulated services are treated as incremental to the regulated services. This implication is also consistent with the development of specified airport services in practice, in that each airport business has provided the specified airport services in advance of developing other non-regulated services. Thus in our discussion below we assume non-regulated services are incremental to regulated services, and not vice versa.

Application of cost concepts to legislative & regulatory requirements

In this section we apply the cost concepts as above to the legislative and regulatory requirements relevant to the Commission’s development of the cost allocation input methodology (for allocating costs between regulated and non-regulated businesses).

First, clause 52A (c) of the purpose statement (sharing efficiencies with consumers) does not require any efficiencies that are derived from the supply of non-regulated services to be shared with the consumers of the regulated services. Thus a SAC cost allocation method applying to the regulated service would satisfy the requirements of this clause.

We note this clause does not preclude the sharing of efficiencies from non-regulated services (but it doesn't require it).

Second, the cost allocation input methodology “*must not unduly deter investment by a supplier of regulated goods or services in the provision of other goods or services.*” (clause 52T (3)). Similarly, under the 2006 GPS, the Commission is obliged to take into account whether the manner in which it implements Part 4 will result in the suppliers of regulated services being “*confident they will not be disadvantaged in their regulated businesses if they invest in other infrastructure and services.*” A SAC cost allocation method would satisfy both these tests as it does not require the business to recover any of the SAC of the regulated business from the unregulated business.

The SAC cost allocation method would ensure confidence on the part of suppliers of regulated services that they would not be disadvantaged in their regulated businesses if they invest in non-regulated services, as the SAC cost allocation method would not erode the profitability of their regulated business (and it achieves this unambiguously). This is in comparison to the Commission's proposal that, after some unspecified threshold is met, some allocations of common costs would be required to the non-regulated business.

It is theoretically possible that a cost allocation method which does allocate some of the common costs (of the combined businesses) to the non-regulated business could satisfy the above two tests. However, such a method would need to be sensitive to the ability of the non-regulated services to carry the common costs allocated to it, and the supplier would need to know that this is the case in advance (in order to have confidence that the regulated service would not be disadvantaged). We know of no such cost allocation method in practice.

The accounting methods considered by the Commission (FDC/FAC/ABC) are not appropriate to the task of determining cost allocation policies that would ensure that investments are not unduly deterred, or that the supplier would be confident its regulated business would not be disadvantaged, as these methods focus on internal cost characteristics rather than market characteristics.

However, these accounting methods may well be appropriate to implementing a given cost allocation policy (and we understand airports currently use some of these methods in this manner). For example, if an airport sizes its air conditioning plant to service both the areas required for specified airport services and those required for retail property services, an accounting method may be used to approximate the SAC of this plant to service the areas related to specified airport services only. Similar issues are likely to arise in relation to the size and cost of corporate office functions, where these functions are more extensive than would be required if the business were providing specified airport services only.

It may be possible theoretically to use some form of Ramsey-based method to allocate common costs. However, it seems reasonable to expect that regulated services will generally have a lower price elasticity of demand than non-regulated services, as a pre-

condition for being a regulated service is the absence of workable competition. If this is the case, a Ramsey-based cost allocation method may in practice deliver similar results to the SAC cost allocation method.¹⁴

Third, under the 2006 GPS the Commission is obliged to take into account in its implementation of Part 4 whether regulation ensures “*the consumers of regulated businesses are not disadvantaged by the investments of regulated businesses in other infrastructure and service*”. From a cost allocation method perspective, the primary way to ensure consumers of regulated services are not disadvantaged in this way is to ensure that the supplier retains incentives to operate the regulated business in a manner as similar as possible to if it were stand alone. The SAC cost allocation method ensures this.

Conclusion

The SAC cost allocation method satisfies all the legislative and regulatory tests relevant to the Commission’s development of the cost allocation input methodology (where that input methodology applies to allocating common costs between regulated and unregulated businesses).

The Ramsey-based method considered by the Commission is unlikely in practice to be implementable (due to information constraints). If it could be implemented it may well yield results similar to the SAC method.

The accounting-based allocation methods (FDC/FAC/ABC) considered by the Commission do not satisfy some of the tests if used to determine cost allocation policies. However, once cost allocation policies are determined, the accounting methods may well be appropriate to implementing those policies.

Thus we recommend the Commission use the SAC cost allocation method to develop its input methodology for allocating common costs between regulated and non-regulated businesses.

Cost of capital

Section 53F(1)(a) of the Commerce Act states that airports and other regulated suppliers that are subject only to information disclosure regulation do not have to apply input methodologies set by the Commission in relation to the cost of capital. Nevertheless,

¹⁴ We note also the information required to implement a Ramsey-based cost allocation method is usually not available at reasonable cost.

airports may be interested in the Commission's views on the cost of capital, because those views may influence the Commission's report under section 56G of the Act "to the Ministers of Commerce and Transport as to how effectively information disclosure regulation under this Part is promoting the purpose in section 52A in respect of the specified airport services". In addition, the Commission's view may influence airlines' responses to airports' consultations about proposed airport charges. Finally, the airports might in the future be subject to price control, and decisions the Commission makes now about estimating the cost of capital are likely to influence its future approach.

We comment here on only a few of the issues raised by the *Input methodologies discussion paper* and the *Revised draft guidelines on the cost of capital*.¹⁵

Use by the Commission of estimates of the cost of capital in relation to airports

The Commission's discussion of information disclosure in chapter 4 of the *Input methodologies discussion paper* emphasizes return on investment (ROI), and, in discussing information-disclosure regulation for airports in chapter 10 (para 10.126), the Commission states that

the ROI measure (as an example) assists interested parties in monitoring, on an ex post basis, the extent to which suppliers are limited in their ability to extract excessive profits.

In chapter 10, however, it states¹⁶

10.7 ... Under s 53F, regulated suppliers that are subject only to information disclosure regulation do not have to apply pricing methodologies or methodologies for evaluating or determining the cost of capital. However, the Commission may use those input methodologies in monitoring and analysing information.

10.8 At this stage, the Commission's preliminary view is that it will not develop input methodologies on pricing methodologies and cost of capital for specified airport services by 30 June 2010, as they are not required to be applied by suppliers of these services. The Commission may determine these input methodologies at a later date if it considers it would be appropriate.

¹⁵ Commerce Commission, *Revised draft guidelines: The Commerce Commission's approach to estimating the cost of capital*, 19 June 2009.

¹⁶ See also 3.38 and 8.160.

This suggests that the Commission does not intend to estimate an airport WACC that it will compare to airports' estimated ROIs. Nevertheless, given the Commission's earlier discussion, the issue of comparisons of WACC and ROI is likely to arise. It is important therefore to note some problems that confront any such comparisons.

Depending on how information disclosure regulation is implemented, it may operate as a kind of *de facto* price control: suppliers may believe that prices will be acceptable only if they lead to estimates of their ROI no higher than estimates of their WACC. To the extent that information disclosure does act as *de facto* price control, it will tend to dull suppliers' incentives to reduce costs or increase demand. Lower costs, for example, will lead to higher ROI and may therefore increase the risk of lower prices being imposed by price control. Just as the Commission considers how to maintain suppliers' incentives to reduce costs or increase demand under price control, it may therefore need to consider how to implement information disclosure regulation in a way that maintains, as far as possible, incentives to reduce costs and increase demand.

In addition, it must be recognized that estimates of ROI cannot easily be reliably compared with estimates of WACC. First, estimates of ROI will be noisy in the sense that reported (realized) ROI will depend on surprises in demand and costs as well as plans. Second, estimates of WACC will be noisy because of model and parameter error. Third, if a firm's WACC is approximated by an estimate of an industry average WACC, further error will be introduced because, for example, each firm's beta will in general be different from the industry average beta. Fourth, because WACC is estimated as the cost of capital at its market value, errors are introduced by comparing WACC against accounting-based rates of return. Finally, as the Commission notes, the social costs of setting allowed rates of return too low probably outweigh the costs of setting allowed rates too high. These points do not mean that meaningful comparisons of ROI and WACC are impossible, but they do imply that careful analysis, including statistical analysis, is needed before a conclusion can be drawn that a supplier is earning a return above or below its cost of capital.

Errors and adjustments in estimates of the cost of capital

The Commission's documents emphasize that the cost of capital cannot be estimated precisely because, for example, parameters such as the market risk premium and asset beta can be estimated only approximately. The Commission therefore proposes to make an interval estimate of the cost of capital, equal to its point estimate plus and minus an estimate of the standard deviation of the point estimate.

Much of the Commission's approach to estimating parameter error is reasonable. However, by focusing on parameter error, the Commission risks seriously underestimating the extent of uncertainty associated with estimates of the cost of capital. Model error may be just as large as, or larger than, parameter error. The CAPM reflects the benefits of diversification and thus has intuitive appeal. Use of the CAPM is also convenient and reasonable, given the absence of a model that is widely accepted and demonstrably superior. We do not propose that the Commission replace its current model (the simplified Brennan-Lally model). Yet it must be kept in mind that empirical

support for the CAPM is weak and that a firm's true cost of capital may be significantly different from estimates of its cost of capital generated by the CAPM.

Quantifying model error is harder than quantifying parameter estimate error (on the assumption that a particular model is correct). It would be wrong, however, for the Commission to downplay model error just because it is hard to quantify. We recommend that the Commission consider further how it can better gauge the likely size of model error. One way of doing this is to compare estimates from other models, including a forward-looking model and a non-CAPM model if relevant data are available.

In addition, as the Commission notes, the CAPM does not provide compensation for unsystematic or asymmetric risks. The Commission is right to note that it is difficult to estimate the adjustments that should be made to account for these risks. But the Commission appears to conclude that the appropriate adjustment is zero unless regulated firms can provide very detailed evidence in favour of an alternative estimate (see para 276 of the *Revised draft guidelines*). But the burden of proof should not lie solely with regulated firms and uncertainty about the appropriate size of the adjustment does not imply that the best estimate of the appropriate size is zero.

The financial crisis and the market risk premium

The financial crisis has been associated with lower risk-free rates and higher risk premiums. Debt premiums have increased sharply. Changes in the market risk premium can only be estimated, and very roughly at that, but it seems likely that the market risk premium has increased.

The fall in equity prices has lowered estimates of the historical risk premium, and since historical estimates are usually considered the most reliable this change is likely to be taken account of in current estimates of the market risk premium. But the fall in equity prices reflects in part an *increase* in the market risk premium. The likely increase in the market risk premium can be seen in changes in estimates of the premium derived from forward-looking models. First, dividend yields have increased, which suggests, according to the dividend-growth model, that the cost of equity has likely increased. Second, the volatility of equity markets has increased, which again suggests that the cost of equity has increased.¹⁷

Estimates of the extent of the increase, or of the current market risk premium, based on these models are very imprecise, and if the crisis dissipates and financial markets return

¹⁷ Robert C. Merton, On Estimating the Expected return on the Market, *Journal of Financial Economics*, 8, 1980, 323–361.

to normal, the best estimate of the market risk premium might place relatively little weight on them. But, if the crisis persists or worsens, it would be imprudent to ignore the evidence from forward-looking models. The appropriate approach, we believe, is for the Commission to maintain an open mind about the market risk premium and to stand ready to change its estimate according to conditions.

Term of risk-free rate

The Commission argues that the term of the risk-free rate should be equal to the term of the pricing period. The question is whether this approach is better than using a term closer in length to the life of the regulated firms' assets.

The Commission's proposed approach would be justified in the hypothetical case that the regulated firm had the option to receive its regulatory asset value in cash at the end of the pricing period. In this case, the regulated firm could prudently arrange its financing so that it borrowed money on the date that prices were set and repaid it at the end of the regulatory pricing period. The use of a risk-free rate with the term of the regulatory pricing period would be consistent with the firm's expected net present value being zero and would expose the firm to no additional risk.

It is not clear, however, that the Commission's approach is best in the real-world case in which the firm must continue in business at the end of the regulatory period. For in this case the regulated firm faces refinancing risk if it aligns its borrowing with the regulatory period. A prudent firm can be expected to stagger its borrowing and to have at least some debt that is longer in term than the regulatory pricing period.

Lastly, we note, as the Commission now appears to acknowledge (*Revised draft guidelines, paras 137-138*) that the term of the risk-free rate should be consistent with the term of the risk-free rate that is implicit in the estimate of the market-risk premium.

Debt betas

A debt beta can be used to estimate a company's cost of debt using the CAPM in much the same way as an equity beta can be used to estimate the cost of equity. Previously, the Commission has not done so. Instead, it has looked at debt premiums observed in the market and (inconsistent with that) assumed that the debt beta is zero. In practice it is very difficult to obtain a market estimate of the debt beta, especially when, as in New Zealand, there are few frequently traded debt securities on issue. Although there may be some merit in moving away from the assumption that debt betas are zero, it is not exactly clear what the Commission proposes to do. We recommend that the Commission clarify its approach.

Appendix – examples of alternative use

In applying the concept of opportunity cost to land, the Commission interprets alternative use as meaning only a use other than for which the investment was originally made. This interpretation is incomplete.

The concept of alternative use is intuitive in markets where inputs are actively traded; an integrated energy firm, for example, might choose to use its gas contracts to generate electricity, retail gas, or sell the gas to another party to use in generating electricity or for some other industrial purpose. The opportunity cost to the integrated firm of using the gas to generate electricity is the value it could have achieved by selling the gas to another party (regardless of whether that other party would have used the gas for the same purpose or some other purpose) or using the gas itself for another purpose. In a workably competitive market, the observed prices for gas would reflect its opportunity cost.

An example might also help illustrate the concept of opportunity cost in markets where assets are used for a specific purpose or are not actively traded. Consider, for example, an area of land that is particularly suitable for growing grapes but which is surrounded by land that is more suitable as grazing land for sheep farming. The Commission's concept of opportunity cost (as applied to land) would value this grape growing land as if it were used for sheep farming. However, the correct view of opportunity cost would include the value that could be obtained by the landowner selling the grape producing land to someone else who wanted to use it to continue to produce grapes. In deciding to continue to grow grapes, the original owner foregoes the opportunity of selling the land to another grape grower (as well as the opportunity of selling the land for sheep grazing). Hence the price at which the land could be sold to be used in the same way is part of the opportunity cost of growing grapes.

In this example, the grape grower should price her grapes to achieve a return on her investment at least equal (in net present value terms) to the amount an alternative grape grower would pay her for the land, not just the value a sheep farmer might pay to convert the land for grazing. If the grape grower cannot price at or above the level an alternative owner would pay for the land (to use in the same or an alternative use), she would be better off selling the land to a more productive owner.

We do not intend to imply by use of the above example that airport land should be valued, for regulatory purposes, by reference to the amount an alternative airport owner might pay for an existing airport (as such an approach would suffer from the same circularity as applies to the discounted cash flow method). We have used this example to illustrate that the Commission's approach to valuing land is not necessarily consistent with an application of the economic concept of opportunity cost, as land may have particular features that make it especially productive or suitable for its current use. An estimate of the opportunity cost can be arrived at by estimating the cost that a hypothetical new entrant would incur in establishing an airport to provide the same level of service as the existing airport.