



**Submission on Commerce Commission
Revised Draft Guidelines for Estimating
the Cost of Capital**

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INTRODUCTION AND EXECUTIVE SUMMARY

- 1 The Commerce Commission's (**Commission's**) past approach to estimating the cost of capital has been contentious, and there has been significant debate over specific input values. Further, the Government and Parliament have signaled a desire that greater weight be placed on investment in infrastructure industries. The Revised Draft Guidelines for Estimating the Cost of Capital (**Guidelines**) are an important opportunity for the Commission to reset its approach. Despite this the Commission appears to have defaulted to its past approach and in a number of important places, it ignored the advice of its expert panel.
- 2 The fundamental objective of setting the cost of capital is to estimate the market return for making an investment. The Guidelines have lost sight of this objective and market investors have been unanimous in stating that the past approach understates the cost of capital that would be observed in a competitive market. If the Commission were to use the Draft Guidelines as they stand, any cost of capital estimate is unlikely to encourage private investment in New Zealand infrastructure.
- 3 In order to achieve this objective, the Guidelines need to be sufficiently flexible to be applicable and relevant, providing the most accurate estimate of cost of capital for a reasonable expectation of the range of regulatory situations. It should also be sufficiently prescriptive to provide transparency and certainty with respect to how the Commission would consider cost of capital issues given the particular circumstance.
- 4 Nothing in this submission is confidential.

Estimating an appropriate cost of capital is important

- 5 The permitted return on capital is a key driver of industry value and of investors' willingness to invest in industries that are regulated or under threat of regulation.
- 6 The Commission now has a central role setting returns - either directly or indirectly - for these industries, which consist of New Zealand's core infrastructure and strategic assets. The telecommunications industry, for example, is described in the Commission's recently released guideline to decision making in the telecommunications sector as "a key enabler of productivity and innovation in other sectors and the wider economy". Further, the Government policy is that there shall be significant new investment in these sectors.

- 7 The Commission proposes to continue to adopt the Capital Asset Pricing Model (**CAPM**) model as its primary tool for estimating the cost of capital. However, as pointed out by its advisory panel, there are a number of models that can be used to inform an estimate of the cost of capital. Furthermore, over reliance on the CAPM may result in a systemic under-estimation of the required market return and ultimately reluctance by investors to invest.
- 8 The Commission is also seeking to apply a single model to industries and investments with significantly different risk profiles. The market will recognise the different risks faced by electricity line businesses and, say, new telecommunications services, where demand for new services is less certain, technological change is much more likely, and there is greater potential for future competitive bypass in markets that may exhibit features of natural monopoly at this point in time.
- 9 To resolve this, the Commission's Guidelines should recognise the alternative approaches such as Fama-French, Discount Cash Flow (DCF), the classic CAPM and the international CAPM, as well as methods for valuing real options. These approaches are just as valid or even perhaps more valid means of estimating the market return, subject to the particular circumstances, than simply defaulting to the Brennan-Lally CAPM . The Guidelines should take a neutral position with respect to each of these options, focusing on setting out how each of these approaches would be implemented and, then, how the Commission would assess each service against the full range of methodologies.

Telecom's Proposal

- 10 The Guidelines should seek to achieve the following and no more:
 - (a) they should clearly set out detailed formulations of the real-options approach, the Fama-French, DCF, classic CAPM, and international CAPM models, in addition to the Brennan-Lally CAPM model, but they should not make a finding that one approach should be preferred over another;
 - (b) They should describe how the Commission might assess one methodology against another, should there be competing methodologies;
 - (c) They should clarify the evidence that would be required to satisfy the Commission regarding each methodology; and
 - (d) They should set out universal points on process (e.g. that the Commission will assess a new regulated service against the full range

of regulatory options in the first instance, and develop short form ways of rolling over assessments for future occasions).

- 11 To assist the Commission to further develop the Guidelines in the way proposed here:
 - (a) We attach as Annex A to our submission a paper from Graeme Guthrie, Professor of Economics and Finance at Victoria University, on the treatment of real options.
 - (b) We also attach as Annex B to this submission setting out Telecom's position on each of the recommendations made in the expert panel report that accompanies the Guidelines. This also serves as a general statement of Telecom's position on cost of capital issues presented in the guidelines.

LIMITATIONS OF THE REVISED DRAFT COST OF CAPITAL GUIDELINES

- 12 The Commission's historical practice for calculating the cost of capital of regulated firms, which gains continued support in the Guidelines, is to apply the Brennan-Lally version of the CAPM.
- 13 Funneling down to this one model results in a one-size-fits-all approach to estimating cost of capital that may be inappropriate in the specific circumstances of a particular regulated firm, industry or set of market conditions.
- 14 The result may be pragmatic from the regulator's perspective by providing a relatively straightforward approach to estimating the cost of capital, but this benefit does not outweigh the significant harm that could be caused from applying an inappropriate model to a firm or sector.
- 15 In addition, we are generally concerned that the Commission's valuation of regulatory error in the Guidelines places greater weight on relatively easy to define short-term gains from price reductions at the expense at the less analytically tractable but socially far more valuable long-term incentives to invest. This is inconsistent with ongoing statements such as, Paragraph 135 of the Commission's recently released "guidelines to regulatory decision making in the telecommunications sector" which states:

The Commission has previously indicated that where a tension exists between short-term allocative efficiency and long-term dynamic efficiency, the Commission will give greater weight to the promotion of the latter.

Precision versus accuracy

- 16 The Brennan-Lally model, together with a range of WACC assumptions, as used by the Commission, enables an estimate of the cost of capital which is precise; precise in the sense of producing a value that is able to be repeated or reproduced to provide similar or related results using the same estimation process. This is of course a highly desirable feature of any model which is used to estimate something as important as the cost of capital for a regulated firm. An example of a precise estimate might be the calculation of a simple average of a range of measurements together with the calculation of standard error, and measures of variance from a normal distribution.
- 17 The other vital dimension to be considered in determining the usefulness of a model such as the Brennan-Lally version of the CAPM is its accuracy; in this case, accurate in the sense that the estimate produced is close to the actual value. An example of accuracy would be the difference between the mean of the measurements and a reference value – the difference being known as the bias. A valid estimation model for the cost of capital should exhibit both precision (in the sense of reproducibility noted above) and accuracy (in the sense of being close to the actual value).
- 18 The term “valid” is both colloquial, and also has a formal meaning in the cost of capital academic literature and the related field of statistics – signifying an estimation model which is both precise and accurate. As the expert panel report notes, the Brennan-Lally model as applied by the Commission is precise, but does not take into account the full range of factors that should be considered by a regulator when setting the cost of capital in relation to a regulated firm. The technical term for this, which is also used by the Commission's expert panel, is “biased”. For example, the word “bias” is used at paragraph 8 where it states:

...firms might be concerned about the possibility of cashflows being overestimated by project proponents, and therefore require a positive NPV to counteract this bias...
- 19 The term “bias” should be understood to refer to non-random factors extraneous to, or not taken into account by the estimation method, rather than the more emotive colloquial meaning. All three of the experts on the panel acknowledge the fact that the Brennan-Lally model does not take into account a full range of relevant issues.
- 20 The Commission's use of the Brennan-Lally model and the range of WACC assumptions set out in the Guidelines is precise in the technical sense described above. It enables an estimate of the cost of capital which uses a clear and well understood range of inputs, applies a repeatable and well-

defined process to those, and delivers a precise estimate as an output. Estimates of the input values may vary, or be subject to debate, but the process is precise. Yet, it is this very precision that provides the Commission with comfort that it is correctly estimating the cost of capital for regulated firms.

- 21 The Brennan-Lally model, and other models based on the CAPM approach, all fail to take account of the full range of factors that impact on the cost of capital. Real world practical issues that are not taken into account are discussed below. These include the presence of asymmetric risks. The lack of accuracy means that the Commission's estimates are more likely to be less than the actual value of the cost of capital. In defaulting to the use of a CAPM-based estimation model, excluding the use of techniques that would improve the accuracy of that model, and selecting a form of the CAPM that the members of the expert panel contend does not adequately address the conditions of regulated firms, the Commission has materially compromised the accuracy of its cost of capital estimates.
- 22 These issues are expanded on below.

Treatment of Asymmetric Risk

- 23 The Guidelines recognise that firms need to be compensated for the systematic risk that they bear and for their exposure to particular types of asymmetric risk. However, the various models that the Commission has considered for estimating the cost of capital (the CAPM and its variants; the Fama-French model; the DCF model) are not designed to compensate firms for their exposure to asymmetric risk. That compensation must be awarded separately, either by adding a premium to the cost of capital when calculating the firm's allowed rate of return or by incorporating compensation in the firm's cash flows in some other way. Therefore, Telecom is seeking a transparent framework for valuing the asymmetric risk.
- 24 It is reassuring that "All three Panel members agree that asymmetric risks are real, potentially have large impacts on the firm, and therefore should not be ignored by the Commission."¹ This is particularly the case in telecommunications where there are significant technological and market changes occurring, as cited in the Revised Draft Guidelines:²

For example, Ofcom (2005b, p.103) acknowledged that while asymmetric risks and real options could be an important consideration

¹ Para 159 of the expert panel report.

² Footnote 80 of Guidelines

for future regulation of next generation networks, it was still a controversial area, and there was no consensus regarding the appropriate mechanism for taking the value of real options into account.

- 25 Telecom also welcomes the Commission proposal for the regulatory treatment of asymmetric risks, including a summary of the information that the Commission would consider when making a decision.³ However, Telecom considers that the Commission's position regarding allowing for these risks is unduly narrow and restrictive, effectively pre-determining that any allowance for asymmetric risk is unlikely to be granted.
- 26 The Revised Draft Guidelines set out the list of evidence that the Commission will consider in order to value project specific real options. However this list is open-ended, and there is no detail regarding how the valuation is to be carried out. This does not introduce the transparency that is needed if the Commission is to credibly commit to allow full cost recovery and to avoid costs associated with perceived regulatory opportunism described in the attached paper by Professor Graeme Guthrie. In order to start addressing these issues, the Commission should adopt the approach set out by Professor Guthrie.
- 27 We note that Professor Myers recommends that the burden of proving asymmetric risk should not fall entirely on the firm, as argued in the Draft Guidelines.⁴ Furthermore, Professor Franks recommends that the Commission should seek impartial advice when assessing the size of claimed options values.⁵
- 28 This is a real world risk that requires compensation. The fact that there currently might not be consensus among regulators for the treatment of these risks does not mean that these risks do not exist. The reality is that commercial decisions are not limited in that same way that regulators seem to be, as commercial investments are being made. In many respects the academic theory is catching up with pragmatic commercial practice.
- 29 As Professor Guthrie observes in the attached paper, if the Commission is to attempt to maximise total welfare, then it must make some allowance for investment timing options.⁶ We that New Zealand is entering into an era where investment in new fibre networks are viewed as critical for raising productivity going forward by Government. We also note that investment is

³ Section 5.1.5 of Guidelines

⁴ Recommendation 58 in the expert panel report.

⁵ Recommendation 66 in the expert panel report.

⁶ Section 2, Annex A

required to meet capacity demands on other infrastructure, such as the national grid in order to maintain security of supply. The timing of these investments is critical.

CAPM as the Primary Tool

- 30 In section 3.4.1 of the Guidelines, the Commission has indicated that it proposes to retain the CAPM as its primary tool for estimating the cost of capital.⁷ The Commission also recognises that the CAPM does not adequately explain the risk-return relationship, including that:
- (a) Actual returns for low beta stocks (which includes aspects of the regulated telecommunications industry) are greater than the returns predicted by CAPM, and actual returns of high beta stocks are less than the value predicted by CAPM⁸;
 - (b) A number of other economic factors have been shown to have better explanatory power than the CAM beta;
 - (c) CAPM betas can suffer from estimation errors so large that it can be difficult to draw reliable conclusions; and
 - (d) Betas can be unstable over time.
- 31 The Commission considers a number of alternative models including the DCF and Fama-French models, however the Guidelines discounts these other models due to perceived practical and theoretical problems, even though the CAPM itself clearly suffers from its own set of practical and theoretical problems.
- 32 The regulatory problem is to calculate the most accurate estimate of the cost of capital. Discounting the value of alternative methods for estimating the cost of capital in advance limits consideration of potentially useful information. This would prejudice any future application of the alternative methodologies, and thereby reduce the likelihood that the Commission considers relevant, alternative approaches at the time.
- 33 In order to improve the likelihood of a more accurate cost of capital estimate, the Guidelines should remain neutral with respect to a particular methodology. This may lead to alternative and divergent estimates of the cost of capital, however, this will provide a more plausible range within which the correct cost of capital would exist.

⁷ Para 94 of Guidelines

⁸ Para 84 of Guidelines (reference to Fama and French (2004))

The form of CAPM

- 34 The Commission has selected the simplified version of Brennan-Lally form of the CAPM from two other possible versions considered by it and the expert panel. This selection is based on the proposition that the Brennan-Lally model captures the tax benefits that domestic investors within New Zealand enjoy from tax imputation credits attached to dividends. However, as the Revised Draft Guidelines and the expert panel report recognise, the Brennan-Lally model does not hold where there are international shareholders that cannot take advantage of the imputation credits⁹.
- 35 Furthermore, as Professor Myers notes:¹⁰
- (a) Any deviation from the simplified Brennan-Lally model's underlying assumptions would lead to underestimates of the cost of equity for low-beta firms.
 - (b) New Zealand is open to foreign investment, and portfolio investments by foreigners, who do not benefit from dividend imputation, but must influence local equity prices.
 - (c) The closed-economy assumption of the simplified Brennan-Lally model would understate the cost of capital for low-risk firms in New Zealand, and overstate it for high-risk firms.
 - (d) Empirical evidence shows that average returns for low-beta firms are higher than predicted by the classical CAPM. This bias is amplified in the simplified Brennan-Lally model.
- 36 In the case of Telecom, approximately 80% of shares are held offshore and therefore by shareholders that would not necessarily receive the full benefit of imputation credits. Professor Myers' observation would imply that the adoption of the Brennan-Lally model may in such circumstances, be inappropriate and in any event will most likely lead to underestimates of the cost of capital for low beta lines of business. The scale of ongoing investment required by Telecom (and other large scale infrastructure investors) in New Zealand means that allowed rates of return need to be cognizant of the position of real world investors including overseas investors.

⁹ Para 99 of Guidelines

¹⁰ Para 22 of expert panel report

- 37 The expert panel report also considers two other forms of the CAPM: the classical CAPM, and the International Capital Asset Pricing Model (ICAPM). As acknowledged in the Revised Draft Guidelines and the expert panel reports, none of these models are perfect. This point is highlighted by the fact that Dr Lally, Professor Myers and Professor Franks each recommend a different form of CAPM. Dr Lally's support for the Brennan-Lally model is based (at least in part) on the argument that the Brennan-Lally model estimate is a "compromise" between classic CAPM cost of capital estimates. Dr Lally considers that the Brennan _Lally version tends to be higher than the ICAPM cost of capital estimates ,and lower than the classic CAPM. Professor Franks supports the application of the ICAPM, and does not agree with Dr Lally, noting that the ICAPM does not necessarily yield lower estimates than the simplified Brennan-Lally model. Professor Myers recommends the use of the classical CAPM.
- 38 The choice of a particular form of the CAPM should not be based on these pragmatic arguments. They should be based on whether or not a model's underlying assumptions hold for the particular problem at hand and the availability of evidence needed to populate the model. There are firms where it may be appropriate to use the simplified Brennan-Lally model, However it may not be appropriate for other firms. In Telecom's case, where the vast majority of shareholders are offshore, there is a strong case for using the classical CAPM, at the very least as a cross-check on the regulatory WACC. This is particularly the case where the Commission is inclined to apply a low asset beta assumption in assessing the regulatory WACC.

PROPOSED APPROACH

Scope of the Guidelines

- 39 The Guidelines will be applied to a wide variety regulatory contexts, services, and industries, therefore the Cost of Capital Guidelines needs to provide:
- (a) A comprehensive range of tools for assessing the cost of capital given the range of situations that are likely to be encountered;
 - (b) Transparent formulations of the cost of capital calculation methods;
 - (c) Detailed specification of the information required estimate the cost of capital using a particular formulation; and
 - (d) Guidance as the how the Commission would consider choosing of weighing a particular cost of capital.

- 40 Telecom's approach departs from the Guidelines, which essentially narrows the range of tools to the application of the Brennan-Lally version of the capital asset pricing model with prescription of the MRP input.
- 41 In order to assist parties in preparing submissions with respect to these other methods, the Commission should attempt to provide the same level of guidance in the Guidelines as it provides with respect to the Brennan-Lally model.
- 42 In order to initiate further discussion on the development of more detailed guidelines, Appendix A is a paper prepared by Professor Guthrie which sets out a framework for incorporating timing options. Attached as Annex B are specific comments on some Panel's recommendations.
- 43 The Commission approach in the Guidelines is to set out a range of questions setting out some general information requirements. This is heading in the right direction, but it does not provide sufficient specificity or transparency regarding what is required, how the Commission would use this information to inform any subsequent decision.

Process

- 44 Additional work is required to develop robust and transparent formulations of cost of capital models as alternatives to the Brennan-Lally CAPM model.
- 45 More specifically, it is proposed that the Commission prescribe a set of formulations and information required for valuing real options, DCF, Fama-French, classic CAPM, and the ICAPM, in addition to the Brennan-Lally CAPM that is already in the Revised Draft Guidelines.
- 46 With respect to these additional tools, it is proposed that the Commission consult individually on each of these when it considers regulating a service with the aim of developing a formulation of each that will provide transparency and certainty, as well as a common understanding on the context within which the method would be applicable.
- 47 Taking each method individually will make the task of preparing the Guidelines manageable, and provide the necessary focus required to develop meaningful and practicable formulations.
- 48 Clearly each tool cannot be considered in isolation. The Commission should also consult on the criteria on which it will base its decisions for selecting or weighting the output of different models.

RELATIONSHIP WITH PROJECT TO DEVELOP INPUT METHODOLOGIES

- 49 One final concern that we have is in relation to the decision to merge the process to develop the Guidelines with the process to set input methodologies for businesses regulated under Part 4 of the Commerce Act 1986. The implications of this are as follows:
- (a) The Commission will be seeking to finalise the Guidelines within the limited time constraints of the process to set input methodologies; and
 - (b) The Commission will have at front of mind the businesses that it is immediately regulating (and developing specific methodologies for) as it progresses the Guidelines.
- 50 Both of these issues have the potential to lend the Guidelines a slant that may not be appropriate to all future situations.
- 51 In terms of the timeframes; the 2010 deadline to finalise the input methodologies for businesses regulated under Part 4 may not give the Commission sufficient time to consider developing an approach to estimating the cost of capital in all contexts, or to develop an approach that is materially different from the approach that it has always taken.
- 52 Consistent with this concern, Telecom's general view is that the Commission has not incorporated much of the expert feedback from Professors Myers and Franks. It has essentially reapplied its past practice documented in the cost of capital draft guidelines, released for consultation in 2005, and in various cost of capital reports from its advisor, Dr Lally.
- 53 Our particular concern is that the general conclusions regarding the treatment cost of capital is largely context specific. The arguments put forward by the Commission may be valid in specific circumstances. However the guidelines should be applicable in a wide range of circumstances. While this may be appropriate for businesses regulated under the Commerce Act 1986, which are arguably less exposed to asymmetric risk, it may not be appropriate for new high risk NGAN investment, for example where asymmetric risks are highly likely to arise.
- 54 This is an important point for the Commission to accept at this moment in time and to provide appropriate views to the industry and investors. In particular, the Commission will be aware that Government sees investment in new fibre networks as a key driver of productivity going forward. How the Commission estimates an appropriate cost of capital for that sector could impact significantly on the business case for that investment.

- 55 We are also aware that electricity lines assets and grid assets are reaching the end of their asset lives and are becoming capacity constrained, necessitating significant lumps of investment that cannot be postponed for much longer.
- 56 The bottom line implication of the current era is that immediate investment across a range of sectors is becoming critical in a way that it was not previously. If the Commission adopts an approach to estimating a cost of capital that has a chilling effect on investment over the next 5-10 years, say, it may significantly damage New Zealand's economy and prospects over the long term.