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Input methodologies review

Update paper on the cost of capital topic

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1. Introduction

Purpose of paper

- 1.1 This paper outlines the next steps in the input methodologies (IMs) review for the cost of capital IMs. It highlights aspects of the cost of capital IMs on which we believe it will be most beneficial to obtain further stakeholder input prior to the draft decision, and invites additional evidence in those areas, where appropriate.¹
- 1.2 In inviting additional evidence on key focus areas, we note, and are grateful for, all submissions that we have already received in those areas in response to our invitation to contribute to the problem definition for the IM review (problem definition paper).² We are still evaluating those submissions and therefore this is *only* a call for additional evidence that has not previously been submitted.
- 1.3 All new and previously submitted evidence will assist us in reaching draft decisions in respect of the cost of capital IMs as part of the IM review. The deadline for providing any additional evidence is Friday, 29 January 2016.

Evidence sought in this paper

- 1.4 We are seeking any additional evidence on specific areas of the cost of capital IMs in order to assist our decision-making process in the change stage of our IM review.³
- 1.5 Any submitted evidence should therefore clearly outline the pros and cons of different approaches to estimating the cost of capital under the identified areas. We are particularly interested in evidence that provides strong reasons (especially quantitative evidence) on why a specific option better promotes the purpose of Part 4⁴ compared to alternatives (which includes the status quo).⁵

¹ The exceptions are issues related to the airport WACC percentile, see para 1.16.

² Commerce Commission “Input methodologies review: Invitation to contribute to problem definition” (16 June 2015).

³ Commerce Commission “Covering note: Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – DISCUSSION DRAFT” (22 July 2015).

⁴ Commerce Act 1986, s 52A.

⁵ Commerce Commission “Covering note: Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – DISCUSSION DRAFT” (22 July 2015) Attachment A, para 25.

- 1.6 We are also keen for economic justification of any suggested approach and draw attention to a comment noted by the High Court in its judgment on the appeals to the original setting of input methodologies.⁶

Where a proposition is simply asserted by economic experts, we give it little or no weight.

- 1.7 In particular, we would like to hear any additional evidence that:

1.7.1 can assist us in evaluating the pros and cons of any modifications to the IMs in line with the process described in the draft decision-making framework in the change stage of our review;⁷

1.7.2 can assist us in determining the parameters required to calculate the cost of capital;⁸

1.7.3 diverges from the conclusions of other regulators as identified in this paper and a forthcoming regulatory practice paper;⁹

1.7.4 considers the advice given by Dr Martin Lally on the incentives related to the cost of capital when a supplier applies for a customised price-quality path;¹⁰ and

1.7.5 considers our proposed approach for the High Court issues.

- 1.8 Stakeholders should also be aware of, and consider, our decisions on the Cost of Capital for the Unbundled Copper Local Loop (UCLL) and Unbundled Bitstream Access (UBA) services Final Pricing Principle (FPP) in the telecommunications sector.

- 1.9 The decisions include provide recent decisions on some economy-wide parameters of the cost of capital.¹¹ A further draft determination was published in July 2015¹² and the final decision will be published in December 2015.¹³

⁶ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1745.

⁷ As described in our draft decision-making framework, we are focusing on only making changes to the existing IMs that: promote the Part 4 purpose in s 52A more effectively; promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose). See: Commerce Commission “Covering note: Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – DISCUSSION DRAFT” (22 July 2015) Attachment A, para 20–26.

⁸ Note that we will also consider submissions related to parameter determination already received in response to the problem definition paper.

⁹ Within the next two weeks we will publish a regulatory practice paper on issues related to the cost of capital. This will focus on regulatory precedent and case studies in respect of key focus areas.

¹⁰ Capital Financial Consultants Ltd “Complications arising from the option to seek a CPP” (18 September 2015).

Next steps

- 1.10 We plan to undertake a number of other steps between now and the draft decision, including:
- 1.10.1 evaluating any further evidence received on the key areas of focus;
 - 1.10.2 publishing any external advice received;
 - 1.10.3 undertaking a similar debt survey on regulated suppliers to that taken when setting the original input methodologies;¹⁴ and
 - 1.10.4 working with stakeholders on any practical implementation issues associated with alternative options through a workshop or other form of engagement.
- 1.11 The draft decision is due to be published in mid-June next year and this will provide another opportunity for comment on the cost of capital IMs before the final decision paper is published at the end of next year.

Key focus areas

- 1.12 The key focus areas outlined in this paper can be split into two categories. These are:
- 1.12.1 re-estimating the parameters required to determine the cost of capital;¹⁵ and
 - 1.12.2 specific areas of focus we have identified following submissions and cross-submissions in response to the problem definition paper.¹⁶

¹¹ Most notably the Tax Adjusted Market Risk Premium (TAMRP).

¹² Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews: Further draft decision” (2 July 2015).

¹³ The final decision will be published in December 2015 and will be available at the following web address: <http://www.comcom.govt.nz/regulated-industries/telecommunications/regulated-services/standard-terms-determinations/unbundled-copper-local-loop-and-unbundled-bitstream-access-services-final-pricing-principle/>

¹⁴ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010) (Initial IMs reasons paper), para 6.3.40.

¹⁵ The problem definition paper focussed on the high-level methodological approach to estimating the WACC. We therefore welcome submissions in response to this paper how we determine specific values of key WACC parameters. See: Problem definition paper, paras 248 and 253.

¹⁶ Commerce Commission “Input methodologies review: Invitation to contribute to problem definition paper” (16 June 2015).

- 1.13 Chapters 2 and 3 provide further background on these two categories respectively, and outline specific questions to consider when providing evidence in response to this paper.
- 1.14 The specific areas of focus identified following submissions to the problem definition paper and described in Chapter 3 are:
- 1.14.1 the use of trailing averages as an alternative to prevailing rates in calculating the risk-free rate and/or debt premium;
 - 1.14.2 the use of annual indexation in updating the risk-free rate;
 - 1.14.3 compensating for efficiently incurred longer-term debt (including the appropriateness of the Term Credit Spread Differential);
 - 1.14.4 the impact of the weighted average cost of capital (WACC) on incentives to apply for a customised price-quality path;¹⁷ and
 - 1.14.5 using Black’s Simple Discount Rule as a potential cross-check for the Simplified Brennan-Lally Capital Asset Pricing Model (SBL-CAPM).
- 1.15 Finally, Chapter 4 of this paper outlines an approach to dealing with issues related to cost of capital that have been previously raised by the High Court in its 2013 judgment on appeals to the original setting of the IMs.¹⁸

Airport WACC percentile

- 1.16 Issues related to the airport WACC percentile were outlined in Topic 7 of the IM review problem definition paper. This topic is not being covered in this paper but is part of a separate process in the IM review. We are currently in the process of commissioning external advice on this topic and have engaged with airport stakeholders on the nature of that advice.

Other material released

- 1.17 Alongside this update paper we have released a paper by Dr Martin Lally of Capital Consultants Ltd on the incentive issues associated with applying for a customised price-quality path related to the estimation of the cost of capital.¹⁹

¹⁷ We decided in October to discontinue the fast track process for the Limb 2 amendments. These amendments relate to the alignment of the WACC for customised price-quality paths (CPPs) with the prevailing WACC for default price-quality paths (DPPs). Following this decision, the issue of WACC alignment between a DPP and CPP will now be considered as part of the main cost of capital work stream in the IM review. See: Commerce Commission: “IM review second process update paper CPP fast track amendments” (9 October 2015).

¹⁸ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013].

2. Parameters required to estimate the cost of capital

Purpose of chapter

- 2.1 This chapter provides an overview of the methods we have previously used to estimate each of the parameter inputs required to determine the cost of capital. The input methodologies either directly specify the parameter or specify the methodology by which a parameter is determined.
- 2.2 The parameters required to estimate the cost of capital can be grouped into a number of categories depending on:
- 2.2.1 whether the input methodologies directly specify the parameter or specify the methodology by which a parameter is estimated at the time the cost of capital value is determined; and
- 2.2.2 whether the parameter can differ across regulated sectors or whether it is a general parameter that applies to all sectors of the economy.

Table 2.1 – Parameters that are used to estimate the cost of capital

	Methodology to determine parameter estimate specified in the IMs	Parameter estimate specified in the IMs
Parameter may differ across different regulated sectors	Debt premium Term Credit Spread Differential (TCSD) ²⁰	Asset (or equity) beta Notional Leverage Notional credit rating
Parameter is the same for all regulated sectors	Risk-free rate	Tax Adjusted Market Risk Premium (TAMRP) Debt issuance costs Corporate tax rate Investor tax rate

¹⁹ Capital Financial Consultants Ltd “Complications arising from the option to seek a CPP” (18 September 2015).

²⁰ TCSD is not a parameter that impacts the WACC estimate but is additional compensation added to a supplier’s allowed revenue that compensates for longer-term debt.

- 2.3 Consistent with submissions to the problem definition paper that suggest we should be cautious when making changes to the cost of capital IMs,²¹ our starting point for estimating individual parameters is the current approach, as outlined in the existing IMs.
- 2.4 Despite this starting point, we may revise our approach to estimating individual parameters if:
- 2.4.1 a fundamental change to our estimation of the cost of capital requires alternative approaches (for example, if we moved to a long-term trailing average approach, the estimation of the risk-free rate would clearly need to be revised);
 - 2.4.2 evidence emerges that indicates alternative techniques would provide outcomes that are more in the long-term interests of consumers; or
 - 2.4.3 revised techniques result in more robust parameter estimates.
- 2.5 The problem definition paper asked submissions to focus on the high-level approach and not the specific methodologies used to calculate WACC parameters.²² We therefore invite you to provide any evidence that demonstrates that a change to our approach in estimating individual parameters would provide a more accurate or robust estimate of the cost of capital for the reasons described above.
- 2.6 The following sections:
- 2.6.1 summarise or reference our previous approach to calculating some of the key parameters under the existing IMs; and
 - 2.6.2 identify, where known, potential issues with the current estimation approach.

Asset beta

- 2.7 There are a number of approaches for estimating asset beta. As there is no reliable way to forecast asset betas, we, like other analysts, generally assume that historic beta estimates are indicative of future betas. Historic estimates of average betas are used as beta is expected to be relatively stable over time.²³

²¹ For example, see: Transpower, "Input methodologies Review: Problem definition and decision-making frameworks" (August 2015), p. 7.

²² Problem definition paper, para 253.

²³ Initial IMs reasons paper, para 6.5.20.

- 2.8 The current asset betas specified in the IMs are 0.34 for electricity distribution businesses (EDBs) and Transpower, 0.44 for gas pipeline businesses (GPBs),²⁴ and 0.60 for airport services.²⁵
- 2.9 Under the IM review we will be re-estimating these values using updated data and reassessing the comparator companies using a similar six-step process as outlined in the Initial IMs reasons paper.²⁶ As was the case in 2010, there are a limited number of listed New Zealand firms with similar characteristics to firms that we regulate. We therefore, as previously, intend to use overseas firms in the comparator sample.
- 2.10 We consider that there are three main issues associated with the estimation of asset beta that we will need to take into account as part of the IM review:
- 2.10.1 the difference in asset betas estimated using different sampling frequencies and over different time periods;
 - 2.10.2 the justification for any adjustments applied to the asset betas across different sectors; and
 - 2.10.3 the extent to which the form of control should impact our assessment of the asset beta.

Asset beta sampling periods

- 2.11 In 2010 we estimated equity betas (which were then de-levered to determine an asset beta) using both weekly and monthly observations over a number of five-year periods. We intend to undertake a similar exercise when re-estimating asset betas in the current IM review.²⁷
- 2.12 In undertaking this exercise we are mindful of the different outcomes that can result from using different sampling periods and different observation frequencies. We also note the suggestion from Frontier that one possible way to increase the reliability of the outcome would be to repeat the analysis separately using all of the days of the

²⁴ Initial IMs reasons paper, paras 6.5.22 and 6.5.29.

²⁵ Commerce Commission “Input Methodologies (Airport Services) Reasons Paper” (December 2010), para 6.5.22.

²⁶ Initial IMs reasons paper, para H8.14.

²⁷ We acknowledge the issue raised by Vector on our sampling approach in setting the asset beta for the previous IMs. In that case some observations were given more weight than others. However, as noted by the court, this issue did not lead to a different result. See: *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1507.

week as a reference point or use ‘four-weekly’ returns rather than monthly returns in order to standardise the returns interval.²⁸

Differences in asset beta across different sectors

2.13 The current IMs provide adjustments to asset beta across different sectors. This includes:

2.13.1 an upward adjustment to the asset beta for gas pipeline businesses, compared to electricity businesses. This was provided on the basis of differences in relation to growth options, the nature of the product, and the composition of customers;²⁹

2.13.2 a downward adjustment to the asset beta for airports given that the comparative firms are likely to have a mix of regulated and unregulated services.³⁰

2.14 We intend to evaluate evidence on the rationale for these adjustments and note Frontier’s view that:

The Commission itself adopts a beta premium of 0.10 for gas pipeline businesses relative to electricity distribution businesses, yet beta estimates do not differ between firms that are predominantly gas versus electricity businesses.

Differences in asset beta under different forms of regulation

2.15 A further important issue, as identified in the problem definition paper, is the extent to which the form of control should impact our assessment of the asset beta.

2.16 In setting the original IMs, we did not provide any adjustment to asset beta due to differences in the form of regulation. We noted that in theory, a regulatory regime can either insulate or expose the supplier to more systematic risk which in turn would affect the asset beta.³¹ However we did not consider that the available empirical evidence clearly demonstrated that it affects the asset beta in any material way.³²

2.17 In response to the problem definition paper, submissions from Powerco, Wellington Electricity, and the Electricity Networks Association (ENA) suggested that there is no

²⁸ Frontier Economics “Recommendations on priorities for review of cost of capital input methodology: A report prepared for Transpower New Zealand” (August 2015), pp. 44-45.

²⁹ Initial IMs reasons paper, para H8.172.

³⁰ Commerce Commission “Input Methodologies (Airport Services) Reasons Paper” (December 2010) E8.83.

³¹ Initial IMs reasons paper, para H8.155.

³² Initial IMs reasons paper, para H8.157.

reason to conclude that a change in the form of control would materially influence systematic risk and therefore asset beta.³³ For example, Powerco submitted:

As HoustonKemp have explained in their report, there is no reason to conclude that a change to the form of control from price to revenue control might affect the systematic risk faced by a regulated supplier, and therefore its asset beta. It would accordingly help to focus stakeholders' submissions on the core issues if the Commission confirmed at the outset that there will be no modification to the WACC parameters as a result of adjustments to the form of control

- 2.18 We are grateful for submissions and the evidence provided, however at this stage we think it would be premature to rule out any link between asset beta and the form of control without further analysis. There has been significant debate on the impact of the form of regulation on the systematic risk of a regulated firm and we wish to consider this area in more detail.
- 2.19 For example, the Queensland Competition Authority (QCA) has previously published a discussion paper on risk and the form of regulation, and concluded that the balance of evidence to date supports the proposition that the form of regulation, in general, serves to change the non-diversifiable risk of the firm as it affects both upside and downside risk. The implication of this proposition for cost of capital estimation in the context of the CAPM is that the regulated firm's beta is affected by the form of regulation and by ancillary mechanisms.³⁴
- 2.20 Given the materiality of asset beta, we intend to do further analysis in all three areas mentioned above.

Other issues associated with estimating asset beta

- 2.21 The problem definition paper did not focus on the methodology for calculating individual WACC parameters but we note the submission from NZ Airports who submitted:³⁵

There is a significant risk of estimation error with the WACC estimate, due to the difficulties associated with estimating the standard error. NZ Airports is concerned that the Commission's existing asset beta 'standard error' estimate may not sufficiently reflect the wide margin of variation across different airports. If the standard error is understated in the

³³ Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 24.1 (b), Wellington Electricity "Input Methodologies Review" (21 August 2015), p. 5, and ENA "Response to the Commerce Commissions input methodologies review paper" (21 August 2015), para 69.

³⁴ Queensland Competition Authority "Risk and the Form of Regulation" (November 2012). Available at: <http://www.qca.org.au/Other-Sectors/Research/Form-of-Regulation/Risk-and-the-form-of-regulation>

³⁵ NZ Airports "Submission on Commerce Commission Input Methodologies Review: Invitation to Contribute to Problem Definition" (21 August 2015), para 76.

Commission's determination of the WACC range, then this will result in a WACC distribution that is narrower than it should be.

- 2.22 We will consider this issue when we assess the most appropriate standard error for the WACC estimate.

Tax Adjusted Market Risk Premium (TAMRP)

- 2.23 The cost of capital IMs currently specify that the tax adjusted market risk premium (TAMRP) is 7%. We arrived at this value in 2010 by evaluating a range of evidence using both historical returns and expected future returns, and cross-checking against the TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.³⁶

- 2.24 A number of submissions referred to our methodology on the market risk premium. NZ Airports submitted that one of the potential issues of WACC to be explored is:³⁷

the reliance on "spot market" interest rates for the base rate component of the cost of equity, which is then combined with a tax-adjusted market risk premium (TAMRP) derived using a long-term historical average

- 2.25 Frontier also submitted in a report for Transpower:³⁸

The Commission should implement a more transparent approach to assessing the evidence available to estimate the MRP than is set out in the cost of capital IM

- 2.26 The value of the TAMRP is not industry specific but instead is common to all assets in the economy. We have most recently considered the TAMRP as part of our decision-making on the Final Pricing Principle (FPP) for UCLL and UBA services in the telecommunications sector. In particular, we note the further draft determination published in July, including advice from Dr Martin Lally.³⁹
- 2.27 If submitting evidence on the TAMRP for the IM review, we encourage stakeholders to consider and comment on the final decision on the TAMRP for the UBA/UCLL FPP

³⁶ Initial IMs reasons paper, para 6.5.15.

³⁷ NZ Airports "Submission on Commerce Commission Input Methodologies Review: Invitation to Contribute to Problem Definition" (21 August 2015).

³⁸ Frontier Economics "Recommendation on Priorities for Review of Cost of Capital Input Methodologies: A Report prepared for Transpower New Zealand" (August 2015), p. vi.

³⁹ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Further draft decision (2 July 2015), Dr Martin Lally – Capital Financial Consultants Ltd "Review of submissions on the cost of debt and the TAMRP for UCLL and UBA Services" (13 June 2014), and Dr Martin Lally – Capital Financial Consultants Ltd "Review of responses to review of submissions on the cost of debt and the TAMRP for UCLL and UBA Services" (20 August 2014).

when it is published in December because it will contain the most recent decision from the Commission on how the TAMRP should be estimated.⁴⁰

Risk-free rate

- 2.28 The current methodology we use to estimate the risk-free rate uses the observed market yields to maturity of NZ government denominated nominal bonds with a tenor that matches the regulatory period.⁴¹
- 2.29 Fundamental questions on the overall approach to calculating the risk-free rate, including the potential use of a trailing average and indexation are covered later as a key area of focus in Chapter 3.
- 2.30 A separate question has been raised on the practicalities of using a government bond rate rather than the interest swap rate as the proxy for the risk-free rate.⁴²
- 2.31 As noted in the Initial IMs reasons paper, New Zealand suppliers use interest rate swaps to manage interest rate risk and in doing so hedge the risk-free rate element of longer-term debt.⁴³ Some suppliers have suggested in practice achieving a hedge is challenging due to the difference between interest rate swaps based on the Bank Bill Mid-rate (BKBM) and the government bond rate.⁴⁴
- 2.32 A previous suggestion that could help overcome this issue would be to use swaps for estimating the risk-free rate in preference to government bonds. However, although swaps appear to be a widely used tool, we are not aware of any regulator that uses swap rates in place of government securities and it has not gained any widespread consensus in academia.
- 2.33 A separate implementation issue is the limited number of suitable government bonds available to estimate a risk-free rate for an appropriate term. The use of swap rates could potentially improve the robustness of the estimate, or alternatively we may need to investigate alternative bond options to act as a suitable proxy for the risk-free rate.

⁴⁰ See: <http://www.comcom.govt.nz/regulated-industries/telecommunications/regulated-services/standard-terms-determinations/unbundled-copper-local-loop-and-unbundled-bitstream-access-services-final-pricing-principle/>

⁴¹ Initial IMs reasons paper, para H4.1.

⁴² The Initial IMs reasons paper notes some suppliers suggested the Commission should continue to review the use of Government bonds in preference to swaps for estimating the risk-free rate. See: Initial IMs reasons paper, para H4.6.

⁴³ Initial IMs reasons paper, para H4.55.

⁴⁴ Frontier Economics "Recommendation on Priorities for Review of Cost of Capital Input Methodologies: A Report prepared for Transpower New Zealand" (August 2015), p. 6.

2.34 Following suggestions from stakeholders a number of UK regulators evaluated using interest rate swaps as a proxy for the risk-free rate. However this approach has been rejected by a number of UK regulators. In particular the Competition Commission rejected it as a suitable proxy for the risk-free rate for a number of reasons. These included the presence of additional credit and illiquidity premiums in the swap rate and the uncertainty about making adjustments to compensate for these characteristics.⁴⁵

Debt premium

2.35 Similar to the risk-free rate, a number of fundamental questions have been raised over whether to use the current ‘prevailing’ approach to calculate the debt premium or to use a longer-term trailing average. This issue is discussed in more detail in the following chapter.⁴⁶

2.36 Under the current ‘prevailing’ approach, the debt premium is estimated by taking account of the average debt premium that would reasonably be expected to apply to publicly traded vanilla New Zealand dollar denominated corporate bonds issued by:

2.36.1 an EDB or GPB that is neither majority owned by the government nor a local authority, with a Standard and Poors (S&P) long-term credit rating of BBB+ (for EBDs, GPBs or Transpower);⁴⁷ or

2.36.2 a supplier of airport services that is neither majority owned by the government nor a local authority, with a Standard and Poors long-term credit rating of A- (for airports).⁴⁸

2.37 However, a shortage of bonds in the market and bonds with the right periods makes the estimation of the debt risk premium relatively challenging. As a result, there is provision in the IMs for us to have some regard to a wider range of bonds.

2.38 Our implementation of this methodology for estimating the debt premium is detailed in the cost of capital determination documents, published on our website.⁴⁹

⁴⁵ Competition Commission “Competition Commission Report: Stanstead Airport Ltd Q5 Price Control Review – presented to the CAA, Appendix L” (23 October 2008), paras 55-59. Available at: <http://www.caa.co.uk/docs/5/ergdocs/ccstanstedl.pdf>

⁴⁶ See paras 3.15 to 3.34.

⁴⁷ Initial IMs reasons paper, para H5.4.

⁴⁸ Commerce Commission “Input Methodologies (Airport Services) Reasons Paper” (December 2010), para E5.4.

⁴⁹ Cost of capital determinations are published at the following link: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/cost-of-capital/>

- 2.39 Given the limited number of appropriate corporate bonds, we plan to review the methodology to understand how to make the best of the shortage of corporate bonds for the estimation of the debt premium.⁵⁰
- 2.40 A range of bonds can be used to estimate the debt premium and the current methodology places the least weight on corporate bonds from entities which are majority owned by the government or local authority.⁵¹ The appropriateness of this approach may need to be re-considered given the diverse treatment of government-owned entities by the capital markets.⁵²

Debt issuance costs

- 2.41 The cost of capital IMs recognises that fees and costs associated with prudent debt issuance and refinancing are legitimate expenses that should be compensated for, and currently provides a 35 basis points p.a. allowance.⁵³
- 2.42 When the IMs were originally set we requested confidential details of costs incurred by regulated suppliers with respect to raising debt capital.⁵⁴ We intend to request this information in December from suppliers again to assist with estimating debt issuance costs.⁵⁵

Term Credit Spread Differential (TCSD)

- 2.43 The TCSD provides an optional adjustment to suppliers to reflect the additional costs of holding a longer-term debt portfolio (ie, beyond five years).
- 2.44 A fair value curve generated by Bloomberg from 'A' long-term credit rated bonds that is used in the estimation of the TCSD is no longer published. As a result a change in the IMs will be required. As previously noted one of the key areas of focus between now and the draft decision will be assessing the compensation required for prudently incurred debt. The efficacy of the TCSD will be considered as part of this process. Further details are available in the following chapter.

⁵⁰ As part of this process we have initiated an academic research project in conjunction with Victoria University in this area.

⁵¹ Initial IMs reasons paper, para H5.62.

⁵² Particularly relevant are partially privatised companies operating in commercial markets (eg, Meridian and Genesis) for which majority government ownership may have a limited effect on their corporate bond prices.

⁵³ Initial IMs reasons paper, para H5.95.

⁵⁴ Initial IMs reasons paper, para 6.3.40.

⁵⁵ We will be emailing out another request in December asking suppliers to provide this same information. We recognise that the data we will be requesting will be of a commercially sensitive nature and so we will treat all data received in response to this on a confidential basis unless the data is already in the public domain.

Other parameters

2.45 We intend to use a similar approach as undertaken in 2010 to estimate the other parameters for the cost of capital. This includes obtaining a notional leverage from an average of the comparator sample used to determine asset beta⁵⁶ and a reassessment of the appropriate notional credit rating for each sector.

Key questions to consider on the parameters

2.46 In relation to this issue we are interested in receiving:

- 2.46.1 evidence demonstrating why specific time periods or observation frequencies should be used in estimating asset beta;
- 2.46.2 evidence demonstrating the rationale or otherwise to apply adjustments to asset betas in different sectors subject to the same form of regulation;
- 2.46.3 additional evidence demonstrating the rationale or otherwise to apply different asset betas on the basis of a different form of control;
- 2.46.4 evidence on the Commission's recent estimate of the TAMRP as part of the UBA/UCLL FPP decision;
- 2.46.5 evidence that demonstrates the benefits or otherwise of using alternatives to government bonds as a proxy for the risk-free rates;
- 2.46.6 evidence demonstrating how improvements or alternatives to our debt premium methodology could provide more robust estimates of the debt premium; and
- 2.46.7 any other evidence demonstrating how improvements or alternatives to the estimation of cost of capital parameters would provide a more accurate estimate of the overall cost of capital.

⁵⁶ Although there is a well-acknowledged 'leverage anomaly' when using the SBL-CAPM, we note that the High Court determined that no proposed alternative was materially better than this approach to estimate an appropriate leverage (when using the simplified SBL-CAPM). See: *Wellington International Airport & others vs Commerce Commission* [2013] NZHC 3289 (11 December 2013), para 1657.

3. Identified areas of focus

Purpose of this chapter

- 3.1 This chapter sets out a list of key areas of focus identified from the problem definition stage of the IM review and how we have identified those areas.
- 3.2 The areas on which we expect to focus our future work in reviewing the cost of capital IMs are:
- 3.2.1 the use of trailing averages as an alternative to prevailing rates in calculating the risk-free rate and/or debt premium;
 - 3.2.2 the use of annual indexation in updating the risk-free rate;
 - 3.2.3 the impact of the WACC on incentives to apply for a customised price-quality path;
 - 3.2.4 compensating for efficiently incurred longer-term debt (including the appropriateness of the TCSD); and
 - 3.2.5 using Black’s Simple Discount Rule as a potential cross-check for the Simplified Brennan-Lally Capital Asset Pricing Model (SBL-CAPM).

Our approach to determining the areas of focus

- 3.3 In response to the problem definition paper, we did not receive any submissions that suggested wholesale changes are required for the costs of capital IMs. Indeed, some submissions clearly suggested that significantly changing the cost of capital IMs would not be in the interests of consumers and would not help to promote certainty under the Part 4 regime. For example, Transpower noted that:⁵⁷

We agree with the Commission that “at this stage it is not clear that substantive changes to IMs in response to [issues relating to the cost of capital raised by the High Court in December 2013 in its judgment on the merits review] would provide long-term benefits to consumers”

- 3.4 And Powerco considered that:⁵⁸

The basic model has been the subject of extensive argument between stakeholders and experts, and there is little to be gained by re-opening consideration of these fundamental regulatory choices.

⁵⁷ Transpower “Input methodologies review: Problem definition and decision making frameworks” (August 2015).

⁵⁸ Powerco “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015).

- 3.5 We agree with these submissions, and note the significant work that we and stakeholders carried out in developing the original IMs, the subsequent appeal process, and judgment by the High Court.⁵⁹
- 3.6 As a result, we believe the review of the cost of capital IMs can be undertaken most effectively by focussing on a fairly limited number of areas. These areas are those on which various stakeholders have questioned whether the current IMs most effectively meet the Purpose of Part 4.
- 3.7 In determining the focus areas, we have made use of the draft decision-making framework for the IM review. In particular we have considered the key questions outlined in the review stage of that decision-making framework. These are:
- Is the policy intent behind the IM still relevant and appropriate?
- Is the current IM achieving that intent?
- Could the current IM achieve the policy intent better?
- Could the current IM achieve the policy intent as effectively, but in a way that better promotes s 52R or reduces complexity or compliance costs?
- Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?
- 3.8 In particular, we consider that the areas of focus outlined in this paper are areas in which we *may* conclude that a change to the current the cost of capital IMs could potentially achieve the policy intent better. The overall policy intent of the cost of capital IMs was described in the Initial IMs reasons paper.
- The cost of capital IM seeks to ensure expectations are for a normal rate of return are similar to that expected in workably competitive markets for activities of comparable risk, such that the Part 4 Purpose is met.⁶⁰
- 3.9 Individual aspects of the cost of capital IMs combine to specify a methodology that was considered to provide the most accurate and robust estimate of the cost of capital, which in turn enabled us to meet the overall policy.⁶¹

⁵⁹ *Wellington International Airport & others vs Commerce Commission* [2013] NZHC 3289 (11 December 2013).

⁶⁰ Initial IMs reasons paper, para 6.2.1.

⁶¹ Obtaining an accurate estimate of a regulated firm's cost of capital is consistent with the purpose of Part 4 set out in s 52A (10 of the Commerce Act. It is consistent with promoting incentives to invest and innovate (limb (a)) while limiting the extraction of excessive profits (limb (d)).

- 3.10 This paper is considering how individual aspects of the cost of capital IMs can better or more effectively enable us to meet the overall policy of the IM. Further details on why the individual aspects of the existing IM could potentially be improved to further meet policy objective is provided in the 'Issue with Current IM' section of each of the policy areas.
- 3.11 We consider that when deciding whether changes to the IM more appropriately meet these objectives, further substantive evidence will be beneficial. We are therefore inviting submissions to focus on specific areas in order to most efficiently contribute to our review of the cost of capital IMs.
- 3.12 In deciding which aspects of the cost of capital IMs to consider as an area of focus and request further information, we have considered:
- 3.12.1 submissions and cross-submissions to the IM review problem definition paper;
 - 3.12.2 comments made by the High Court in its judgment on the original IMs; and
 - 3.12.3 an internal effectiveness review of the existing IMs.
- 3.13 For each of the five areas of focus we expand on the relevant issues later in this chapter.

Interlinkages across the cost of capital IMs

- 3.14 We are also aware of the interlinkages between the various aspects of the WACC methodology. Therefore although we have identified key areas of focus for the review, we wish to make it clear that we would ensure any change made to the cost of capital IMs would only be introduced after considering its impact on the estimation of the WACC as a whole, and the wider IMs.⁶²

Trailing averages versus prevailing rates

- 3.15 The first area of focus considers whether to use trailing averages or prevailing rates when calculating the risk-free rate and debt premium.

Issue with current IM

- 3.16 Our current approach to estimating the cost of debt uses the average risk-free rate and the debt premium over one calendar month prior to when the cost of capital is

⁶² For example, as noted in paras 2.15 to 2.20 there are potential linkages between asset beta and other aspects of the regime (eg, form of control).

being estimated.⁶³ For price-quality paths this is seven months prior to the start of the price-quality path.⁶⁴ This approach is has been described as using the ‘prevailing rate’ as it is the rate prevailing relatively close to the start of the price path.

- 3.17 We decided to use prevailing (or current) interest rates because we considered that they better achieved the Part 4 Purpose and the potential dynamic efficiency benefits of investment, than the use of historic rates.⁶⁵
- 3.18 A number of submissions felt that this approach places unnecessary costs and volatility on businesses when undertaking financial transactions.⁶⁶ Regulated businesses are incentivised to replicate the financing that we use in estimating the WACC, in order to limit the exposure to differences between the compensation they receive for their cost of capital and their real costs.
- 3.19 Frontier suggested that this type of approach exposes a supplier to significant refinancing and liquidity risk, which it notes will ultimately be passed through to consumers.⁶⁷

The challenges associated with implementing the strategy implicit in the Commission’s existing approach are likely to be exacerbated, particularly in New Zealand’s relatively small debt capital market, by other suppliers seeking to raise finance around the same time, and may result in the suppliers paying a premium to refinance within that narrow window. Since the Commission presently determines the cost of debt allowance by sampling bonds issued by suppliers in New Zealand, this would ultimately increase the inputs to the cost of debt allowance determination and result in higher costs to electricity consumers.

Potential solution

- 3.20 Transpower, Orion, NZ Airport and Powerco all suggested that a potential solution to the issue could be that the IM review should consider the use of longer-term trailing

⁶³ For price-quality paths prevailing rates are calculated by averaging the data over one calendar month prior to when the cost of capital is being estimated. For more details on how these prevailing rates are calculated see: Initial IMs reasons paper, para H.4.1.

⁶⁴ For example, for the default price-quality paths and individual price-quality paths starting on 1 April 2015, this month was August 2014. See: Initial IMs reasons paper, para H.14.5.

⁶⁵ Initial IMs reasons paper, paras H4.10-H4.13.

⁶⁶ Transpower “Input methodologies review: Problem definition and decision making frameworks” (August 2015), p. 24, and Powerco “Submission on Input methodologies review: Invitation to contribute to problem definition” (21 August 2015), para 55.

⁶⁷ Frontier Economics “Recommendation on Priorities for Review of Cost of Capital Input Methodologies: A Report prepared for Transpower New Zealand” (August 2015), p. 6.

averages as a potential alternative to the current methodology.⁶⁸ For example, Powerco submitted that:

In our view, the Commission should particularly focus on substituting a long-run average, or trailing average, when estimating the risk-free rate rather than the current one-month prevailing estimate. As HoustonKemp explains in its report (see also in relation to Topic 5 below) adopting a trailing average estimate of the cost of debt would:

- improve the incentives on businesses to make efficient and prudent financing decisions; and
- reduce unnecessary volatility in regulated prices.

3.21 When setting the original IMs, we considered that more stable, historical rates could blunt the signals from financial costs in relation to new infrastructure investment:⁶⁹

Using historical rates reflects long-term average actual risk-free rates and will lead to estimated costs of equity and debt which tend to be relatively stable over time. In a price setting context, this relative stability will tend to lead to relatively stable returns to suppliers and prices to consumers over time. However, this apparent stability could blunt the signals from structural changes in the financial markets with respect to new investment in infrastructure, as significant changes in interest rates only slowly affect the specified cost of capital.

3.22 Since setting the original input methodologies, and as outlined in a number of submissions, several regulators in Australia have moved away from the use of prevailing rates and towards a trailing average approach based on historic rates.

3.23 Specific methodologies vary across regulators, but the following Australian regulators have all moved towards a trailing average approach.

3.23.1 Independent Pricing and Regulatory Tribunal (IPART), uses a range of both current market data (approximated using 40-day averages) and long-term averages (approximated using 10-year averages) to estimate the cost of debt.⁷⁰

⁶⁸ Transpower “Input methodologies review: Problem definition and decision making frameworks” (August 2015), p. 24, Orion “Submission on the IM review” (21 August 2015), para 54, NZ Aiports “Submission on Commerce Commission’s Input Methodologies Review: Invitation to Contribute to Problem Definition” (21 August 2015), para 69, and Powerco “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015), para 45.

⁶⁹ Initial IMs reasons paper, para H4.11.

⁷⁰ Independent Pricing and Regulatory Tribunal “Review of WACC methodology: Research – Final Report” (December 2013) section 4. Available at: http://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/final_report_-_review_of_wacc_methodology_-_december_2013.pdf

- 3.23.2 The Australian Energy Regulator (AER) will estimate the allowed return on debt using a 10-year trailing average portfolio approach following the completion of a transitional arrangement period.⁷¹
- 3.23.3 The Economic Regulatory Authority Western Australia (ERAWA) uses a hybrid approach whereby the risk-free rate is estimated using a 20-day trailing average with a five-year term (to match the regulatory period), and the debt risk premium estimated using a simple ten-year trailing average.⁷²
- 3.23.4 Essential Services Commission of South Australia (ESCOSA) proposes to use a weighted 10-year averaging approach to calculating the cost of debt.⁷³
- 3.24 An alternative decision was made by the QCA when recently reviewing its approach to estimating the cost of capital. Although it found merit in the trailing averages approach, QCA ultimately rejected it, mainly due to the difficulty in determining the ‘effective debt term’ of a firm which was subject to using a trailing average approach.
- 3.25 In particular the QCA had concerns that using a term consistent with the debt issued by firms (eg, 10 years) would likely overstate the efficient cost of debt, because the firms were likely to reduce their ‘effective term’ through the use of swaps to reduce interest rate risk.⁷⁴ The QCA also considered that the complexity required to implement the revised approach was a significant factor.
- 3.26 In making its decision the QCA also considered that a hybrid approach, in which only the debt premium component of the total cost of debt was estimated using a trailing average and a prevailing approach was used to estimate the risk-free rate component, was superior to a trailing average approach for the whole cost of debt as

⁷¹ Australian Energy Regulator “Better Regulation: Rate of Return Guideline” (December 2013), section 6.3. Available at: <http://www.aer.gov.au/system/files/AER%20Rate%20of%20return%20guideline%20-%20December%202013.pdf>

⁷² Economic Regulatory Authority Western Australia “Final Decision on Proposed Revisions to the Access Arrangement for the Mid-West and South-West Gas Distribution Systems: Submitted by ATCO Gas Australia Pty Ltd” (30 June 2015), para 1525. Available at: <https://www.erawa.com.au/cproot/13708/2/Final%20Decision%20on%20Proposed%20Revisions%20to%20the%20Access%20Arrangement%20for%20the%20Mid-West%20and%20South-West%20Gas%20Distribution%20Systems.PDF>

⁷³ Essential Services Commission of South Australia “SA water Regulatory Rate of Return 2016-2020: Final Report to Treasury (March 2015), Section 3.5. Available at: <http://www.escosa.sa.gov.au/projects/218/sa-water-regulatory-rate-of-return-2016-2020-report-to-the-treasurer.aspx>

⁷⁴ Queensland Competition Authority “Final decision, Trailing Average cost of Debt” (April 2015). Available at: [http://www.qca.org.au/getattachment/c3018296-eec5-4b55-acfa-6073ff5c478d/Final-decision-Trailing-average-cost-of-debt\(820.aspx](http://www.qca.org.au/getattachment/c3018296-eec5-4b55-acfa-6073ff5c478d/Final-decision-Trailing-average-cost-of-debt(820.aspx)

it results in an allowance that more closely aligns with the preferred debt management strategy under regulation.⁷⁵

3.27 Regulators that have moved to a trailing average approach have argued that it results in a rate of return that is more consistent with the efficient financing costs of a benchmark efficient entity.⁷⁶ The AER also noted the benefits of a trailing averages approach include:

- 3.27.1 smoothing of movements in returns leading to lower price volatility for consumers and more stable returns for investors;
- 3.27.2 minimising the consequences of a single measurement error; and
- 3.27.3 it may be more reflective of the actual debt management approaches of non-regulated businesses and so might be more likely to represent efficient financing practice.

3.28 Prior to making its decision to retain a 'prevailing rates' approach, the QCA commissioned Dr Martin Lally to write a paper evaluating a number of the relevant issues.⁷⁷ The paper provides a useful overview of the various issues that need to be considered when evaluating this issue. These issues include:

- 3.28.1 how the selection of an appropriate approach to estimating the cost of debt is dependent on the assumptions made for how firms might efficiently finance themselves;
- 3.28.2 the suitability of using a trailing average approach for the debt premium in combination with an estimate of the risk-free rate using prevailing data;
- 3.28.3 the suitability of using a different approach to estimating the risk-free rate for the cost of debt compared to estimating the risk-free rate for the cost of equity;
- 3.28.4 using a transitional regime when applying a new approach to estimating the cost of debt; and

⁷⁵ Queensland Competition Authority "Final decision, Trailing Average cost of Debt" (April 2015), p. 33.

⁷⁶ Australian Energy Regulator "Better Regulation: Explanatory Statement Rate of Return Guideline (December 2013) pp. 109-110.
<http://www.aer.gov.au/system/files/AER%20Explanatory%20statement%20-%20rate%20of%20return%20guideline%20-%20December%202013.pdf>

⁷⁷ Martin Lally "The Trailing Average cost of Debt" (19 March 2014). Available at:
<http://www.qca.org.au/getattachment/fdb28fe4-1fe5-4e84-8a59-069ede17883f/The-Trailing-Average-Cost-of-Debt-Lally,-2014.aspx>

- 3.28.5 the incentive issues for new capex associated with a trailing average approach to estimating the cost of debt.
- 3.29 Ultimately Dr Lally considered that there are three possible options for an appropriate regulatory policy in calculating the cost of debt.
 - 3.29.1 Using prevailing rates at the start of the regulatory period to calculate the cost of debt (ie, our current approach).
 - 3.29.2 Using a trailing average approach for the entire cost of debt.
 - 3.29.3 Using a hybrid approach that estimates the risk-free rate using prevailing rates but using a trailing average approach to estimating the debt premium.⁷⁸

Implementation issues

- 3.30 Any decision to change our current approach to determining the risk-free rate is likely to result in a number of complex implementation questions. As can be seen from the decisions of overseas regulators who have changed their methodology, there are a number of different approaches that can be taken when both implementing and transitioning to a trailing average approach.
- 3.31 For example, the regulator could use a simple trailing average approach, that places equal weight on each time period, or alternatively a greater weighting may be placed on more recent periods.
- 3.32 As well as considering the enduring methodology when using a trailing average approach, any change to calculation of the risk-free rate and/or debt premium is likely to require transitional arrangements. This would enable suppliers to gradually adapt their financing arrangements in order to maintain consistency with the approach used to calculate the cost of capital.⁷⁹

⁷⁸ Dr Lally also noted the significant implementation issues associated with determining debt premium based on a trailing average.

⁷⁹ For example, in its recent determination for electricity distributors, Ofgem applied a ‘trombone-like’ trailing average in extending the trailing average from a 10-year to a 20-year trailing average. The trailing average starts at 10 years, and then extends by one year every year that passes, up to a maximum of 20 years. The rationale for that is a lot of long-term debt was issued after prioritisation in the 1990s and the use of the trombone approach better reflects actual debt costs. See: Ofgem “RIIO ED1: Final determinations for the slow track electricity distribution companies” (28 November 2014), para 5.6. Available at: <https://www.ofgem.gov.uk/ofgem-publications/91564/riio-ed1finaldeterminationoverview.pdf>

- 3.33 These implementation questions would all need to be considered in detail before any decision could be made on changes to the methodology for determining the risk-free rate and/or debt premium.

Key questions to consider

- 3.34 In relation to this issue we are interested in receiving:
- 3.34.1 any additional evidence that clearly demonstrates the relative pros and cons of using an alternative trailing average approach to estimate the risk-free rate, the debt premium, or both, versus our existing prevailing approach.⁸⁰ A particular focus should be the impact of each approach on:
 - 3.34.1.1 the ability for suppliers to undertake prudent financing;
 - 3.34.1.2 a supplier's investment incentives (for example, where a long-term average rate is lower than the prevailing (market rate); and
 - 3.34.1.3 the volatility in the regulated cost of capital over time;
 - 3.34.2 any evidence that challenges the conclusions reached by overseas regulators who have considered this issue. We are particularly interested in challenges to the conclusions reached by the AER and that of the QCA, including Dr Lally's advice on these issues;
 - 3.34.3 any evidence that endorses specific implementation choices of a trailing average regime and indicates how it might be implemented in New Zealand. For example:
 - 3.34.3.1 the length of trailing average period;
 - 3.34.3.2 any transitional arrangements that are required;
 - 3.34.4 any alternative options that would mitigate the issues identified by suppliers with the current methodology, but maintains the incentive benefits associated with using prevailing rates. For example:
 - 3.34.4.1 expanding the financing reference period to a period longer than a month;
 - 3.34.4.2 allowing a supplier to choose in advance the reference period on which its WACC is based;

⁸⁰ In order to avoid confusion it will be important that submissions clearly indicate when they are discussing the approach regarding the risk-free rate, as opposed to the debt premium.

- 3.34.5 any evidence which challenges the conclusions from Dr Lally's paper for the QCA which suggests that there is no inconsistency in using different methodologies to set the risk-free rate applied to the cost of debt and risk-free rate applied to the cost of equity.

Indexing the cost of debt

- 3.35 The second area of focus is whether the calculation of the cost of debt should be subject to any annual updating (ie, an 'indexing' approach) or fixed for the duration of the regulatory period.

Potential issue with current IM

- 3.36 The issue is often considered in combination with the decision over whether to use historic averages or prevailing rates and a number of regulators have introduced the two together.
- 3.37 The use of indexation in the cost of debt attempts to reduce the potential for divergence between the allowed cost of debt under the price path and the actual cost of debt available in the market. A divergence between these values may result in inappropriate incentives for new investment during the price path.
- 3.38 Depending on the specific mechanics of the indexing, it may also result in closer alignment between the allowed cost of capital and a supplier's efficient financing strategy.

Potential solution

- 3.39 The potential for annual indexing of the debt was less of a focus in submissions than a move to a trailing average. However, it was also clear some suppliers considered that annual indexation was a key aspect of moving to a trailing average approach. For example, Frontier noted that:

Under the trailing average approach, the cost of debt allowance (excluding debt issuance costs) at the start of the regulatory period is set by taking a historical average of the spot yields to maturity on debt. This allowance is then updated annually through the regulatory period.

- 3.40 We can see there are likely to be reasons for adopting annual updating if a decision was made to move to a trailing average approach, however we think that the decision on whether to introduce indexing remains separate. In particular, we are aware that there have been mixed decisions from overseas regulators when deciding whether to use annual indexing together with a trailing average approach.

- 3.41 In Australia, the AER and ESCOSA introduced annual updating at the same time they proposed moving to a trailing averages approach. Reasons for these decisions were that:
- 3.41.1 the AER considered that annual updating of the trailing average should reduce the potential for a mismatch between the allowed return on debt and the return on debt for a benchmark efficient entity, and that this should reduce cash flow volatility over the longer term,⁸¹ and
 - 3.41.2 ESCOSA considered that annual updating provides the correct signals for capital expenditure promoting efficient investment decisions and the lowest sustainable price for consumers.⁸²
- 3.42 However, IPART decided against making annual adjustments on the basis that it did not provide sufficient benefits to outweigh the increased administrative costs.⁸³
- 3.43 The majority of regulators in the UK use an historical averaging approach to calculate the cost of debt; however, Ofgem is one of the only regulators that requires the cost of debt assumed in the WACC to be updated annually within a price control period. One possible reason may be the longer control period of eight years, rather than a five-year control period which is standard for a number of other regulators.⁸⁴
- 3.44 In his paper for QCA, Dr Lally suggested that annual updating should be used if a trailing average approach is adopted. This is because of the significant differences that may result when fixing the cost of debt at the beginning of the regulatory period compared to annual updating.⁸⁵

⁸¹ Australian Energy Regulator “Better Regulation: Explanatory Statement Rate of Return Guideline (December 2013), p. 15. Available at: <http://www.aer.gov.au/system/files/AER%20Explanatory%20statement%20-%20rate%20of%20return%20guideline%20-%20December%202013.pdf>

⁸² Essential Services Commission of South Australia “SA water regulatory rate of return 2016-2020: Final Report to Treasury (March 2015), section 3.8. Available at: <http://www.escosa.sa.gov.au/projects/218/sa-water-regulatory-rate-of-return-2016-2020-report-to-the-treasurer.aspx>

⁸³ Independent Pricing and Regulatory Tribunal “Review of WACC methodology: Research – Draft Report” (September 2013) p. 14.

⁸⁴ Ofgem “Handbook for implementing the RIIO model” (4 October 2010) para 12.13-12.16. Available at: <https://www.ofgem.gov.uk/Networks/rpix20/ConsultDocs/Documents1/RIIO%20handbook.pdf>, and FTI Consulting “Cost of capital study for the RIIO – T1 and GD1 price controls” (24 July 2012) section 8. Available at: <https://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/RIIO%20T1%20Cost%20of%20capital%20study%20for%20RIIO%20T1%20and%20GD1.pdf>

⁸⁵ Martin Lally, “The trailing average cost of debt” (19 March 2014). Available at: <http://www.qca.org.au/Other-Sectors/Research/Cost-of-Capital/Cost-of-Debt/Final-Report/Cost-of-Debt#finalpos>

- 3.45 In particular the divergence between any rate fixed at the start of the regulatory period and subsequent changes to cost of debt available in the market may lead to investment incentive issues for a regulated suppliers. This is similar to those described in Topic 3 of the problem definition paper (and described later in this paper⁸⁶) for suppliers applying for a customised price-quality path.
- 3.46 The combination of an indexation approach with prevailing rates was rejected when the IMs were originally set on the basis that the condition of an ex-ante expectation of NPV=0 would not be satisfied.⁸⁷
- 3.47 However, Frontier suggested that this previous consideration of indexation was in a different context and that the NPV=0 principle should be an overriding principle that rules out all other considerations when assessing the most appropriate cost of debt.⁸⁸ Frontier also noted that indexation was not previously considered in combination with a trailing average approach.⁸⁹
- 3.48 We also note the different context in New Zealand in which there are different types of price-quality paths. A default price-quality path is intended to be a low-cost approach and so may be less suitable for annual updating. More complex and costly approaches might be considered for Transpower's individual price-quality path, which is already subject to an annual wash-up process.

Implementation issues

- 3.49 Implementing an annual update of the WACC would require two separate tasks.
- 3.49.1 The annual determination of a WACC for price-quality paths.
- 3.49.2 Amending the price path to take into account the revised WACC.
- 3.50 The first of these tasks appears relatively straightforward, given that we currently annually determine a WACC for the purposes of information disclosure (albeit at a different time of the year).

⁸⁶ See paras 3.64 to 3.74.

⁸⁷ We have previously suggested that whenever the risk-free rate is reset part way through the regulatory cycle, the maturity of the risk-free rate will not match the horizon over which those rates will apply (namely, the remaining duration of the regulatory cycle), thus violating the NPV = 0 principle. See: Commerce Commission "Revised Draft Guidelines: The Commerce Commission's Approach to Estimating the Cost of Capital" (19 June 2009), para 127.

⁸⁸ Frontier Economics "Recommendation on Priorities for Review of Cost of Capital Input Methodologies: A Report prepared for Transpower New Zealand" (August 2015), footnote 13.

⁸⁹ Frontier Economics "Recommendation on Priorities for Review of Cost of Capital Input Methodologies: A Report prepared for Transpower New Zealand" (August 2015), pp. 11-12.

- 3.51 The second of these tasks could be potentially achieved for Transpower through the current annual adjustment to the Maximum Allowable Revenue (MAR) under its individual price-quality path.
- 3.52 However for EDBs and GPBs subject to a default or customised price-quality path it would be more challenging, given that there are no annual amendments. Alternative options are likely to be available, for example, the introduction of annual amendments or compensation in the subsequent price path based on differences between the WACC set at the start of the period and annual updates.
- 3.53 We also note the interactions that annual updating of the cost of capital will have on the RAB indexation rules. The problem definition paper noted the existence of a natural hedge in the current approach which uses a nominal WACC based on prevailing rates prior to the start of the price path.⁹⁰ The interactions of the WACC with the rules for RAB indexation would therefore need to be considered in the event of any change in approach for setting the WACC.

Key questions to consider

- 3.54 In relation to this issue we are interested in receiving:
- 3.54.1 any evidence which weighs against adopting an indexing approach in the event that we moved to a trailing averages approach for the risk-free rate and/or debt premium;
 - 3.54.2 any evidence which supports the introduction of an indexing approach in the event that we maintained our current approach estimating the risk-free rate and/or debt premium on a prevailing basis (including any differences between default, customised and individual price-quality paths); and
 - 3.54.3 any evidence that endorses specific methods of implementation. In particular we are interested in how annual updating might be implemented under a default or customised price-quality path.

Compensating for efficiently incurred longer-term debt

- 3.55 A third issue related to the cost of debt is compensation for the additional cost of prudently incurred debt that has a tenor longer than the regulatory period of five years.⁹¹

⁹⁰ The problem definition paper, para 125.

⁹¹ Suppliers may issue debt with a term exceeding the length of the regulatory period in order to manage their refinancing risk.

Potential issue with current IM

- 3.56 The cost of capital IMs allows companies a term credit spread differential (TCSD) allowance to compensate for the additional debt premium and the interest rate swap execution costs that can be incurred from issuing debt with a longer term than the five-year regulatory period.⁹²
- 3.57 Although the TCSD is conceptually a component of the cost of capital, it is treated as an adjustment to cash-flows and is only available to suppliers who have issued long-term debt to prudently manage their refinancing risks.
- 3.58 A number of issues been raised on the current IM concerning the compensation for the debt premium associated with longer-term debt. These include:
- 3.58.1 comments made by the High Court in its judgment on the setting of the original IMs expecting the Commission “to review the efficacy of the TCSD” so that it may be able to be better articulated and connected with market practice;⁹³
 - 3.58.2 the fact that any change to the calculation of the cost of debt (eg, a move to a trailing average approach) would affect the calculation of the debt premium, which in turn would require a review of the TCSD; and
 - 3.58.3 implementation issues with the current application of the TCSD. In particular, the IMs require the TCSD to be calculated by reference to a Bloomberg NZ ‘A’ fair value curve, which is no longer published.⁹⁴ An amendment was therefore made to Transpower’s IM which enables it to use an equivalent reference to calculate the TCSD.⁹⁵

Potential solution

- 3.59 Submissions to the problem definition paper on this issue from Powerco and ENA have suggested a solution to the problem is that a longer debt term should be adopted for the total cost of debt which would negate the need for the TCSD.⁹⁶

⁹² Initial IMs reasons paper, sections H6.

⁹³ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1288 (b).

⁹⁴ Initial IMs reasons paper, para H6.10.

⁹⁵ The Transpower cost of capital IM now requires the use of the NZ dollar Interest Rate Swap Curve as reported by Bloomberg plus the mean of the credit spreads of New Zealand corporate ‘A-band’ bonds as reported by Bloomberg, for a bond with a tenor equal to, or closest to, the original tenor of the qualifying debt. See: Transpower Input Methodologies Amendment Determination 2015 (No 2) [2015] NZCC [27].

⁹⁶ Powerco “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015), para 56.1 and ENA “Response to the Commerce Commissions input methodologies review paper” (21 August 2015), para 164.

- 3.60 However, using a ten-year debt term would be inconsistent with the views of the High Court on this issue, who considered that to avoid under and over compensation the risk-free rate should be matched to the regulatory period.⁹⁷
- 3.61 Given the matching of the risk-free rate to the regulatory period, we introduced the TCSD in order to compensate for additional credit spread (that cannot be hedged) on longer-term debt,⁹⁸ and interest rate swap execution costs. However, given the implementation issues associated with the TCSD, we would consider modifications or alternative approaches to provide compensation for these costs.⁹⁹
- 3.62 Determining the approach for the TCSD (or any alternative) would need to be undertaken following a more general decision on the approach to calculating the cost of debt, to ensure consistency and that there was no under or over compensation.

Key questions to consider

- 3.63 In relation to this issue we are interested in receiving:
- 3.63.1 evidence which demonstrates that suppliers should or should not be compensated for the additional debt premium (due to the additional credit spread) and swap execution costs from issuing longer-term debt;
 - 3.63.2 evidence that demonstrates how modifications to the existing TCSD methodology could improve compensation for those costs; and
 - 3.63.3 any alternative approach that would compensate suppliers for those costs.

Incentives to apply for a customised price-quality path

- 3.64 The fourth area of focus concerns the impact of the WACC on the incentives to apply for a customised price-quality path.

Issue with current IM

- 3.65 The IMs require the annual calculation of a new WACC to be used for any customised price-quality paths applied during an individual year. Any divergence between the

⁹⁷ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1287.

⁹⁸ To the extent that such debt is issued by individual suppliers.

⁹⁹ We note that the further draft determination for the UBA/UCLL FPP used a seven-year term for the debt premium. That decision only needed to estimate the debt premium for a single hypothetical efficient operator and so there was no need to use a TCSD. Although the decision did not include a TCSD, we consider that the approach was consistent with many of its principles and its effect. See: Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews: Further draft decision” (2 July 2015), paras 79-99.

revised WACC that will apply to customised price-quality paths and a supplier's existing WACC under a default price-quality path may create perverse incentives for a supplier to either apply or not apply, for a customised price-quality path, which may not be to the long-term benefit of consumers.¹⁰⁰

- 3.66 This issue was originally intended to be fast-tracked under the IM review because it was considered a critical factor for any customised price-quality path applications in 2016. However, following our understanding that no potential applicants were intending to apply for a customised price-quality in 2016, the urgency of considering the issue prior to 2016 was diminished and it was subsequently folded into the main review.¹⁰¹

Potential Solution

- 3.67 There are potentially two timeframes to consider when evaluating this problem. That is because the WACC has been fixed for the period of existing default price-quality paths. Therefore any solution that requires a change to the calculation of the WACC as applied to default price-quality paths may not deal with the identified perverse incentive for customised price-quality paths which start before 2020 for electricity businesses.
- 3.68 We can therefore characterise the issue as:
- 3.68.1 developing a long-term solution that removes the incentive issue that has been identified; and
 - 3.68.2 evaluating whether the long-term solution deals with the incentive issue for customised price-quality path applications prior to 2020 (ie, in the short-term).
- 3.69 The problem definition paper identified three potential options that could deal with this issue: indexing the cost of debt; a move to a long-term averaging approach to setting the cost of debt; or to carry over the WACC applied for default price-quality paths to any customised price-quality path that takes place in the same period.
- 3.70 Submissions on the problem definition paper noted that some solutions will eliminate the difference between the WACC applied to default and customised price-quality paths while others will merely narrow the difference.¹⁰² However, we

¹⁰⁰ This issue is described more fully in Topic 3 of the problem definition paper.

¹⁰¹ For further information on these decisions, see: Commerce Commission: "IM review second process update paper CPP fast track amendments" (9 October 2015).

¹⁰² For example see: ENA "Response to the Commerce Commissions input methodologies review paper" (21 August 2015), para 113.

consider that a solution that ‘narrows the gap’ may be sufficient to broadly eliminate the perverse incentives that have been identified.

- 3.71 Given the expectation of a separate consultation on this issue as part of the fast-track, we understand that stakeholders may have refrained from commenting on this issue in their submissions to the problem definition paper. We therefore invite any further evidence on these particular issues in response to this paper.
- 3.72 In addition, we have commissioned a short report from Dr Lally of Capital Financial Consultants that considers the incentive issues at play and the potential solutions.¹⁰³ These solutions include a potential approach raised by the Major Electricity Users Group (MEUG) that would maintain the WACC applied to default price-quality paths for existing assets, but apply a revised WACC to new or additional assets included in the customised price-quality path.¹⁰⁴
- 3.73 We are publishing Dr Lally’s paper along with this update paper in order to help stakeholders consider his advice on the alternative options that could provide a solution to this issue.

Key questions to consider

- 3.74 In relation to this issue we are interested in:
- 3.74.1 any disagreement with our view that two timeframes need to be considered when evaluating this problem. We would need to test any solution to ensure it is satisfactory for customised price-quality paths which are applied for prior to 2020 and, if not, also apply an alternative transitional solution;
 - 3.74.2 any views on the conclusions from Dr Lally’s report on this issue; and
 - 3.74.3 evidence on the suitability and practicality of undertaking a split WACC approach to solve this issue as suggested by MEUG and refined by Dr Lally.

Black’s Simple Discount Rule (BSDR)

- 3.75 The fifth area of focus relates to the suitability of the proposal by MEUG, to use the Black’s Simple Discount Rule as a cross-check on the suitability of the cost of capital

¹⁰³ Capital Financial Consultants Ltd “Complications arising from the option to seek a CPP” (18 September 2015).

¹⁰⁴ MEUG “Comments on CPP fast-track” (10 July 2015), para 7.

estimate obtained from the Simplified Brennan-Lally Capital Asset Pricing Model (SBL-CAPM).¹⁰⁵

Issue with current IM

3.76 As noted in the Initial IMs reasons paper, the CAPM is the most commonly used and most widely accepted methodology in investment analysis.¹⁰⁶ However one of the issues that the High Court, in its judgment on the merits review, considered could form part of the IM review, was the suitability of using the SBL-CAPM to estimate the cost of capital, and whether alternative approaches could be considered.

Potential Solution

3.77 Although it would not be a direct replacement for the CAPM, MEUG asked Ireland, Wallace & Associates (IWA) to demonstrate how BSDR could be used as a potential cross-check of price control regulation.

3.78 IWA, acting for MEUG, suggested that using BSDR provides another lens on the return required for risk in the context of New Zealand's price control regulation by using an approach that provides a project valuation in a simpler way than by the traditional discounted cash flow approach using the CAPM.¹⁰⁷

3.79 The submission explains how an adjustment for risk may be based on either discount rates or cash-flows. BSDR uses a certainty equivalent approach and focuses on cash-flows, while CAPM looks to make the investor equivalent by changing the discount rate.

3.80 In its cross-submission Contact Energy was supportive of the suggestion made by MEUG for the Commission to consider the implications of this approach.¹⁰⁸

While in theory both Black's and the Capital Asset Pricing Model (CAPM) should provide the same valuation, the use of an alternative to CAPM would provide an additional complementary, cross-check and is worthy of consideration.

3.81 Other submissions on BSDR from Powerco, Transpower and the ENA were critical of the approach.¹⁰⁹ They suggested that it is designed for valuation purposes, they

¹⁰⁵ MEUG "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), paras 17-20.

¹⁰⁶ Initial IMs reasons paper, para 6.4.4

¹⁰⁷ Ireland, Wallace & Associates "Input Methodology Review, Black's Simple Discount Rule, a cross check on the IM Cost of Capital for Major Electricity Users Group" (19 August 2015).

¹⁰⁸ Contact Energy "Cross submissions on the Commissions invitation to contribute to problem definition" (4 November 2015), p. 2.

¹⁰⁹ Powerco "Cross submission on submissions made on the Commissions invitation to contribute to problem definition for the input methodologies review" (4 September 2015), p. 2, Transpower "Input

envisaged significant difficulty in implementing it, and noted the lack of regulatory precedent or significant academic review of the approach. For example: HoustonKemp on behalf of Powerco concluded that:¹¹⁰

despite the name, applying Black’s Simple Discount Rule (in any meaningful way) to regulated entities would be far from simple and, in our opinion, it is highly unlikely such analysis would be useful to the Commission; and

IWA has misapplied the rule by comparing undiscounted cash flow streams – by contrast, a comparisons of discounted cash flow streams indicates a much closer relationship than suggested by IWA (bearing in mind that we have not carefully reviewed the assumptions underpinning IWA’s ‘certainty equivalent’ transformation).

3.82 We note the criticisms made by suppliers on the lack of the regulatory precedent and agree that there could be significant implementation issues. Identified implementation issues appear to be:

3.82.1 finding a benchmark security with the appropriate characteristics; and

3.82.2 estimating a distribution of expected cash-flows under a price-quality path.

3.83 However, despite these potential difficulties, we are interested in further exploring the potential for the model to act as a cross-check on the revenue allowances determined using the current SBL-CAPM approach to estimate the WACC. We note the SBL-CAPM itself has been subject to various criticisms by the High Court and others.¹¹¹

3.84 At this stage we are looking for further evidence in this area to help us consider the suitability of Black’s Simple Discount Rule and its potential value as a cross-check to the SBL-CAPM. Following further internal evaluation, external advice may also be sought.

Key questions to consider

3.85 In relation to this issue we are interested in:

3.85.1 any evidence that demonstrates the effectiveness or ineffectiveness of using the BSDR approach as a cross-check to SBL-CAPM; and

methodologies review: Cross submission on problem definition and decision making frameworks” (4 September 2015), Section 4.4, and ENA “Cross submissions on the Commissions input methodologies review paper” (4 September 2015), para 21.

¹¹⁰ HoustonKemp “Comment on the Commerce Commissions input methodology review: A report for Powerco” (20 August 2015).

¹¹¹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1646.

- 3.85.2 any proposed methods by which we would be able to determine a suitable benchmark security and determine an accurate expectation of regulatory cash-flows under the BSDR approach.

4. Approach to issues raised by the High Court

- 4.1 The problem definition paper provided a chapter (Topic 5) on issues raised by the High Court in its judgment on appeals against the original input methodologies.¹¹²
- 4.2 Issues raised by the Court included:¹¹³
- 4.2.1 the appropriateness of using the 75th percentile of the WACC in price-quality regulation;¹¹⁴
 - 4.2.2 the suitability of using the SBL-CAPM to estimate the cost of capital given the ‘leverage anomaly’, and whether alternative approaches could be considered;
 - 4.2.3 whether a TCSD is required; and
 - 4.2.4 to consider MEUG’s suggestion of a split cost of capital approach whereby a higher WACC is applied to new investment.
- 4.3 Submissions from suppliers in response to the problem definition paper did not put a strong focus on these issues, and some specifically noted that we should not spend too much time considering some of the points raised.¹¹⁵
- 4.4 Although MEUG’s submission did consider the issues raised were problem areas,¹¹⁶ MEUG only submitted further on how we might look to address the listed issues in regard to using Black’s Simple Discount Rule as a potential cross-check to the SBL-CAPM, which is an area of focus for the IM review.
- 4.5 Under the IM review we also intend to evaluate the efficacy of the TCSD and its appropriateness in compensating suppliers for issuing longer-term debt.¹¹⁷

¹¹² Commerce Commission “Input methodologies review: Invitation to contribute to problem definition” (16 June 2015).

¹¹³ Problem definition paper, para 255.

¹¹⁴ This was subsequently changed to the 67th percentile. See: Commerce Commission “Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper” (30 October 2014).

¹¹⁵ For example, see: PWC “ Submission to the Commerce Commission on Input methodologies review: Invitation to contribute to problem definition – Made on behalf of 20 Electricity Distribution Businesses” (21 August 2015), paras 110-111, Powerco “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015), paras 52-53, and Orion “Submission on the IM review” (21 August 2015), para 56.

¹¹⁶ MEUG “Submission on Input Methodologies review – Invitation to contribute to problem definition” (21 August 2015), para 17.

¹¹⁷ See paras 3.55 to 3.63.

- 4.6 We undertook substantive analysis on the appropriate WACC percentile for price-quality regulation last year and therefore consider that this should not be re-considered again in detail under the IM review.
- 4.7 We have also evaluated the potential for applying a split cost of capital approach, but given the limited evidence available on how it could be implemented, and the conclusions of other regulators on its potential benefits, we do intend to do further substantive work in this area as part of the IM review.
- 4.8 The following section outlines our position in considering each of these issues in turn and our decision over whether to consider them further in the IM review.

The appropriate percentile for price-quality regulation

- 4.9 As explained in the problem definition paper, we have previously considered the Court's comments about the rationale for using the 75th percentile for gas and electricity businesses in 2014. The resulting 'WACC percentile amendment' reduced the percentile used for price-quality regulation in these two sectors from the 75th to 67th percentile.¹¹⁸
- 4.10 A significant amount of evidence and debate was undertaken in considering the WACC percentile for electricity and gas businesses leading to the 2014 WACC percentile amendment. Since the amendment we have not received any new evidence on this area and we do not intend to commission or do any further substantive analysis as part of this IM review on the percentile applicable to regulated energy services.¹¹⁹

Alternative approaches to SBL-CAPM

- 4.11 The Court voiced concern with the existence of the 'leverage anomaly' and by extension the suitability of the SBL-CAPM that we use to estimate the cost of equity of a regulated business.
- 4.12 Some submissions on this topic thought that there could be merit in evaluating the alternative approaches. For example, the ENA suggested that:¹²⁰

we consider that there may be value in reviewing the use of the SBL-CAPM to test whether a better approach is available.

¹¹⁸ A summary of the WACC percentile amendment process is provided in the problem definition paper. See problem definition paper, paras 256-258.

¹¹⁹ The exception is the appropriate WACC percentile for airports under information disclosure regulation, which is being addressed separately as part of the wider IM review.

¹²⁰ ENA "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 25.

- 4.13 However, others thought it was not worthwhile spending time reviewing the model given the dominance of the SBL-CAPM. HoustonKemp, for Powerco, recommend that:¹²¹

We note that the Commission has considered this issue at some length as part of the original IM development process. Importantly, the Commission’s analysis indicates that this matter is sufficiently addressed by using the average leverage rate of the comparative firm sample. We therefore agree with the Commission’s view that the leverage anomaly has been reasonably dealt with and is not of sufficient concern to warrant the replacement of the SBL-CAPM model.

We therefore do not recommend that consideration of the CAPM framework be the focus of the current IM review.

- 4.14 We only received one submission which suggested a fundamental movement away from the SBL-CAPM as the sole underlying model used to estimate the WACC.¹²² This was from Frontier, in its report for Transpower, which suggested that we should also place weight on the Black CAPM and Fama/French model in addition to the SBL-CAPM.¹²³
- 4.15 Despite this recommendation from Frontier, Transpower also submitted a preference that the Commission ‘refrain from destabilising change to the WACC methodology at this time’ but that if we were to consider making broader changes to the WACC methodology we should consider the issue raised in the Frontier report.¹²⁴
- 4.16 Although we acknowledge the report from Frontier which provides additional information on the potential use of the Fama/French model and Black CAPM, we also take note of submissions on the problem definition paper that encourage as much stability as possible in the calculation of the WACC under the IMs.¹²⁵

¹²¹ HoustonKemp “Comment on the Commerce Commissions input methodology review: A report for Powerco” (20 August 2015), p. 2.

¹²² MEUG has suggested that we use the Black’s Simple Discounting Rule as method to use to cross-check the WACC estimate that is an output of CAPM. However, they do not appear to be suggesting a move away from the SBL-CAPM as the underlying model.

¹²³ Frontier Economics “Recommendation on Priorities for Review of Cost of Capital Input Methodologies: A Report prepared for Transpower New Zealand” (August 2015), p. 28.

¹²⁴ Transpower “Input methodologies review: Problem definition and decision making frameworks (August 2015) p. 24.

¹²⁵ Transpower “Input methodologies review: Problem definition and decision making frameworks (August 2015) p. 24 and Powerco “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015), para 52.

- 4.17 We also note that we have previously rejected using the Fama/French model suggested by Frontier (along with other alternative models) when setting the original IMs. In particular our position was that:¹²⁶

The CAPM is the most widely understood and most widely used method for estimating the cost of equity in New Zealand, and by regulators in Australia, the UK, and Europe. Whilst alternative models exist, they are rarely used in practice (including in a regulatory context) and have their own shortcomings, including an extensive ongoing debate about their theoretical basis, and the difficulties in sourcing reliable data required by the other models. Due to its strong theoretical foundations, its simplicity and its greater acceptance, the CAPM is preferred by the Commission.

- 4.18 Frontier’s report has provided some additional evidence on the theoretical and empirical justification for the Fama/French model, but the report did not address the other concerns identified when setting the previous IMs, and referenced above, that it is rarely used in practice (including in a regulatory context) and difficulties in sourcing reliable data required by the model.
- 4.19 The Black CAPM was primarily rejected when setting the original IMs due the lack of support seen for its use in New Zealand and the fact that we were provided with no clear evidence of its superiority compared to the SBL-CAPM. In particular, we noted at the time that:¹²⁷

The Commission is not aware of any advisor or company in New Zealand that uses the Black CAPM – which is similar to the conclusion the AER drew recently. Nor is there any evidence that Vector, on whose behalf Professor Grundy submitted, actually uses the Black CAPM itself. If the Black CAPM is a better predictor of the cost of equity (for New Zealand firms), it could be expected to be much more widely used than it is.

- 4.20 Although there has been an increasing amount of interest in using the Black CAPM in regulatory context,¹²⁸ there remains limited evidence on its usage by market participants and regulators. Frontier’s report provides no evidence that organisations of this type are using the Black CAPM in any meaningful way to estimate a WACC.
- 4.21 We note the AER evaluated the potential for using the Black CAPM when setting its cost of capital guidelines. It was rejected for use as a fundamental model to estimate WACC because of the difficulties in obtaining a robust estimate of the return to the

¹²⁶ Initial IMs reasons paper, para H2.43.

¹²⁷ Initial IMs reasons paper, para 6.4.31.

¹²⁸ See for example: SFG Consulting “Cost of equity in the Black Capital Asset Pricing Model: Report for Jemena Gas Networks, ActewAGL, Networks NSW, Transend, Ergon and SA Power Networks” (22 May 2014), and NERA Economic consulting “The Black CAPM: A report for APA Group, Envestra, Multinet & SP AusNet (March 2012).

zero beta portfolio required by the Black CAPM and because there was no conclusive evidence that it provided any benefits against the classic Sharpe-Linter CAPM.¹²⁹

- 4.22 The AER also outlined, consistent with our previous findings, that it was unaware of other regulators (either domestically or internationally), academics or market practitioners that used the Black CAPM to estimate the return on equity.¹³⁰
- 4.23 However, AER considered that the Black CAPM did have some potential to be used in a limited way to help inform the estimate of the equity beta and in recent determinations it has been used as a *secondary* consideration to assess the equity return from Australian energy network firms.¹³¹
- 4.24 Given this context we think that there is limited value in undertaking substantive analysis in the IM review of alternatives to using the SBL-CAPM as the main underlying model used to estimate WACC.
- 4.25 Although it was not proposed as an explicit alternative to the SBL-CAPM, MEUG has separately proposed that we should consider using Black’s Simple Discount Rule as a potential cross-check on results from the SBL-CAPM.¹³² We also received cross-submissions criticising this approach.¹³³
- 4.26 As described earlier in this paper,¹³⁴ we do consider that there may be some merit in further investigating the potential use of this particular method as a cross-check. We therefore have designated it as an area of focus for the next stage of the review in order to consider its potential application in more detail.

Appropriateness of the TCSD

- 4.27 As noted earlier, we will consider the effectiveness of the TCSD when considering the appropriate compensation for longer-term debt, bearing in mind the situation in New Zealand in which most suppliers do not in fact issue such debt.

¹²⁹ Note that the SBL-CAPM is a variation of the Sharpe-Linter CAPM developed to incorporate the NZ tax system.

¹³⁰ AER “Better regulation: Rate of return guideline” (December 2013), appendices, A.3.1. Available at: <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-guideline/final-decision>

¹³¹ AER “Better regulation: Rate of return guideline” (December 2013), appendices, A.3 and, for example: AER “FINAL DECISION – SA Power Networks determination 2015–16 to 2019–20: Attachment 3 – Rate of return” (October 2015) pp. 3-35.

¹³² MEUG “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015) para 17.

¹³³ See for example: HoustonKemp “Comment on Select Submissions to the Commission’s Input Methodologies Review: A report for Powerco” (3 September 2015), Section 2.

¹³⁴ See paras 3.75 to 3.85.

Split cost of capital

- 4.28 The High Court outlined that it expected us to consider a split cost of capital approach, given its scepticism about the original IMs using a WACC substantially higher than the mid-point (ie, the 75th percentile).¹³⁵
- 4.29 The comments from the Court were in relation to a proposal outlined by MEUG which suggested that different estimates of the WACC should be applied to the existing regulated asset base and capital reflecting newly installed assets.¹³⁶
- 4.30 MEUG has also suggested that the WACC estimate used for already committed or approved capital should be equivalent to the 50th percentile and the WACC estimate used for new capital should be the 75th percentile.¹³⁷ However, MEUG provided limited information on how it expected this to operate in practice, in particular the length of time for which new capital would receive the higher WACC.
- 4.31 Consequently, when making our decision to amend the WACC percentile that applies to the single estimate currently specified in the IMs, we outlined that we would consider a split cost of capital approach as part of the IM review.¹³⁸
- 4.32 Our consideration of this issue under the IM review is outlined in the following paragraphs, noting that following the problem definition paper we received:
- 4.32.1 no submissions outlining support for a split cost of capital approach;
 - 4.32.2 a number of submissions that urged the Commission not to undertake further analysis in this area, unless its benefits could be proven and a clear means of implementation was available;¹³⁹ and
 - 4.32.3 we received no cross-submissions that challenged the arguments made by those submissions.

¹³⁵ The split cost of capital approach was described in the High Court judgment as the ‘two-tier proposal’. See: *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1486.

¹³⁶ MEUG “Cross-submission on Input Methodology for cost of capital for Transpower, Electricity Distribution Businesses and Gas Distribution Businesses” (2 September 2010), paras 4.1-4.4.

¹³⁷ MEUG “Submission on Pan Industry Input Methodologies for cost of capital – Appendix” (13 August 2010), p. 6.

¹³⁸ Commerce Commission “Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper” (30 October 2014), paras 4.46-4.47.

¹³⁹ See for example, Transpower “Input methodologies review: Problem definition and decision making frameworks (August 2015) pp. 25-27, and ENA “Response to the Commerce Commission’s input methodologies review paper” (21 August 2015), para 6.2.4.

Assessment by other regulators

- 4.33 Applying a split cost of capital approach in a similar manner to that proposed by MEUG is a not a new idea for regulators.
- 4.34 A number of UK regulators have considered this issue over the last ten years in response to proposals by Professor Dieter Helm in a number of academic papers.¹⁴⁰ A more recent study has been undertaken by the Queensland Competition Authority (QCA) in 2014.
- 4.35 We acknowledge that the proposal by MEUG has some differences compared to Helm’s original proposal. In particular, Helm’s proposal suggests that existing assets should only be compensated at the cost of debt, whereas MEUG has suggested that the 50th percentile of the WACC is more appropriate. Also, Helm indicated that lower WACC should be applied to assets as soon as they enter the Regulated Asset Base (RAB), while MEUG’s proposal appears to indicate that they would expect an asset to receive the higher WACC for a longer period of time.
- 4.36 Despite these differences, the fundamental element of both proposals is the same, ie, that two separate WACCs are applied to a regulated firm’s assets. Most of the issues assessed by other regulators, and considered by us here, relate to the splitting of the cost of capital per se, without reference to the level of compensation. Estimates of the appropriate compensation for different categories of capital would need to be determined as a separate exercise following a conclusion that splitting the cost of capital itself was appropriate.
- 4.37 The general conclusions from the reviews of UK regulators appear to be:
- 4.37.1 a broad acceptance that the existence of an implicit or explicit guarantee of the return on sunk investments (through a regulated asset base) means that capital associated with these sunk assets is likely to be subject to a lower risk than any capital expenditure on new assets.¹⁴¹ However, the extent of the difference in risk profiles is unclear;¹⁴² and
- 4.37.2 that applying a split cost of capital *could* be a way of better identifying and allocating risk to different parts of a regulated business based on the risk that they face. This could reduce any distortions in investment incentives that arise from any differences between the single WACC estimate by the

¹⁴⁰ For example, Dieter Helm, “Ownership, utility regulation and financial structures: an emerging model” (14 January 2006). Available at: www.dieterhelm.co.uk/node/632

¹⁴¹ New assets are deemed to have additional construction and management risk and uncertainty on whether full costs enter the RAB.

¹⁴² For example, see: Commission for Communications Regulation “Eircom’s Cost of Capital” (22 May 2008), para 3.77. Available at: http://www.comreg.ie/_fileupload/publications/ComReg0835.pdf

regulator and the actual cost of capital faced by different parts of the business.¹⁴³

- 4.38 However, as far as we are aware, no regulator has considered that the potential benefits from implementing an approach of this type outweigh the disadvantages, of which the most commonly cited are:
- 4.38.1 the ‘regulatory shock’ that could potentially result from applying a split cost of capital that diverges from historic and standard practice;¹⁴⁴ and
 - 4.38.2 the additional complexity that would arise from implementing a split cost of capital (including disentangling the different elements of a regulated business in order to appropriately estimate separate WACCs and determining when in the lifecycle of an asset it is considered ‘sunk’ and starts receiving the lower WACC).¹⁴⁵
- 4.39 The debate on this topic in the UK is perhaps best summarised by PricewaterhouseCoopers (PwC) in a report produced for the Civil Aviation Authority (CAA).¹⁴⁶ PwC provides detail on the most comprehensive academic views both for and against the application of Helm’s split cost of capital approach, as well as summarising the decisions of the UK regulators who have considered this topic in most detail.
- 4.40 PwC summarises that a number of UK regulators have considered a split cost of capital approach but generally view a single WACC approach as being “conceptually superior and more practical”.¹⁴⁷ PwC subsequently recommended that the CAA should not apply a split cost of capital approach for its Q6 control period.

¹⁴³ For example, see: QCA “Information Paper: The Split Cost of Capital Concept” (February 2014), section 8.1. Available at <http://www.qca.org.au/Other-Sectors/Research/Form-of-Regulation/Split-Cost-of-Capital-02/Final-Report/Split-Cost-of-Capital>

¹⁴⁴ For example, see Ofwat, ‘Risk allocation, investment incentives and the financing of regulated businesses’, 18 October 2007. Available at: http://webarchive.nationalarchives.gov.uk/20150624091829/http://ofwat.gov.uk/pricereview/pr09phase1/pr09phase1letters/ltr_pr0903_riskallocinvest

¹⁴⁵ For example, Competition Commission “Competition Commission Report: Stanstead Airport Ltd Q5 Price Control Review – presented to the CAA, Appendix L” (23 October 2008), paras 7-12. Available at: <http://www.caa.co.uk/docs/5/ergdocs/ccstanstedl.pdf>

¹⁴⁶ PwC “Cost of capital For UK Designated Airports Paper on the split cost of capital and skewed returns – prepared to the Civil Aviation Authority” (April 2013). Available at: www.caa.co.uk/docs/78/Q6PwCCofCapitalSplitSkewed.pdf

¹⁴⁷ PwC “Cost of capital For UK Designated Airports Paper on the split cost of capital and skewed returns – prepared to the Civil Aviation Authority” (April 2013), para 3.7.

- 4.41 UK and Irish regulators who have also considered some version of a split cost of capital approach and rejected its adoption include:
- 4.41.1 the Competition Commission in 2008 who, when considering its applicability to Stansted airport, were not persuaded that it would be possible to disentangle different parts of an airport's business;¹⁴⁸
 - 4.41.2 Ofwat in 2008 who considered it would increase perceptions of regulatory risk and there would be difficulties in segregating the risks associated with growth and maintenance for the portfolio of assets;¹⁴⁹
 - 4.41.3 Comreg in 2008, who believed that differentiated cost of capital estimates should be only applied when there is confidence in obtaining robust and accurate estimates. Comreg did not find robust evidence to suggest that there are significant risk differentials between different parts of Eircom's business;¹⁵⁰
 - 4.41.4 Ofgem in 2010 who considered that the regulatory concerns that the split cost of capital is intended to solve can be addressed through other measures that would not result in the disadvantages of creating boundaries between the regulated asset base and new capex. These other measures would include setting strong incentives for delivery of outputs and taking into account the low-risk nature of the RAB when setting the notional gearing and cost of debt, used to determine the WACC;¹⁵¹
 - 4.41.5 UREGNI in 2011 who judged that the potential benefits do not justify the potential risks and that there should be a high hurdle for a change from standard financing practice developed over 20 years of regulatory experience.¹⁵²
- 4.42 In 2014, the QCA in Australia published a research paper assessing the split cost of capital approach. On the whole the paper appears more positive about applying a split cost of capital than other regulators who had previously considered the issue. In

¹⁴⁸ Competition Commission "Stansted price control review; Final report, Appendix L" (October 2008) (October 2008), paras 7-12.

¹⁴⁹ For example, see Ofwat, 'Risk allocation, investment incentives and the financing of regulated businesses', 18 October 2007.

¹⁵⁰ Comreg "Eircom's Cost of Capital" (22 May 2008), paras 3.77-3.79.

¹⁵¹ Ofgem "Regulating energy networks for the future: RPI-X@20 Recommendations: Implementing Sustainable Network Regulation" (26 July 2010), para 12.7. Available at: <https://www.ofgem.gov.uk/ofgem-publications/51902/implementation.pdf>

¹⁵² UREGNI, "Assessment of Potential Financing Options for Utility Networks – A Discussion Paper The Utility Regulator's Response" (September 2011), paras 24-30. Available at: http://www.uregni.gov.uk/uploads/publications/FN_paper_-_UR_response.pdf

particular, the QCA suggested a number of reasons why some previously identified issues were not insurmountable. For example, the QCA considered that:

- 4.42.1 the realisation of regulatory risk (or regulatory shock) on existing assets had to be weighed up against the benefits of the split cost of capital. The impact would be limited because any change would simply be removing the ‘economic rent’ that exists at present in the allowed return on the RAB. The QCA considered that rational investors could not reasonably expect this to persist indefinitely;¹⁵³
 - 4.42.2 full debt financing of the RAB as suggested by Helm’s model may not be possible in Australia, given the expectation that an explicit government guarantee of the RAB was unlikely to be adopted. However this does not necessarily preclude the implementation of a split cost of capital concept where gearing is more consistent with market benchmarks for regulated businesses with low risk;¹⁵⁴
 - 4.42.3 there are a number of techniques for implementing separate risk profiles for different parts of a firm that could be applied to a regulated business to identify the return required for different parts of the business.¹⁵⁵
- 4.43 However as noted in its recommendation, despite some favourable conclusions on the potential benefits of the cost of capital, the QCA considered implementation issues, including setting specific parameter values, remained a significant issue. The QCA considered further work was required before these issues could be overcome.¹⁵⁶
- 4.44 This was subsequently followed up by a final decision on the long-term regulatory approach for water retailers that again concluded that more evidence was needed to support the application of the approach.¹⁵⁷

Therefore, although SCC was found to be a useful tool for helping to understand the amount, allocation and pricing of risk, QCA concluded that it would not incorporate the approach in its cost of capital methodology at this stage because further evidence is needed to support application of the approach.

¹⁵³ QCA “Information Paper: The Split Cost of Capital Concept” (February 2014), section 6.1.1.

¹⁵⁴ Ibid, sections 6.1.2 and 6.2.3.

¹⁵⁵ Ibid, section 6.2.1.

¹⁵⁶ Ibid, section 8.1

¹⁵⁷ QCA, “SEQ Retail Water Long-Term Regulatory Framework - weighted average cost of capital (WACC): Final report, Appendix B” (September 2014), p. 9. Available at: <http://www.qca.org.au/getattachment/1a1c997e-4105-4886-bf92-e42b818ef950/Appendix-B.aspx>

Our position

- 4.45 As noted in the WACC amendment paper, we are considering the split cost of capital as part of the IM review. In doing so, we have taken note of the number of other regulators who have considered and evaluated its potential application. After evaluating the evidence in this area, we make the following assessments.
- 4.46 It appears that an appropriately implemented split cost of capital could *potentially* be a useful method to understand the differences in risk between sunk assets in the RAB and new investments and consequently determine a separate (and thus more accurate) return.
- 4.47 The main benefits would accrue from:
- 4.47.1 an overall return more consistent with the risks faced by the business – to the extent that the current single WACC misprices overall risks and it can be improved by moving to the a split cost of capital approach;
 - 4.47.2 improved efficiency incentives for new investment – to the extent that a revised WACC for new investment is more consistent with the actual cost of capital for new investment.
- 4.48 However a number of issues need to be overcome before a split cost of capital could be implemented. As noted by other regulators, the main disadvantages appear to be:
- 4.48.1 significant complexity in application, particularly in determining the WACC for different types of capital. Although the QCA suggested that this problem is not insurmountable it did not outline how robust estimates of the appropriate split WACCs could be achieved in practice. A split cost of capital approach will only be able to more accurately price risks to the specific types of capital if we are able to robustly determine the relevant WACCs;
 - 4.48.2 potential for a regulatory shock from a change in approach to estimating the cost of capital. Although the QCA has identified this as a potential issue, at least in the short term,¹⁵⁸ it considered that the benefits outweigh any costs of this shock. This conclusion appears to be based on a conviction that its existing ‘single WACC’ methodology for determining the cost of capital results in significant ‘economic rent’ to suppliers which would be removed under a split cost of capital approach.¹⁵⁹

¹⁵⁸ QCA “Information Paper: The Split Cost of Capital Concept” (February 2014), section 6.1.1.

¹⁵⁹ Given the uncertainty and difficulty in estimating a firm’s cost of capital, we are not convinced that we can be certain this ‘economic rent’ (ie, surplus compensation to investors above what is required to invest in regulated supply businesses) exists under the current single WACC approach. Moreover, if we were certain that it did exist, we would be able to remove it by making adjustments to the single WACC estimate, without the need for a split cost of capital approach.

- 4.49 In assessing this trade-off we consider it is significant that the potential costs (ie, implementation difficulties and increased regulatory risk) are evident and real, but the potential benefits are less clear cut and more ambiguous.
- 4.50 Given the potential for these disadvantages to be significant, we do not intend to undertake further substantive work on this topic. In taking that position we have considered the following issues are also particularly relevant.¹⁶⁰
- 4.50.1 The potential to improve the overall pricing of risk is likely to have been significantly reduced since the High Court judgment in 2013. Since then we have amended the WACC percentile following substantial analysis of the costs and benefits to consumers of using particular WACC percentiles.
- 4.50.2 It will be difficult to predict whether investment incentives will be improved. The incentive to invest depends on an investor's expectation of a return over the lifetime of an asset. This will in turn depend on implementation of any split cost of capital approach and the confidence with which investors expect the arrangements to endure.¹⁶¹
- 4.50.3 A number of submissions from suppliers have strongly urged the Commission not to spend further time and resource assessing this issue, unless some of the implementation issues are addressed, and no cross-submissions were made to the contrary.¹⁶²
- 4.50.4 A number of international regulators have considered this issue and rejected its implementation. As far as we are aware, no recent evidence has been made available that would be likely to make other regulators re-consider their conclusions on this issue.

¹⁶⁰ Although we do not intend to undertake further substantive work on the split cost of capital approach, we may evaluate it again, potentially, for example, as a result of a significant structural change in a regulated industry or if it had been successfully implemented in other jurisdictions.

¹⁶¹ Alternative arguments have been put forward as consequences from a change of this type. For example: The QCA has indicated that the approach provides flexibility to adjust returns to specific projects while an alternative view has been put forward by suppliers when responding to the problem definition paper. Transpower, for example, suggested that the Commission's treatment of current sunk investment will have an impact on regulated suppliers' expectations about how new investments will be treated after they become sunk. See: Transpower, "Input methodologies Review: Problem definition and decision-making frameworks" (August 2015), p. 26.

¹⁶² Transpower "Input methodologies Review: Problem definition and decision-making frameworks" (August 2015), p. 27, and ENA "Response to the Commerce Commissions input methodologies review paper" (21 August 2015), para 166.

- 4.50.5 The High Court noted that it was not presented with a clear means of implementing a split cost of capital approach. We are not aware of any new material that would change that view.¹⁶³

Splitting the cost of capital in relation to customised price-quality path incentives

- 4.51 A separate proposal has been raised to temporarily apply separate WACCs in the context of a customised price-quality path. The approach is intended to mitigate the incentive problems that have been identified under the current approach, as discussed in paragraph 3.72.
- 4.52 In that context the split cost of capital is a short-term measure designed to deal with temporary incentive issues associated with the option of a customised price-quality path. This makes it a very different approach to the option considered by the High Court. The 'split' lasts for the length of the customised price-quality path and provides a clear potential solution to an identified incentive problem.

¹⁶³ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC [11 December 2013], para 1485.

5. How you can provide your views

Purpose of this chapter

- 5.1 This chapter sets out how you can provide your views on the parameters and the key areas of focus as outlined in the paper.

Timeframe for submissions

- 5.2 We welcome your views and any new evidence in respect of the parameters and the key areas of focus. Submissions are due by 5pm, 29 January 2016.
- 5.3 We do not intend to take into account any material that is submitted outside of the timeframes provided. Any party that is concerned about the time to engage with the material should contact us with a request for an extension outlining their specific concerns.

Address for submissions

- 5.4 Submissions should be addressed to:

Keston Ruxton (Manager, IM Review)
c/o regulation.branch@comcom.govt.nz

Format for submissions

- 5.5 We prefer submissions in both MS Word and PDF file formats.
- 5.6 Please include "Submission on Cost of Capital Update Paper: 30 November 2015" in the subject line of your email.

Requests for confidentiality

- 5.7 We encourage full disclosure of submissions so that all information can be tested in an open and transparent manner, but we offer the following guidance.
- 5.7.1 If it is necessary to include confidential material in a submission, both confidential and public versions of the submission should be provided.
- 5.7.2 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.
- 5.8 We request that you provide multiple versions of your submission if it contains confidential information or if you wish for the published electronic copies to be 'locked'. This is because we intend to publish all submissions and cross-submissions on our website. Where relevant, please provide both an 'unlocked' electronic copy of your submission, and a clearly labelled 'public version'.