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Risk free rate, debt premium and TAMRP

A report for Chorus

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Contents

Executive summary	i
1. Introduction	1
2. Cost of capital post-implementation	2
2.1 Role of certainty	2
2.2 Risk-free rate	3
2.3 Debt premium and term credit spread differential	5
2.4 Tax adjusted market risk premium	6
3. Cost of capital for loss calculation	8
3.1 Risk-free rate	8
3.2 Debt premium and term credit spread differential	11
3.3 An alternative approach for the cost of debt	14
3.4 TAMRP	15
4. Response to Chorus' questions	17

Executive summary

The subject of this report is the Commission’s emerging views on the risk free rate, debt premium, term credit default spread (TCSD) and tax adjusted market risk premium (TAMRP) inputs to the weighted average cost of capital (WACC) for fibre fixed-line access services (FFLAS).

The context for this report is the forthcoming regulation of FFLAS under Part 6 of the *Telecommunications Act 2001* (Part 6), which requires the Commission to develop input methodologies (IMs) that calculate a WACC to be applied:

- from the commencement of price-quality regulation on 1 January 2022 (the ‘implementation date’); and
- over the pre-implementation period from 1 December 2011 to the implementation date.

We agree with the Commission that it should consider the relevance to the FFLAs input methodologies of its current approaches to other sectors, particularly since those existing approaches have been the subject of extensive consultation.

The adoption of a consistent approach will provide regulatory certainty and, in turn, promote incentives to innovate and invest efficiently in replacement, upgraded and new assets, provided there are no compelling facts, legal requirements or new evidence that suggest otherwise.

Post-implementation period

The Commission’s emerging view is to estimate the risk free rate for both the return on debt and equity, along with the debt premium, in the post-implementation period using the same approach that it applies for other regulated services, including those under Part 4 of the *Commerce Act 1986* (Part 4). We summarise the key elements of this approach in Table 1.

Table 1 – Risk free rate and debt premium in post-implementation period

Risk free rate (for cost of debt and equity)	Debt premium
<ul style="list-style-type: none"> • Adopt New Zealand government bonds as a proxy for the risk free rate • Estimate a prevailing rate, measured over a 3-month determination window • Match the term of the risk free rate to the regulatory period. 	<ul style="list-style-type: none"> • Estimate a five year trailing average • Measure the debt premium for five-year debt with an appropriate credit rating • Implement a hierarchical bond selection framework • Apply a TCSD if a supplier’s debt has an average tenor greater than five years

We agree that it is appropriate to estimate the risk free rate and debt premium for FFLAS in the post-implementation period using the same approach that it applies for other regulated services.¹ This reflects our general view that the application of a consistent approach by the Commission promotes greater certainty for suppliers, their customers and end users, provided there are no strong reasons for a departure from that methodology.

¹ We note that the Commission’s hierarchical bond selection framework, which will be similar to that applied under Part 4, should place the most emphasis on bonds issued by providers of FFLAS, followed by other infrastructure service providers and New Zealand corporates.

The Commission's emerging view for the TAMRP is to estimate and specify a value in the cost of capital input methodology, rather than to adopt a TAMRP of 7 per cent, consistent with the value that it currently applies across all regulated industries in New Zealand.²

We agree with the Commission's emerging view, since updating its estimate of the TAMRP will provide incentives for efficient investment and promote allocative and dynamic efficiency. Since the Commission's methodology for estimating the TAMRP gives rise to relatively stable estimates through time, a different TAMRP across regulated sectors would be unlikely to result in a material distortion to investment decisions.

Pre-implementation period

The initial asset value for providers of FFLAS on the implementation date will be set equal to the financial losses they incurred over the pre-implementation period, which include unrecovered returns on investments made under the UFB initiative. This means that, in effect, the cost of capital in the pre-implementation period will be the discount rate applied to bring forward financial losses in the calculation of an initial asset value.

In our opinion, the Commission should have regard to the regulatory and contractual framework for Chorus' investment under the UFB initiative in the estimation of the cost of capital for the pre-implementation period. This is of particular relevance to the appropriate term of the risk free rate, the role of a trailing average debt premium and the potential to adopt a cost of debt based on actual debt costs.

Risk free rate

Although the Commission proposes to estimate the risk-free rate in the post-implementation period using a term equal to that of the regulatory period, it rejects this approach for the pre-implementation period on the basis that:³

...it is not clear that the period from 2011 to the implementation date could be considered a single regulatory period, given the limited knowledge of the future regulatory approach at the start of the period.

We disagree with the Commission and note that this observation does not offer a reasonable or persuasive basis on which to depart from the Commission's established approach, which it proposes to apply in the post-implementation period.

As at 2011, the commercial agreements between Crown Infrastructure Partners and providers of FFLAS contained price-caps for specified services, the allocation of risks between providers and users, and expectations for service levels. It follows that, although not termed a 'regulatory' period, the pre-implementation period had the economic characteristics of a regulatory period.

At the least, investors at the time of the UFB tender in 2011 had clarity that prices would be fixed for the forthcoming implementation period. It is therefore not clear why a rate determined for 2011 – which reflects the cash flows determined by the UFB agreements – would have a term less than that of the implementation period.⁴

In our opinion, the economic reasons underpinning the Commission's established approach to estimating the risk free rate – ie, with term equal to that of the regulatory period – are equally applicable to the pre-implementation period.

Nevertheless, in section 3.1.1 we comment on the alternative approaches put forward by the Commission and Dr Lally. Given the nature of these alternative approaches, it is likely to be preferable to promote

² Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, paras 457 and 461.

³ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 528.

⁴ We note the subsequent extension of the implementation date to 1 January 2022 prolonged the application of those same arrangements, rather than substantially amending them, and so does not detract from this logic.

regulatory certainty by applying in the pre-implementation period the same approach to estimating the risk free rate as proposed for the post-implementation period.

This conclusion lends support to estimating the risk free rate over a short window immediately prior to the UFB tender in May 2011 and with a term equal to the length of the implementation period ending on 31 December 2021.

Debt premium

The Commission does not express a firm view on how to implement a cost of debt framework in the pre-implementation period. However, it does explain that:⁵

...we also need to consider the appropriate term and approach for the debt premium. We intend to make this as consistent as possible with our approach post-implementation...

To the extent the Commission places an emphasis on consistency between its approaches and considers a benchmark approach to be a necessary feature of its methodology for the cost of debt, we are not aware of any strong basis on which to depart from an approach based on a five year term and an appropriate credit rating, along with a TCSD where required.

Notwithstanding, the nature of the regulatory and contractual framework for investment under the UFB initiative means that the adoption of a trailing average debt premium that extends back before 2011 makes little sense for estimating the debt premium to apply *after* the UFB tender.

This could be addressed by implementing a transition to a trailing average debt premium, ie, by adopting a prevailing debt premium in the first year of the pre-implementation period and then a one year, two year, three year and four year historical average in years two to five, respectively. A five year trailing average could be applied in the remaining years of the pre-implementation period. This approach would be most consistent with the Commission's approach in the post-implementation period. We discuss this potential approach in more detail in section 3.2.1.

An alternative cost of debt directed at avoiding windfall gains/losses

If the primary objective of the Commission is consistency between its approaches and it considers a benchmark cost of debt to be a necessary feature of its methodology, then the approach we discuss above would be most appropriate in the pre-implementation period.

On the other hand, if its primary objective is the avoidance of windfall gains and losses in the pre-implementation period, then this objective would best be achieved by determining the cost of debt based on Chorus's actual cost of debt.

This approach would avoid the need to estimate a benchmark cost of debt equal to the sum of the risk free rate and debt risk premium. The provision of ex-ante incentives for efficient investment – as would arise from a benchmark approach – is not a relevant consideration for the pre-implementation period since the costs associated with providing FFLAS have already been incurred.

Rather, estimating the cost of debt based on Chorus's actual debt costs in the pre-implementation period will promote the avoidance of windfall gains and losses. We discuss this potential approach in more detail in section 3.3, along with its merits and shortcomings.

TAMRP

Unlike the cost of debt, the cost of equity cannot be readily observed and so there is no option available to substitute for reliance on a benchmark approach. In combination with the relative stability of the Commission's TAMRP estimates through time, this means that it would be appropriate for the Commission to

⁵ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 534.

adopt in the pre-implementation period its estimate of the TAMRP for the post-implementation period. We discuss the TAMRP to apply in the pre-implementation period in section 3.4.



1. Introduction

The Commerce Commission (the Commission) is currently developing input methodologies (IMs) that will underpin its regulation of Chorus Limited's (Chorus's) fibre fixed-line access services (FFLAS) under Part 6 of the *Telecommunications Act 2001* (Part 6).

Following consultation on the framework, on 21 May 2019 the Commission released a paper describing its emerging views (emerging views paper) in relation to the fibre regulatory regime.⁶ This included the Commission's emerging views on how it will estimate the allowed rate of return for Chorus and other local fibre companies (LFCs).

The allowed rate of return provides compensation for the risk of investments made in capital assets that are used to supply regulated services, in this case FFLAS. Since supplying FFLAS requires very large investments in long-lived assets, the allowed rate of return will be of considerable importance in determining the allowed annual revenue requirement that will apply under price-quality regulation. The Commission has indicated that only Chorus will be subject to price-quality regulation, while information disclosure regulation will be applied to both Chorus and the LFCs in the period after implementation (the post-implementation period).⁷

The importance of the rate of return is increased further because the Commission is required to estimate initial asset values for Chorus and the LFCs by reference to the losses that are incurred over the period prior to implementation of the Part 6 regime (the pre-implementation period), with potential implications for the prices that Chorus can charge for FFLAS.

The Commission's normal practice is to estimate the allowed rate of return as a weighted average cost of capital (WACC). Its estimate of the WACC reflects the cost of debt and the cost of equity, and the respective proportion of each that is used to fund an investment.⁸

Chorus has asked us to provide expert advice on various matters relating to the allowed rate of return for fibre fixed-line access services (FFLAS), with particular reference to the emerging views of the Commission and those of its advisors. This report addresses questions on matters relating to the risk-free rate, the debt premium and term credit spread differential (TCSD) and the tax-adjusted market risk premium (TAMRP). A companion report addresses questions relating to the asymmetric consequences of uncertainty in the WACC.

The remainder of this report is structured as follows, ie:

- section 2 explains the role that certainty should play in the Commission's decision-making for the post-implementation period, and addresses estimation of the risk-free rate, debt premium and TAMRP in that period;
- section 3 describes the rationale and unique circumstances surrounding the estimation of the cost of capital in the pre-implementation period and, drawing on these, addresses estimation of the risk-free rate, debt premium and TAMRP in that period; and
- section 4 brings together our views by responding to the specific questions asked of us by Chorus.

⁶ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019.

⁷ Commerce Commission, *Fibre regulation emerging views: technical paper*, 21 May 2019, para 771.

⁸ Commerce Commission, *Fibre regulation emerging views: technical paper*, 21 May 2019, para 392.

2. Cost of capital post-implementation

Price-quality regulation of FFLAS under Part 6 of the Act will commence on the 'implementation date', which has been extended by two years to 1 January 2022. From this date onwards the Commission will determine a revenue cap by reference to the building block cost of providing FFLAS over a regulatory period of three to five years, and apply price caps for 'anchor' products.

The return on capital is a key component of the cost of providing FFLAS and will be calculated equal to the asset value multiplied by the weighted average cost of capital (WACC). In this section we discuss the Commission's emerging views on the estimation of WACC in the *post-implementation* period, whereas section 3 includes a similar discussion for the *pre-implementation* period.

2.1 Role of certainty

The Commission's consideration of a regulatory approach for FFLAS under Part 6 sits against the backdrop of its extensive body of work on:

- the regulation of electricity network, gas pipeline and specified airport services under Part 4 of the *Commerce Act 1986* (Part 4); and
- the regulation of unbundled copper local loop (UCLL) and universal bitstream access (UBA) services under Part 2 of the *Telecommunications Act 2001* at that time.

Of particular relevance to the subject of this report, this body of work extensively canvasses the estimation of the risk-free rate, debt premium and TAMRP for these other sectors.

The Commission will therefore need to consider whether the nature of the telecommunications industry or FFLAS, or requirements under Part 6, necessitate a different approach to that which it applies to other regulated services. The Commission similarly explained in its approach paper that:⁹

We must apply the regulatory framework established by Part 6. Where judgements are required, we must make those judgements independently by reference to the purpose statements in the amended Act, and cannot simply import the approach we have adopted under Part 4.

At the same time, we recognise that Parliament made a deliberate decision to base important aspects of the Part 6 framework on the existing regulatory framework in Part 4. We can use our experience in applying Part 4 to inform our application of Part 6, taking into account the courts' analysis of those provisions to the extent that it is relevant to the new regime.

The Commission reiterated these views in its emerging views paper¹⁰ and noted that, due to differences in legislation:¹¹

...it may not always be appropriate to use our Part 4 IMs decisions as a starting point for our Part 6 IM decisions. The relevance of Part 4 precedent to the different fibre IMs is something we need to assess on a case by case basis.

We agree that the Commission should always consider the relevance to the different fibre IMs of its current approaches to other sectors, particularly since those existing approaches have been the subject of extensive consultation.

⁹ Commerce Commission, *New regulatory framework for fibre: invitation to comment on proposed approach*, 9 November 2018, paras 5.13-5.14.

¹⁰ Commerce Commission, *Fibre regulation emerging views: technical paper*, 21 May 2019, para 15.

¹¹ Commerce Commission, *Fibre regulation emerging views: technical paper*, 21 May 2019, para 14.

Certainty for suppliers, customers and end-users will be promoted by the application of approaches that draw upon or are consistent with those that the Commission applies (or has applied) to other sectors, where appropriate. The Commission similarly explained in its emerging views paper that:¹²

...adopting a consistent approach with the one adopted in Part 4 will provide stakeholders with further regulatory certainty...

More specifically, the provision of regulatory certainty promotes incentives to innovate and invest efficiently in replacement, upgraded and new assets, consistent with the requirements of section 162(a) of the Act.

In our opinion, applying the Commission's established approach under Part 4 is likely to promote certainty and the other objectives of Part 6, unless:

- there are relevant differences in the factual or legal circumstances that apply for the regulation of FFLAS under Part 6 and the regulation of other services under Part 4; or
- there are material concerns that call into question the reasonableness of the Commission's established approach under Part 4, say, due to new information becoming available.

In the remainder of this section we discuss the estimation of the risk free rate, the debt premium, the TCSD and the TAMRP in the post-implementation period.

2.2 Risk-free rate

The Commission's emerging view is that the risk-free rate for the cost of debt and equity in the post-implementation period should be calculated in a way similar to that under Part 4, ie:¹³

- using the return on NZ Government bonds as a proxy;
- using prevailing rates;
- using a 3-month determination window;
- matching the term of the risk-free rate to the regulatory period.

In support of matching the term of the risk-free rate with the term of the regulatory period, the Commission observes that it:¹⁴

- provides an assurance that regulated suppliers can expect to derive a normal rate of return;
- reflects that regulated suppliers can reset their prices at the end of each regulatory period to reflect changes in the risk-free rate, so uncertainty does not persist beyond that period; and
- allows regulated suppliers to hedge their exposure to the risk-free rate by entering into interest rate swap arrangements.

This approach, and its rationale, is consistent with long-standing precedent established by the Commission. The Commission explained the foundation to this approach in its 2009 revised draft guidelines to estimating the cost of capital, in which it noted that:¹⁵

...a fundamental concept in finance is that the interest rate applied to a set of cash flows should reflect the risk, and the term, of those cash flows. To illustrate, consider the pricing of a zero-coupon five year bond. The only discount rate that will correctly price this bond is the five year spot rate. Applying an interest rate with a term other than five years would generate either windfall gains

¹² Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 448.6.

¹³ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 471.

¹⁴ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 481.

¹⁵ Commerce Commission, *Revised draft guidelines: the Commerce Commission's approach to estimating the cost of capital*, 19 June 2009, paras 144-145.

or losses to the holder of the bond by mispricing it. The precise outcome will depend on the slope of the term structure of interest rates.

In the regulatory context, the Commission will typically be setting firms' prices or evaluating returns over a given horizon — the regulatory period. The term of the interest rate used to set prices or assess returns should match the length of this horizon otherwise the present value to the firm will, in general, be positive or negative. In other words, NPV = 0 would be violated, and the firm would, in expectations, earn supernormal profits or losses.

The Commission considers that prevailing, rather than historical, rates better achieve the purpose of Part 6 and promote dynamic efficiency in investment, while also allowing suppliers to manage volatility in the risk-free rate.¹⁶ This view is underpinned by an assumption that regulated suppliers are able to enter into interest rate swap arrangements to manage their exposure to changes in the risk-free rate, ie, the Commission explained that:¹⁷

Regulated suppliers can reset their prices at the end of each regulatory period to reflect, among other things, changes in the risk-free rate if this has altered the cost of capital. Through the regular resetting of prices the uncertainty over the level of long-term interest rates is borne by users, rather than suppliers. Accordingly, suppliers' prices should not reflect a premium for the uncertainty of risk-free rates beyond the length of the pricing period.

Consistent with these views, the Commission has applied the same approach to estimate the risk-free rate for other regulated services, including electricity network and gas pipelines services, specified airport services under Part 4 and copper fixed-line access services.¹⁸

The Commission's approach to estimating the risk-free rate applies equally to the risk-free rate component of the cost of debt and the cost of equity, ie, it explained that:¹⁹

The risk-free rate is also a component of the cost of debt. The Commission considers that the same risk-free rate used to estimate the cost of equity should be used to estimate the cost of debt. This approach is desirable for two reasons. First, it ensures an internally consistent approach to measuring the overall cost of capital. Second, it is consistent with the Commission's objective of estimating firms' financing costs over the regulatory period. Specifically, when the Commission sets regulated prices or makes assessments of returns, it does so only for the regulatory period. In doing so, the Commission evaluates the firm's allowed costs for the period, and the cost of capital is just one of these. It would not be consistent to restrict allowances for certain cost categories (e.g. operating or capital expenditure) to the regulatory period, and then provide allowances for others (e.g. the cost of debt) for some longer period.

2.2.1 Our assessment

We agree with the Commission that it is appropriate to estimate the risk free rate for FFLAS in the post-implementation period using the same approach that it applies for other regulated services, including those regulated under Part 4. This reflects our general view that the application of a consistent approach by the Commission promotes greater certainty for suppliers, their customers and end users, provided there are no robust reasons for a departure from that methodology.

¹⁶ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 476.

¹⁷ Commerce Commission, *Input methodologies (electricity distribution and gas pipeline services): reasons paper*, December 2010, para 6.3.10.

¹⁸ See: Commerce Commission, *Input methodologies (electricity distribution and gas pipeline services): reasons paper*, December 2010, para 6.3.7; and Commerce Commission, *Cost of capital for the UCLL and UBA pricing reviews: final decision*, 15 December 2015, para 53.

¹⁹ Commerce Commission, *Revised draft guidelines: the Commerce Commission's approach to estimating the cost of capital*, 19 June 2009, para 147.

Further, the risk-free rate is not an industry-specific variable and we have explained that the Commission's approach is long-established and has consistently been applied to determine the risk-free rate across several regulated sectors for a decade.

We are not aware of any relevant differences in the framework, or new information, that would establish that the Commission's approach applied for Part 4 cannot be appropriately applied in the post-implementation period for FFLAS under Part 6.

We highlight in section 2.1 the benefits of a consistent regulatory approach between Part 4 and Part 6, provided there are no differences in the factual or legal circumstances, or new information that suggests otherwise.

2.3 Debt premium and term credit spread differential

The Commission's emerging view is that the debt premium should be implemented using the same framework that it applies to electricity network and gas pipeline services regulated under Part 4. This involves estimating the cost of debt equal to the sum of a risk-free rate, a debt premium, an allowance for debt issuance costs and, where the Commission adopts a five year debt premium.²⁰

...to apply a TCSD if suppliers issue debt that has an average tenor greater than 5 years.

The Commission considers that the use of an historical average debt premium and TCSD protects suppliers and end-users from significant temporary changes in the debt premium.²¹ This is consistent with the Commission's reasoning in the input methodologies review, where the prospect of a determination window coinciding with abnormal market conditions was instrumental to its final decision to reverse its draft decision and adopt a trailing average approach.²²

The Commission observes that there are both advantages and disadvantages of using a TCSD, including that it:

- ensures only suppliers who issue more expensive long-term debt are compensated for these costs; but
- provides incentives to suppliers to issue more expensive long-term debt even where this may not be efficient, and increases complexity in the calculation of the debt premium.

The Commission emphasises that the use of a five-year term and a TSCD is consistent with its approach under Part 4 and avoids the need for methodological changes if the length of the regulatory period changes. It also considers that no shortcomings arise from a different term underpinning the risk-free rate and debt premium.²³

The Commission proposes to estimate the debt premium using a hierarchical bond selection framework similar to that which it currently applies for Part 4. This involves:²⁴

- the identification of vanilla New Zealand dollar denominated bonds that have an investment grade credit rating with Standard & Poor's, and are issued by a New Zealand company that undertakes the majority of its business activities in Australia and New Zealand and does not operate predominantly in the banking or finance industries;

²⁰ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 494.

²¹ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 495.

²² Commerce Commission, *Input methodology review decisions – topic paper 4: cost of capital issues*, 20 December 2016, paras 144-146.

²³ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, paras 502-503.

²⁴ Commerce Commission, *Electricity distribution services input methodologies determination 2012*, 31 January 2019, paras 1.1.4(2) and 2.4.4(6)-(8).

- the calculation of a debt premium for each of these bonds, calculated as the difference between its wholesale market bid yield to maturity less the contemporaneous bid yield on New Zealand government bonds with the same remaining term to maturity; and
- the drawing of inferences from this dataset as to the debt premium that would apply to a bond with benchmark issuer, rating and term characteristics.

Consistent with its approach under Part 4,²⁵ the Commission proposes to derive separate estimates using the Nelson-Siegel-Svensson curve-fitting approach that will be used as a quantitative cross-check on the qualitative considerations underpinning its bond sample.²⁶

2.3.1 Our assessment

As for the risk-free rate, in our opinion the Commission's emerging view is reasonable, ie, to apply in the post-implementation period the same approach to estimating the debt premium and TCSD as it does for other regulated services, including those regulated under Part 4.

Although there exist alternative approaches with their respective merits and shortcomings, the merit of adopting an approach consistent with that applied in other regulated industries and is underpinned by extensive consultation – consistent with the Commission's emerging view – is likely to overshadow that of alternative approaches, at least on the evidence presented to date.

However, it is relevant to note that, unlike the risk free rate, the debt premium can vary by industry, ie, to the extent that debt investors' view those industries as involving different degrees of risk, and that the Commission intends:

...to apply a similar hierarchical approach to comparators in our estimation of the 'annual' debt premium (for the historic average) as Part 4. We also intend to use the same qualifying issuer characteristics in the hierarchy of bonds.

The hierarchical structure applied in Part 4 places most emphasis on bonds issued by electricity and gas distribution business, which may be perceived by debt investors to involve a degree of risk different from that of providers of FFLAS. At the least, the hierarchical structure adopted by the Commission should place the most emphasis on bonds issued by providers of FFLAS, followed by bonds issued by other infrastructure services providers or New Zealand corporates.

2.4 Tax adjusted market risk premium

The Commission's emerging view is to estimate and specify in the cost of capital input methodology a value for the TAMRP, rather than to adopt a TAMRP of seven per cent, consistent with the value that it currently applies across all regulated industries in New Zealand.²⁷ It explains that:²⁸

Our emerging view, however, is to estimate the TAMRP for the draft IM decision to ensure that the parameter is relevant until [the next review of the Part 6 IMs]. A current estimate that uses the latest available data will best give effect to the purpose of Part 6 of the Act by ensuring that regulated suppliers earn a normal rate of return consistent with the outcomes produced by workably competitive markets.

²⁵ Commerce Commission, *Electricity distribution services input methodologies determination 2012*, 31 January 2019, para 2.4.4(9).

²⁶ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 509.

²⁷ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, paras 457 and 461.

²⁸ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 463.

The Commission observed that this may result in a different TAMRP value under the Part 6 and Part 4 input methodologies. It also considered the option of not specifying the TAMRP in the Part 6 input methodologies and instead estimating the TAMRP at each regulatory reset, however, it concluded that:²⁹

...including a specific TAMRP value best gives effect to the IMs purpose under s 174 of the Act to promote certainty for suppliers, access seekers and end-users in relation to the rules, requirements and processes applying to the regulation of FFLAS.

2.4.1 Our assessment

We agree with the Commission that there are benefits to updating its estimate of the TAMRP prior to its forthcoming decision, namely in relation to the promotion of incentives for efficient investment and dynamic efficiency. The Commission similarly observed that:³⁰

A current estimate that uses the latest available data will best give effect to the purpose of Part 6 of the Act by ensuring that regulated suppliers earn a normal rate of return consistent with the outcomes produced by workably competitive markets

The Commission is also contemplating whether:

- to specify a value for the TAMRP in the cost of capital input methodology for the Part 6 regime, which:
 - > would promote certainty for suppliers, access seekers and end-users in relation to the rules, requirements and processes applying to the regulation of FFLAS as set out in section 174 of the Act; or, rather
- to specify a particular methodology to be applied to update the TAMRP at each regulatory reset, which:
 - > would promote dynamic efficiency by providing incentives for efficient investment and innovation in relation to in replacement, upgraded and new assets, as set out in section 162 of the Act.

In practice there is little to trade-off between these alternative decisions and their respective benefits since the Commission's approach to estimating TAMRP is relatively insensitive to changes in market circumstances. For example, the Commission in the past concluded that its:³¹

...approach has produced a stable and predictable estimate of TAMRP. This has advantages for investors and consumers of regulated services, and is appropriate when specifying IMs which will apply to WACC determinations for up to seven years.

Consistent with our view at section 2.1, unless there are compelling facts, legal requirements or new evidence suggesting otherwise, certainty will be promoted by striking a balance between these competing objectives consistent with that applying under the Part 4 regime. We are aware of no such circumstances and so, since the Commission has previously specified a value of the TAMRP in the input methodologies under Part 4, it would be reasonable to do the same for FFLAS.³²

²⁹ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 465

³⁰ Commission, Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 463.

³¹ Commission, *Input methodologies review draft decisions Topic paper 4: Cost of capital issues*, June 2016, para 436.3.

³² Commerce Commission, *Electricity distribution services input methodologies determination 2012*, 31 January 2019, para 4.4.2(6).

3. Cost of capital for loss calculation

In addition to the allowed rate of return, the other key input to the return on capital in the post-implementation period is the initial asset base. The Act sets out requirements for the calculation of the initial asset base, including that:³³

Each regulated fibre service provider is treated, as at the implementation date, as owning a fibre asset with an initial value equal to the financial losses, as determined by the Commission, incurred by the provider in providing fibre fixed line access services under the UFB initiative for the period starting on 1 December 2011 and ending on the close of the day immediately before the implementation date.

In determining these financial losses, the Act requires the Commission to account for accumulated, unrecovered returns on investments made by the provider under the UFB initiative.³⁴ This includes an unrecovered cost of capital in each year of the pre-implementation period, which will, in effect, be the discount rate applied to bring forward financial losses in the calculation of an initial asset value.

In this section, we discuss and comment on the Commission's emerging views on the estimation of the risk free rate, the debt premium, TCSD and TAMRP in the pre-implementation period.

In our opinion, the Commission should have regard to the regulatory and contractual framework for Chorus' investment under the UFB initiative in the estimation of these inputs for the pre-implementation period. This is of particular relevance to the appropriate term of the risk free rate, the role of a trailing average debt premium and the potential to adopt a cost of debt based on actual debt costs.

3.1 Risk-free rate

Although the Commission proposes to estimate the risk-free rate in the post-implementation period using a term equal to that of the regulatory period, it rejects this approach for the pre-implementation period.

The basis for this rejection is the Commission's view that limited knowledge would have been held as to the future regulatory approach at the start of the period.³⁵ The Commission instead proposes a range of alternative approaches for consideration.

The Commission's advisor, Dr Lally, suggests estimating the risk-free rate in each year of the pre-implementation period using a term consistent with the number of years until the implementation date. He explains that:³⁶

In respect of the risk-free rate and the DRP, the appropriate choices for the year t cash flows are the rates prevailing at that point for the period from then until the commencement of regulation. Thus, if regulation commences in 2022, net cash flows incurred in (say) 2015 should be compounded forwards using (inter alia) the seven-year risk-free rate and DRP prevailing in 2015. If most of the pre-regulatory net cash flows have occurred in one year (say 2015), then an acceptable simplification would be to use the seven-year rates at that point for all of the net cash flows.

³³ The Act, section 177(2).

³⁴ The Act, section 177(3).

³⁵ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 528.

³⁶ Dr Martin Lally, *The cost of capital for fibre network losses*, 30 April 2019, pp 6-7.

The Commission suggests other methods for estimating the risk-free rate in the pre-implementation period, including:³⁷

- a staggered (or average) approach, which the Commission explains could be implemented with a 'rolling average' approach, with the term of the risk-free rate being either a fixed term (such as five years) or the number of years to the implementation date as suggested by Dr Lally; and
- an approach as if suppliers were subject to regulation during the pre-implementation period, with the risk-free rate being updated based on the assumed length of price-quality paths – potentially three to five years.

The Commission concludes that:³⁸

A risk-free rate estimate based on a rolling average approach is likely to be most appropriate as this limits the potential impact of anomalous market conditions during the pre-implementation period.

The Commission does not explain how it would implement a 'rolling average' and whether this approach would give rise to a risk-free rate in each year that would reflect the return on New Zealand government bonds in that year, or over a number of years.

3.1.1 Our assessment

We explain at section 2.2 that estimating the risk-free rate with a term equal to the duration of the regulatory period is the Commission's long-established practice, and the approach it proposes to adopt for FFLAS in the post-implementation period.

Basis for departure from established practice

The Commission considers the circumstances applying in the pre-implementation period to be distinct from those underpinning its proposed approach in the post-implementation period (and its established approach) since:³⁹

... it is not clear that the period from 2011 to the implementation date could be considered a single regulatory period, given the limited knowledge of the future regulatory approach at the start of the period.

This observation does not offer a reasonable or persuasive basis for departing from the Commission's established approach.

The key economic characteristic of a regulatory period concern the application of specified arrangements as to the nature and quality of the regulated service, the prices to be charged for those services and the sharing of risk as between the service provider and users. Relevantly, Crown Infrastructure Partners:⁴⁰

...entered into a series of commercial agreements with Chorus, the other LFCs and the UFB partners in order to implement the UFB initiative. These agreements are comprehensive, and include:

- price caps for specified services;
- ...sharing of upside and downside risk, such as risk during the build phase and demand risk;
- expectations around the timing of the network build; and

³⁷ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, paras 529-531.

³⁸ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 532.

³⁹ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 528.

⁴⁰ Commerce Commission, *New regulatory framework for fibre Invitation to comment on our proposed approach*, November 2018, p.17, para 226.

- expectations for the service levels to be provided to RSPs and by implication to end-users

It follows that, at the commencement of the implementation period, there was a notable degree of certainty as to the arrangements under which FFLAS were to be provided over the period to the implementation date. Although not termed a 'regulatory' period, the pre-implementation period therefore had the economic characteristics of a regulatory period.

At the least, investors at the time of the UFB tender would have had clarity that prices would be fixed for the forthcoming implementation period. It is therefore not clear why an interest rate determined for 2011, which reflects the cash flows determined by the UFB agreements, would have a term less than that of the implementation period.⁴¹

We note that the subsequent extension of the implementation date to 1 January 2022 prolonged the application of those same arrangements, rather than substantially amending them, and so does not detract materially from this rationale.

In our opinion, the economic reasons underpinning the Commission's established approach to estimating the risk free rate – ie, with term equal to that of the regulatory period – are equally applicable to the pre-implementation period. The Commission's draft cost of capital guideline explained that these benefits rest on ensuring *'the interest rate applied to a set of cash flows should reflect the risk, and the term, of those cash flows.'*⁴² The Commission went on to explain that:⁴³

To be absolutely correct, the risk-free rate selected by the Commission should have a *duration*, rather than a *term*, equal to that of the regulatory cash flows. (For a flat term structure, 'duration' is the weighted average number of years before receipt of an asset's cash flows, where the weights are the discounted values of the cash flows. Duration is shorter than the term of a bond, which refers to its time to maturity. For example, a ten-year coupon bond has a term of ten years (because the principal is repaid in year ten), but a duration of less than ten years, because cash flows from coupons are received from years one through ten.) However, the Commission considers that the matching of terms provides a reasonable approximation to the matching of durations. [Emphasis in original]

The Commission also explained that:⁴⁴

Setting the term of the risk-free rate equal to the term of the regulatory period ensures that regulated suppliers are compensated for the risk they are exposed to during the regulatory period and that regulated suppliers can have the expectation of earning a normal return in the long run.

This assessment lends support to Chorus's proposal that the Commission estimates the risk-free rate in the pre-implementation period consistent with its approach in the post-implementation period, ie:

- assessed over a short window immediately prior to the UFB tender in May 2011; and
- with a term equal to the term of the implementation period ending on 1 January 2022.

Alternative proposals

Notwithstanding the absence of a reasonable basis on which to depart from the Commission's established approach, in this section we comment briefly on the alternative proposals put forward by the Commission and its advisor, Dr Lally.

⁴¹ In particular, it seems undesirable that the Commission's actions in seeking a two year delay in the implementation date would give rise to a fundamentally different approach to determining

⁴² Commerce Commission, *Revised draft guidelines: the Commerce Commission's approach to estimating the cost of capital*, 19 June 2009, para 144.

⁴³ Commerce Commission, *Revised draft guidelines: the Commerce Commission's approach to estimating the cost of capital*, 19 June 2009, footnote 28.

⁴⁴ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 482.

Dr Lally's proposal for a term of the risk-free rate that reduces over time as the implementation date nears has some foundation in economic principles, but he establishes neither:

- why his proposed approach is preferable to the Commission's established approach in the context of the regulation of FFLAS under Part 6; nor
- why his proposed approach would not be preferable to the Commission's established approach in the circumstances of regulation of other services under Part 4.

Consistent with our observations in section 2.1, we consider that it is likely preferable to promote certainty by applying consistent regulatory approaches unless there is a strong basis for departure. Dr Lally has not provided a reason why the Commission should depart from its current approach, particularly since, as he observes:⁴⁵

...the Commission's cost of capital model is long established and requires only project-specific choices for the risk-free rate, beta, leverage and the DRP.

On the other hand, the Commission's proposal for a risk-free rate based on a 'rolling average' approach is motivated by a concern about the 'potential impact of anomalous market conditions during the pre-implementation period'.⁴⁶ This concern reflects a very different framework for thinking about the risk-free rate, as compared with that underpinning the Commission's established approach, not least because:

- the Commission's established approach seeks to estimate the risk-free rate over a relatively narrow window on the assumption that firms will seek to fix their exposure to market rates during this period – and consequently these market conditions (however anomalous) should be reflected in the risk-free rate; and
- in any case, given that the market conditions prevailing during the pre-implementation period can be directly observed by the Commission, if it has specific concerns about potentially anomalous market conditions that arose during this period, it could identify and exclude these, rather than taking generic rolling average approach to solve a problem that it has not established to exist.

Summary

In our opinion, the Commission has not presented a robust basis on which to depart from its established approach of estimating the risk-free rate with a term equal to the duration of the period over which the relevant arrangements are to apply.

Given the alternative approaches proposed by the Commission, it is likely to be preferable to promote certainty by applying consistent regulatory approaches, absent compelling facts, legal requirements or new evidence that suggest otherwise. This conclusion lends support to estimating the risk free rate over a short window immediately prior to the UFB tender in May 2011 and with a term equal to the length of the implementation period ending on 31 December 2021.

3.2 Debt premium and term credit spread differential

The Commission does not express a firm view on how to implement a cost of debt framework in the pre-implementation period. It does however explain that:⁴⁷

...we also need to consider the appropriate term and approach for the debt premium. **We intend to make this as consistent as possible with our approach post-implementation**, however we are interested in any issues that need to be considered when applying our approach to the loss period for the debt premium. [emphasis added]

⁴⁵ Dr Martin Lally, *The cost of capital for fibre network losses*, 30 April 2019, p 6.

⁴⁶ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 532.

⁴⁷ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 534.

We note that the Commission's proposed approach in the post-implementation period involves estimating a five year trailing average cost of debt with a five year term and an appropriate credit rating, along with a TCSD for suppliers that issue more long-dated debt.⁴⁸

3.2.1 Our assessment

In light of the benefits of consistency that we discuss in section 2.1, we agree with the Commission's intention to make its approach in the pre-implementation period 'as consistent as possible' with that in the post-implementation period.

To the extent the Commission considers a benchmark approach to be a necessary feature of its cost of debt methodology, we are not aware of any strong basis on which to depart from an approach based on a five year term and an appropriate credit rating, along with a TCSD where required.

On the other hand, the nature of the regulatory and contractual framework for investment under the UFB initiative means the adoption of a historical trailing average debt premium that extends back before 2011 makes little sense, given its application in years following the UFB tender. This is because:

- a supplier of FFLAS would seek to raise capital to fund its investment in FFLAS after the UFB tender; whereas
- the use of a trailing average approach would assume that debt was raised in the years prior to the tender.

Notwithstanding, from the sixth year of the implementation period onwards there are five historical, annual debt premium observations occurring after the UFB tender. It follows that in these years it would be appropriate to adopt a five year trailing average debt premium, consistent with the Commission's approach in the post-implementation period.

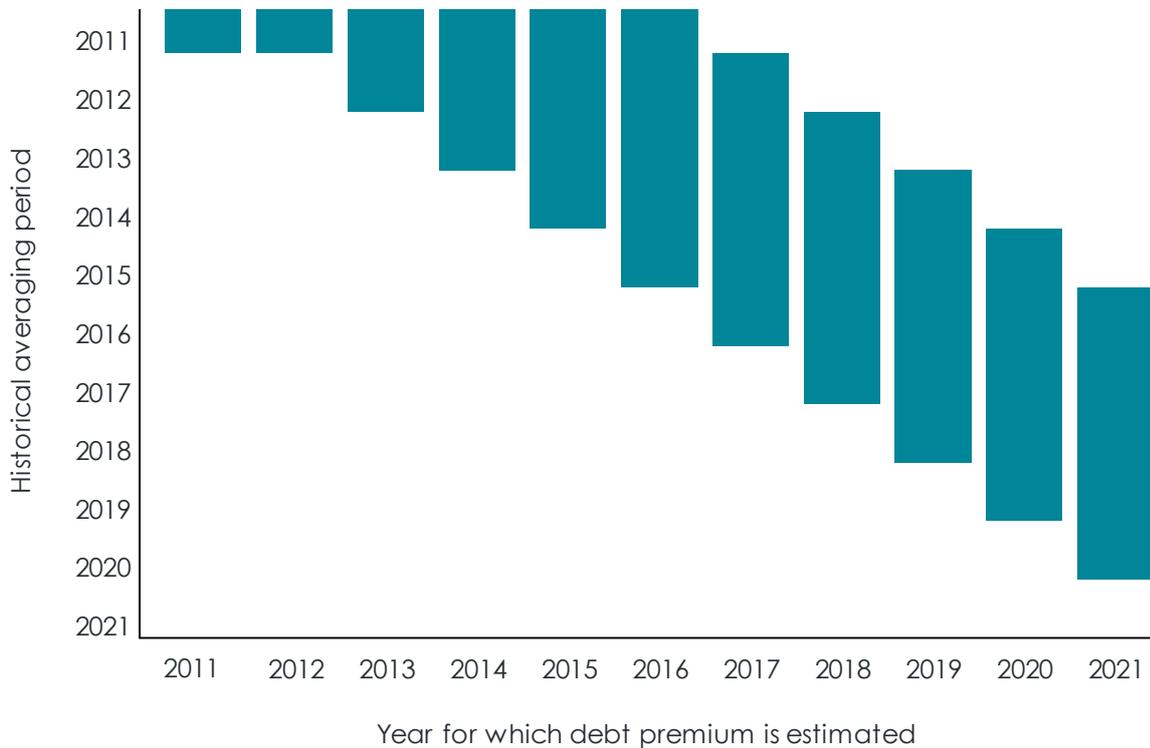
In the first five years of the implementation period – when there is not five historical, annual debt premium observations after the UFB tender available – a transition to the five year trailing average would be 'as consistent as possible' with the Commission's approach in the post-implementation period.

This could be achieved by adopting a prevailing debt premium in the first year of the pre-implementation period and then a one year, two year, three year and four year historical average in years two to five, respectively.

We illustrate this approach to estimating the debt premium in the pre-implementation period in Figure 1.

⁴⁸ Commerce Commission, *Fibre regulation emerging views*, 21 May 2019, para 467.

Figure 1 – Potential averaging periods for trailing average debt premium (pre-implementation)



In combination with the adoption of a ten year risk free rate estimated at the start of the pre-implementation period, the resulting cost of debt could be achieved by:

- at the start of the pre-implementation period, entering swap arrangements for the risk free rate for each year of the implementation period; and
- then raising debt in each subsequent year of the implementation period.⁴⁹

It would be prudent for a supplier to fix the risk free rate in this manner since to do so would 'lock-in' a risk free rate that reflects market expectations for the implementation period, as at 2011, which are the same expectations on which prices are based.

To the extent that the Commission places an emphasis on consistency between its approaches and considers a benchmark approach to be a necessary feature of its methodology for the cost of debt, this approach to the debt premium:

- best reflects the institutional arrangements of the UFB tender;
- is 'as consistent as possible' with the post-implementation approach in the first five years of the implementation period, ie, as close to a five year trailing average as is appropriate; and
- is entirely consistent with the post-implementation approach in the sixth and subsequent years of the pre-implementation period.

By consequence of the resulting degree of consistency, this approach would also minimise any step change in the debt premium on the implementation date.

⁴⁹ A supplier could enter a 'pay fixed / receive floating' swap arrangement for the risk free rate in each year of the implementation period and then issue floating rate debt in each year.

3.3 An alternative approach for the cost of debt

If the primary objective of the Commission is consistency between its approaches and it considers a benchmark cost of debt to be a necessary feature of its methodology, then the approach we discuss in sections 3.1 and 3.2 would be most appropriate in the pre-implementation period.

On the other hand, if the primary objective of the Commission is the avoidance of windfall gains and losses in the pre-implementation period, its proposed approach to estimating the risk free rate, in combination with a benchmark debt premium, will not best promote this achievement.

We observe that the Commission's framework for considering the risk-free rate for the pre-implementation period (summarised in section 3.1) is similar to that which underpinned its adoption of a trailing average debt premium under Part 4, ie, to protect suppliers and end-users from variability in financial market conditions that could lead to windfall gains or losses.

The avoidance of windfall gains and losses would best be achieved by determining the cost of debt during the pre-implementation period based on Chorus's actual cost of debt, rather than by reference to a benchmark calculated equal to the sum of:

- a risk-free rate of a pre-specified term; and
- a debt premium based on an assumed benchmark.

The benefits of a benchmark return on debt typically follow from the resulting incentives for a service provider to manage its financing costs efficiently and the expectation that it will derive a normal rate of return, which promotes dynamic and allocative efficiency.

Nevertheless, the provision of ex-ante incentives is not a relevant consideration for the pre-implementation period since the costs associated with providing FFLAS have already been incurred. In other words, the ex-post estimation of the cost of capital for the pre-implementation period means that the concerns that might normally arise from a move away from a benchmark cost of debt do not apply, ie:

- it does not give rise to a perverse incentive to raise more expensive debt, since suppliers have already raised debt in the pre-implementation period; and
- there is no concern that the use of an approach that reflects average debt costs (rather than prevailing market conditions) will not promote efficient investment, because those investment decisions have already been made.

Rather, estimating the cost of debt based on actual debt costs will ensure no windfall gains or losses accrue to the supplier, its customers or end-users. The adoption of actual debt costs also means that the term of the risk-free rate and the credit rating are implicit in the cost of debt and need not be specified by reference to hypothetical assumptions and efficient hedging practices.

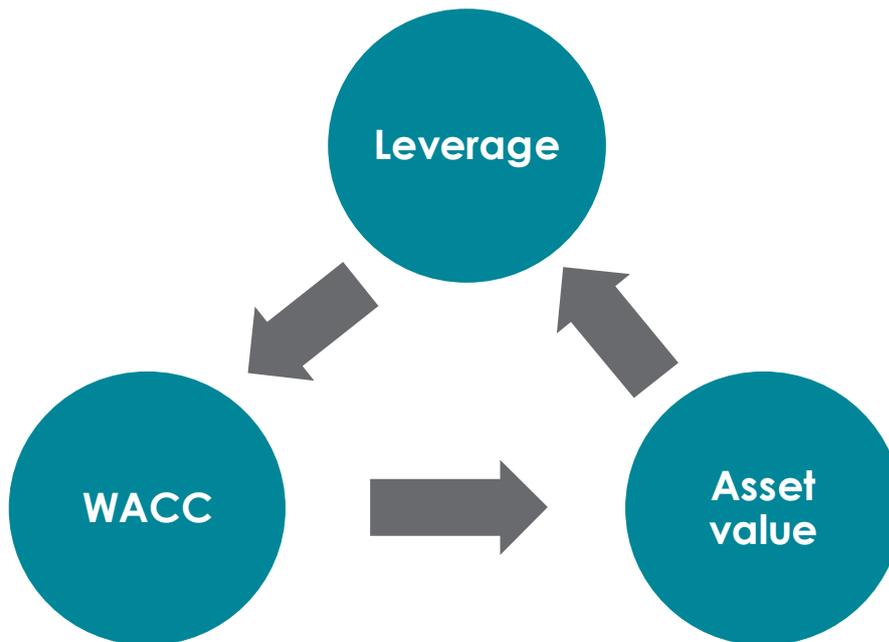
Implementational matters to be addressed

One shortcoming arising from the adoption of actual debt costs – which does not arise under the approaches we discuss in sections 3.1.1 and 3.2.1 – is that it would lead to an internal inconsistency when a historical trailing average return on debt is applied from the implementation date onwards. In other words, suppliers' actual debt financing practices in the pre-implementation period may not be consistent with the debt financing practice for those years that is implicit in the historical average approach applied from the implementation date.

We also note that the adoption of actual debt costs for some LFCs would be problematic since they are not listed, do not have investment grade credit rating and/or may be owned by government entities. Against this backdrop, it would be open to the Commission to adopt Chorus's actual debt costs as the cost of debt for all suppliers of FFLAS.

Under this approach, the leverage input to the WACC for Chorus could be based on its leverage, calculated using its market value. However, for the same reasons noted above, an appropriate value for leverage may not be available for some LFCs. Given the circular relationship between leverage, the WACC and the asset value – as illustrated in Figure 2 – there exists the potential to impute a value for leverage that reconciles the discounted value of losses during the pre-implementation period with the size of the suppliers’ debt portfolio on the implementation date.

Figure 2 – Relationship between leverage, WACC and asset value



The adoption of actual debt costs would also leave open the question as to the appropriate risk free rate for the return on equity. In our view, it would be most appropriate to use the approach set out at section 3.1.1, ie, using a term for the risk-free rate that is consistent with the term of the implementation period.

An alternative approach, which is consistent with the Commission’s previous statements on this matter, would be to use a term of the risk-free rate that is consistent with the term implied in the calculation of the cost of debt.⁵⁰ This is not our preferred approach and, while the Commission presents this as a matter of consistency, we do not see this as a necessary feature of its methodology. The Commission calculates the allowed cost of capital as the weighted average of a cost of debt and cost of equity, the construction of which allows for different assumptions in estimating these components.

3.4 TAMRP

Unlike the cost of debt, the cost of equity cannot be readily observed. It follows that there is no option available to substitute for reliance on a benchmark approach. In combination with the relative stability of the Commission’s TAMRP estimates through time, this means that it could be appropriate for the Commission to adopt in the pre-implementation period its estimate of the TAMRP for the post-implementation period.

This does not deterministically mean that the same value of TAMRP should apply in the pre-implementation period as it does in the post-implementation period. Even under the Commission’s methodology, which gives

⁵⁰ Commerce Commission, *Revised draft guidelines: the Commerce Commission’s approach to estimating the cost of capital*, 19 June 2009, para 147.

rise to relatively stable estimates through time, the TAMRP may increase or decrease over time. It is therefore plausible that the TAMRP may differ between the periods.

4. Response to Chorus' questions

In this section we summarise our response to the questions put to us by Chorus.

[Is the Commission's methodology for estimating debt premium for Chorus' WACC for FFLAS appropriate?](#)

We consider the Commission's proposed methodology for estimating the debt premium in the post-implementation period to be appropriate, as discussed in section 2.3.1.

The Commission does not present a firm view on estimating the debt premium in the pre-implementation period. However, the Commission does note that it intends to adopt a methodology that is as consistent as possible with its approach in the post-implementation period.

To the extent the Commission considers a benchmark approach to be a necessary feature of its methodology, the adoption of a transition to a five year trailing average debt premium – using only debt premium observations in years following the UFB tender – would be most consistent with the Commission's approach in the post-implementation period. We explain this approach in section 3.2.1.

[What are your views on using a TCSD for the purposes of setting Chorus' WACC for FFLAS?](#)

It would be reasonable to use a TCSD in both the pre- and post-implementation period, where appropriate.

[Should the Commission take into account the regulatory and contractual framework for Chorus' investment under the UFB initiative when making decisions on the appropriate cost of debt for FFLAS?](#)

Yes, the regulatory and contractual framework for Chorus under the UFB initiative is relevant to the:

- appropriate term of the risk free rate, which we discuss in section 3.1.1;
- the need to transition to a trailing average debt premium, which we discuss in section 3.2.1; and
- a cost of debt based on actual debt costs, to the extent it is appropriate, which we discuss in section 3.3.

[Should the Commission: set a specific value for the TAMRP in the cost of capital IM for the Part 6 regime; or incorporate a methodology for estimating the TAMRP at each regulatory reset?](#)

It would be appropriate to estimate and specify a value for the TAMRP in the cost of capital IM for the Part 6 regime. We discuss the basis for this view in section 2.4.

[How might the Commission ensure consistency of the TAMRP between different regulated sectors?](#)

Given the methodology applied by the Commissions to estimate the TAMRP gives rise to relatively stable estimates through time, consistency of TAMRP values between different sectors need not be a necessary feature of its approach to regulation. A different TAMRP across industries would be unlikely to distort materially investment decisions. We discuss this matter in section 2.4.

[What is the appropriate term of the risk-free rate for the financial losses calculation over the pre-implementation period?](#)

To the extent the Commission considers a benchmark approach to be a necessary feature of its methodology, in our opinion the term of the risk free rate should be set equal to the term of the pre-implementation period to 1 January 2022. We discuss this matter in section 3.1.1.

Should the Commission measure the risk-free rate during the pre-implementation period over a single period or should it update its estimate throughout the period?

To the extent the Commission considers a benchmark approach to be a necessary feature of its methodology, it would be appropriate to measure the risk free rate over a single period, rather than by updating its estimate for two years.

We explain in section 3.1.1 that the two year extension of the implementation date prolonged the application of substantially the same arrangements determined at the outset of the pre-implementation period. The risk free rate at the start of the pre-implementation period reflected the market expectations implicit in these arrangements, which were then extended for two years.

We therefore do not expect any material benefits to follow from the adoption of two different risk free rates during the pre-implementation period.

Are there any issues that need to be considered by the Commission when applying its approach to the loss period for the debt premium, as discussed on pages 115 through 120 in the Commission's Emerging Views paper?

We explain above that, to the extent the Commission places an emphasis on consistency between its approaches and considers a benchmark approach to be a necessary feature of its methodology, a transition to a five year historical trailing average debt premium – using only debt premium observations in years following the UFB tender – would be most appropriate.

On the other hand, if the avoidance of windfall gains or losses is the primary objective of the Commission, then it would be appropriate to estimate the cost of debt equal to suppliers' actual debt costs. We discuss this approach in section 3.3.





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