

Commission consultation on WACC for UCLL and UBA services

Final report for Vodafone New Zealand, 27 March 2014

Network Strategies Report Number 33022

Contents

0	Executive summary	1
1	Introduction	1
2	Appropriate estimates for WACC	2
3	Term credit spread differential	12
4	Concluding remarks	16
	Annex A: WACC in TSO decisions	A1

0 Executive summary

In determining the weighted average cost of capital (WACC) for the UCLL and UBA price reviews it is most appropriate for the Commission to use a mid-point estimate. For telecoms services where there is a limited data-set to inform the WACC parameter estimates, there is an increased risk of incorrect estimation of the uncertainty associated with the WACC parameters. Hence the risk of error is minimised by the selection of a mid-point WACC. Furthermore, in the Commission's Input Methodologies the estimated 75th percentile is simply a value higher than the mid-point and does not reflect the point at which there is 75% certainty that the true WACC value is lower.

As regards selection of the 75th percentile on the grounds of potential asymmetric costs of WACC under-estimation, there is no evidence that the social costs of under-estimation might outweigh the social costs of over-estimation in the case of UCLL and UBA services. It is also important to note that the outcome of the UCLL and UBA modelling process will be affected by a number of modelling inputs, including WACC, over which discretion may be exercised. The margin of error for the final result will be wide should the Commission choose to deviate from mid-point estimates for a selection of various parameters. This would increase the regulatory risk and would not promote the long term benefit of end-users.

With respect to the possible introduction of a Term Credit Spread Differential (TCSD) the Commission will again face practical difficulties in seeking appropriate comparator data. However given the principle that the matching of the risk-free rate (and the debt margin) with the regulatory period is sufficient to prevent over- or under-compensation of the regulated firm, we believe no further allowances are necessary.

1 Introduction

In March 2014 the Commerce Commission published a technical consultation paper on the cost of capital for UBA (unbundled bitstream access) and UCLL (unbundled copper local

loop) price reviews.¹ The Commission's proposed approach takes as its starting point the input methodologies (IMs) currently applied to regulated electricity lines services, gas pipeline services and specified airport services. Under the cost of capital IMs, the cost of equity is estimated using the simplified Brennan-Lally Capital Asset Pricing Model (CAPM). In taking this approach, the Commission will apply a number of the same parameters in estimating the WACC (weighted average cost of capital) for UCLL and UBA.

Network Strategies Limited has been commissioned by Vodafone New Zealand to provide an opinion on:

- whether WACC should be set above or below the mid-point estimate for UCLL and UBA (and if so, to what extent)
- whether a term credit spread differential (TCSD) allowance should be specified when determining the cost of capital for UCLL and UBA.

2 Appropriate estimates for WACC

2.1 High Court input methodologies decision

Background

In December 2010 the Commerce Commission published an input methodologies (IM) paper for electricity distribution and gas pipeline services² as well as one for airports³. It chose to apply a 'complex analytical approach' to the estimation of the range of the

¹ Commerce Commission (2014) *Determining the cost of capital for the UCLL and UBA price reviews*, Technical consultation paper, 7 March 2014.

² Commerce Commission (2010) *Input methodologies determination applicable to electricity distribution services pursuant to Part 4 of the Commerce Act (the Act)*, Decision No. 710, 22 December 2010.

³ Commerce Commission (2010) *Input methodologies determination applicable to specified airport services pursuant to Part 4 of the Commerce Act 1986 (the Act)*, Decision No 709, 22 December 2010.

WACC. For those WACC parameters associated with significant uncertainty (namely, the asset beta, the debt premium and the Tax-Adjusted Market Risk Premium, or TAMRP) the standard error is estimated. The standard errors are then combined to derive a level of uncertainty for the WACC estimate. This is then used to estimate a range for the WACC at a given percentile⁴.

In its decision to use the 75th percentile estimate of the WACC for electricity distribution and gas pipeline services the Commerce Commission took into account a number of considerations as explained in Chapter 6 of its reasons paper:⁵

- the purpose of Part 4 of the *Commerce Act* being the promotion of the long-term benefits of consumers – note that this includes ensuring suppliers of regulated services have incentives to invest / innovate (s 52A(1)(a)) as well as ensuring that regulated suppliers are limited in their ability to gain excessive profits (s 52(1)(d))
- the risk that the true WACC is above the estimated mid-point
- the risk that the CAPM and simplified Brennan-Lally CAPM underestimate the returns on low beta stocks
- the risk that the simplified Brennan-Lally CAPM may lead to higher estimates of the WACC than the International CAPM for international investors and that the international investors are likely to be the marginal investors in New Zealand markets
- the risk of error in estimating individual parameters of the simplified Brennan-Lally CAPM including the asset beta and the TAMRP.

The Commission conducted a balancing exercise between the above considerations and decided to adopt a 75th percentile estimate of the cost of capital.

Incentives for dynamic efficiency can have significant benefits for consumers over the long term, so it is important to preserve incentives to invest and innovate. Accordingly, this

⁴ Commerce Commission (2010) *Input methodologies (electricity distribution and gas pipeline services)*, Reasons Paper, December 2010. See Section H11.

⁵ Commerce Commission (2010) *Input methodologies (electricity distribution and gas pipeline services)*, Reasons Paper, December 2010.

consideration has been given greater weight than limiting the suppliers' ability to extract excessive profits.⁶

The Commission therefore adopted a higher than mid-point estimate of the cost of capital, allowing for possible errors, ensuring regulated suppliers have the incentives to invest and to promote efficient investment in the long-term benefit of consumers.

In applying a mid-point WACC for airports' ID requirements the Commission took into account factors in addition to those considered for the electricity and gas pipelines determination, namely that:⁷

- not all risks can be passed on to the consumer and the firms, as the party better equipped to manage risks will have to manage some of the risks themselves
- the impact on potential subsequent investment by service users and the potential impacts on dynamic efficiency.

In December 2013 the New Zealand High Court published its findings in relation to challenges against the Commerce Commission's 2010 IMs decision.⁸ As the IMs are determined by the Commission in regulating suppliers of electricity lines, gas pipeline services and specified airport services under Part 4 of the *Commerce Act*, an action was brought against the Commission by relevant stakeholders in these industries.

Appeals by stakeholders regarding the cost of capital percentiles

The Commission adopts an industry-wide approach to the determination of cost of capital. As part of the proceedings the Major Electricity User's Group (MEUG) and Transpower challenged the use of the 75th percentile for price-quality path regulation for the Energy Appellants and Transpower. MEUG argued that the cost of capital IMs for the Energy

⁶ *Ibid.*

⁷ Commerce Commission (2010) *Input methodologies (Airport Services)*, Reasons Paper, December 2010.

⁸ *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289 (The Input Methodology Appeals).

Appellants⁹ and Transpower should be amended to use the mid-point of the WACC range or that the 75th percentile should only be applied to new investment. The elements to MEUG's appeal included the following arguments / claims:

- generosity allowances in favour of suppliers amplified the effect of the choice of the 75th percentile by the Commission
- the Commission had a supplier bias which lacked a proper foundation and was unbalanced
- greater weight should be given to limiting excessive profits than to incentives to invest.

Vector and PowerCo submitted against MEUG's arguments.

In relation to Transpower only, MEUG submitted:

- Transpower's major capex was already committed before the IM determination and therefore was not dependent on a higher WACC
- the regulatory regime is capable of identifying any real risk of under-investment and applying a range of responses other than providing higher returns.

While Transpower argued in its notice of appeal and written submission that the 90th percentile of the WACC range should be used, in its oral submission Transpower did not pursue this argument. Transpower's counsel instead acknowledged that choosing a point within the range was a matter of judgement.

The airports argued that the same factors leading to the use of the 75th percentile for price-quality path regulation should apply to ID regulation and that the Commission should require them to report the 75th to 85th percentile range or an upper band materially higher than the 75th percentile.

⁹ PowerCo Limited, Vector Limited and Wellington Electricity Lines Limited (WELL).

The High Court decision

The High Court noted that the onus was on MEUG to illustrate that applying a mid-point WACC estimate would lead to a materially better IM, and that while it cast significant doubt on the Commission's position MEUG had not presented any positive evidence in support of its proposal. Similarly the High Court was not convinced by MEUG's evidence in support of the two-tier proposal (application of the 75th percentile only to new investment). The High Court in delivering its judgement not to amend the IM, directed that the Commission take into consideration in its revision of the IMs:

- the High Court's scepticism regarding use of a WACC that is substantially higher than the mid-point – including conducting analysis if practicable, of the type proposed by MEUG in its submissions
- MEUG's two-tier proposal in light of the High Court's observations.

The High Court's scepticism concerning the Commission's selection of a WACC higher than the mid-point stemmed from the absence of any empirical information concerning asymmetric social costs.

No supporting analysis was provided by the Commission. Indeed, the propositions advanced for choosing a point higher than the mid-point seemed to be considered almost axiomatic. This extended to a strongly expressed, but unsupported, view of the benefits of dynamic efficiencies deriving from investment without apparent regard to the nature of the investment¹⁰.

The High Court acknowledged that empirical analysis may support the Commission's position that the 75th percentile is appropriate, but it also drew the Commission's attention to an excerpt from a case involving Telstra in Australia:¹¹

¹⁰ *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289 (The Input Methodology Appeals). Paragraph 1462.

¹¹ *Telstra Corporation Ltd (No 3)* [2007] ACompT 3.

... there exists as a matter of theory the potential for asymmetrical consequences should the WACC be set too low or too high. Which of these consequences will carry with it the greatest social damage is not a matter solely for theory, however, but for robust empirical examination, well-guided by theory, of the actual facts of any particular case.

The Telstra case, decided by the Australian Competition Tribunal, was in relation to an application by Telstra for the review of a decision by the Australian Competition and Consumer Commission (ACCC). The decision rejected two of Telstra's undertakings in relation to the unconditioned local loop service (ULLS) on the basis that it was not satisfied that the charge for access to the ULLS and certain non-price terms and conditions were reasonable having regard to the governing legislation.

Telstra challenged the reasonableness of selecting a WACC below the mid-point to allow for an alleged asymmetry in the social consequences resulting from any errors. The Tribunal concluded that the adjustment to the WACC for the alleged asymmetry was reasonable given the benefits to end-users of the investment made by purchasers of the ULLS service.

In relation to the arguments raised by the airports in the High Court case against the Commerce Commission (that the same factors leading to the use of the 75th percentile for price-quality path regulation should apply to IDs) the High Court noted that ID regulation was not for regulating prices / revenues. As such requiring disclosure of return on investment (ROI) to the mid-point would promote the purpose of ID regulation by ensuring that sufficient information was readily available to interested persons in order to assess whether the purposes of Part 4 of the Commerce Act are being met.

The estimation of WACC is, all accept, a complex task involving significant exercising of judgement and is open not only to the possibility of error, but also to there being a range of views. We think the Commission's approach under ID regulation reflects that reality, and will provide an appropriate level and range of information to interested persons consistent with the s 53A purpose. ... Furthermore, there is nothing to prevent the Airports themselves

reporting additionally, by reference to an alternative percentile, and disclosing their reasons for doing so.¹²

2.2 WACC applied in previous telecoms decisions

The approach used to estimate WACC in the electricity, gas and airports IMs contrasts with the ‘simple analytical approach’ which uses both upper and lower bound values of component parameters to estimate upper and lower limits of the WACC range. This simpler approach was applied by the Commission in previous telecoms decisions.

In a Standard Terms Determination (STD) in 2009 the Commerce Commission considered the appropriate WACC value for a telecoms service, referring to practices with the telecommunications service obligations (TSO) WACCs.¹³

In the STD the Commission determined cost of capital estimates by benchmarking components of Ofcom’s (UK regulator) cost of capital for OpenReach and the Rest of BT as well as taking into account New Zealand specific factors. For example the Commission proposed a gearing level based on what was used in the previous TSO determinations (although this was changed after considering submissions on the proposed STD), as well as a market risk premium consistent with other Commission decisions.

The WACC used by the Commerce Commission, as well as the range on which it was based in its past TSO determinations are outlined in the Annex, together with the Commission’s reasons for its decisions. The TSO determinations were retrospective and so obviously the risk-free rate parameter was directly observable (and hence a point estimate) and changed in each determination. The WACC components that were the subject of debate for some TSO years were the appropriate asset beta, debt premium and market risk premium, and the Commission used the mid-point of low and high estimates for these in its

¹² *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289 (The Input Methodology Appeals).

¹³ Commerce Commission (2009) *Standard Terms Determination for the designated services of Telecom’s unbundled copper local loop service (sub-loop UCLL), Telecom’s unbundled copper local loop network co-location service (sub-loop co-location) and Telecom’s unbundled copper local loop network backhaul service (sub-loop backhaul)*, 18 June 2009.

WACC calculation. Under the Commission's complex analytical methodology standard errors would be derived for these three parameters.

2.3 Minimising the risk of error in estimating WACC

While the Commission's proposal to adopt the complex analytical approach to the estimation of WACC represents a departure from its previous approach to WACC estimation for telecoms services, the Commission believes the IM approach is also applicable to the telecoms sector¹⁴. At the same time, the Commission acknowledges that some parameters, including the asset beta, must reflect the specific conditions of the telecoms sector.

We agree that a consistent approach to estimating WACC across sectors is in principle appropriate. However we note that in its estimation of standard errors for the WACC parameters – which underpins its approach to estimating the WACC uncertainty – the Commission used a variety of methods, including the use of sample data, mathematical modelling and, in the case of asset betas for gas pipeline services, subjective assessment due to 'greater perceived riskiness' compared to the electricity business. Past experiences in estimating WACCs for telecoms services in New Zealand have highlighted the limited availability of suitable sample data (in contrast to the electricity business), as well as difficulties in mathematical modelling. Although the Commission has previously found some suitable comparator firms for assessing WACC for telecoms services¹⁵, it is likely that there will be less robust information for telecoms services than for electricity services, in which case it will be extremely challenging to obtain appropriate industry-specific estimates for the standard errors of the WACC parameters.

¹⁴ Commerce Commission (2014) *Determining the cost of capital for the UCLL and UBA price reviews*, Technical consultation paper, 7 March 2014. See page 5.

¹⁵ For example, the Commission used Auckland International Airports Limited (AIAL) as a comparator for the provision of TSO services on the grounds that it was a utility service provider with similar business risks to those of a TSO provider. See paragraphs 88-89 in Commerce Commission (2009) *Final TSO Cost Calculation Determination for TSO Instrument for Local Residential Telephone Service for period between 1 July 2006 and 30 June 2007*.

Thus, effectively the Commission will be attempting to use its complex analytical approach for telecoms to set a range using an extremely limited data-set – a proposition quite different from the case of electricity services. Such a limited data-set, or indeed use of information from other industries, is likely to increase the risk of incorrect estimation of the uncertainty associated with the WACC parameters for telecoms businesses. Under these circumstances the Commission should use the mid-point derived from its methodology.

A further complicating factor for estimating WACC for telecoms services is that we anticipate based on past experience (see, for example, Exhibit 1) that there may be industry dissension regarding the value of parameters that the Commission in the IMs regarded as relatively certain. Specifically, the Commission assumed that the standard error was zero for the following WACC parameters: leverage, debt issuance, equity beta, tax rate and risk free rate. However this does not necessarily indicate that there was no variation (and subsequent uncertainty) with relation to these parameters. In the case of leverage for electricity distribution and gas pipeline services, the Commission used the average (44%) from a sample of 79 firms in which the leverage ranged from 21% to 73%, so clearly there would be a non-zero standard error associated with this sample. However the Commission chose not to incorporate this within its estimation of the WACC.

<i>Factor</i>	<i>Low (%)</i>	<i>High (%)</i>	<i>Commission's point estimate (%)</i>	<i>Telecom (%)</i>
Risk-free rate	6.4	6.4	6.4	5.8
Market risk premium	5.5	8.5	7.0	7.5
Equity beta	0.000	0.571	0.286	1.14
Asset beta	0.0	0.4	0.20	0.80
Cost of equity	4.29	9.15	6.29	12.7
Debt premium	1.2	1.8	1.5	1.6
Cost of debt (pre-tax)	7.62	8.22	7.90	7.40
Gearing	30	30	30	30
Corporate tax rate	33	33	33	33
Investor tax rate	33	33	33	28
Post-tax nominal cost of capital (WACC)	4.5	8.0	6.0	10.4

Exhibit 1: *TSO cost of capital parameters for 2005/2006: Commission values versus Telecom recommendations [Source: Commerce Commission]*

As already noted, the Commission in its IM reasons paper expressed concern about possible errors in parameters and the risk that the true WACC was above the estimated mid-point. The Commission has not been explicit about its calculation of the 75th percentile, however the most likely approach would be to assume that the WACC exhibits a normal distribution. Assuming a symmetric distribution, at the mid-point the true value may be either higher or lower. Furthermore, the correct interpretation of a true 75th percentile is that there is 75% certainty that the true value will be lower than it. Thus risk would be minimised if the Commission selected the mid-point, not the 75th percentile.

In reality, the distribution is not normal. Clearly it would be truncated at zero at the very least, but in fact the WACC is not likely to be below a certain value, nor above a second maximum value. Intrinsic in the assumption of normality is the presence of long tails (both upper and lower). Percentiles of a truncated distribution will differ from that of a normal distribution. In addition, the distribution is likely to be asymmetric, thus further departing from the normality assumption. Essentially, the Commission's estimated 75th percentile is simply a value higher than the mid-point and does not represent a point for which there is 75% certainty that the true WACC value is lower.

The Commission's other consideration in selecting the 75th percentile was to ensure that suppliers regulated under Part 4 of the *Commerce Act* would have appropriate incentives to invest and innovate. In other words, the Commission regarded the 75th percentile as erring on the side of caution (that is, setting the WACC higher rather than lower) so as to promote dynamic efficiency (rather than static allocative efficiency). This assumes that the social cost of setting the WACC 'too high' outweighs the potential social costs of a WACC that is 'too low' – an assumption questioned by the High Court.

Although the UCLL and UBA price reviews are the subject of different legislation, the Commission must take into account the long-term benefit of end-users, and the promotion of efficiency, as per Section 18 of the Telecommunications Act. On this basis the Commission may also consider on dynamic efficiency grounds that adopting the 75th percentile for its WACC estimate is appropriate for UCLL and UBA services.

However, it should also be important to consider service-specific features in determining whether deviation from mid-point WACC estimates is appropriate. For example, as in the Telstra case cited above, there may be an argument for selection of a value lower than the

mid-point for UCLL services to promote investment by access seekers which will also promote the long-term benefit of end-users. Nevertheless as in the case of selecting the 75th percentile, this approach would increase the risk of error, and as such we do not recommend it.

It should also be noted that the approach adopted in selecting a WACC value must not be considered in isolation from other aspects of the UCLL and UBA pricing process. The estimated value of the WACC will have a material impact on the outcome of the cost modelling exercise, but so too will a number of other modelling inputs over which discretion may be exercised (such as forecast demand, capital and operating costs). Should the Commission decide to deviate from mid-point estimates for the WACC along with mid-point estimates for other input parameters, the margin of error for the final result will be wide, increasing the regulatory risk and ultimately this would be detrimental to the long term benefit of end-users.

3 Term credit spread differential

3.1 High Court input methodologies decision

Background

In its WACC decisions the Commission has historically matched the term of the risk-free rate (and the debt premium) with the term of the relevant regulatory period. In the 2010 cost of capital IMs determinations the Commission introduced for the first time an allowance (termed the TCSD) to recognise and compensate for the greater debt premium some regulated suppliers may incur in their debt portfolio where their average debt tenor is greater than the regulatory period (in this case, more than five years). The allowance would apply in respect of individual bond issues with an original tenor for more than five years. Although the TCSD relates specifically to the cost of debt, it was not incorporated in the WACC calculation as it would not apply to all regulated entities. Hence the Commission proposed that the allowance be applied as an *ex post* adjustment.

The Commission's decision to include a TCSD was also challenged by the appellants in the High Court IMs case.¹⁶

Term credit spread differential appeals

The Energy Appellants and Transpower proposed alternative cost of capital IMs using a 10-year risk-free term in which case there would be no need for a TCSD. The main arguments raised by the Energy Appellants were:

- the risk-free rate determined on the basis of a five-year term would materially underestimate the cost of capital because:
 - energy assets generally have long lives
 - real-world borrowing practices involve long-term borrowing in the energy market
 - investors expect a return on their investment over the long-term equivalent with higher returns
- the Commission erred in its estimate of the availability/ effectiveness / relevance to use swaps to allow regulated suppliers to re-price long-term debt to the five-year regulatory period.

Transpower also argued that a 10-year term would better reflect its debt-raising practices and that a five-year term for the risk-free rate and the debt premium would lead to an underestimation of its cost of capital. The airports raised similar arguments.

The High Court decision

The decision of the High Court was based on its acceptance of the principle that the risk-free rate must match the regulatory period, in order to avoid over- or under-compensation. The High Court concluded that the appellants' arguments failed to take into consideration the fact that prices are reset with each new five-year regulatory pricing period. At this point the risk-free rate and debt premium are reset and the suppliers are bound by the five-year

¹⁶ *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289 (The Input Methodology Appeals).

regulatory cycle for these parameters. The High Court in dismissing the challenge to the Commission's TCSD stated:¹⁷

- that it was not convinced it would be materially better for the term of the risk-free rate / debt premium to be fixed at 10 years – the risk-free rate should be aligned to the regulatory period to avoid over / under compensation
- it was not satisfied that eliminating the TCSD and including a 10-year term for the risk-free rate and debt premium, nor extending its application to all electricity distribution businesses would be materially better in meeting the purpose of Part 4 of the Act or the purpose outlined in s 52R
- the High Court would expect the Commission to review the structure and efficacy of the TCSD, undertaking further empirical research on the nature / availability of swaps, so that a TCSD where necessary may be able to be better suited to market practice.

As regards the latter point, the High Court notes that it is not convinced that a TCSD is required¹⁸:

Given the view we take of the basic issue of principle (that to avoid under and over compensation the risk-free rate should be matched to the regulatory period), the material before us has not persuaded us of the need for a TCSD at all. But no regulated supplier argued that, if we uphold the Commission's decision on the term of the risk-free rate and the debt premium, the TCSD should not be available.

¹⁷ *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289 (The Input Methodology Appeals).

¹⁸ *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289 (The Input Methodology Appeals), paragraph 1285.

3.2 Relevance of TCSD allowance for UCLL and UBA

We agree with the High Court sentiments that the term of the risk-free rate should match the regulatory period and the TCSD is not required. This matching with the regulatory period achieves consistency of the WACC with relevant cash flows.

The Commission's motivation for the introduction of a TCSD allowance appears to be that the regulated firm may have longer-term debt than that indicated by the regulatory period, and that there are costs involved in carrying such debt:

- a higher debt premium as a result of the long term
- swap costs arising when firms shorten the length of securities to match regulatory periods.

Note that this issue has already been traversed in telecoms in the context of the TSO where the regulatory period was only one year and so the risk-free rate and debt margin was evaluated using a one year term. In estimating the cost of debt for the TSO provider, the Commission from the 2001/2002 to the 2005/2006 Determinations calculated the cost of debt by applying a 1.5% debt margin to the one-year risk-free rate, which was based on an average of the one-year Government bond rate for one month (June). For the 2006/2007 Determination¹⁹ the Commission, increasingly concerned with global financial conditions, decided that the debt margin should be the sum of:

- the one year debt premium (proxied by a five year debt premium)
- annualised debt issuance costs
- interest rate swap contract costs.

In respect to the estimated value of the latter the Commission noted that this would be affected by many factors including the transaction size, as well as the risk characteristics of the firm.

¹⁹ Commerce Commission (2009) *Final TSO Cost Calculation Determination for TSO Instrument for Local Residential Telephone Service for period between 1 July 2006 and 30 June 2007*.

Of course it is unlikely that the regulatory period in relation to the UCLL and UBA services will be one year, as it was in the TSO. Furthermore, it is important to remember that the required WACC estimate for UCLL and UBA is a **regulatory** WACC appropriate for those particular services, and not the actual WACC of the particular regulated firm. The regulatory WACC should encompass the efficient cost of debt for a provider of the services in question. It may indeed be efficient for a firm to engage in interest rate swaps, given a mismatch between regulatory period and the term of the security. Nevertheless in this respect, as already noted there is a dearth of relevant sample data for telecoms firms in New Zealand and so finding appropriate comparator data is difficult. At the same time it is obvious that we cannot rely on information from one firm when assessing the efficient cost of debt in general, and more specifically the efficient use of interest rate swaps for repricing debt.

We conclude that given the principle, accepted by most regulators (and the High Court in its recent IMs decision), that the matching of the risk-free rate (and the debt margin) with the regulatory period is sufficient to prevent over- or under-compensation of the regulated firm, no further allowances are necessary. Therefore, a key focus of the Commission should become in this forward-looking price setting exercise the calculation of an accurate risk-free rate.

4 Concluding remarks

The main reasons the Commission sought to apply a higher than mid-point WACC estimate in the IMs were the risk of error, and the alleged asymmetric costs of under-estimating the WACC. In determining the cost of capital for the UCLL and UBA price reviews it is inappropriate for the Commission to set the WACC above the mid-point estimate, nor should a TCSD be applied.

We have demonstrated that for telecoms services the risk of error is minimised by the selection of a mid-point WACC. In particular, quite unlike the electricity industry, the Commission will be faced with an extremely limited data-set available in relation to telecoms services. As such there is a higher risk of incorrect estimation of the uncertainty associated with the WACC parameters for telecoms businesses. Furthermore we illustrated that the Commission's estimated 75th percentile is simply a value higher than the mid-point

and does not reflect the point at which there is 75% certainty that the true WACC value is lower.

As regards selection of the 75th percentile on the grounds of asymmetric costs of WACC under-estimation, we found no evidence that the social costs of under-estimation might outweigh the social costs of over-estimation in the case of UCLL and UBA services. We also cautioned that the outcome of the UCLL and UBA modelling process will be affected by a number of modelling inputs, including WACC, over which discretion may be exercised. The margin of error for the final result will be wide should the Commission choose to deviate from mid-point estimates for a selection of various parameters. This would increase the regulatory risk and would not promote the long term benefit of end-users.

With respect to the TCSD we note again that the Commission will face practical difficulties with the limited data-set. Nevertheless given the principle that the matching of the risk-free rate (and the debt margin) with the regulatory period is sufficient to prevent over- or under-compensation of the regulated firm, we believe no further allowances are necessary.

Annex A: WACC in TSO decisions

The WACC applied by the Commerce Commission in past TSO determinations, as well as the low and high estimates, and reasons for changes in WACC are provided below.

<i>TSO period</i>	<i>Low (%)</i>	<i>High (%)</i>	<i>Point estimate unrounded (%)</i>	<i>Reasons</i>
2007 to 2008 ²⁰	5.46	8.88	6.9	The debt margin and risk-free rate were revised.
2006 to 2007 ²¹	4.9	8.3	6.3	An asset beta of 0.2 was used. The debt margin of the 2001/2002 period, set at 1.5% was added to the one-year risk-free rate to obtain an estimate of the pre-tax cost of debt used in calculating the WACC.
2005 to 2006 ²²	4.5	8.0	6.0	The change in WACC was due to the increase in the risk-free rate from 6.0% to 6.4%.
2004 to 2005 ²³	4.27	7.79	5.73	The asset beta was revised from 0.4 to 0.2, and the risk-free rate increased to 6.0%, resulting in a decrease in the WACC for this period.
2003 to 2004 ²⁴	5.17	7.89	6.39	The point estimate decreased due to a reduction in the risk-free rate (4.9% down from 5.9%).
2002 to 2003 ²⁵	5.99	8.31	7.05	The slight decrease in the point estimate was due to an increase in the risk-free rate being offset by a decrease in the PTMRP (post-tax market risk premium).
2001 to 2002 ²⁶	5.56	8.08	7.12	The point estimate represented an increase from 5.92% in the TSO Draft Determination, due to an increase in the asset beta and an increase in the PTMRP.

Exhibit A.1: WACC applied in TSO decisions [Source: Commerce Commission]

- ²⁰ Commerce Commission (2009) *Final TSO Cost Calculation Determination for TSO Instrument for Local Residential Telephone Service for period between 1 July 2007 and 30 June 2008*.
- ²¹ Commerce Commission (2009) *Final TSO Cost Calculation Determination for TSO Instrument for Local Residential Telephone Service for period between 1 July 2006 and 30 June 2007*.
- ²² Commerce Commission (2008) *Final Determination for TSO Instrument for Local Residential Telephone Service for period between 1 July 2005 and 30 June 2006*.
- ²³ Commerce Commission (2008) *Final Determination for TSO Instrument for Local Residential Telephone Service for period between 1 July 2004 and 30 June 2005*, 10 September 2008.
- ²⁴ Commerce Commission (2007) *Final determination for TSO Instrument for Local Residential Service for period between 1 July 2003 and 30 June 2004*, 23 March 2007.
- ²⁵ Commerce Commission (2005) *Determination for TSO Instrument for Local Residential Service for period between 1 July 2002 and 30 June 2003*, 24 March 2005.
- ²⁶ Commerce Commission (2003) *Determination for TSO Instrument for Local Residential Service for period between 20 December 2001 and 30 June 2002*, 17 December 2003.