Telecom Corporation of New Zealand Limited

Submission on Commerce Commission Expert's paper:

Review of the beta and gearing for UCLL and UBA services

pwc

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Introduction

Scope of Report

1. The purpose of this report is to provide our submission comments in response to the Commerce Commission's (the Commission's) Expert's WACC Paper entitled "Review of the beta and gearing for UCLL and UBA services", by Oxera Consulting LLP (Oxera), dated June 2014 (the Oxera paper). We have also had general regard to the Commission's other consultation material on assessing the total service long run incremental cost (TSLRIC) for UCLL and UBA services.

2. This report has been prepared by PricewaterhouseCoopers (PwC) on behalf of Telecom Corporation of New Zealand Limited (Telecom).

3. The focus of this report is on the Commission's proposed approach to estimating key parameters of the cost of capital (i.e. beta, leverage and credit rating) for the UCLL and UBA price reviews. It is not intended to provide a full and comprehensive analysis of all matters pertaining to the estimation of the regulatory cost of capital or to comment on other cost of capital parameters.

4. Our position and reasoning on the various issues that arise in deriving a regulatory cost of capital is already well documented in various reports we have previously provided to clients and in submissions we have made to the Commission.

Background Knowledge

5. Cost of capital theory is a specialist technical subject. It is not the purpose of this report to provide a detailed discussion on the theory underpinning the Weighted Average Cost of Capital (WACC) and its components. In presenting our comments, we have assumed that readers of this report have a basic understanding of the theory underpinning WACC and how WACC and its components are derived.

6. Furthermore, we have assumed readers are familiar with the contents of the various reports and papers released by the Commission on the cost of capital for regulated industries and our submissions on the same.

Disclaimers

7. Our report has been prepared to assist Telecom in its submission to the Commission in relation to the regulatory cost of capital that might apply to setting the prices for services that affect Telecom.

8. We accept no responsibility to any other party other than Telecom to whom our report is addressed and, except that the report can be submitted for consideration by the Commission, unless specifically stated to the contrary by us in writing, it should not be copied to any third party without our prior, written permission. We accept no responsibility for any reliance that may be placed on our report should it be used for any purpose other than stated above.

9. We reserve the right, but will be under no obligation, to revise or amend our report and the opinions contained therein if any additional information, which was in existence on the date of this report but was not brought to our attention in preparing our report, subsequently comes to light.

10. The primary contacts for this submission are: Bruce Wattie, Partner, PricewaterhouseCoopers, bruce.wattie@nz.pwc.com; John Redmayne, Director, PricewaterhouseCoopers, john.redmayne@nz.pwc.com.

Asset Beta

Overall Approach

11.   In the Oxera paper significant emphasis or weight is given to Chorus' own actual beta in the beta analysis. This is explained as being due to Chorus being the only dedicated fixed access operator (with traded shares), which is thus the best and closest comparator to a notional provider of UCLL and UBA services (p.6 - all page number references to the Oxera paper unless otherwise stated). On these grounds placing additional weight on Chorus' own beta is reasonable. However, against this there is still the significant estimation error from relying so heavily on only one comparator company's observed beta. Moreover, in Chorus' case there has been only a limited history of listing as a separate company - during which period there has been a significant downgrading of the company's share price around regulatory developments. The limited listing period, of just over two years, also precludes use of the more conventional use of monthly returns in the beta analysis.

12.   Following from the above comment, it would have been more reasonable, in our view, for Oxera to have placed greater emphasis on the beta information from integrated telecommunications companies listed in overseas markets. These companies, in general, have longer share trading histories available and use of such a pooled sample should reduce beta estimation error. Concerns around the comparability of the activities of these companies to those of a UCLL or UBA service provider have partially been addressed by Oxera identifying a "refined comparator set". Residual concerns around comparability could, if deemed necessary, be addressed by undertaking a beta decomposition analysis - whereby line of business beta estimates for those companies are "decomposed" from the observable weighted average company betas. It is acknowledged that such analysis is costly to undertake, with no certainty of obtaining usable results, so it is understandable why Oxera might not embark on this without explicit instructions from the Commerce Commission to do so.

Estimation of Chorus' Own Beta

13.   In estimating Chorus' own beta Oxera has chosen to use the NZX 50 instead of the NZX All Share as the "market index", on the grounds that the NZX 50 is less affected by thin trading (p. 8). In our opinion it is likely that the effect of this would be mitigated by the small market capitalisation of those companies whose betas are affected by thin trading. A generally accepted benefit of using the broadest index available is that it provides a more comprehensive measure of the total "market" in a CAPM sense.

14.   Since Chorus has only been listed for 2.5 years Oxera, rightly in our view, defers from measuring Chorus' equity beta using monthly returns. Instead, it primarily relies on daily returns (p. 9), although weekly returns are also considered (p. 31). Our preference (and a relatively conventional approach) is to primarily rely on using five years of monthly data in the beta analysis (i.e 60 return observations), supplemented by consideration of daily and weekly data and different time periods. In Chorus' case there is sufficient data to use weekly returns, which are perhaps preferable to using daily returns in order to address any short-term auto-correlation or thin trading issues.

15.   Equity betas measured over shorter time periods are more likely to be affected by "one-off" events affecting the company of interest (as seems likely for Chorus) or the overall market. Such effects are reduced by using a longer measurement period, but at some point older data (i.e. the beta relationship between the company of interest and the overall market) will start to be less relevant to a forward-looking beta assessment.

16. Oxera analyses the sensitivity of its Chorus beta estimates to exclusion of share trading data around the two main "regulatory shocks" to Chorus' share price (p. 13). Doing so reduces its equity beta estimate for Chorus from 1.019 to 0.972 and, perhaps more significantly, reduces the standard error of its equity beta estimate from 0.165 to 0.126. As shown in the share charts provided by Oxera (pp. 12-13), the effect of these shocks was quite profound. As a matter of policy, it is not clear why the Commission would wish to assume that the notional provider of UCLL and UBA services should have its beta assessed on the basis that similar regulatory shocks should be assumed to be going to effect it as well. While removing the periods of irregular trading activity when measuring Chorus' equity beta is one way of addressing this matter, this further reduces the already short trading period over which its beta can be measured.

17. Oxera notes a small auto-correlation effect with Chorus' share price (footnote 9, p. 9). We note that the Dimson or "sum beta" technology can be used to address such effects. However, the impact on assessing Chorus' beta from using such technology is not known, but is unlikely to be significant given the level of trading in Chorus' shares.

18. Oxera states that it has used Chorus' average gearing over the relevant beta measurement period (p. 11). We concur that this is the technically preferred approach, although Oxera do not disclose sufficient detail for implementation of this to be verified.

19. Oxera conducts a decomposition analysis of Telecom's pre-demerger equity beta as a reasonableness check of Chorus' standalone equity beta estimates. This analysis supports a beta estimate for Chorus at the time of the demerger of 0.92 (equity beta) and 0.41 (asset beta) (p.15), although Oxera only looked back at the previous six months of daily data. While useful as a cross-check of Chorus' own beta, little if any weight should be placed on this estimate for the purpose of assessing an UCLL and UBA beta.

20. The effect of Chorus' fibre investment project on its observable beta is an open question (p. 24). Oxera states (p. 3) that the combination of managing the UFB project and the regulatory framework means that the technology risk faced by Chorus is at least partly mitigated. Oxera does not fully explain what they mean by this and, therefore, why this would mean that the beta for Chorus as a whole should be the same as for UCLL or UBA services.

NZ and Australian Listed Comparators

21. A comparator set of NZ and Australian listed companies is considered by Oxera as a reasonableness check of its Chorus beta estimate (p. 16). We note that this group of companies includes businesses that might not normally be considered network operators (e.g. airports and ports) or even natural monopolies (electricity generators, Telecom). Accordingly, it is difficult to draw any conclusions on the reasonableness of Chorus' beta (or more to the point a UCLL or UBA beta) from such comparisons. The comparisons provided (p. 16) of equity betas are of limited relevance as clearly these are affected by variations in companies' leverage.

22. Of the regional comparator companies reviewed by Oxera, Telstra is probably the most relevant, but would require decomposition analysis in order to remove the effects of its non-fixed line activities. Oxera has used two years of daily data to assess these comparator company betas - driven presumably by the limited data availability for Chorus' own shares (p. 16). While perhaps reasonable for benchmarking Chorus' asset beta against those of these comparator companies, outright estimates of the asset betas for these comparator companies should be measured over a longer period (e.g. such as five years).

23. At the conclusion of this analysis Oxera concludes that *"Statistical testing suggests that the observable Chorus beta is robust for use in estimating the equity beta for UCLL and UBA..."* (p. 21). With respect, it is difficult to see how reliance on the observed beta for a single company with only 2.5 years of share trading history, during which time there has been two periods of significant down-grading of its share price, can be concluded as providing a robust estimate of the UCLL and UBA beta. One interpretation of the standard error of Oxera's Chorus beta estimates is that it is not possible to conclude on whether or not Chorus' equity beta is any different from the market average equity beta of 1.0. Even if Chorus' beta estimate were to be considered highly reliable in a statistical test sense, from an experienced practitioner perspective, such a finding should be viewed with some scepticism (it may simply be an aberration) due to the short and turbulent share trading history of Chorus. A more reliable UCLL and UBA beta estimate is to be expected from analysing an appropriate sample set of comparator companies, with their betas measured over a more reasonable period of, say, five years.

International Telecommunications Company Comparators

24. Oxera's international telecommunications company comparator sample appears to have been selected and screened on a reasonable basis (pp.23-26). We concur with Oxera that no particular weight should be given to BT's observed beta (pp. 24-25). We note that some of the matters raised by Oxera on BT's beta could be addressed by a decomposition analysis (including incorporation of any underfunded pension liabilities in the leverage adjustment).

25. In our view the primary weight of the UCLL and UBA beta analysis should be placed on Oxera's international telecommunications company sample, with the main focus being on the most recent five year weekly and monthly betas for these companies. Issues of comparability of the activities of these companies to those of a UCLL or UBA service provider can be, and have been (by Oxera), partially addressed by refining the comparator set. As noted above, any residual concerns around comparability can, if necessary, be addressed by undertaking a beta decomposition analysis.

26. In addition to the most recent five years data, other, older five year periods could also be considered, but this does raise comparability and relevance issues. In particular, the older five year periods used in Oxera's analysis may be less relevant for the following reasons:

   a) five years to 2009 affected by the 2007-08 Global Financial Crisis;
   b) five years to 2004 affected by the 2000 internet boom / bust (the "tech wreck"); and
   c) five years to 1999 affected by the run up to the 2000 internet boom / bust.

27.   Oxera notes that the Commission has considered historical data going back as far as 20 years in the case of the Input Methodologies (IMs) that apply to certain other regulated industries, but that such a long time period is less relevant for the more rapidly evolving telecommunications industry (p. 9 & p. 34).

28.   Collectively, the above factors tend to suggest that somewhat more weight should therefore be placed on the most recent five years' betas. With respect to the use of daily or weekly observations, rather than monthly, we note that betas based on daily observations can be more affected by thin trading and for this reason weekly or monthly observations are to be preferred. In the latter case, the day of the week or day of the month can affect the measured equity beta. One way to control for this is to make the measurements using different days. We note that Oxera does not discuss whether it has done this in its analysis of weekly and monthly returns.

29.   We also note that Oxera presents means when it shows averages of betas in its tables. Median values can also be instructive in analysing average betas for sample sets of companies.

30.   On balance, the weekly and monthly asset beta estimates for the most recent five years, for Oxera's "refined comparator set" provide what we consider should be the primary reference point for assessing a UCLL or UBA service provider's asset beta. The figures for asset betas measured over the last five years are:- weekly returns, mean asset beta 0.36 (Oxera calculation) and median asset beta 0.34 (PwC calculation); monthly returns, mean asset beta 0.33 (Oxera calculation) and median asset beta 0.34 (PwC calculation) (from Table 3.3 at pp. 28-29). Decomposition analysis of the refined comparator set companies' asset betas, by line of business, could potentially provide a more finessed estimate.

31.   The fact that Chorus has only been listed for a shorter period does not, in our opinion, provide sufficient justification for giving any weight to the same shorter period for analysis of comparator company betas. The only relevant use of that data should be to consider the relativity of Chorus' observed beta with that of the betas for Oxera's "refined comparator set" over the same period. Oxera's analysis supports the conclusion that Chorus' asset beta is consistent with that of the "refined comparator set" (Chorus' two year daily asset beta 0.39 versus 0.39, Chorus' two year weekly asset beta 0.38 versus 0.41; pp.31-32). However, it is to be preferred if the primary basis for estimating the asset beta for the "refined comparator set" is based on a more conventional five year analysis, which analysis by Oxera yields mean estimates of 0.33-0.36 and median estimates of 0.34.

Regulatory Precedent

32.   "Evidence" from regulatory precedent (p. 37) is not actual market-based evidence per se, but (hopefully) should have been based on the same. Accordingly, any new regulatory decision should be based on up to date analysis of market evidence, rather than simply aligning with regulatory precedent, although the latter may provide insight on data sources and methodological issues. Oxera assess an approximate average asset beta from telecommunications regulatory decisions (which are not specifically identified or dated) of 0.50. Oxera notes that telecommunications company asset betas appear to have been falling over time, but note that some adjustment for a debt beta may be warranted (p. 39). In our view the Commission should not give any weight to this average regulatory beta estimate (which is not presented in this paper in any detail). Its regulatory asset beta assessment should be based on a proper assessment of current, relevant market evidence.

33. Regulatory precedents not referred to by Oxera are the Commission's previous decisions on the asset beta for the TSO. It would be useful to understand how the Commission and its advisor, Oxera, view the assessment of systematic risk for UCLL and UBA services versus that of the TSO services.

UCLL and UBA Beta versus Chorus' Beta

34. Oxera considers whether or not the UCLL and UBA beta differs from Chorus' overall beta and, if so, how to estimate this (p. 53). We consider that this issue is framed by Oxera in the wrong way. The asset beta estimate should be anchored on an appropriate comparator group of companies (e.g. Oxera's refined comparator set) and the questions should be whether or not the UCLL and UBA beta differs from the average beta for that group of comparator companies and, if so, how to estimate this.

35. In the absence of a beta decomposition analysis of the refined comparator set, these questions are difficult to answer with objective data. Given the short trading history of Chorus' shares and the uncertain effects of the UFB project on its beta, it is highly problematic to rely solely on a subjective analysis of Chorus' beta to address these questions. Moreover, some of Oxera's discussion of the "hedging" type risk management benefits to Chorus from running the UFB project in conjunction with UCLL and UBA services (p. 55) do not seem relevant to assessing the beta of a notional UCLL and UBA service provider for TSLRIC costing purposes. This points to using the refined comparator set asset beta as the best available estimate of the UCLL and UBA asset beta.

36. A related question, which Oxera does not appear to explicitly address, is whether or not UCLL and UBA services should be assumed to have the same asset beta and, if not, how to quantify the difference. Given the challenges in assessing a fixed service operator's asset beta versus that of an integrated telecommunication operator it is unlikely to be practicable to empirically assess a further distinction between a UCLL and UBA asset beta. Making such an assessment based on subjective analysis is undesirable. This suggests that the best approach will simply be to treat the UCLL and UBA asset betas as being the same.

37. In conclusion, in the absence of any objectively based beta decomposition analysis, the average asset beta for Oxera's refined comparator set provides the best estimate of both a UCLL and a UBA asset beta. A beta decomposition analysis of that data set might provide a more finessed estimate of the asset beta of a fixed services operator, which in turn could be applied as the asset beta for both UCLL and UBA services.

Oxera's UCLL and UBA Beta Conclusion

38. In its concluding comments Oxera proposes a recommendation for the cost of capital calculation for Chorus (p. 57), before presenting an equity beta assessment for UCLL and UBA services. It is not clear to us why Oxera presents a recommendation for Chorus' cost of capital calculation when presumably it was engaged by the Commission to provide recommendations on the UCLL and UBA cost of capital. This seems to reflect what is in our view an unwarranted over-emphasis in the Oxera paper on Chorus' own beta, instead of the more conventional approach of relying on a broad comparator set, in order to assess the asset beta for the service of interest.

39.   In the body of its report Oxera concludes on a narrow asset beta range for Chorus of 0.35-0.40 (p. 20) and a broad range of 0.30-0.45 (p.21 and again at p. 39). However, in its Executive Summary (p. 3) and in its concluding remarks (p. 58) Oxera presents an asset beta range of 0.33-0.51 (i.e. the lower end of the concluding range is 0.03 above the body of the report lower end of 0.30, and the upper end of the concluding range is 0.06 above the body of the report higher end of 0.45). There is no explanation or reconciliation of this concluding range with the ranges discussed in the body of the report.

PricewaterhouseCoopers Conclusion

40.   In conclusion, based on our analysis above, if the last five years' asset beta for Oxera's refined comparator set (mean 0.33 monthly, mean 0.36 weekly, medians 0.34 weekly and monthly; say range of 0.33-0.36) were to be used as the beta estimates for both a UCLL and a UBA services asset beta, then combined with Oxera's leverage recommendation of 40% and ignoring debt betas (refer discussion below), this would provide an equity beta range of 0.55-0.60 for UCLL and UBA services rather than the range of 0.55-0.85 that Oxera concludes on.

Leverage

Comparator Company Analysis

41. Oxera assesses average leverage for its full and refined comparator sets of companies at 40% and 47% respectively (p. 41). It also notes that Chorus' current leverage is 70% and that this has averaged 61% since November 2011. Oxera also discusses regulatory precedent on leverage.

42. In our opinion the most relevant information is the average leverage for the comparator set of companies, in particular Oxera's "refined comparator set". Chorus' own leverage is of no particular relevance - its only relevance is to the extent it is a member of the comparator sets of companies. Furthermore, we consider that regulatory precedents do not constitute market evidence and, accordingly, should be given no weight.

Allowance for Debt Betas

43. It is desirable, from a technical perspective, that the leverage assumption adopted be consistent with the asset beta estimate. Providing this is the case, then an assumption of zero debt betas in de-leveraging the comparator company equity betas and in re-leveraging to assess the equity beta for the company of interest should have negligible net effect on the final WACC estimate. If this is not the case then the issue of debt betas needs to be considered (discussed further below).

PricewaterhouseCoopers Conclusion

44. In conclusion, Oxera's analysis and the practical convenience of being able to ignore debt betas points to using a leverage estimate of 47%, the average leverage of the refined comparator set. However, the broader comparator set also provides support for adopting the 40% figure recommended by Oxera, with debt beta considerations likely to be minimal for such a small change in the leverage assumption (i.e. from 47% to 40%).

Credit Rating

Assessment of Credit Rating

45. Chorus has current leverage of 70% according to Oxera and a BBB S&P credit rating, on credit watch. If a notional fixed access operator has similar business risk to Chorus (as Oxera suggests), but lower leverage (at the 40% level recommended by Oxera), then it would be logical to expect that this notional business would have an S&P credit rating of at least BBB, but possibly higher.

46. Oxera has not provided any analysis of the credit ratings of the companies in its comparator set. This would have been useful, particularly for those comparator companies with leverage near the level of 40% recommended by Oxera for the UCLL or UBA service provider. Chorus' own, current credit rating should not be accorded any particular significance, other than to the extent it is a member of the comparator company sets used to assess asset beta and leverage for a notional UCLL and UBA service provider

PricewaterhouseCoopers Conclusion

47. Despite the limited analysis provided by Oxera, its conclusion that a suitable target credit rating for a notional UCLL or UBA service provider with leverage of 40% is in the range A- to BBB+ does not appear unreasonable.

Debt Beta

Unwarranted Focus on Chorus

48. In our view it is wrong for Oxera to begin its debt beta analysis on the assumption that it is (or should be) estimating Chorus' equity beta at a notional leverage level as the basis for estimating the equity beta for UCLL and UBA services (p.45). Oxera's beta analysis should, in our view, instead be focussed on its international telecommunications company comparator set, in particular its refined comparator set. Chorus' beta should have no special significance in the refined comparator set, expect perhaps to the extent Chorus is the best comparator within the set to a notional UCLL or UBA service provider. But even then, no undue reliance should be placed on Chorus' beta both because of the wider estimation error inherent in relying on a single company instead of a larger sample and because of the short and turbulent trading history of Chorus' shares.

49. Oxera's own analysis shows that Chorus' asset beta is consistent with the asset betas of its refined comparator set (Table 3.4, pp. 31-32). Accordingly, the best starting point for consideration of debt betas is to look at the average gearing and credit ratings of the refined comparator set, not of Chorus in isolation.

50. Oxera states (p. 45, fourth paragraph) that *"...the Commission needs to understand the returns required by debt investors in Chorus."* With respect, we disagree with this focus. What the Commission should be focussing on is the returns required by debt investors in the notional UCLL or UBA service provider, having regard to the returns required by debt investors in Oxera's (refined) comparator set of companies.

51. Oxera discusses (p. 47, second paragraph, second sub-paragraph) *"...deriving a 'notional' equity beta for Chorus..."* Again, with respect, we disagree on this point. The UCLL and UBA WACC assessments are not about estimating Chorus' WACC with a revised, notional gearing level. The purpose of the WACC assessment is to estimate the WACC for a notional (i.e. hypothetical) UCLL or UBA service provider. While Chorus may have higher gearing than the average of Oxera's comparator sets of companies, other companies in those sets have lower gearing. Accordingly, some of the comparator companies may have higher than average debt betas (perhaps including Chorus), while others will have lower than average debt betas. Providing the notional UCLL and UBA service provider has similar leverage to the average of these comparator companies, which Oxera recommends be the case, there should be minimal, if any, difference to the UCLL and UBA WACC analysis from either ignoring debt betas or allowing for them comprehensively throughout the analysis. On this basis the simplest approach is simply to ignore debt betas.

Estimation of Debt Betas

52. Oxera has made debt beta estimates based on regression analysis - debt market indices, by rating, regressed against equity market indices (p. 48). Two other bases of debt beta estimation are regression analysis of debt securities for individual companies against equity market indices and decomposition analysis of the margins of debt securities for individual companies. PwC has previously applied all three bases to analyse debt betas in a submission to the Commerce Commission on behalf of Transpower ("Transpower New Zealand Limited, Leverage and the Cost of Capital," PricewaterhouseCoopers, 5 April 2012).

53.   Based on its analysis Oxera concludes (p. 49):

    a)   The debt beta for an A rated company may be as low as 0.01-0.02;
    b)   The debt beta for a BBB rated company is close to 0.05;
    c)   The debt beta for Chorus (with its current leverage and credit rating) is likely to be in the range 0.05-0.10; and
    d)   The debt beta for Chorus at a notional leverage of 40% is likely to be zero.

Application of Debt Betas

54.   Oxera estimates the effect on its comparator company asset beta analysis of assuming these companies have a debt beta of either 0.05 or 0.10 (pp. 49-50). The assessed effect is to increase the average comparator asset beta by 0.01-0.03. We note that this same effect should then be reversed back out in the UCLL and UBA WACC analysis once the notional UCLL and UBA service provider is allowed to have a debt beta at the same level (which would be reasonable given that its assessed notional leverage according to Oxera should be the average of Oxera's comparator company set).

55.   However, Oxera acts as if its UCLL and UBA asset beta estimate is in fact Chorus' equity beta de-leveraged using Chorus' actual leverage with allowance for a debt beta (0.05-0.10) and then re-leveraged using the UCLL and UBA service providers notional leverage of 40% and an assessed debt beta of zero. The overall effect of this procedure (p. 51) is to raise Oxera's assessed UCLL / UBA asset beta estimate by 0.03-0.06 (i.e. from 0.38 to 0.41-0.44). In our view this adjustment is not warranted for the following reasons:

    a)   As discussed above, the preferred approach is to base the UCLL and UBA asset beta estimate on Oxera's refined comparator set with some (but necessarily limited) support provided by additional analysis of Chorus' asset beta - as the best fixed service operator comparator (not because it happens to be the ULL and UBA service provider). Instead Oxera acts as if it has based its UCLL and UBA asset beta primarily estimate on Chorus' asset beta with support provided by additional analysis of comparator sets (which approach then leads to its proposed debt beta adjustment); and
    b)   Even if Oxera's debt beta adjustment approach were to be used, the magnitude of the difference in debt betas (between 0.05-0.10 using Chorus' actual leverage of over 60% and zero using Chorus with notional leverage of 40%) appears to be too high. The PwC debt beta analysis for Transpower suggests that the debt beta for an A rated company is around 21% less than that of a BBB rated company [1] - not 100% less as Oxera assume. The difference between a A- or BBB+ rated company's debt beta (Oxera's assessed credit rating for a UCLL and UBA service provider) and that of a BBB rated company (such as Chorus) can be expected to be approximately half of this, say 10%. In other words the difference in debt betas is unlikely to be of any significance to the overall UCLL and UBA WACC assessment and can simply be ignored.

PricewaterhouseCoopers Conclusion

56.   In conclusion, for the reasons discussed above, debt betas should be ignored (for no significant loss of technical accuracy) in assessing a UCLL and UBA service provider's asset beta, which we consider should be based on analysis of Oxera's international telecommunications company comparator sets.

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[1] Refer tables 3, 6, 10 and 11, "Transpower New Zealand Limited, Leverage and the Cost of Capital," PricewaterhouseCoopers, 5 April 2012