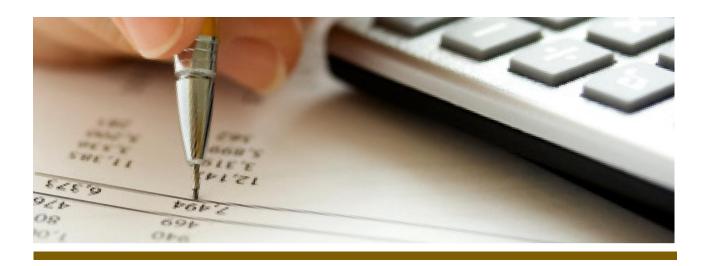
Report prepared for Vector Limited

WACC percentile - cross submission

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Introduction

- 1. The Commerce Commission has invited cross-submissions on the submissions it received in response to its *Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services* (Draft Decision). We have reviewed the expert reports prepared in response to the Draft Decision.
- 2. On our reading, all but 3 expert reports arrive at the same conclusions we do in relation to the evidence and analysis available to the Commission. Most experts conclude that:
 - the available evidence and analysis does not support setting the estimated WACC at less than the 75th percentile of the Commission's estimated range; there is some evidence in support of adopting a higher percentile
 - there are strong reasons to doubt the validity of the Commission's conclusions from its RAB multiple analysis
 - a properly based comparison with independent estimates of WACC suggests the move should be to a higher percentile than reduce the current 75th percent.
- 3. We limit our comments to the reports that provide a contrary view to at least some of the above points. The three reports are:
 - The Ireland, Wallace and Associates (IWA) analysis of RAB multiples for the Major Electricity Users Group (MEUG)¹
 - Covec report for BARNZ²
 - NZIER report for MEUG³
- 4. NZIER's report explains, at some length, that they (NZIER) are not persuaded by the theory or empirical evidence they have read in this process and that the Commission should take a different approach to its analysis. However, NZIER do not appear to provide any substantive evidence of its own. Hence, we respond to the analysis presented in the IWA and Covec reports.

¹ Ireland, Wallace and Associates, Commerce Commission's Proposed Amendment to the WACC Percentile for Electricity Lines Services and Gas Pipeline Services dated 22 July 2014, Report to the Major Users Group, 29 August 2014.

² Covec, WACC Percentile Issues, report prepared for BARNZ, 28 August 2014.

³ NZIER, Changing the WACC percentile, 29 August 2014 (NZIER report).



IWA RAB multiple analysis

- 5. IWA state that the purpose of their analysis is to extend the Commission's RAB multiple analysis by adjusting the estimated EDB market value for other sources of finance. The IWA analysis essentially reduces to reformulation of the reported balance sheet to reclassify the assets and liabilities into operating and financing. IWA present the results of the reformulation in two ways:
 - firstly as net operating assets and the total of net financing liabilities plus book value of equity
 - secondly, as "economic capital" and "market value".
- 6. However, the second presentation differs only marginally from the first and does so in form rather than substance. Therefore this commentary on the IWA analysis focuses on just the first presentation.
- 7. The Sapere report, dated 29 August 2014, prepared on behalf of Vector, outlined the principal deficiencies of the RAB multiple as a basis for inferring whether a regulated rate of return is excessive (or otherwise). Other expert reports prepared on behalf of EDBs have also explained the significant shortcomings. The IWA analysis does not address any of these shortcomings. Furthermore, the IWA approach to calculation of the multiple is not the conventional approach and therefore the results are not easily compared with market benchmarks. The potential value of the IWA analysis is therefore limited.
- 8. The IWA analysis results in values for the RAB multiples for Powerco and Vector that are significantly higher than the values estimated by the Commission. However, as demonstrated below, these higher values actually result not from recognition of other sources of finance but rather from inconsistency in the classification of the asset and liability items. We show that with application of the consistent classification advocated by Professor Stephen Penman, a noted authority on capital markets research, and the author of the leading textbook *Financial Statement Analysis and Security Valuation*⁴, there is recognition of the other source of finance but the resulting estimates of the multiples are actually similar to the values obtained by the Commission. They suffer the same shortcomings as a basis for inferring whether a regulated rate of return is excessive or otherwise.
- 9. The basic approach advocated by Professor Penman is that assets and liabilities should be consistently classified as operating if they relate to the production/sale of the goods/services provided by a business and consistently classified as financing if they relate to raising cash for operations and disbursing excess cash from operations. The operating assets and liabilities net to 'net operating assets' (NOA) and the financing assets and liabilities to 'net financing liabilities' (NFL). For ease of comparison with the IWA analysis, the reformulations presented in Table 1 and

⁴ 5th Edition, McGraw-Hill Irwin, New York, 2013.



Table 2 below for Powerco and Vector respectively, follow IWA in focusing on the March 2013 balance sheet for Powerco and the June 2013 balance sheet for Vector.

Table 1 Powerco RAB multiples

Powerco							
Balance Sheet as at 31 Marc	ch 2013	IWA reformulation		Penman reformulation			
		Operating	Financing	Operating	Financing		
Current Assets							
Cash and cash equivalents	428		-428		-428		
Trade and other receivables	31,469	31,469		31,469			
Finance lease receivables	366	366			-366		
Inventories	50	50		50			
Other financial assets	35	35			-35		
	32,348						
Non-current assets							
Property, plant and equipment	1,785,799	1,785,799		1,785,799			
WIP	53,918		-53,918		-53,918		
Finance lease receivable	10,298	10,298			-10,298		
Other financial asset	15,672	15,672			-15,672		
Intangible assets	14,707	14,707		14,707			
	1,880,394						
Total	1,912,742						
Current liabilities							
Trade and other payables	26,474	-26,474		-26,474			



Powerco						
Employee entitlements	3,231		3,231	-3,231		
Other financial liabilities	8		8		8	
Borrowings	132,161		132,161		132,161	
	161,874					
Non-current liabilities						
Employee entitlements	604		604	-604		
Other financial liabilities	145,029		145,029		145,029	
Borrowings	946,542		946,542		946,542	
Deferred tax liability	180,787		180,787	-180,787		
	1,272,962					
Equity	698,165					
Reserves	-220,259					
	477,906		477,906		477,906	
Total	1,912,742					
	1					
NOA/ Total (NFL + Equity)		1,831,922	1,831,922	1,620,929	1,620,929	
Commission estimate of equity	Commission estimate of equity premium		772,094	772,094	772,094	
Estimate of Enterprise Value		2,604,016	2,604,016	2,393,023	2,393,023	
Commission RAB		1,755,000	1,755,000	1,755,000	1,755,000	



Powerco

Implied RAB multiple	1.48	1.48	1.36	1.36
Implied RAB multiple including WIP	1.44	1.44	1.32	1.32

Table 2 Vector RAB multiples

Vector						
Balance Sheet as at 30 June 2013		IWA reformulation		Penman reformulation		
		Operating	Financing	Operating	Financing	
Current Assets						
Cash and cash equivalents	56,164		-56,164		-56,164	
Receivables and prepayments	170,437	170,437		170,437		
Inventories	5,513	5,513		5,513		
Derivative financial instruments	344	344			-344	
Income tax	3,811	3,811		3,811		
Intangibles	15	15		15		
	236,284					
Non-current assets						
Property, plant and equipment	3,779,702	3,779,702		3,779,702		
WIP	69,689		-69,689		-69,689	
Receivables and prepayments	2,134	2,134		2,134		
Derivative financial instruments	10,664	10,664			-10,664	
Deferred tax	1,646	1,646		1,646		
Investment in associates	13,589	13,589		13,589		



Vector					
Intangible assets	1,633,369	1,633,369		1,633,369	
	5,510,793				
Total	5,747,077				
Current liabilities					
Trade and other payables	273,187	-273,187		-273,187	
Provisions	11,676		11,676	-11,676	
Derivative financial instruments	2,065		2,065		2,065
Income tax	586		586	-586	
	287,514				
Non-current liabilities					
Trade and other payables	20,136		20,136	-20,136	
Provisions	8,690		8,690	-8,690	
Derivative financial instruments	226,331		226,331		226,331
Borrowings	2,420,430		2,420,430		2,420,430
Deferred tax liability	525,514		525,514	-525,514	
	3,201,101				
Equity	2,240,326				
Minority interests	18,136				
	2,258,462		2,258,462		2,258,462
Total	5,747,077				



Vector						
NOA/ Total (NFL + Equity)	5,348,037	5,348,037	4,770,427	4,770,427		
Less unregulated businesses	1,047,000	1,047,000	1,047,000	1,047,000		
Est NOA/ Total (NFL + Equity) for reg bus	4,301,037	4,301,037	3,723,427	3,723,427		
Section A: June 2013 estimates						
Est NOA/ Total (NFL + Equity) for reg bus	4,301,037	4,301,037	3,723,427	3,723,427		
Commission estimate of equity premium	509,364	509,364	509,364	509,364		
Estimate of Enterprise Value	4,810,401	4,810,401	4,232,791	4,232,791		
Commission RAB	3,533,474	3,533,474	3,533,474	3,533,474		
Implied RAB multiple	1.36	1.36	1.20	1.20		
Implied RAB multiple including WIP	1.34	1.34	1.17	1.17		
Section B: December 2013 estimates						
Est NOA/ Total (NFL + Equity) for reg bus	4,301,037	4,301,037	3,723,427	3,723,427		
Commission estimate of equity premium	320,196	320,196	320,196	320,196		
Estimate of Enterprise Value	4,621,233	4,621,233	4,043,623	4,043,623		
Commission RAB	3,609,944	3,609,944	3,609,944	3,609,944		
Implied RAB multiple	1.28	1.28	1.12	1.12		
Implied RAB multiple including WIP	1.26	1.26	1.10	1.10		



- 10. It is evident from Table 1 for Powerco that with Penman's consistent application of the operating/financing classification, NOA is significantly less than NOA as estimated in the IWA analysis. As a result the implied RAB multiple at 1.36 (1.32 including WIP) is not only significantly less than the IWA estimate of 1.48 (1.44) but is similar to the RAB multiple of 1.33 calculated by the Commission.
- 11. Similarly, Table 2 for Vector shows that with consistent application of the operating/financing classification, NOA is also significantly less than NOA as estimated in the IWA analysis.^{5,6} Section A of Table 2 shows the estimates of the RAB multiples based on the Commission's data for June 2013 and Section B shows the estimates based on the Commission's December 2013 data. In both cases the multiples obtained with consistent classification, 1.20 (1.17) for June and 1.12 (and 1.10) for December, are significantly less than the IWA estimates, 1.36 (1.34) for June and 1.28 (1.26) but are similar to the values obtained by the Commission, 1.16 for the June estimate and 1.09 for the December estimate.
- 12. The IWA analysis also includes an attempt to demonstrate that both Powerco and Vector earn significant excess returns. IWA uses the Commission's estimate of WACC to convert the Commission's estimate of the EV premium to a perpetuity. The perpetuity is then expressed as a fraction of NOA and that is claimed to be the excess return. Thus for Powerco, using the Commission's current 75th percentile estimate of WACC, the perpetuity is 6.82% of \$772m, that is \$52.7m pa. Expressed as a percentage of the IWA estimate of NOA this is 2.8%.
- 13. However, to label these IWA estimates as excess return ignores the reality of Powerco's actual earnings. For the year ended March 2014, Powerco's net operating income (normalised for tax) was \$115.5m (\$103.1m in 2013). Thus, using the Commission's estimate of WACC, residual operating income for Powerco, based on the IWA estimate of NOA, was actually a loss of \$9.5m. Similarly for Vector, the premium of \$509m converts to a perpetuity of \$34.7m pa. Expressed as a percentage of the IWA estimate of NOA this is claimed to indicate 0.8% excess return. In reality, for the year ended June 2014, Vector's net operating income was \$292.9m (\$324.6m in 2013) and thus residual operating income for Vector, using the IWA estimate of NOA, was actually a loss of \$71.9m.⁷
- 14. In summary, the IWA analysis of the RAB multiple does not address the fundamental deficiencies of the measure, is not comparable with conventional benchmarks, and the relatively high values obtained reflect inconsistent classification

IWA state the equity premium for Vector as \$533.755m based on the June data and \$326.233m based on the December data. These amounts have been taken from the Commission's worksheet but are incorrect. The Commission's error results from allocation of debt and equity on a proportionate basis but with deduction of a fixed amount for the unregulated businesses. The result is that with the Commission's estimates of the equity premium the EV for June and for December do not add up to the Commission's estimates of \$4085m and \$3920m for EV for June and December respectively. The analysis presented in Table 2 uses the correct values for the equity premium.

The IWA analysis includes a breakdown of the deduction for the value of the unregulated businesses. This has not been included in Table 2 as the limited segment disclosure in the 2013 annual report does not permit such a breakdown.

Because of the limited segment disclosure in Vector's 2014 annual report the estimate of residual operating income is based on the whole company.



of balance sheet items between operating and financing. Furthermore, the IWA assessment of the premium of enterprise value over book value for Powerco and Vector as being indicative of the companies earning excess returns ignores the actual level of earnings achieved by the companies.



Covec WACC Percentile Issue

- 15. Covec comment on the following issues:
 - the welfare standard adopted (section 2 of the Covec report)
 - international comparisons of WACC (section 3 of the Covec report)
 - WACC multiple analysis (section 3 of the Covec report)
- 16. We respond on each point in turn.

The welfare standard

- 17. Covec observes that the Commission's expert, Dr Lally, recommended forcefully that the Commission should adopt a total economic welfare standard. Covec argue that the Commission should adopt a consumer welfare standard.
- 18. As set out in our 29 August 2014 report, and as the Commission explained in some detail in its Reasons Paper, the Part 4 purpose is neither a total welfare nor a consumer welfare test. Rather, the Commission is required to promote the long-term benefit of consumers by promoting outcomes consistent with workably competitive markets such that outcomes (a) to (d) are achieved.
- 19. The economic concepts of consumer and total welfare are useful as guides to measuring and categorizing the effects that would result from changes to the WACC IM. However these economic concepts are not synonyms for the purpose statement.
- 20. We agree that the purpose statement cannot be interpreted as equivalent to a total welfare test. At the extreme, this would imply that the Commission would be indifferent to distributional outcomes (a perfectly discriminating monopolist would maximize total welfare), which would be contrary to 52A(1)(d). Equally, however, the Commission is not indifferent to the economic welfare implications of its regulatory interventions; workably competitive markets improve the long term outcomes for consumers by increasing economic welfare, as well as by limiting excessive returns. The Commission has to ensure that suppliers have incentives to innovate and to invest, and it is well recognized these incentives may at times (but not always) conflict with a pure consumer welfare objective.
- 21. The concern we raised in our 29 August 2014 report is that none of the Commission's experts directly assesses their recommendations against the core test for an IM established by the Commission in its Reasons Paper; that is, whether the approach would promote outcomes consistent with outcomes produced in workably competitive markets such that the section 52A(1)(a) to (d) requirements are met. Covec do not test its recommendations against the purpose statement either.



Regulatory precedents for setting WACC within a range

Untested assertions

22. Somewhat inexplicably, given the ease at which regulator websites can be searched, descriptions of the approach to setting WACC by regulators in other jurisdictions has been punctuated by unresearched assertions. The debate as to approaches elsewhere was initiated by the High Court comment on the Commission's practice of augmenting its estimate of WACC:8

Nor is overseas practice suggestive that such an approach has found more than narrow favour, since the only examples from the numerous regulatory decisions made every year were two relating to United Kingdom airports. (paragraph 1477)

- 23. In an appendix to its 13 March 2014 submission, Vector provided illustrative examples of regulatory decisions from Australia, Ireland, Philippines, and United Kingdom. These examples showed that the Court was wrong in its impression that the approach adopted by the Commission had found only narrow favour elsewhere.
- 24. However, NZIER claimed in a submission on behalf of the Major Electricity Users' Group (MEUG), that regulators overseas (in particular, those in the UK) had recently abandoned the practice of setting allowed rates of return above the midpoint on the WACC range⁹. NZIER provided no supporting evidence to substantiate its claims.
- 25. Frontier Economics, in a report prepared for Transpower, demonstrated that there has been no shift in regulatory practice of the kind claimed by NZIER.¹⁰ There are many, very recent examples of regulators in the UK allowing rates of return well above the midpoint of the WACC range and, in several instances, significantly higher than the 75th percentile.
- 26. In June, the Commission released a report it had commissioned from Economic Insights.¹¹ Economic Insights reviewed a number of regulatory decisions, from a range of overseas jurisdictions, on the choice of a WACC point estimate from within a range. Economic Insights suggested that like-for-like comparisons are best achieved by examining the basis points deviation from the midpoint of the regulator's estimated range, rather than the WACC percentiles selected by the regulator. Economic Insights conclude that when a comparison is made in relation to basis points, using a nominal vanilla basis, the adjustments by the Commission are

⁸ Wellington International Airport Limited v Commerce Commission [2013] NZHC 3289, at paragraph 1477

⁹ NZIER (2014), WACC uplift: Preliminary advice, a note prepared for MEUG, 13 March.

Evidence on the WACC percentile: A report prepared for Transpower in response to the Commerce Commission consultation, May 204

Economic Insights, Regulatory Precedents for Setting the WACC within a Range, 16 June 2014.



- on average markedly higher than for the regulatory decisions in most other jurisdictions, including the United Kingdom.
- 27. Covec, in a report prepared for BARNZ, argues that a "comparison of basis point uplifts is independently valid" and "Economic Insights work is robust and their conclusions are appropriate." Covec note the Economic Insights (untested) assumption that regulators elsewhere adopt a uniform distribution, but suggest that comparing uplifts through basis points is a valid method anyway:

Suppose the results of a basis point comparison differ from the results when percentiles are compared. That would tell us that there is variation in the underlying distributional assumptions, even if such variation could not be detected in the written decisions of regulators. In that context, the basis point comparison would obviously be preferred because it focuses directly on the increment to WACC.

28. Covec do not attempt to support this statement with examples from the data. A look at the data readily illustrates that a basis point comparison would not 'obviously' be preferred.

Adjustments are not only made to the point estimate

- 29. Any review of the decisions reached by various regulators will quickly identify that each regulator uses its own method to arrive at an estimate of WACC. Some of these methods are quite distinctive with different effects on the resulting estimate of WACC, and hence will result in diverse relationships with the true (but unobservable) WACC.
- 30. For example, one regulator might adopt conservative estimates of the input parameters resulting in an increased risk that its estimate of WACC would likely underestimate the true WACC; the regulator might therefore adopt a higher, say 80th percentile with a higher basis point increment to the mid-point estimate of say 70 basis points. Another regulator might use a less conservative method resulting in higher parameter estimates, and adopt a relatively lower percentile, say the 60th percentile with a 40 basis points increment over the mid-point. Without some understanding of the method used to arrive at the estimate of WACC, little guidance can be taken from the relatively different increments (measured either in terms of basis points or percentile), other than that the regulator is concerned not to underestimate WACC and makes an adjustment for this purpose.
- 31. In Table 3 we provide four examples from the Economic Insights report:¹³

Covec, WACC Percentile Issues, report prepared for BARNZ, 28 August 2014

¹³ Economic Insights, Annex A, pages 23 – 40.



Table 3 Comparative methods

Country	Regulator	Regulated sector	Model	Method	Estimated WACC	Basis point	Percentile
Australia	Australia Energy Regulator	Electricity distribution	САРМ	Market risk premium 6.5% from a range of 5% to 7.5% (slightly less than mid-point), equity beta 0.7 from a range of 0.4 to 0.7 (high end) and cost of debt is at mid-point of range	7.8%	37	71 th
United Kingdom	Ofgem	Telecommunication	CAPM and forward looking cost of debt based on BT bond data	Debt premium was set at 1%, the low end of the estimated range of 1% to 1.5%. Equity risk premium 5% was at the high end of a range, equity beta was set at the low end of the range.	7.17%	23.5	100 th
Australia	Independent Pricing and Regulatory Tribunal	Third party access to rail network	economic uncertainty index	Based on the estimate of uncertainty index which is within 1 standard deviation from long term average of zero	9%	0	50 th
United States	Massachusetts Department of public utilities	Electricity distribution	Gordon DCF	No explicit formulation	7.86%	-7	34 th



- 32. In the first two examples (AER and Ofgem), both regulators used the CAPM method. The AER selected estimates of the input parameters at around the midpoint of the ranges and adopted a WACC estimate at the 71st percentile. Ofgem however selected much lower estimates of equity beta and debt premium. To compensate, Ofgem adopted the 100th percentile of its estimated WACC range. Hence a comparison which focuses only on the differences in the percentile or basis point of the final estimate, and which ignores how the parameter estimates were arrived at, may not be particularly meaningful other than establishing that regulator's elsewhere augment their estimates of WACC to reduce the risk of underestimation.
- 33. In the third and fourth examples, the regulators use different models or methods to estimate WACC. Without a careful review of those methods, little can confidently be said about how the results of those methods compare with the estimates made by the Commission.
- 34. Covec's assertion that a comparison of basis points is "independently valid" and "more robust than the Commission indicates" suggests that Covec has not looked at the data.

Percentile comparison better when WACC ranges are volatile and wider

- 35. For a known or assumed distribution of the estimator of WACC, if a comparison is to be made of the augments to WACC across different jurisdictions (and acknowledging that such comparisons ignore differences in other inputs to the WACC estimate) then the most appropriate means of comparison will depend on the width of the range. If the decisions over which comparisons were being made involve narrow and quite constant ranges of estimates of WACC, a basis point comparison would be easier to calculate and easier to understand than percentile. However, if the ranges of WACC are volatile and wider, percentile is more appropriate to use than simple basis points.
- 36. To illustrate, Table 4 extracts two examples of decisions by United Kingdom regulators from the Economic Insights report. If a comparison is made in terms of basis points, the decisions would appear quite different; the basis point increment on one decision is 49 and on the other decision is only 7.7.
- 37. However, the difference is large because the first decision has a much wider range than the second one (almost three times) one has a range from 7.1 to 7.6 (width is 0.5), and other has a range from 7.51 to 8.9 (width is 1.39). The width of the estimated WACC range represents the regulator's uncertainty over its WACC estimate. With a large variation in range, a percentile comparison reflects correctly the relationship of the estimated WACC and its range (about 83-85 percentile), and hence the extent to which the regulator augmented its estimate of WACC to reduce the risk that it underestimates the true WACC.

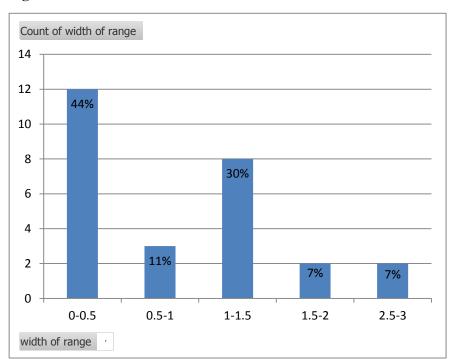


Table 4 Percentile vs basis point comparison with different width of WACC range

Country	Regulator	Sector	Lower WACC	Upper WACC	Percentile	Basis point	Width of range	WACC
United Kingdom	Competition Commission	Airport	7.51	8.9	85	49	1.39	8.7
	Ofgem	Electricity transmission	7.53	8.03	83	7.7	0.5	7.95

38. Figure 1 shows the width of the WACC distributions in the examples contained in the Economic Insights report, for which an estimated WACC range is provided (a total of 27 cases).¹⁴

Figure 1 Distribution of width of estimated WACC



39. The graph shows that 44% of the widths of the estimated WACC ranges are from 0 to 0.5, while 30% of widths are from 1 to 1.5; that is, the widths of the range of the second group are at least twice the widths of the first group. A further 14% of the examples have widths which are at least three times the widths of the first groups. The examples in table 2 show that where the widths of the examples varied greatly, a

¹⁴ For some examples only the point estimates are given and the range from which the point estimate is taken is not provided.



basis point comparison is not appropriate. The analysis above shows that at least 44% of the examples in the Economic insights report vary considerably in width. Therefore, if a comparison is to be made, a percentile approach would be more appropriate than a basis point for the examples cited by Economic Insights, as at least 44% of the examples are sufficiently varied in width to make a basis point comparison unreliable.

RAB multiple analysis

- 40. Covec assert that "irrespective of the cause of a high RAB multiple (i.e., above 1), the existence of such multiples is strong evidence that the WACC is not too low." ¹⁵
- 41. In our report, dated 29 August 2014, prepared on behalf of Vector, we outlined the principal deficiencies of the RAB multiple as a basis for inferring whether a regulated rate of return is excessive (or otherwise). Other submissions prepared on behalf of EDBs have also explained the significant shortcomings in drawing conclusions from RAB multiples. Covec does not address any of these shortcomings, nor does Covec provide any reasoning, literature references, or empirical evidence in support of their assertion that multiples above 1 provide strong evidence of the regulated WACC being too high.

Covec, WACC Percentile Issues, report prepared for BARNZ, 28 August 2014, page 7.