Review of Aspects of Wellington International Airport's Initial Pricing Proposal for PSE4

A report prepared for the Board of Airline Representatives New Zealand Inc.

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1. Summary

Wellington International Airport Ltd (WIAL) released its Initial Pricing Proposal (IPP) for the period 1 April 2019 to 31 March 2024 (PSE4). TDB Advisory (TDB) has been commissioned by the Board of Airline Representatives New Zealand Inc (BARNZ) to consider and report on a number of changes WIAL is proposing for the purposes of setting its pricing for PSE4.

1.1 Asset revaluation methodology

WIAL proposes to change its CPI forecasting methodology from an average of forecasts published by bankers, economists and public agencies to the breakeven rate implied by subtracting the yield on CPI-indexed government debt from the yield on fixed coupon government bonds of similar maturity.

Over the previous pricing period, PSE3, the average agency forecasts over-estimated CPI outcomes. First, the Commission has taken a clear view that a methodology where:

(i) a nominal WACC is used;

(ii) assets are indexed at forecast CPI (with these revaluations treated as income); and

(iii) the RAB is revalued at actual CPI,

meaning the real rate of return is largely maintained regardless of variances between forecast and actual CPI.

Second, we note that forecasters learn from past errors and are constantly refining their methodologies. Forecasts may not continue to have upwards error. We consider the breakeven methodology may systematically underestimate CPI because its natural holders are investors who want to hedge their principal against inflation. They will be willing to pay a premium, i.e. accept a lower expected overall return, in order to achieve their hedging/insurance objectives.

Suppliers have an incentive to underestimate CPI in order to increase revenue and nominal returns. In our view, a reasonable outcome might be to include the breakeven analysis as another forecast to be averaged with the forecasts of market participants currently used.

We conclude the present value adjustment to carry forward items for the IRR calculation should be at CPI, not the debt rate, as this is how they would have been revalued in the building blocks calculation if they had been incorporated at the time.

1.2 Low interest rate environment

We also comment on an assertion made by CEG ("Dealing with negative real risk-free rates", Dr Tom Hird, CEG, July 2019 provided to the Commerce Commission for Vector Ltd (the CEG report)) that because of the historically low interest rates prevailing world-wide, an offsetting upward adjustment should be made to the risk free rate and/or TAMRP. We think it is wrong to say that expected returns on equity have not dropped by the same amount. Record high stock markets and share valuation metrics like price/earnings ratios point to a lower cost of equity prevailing. Similarly yields on both investment and non-investment grade debt have fallen. The risk-free rate continues to be the benchmark against which other risks are comparatively priced.

1.3 Adjusting asset beta for the impact of unusually high capital expenditure

Capital expenditure increases operating leverage, but the capex only represents a fixed cost from the time it is contractually committed until it is spent. Before irrevocable commitment the planned capex is a variable cost that can be cancelled or deferred in response to market changes.

We present a derived formula for adjusting beta to reflect increased operating leverage from capital expenditure in a similar manner to the financial leverage adjustment. This formula yields an indicative adjustment over the PSE4 period for WIAL in the order of a 0.02 increase – ie, very small in the general estimation error of beta. The bulk of the increase comes from one project – the *MPPA Terminal Stage 1 We also note that for projects with a long gestation period the building blocks approach means that increased operating leverage is offset by a certain return achieved through compounding work-in-progress into the Regulated Asset Base.

1.4 Cost of debt methodology

WIAL proposes to apply its actual forecast cost of debt rather than the Commerce Commission's methodology of a standard debt cost based on a 5-year bond issued at the beginning of the PSE.

We prefer the Commission's approach because:

(i) it creates a consistent WACC for all regulated suppliers in the sector;

(ii) the value of assets should not be affected by how they are financed - applying a consistent leverage and bond margin to all suppliers reflects this;

(iii) through interest rate swaps, WIAL can shift its interest rate repricing to more closely match its PSE periods;

(iv) the Commission's approach puts treasury risk management back onto regulated entities where it belongs; and

(v) in the long run this is likely to be a "swings and roundabouts" issue depending on whether interest rates fall or rise over time.

We would not be averse to a term credit spread differential being applied to reflect the additional debt premium and swap execution costs incurred from issuing debt with a longer term than five years (as permitted for some electricity distribution companies) as WIAL has been a consistent issuer of long-term debt.

2. Introduction

Wellington international Airport Ltd (WIAL) released its initial pricing proposal (IPP) for aeronautical prices for the period 1 April 2019 to 31 March 2024 on 9 September 2019.

TDB Advisory (TDB) has been engaged by the Board of Airline Representatives New Zealand (BARNZ) to produce this report to support the airlines' responses to WIAL.

This submission continues with Section 3 analysing WIAL's proposed asset revaluation approach. Section 4 then presents the theory and conducts an exercise (related to WIAL) on the effect that operating leverage has on asset beta. Finally, Section 5 discusses WIAL's proposed cost of debt when calculating WACC.

3. Asset revaluation issues

This section examines two changes which WIAL is proposing in its methodology for applying revaluations.

3.1 CPI forecasts

WIAL is proposing to forecast CPI based on the difference between inflation indexed bonds and nominal bonds, rather its historical practice of using an average of forecasts published by a number of banks, economic and public agencies (paras 281-298 of the IPP).

The Commission has taken a clear view that a methodology where:

(iv) a nominal WACC is used;

(v) assets are indexed at forecast CPI (with these revaluations treated as income); and

(vi) the RAB is revalued at actual CPI

means the real rate of return is largely maintained regardless of variances between forecast and actual CPI.

The Commission paper "Input Methodologies Review, Invitation to contribute to the problem definition", 16 June 2015, paragraph 125 states:

> *"we consider it is important to point out to interested parties the natural hedge inherent in the current approach. For example, if forecast inflation is higher than actual, then the RAB revaluation (based on forecast inflation) will be higher than if actual inflation was used, which would depress allowed revenue (since we subtract revaluation amounts from allowed revenue). Conversely, the return on capital will be higher (since a higher nominal WACC based on forecast inflation is applied to the RAB), which increases allowed revenue. Since these effects go in opposite directions, the disparity between forecast and actual inflation should not have a major impact, and suppliers are arguably l eft largely whole."*

Nevertheless, it is advantageous for a supplier to underforecast CPI, in order to get higher near-term revenue

We accept WIAL's statement that mainstream forecasters have generally overestimated CPI since the Global Financial Crisis. However, forecasters are continually adapting their methodologies and looking at past errors. Past overforecasting doesn't necessarily mean future forecasts will have the same bias.

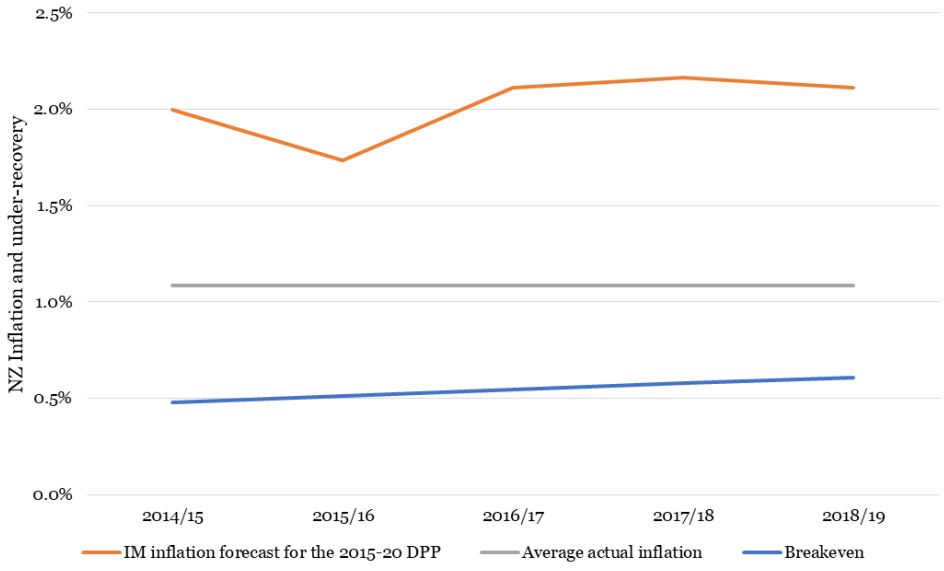
We consider WIAL's proposal to use the "breakeven rate" defined as the difference between 10-year Government nominal bond yields and CPI-indexed bonds to have some merit. It is an independent market derived data point. However, we have some concerns that it is likely to understate the market's unbiased

estimate of inflation. Many holders of CPI-indexed linked bonds hold them as an inflation hedge as they wish to match future liabilities such as superannuation or insurance pay-outs that may increase in line with general inflation. Therefore, they will be willing to pay extra for the hedging/insurance properties against inflation uncertainty that CPI-linked bonds provide. They will not be investing on a maximising return basis, but rather to obtain the hedge. This would lead to the breakeven rate being lower than market expectations. We would expect investors to arbitrage large differentials, but the uncertainty of inflation means arbitraging small differences may not pay off.

Figure 1 below sourced from the CEG Report and also presented in the IPP supports the assertion that the "breakeven rate" under-forecasts CPI. We note that we are not clear on CEG's methodology in deriving the breakeven rate and the curve does not bear any relationship to the chart of breakeven rate provide by WIAL in para 295 of the IPP, which only gets near 0.5 in mid-2016.

In our view a reasonable outcome might be to include the breakeven analysis as another forecast to be averaged with the forecasts of market participants currently used. Both forecasts and the breakeven analysis should be from the time that the risk-free rate underlying the WACC calculation was made, to ensure the inflation expectations match the risk-free rate.

Figure 1: CEG chart: breakeven vs IM inflation



Source: CC, RBNZ, CEG analysis

3.2 Carry-forward adjustment

WIAL, on advice from Sapere ("The default adjustment for unforecast revaluation gains and losses", 8 January 2018, Appendix G to IPP), makes a present value adjustment to carry forward items for the IRR calculation, adjusted forward at a pre-tax cost of debt. We believe this approach is inconsistent with the building blocks model. If the un-forecast revaluation had been "forecast" when the revenue level was being set, the quantum would have entered the building block's pro-forma balance sheet at the time and then been escalated at the CPI forecast in the remaining years of 5-year price setting event. Hence, the appropriate escalation is CPI.

We note that this adjustment is not critical, as the carry-forward adjustment means the additional return from the revaluation entering after a higher present value adjustment translates into lower revenue for the next PSE and the appropriate WACC is earned. From our modelling the carry-forward adjustment correctly maintains returns overall from un-forecast revaluations. We would still recommend escalating at CPI rather than the debt rate as it reduces the impact of the carry-forward adjustment on revenue, creating less lumpiness from one PSE to the next.

3.3 Impact of historically low interest rates world-wide on the cost of equity

We have been asked to briefly comment on the assertions made in the CEG Report that offsetting upward adjustments to either the TAMRP and/or the risk-free rate should be made because of the historically low risk-free interest rates prevailing world-wide.

We acknowledge interest-rates are at exceptionally low levels. But that does not mean that expected returns on equity are unchanged. The risk-free rate is the benchmark for all investment and alternative investments are measured against that. Equity markets world-wide are near all-time highs and valuation ratios such as price to equity or Enterprise Value to EBITDA are similarly high. This suggests the discount rates used to value companies' future earnings have fallen along with the risk-free rate. The reason cash returns and equity returns have diverged in recent years is precisely that the TAMRP hasn't reduced. As discount rates fall because of the lower interest rates investors reduce their expected required future rate of return and are willing to pay more for the same income stream. Thus, equity values tend to rise while interest rates fall.

Similarly, the credit margins on both investment grade and non-investment grade bonds have reduced, rather than expanded, as interest rates have fallen. This is again consistent with expected returns having fallen along with interest rates.

Because investors have had to reduce their expectations for future returns generally, we see no reason a priori why an artificial adjustment to either the risk-free rate or the TAMRP is necessary for capital budgeting or setting reasonable returns for regulated industries.

4. Framework for considering the impact of capital expenditure on asset beta

4.1 Impact of capital expenditure on operating leverage

We concur with WIAL and Houston Kemp that a period of higher capital expenditure can increase operating leverage, which is a fundamental determinant of beta. However, the impact is not large. The most helpful discussion of this we have found is in the textbook "Principles of Corporate Finance" by Brealey, Myers & Allen, 11th Ed. (2014) – widely used in MBA finance courses. In Section 9-3 of this textbook there is a discussion on what determines asset betas. We present the full discussion on operating leverage as Figure 2 on the next page and discuss the issue further following the excerpt.

Figure 2: Excerpt from Brealey, Myers & Allen, 11th Ed. (2014), pp227-228

Operating Leverage A production facility with high fixed costs, relative to variable costs, is said to have high *operating leverage*. High operating leverage means a high asset beta. Let us see how this works.

The cash flows generated by an asset can be broken down into revenue, fixed costs, and variable costs:

$$\text{Cash flow} = \text{revenue} - \text{fixed cost} - \text{variable cost}$$

Costs are variable if they depend on the rate of output. Examples are raw materials, sales commissions, and some labor and maintenance costs. Fixed costs are cash outflows that occur regardless of whether the asset is active or idle, for example, property taxes or the wages of workers under contract.

We can break down the asset's present value in the same way:

$$\text{PV(asset)} = \text{PV(revenue)} - \text{PV(fixed cost)} - \text{PV(variable cost)}$$

Or equivalently

$$\text{PV(revenue)} = \text{PV(fixed cost)} + \text{PV(variable cost)} + \text{PV(asset)}$$

Those who *receive* the fixed costs are like debtholders in the project; they simply get a fixed payment. Those who receive the net cash flows from the asset are like holders of common stock; they get whatever is left after payment of the fixed costs.

We can now figure out how the asset's beta is related to the betas of the values of revenue and costs. The beta of PV(revenue) is a weighted average of the betas of its component parts:

$$\beta_{\text{revenue}} = \beta_{\text{fixed cost}} \frac{\text{PV(fixed cost)}}{\text{PV(revenue)}} + \beta_{\text{variable cost}} \frac{\text{PV(variable cost)}}{\text{PV(revenue)}} + \beta_{\text{assets}} \frac{\text{PV(asset)}}{\text{PV(revenue)}}$$

The fixed-cost beta should be about zero; whoever receives the fixed costs receives a fixed stream of cash flows. The betas of the revenues and variable costs should be approximately the same, because they respond to the same underlying variable, the rate of output. Therefore we can substitute β_{revenue} for $\beta_{\text{variable cost}}$ and solve for the asset beta. Remember, we are assuming $\beta_{\text{fixed cost}} = 0$. Also, PV(revenue) − PV(variable cost) = PV(asset) + PV(fixed cost).[14]

$$\beta_{\text{assets}} = \beta_{\text{revenue}} \frac{\text{PV(revenue)} - \text{PV(variable cost)}}{\text{PV(asset)}} = \beta_{\text{revenue}} \left[1 + \frac{\text{PV(fixed cost)}}{\text{PV(asset)}} \right]$$

Thus, given the cyclicality of revenues (reflected in β_{revenue}), the asset beta is proportional to the ratio of the present value of fixed costs to the present value of the project.

Now you have a rule of thumb for judging the relative risks of alternative designs or technologies for producing the same project. Other things being equal, the alternative with the higher ratio of fixed costs to project value will have the higher project beta. Empirical tests confirm that companies with high operating leverage actually do have high betas.[15]

We have interpreted fixed costs as costs of production, but fixed costs can show up in other forms, for example, as future investment outlays. Suppose that an electric utility commits to build a large electricity-generating plant. The plant will take several years to build, and the cost is fixed. Our operating leverage formula still applies, but with PV(future investment) included in PV(fixed costs). The commitment to invest therefore increases the plant's asset beta. Of course PV(future investment) decreases as the plant is constructed and disappears when the plant is up and running. Therefore the plant's asset beta is only temporarily high during construction.

There are two points we want to draw from the above discussion. First, capital expenditure is only an additional "fixed cost" for the period from commitment until it is spent. Until the money is committed the capital expenditure is a variable cost. Once it is spent it is a sunk cost. Apart from very large projects most capital expenditure occurs relatively quickly. Operating leverage reflects fixed operating costs or future commitments, it does not reflect capital intensity per se. Likewise, share-market valuations and betas reflect expected future cashflows, not sunk costs.

WIAL's annual capital expenditure for the last six years is presented in Table 2 below.

Table 1: WIAL's capital expenditure

Financial Year ($m)	Property, plant and equipment	
	Committed*	Annual spend
2019	41.2	72.5
2018	32.2	84.5
2017	59.4	80.5
2016	35.9	55.4
2015	3.0	21.6
2014	10.6	15.3

**From notes to the accounts of contractual obligations to purchase or develop at end of prior financial year*

As presented by Table 2, over the last six years, the annual capital spend by WIAL always exceeded that committed at the beginning of the year. The average committed capex at the beginning of the year during PSE3 was $36M; and on average committed capex at the beginning of the financial year was 49% of annual spend.

The second insight to come from the Brearley, Myers and Allen discussion above is the formula gives a framework for determining the magnitude of impact which committed capital expenditure might have on beta.

$$\beta_{Assets} = \beta_{Revenue}\left[1 + \frac{PV(fixed\ Costs)}{PV(asset)}\right]$$

We can solve for Beta Revenue by simply dividing through by the costs-to-assets ratio set out above giving,

$$\beta_{Revenue} = \frac{\beta_{Assets}}{1 + \frac{PV(fixed\ Costs)}{PV(asset)}}$$

For this exercise we take as β_{Assets} the Commission's assessed beta for WIAL of 0.60 as derived from its comparator sample of listed airport companies.

For the PV(assets) we sum WIAL's equity and interest-bearing liabilities from its FY19 annual report yielding a value of $1.08bn. The additional risk to the enterprise of capital expenditure must be seen in the context of the size of the whole company. Similarly, the comparable company data used by the Commission to derive airport betas is based on the whole company, and the comparable companies, like WIAL, include non-aeronautical activities. A further point of note is that ideally, we would use a market, rather than book value for equity. Auckland International Airport, for example has a market value of equity 1.8 times its book value. Recognising AIAL's larger size and New Zealand pre-eminence we have applied a more conservative ratio of 1.5 to WIAL yielding PV(assets) of $1.39bn

For a measure of PV(fixed costs) we first note that in FY19 WIAL had wages and operating expenses of $36.5M. It is difficult for an outsider to determine the proportion of costs which are fixed but in the short

run we suspect a high proportion are. However, in the long run many staff and operational costs could be varied to the scale of operations. We have assumed 50% of operating costs are fixed. To obtain a PV we have discounted 50% of the current operating expenses assuming a constant perpetual growth rate (ie, divided by r-g, where r is the equity discount rate and g is the assumed growth rate). r-g is calculated at 2%, being the growth rate calculated from applying a constant dividend growth rate model to WIAL's current dividend yield (including subvention payments). This, with a 28% tax rate, yields a PV(fixed costs) of $657m. To this we have added a "base" capital expenditure commitment of $36m, being the average committed capital expenditure disclosed in WIAL's most recent 5 annual reports.

We acknowledge that there are some broad assumptions required in determining PV(fixed costs), however sensitivities of assuming 25% and 75% costs (see below) show the analysis is fairly insensitive to this assumption.

Solving the above formula yields a revenue beta of 0.37.

We can use this revenue beta to look at the impact of increasing the level of capital expenditure to see if there is a significant impact on asset beta, all else being held constant.

As noted above, the base capital expenditure commitment level assumed is $36M, being the average committed capital expenditure disclosed in WIAL's most recent 5 annual reports.

Looking forward, we have used the information on committed and commissioned capital expenditure outlined in appendix D of WIAL's IPP. Most items of capital expenditure are spent and commissioned in the same financial year. Fort these projects we have assumed that 49% of the cost is committed at the beginning of the financial year based on PSE3 (see above). Five projects are spread over multiple financial years. In the first year In these case we take the full capital cost as committed in the first year of expenditure and remaining expenditure in each following year as committed. In the case of New 8MPPA Terminal - Stage 1 we assume full commitment at the end of FY22, as earlier spending is relatively minor. The five projects are:

- AFS Relocation;
- New EDS ECAC Std3;
- Cargo Hub Stage 1;
- New 8MPPA Terminal - Stage 1; and
- Trunk Utilities Relocation.

This approach yields an average capital commitment over PSE with a present value of $103m. We have considered also the following capital expenditure commitment levels:

- $56m – the present value of the average capital commitment excluding the new 8MPPA terminal - stage 1;
- $103m – as noted above, our calculation of the present value of the average level of annual capital expenditure outlined in Appendix D of the IPP for PSE4.; and
- $140m – this number represents the committed capital expenditure required to get the asset beta up to 0.63 – WIAL's proposal. Our conclusion is that WIAL's average committed capital expenditure is below this level.

The results of the estimated asset betas and changing capex are presented in Table 3.

Table 2: Impact of capital expenditure commitments on airport's asset beta

WIAL capex commitment	$36M	$56M	$103M	$140M
Beta (assumed fixed cost proportion=50%)	0.6	0.606	0.619	0.630
Beta (assumed fixed cost proportion=25%)	0.6	0.607	0.623	0.636
Beta (assumed fixed cost proportion=75%)	0.6	0.605	0.617	0.626

Table 3 indicates the increase in capital expenditure levels over the PSE4 period might justify a beta of 0.62. Without including the new 8MPPA Terminal the change is de minimis.

We note that the formulae derived by Brearley, Myers and Allen appear to be for a competitive firm that is not subject to any regulation. The analysis may differ in the case of WIAL because it has a high level of market power and is subject to light-handed regulation. However, we consider that any change would likely be toward a reducing the underlying revenue and asset betas because a regulated firm will have more certainty of future revenue when undertaking a capital project of this nature.

In particular, the "building blocks" methodology for incorporating new assets into the Regulated Asset Base ("RAB") needs to be considered. During the construction period for assets such as the Terminal, the work-in-progress is compounded into the RAB at WACC. Only when completed is the asset subject to the price path (which has been calculated to earn on the RAB including the compounded return on work-in-progress.

Considering this in the Brearley, Myers and Allen framework above:

$$\beta_{Assets} = \beta_{Revenue}\left[1 + \frac{PV(fixed\ Costs)}{PV(asset)}\right]$$

During the construction period PV(fixed costs) is higher reflecting committed, but unspent capital expenditure. But also, Beta Revenue is minimised as the return is compounded at a certain rate into the RAB regardless of economy wide factors impacting other airport revenue. This offsets any need to compensate for increased operating leverage.

We observed above that determining PV(fixed costs) is difficult but note that changing that number by 50% (fixed cost proportion from 50% to 25% and 75%) had minimal impact on beta. The reason for this is that WIAL's ratio of revenues to expenses (components of EBITDAFI) is 3.8x. This contrasts with a manufacturer, e.g. Synlait, where this ratio is 1.1x. Hence WIAL's beta will be influenced by cyclicality of revenue much more than operating leverage compared to manufacturing companies with a revenue-expense structure like Synlait. (In Synlait's case the contractual arrangements it has for its main input cost, milk, will be a major determinant of its operating leverage).

4.2 Alternative operating leverage metrics

HoustonKemp ("WACC and target rate of return for PSE4", July 2019, Appendix L of IPP) argue that WIAL's operating leverage is higher than other comparable airports. The measure they use to determine this is annual percentage change in EBIT divided by the annual percentage change in revenue. We don't see such a metric as a useful measure of operating leverage as it doesn't focus the denominator on the key variables – committed capex and fixed operating costs. The use of revenue as numerator is a poor proxy for enterprise value.

We also note that the ratio HoustonKemp use, being the ratio of two rates of change, is extremely volatile. The numbers in Table 4 on p11 of their report oscillate between -1.71 and 9.0 which suggest taking the average of 5 observations has low statistical validity.

It does not appear that anyone has claimed that WIAL's fixed operating cost structure is significantly different from the comparator group; and as illustrated above, for an airport all operating costs are quite low as a percentage of operating revenue.

5. Proposal to use WIAL's actual cost of debt

WIAL proposes to use its forecast actual cost of debt for the purposes of calculating its WACC. This has been calculated by taking the yields, term and quantum of WIAL's existing debt (plus benchmark issuance costs). No reference to the impact of WIAL's swaps on the yield of existing debt is mentioned in the description. This unhedged cost is weighted over the period with anticipated new issues of fixed rate debt required for refinancing maturing debt and capital expenditure. The cost of new debt is calculated as the 10-year government stock rate estimated from the forward curve plus a debt premium appropriate to 5-year BBB+ bonds (plus benchmark issuance costs). Leverage is assumed at the Commission's recommendation which is consistent with the leverage of an A- airport.

The Commission's approach utilises a standard forward-looking cost of debt calculated as the 5-year government stock rate at the start of the pricing period plus a debt premium appropriate to 5-year A- bonds (plus benchmark issuance costs).

We believe the Commissions broad approach, which is applied across all regulated industries is preferable to the company actual cost approach. Our reasons for this are as follows:

(i) The Commission's approach creates a consistent WACC to be applied across a sector. Both consumers and the airports know all airports have the same permitted return.

(ii) Conventional financial theory states that the value of assets should not be impacted by how the assets are financed. This is particularly the case in New Zealand where the imputation system means there is no argument for a tax shield on debt. Hence WACC should be largely independent of leverage strategy. Taking the actual funding mix departs from this principle. In particular, HoustonKemp on p7 acknowledges the leverage anomaly whereby the WACC calculated by the Brennan-Lally model rises as leverage increases. This has been debated in Commission decisions before with the outcome being that the use of a standard leverage assumption is better than the complication of calculating debt betas. The WACC increases with leverage because of the debt premium. The higher the leverage the more capital the debt premium is applied across; and also, as leverage increases a company's credit rating will fall and its debt premium will increase. This latter aspect reflects some equity risk being transferred to debt holders. Without incorporating a debt beta in the equity beta levering formula, the leverage anomaly arises. Hence the "A-" v "BBB+" debate is not relevant. Having a consistent model for leverage and debt cost and applying it to all companies in the sector is appropriate. We note that a BBB+ assumption is applied to electricity networks which includes unrated and AA-/Aa3 Transpower as well as BBB+ rated companies.

(iii) Through the use of interest rate swaps, WIAL can shift its interest rate repricing exposure to more closely match its PSE regulatory periods, should it wish to.

(iv) The Commission's approach puts treasury management risk back onto regulated entities. Under the proposed WIAL approach the airlines and, later on, the Commission would need to take a view on whether WIAL was adopting a prudent and appropriate treasury policy.

(v) Finally, if a regulated issuer chooses not to use swaps to align its interest rate repricing, there will in the long run likely be a "swings and roundabouts" issue with the regulated entity which issues term fixed-rate debt facing higher actual costs during periods when interest rates fall over time (as currently) and lower actual costs when interest rates rise.

We note that the Commission has instituted a Term Credit Spread Differential (TCSD) – this recognises the additional debt premium and interest rate swap execution costs incurred from issuing longer term debt. This is available to suppliers whose debt portfolio has a weighted average tenor greater than five years. We calculate WIAL's average tenor as at 31 March 2019 as 4.88 years. Clearly to have that average tenor a number of debt tranches are longer than 5 years and we acknowledge WIAL has been a regular issuer of longer tenor debt. We think it would be appropriate for WIAL to use the TCSD adjustment on its bond issues with a tenor of greater than 5 years in its information disclosure.

6. Conclusions

Over the previous pricing period, PSE3, the average agency forecasts over-estimated CPI outcomes. First, the Commission has taken a clear view that a methodology where:

(i) a nominal WACC is used;

(ii) assets are indexed at forecast CPI (with these revaluations treated as income); and

(iii) the RAB is revalued at actual CPI,

meaning the real rate of return is largely maintained regardless of variances between forecast and actual CPI.

Second, we note that forecasters learn from past errors and are constantly refining their methodologies. Forecasts may not continue to have upwards error. We consider the breakeven methodology may systematically underestimate CPI because its natural holders are investors who want to hedge their principal against inflation. They will be willing to pay a premium, i.e. accept a lower expected overall return, in order to achieve their hedging/insurance objectives.

Suppliers have an incentive to underestimate CPI in order to increase revenue and nominal returns. In our view a reasonable outcome might be to include the breakeven analysis as another forecast to be averaged with the forecasts of market participants currently used. The present value adjustment to carry forward items for the IRR calculation should be at CPI, not the debt rate, as this is how they would have been revalued in the building blocks calculation if they had been incorporated at the time.

We present a derived formula for adjusting beta to reflect increased operating leverage from capital expenditure in a similar manner to the financial leverage adjustment. This formula yields an indicative adjustment over the PSE4 period for WIAL in the order of a 0.02increase – ie, very small in the general estimation error of beta. The bulk of the increase comes from one project – the 8MPPA Terminal Stage 1. We also note that for projects with a long gestation period the building blocks approach means that increased operating leverage is offset by a certain return achieved through compounding work-in-progress into the Regulated Asset Base.

The Commerce Commission's methodology for calculating the cost of debt provides for a consistent and fair method of calculating WACC across the airport sector. WIAL can use swaps to match the pricing exposure implied.