

AIAL's Weighted Average Cost of Capital:

Comparison with Commerce Commission's Information Disclosure Requirements

Report to BARNZ

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Futures Consultants Limited

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Authorship

This report has been prepared by Brent Layton.

Futures Consultants Ltd
183 South Karori Road
Karori
P O Box 17-359
Wellington 6147
Tel: +64 4 476 9041
Fax: +64 4 476 9042
Mobile: +64 21 384 147
e-mail: brent.layton@xtra.co.nz

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1. Introduction

Auckland International Airport Limited (AIAL) commissioned Auckland Uniservices Limited (Uniservices) to prepare a report for it on the weighted average cost of capital (WACC) to be used for aeronautical pricing. AIAL has provided this report to its substantial customers and the Board of Airline Representatives in New Zealand (BARNZ).¹ AIAL is seeking feedback on the report from these parties.

To assist the airlines to respond to the report, BARNZ has asked me to compare the Uniservices WACC with estimates derived using the approach sanctioned by the Commerce Commission (the Commission) for information disclosure purposes under Part 4 of the Commerce Act 1986. I have been asked to comment on whether there is any valid reason for adopting different inputs than the Commerce Commission inputs when determining the WACC to use to set prices. I have also been asked to comment on the allowance for model error Uniservices believes should be added onto the WACC used for pricing. I have prepared my advice to BARNZ in accordance with the Commerce Commission's requirements for evidence from expert witnesses.

2. Comparison of WACC estimates

2.1 Basis of comparison

The Commission has very recently released its Determination of the cost of capital for AIAL for information disclosure year 2012, which started on 1 July 2011.² This provides a very ready basis for comparison of Uniservices' estimates of AIAL's WACC parameters with the Commission's, except as regards the interest rate related parameters.

Uniservices' estimates relate to 1 September 2011, whereas the Commission's relate to 1 July 2011 so movements in parameters related to interest rates between these two periods need to be taken into account in the comparison. The final column in the following table shows the WACC estimates using the Commission's approach but updated for the change in interest rate related parameters to 1 September 2011.

¹ Auckland Uniservices Limited, *The Appropriate Weighted Average Cost of Capital for the Aeronautical Airport Activities of Auckland International Airport Ltd*, 6 October 2011. (Hereinafter *Uniservices WACC Report*).

² Commerce Commission, *Determination of the Cost of Capital for Information Disclosure year 2012 for ... Suppliers of Specified Airport Services (June year-end) Under Part 4 of the Commerce Act 1986, Pursuant to Decisions 709, 711, 712 and 713: Decision 727*, 8 July 2011. (Hereinafter, *Decision 727*).

2.2 Summary table

	Uniservices' Estimates			Commerce Commission's Estimates Decision 727	
	Point Estimate	75 th percentile estimate	95 th percentile estimate	Midpoint	Midpoint with adjusted risk free rate
Leverage (L)	0.30			0.17	0.17
Debt premium (p)	1.63%			1.64%	1.63%
Debt issuance cost (d)	0.425%			0.35%	0.35%
Risk free rate (r_F)	4.63%			4.35%	4.02%
Cost of debt (r_D)	6.69%			6.34%	6.00%
Asset Beta (β_A)	0.65			0.60	0.60
Tax adj. market risk premium (TAMRP)	7.5%			7.0%	7.0%
Tax Rate – Corporate (T_C) and Investor (T_I)	28.0%			28.0%	28.0%
Cost of equity (r_E)	10.30%			8.17%	7.95%

	Uniservices' Estimates			Commerce Commission's Estimates Decision 727	
	Point Estimate	75 th percentile estimate	95 th percentile estimate	Midpoint	Midpoint with adjusted risk free rate
WACC ^V (vanilla)	9.21%	10.27%	11.79%	7.86%	7.62%
WACC ^{PT} (post tax)	8.65%	9.71%	11.23%	7.56%	7.34%
Addition for Model Error	0.15%	0.50%	1.00%	0.00%	0.00%
WACC ^V (vanilla) with model error	9.36%	10.77%	12.79%	7.86%	7.62%
WACC ^{PT} (post tax) with model error	8.80%	10.21%	12.23%	7.56%	7.34%

2.3 Same model

Uniservices and the Commission both use the same formulas for calculating two versions of WACC; a vanilla version and a post-tax version. The post-tax version is based on the assumptions that for the marginal investor determining the price of shares, capital gains taxes are zero and that there is perfect application of the tax imputation system. In my opinion, these are reasonable assumptions in the New Zealand context. The use of this model was supported by BARNZ and Air New Zealand at the Commission's Input Methodology conference relating to cost of capital. Virtually all other participants agreed with this position.

The post-tax and vanilla versions of WACC differ only in that in the post-tax version the cost of debt is adjusted to reflect the tax deductibility at the corporate tax rate of interest expenses whereas, in the vanilla version, there is no adjustment for this factor. The WACC is higher in the vanilla version provided there is some debt, i.e. provided the leverage ratio (L) is not zero.

2.4 Differences in parameter estimates

2.4.1 Leverage (L)

Leverage is the ratio of debt to debt plus equity in the capital structure of the firm. The leverage parameter is used in two places in estimating the cost of capital. One use is to adjust the asset beta into an equity beta (and vice versa). The second use is to weight the estimates of the cost of debt and the cost of equity to derive the WACC.

It is well recognised that the preferred model in New Zealand for calculating WACC leads to an implausible relationship between leverage and the cost of capital; as leverage rises the cost of capital rises, or, in other words, the greater the reliance on debt funding the greater the cost of capital. The expected result in the context which most closely reflects New Zealand conditions of no capital gains tax, a comprehensive tax imputation system and equal marginal investor and corporate tax rates is for the cost of capital to not vary with the level of leverage.

At the Commission's Input Methodology conference relating to the cost of capital, the Major Electricity Users Group (MEUG) argued, on the basis of the implausible relationship, that the leverage rate should be set to zero. BARNZ and Air New Zealand accepted that firms typically do use some debt funding and this means it is unrealistic to assume leverage is zero. They argued, however, that the Commission should bear in mind this issue when making its overall assessment and that a high leverage rate would not be appropriate.

In my view, basing permitted leverage on the actual leverage of firms would provide an incentive for regulated firms to increase the proportion of debt they employ so as to raise the WACC the Commission would accept. Increasing reliance on debt financing would increase the risk of default and financial distress, which, at some point, would not be in the long term benefit of consumers. The purpose statement of Part 4 of the Commerce Act, under which input methodologies are required to be set, is about promoting the long term benefit of consumers, so using a firm's own leverage ratio would be incompatible with this purpose.

In its final decision, the Commission accepted this argument and decided to set the leverage ratio on the basis of average leverage of a group of airports. This ratio was 0.17 or 17%.

Uniservices "adopt a target leverage ratio of 30.0% in the determination of WACC for AIAL's aeronautical assets."³ This figure is above the average leverage for AIAL over the last 2 and 5 years, which was 27.5% and 28.8%, respectively.⁴ Uniservices justifies the use of a higher ratio on the grounds that if the beta or systematic risk for identified airport activities is less than the systematic risk for non-aeronautical assets, a higher target leverage ratio for AIAL's aeronautical assets than for the company as a whole is appropriate.⁵

³ *Uniservices WACC Report*, p.33.

⁴ *Ibid.*, p. 32.

⁵ *Ibid.*, p. 33.

In my view the actual or target level of leverage of the firm in question should not be used in the New Zealand context because this will give an incentive for the firm to increase its leverage beyond the optimal level in order to raise its accepted WACC, and this is unlikely to be of long-term benefit to consumers. Uniservices does not address this risk which, in my opinion is significant. In my view, there are no specific factors that justify AIAL adopting a different leverage ratio from the Commission's 0.17 or 17%.

2.4.2 Debt premium (p)

The debt premium parameter relates to the premium over the risk free rate which the firm can be expected to pay. It is added to the risk free rate when estimating the cost of debt.

Uniservices uses the observed debt premium for AIAL's own bonds on the New Zealand market over matching Government stock bond yields during the month of August 2011 to arrive at an estimate of 1.63%. It has used observed debt premiums and the Commission's recommended approach to estimating them with reluctance. This reluctance is explained as being partly because it considers the New Zealand traded bond market may not be a reliable guide to a firm's actual debt premium; and partly because AIAL sources its debt finance from a variety of debt markets and with a weighted average original term to maturity that may exceed five years.⁶

The Commission's most recent debt premium estimate for AIAL is 1.64%, almost identical to Uniservices' estimate. The Commission's figure is based on the interpolation for a five year maturity of the observed debt premiums over government stock at 1 July 2011 for Auckland International Airport Limited (AIAL) bonds, which are publicly traded on the New Zealand market and have a credit rating of A-. In deciding to use the observed debt premium on AIAL's bonds the Commission took into account that the debt premiums on bonds from a range of other issuers are not inconsistent with the debt premium on the AIAL bonds when consideration is taken of different credit ratings, and terms to maturity.⁷

Despite its reservations, Uniservices has adopted the Commission's approach to determining the debt premium for AIAL, except it has used monthly average data (for August 2011) rather than an estimate based on premiums on the first day of the period as the Commission did (1 July 2011). The use of a monthly average has the advantage that the estimate will be less susceptible to short-term distortions. Given the thinness of trading on the New Zealand debt market this advantage is material and I support the slight adjustment to the Commission's methodology which Uniservices has adopted.

2.4.3 Debt issuance cost (d)

The debt issuance cost parameter relates to annualised costs which the firm can be expected to pay to issue debt. Like the debt premium, it is added to the risk free rate when estimating the cost of debt.

⁶ *Ibid.*, pp. 19-20.

⁷ *Decision 727*, paras 49 -50.

Uniservices argues that “the relevant debt issuance costs when using traded bond yields to estimate the debt premium are the costs to publicly issue the debt into the secondary market.”⁸ From an October 2009 bond issue by AIAL, Uniservices calculates this cost to be 0.32% per annum of the principal amount borrowed.⁹ However, Uniservices also argues that “an increment to debt issuance costs should be allowed for standby and other debt underwriting costs to maintain an investment grade credit rating.”¹⁰ On the basis of discussions with AIAL, Uniservices concludes that an uplift of 12.5 basis points per annum “would be reasonable for standby and underwriting costs.”¹¹ Uniservices concludes an appropriate allowance for debt issuance costs is 0.425% per annum comprising 30 basis points as a debt premium and 12.5 basis points for underwriting and standby costs.¹²

In its Input Methodology decision the Commission allowed 0.35% for debt issuance costs on the basis of data provided to it by suppliers.¹³ It described this allowance as generous “as many regulated suppliers make extensive use of bank loans which would generally have an all-up cost below the all-up cost of public bond issues (though bank debt may have more onerous covenants).”¹⁴

The Commission also reports in its *Reasons Paper* that in 2010 it undertook a survey of issuance costs for publicly traded bonds, the results of which were that issuance costs averaged 0.22% per annum. It concluded “this implies the 0.35% allowance for debt issuance costs in the [Input Methodology Determination] is appropriate, if not generous in favour of suppliers.”¹⁵

In my opinion, there is no reason to justify AIAL adopting a figure greater than the 0.35% debt issuance allowance estimated by the Commission. In this context it should be noted that Uniservices has made no allowance in its calculation for AIAL having the option to use bank loans that generally have an all-up cost well below the all-up cost of public bond issues. As the Commission identifies, the 0.35% figure is generous and BARNZ and the airlines would be justified in arguing that the 0.22% estimate the Commission derived from its 2010 survey would be a more appropriate estimate.

2.4.4 Risk free rate (r_F)

The risk free rate, r_F , is the rate of return on a riskless investment and is usually approximated by the return on government bonds. The risk free rate plus the debt premium plus the debt issuance costs equals the cost of debt in the model used by Uniservices and the Commission.

⁸ *Uniservices WACC Report*, p.20.

⁹ *Ibid.*, p. 21.

¹⁰ *Loc. cit.*

¹¹ *Ibid.*, p.22.

¹² *Loc. cit.*

¹³ Commerce Commission, *Input Methodologies (Airports): Reasons Paper*, December 2010, para. 6.3.37. (Hereinafter, *Reasons Paper*).

¹⁴ *Reasons Paper*, para. 6.3.38.

¹⁵ *Reasons Paper*, para. 6.3.39.

Uniservices adopt for the risk free rate as at 1 September 2011 the annualised yield to maturity over the month of August 2011 on the New Zealand government bond maturing on 15 May 2021. The estimate it derives for this bond, which has 9.7 years to maturity, is 4.63% per annum. If Uniservices had chosen a 5 year term its estimate would have been 4.02%.¹⁶

Uniservices justifies the use of the long term bond rate on the grounds that the risk free rate in the CAPM should match the expected duration or life of the underlying assets, and this is longer than 5 years and the same measure of the risk free rate should be used consistently in the capital assets pricing model.¹⁷

The Commission in its recent decision relating to the WACC for airport services adopted a risk free rate of 4.35%. This “reflects the linearly-interpolated, annualised, bid yield to maturity on New Zealand government bonds with a five year term to maturity.”¹⁸ The calculation uses the data of actual yields reported in the month of June 2011 in respect of the April 2015 maturity bonds and the December 2017 maturity bonds.¹⁹

The key methodological difference between Uniservices and the Commission is that Uniservices uses the “10-year” government bond rate whereas the Commission uses the five-year rate. The Commission favours the five-year rate because, in its opinion, “the term of the risk-free rate should match the length of the pricing period because if the term ... is longer ... and there is a positive yield curve, regulated suppliers will be compensated for risks they do not bear. Conversely, if there is an inverse yield curve, regulated suppliers will be under-compensated if the term of the risk-free rate is longer than the pricing period.”²⁰

The Commission rejected the submissions of suppliers that a long term rate like 10-years should be used to reflect the long-lived nature of the assets and that some firms borrow for longer than five years. It did this on the grounds that these arguments do not take account of the ability of regulated suppliers to reset their WACC if the risk free rate should change and the widespread use of interest rate swaps to alter the duration of interest rate risk exposures.²¹

Uniservices notes in its report that the average maturity of AIAL’s debt as at 30 June 2011 was only 4.16 years and that the average term had recently been increased by the issue of long term 10 and 12 year debt under a United States Private Placement Issuance facility.²² In practice, AIAL does not match the average maturity of its debt portfolio with the expected lives of its assets. In fact, the match between AIAL’s average maturity of debt and the length of its pricing period is much closer.

¹⁶ *Uniservices WACC Report*, p.18.

¹⁷ *Loc. cit.*

¹⁸ *Decision 727*, para. 41.

¹⁹ *Loc. cit.*

²⁰ *Reasons Paper*, para. 6.3.6.

²¹ *Reasons Paper*, para. 6.3.9.

²² *Uniservices WACC Report*, p. 19.

The risk free rate is not a firm specific parameter and in my opinion there is no justification for AIAL adopting an approach different than the Commission's five year rate when deriving the risk free rate.

2.4.5 Cost of debt (r_D)

The cost of debt is the sum of the risk free rate, the debt premium and the debt issuance cost.

2.4.6 Asset beta (β_A)

Beta is a measure of the expected volatility of a firm's returns relative to the market. It reflects the level of systematic risk faced by investors in the firm. Systematic risk is related to the market as a whole and cannot be diversified away; hence investors need to be compensated to bear it. Un-systematic risk is firm specific and can be diversified away by holding a portfolio of investments, so in a competitive market investors cannot expect to be compensated for this risk. The asset beta of a firm is calculated from its equity beta by adjusting for the leverage ratio.

Uniservices estimates an appropriate point estimate asset beta for AIAL's aeronautical assets is 0.65. It derives this principally from its direct estimates of AIAL's asset beta as at the end of 25 August 2011 as 0.79 using two years of weekly data and 0.62 using five years of monthly data, with an average of 0.71. The downward adjustment to 0.65 for AIAL's "aeronautical assets reflects some allowance for the lower systematic risk compared to the systematic risks of parts of AIAL's other business units."²³

In its *Reasons Paper* the Commission uses data from 25 airport companies to calculate both weekly and monthly data and averaged across the two sets to estimate a midpoint asset beta of 0.65. The Commission considered this estimate to be an upper bound of the asset beta for regulated activities on the grounds that the airport companies from which it derived the estimate generally included both regulated and unregulated activities, and the latter was more risky than the former.²⁴ The Commission gives "primary consideration" to: the most recent beta estimates for overseas airports; the difference in beta estimates for regulated and non-regulated activities at airports in the United Kingdom; and, the extensive unregulated activities at New Zealand airports.²⁵ As a result, it decided to drop its midpoint estimate of asset beta from 0.65 to 0.60.²⁶

The Commission, when considering the reasonableness of its asset beta estimate, noted that AIAL's own information disclosure statement for 2009 contained an estimate of its asset beta of 0.50 to 0.70 with a midpoint of 0.60.²⁷ In my opinion, Uniservices have not provided sufficient justification to depart from the Commission's estimate of 0.60 for AIAL's asset beta for aeronautical assets. In this context it is

²³ *Uniservices WACC Report*, p. 31.

²⁴ *Reasons Paper*, Appendix E8.93.

²⁵ *Reasons Paper*, Appendix E8.96.

²⁶ *Reasons Paper*, Appendix E8.97.

²⁷ *Reasons Paper*, Table E20.

noteworthy that Uniservices' direct estimate of the asset beta for AIAL as a whole from five years of monthly data is only 0.62 and Uniservices accepts that a downward adjustment is justified to arrive at an estimate of the asset beta for AIAL's specified airport services.²⁸

2.4.7 Tax Adjusted Market Risk Premium (TAMRP)

The market risk premium (MRP) represents the additional return, over and above the risk free rate, that investors require to compensate them for the risk of holding the market portfolio, which is the average risk portfolio. Given the Capital Asset Pricing Model (CAPM) favoured in New Zealand, the MRP needs to be adjusted for the tax faced by investors on investments in the risk free rate;²⁹ hence a Tax Adjusted Market Risk Premium (TAMRP) parameter is used to derive the cost of equity.

The MRP is a forward looking concept and cannot be directly observed in the market. A range of approaches are used in the literature to estimate MRP and hence TAMRP. Some consider historical data and others forward projections.

Uniservices places most weight on historical estimates to determine the *ex-ante* or forward looking market risk premium (MRP). It, therefore, uses Ibbotson-type estimates of MRP produced in 2010 by Dimson, Marsh and Staunton for Credit Suisse. These cover 19 developed economies of the United States, United Kingdom, Europe, South Africa, Japan and Australia. The average MRP measured relative to the yield on bonds for the 19 countries is 6.09%.³⁰ To convert this to an estimate of the TAMRP, Uniservices adds 1.70% as this was the difference between the standard and tax adjusted market risk premiums reported for New Zealand during the period 1930-2002 by Lally and Marsden.³¹ Uniservices round its "raw" estimate of 7.79% derived in this way down to 7.5%. It adopts this figure as its point estimate of the TAMRP.

After considering the wide range of estimates for TAMRP derived by the various means that have been employed, the Commission reached the view that "the best estimate of the likely future long-term TAMRP for the NZ market is 7%."³² Its reasons are that: 7.0% best reflects the range of evidence available; is considered by the Commission's panel of experts on the cost of capital to be reasonable; and is consistent with the range of TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.³³

The TAMRP is not a firm specific parameter; it is a market specific parameter and it is one that is likely to be relatively stable in the long run. In my opinion, Uniservices have not provided sufficient justification for AIAL adopting a different estimate from

²⁸ *Uniservices WACC Report*, p. 31.

²⁹ TAMRP = MRP plus the risk free rate times the investor tax rate.

³⁰ *Uniservices WACC Report*, p. 23.

³¹ *Loc. cit.*

³² *Reasons Paper*, para. 6.5.15.

³³ *Reasons Paper*, para. 6.5.15.

the Commission. In my view the Commission's 7.0% is an appropriate estimate of TAMRP to use in the New Zealand context.

In this regard, it is noteworthy that the estimate of the MRP relative to bonds for New Zealand in the study by Dimson *et al* used by Uniservices to derive its estimate is 5.5% or nearly 0.6% below the average for the 19 countries.³⁴ If 1.7% is added to 5.5%, the "raw" estimate is 7.2% or close to the Commission's TAMRP estimate of 7.0%. Uniservices provide no justification for using the average MRP for 19 countries instead of the New Zealand specific estimate.

2.4.8 Tax rate: Corporate (T_c) and Investor (T_i)

When calculating a post-tax WACC, the corporate tax rate is used to adjust the cost of debt to arrive at a post-tax cost of debt and the investor tax rate is used to adjust the risk free rate in the calculation of the cost of equity.

Both the Commission and Uniservices estimate both parameters to be 28%, the actual corporate tax rate in New Zealand from 1 April 2011. The Commission set the investor tax rate equal to this figure because this also reflects the maximum rate under the Portfolio Investment Entity (PIE) regime. The Commission recognises that the tax rates faced by individuals as a result of their circumstances are not what should be used for calculating the WACC. The market will not compensate individual investors for bearing more taxation than they need to because they fail to rearrange their affairs to reduce their liability.³⁵ I agree with Uniservices and the Commission that the appropriate tax rate to use when calculating WACC is 28%.

2.4.9 Cost of equity (r_E)

The cost of equity is calculated by combining the estimates of the asset beta, TAMRP and the investor tax rate.

2.4.10 Weighted Average Cost of Capital (WACC)

WACC is a weighted average of the cost of equity and the cost of debt with the weights being the shares of equity and debt in the firm's total funding. To estimate a post-tax WACC, the cost of debt is adjusted downwards to reflect that interest is a deduction from corporate taxation. To estimate a vanilla WACC no adjustment for tax deductibility is made.

2.4.11 Parameter error: the WACC range

A number of the parameters used in calculating WACC – asset beta, TAMRP, and the debt margin - are not directly observable and have to be estimated by indirect means. The result is that there are almost certainly errors in estimation of these parameters and of WACC itself.

Uniservices proposes that an allowance for parameter error in the estimation of AIAL's aeronautical WACC is important because of the asymmetry of social consequences which may arise if it is set too low and as a result there is

³⁴ *Uniservices WACC Report*, p. 23.

³⁵ *Reasons Paper*, paras 6.5.27-28.

underinvestment in aeronautical assets at AIAL.³⁶ Uniservices points to AIAL being an integral part of New Zealand's travel markets, air transport freight system and infrastructure and that it makes a significant value-added contribution to New Zealand's economy.³⁷ As a result, Uniservices claims that under-investment in AIAL's aeronautical assets has the potential to result in long-term adverse costs to the economy. For this reason Uniservices is of the view that "a WACC at the 75th percentile would likely be an appropriate lower bound to assess any profitability or measure of excess returns for AIAL's identified airport assets in the presence of asymmetry of social consequences."³⁸ Uniservices proposes the 95th percentile as the upper bound for the WACC range.³⁹

The asymmetry of social consequences argument was canvassed on behalf of the airports and others at considerable length during the Commission's conferences on the cost of capital for Input Methodology and rejected by the Commission.

The airport's argument is in my opinion unbalanced. While it is correct that AIAL, for example, provides important infrastructure services to the New Zealand, it is also true that the airlines, shippers and many of the passengers using AIAL make significant and numerous contributions to the economy and that these contributions will be adversely affected by the airport overcharging users. What the airports and Uniservices in its WACC Report have not demonstrated is that the deleterious economic consequences of AIAL setting charges so it expects to overcharge its users are not as significant to the economy as the alleged benefit in the form of increased investment in aeronautical assets of it expecting to earn excess returns. Indeed, when the proposition is put in this way, that excess expected returns to airports is of benefit to the economy as a whole is seen to be at variance with economic efficiency requiring prices to reflect efficient resource costs.

I am not surprised, therefore, that the Commission rejected the special pleading on behalf of airports and determined that "in assessing profitability for the Airports an appropriate starting point for any assessment is the 50th percentile (mid-point) on the range [of WACC]."⁴⁰ For information disclosure purposes the Commission considered the 25th and 75th percentiles were an appropriate range.⁴¹

I concur with the Commission and believe that for assessing profitability purposes the appropriate estimate of WACC to use is the mid-point estimate; when setting prices AIAL should use the mid-point estimate of WACC.

2.4.12 Model error (me)

Uniservices argues that:⁴²

³⁶ *Uniservices WACC Report*, p. 34.

³⁷ *Loc. cit.*

³⁸ *Uniservices WACC Report*, p. 35.

³⁹ *Ibid.*, p.41.

⁴⁰ *Reasons Paper*, Appendix E11.2.

⁴¹ *Loc. cit.*

⁴² *Uniservices WACC Report*, p. 39.

In the context of measuring AIAL's profitability or assessing any excess profits we consider an additional margin to WACC of up to 1% for AIAL's aeronautical assets would not be unreasonable [because] under AIAL's building block model the cashflows are upward "biased" and inadequate allowance is made for all asymmetric risks and other market frictions. This is in addition to any allowance for parameter error.

Uniservices adds 0.15 percentage points to its mid-point estimate of WACC and 0.50 percentage points and 1.00 percentage points to its 75th and 95th percentile estimates respectively.

The novel feature of this argument is the claim that there will be an upward bias to the cash flows in AIAL's building block model for setting prices. While it is well known that there can be an upward bias to cash flow forecasts in investment proposals promoted by management as a result of the promoters tending to be more optimistic than justified in order to have "their" idea advanced, the situation of AIAL forecasting future cash flows for pricing purposes is entirely different. The incentives on AIAL's management when undertaking the building block approach are to be unduly pessimistic about future (positive) cash flows as this justifies higher price increases and larger returns *ex post*, in the absence of a wash-up. This incentive and experience suggest that if any adjustment is to be made to AIAL's WACC to offset the possibility of bias in cash flow forecasts in the building block model it should be a deduction from WACC, and not an increase to it.

The asymmetric risks and market friction arguments for an uplift on WACC have been advanced on behalf of airports previously in the context of the cost of capital workshops held by the Commission to develop its Input Methodology.

The Commission recognised that asymmetric risks can exist; that the distribution of returns of a firm can be truncated in one extreme without an offsetting truncation at the other. It also considered they can be usefully split into:

- Type I risks – infrequent events that arise outside the market, such as, natural disasters; pandemics, terrorist threats, or large unexpected policy shifts, that can produce substantial losses; and
- Type II risks and real options – risks that arise within the market, where there is a cap on the upside as entry will be attracted but no protection on the downside.

In relation to Type I risks, the Commission noted the practical difficulty of setting an uplift to WACC that would properly cover this risk. It, therefore, decided to make no adjustment to the cost of capital for Type I asymmetric risk but it did not rule out that in some circumstances it would make an allowance for such risk in the cash flows, through for example, making provision in operating expenses for self-insurance schemes covering such disasters.⁴³

⁴³ *Reasons Paper*, Appendix E12.13. The Commission has actually made such an allowance in the past. Transpower operates a self-insurance scheme for some of its larger assets. The premium payments for this scheme were treated as operating expenditure under its settlement agreement with the Commission.

In relation to Type II risks and real options, after considering all the submissions the Commission's conclusion was:⁴⁴

... regulated suppliers have not provided evidence to demonstrate that a Type II asymmetric risk exists and needs to be compensated using a real options approach. On this basis the Commission considers a real options approach that provides for a mark up in the cost of capital (or regulatory asset base) is not appropriate for dealing with Type II asymmetric risks.

I agreed with the Commission's conclusion about the evidence it had received and do not believe Uniservices has provided any additional or new evidence to alter this conclusion.

In my opinion, no uplift to the cost of capital should be made to deal with model error as no firm grounds for providing for such an uplift has been provided. I do, however, believe that self-insurance premiums backed by independent evidence of their validity and provisions for accelerated depreciation in the event of imminent or actual asset stranding are appropriate means to deal with asymmetric risks.

3. Conclusions

1. In deriving its WACC estimates for AIAL, Uniservices has not followed the Commission's Input Methodology decisions in relation to the estimation of all the parameters. It has, however, adopted the same basic model as the Commission uses when deriving its estimates.

2. As a result of it adopting different parameter estimates, Uniservices' estimates of AIAL's cost of debt, cost of equity and WACC are all significantly above those that that would be derived using the Commission's methodology.

3. In every instance, Uniservices' parameter estimate is either very nearly the same as the Commission's or such that it will yield a higher estimate of AIAL's WACC. The following is a summary of the differences between the Uniservices' preferred parameter estimates and the Commission's, after adjusting the risk free-rate to bring them on to a comparable basis in terms of the date to which the estimates relate:

- Higher leverage ratio (0.30 compared with 0.17);
- Higher debt issuance costs (0.425% compared with 0.35%);
- Ten-year risk free rate instead of five-year (4.63% compared with 4.02%);
- Higher asset beta (0.65 compared with 0.60);
- Higher TAMRP (7.5% compared with 7.0%);
- Need for parameter error adjustment (75th – 95th percentile against 50th percentile) and
- Need for a model error factor (up to 1.0% compared with 0%)

⁴⁴ *Reasons Paper*, Appendix E12.34.

4. The numerically most significant difference is in the cost of equity; 10.30% for Uniservices compared with 7.95% using the Commission's approach. Uniservices' higher asset beta of 0.65 compared with the Commission's 0.60 and its higher TAMRP of 7.5% compared with the Commission's 7.0% are the major contributors to this difference in the cost of equity.
5. Uniservices favours its 75th percentile estimate with an additional 0.5% for model errors, as the lower bound for profitability comparisons. Its estimates of these are 10.21% for the post tax variant and 10.77% for the vanilla variant. Uniservices' lower bound estimates are respectively 39.1% and 41.3% more than the estimates using the approach the Commission considers appropriate.
6. Using the Commission's approach, the mid-point estimates for AIAL's WACC is 7.34% for the post-tax variant and 7.62% for the vanilla variant. The Commission is of the view that the mid-point estimates are the starting point for any assessment of AIAL's profitability.
7. In my opinion, there is no justification for AIAL, when it is setting charges, adopting parameter estimates using a different approach from what the Commission has set for AIAL for information disclosure purposes. Should AIAL use Uniservices' WACC estimates in order to set charges for its regulated services, without making offsetting adjustments in one or more of the other components it uses for this purpose, it will be seeking very significant excess returns compared with the level the Commission considers to be appropriate.