

YOUR TRUSTED VALUE ADVISER



Assessment of WACC Parameters for Australia Post and its Reserved Letters Business as at 23 July 2015

FINAL REPORT



Australia Post
1 August 2015

Contents

1. Executive Summary	1
2. Experience and Personnel	2
3. Need for Consistency between WACC and Remaining Costs in Building-Block Model	3
3.1 Peer Group Risks and Costs	3
3.2 Stranding Costs.....	4
4. Risk Free Rate	4
5. Cost of Debt	5
6. Debt Beta	6
7. Asset Beta	7
7.1 Impact of Capital Structure on Beta	7
7.2 Beta Estimation Process	7
7.3 Asset Beta Estimate	8
8. Gearing	12
9. Equity Beta	12
10. Market Risk Premium	12
11. Gamma	15
Appendix 1 – Information Provided and Relied Upon	17

Tables

TABLE 1	Summary of WACC Input Parameters as at 23 July 2015	1
TABLE 2	Equity Beta Calculation	2
TABLE 3	WACC Calculation	2
TABLE 4	Debt Risk Premium and Cost of Debt Summary	6
TABLE 5	Equity Beta and Asset Beta for Comparable Listed Companies	10
TABLE 6	Historical Australian Market Risk Premium	13

Figures

FIGURE 1	Australian Implied (Forward) Volatility – Based on 3-Month Call Options over ASX200.....	14
FIGURE 2	US Implied (Forward) Volatility – CBOE Volatility Index (VIX)	15

1. Executive Summary

Value Adviser Associates ["VAA"] has been engaged by Australia Post ["AP"] to provide assessments of weighted average cost of capital ["WACC"] for each of AP (as a whole) and its Reserved Letters Business ["RLB"].

Australia Post requires the WACC assessments to assist with its upcoming price notification to be lodged with the Australian Competition and Consumer Commission ["ACCC"]. The price notification is intended to cover a regulatory period ending on 30 June 2017. The WACC parameters have been assessed on a forward-looking basis as at 23 July 2015.

We have undertaken a number of previous WACC assessments for Australia Post for regulatory purposes, including assessments to support previous price notifications and assessments in relation to ACCC's Historical Record Keeping Requirements ["RKR"]. Some relevant previous reports prepared by VAA include:

- *Regulatory WACC for Australia Post – Commentary*, dated April 2009 and prepared for AP's 2010 price notification ["PN 2010 Report"]. This report contained a WACC parameter assessment for AP as at April/May 2009, and was the first VAA report prepared for AP for regulatory purposes.
- *Update of Inputs to a WACC for Australia Post*, dated September 2012 and prepared for AP's 2012 RKR submission ["RKR 2012 Report"]. This report contained WACC parameter assessments for AP and RLB as at 30 June 2011, and is the most recent VAA report containing a WACC assessment for RLB.
- *Assessment of WACC Parameters for ACCC Historical Record Keeping Requirements as at 30 June 2013*, dated September 2014 and prepared for AP's 2014 RKR submission ["RKR 2014 Report"]. This report contained a WACC parameter assessment for AP as at 30 June 2013, and is the most recent VAA report containing a WACC assessment for AP.

Our methodology is largely consistent with our most recent relevant reports (RKR 2012 Report and RKR 2014 Report), with any differences noted in the body of this report.

TABLE 1 summarises our assessment of WACC parameters for AP and RLB, while TABLE 2 and TABLE 3 show the resultant WACC calculations.

TABLE 1 SUMMARY OF WACC INPUT PARAMETERS AS AT 23 JULY 2015

Component	AP WACC	RLB WACC	Current VAA Assessment Process
Risk Free Rate (nominal) [Rf]	2.96%	2.96%	Yield on 10 year Commonwealth Government Bonds. (20-day avg to 23-Jul-15.)
Cost of Debt [Kd]	4.35%	4.35%	Yield on 7yr AA corporate bonds (the longest maturity available) was 3.91%. Adding a term premium of 0.43% based on yields on 7yr and 10yr AA+ rated Queensland Government Bonds (which have the closest rating to AA) gives an estimated 10yr AA bond yield of 4.35%. (20-day avgs to 23-Jul-15.) Debt Risk Premium [DRP] is the difference between Cost of Debt [Kd] and Risk Free Rate [Rf]: DRP = Kd - Rf = 4.35% - 2.96% = 1.39%.
Beta Asset (ungeared) [βa]	0.70	0.60	βa obtained from comparable companies. "Mean of Means" βa for AP comparables is 0.67. Given the measurement error in beta estimation, we recommend a rounded value of 0.70, lower than our most recent AP WACC assessment (0.75). "Mean of Means" βa for RLB comparables is 0.67. Given the measurement error in beta estimation, we recommend a rounded value of 0.60, the same as for our previous RLB WACC assessments.
Beta Debt [βd]	0.15	0.15	Based on long-term avg spread for AA rated debt. Pre-GFC spread for 10yr AA over 10yr Rf (Dec-01 to May-07) = 95bp, MRP = 7.0%. ∴ βd = 0.95%/7.0% = 0.14 ≈ 0.15.
Gearing [D/V]	30%	30%	AP had book-value gearing of 29% at 30-Jun-14, and this has been in the range 25-30% since Jun-09. Maximum gearing for AP to maintain current credit rating is around 30%. Comparable company sets have historical (5-year avg) gearing of 27% ("Mean of Means" of AP comparables) and 34% ("Mean of Means" of RLB comparables).
Market Risk Premium [MRP]	7.0%	7.0%	Long-term historical average MRP for Australia, incorporating imputation credits in market return. Current implied volatility (15.9%, 20-day avg to 23-Jul-15) is above long-term average (14%). However, a sustained period of significantly higher implied volatility would be necessary to justify an elevated short-term MRP, so the long-term average is used.
Tax Rate [T]	30%	30%	Australian statutory corporate tax rate.
Gamma [γ]	0.00	0.00	γ = 0 as AP does not distribute imputation credits and its shareholder does not claim them. It is inappropriate to use an average gamma value as a proxy for AP's gamma.

Source: Previous AP Price Notifications, Previous ACCC Decisions, Bloomberg, Company data, Value Adviser Associates analysis.

TABLE 2 EQUITY BETA CALCULATION

Component	AP WACC	RLB WACC	Calculation
Beta Asset (ungeared) [β_a]	0.70	0.60	
Beta Debt [β_d]	0.15	0.15	
Leverage [D/E]	42.9%	42.9%	$D/E = (D/V) / (1 - D/V)$
Beta Equity (geared) [β_e] - raw	0.94	0.79	Relevering Beta Asset at Target Gearing: $\beta_e = \beta_a + D/E (\beta_a - \beta_d)$
Beta Equity (geared) [β_e] - rounded	0.95	0.80	Rounded value

TABLE 3 WACC CALCULATION

Component	AP WACC	RLB WACC	Calculation
Cost of Equity [Ke] Calculation			
Risk Free Rate (nominal) [Rf]	3.0%	3.0%	
Market Risk Premium [MRP]	7.0%	7.0%	
Beta Equity (geared) [β_e]	0.95	0.80	
Cost of Equity [Ke]	9.6%	8.6%	CAPM: $Ke = Rf + MRP \times \beta_e$
WACC Calculation			
Gearing [D/V]	30.0%	30.0%	
E/V	70.0%	70.0%	
Cost of Debt [Kd]	4.3%	4.3%	
Cost of Equity [Ke]	9.6%	8.6%	
WACC	8.03%	7.29%	Nominal, post-tax vanilla WACC: $(E/V) Ke + (D/V) Kd$

Our assessments of the individual WACC parameters for AP and RLB are described in the body of this report. We believe most parameters should have the same values for both entities (see TABLE 1) – and in these cases, a single parameter assessment is provided. An exception is asset beta: we believe AP and RLB should have different asset beta values, and have provided separate assessments for the individual entities. These different asset beta values lead to different values of equity beta, cost of equity and WACC (as shown in TABLE 2 and TABLE 3).

2. Experience and Personnel

VAA's specialist team has extensive experience calculating cost of capital for various purposes, including regulatory support, impairment testing and investment valuation. Our experience spans a variety of industries, including regulated utilities, construction, transport and infrastructure. Value Adviser Associates is your Trusted Value Adviser, providing independent and robust valuation services to clients.

This report was prepared under the overall direction of Professor Bob Officer (Technical Specialist) and Mr Michael Churchill (Chief Executive Officer). Other professional staff provided assistance where required.

Professor Bob Officer is one of Australia's best known financial academics and is an Emeritus Professor, University of Melbourne, and an Honorary Professor, University of Queensland. He has played a substantive role in advising regulatory bodies on a wide range of issues associated with regulatory price setting for infrastructure assets as well as consulting to public, private and government organisations on a vast range of financial issues.

Mr Michael Churchill is a founding Director of Value Adviser Associates and has over 20 years' experience in the valuation of complex assets and businesses. Michael's career includes accounting, valuation and corporate advisory experience. Prior to establishing his own valuation consulting business in 2004, Michael was a partner in the PricewaterhouseCoopers Valuation group in Brisbane and Melbourne. Michael co-authored "Business Valuations Digest" and has authored numerous published articles relating to valuations, expert reports, public sector commercialisation and value management.

3. Need for Consistency between WACC and Remaining Costs in Building-Block Model

ACCC assesses Australia Post's maximum allowable revenue ["MAR"] using the post-tax revenue model ["PTRM"], which is a version of the 'building-block' model.

Under the PTRM, all AP costs – operating costs, depreciation (as a proxy for the return **of** invested capital), return **on** capital and tax – are summed to obtain MAR. The return **on** capital component is assessed using a post-tax WACC, which represents the required rate of return to capital holders after tax and other expenses have been paid.

In assessing AP's MAR, it is important to maintain consistency between the WACC (used to compute the return on capital) and the remaining costs in the PTRM. This need for consistency can best be explained via the analogy of a discounted cash flow ["DCF"] valuation, as discussed in the following paragraph.

When undertaking a DCF valuation of an entity or asset, it is essential to maintain consistency between the forecast net cash flows and the discount rate used to compute the present value of those cash flows. If the cash flows and discount rate are assessed using different underlying assumptions, they will be inconsistent – and the resultant valuation will contain a fundamental error. However, a building-block model, such as the PTRM, is effectively a reverse-engineered valuation – one computes the required revenue (MAR), given the known value (regulatory asset base ["RAB"]), the discount rate (WACC), and the other known costs. It follows that the same consistency principle applies to the PTRM: one must maintain consistency between the WACC (used to compute the return on capital) and the remaining costs in the cost build-up.

This need for consistency prompts consideration of some important issues, which are discussed in the following subsections. However, we note that these issues do not directly impact our assessed WACCs for AP and RLB. If any adjustments were needed to maintain consistency between the WACC and the remaining costs in the PTRM, we believe these adjustments should be made within the cost build-up. We have thus ignored these issues in undertaking our WACC parameter assessments for AP and RLB, and have made no adjustments to our assessed WACCs.

Nevertheless, it is essential that these issues are considered to ensure consistency between the WACC and the remaining costs in the PTRM. Any additional costs borne by Australia Post should be directly incorporated in the cost build-up to ensure consistency with the WACC assessed in this report.

3.1 Cost of Self-Insurance for Operational Risks

It is essential that the full cost of insurance is reflected in the cost build-up within the PTRM.

We observe that the required rate of return on capital (WACC) is assessed (in part) by reference to the observed, ex-post returns to capital invested in private-sector companies. We have assessed asset betas for AP and RLB (section 7) by considering observed asset betas for a range of publicly listed businesses. It follows that our assessed WACCs are reflective of the market or systematic risks faced by private-sector businesses with comparable betas.

AP and RLB currently self-insure for a wide range of operational risks, some of which would be faced by listed private-sector businesses, and some of which would not. However, we note that these operational risks have been ignored in our WACC parameter assessments. It follows that, to ensure AP's MAR appropriately incorporates the expected cost of the operational risks being borne by AP and RLB, the full cost of insurance (calculated on an actuarial basis) must be incorporated in the remainder of the PTRM's cost build-up.

Our assessed WACC ignores the operational risks borne by AP and RLB – so the expected (actuarial) cost of these risks must instead be reflected in the cost build-up, to ensure the MAR reflects the full cost of these risks to AP and RLB.

3.2 Stranding Costs

We observe that the ever-reducing volume of ordinary letters carried by AP's Reserved Letters Business signals a possibility of significant asset stranding of (part or all of) the RLB network/system.

We are not aware of the assumptions employed in the optimised depreciated replacement cost ["ODRC"] valuation of the RAB and are unable to comment on whether the stranding of any part of the RLB network/system has been considered as part of the optimisation component of the ODRC.

However, we note that the risk of stranding has been ignored in our assessment of WACC. It follows that, to ensure AP's MAR appropriately incorporates the possibility of stranding of (part or all of) the RLB network, the forecast cost of such stranding must be reflected in the remaining components of the cost build-up.

The financial impact of asset stranding could be captured, in the return of capital component of the cost build-up, via the following two inputs:

- in the ODRC (by estimating the likely economic life of particular assets or components of the network and thereby reducing the RAB); or
- in the expected life over which typical straight-line or diminishing value depreciation is calculated.

These approaches would appropriately align the RAB and associated depreciation estimates with the expected future circumstances in which the RLB will operate.

As discussed above, our assessed WACC ignores the possibility of stranding of (part or all of) the RLB network/system. The forecast cost of such stranding must instead be reflected in the cost build-up to ensure the MAR reflects the cost of such stranding to AP.

4. Risk Free Rate

The risk free rate (Rf) is used to estimate the cost of equity under the Capital Asset Pricing Model ["CAPM"]. Yields on Commonwealth Government Bonds ["CGBs"] are generally used as a proxy for the risk free rate because these bonds are considered to be the closest to riskless financial security that trades in an open market (when held to maturity). The appropriate maturity is 10 years, which is a compromise between matching the long-term nature of the assets and requiring securities that trade in a liquid and well-attended market. The lack of long-term securities with these characteristics has led to the common use of 10-year CGBs.

In general, the decision between spot rates and short-term averages when measuring yields on financial instruments depends on the liquidity of the securities in question:

- For highly liquid securities, such as CGBs, VAA's preference is to use spot yields – as these represent the market's most current view of yields.
- For less liquid securities, such as some corporate bonds, VAA's preference is to use short-term average yields (over, say, 20 trading days) – as this will smooth out any short-term aberrations caused by thin trading in the relevant instruments.

However, for this regulatory purpose, we have estimated the risk free rate – and other relevant market data, such as the cost of debt – using average yields over 20 trading days. This approach reduces sensitivity to the particular date selected for assessment but, in general, is likely to have little impact on the assessed parameter values.

We have estimated the risk free rate at 2.96%, being the 20-day average yield on 10-year CGBs to 23-Jul-15.

We note that, since early 2012, CGBs have been trading at historically low yields – due to the impact of Quantitative Easing ["QE"] initiatives by central banks in various jurisdictions. It is likely that these yields would be significantly higher in the absence of such interventionist monetary policy. Nevertheless, the observed yields represent the market's current view of the future and remain the most appropriate proxy for the risk free rate required in the CAPM.

5. Cost of Debt

Australia Post is currently rated AA- by Standard & Poor's. The Reserved Letters Business does not have a credit rating, but we believe it is appropriate to assume that the same AA- rating also applies to RLB. As such, we have estimated the cost of debt (Kd) and debt risk premium (DRP) for both entities using yields on AA rated corporate bonds¹.

Unfortunately, the market for industrial bonds is thin and illiquid, and long dated bonds are currently not trading. The longest maturity AA rated corporate bonds that were trading as at 23-Jul-15 had approximately 7 years to maturity. We have therefore estimated the yield and spread for 10-year AA rated bonds by adding a term premium based on AA+ rated Queensland Government Bonds (which have the closest rating to AA for 10-year maturity instruments). The process used was as follows:

- Use yields on 7-year (3.09%) and 10-year (3.53%) Queensland Government Bonds to compute a 7-10 year term premium for Queensland Government (AA+) Bonds (0.43%), which will act as a proxy for a 7-10 year term premium for corporate AA bonds.
- Add the 7-10 year term premium for Queensland Government (AA+) Bonds (0.43%) to the 7-year AA corporate bond yield (3.91%) to approximate a 10-year AA corporate bond yield (4.35%), which is our estimate of Australia Post's cost of debt (Kd).
- Subtract the risk free rate (Rf, 2.96%) from the assessed 10-year AA corporate bond yield (Kd, 4.35%) to obtain a 10-year AA corporate bond spread (1.39%), which is our estimate of Australia Post's debt risk premium (DRP).

These calculations are illustrated in the following table.

¹ VAA has obtained its corporate bond yield data from Bloomberg's Corporate AA Bloomberg Fair Value Curve. This curve includes bonds rated AA+, AA or AA- by Standard & Poor's, Moody's, Fitch and/or DBRS. There is no equivalent curve for bonds rated AA- only.

TABLE 4 DEBT RISK PREMIUM AND COST OF DEBT SUMMARY

Qld Government (AA+) 7-10 Year Bond Term Premium	
Qld Govt (AA+) 10yr Yield	3.53
Qld Govt (AA+) 7yr Yield	3.09
7-10yr Term Premium	0.43

Cost of Debt - Corporate AA 10-Year Bond Yield	
Corporate (AA) 7yr Yield	3.91
Qld Govt (AA+) 7-10yr Term Premium	0.43
Corporate (AA) 10yr Yield [Kd]	4.35

Debt Risk Premium - Corporate AA 10-Year Bond Spread	
Corporate (AA) 10yr Yield [Kd]	4.35
Commonwealth Govt 10yr Yield [Rf]	2.96
Corporate (AA) 10yr Spread [DRP]	1.39

All values are averages over 20 trading days

6. Debt Beta

Debt betas are used when de-levering and re-levering equity betas, as described in section 7, below. Because debt, like equity, is a risky asset, the CAPM also applies to debt, which results in the following equation (symbols defined in TABLE 1, above):

$$\beta_d = \frac{K_d - R_f}{MRP} \quad (1)$$

We prefer to use long-term average bond spreads, rather than spot bond spreads, when estimating debt betas, for the following reasons:

- Use of long-term average spreads results in greater consistency with the five-year time period (see section 7) used to estimate equity betas (which are subsequently de-levered using the estimated debt betas); and
- Use of spot bond spreads would currently result in unusually high debt beta values (especially for lower debt ratings, such as BBB), which would be higher than (and therefore inconsistent with) the asset betas observed for many listed companies in low-risk industries (see section 7).

We also note that debt beta values ultimately have little impact on the resultant WACCs.

A beta of debt is dependent on the credit rating for that debt, which determines the debt spread in the numerator of Equation (1). We have used spreads for AA rated corporate bonds (see section 5) to determine the debt beta for both AP and RLB.

The long-term pre-GFC average spread for 10-year AA corporate bonds over 10-year CGB was 0.95% (average from Dec-01 to May-07). Per Equation (1), we divide this by the long term average market risk premium (7% - see section 10, below) to obtain the estimated debt beta for Australia Post (0.14). We have rounded this to a value of 0.15, which is consistent with our previous reports (RKR 2012 Report and RKR 2014 Report).

The debt beta is not used to derive a cost of debt because the cost of debt can be more directly estimated from market data on bond yields.

7. Asset Beta

7.1 Impact of Capital Structure on Beta

The beta of equity (β_e) captures the equity risk that is rewarded by the market, whereas the beta of assets (β_a) reflects the operational risk that is rewarded by the market. The asset beta can be viewed as the risk of the business 'as if' it is financed by equity alone, i.e. 100% equity.

The difference between these two measures of risk arises from part debt funding of the business. The equity beta will rise above the asset beta when debt funding is employed. This occurs because debt investors contract for lower risk than that represented by the asset beta – thereby 'passing' risk to equity investors. This financing activity does not affect the asset beta (operational risk) – it simply leads to a differential sharing of the risk between equity and debt capital providers.

This relationship is captured by the following formula:

$$\beta_a = \frac{D}{V} \beta_d + \frac{E}{V} \beta_e \quad (2)$$

where: D is the market value of debt
E is the market value of equity
V = D + E is the total market value of debt and equity
(The remaining symbols are defined in TABLE 1 and TABLE 3, above)

Re-arranging this equation, we obtain:

$$\beta_e = \beta_a + \frac{D}{E} (\beta_a - \beta_d) \quad (3)$$

7.2 Beta Estimation Process

Although beta is a forward-looking concept, the equity beta for a listed stock is usually estimated via the 'market model', in which the stock's historical total shareholder returns (including dividends) are regressed against those of a broad-based market index from the relevant country. VAA's standard practice is to perform these regressions using 60 monthly observations for the stock and an accumulation index.

For unlisted entities such as AP and RLB, the equity beta cannot be directly observed and thus must be estimated by reference to comparable listed companies using the following process:

1. Compute equity beta for each listed comparator, via regression of historical total returns against its 'home' index. Estimate gearing ratio (D/V) for each comparator from historical data.
2. Compute asset beta for each listed comparator, by de-levering the observed equity betas using Equation (2).
3. Select an appropriate asset beta for the unlisted company, with reference to the asset betas for listed comparators, and estimate an appropriate gearing ratio.
4. Compute equity beta for the unlisted company, by re-levering the selected asset beta using Equation (3).

A number of different beta weighting formulae have been proposed, and these may be used by practitioners as alternatives to Equation (2). In general, the equation used in the 'de-lever/re-lever' process will have little impact on the re-levered equity beta, provided that the same equation is used when de-levering and re-levering.

7.3 Asset Beta Estimate

We have estimated asset betas for AP and RLB with reference to betas for comparable listed companies, as described above.

There are no directly comparable businesses to either AP or RLB in Australia (or overseas for that matter). Ideally, comparable companies would be based in Australia and thereby face similar market, tax and regulatory conditions. Further, since beta is a measure of risk that is relative to that of a well-diversified portfolio, it is preferable to use a portfolio that is reflective of the holdings of Australian investors. A home bias in investing means we would ideally want to assess the risks of AP and RLB relative to a market index that is predominantly Australia-based². However Australian comparable companies are limited, leading us to examine overseas companies.

We have selected a broad set of listed comparators for Australia Post, as shown in TABLE 5, below. This set has been constructed from a number of individual subsets that collectively reflect the range of operations of Australia Post. The comparator set is largely the same as that in our RKR 2014 Report.

From within the overall broad comparator set, we have also identified two individual subsets that we believe are most comparable to the Reserved Letters Business, as shown in the top section of TABLE 5. Postal services companies have the most comparable operations to RLB, but all listed postal companies are overseas, so we have also included Australian logistics companies. The RLB comparator set is the same as that in our RKR 2012 Report. ACCC has previously used this same comparator set.

TABLE 5, below, shows the estimated equity betas and asset betas for the comparable listed companies. Note the following in relation to the approach taken:

1. Equity betas were estimated using ordinary least squares regression of the total return of the comparable company against the total return of its 'home' index. Sixty monthly observations were used, where available, with a requirement that there be a minimum of 48 pair-wise observations. Research into the estimation period generally recommends 5 – 7 years of monthly data.³
2. The market value gearing ratio (D/V) for each comparable company was estimated using an average of five years of historical data. This approach was taken for three (related) reasons:
 - Theoretical guidance indicates that share prices reflect expected gearing. This may differ from current gearing, so the objective is to assess a long term expectation;
 - Academic research⁴ suggests firms act as if they target a particular gearing ratio – but regularly move away from it, in either direction, for expediency and

² We are assuming that the investor base of interest is Australian.

³ An example is Gonedes, N.J., "Evidence on the Information Content of Accounting Numbers: Accounting-Based and Market-Based Estimates of Systematic Risk," *Journal of Financial and Quantitative Analysis*, Vol. 8, 1973, pp. 407-433.

⁴ See for example Hovakimian A, T Opler & S Titman, "The Capital Structure Choice: New Evidence for a Dynamic Tradeoff Model," *Journal of Applied Corporate Finance*, Spring 2002.

cost reasons. Since raising funds is costly and subject to economies of scale, it is prudent to be 'lumpy' in these raisings. It follows that the observed gearing at a single point in time may differ substantially from the target gearing, but a historical average is likely to better reflect the firm's target gearing; and

- Equity values will vary over time and there may be delays in adjusting internal debt levels accordingly. An average will provide some 'correction' for this.
3. For the purpose of assessing a debt beta value to use in the beta de-levering formula (Equation (2)), we have assumed that all comparable companies have the market benchmark debt rating (BBB) and have thus computed their debt beta using Equation (1) with the long term average pre-GFC spread for 10-year BBB corporate bonds over 10-year CGB. This resulted in debt beta value of 0.2, which we used when de-levering the observed equity betas.

Note, however, that when re-levering to obtain an equity beta for Australia Post (see section 9) we have used our assessed debt beta value for Australia Post of 0.15 (see section 6), since this is consistent with Australia Post's AA- credit rating.

4. In assessing asset betas for AP and RLB, we have taken into account both our current beta analysis (TABLE 5, based on five years of observations to 31 December 2014) and historical beta analyses from previous VAA reports. Given this long historical analysis period, and the fact that betas generally do not change significantly over time, we would not expect a change in our analysis date to have a significant impact on the observed betas of the comparable companies or to cause a change in our recommended asset beta for AP or RLB.

Our primary reference for selection of the Australia Post asset beta is the overall 'Mean of Means' asset beta for the comparable listed companies. This 'Mean of Means' has fallen slowly and gradually over the last five years: from 0.75 as at 30 June 2010 to 0.67 as at 31 December 2014 (see TABLE 5). However, we note that this fall is only partly caused by changes in the measured beta values of comparable companies – with the remaining impact due to removals/changes of companies in the comparator set.

We have previously recommended an asset beta of 0.75 for Australia Post, but given the gradual fall in the overall 'Mean of Means', we believe it is appropriate to now select a somewhat lower value. However, we generally do not expect a forward view of betas to change unless there is some structural change in the economy, and considering there has been no fundamental change in the operations of Australia Post, we believe caution is warranted when making changes to our recommended asset beta. Given the measurement error in beta estimation, we recommend a rounded asset beta of 0.70 for Australia Post.

Our primary reference for selection of the RLB asset beta is the 'Mean of Means' asset beta for the RLB comparators (first two subsets in TABLE 5). This 'Mean of Means' has generally been in the range 0.6-0.7 over time, and was 0.67 as at 31 December 2014.

We have previously recommended an asset beta of 0.60 for RLB and, as stated above, we generally do not expect a forward view of betas to change unless there is some structural change in the economy. Thus, while the 'Mean of Means' of 0.67 suggests a somewhat higher asset beta for RLB, we do not believe this represents evidence of a structural change and do not believe there is sufficient reason to alter our recommended asset beta for RLB. Given the measurement error in beta estimation, we again recommend a rounded asset beta of 0.60 for RLB, as a distinction to our recommended asset beta of 0.70 for AP as a whole. However, we note that there is an element of conservatism in this approach, and we certainly do not believe it would be appropriate to use an asset beta any lower than 0.60 for RLB.

TABLE 5 EQUITY BETA AND ASSET BETA FOR COMPARABLE LISTED COMPANIES

Name	Country	Market Cap	D/V (5yr av)	Raw Beta Equity	Beta Asset
Postal Services - Overseas					
POSTNL NV	NETHERLANDS	2,026	0.45	1.84	1.10
DEUTSCHE POST AG-REG	GERMANY	48,682	0.23	0.87	0.72
SINGAPORE POST LTD	SINGAPORE	3,808	0.17	0.34	0.32
Mean			0.28	1.02	0.71
Median			0.23	0.87	0.72
Logistics - Australia					
CTI LOGISTICS LTD	AUSTRALIA	91	0.25	0.77	0.63
K & S CORP LTD	AUSTRALIA	146	0.37	0.96	0.68
TOLL HOLDINGS LTD	AUSTRALIA	4,226	0.32	1.33	0.97
CHALMERS LTD	AUSTRALIA	21	0.40	0.64	0.46
LINDSAY AUSTRALIA LTD	AUSTRALIA	99	0.61	0.65	0.38
Mean			0.39	0.87	0.62
Median			0.37	0.77	0.63
RESERVED LETTERS COMPARATORS - MEAN of MEANS			0.34	0.94	0.67
RESERVED LETTERS COMPARATORS - MEDIAN of MEDIANS			0.30	0.82	0.67
Express Parcel Delivery - Overseas					
UNITED PARCEL SERVICE-CL B	UNITED STATES	126,080	0.12	0.91	0.83
FEDEX CORP	UNITED STATES	60,257	0.07	1.27	1.19
YAMATO HOLDINGS CO LTD	JAPAN	10,673	0.12	0.62	0.57
FREIGHTWAYS LTD	NEW ZEALAND	856	0.22	0.90	0.75
BLUE DART EXPRESS LTD	INDIA	2,915	0.00	0.52	0.52
Mean			0.11	0.85	0.77
Median			0.12	0.90	0.75
Logistics - Overseas					
DEUFOL SE	GERMANY	51	0.60	0.13	0.17
WINCANTON PLC	BRITAIN	376	0.66	0.97	0.46
LOGWIN AG	LUXEMBOURG	260	0.20	0.60	0.52
HUB GROUP INC-CL A	UNITED STATES	1,745	0.03	1.00	0.98
NIPPON EXPRESS CO LTD	JAPAN	6,675	0.45	0.91	0.59
MAINFREIGHT LTD	NEW ZEALAND	1,511	0.17	0.47	0.42
Mean			0.35	0.68	0.52
Median			0.33	0.76	0.49
Retail - Australia					
WOOLWORTHS LTD	AUSTRALIA	38,753	0.11	0.60	0.56
REJECT SHOP LTD/THE	AUSTRALIA	177	0.08	1.28	1.19
Mean			0.10	0.94	0.88
Median			0.10	0.94	0.88
Transaction Processing - Overseas					
PAYCHEX INC	UNITED STATES	20,535	0.00	0.92	0.92
DELUXE CORP	UNITED STATES	3,787	0.28	1.41	1.07
EQUIFAX INC	UNITED STATES	11,943	0.17	0.90	0.78
Mean			0.15	1.08	0.92
Median			0.17	0.92	0.92

Name	Country	Market Cap	D/V (5yr av)	Raw Beta Equity	Beta Asset
Stock Exchanges - Australia & Overseas					
ASX LTD	AUSTRALIA	7,113	0.37	0.61	0.46
HONG KONG EXCHANGES & CLEAR	HONG KONG	31,679	0.02	1.28	1.26
INTERCONTINENTAL EXCHANGE IN	UNITED STATES	30,270	0.12	0.88	0.80
Mean			0.17	0.92	0.84
Median			0.12	0.88	0.80
Property Development - Australia					
WESTFIELD CORP	AUSTRALIA	18,744	0.35	0.38	0.32
PEET LTD	AUSTRALIA	512	0.39	0.92	0.64
Mean			0.37	0.65	0.48
Median			0.37	0.65	0.48
Infrastructure - Australia					
ORIGIN ENERGY LTD	AUSTRALIA	12,911	0.29	0.57	0.47
AGL ENERGY LTD	AUSTRALIA	8,994	0.24	0.39	0.34
TRANSURBAN GROUP	AUSTRALIA	16,357	0.35	0.32	0.28
AUSNET SERVICES	AUSTRALIA	4,611	0.60	0.47	0.31
APA GROUP	AUSTRALIA	8,302	0.51	0.70	0.44
DUET GROUP	AUSTRALIA	3,600	0.73	0.33	0.24
SPARK INFRASTRUCTURE GROUP	AUSTRALIA	3,123	0.32	0.18	0.19
Mean			0.44	0.42	0.32
Median			0.35	0.39	0.31
Other - Australia					
SALMAT LTD	AUSTRALIA	197	0.29	1.04	0.80
PMP LTD	AUSTRALIA	139	0.49	0.85	0.53
COMPUTERSHARE LTD	AUSTRALIA	6,563	0.21	0.61	0.52
Mean			0.33	0.83	0.62
Median			0.29	0.85	0.53
OVERALL - MEAN of MEANS			0.27	0.83	0.67
OVERALL - MEDIAN of MEDIANS			0.26	0.86	0.67

Source: Bloomberg, VAA Analysis. Data as at 31-Dec-2014. All data in AUD m (converted using spot FX at valuation date).

Notes:

- SP AusNet [Infrastructure - Australia] changed its name and ticker to AusNet Services (AST AU) as at 5-Aug-14. The new name is shown above.
- The following companies were included in the previous beta study (as at 30-Jun-13) but have been excluded from this study:
 - NYSE Euronext [Stock Exchanges - Australia & Overseas]: Acquired by Intercontinental Exchange, Inc. (ICE US) on 13-Nov-13. Replaced with ICE US in comparator set.
 - Australand Property Group [Property Development - Australia]: Acquired by Frasers Centrepoint Ltd (FCL SP) on 31-Oct-14.
 - Envestra Ltd [Infrastructure - Australia]: Acquired by Cheung Kong Infrastructure & others on 20-Oct-14.
- The following additional companies were considered for inclusion in this beta study, but were ultimately rejected:
 - Oesterreichische Post AG [Postal Services - Overseas]: In historical beta analyses (multiple previous VAA reports), observed β_e has been a clear outlier (and sometimes even below β_d). Observed β_e is thus regarded as unreliable, and company has been eliminated from the data set.
 - bpost SA [Postal Services - Overseas]: Insufficient historical data (since listing in Jun-13) for accurate beta.
 - Royal Mail PLC [Postal Services - Overseas]: Insufficient historical data (since listing in Oct-13) for accurate beta.
 - TNT Express NV [Express Parcel Delivery - Overseas]: Insufficient historical data (since demerger of Post NL, May-11) for accurate beta.
 - Aurizon Holdings Ltd [Infrastructure - Australia]: Insufficient historical data (since Nov-10) for accurate beta.

8. Gearing

A company's enterprise value (V) is the sum of the market values of debt (D) and equity (E), while gearing is the ratio of debt to enterprise value (D/V). In assessing appropriate gearing ratios for each of Australia Post and RLB, we have considered the following:

- The comparable listed companies for Australia Post (TABLE 5) have an overall 'Mean of Means' historical gearing (5-year average D/V) of 27%;
- The comparable listed companies for RLB (first two subsets in TABLE 5) have a 'Mean of Means' historical gearing (5-year average D/V) of 34%;
- Australia Post's actual (book-value) gearing⁵ has been in the range 25-30% since 30 June 2009, and was 29% as at 30 June 2014; and
- Australia Post has previously advised VAA that, to maintain its current credit rating, AP's gearing (as defined here) cannot be substantially higher than 30%. Our assessments of cost of debt (section 5) and debt beta (section 6) were both based on AP's current credit rating, and we believe a consistent approach should be taken when assessing gearing.

In light of the above factors, we recommend gearing ratios of D/V = 30% for both Australia Post and RLB. We also note that the calculated WACC is relatively insensitive to gearing.

9. Equity Beta

We have computed the Australia Post and RLB equity betas by re-levering our recommended asset beta values using Equation (3), with our recommended debt beta of 0.15 (see section 6) and gearing ratio of D/V = 30% (see section 8).

Re-levering our Australia Post asset beta of 0.70 produces an equity beta of 0.94, which we have rounded to 0.95 (slightly lower than the recommended value of 1.0 from our RKR 2014 Report).

Re-levering our RLB asset beta of 0.60 produces an equity beta of 0.79, which we have rounded to 0.80 (the same recommended value as our RKR 2012 Report).

10. Market Risk Premium

The market risk premium ["MRP"] (or equity risk premium ["ERP"]) is a key input to the CAPM, which is used to estimate the cost of equity. The CAPM is a forward looking model – it guides an assessment of what equity investors require to compensate them for time and risk over the period of interest.

Although the CAPM is a forward-looking model, which means all inputs need to be forward-looking, it is not unusual to rely on historical (ex-post) data when estimating the MRP. However, we note that the ex-post MRP cannot be constant – if it was constant, there would be no risk and no risk premium. This stochastic nature of MRP leads to a wide confidence interval around the point estimate required for the forward-looking (ex-ante) MRP estimate. Under these circumstances, it is best to utilise a long time series of historical data: this will not only improve statistical "accuracy", but will also weight events according to their likelihood of occurrence.

⁵ Book-value gearing after a minor adjustment to book equity to eliminate the impact of the APSS superannuation fund, which is not controlled by Australia Post.

Long term estimates of the historical Australian MRP are provided in TABLE 6. These are derived from a broad-based stock market index and, in general, from the yield on 10-year Commonwealth Government Bonds.

TABLE 6 HISTORICAL AUSTRALIAN MARKET RISK PREMIUM

Period		Value of Imputation Credits	
From	To	$\gamma = 0$	$\gamma = 1$
1883	2014	6.0%	6.4%
1958	2014	5.9%	6.7%

Sources:

1883-2005: Brailsford, T., J. C. Handley and K. Maheswaran, 2008, Re-examination of the historical equity risk premium in Australia, *Accounting and Finance* 48, 73-97.

2006-2014: Brailsford (for FTC impact), Bloomberg, RBA, VAA analysis.

We note that, although franking tax (imputation) credits represent an additional source of value to shareholders, stock market indices do not include returns from these credits. When estimating MRP, the market return should include imputation credits, to the extent that they are valued, in addition to the dividend yield and capital gain. The imputation taxation system was introduced in Australia in 1987, and its impact on the market return to shareholders influences the historical MRP series after that date. It has a greater impact on the post 1958 time series than the post 1883 time series, as is evident in TABLE 6.

The challenge in assessing MRP is to estimate the average value assigned to imputation credits (average gamma (γ)) by investors in the equity market (as a whole). This average gamma lies within the range 0 to 1 and may vary over time. Estimates of average gamma vary across research techniques and over time. At least three Australian regulators (Australian Energy Regulator ["AER"], Utilities Commission of the Northern Territory ["Utilities Commission"] and Economic Regulation Authority of Western Australia ["ERAWA"]) have recently assessed average gamma as being in the range 0.4 to 0.5.⁶

There is a large body of evidence supporting an MRP estimate in the range 6 - 8% under 'normal' capital market conditions, and we have previously argued that a value of 7% appropriately reflects the imputation credit yield in the market return. Rolling estimates of historical Australian MRP have fallen over recent years due to underwhelming stock market performance. However, we believe an estimate of 7% is still appropriate and – importantly, as demonstrated by TABLE 6 – that an estimate of 6% is too low. We continue to recommend an MRP of 7% under 'normal' capital market conditions.

In some previous WACC assessment reports, we have recommended the use of a higher short-term MRP due to elevated market volatility caused by the GFC. This approach was based on analysis presented to the UK Competition Commission. The (forward-looking) implied volatility (risk) of the market was obtained from 12 month options over the ASX 200 Index, then multiplied by a constant premium per unit risk (0.5) to obtain a 12 month forward estimate of MRP. The premium per unit risk (0.5) was obtained by dividing long term (pre-GFC) historical MRP (7%) by long term (pre-GFC) historical volatility (14%).

However, the implied volatility (risk) of the market, obtained from 12 month options over the ASX 200 Index, as at 23 July 2015, was 15.9%, which is only slightly above the long term

⁶ See, for example: Australian Energy Regulator, Draft decision – Essential Energy distribution determination – 2015-16 to 2018-19 – Overview, November 2014. We note that the gamma estimation techniques described in this paper – equity ownership approach, tax statistics and implied market value studies – would produce an average gamma estimate for the overall Australian market, as required when assessing MRP. However, as discussed in section 11, it is not appropriate to apply an average gamma value to Australia Post – so these techniques, and the resultant gamma estimates, would not be suitable for assessing AP's gamma.

historical average volatility of 14%. This reversion of implied volatility towards its long term historical average is also illustrated graphically in the following charts:

- FIGURE 1 displays Australian implied (forward) volatility. This chart uses data from 3 month (rather than 12 month) call options over the ASX200 because a longer historical dataset is available for these shorter-dated options.
- FIGURE 2 displays US implied (forward) volatility, as measured using the Chicago Board Options Exchange ["CBOE"] Volatility Index ["VIX"]. This data is not Australian, but has been included because the CBOE VIX is the most well-known measure of forward-looking equity market volatility.

These charts show that the relevant implied (forward) volatility measures have fallen significantly in the aftermath of the GFC and are now at levels around their long-term historical averages. However, it is important to note that market volatility is not constant and may be significantly influenced by world events (such as the 2012 debt crisis associated with the US debt ceiling) and that this may lead to higher volatility (and short-term MRP) in the future.

With implied equity market volatility reverting towards its historical average, the resultant short-term MRP estimate is also reverting towards its historical average of 7%, and we therefore do not recommend the use of an elevated short-term MRP at this time. We recommend an MRP estimate of 7% as at 23 July 2015.

FIGURE 1 AUSTRALIAN IMPLIED (FORWARD) VOLATILITY – BASED ON 3-MONTH CALL OPTIONS OVER ASX200

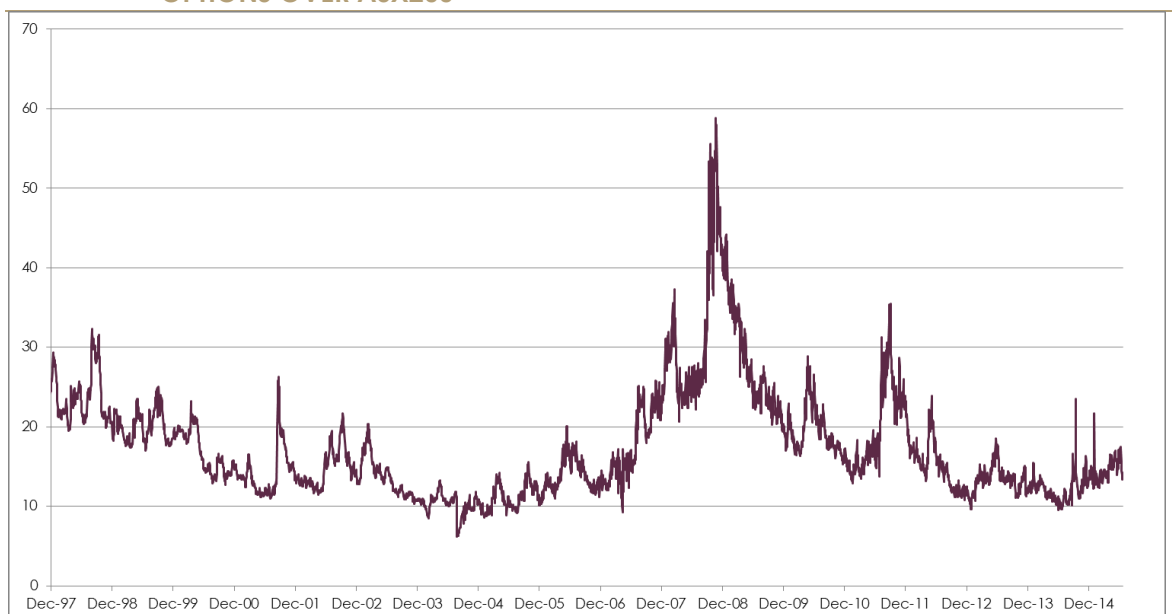
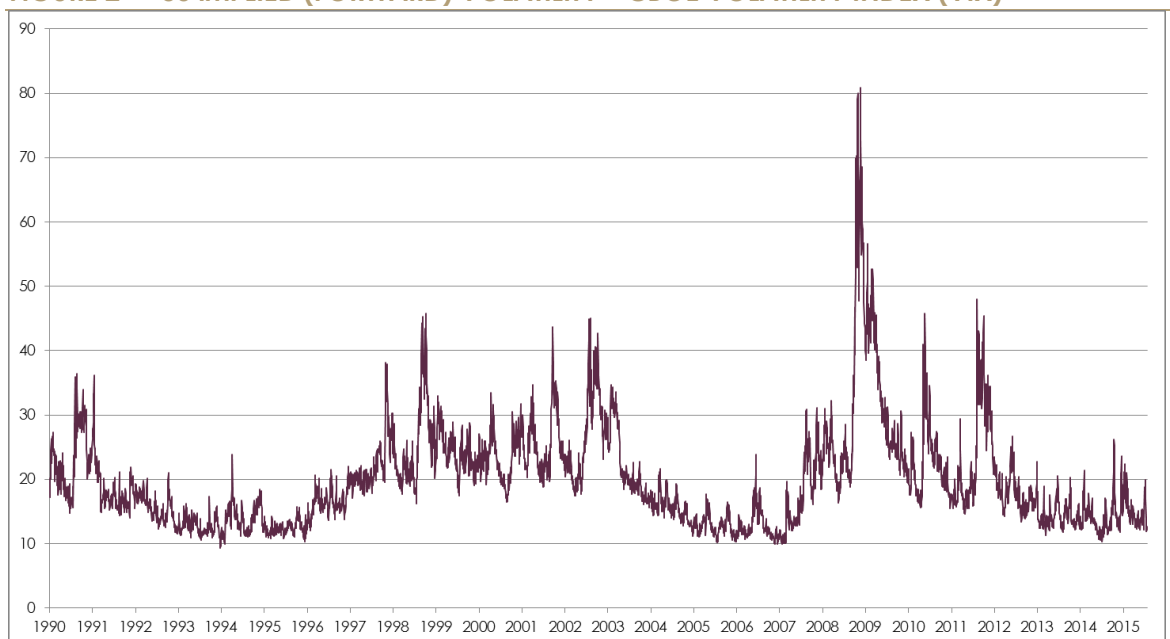


FIGURE 2 US IMPLIED (FORWARD) VOLATILITY – CBOE VOLATILITY INDEX (VIX)



11. Gamma

Gamma (γ) is the value assigned to imputation credits and represents the extent to which the tax paid by a company is reclaimed by its shareholders.

The value of gamma is specific to the tax circumstances of the shareholders of a company and how the company distributes franked dividends. Gamma is a function of the amount of tax the company pays, how and when it distributes franking tax (imputation) credits to shareholders and how much, if any, of the credits are claimed by shareholders.

The cost of capital is a market rate that reflects the risk of the company (beta in the CAPM context), not its tax rate. However, to earn the cost of capital, it must cover its actual tax payments (the net tax that does not flow to shareholders). In the case of Australia Post, it has to cover tax payments at the corporate tax rate of 30% because its ultimate shareholder (the Australian Government) does not recover any of the tax paid by redeeming imputation credits.

Australia Post is wholly-owned by the Commonwealth of Australia and operates under a tax-equivalent regime whereby taxes are administered as if it was subject to the Income Tax Assessment Act. The Commonwealth (Treasury) collects the tax equivalent at a prima facie rate of 30%. However, the Commonwealth itself is not subject to tax and therefore cannot utilise franking tax credits.

Our view, which remains unchanged from our previous WACC assessments, is that the gamma value used to determine the tax component of the PTRM's cost build-up should be zero. Our reasons are that:

- Australia Post does not distribute franking tax credits; and
- Australia Post's shareholder does not claim franking tax credits.

We note that a nonzero gamma value would place Australia Post at a competitive disadvantage, as it would be unable to earn sufficient revenue to cover its actual tax payments, which are unable to be offset by franking tax credits. A positive gamma value

would also imply that Australia Post had an effective tax rate less than 30%, which is patently untrue.

An alternative (but equivalent) way of expressing the above reasoning is to consider how the tax collected from a company may be broken down into components of personal tax and company tax. Under an imputation tax system, tax is collected at the company level, but a proportion may be reclaimed by shareholders via imputation tax credits, such that the tax collected comprises two distinct components:

- the proportion of collected tax that is ultimately redeemed by shareholders (via imputation credits) represents a (pre-)payment by the company of personal tax; and
- the proportion of collected tax that is not redeemed by shareholders represents a (final) payment by the company of company tax.

The PTRM's cost build-up includes a tax component, which reflects the company tax that is expected to be paid. This item reflects company tax *only* – a gamma adjustment is applied to the total collected tax to exclude the component that represents a pre-payment of personal tax. However, in the case of Australia Post, where no imputation credits are distributed or redeemed, no part of the collected tax represents a pre-payment of personal tax. The entire amount of collected tax represents company tax and must therefore be included in the tax component of the cost build-up – which is equivalent to using a gamma value of zero.

The ACCC has previously presented a view that an average gamma value for Australian companies should be used for assessing the tax paid by Australia Post. We believe this is entirely inappropriate.

As stated above, gamma is specific to the circumstances of a company – it depends on the extent to which franking tax credits can actually be used to offset tax collected at the company level. Where it is difficult (or impossible) to accurately determine the value of franking tax credits to a specific entity's shareholders, an average gamma value will often be used as a proxy. However, this is not the case for Australia Post, where the ultimate shareholder cannot utilise franking tax credits, and gamma clearly has a value of zero. There is no reason or justification for using an average gamma value as a proxy.

The application of an average Australian gamma value to Australia Post is unsupported and, as such, we have not provided any estimate of an average gamma value.

The appropriate gamma value for Australia Post is zero.

Appendix 1 – Information Provided and Relied Upon

VAA has utilised several sources of information in the formulation of this report.

The following information was sourced by VAA:

- Previous reports prepared by VAA for Australia Post
- Australia Post Annual Report 2014
- Previous ACCC regulatory determinations for Australia Post and other entities
- News and academic articles, as referenced in the body of the report
- Bloomberg LLP
- Annual reports and stock exchange releases for comparable listed companies

In addition, VAA also held discussions with Raymond Ngai and Sandra Mills (Australia Post).