

Appendix 2 – Weighted Average Cost of Capital

1 Introduction

This Appendix 2 sets out Vodafone Australia's calculation of the Weighted Average Cost of Capital ("WACC") used in determining the capital costs of the MTAS contained in the cost of service model described in Appendix 1 ("cost model").

Vodafone Australia ("Vodafone") has calculated the MTAS WACC based on established regulatory and financial market principles and practices.

Specific WACC parameter values have been developed from analysis of comparable Australian and overseas companies providing similar services to the MTAS. The WACC formulas applied reflect the Australian taxation regime, where required (post tax) returns on equity are able to be reduced by personal income tax savings associated with dividend franking credits (ie the dividend imputation scheme).

Vodafone has sought to adopt a straight-forward approach to developing the cost model and the WACC values based on applying simple and transparent procedures and input data which are readily verifiable by the regulatory process.

The WACC approach involves selecting some input parameter values from ranges of feasible values and selecting from alternative WACC methodologies. Such selection requires judgements to be made for example in relation to relevant benchmarks and market conditions. In this regard Vodafone has sought to make reasonable choices within the range of possible choices and to arrive at WACC outcomes that meet the criteria in section 152AH of the TPA, having regard to the objectives in section 152AB.

2 Formulation

2.1 WACC

Vodafone's approach to calculating the MTAS WACC involves applying the post tax nominal WACC formula developed by RR Officer¹ (the "Officer Formula") as follows:

$$WACC = r_e * \frac{E}{V} * \left\{ \frac{(1-T)}{[1-T*(1-\gamma)]} \right\} + r_d * \frac{D}{V} * (1-T)$$

¹ Officer R.R. 1994, The cost of capital of a company under an imputation tax system, *Accounting and Finance*, 34 1, May.

where:

r_e = post tax nominal cost of equity (pre imputation)

E = equity funding

T = corporate tax rate

r_d = pre tax nominal cost of debt

D = debt funding

γ = dividend imputation factor (gamma)

V = sum of debt and equity funding

The procedures used to derive the parameter values r_e and r_d are set out in sections 2.2 and 2.3 below. Other parameter values are discussed in section 3.

In the Officer Formula, the cost of equity (r_e) is adjusted for personal income tax savings associated with dividend franking credits.

We note that the Officer Formula has been adopted by the Commission in its recent regulatory decisions (2000 onwards) in relation to costs of services of regulated industries. The regulated industries referred to in this case include:

- Natural gas transmission pipelines;
- Electricity transmission networks;
- Reserved postal services;
- Notified airport services;
- Interstate rail track; and
- Telecommunications access services.

2.2 Post Tax Nominal Cost of Equity

The post tax nominal cost of equity (pre imputation) is calculated based on the Sharpe-Lintner Capital Asset Pricing Model (CAPM) formula as follows:

$$r_e = r_f + (r_m - r_f)\beta_e$$

where:

r_e = expected post tax nominal cost of equity (pre imputation)

r_f = risk free rate of return

r_m = expected return to the market as a whole

β_e = equity beta, relating to the systematic risk of the equity security

The CAPM parameter values are discussed in sections 3.1 to 3.5.

The application of the CAPM for this purpose represents standard regulatory and financial market practice.

2.3 *Pre Tax Nominal Cost of Debt*

The pre tax nominal cost of debt is estimated as the sum of the risk free rate and the nominal debt margin above risk free rate.

The nominal debt margin represents the margin as determined by financial institutions based on:

- the credit rating of the company concerned (or the credit rating of a benchmark company); and
- the costs associated with debt issuance.

The debt margin is discussed in section 3.6.

2.4 *Applied WACC*

The WACC applied by the cost model is a pre-tax nominal rate, in that tax is accounted for through the WACC formula rather than being included as a cashflow in the model. This approach has been adopted on the grounds of simplicity, and transparency to the regulatory process. Discussion of the tax rate applied is provided in section 3.8.

The results of the WACC calculations are shown in section 4.

3 Parameter Values

3.1 Risk Free Rate

3.2 Market Risk Premium

3.3 Asset Beta

3.4 Equity Beta

3.5 Debt Beta

3.6 Debt Margin

3.7 Gearing

3.8 Taxation

3.9 Gamma

4 WACC Summary

Vodafone has sought to adopt a straight-forward approach to developing the cost model and the WACC values based on applying simple and transparent procedures and input data which are readily verifiable by the regulatory process. The outcomes from applying the WACC approach as described in this appendix are the nominal post tax and pre tax WACC values shown in Table 2. The pre tax nominal WACC shown is used in determining the cost component, return on capital, within the projected costs of the MTAS contained in the cost model.

Table 2. MTAS WACC Parameter Inputs, Overall Values

WACC Parameter	Value
Nominal Risk Free Rate	[c-i-c]
Debt Margin	[c-i-c]
Nominal pre-tax cost of debt	[c-i-c]
Market Risk Premium	[c-i-c]
Corporate Tax Rate	[c-i-c]
Gamma	[c-i-c]
Equity Funding	[c-i-c]
Debt Funding	[c-i-c]
Debt Beta	[c-i-c]
Asset Beta	[c-i-c]
Equity Beta	[c-i-c]
WACC	
Post-tax nom return on equity (pre imputation)	[c-i-c]
Post-Tax Nominal WACC	[c-i-c]
Pre-Tax Nominal WACC	[c-i-c]

The WACC developed reflects investors' required rates of return for investments of similar risk to Vodafone's investment in the facilities providing the MTAS. As the WACC thus reflects Vodafone's opportunity cost of funds, its application to determine the return on capital component in the cost model is consistent with the legitimate business interests of Vodafone and with providing it with an incentive to undertake efficient investment in the infrastructure used to provide the service. Such efficient investment in network facilities are consistent with promoting the long term interests of end users. By reflecting the market-based cost of funds of investments with similar market risk, the WACC value can also be considered to be consistent with the concept of economic efficiency and with the outcomes expected of a competitive market.

Annex – [commercial-in-confidence]