



EMCS

Education & Management Consulting Services Pty Ltd
Suite 2, 18 Collington Avenue
Brighton Vic 3186

Ph (03) 9595 8149
0411 195 177

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Mr Angus Henderson
Partner
Webb-Henderson
Level 18, 420 George Street
Sydney NSW 2000
Australia

Dear Angus

Supplementary Report in Relation to NBN Co's Proposed Special Access Undertaking ["SAU"]

Context

You have asked us to supplement the WACC report we prepared for you on behalf of NBN Co and which was submitted to the ACCC along with NBN Co's proposed SAU in September 2012 and December 2012. We have had regard to the Federal Court of Australia Practice Note CM7 relating to expert witnesses in preparing this supplementary report.

In particular you have asked us to address three issues arising from the ACCC's Draft Decision. These relate to resetting the proxy for the risk free rate in Module 1 of the SAU; the use of a nominal vanilla WACC in Module 2; and the treatment of the taxation allowance in Module 2.

Issue 1: Resetting the proxy for the risk free rate in Module 1

You have referred us to the following statement on page 153 of the ACCC's draft decision, relating to how the WACC is set in NBN Co's proposed SAU during Module 1 (which applies for the 10 years ending 30 June 2023):

For the purposes of setting a regulated rate of return, there is a question as to whether the term of the bond used to calculate a risk-free rate should match the period of time for which the risk free rate is set for. In

the context of NBN Co's approach to determining the rate of return, this may suggest that the risk-free rate should be reset annually, and calculated using a one year bond; or alternatively, it may suggest that — because a ten-year bond rate is adopted — the risk-free rate should not be reset annually.

The ACCC has not yet formed a view on NBN Co's current proposal of not matching the term of the risk-free rate to the period during which it is applied — the ACCC is seeking views of interested parties about this matter and will consider these views in formulating the Notice to Vary.

In light of the ACCC's remarks, you have asked for our independent expert opinion on whether NBN Co's approach in Module 1 of its proposed SAU of utilising the mean yield on 10 year Commonwealth Government Securities ["CGS"] to establish the risk-free rate on an annual basis is:

- reasonable, having regard to the statutory criteria: and
- consistent with practice in other sectors and relevant jurisdictions.

Summary of our view

In our view, the NBN Co's approach to utilising a mean yield on 10 year CGS to establish the risk free rate on an annual basis is both reasonable, having regard to the statutory criteria, consistent with commercial principles and practice and consistent with practice in other sectors and relevant jurisdictions.

We reject the notion that there should be any ". . . *matching of the term of the risk free rate to the period during which it is applied . . .*" i.e. the possibility of using a one year bond as proposed in the quote from the ACCC's Draft Decision above. Further we are of the view that an annual update of the WACC (using a 10 year CGS) reflects the reality of the asset roll-out over a long period of time rather than arguing that it ". . . *should not be reset annually*" - an argument that implicitly assumes the roll-out occurs at a point in time.

Basis for our view

We briefly outline some economic and management principles that led us to our views in our prior reports and are the basis for our opinion on the matter at hand.

The NBN Co assets are very long lived assets (expected life of many of the assets making up the NBN is at least 30 years). Viewed as a commercial businesses attempting to attract funding for initial and ongoing investment in such assets, NBN Co has to consider whether investments can earn at least the opportunity cost of investing in other assets of comparable risk and duration.

A general risk mitigation principle when funding the acquisition of assets is to match the duration of funding (both debt and equity) to the duration of the asset. Not doing so exposes the business to:

- a. **roll over risk**, the risk of not being able to raise the capital at all. Relatively recent examples of the adverse consequences of exposure to this risk are Centro Properties and Babcock and Brown. Neither could raise debt at the time of roll-over with extremely adverse consequences for shareholders;
- b. **transaction costs** associated with raising capital each time a roll-over occurs, and
- c. **interest rate changes** that can cause profitability to be different from what was expected at the time the assets were purchased and therefore exposes the business to the probability of an interest cost increase which increases default risk and associated costs.

In practice, most businesses with very long lived assets are exposed to these risks because debt funds are not available for the life of the assets. This leads to implementation of a variety of risk minimisation practices such as spreading the maturity of debt over time so that not all is 'renewed' at one point in time and also to hedging interest rate exposure.

The lack of an active market for very long maturing debt also creates challenges in easily assessing the opportunity cost for long life assets. As a default, common practice in Australian commercial and regulatory processes is to use the yield on 10 year maturing CGS as a proxy for the risk free rate and for estimating the debt and equity risk premium. This is likely to underestimate the interest cost of debt when assets have lives longer than ten years because investors generally require a higher return as the term of funding increases (an upward sloping yield curve). Similarly, the use of a 10 year risk free rate in estimating the cost of equity under the CAPM is likely to be an under-estimate of the underlying opportunity cost. Certainly the use of the yield on a one year CGS, as foreshadowed as a possibility in the extract from the ACCC draft report above, would further under-estimate the cost of financing.

Long-term roll-out of assets

An additional consideration of estimating the WACC arises when the asset base is established over a prolonged period of time, as is the case for NBN Co's assets.

Ideally, it would raise capital, say annually, to fund the projected annual capital expenditure roll-out. In this case the cost of capital for the capital raised would still be a long term view but reflective of the prevailing market conditions at the time of the fund raising (say annual). So the overall cost of capital would be:

- a. The cost of capital at the beginning of the first year as appropriate for (at least) the 30 year assets built in that year and this would be 'set' for the, say, 30 year period;
- b. An updated cost of capital for the second year applicable for capital spend in the second year and raised at the beginning of the year;
- c. And so on for each subsequent year of the roll-out leading to a mix of WACCs over time.

In this scenario, there would be an annual 'update' of the cost of capital reflecting the cost of the funds to the business for the capital expenditure in that year; a cost that needs to be covered by revenue but the cost of capital is a long term cost, not a short term cost. Ideally, as noted, the term of the revised WACC would be for the life of the assets however the practice of using the cost of ten year funding is a practical solution to the lack of market based data on the long term funding.

As a consequence there would be a series of WACCs, each related to the annual spend. The dollar return on capital cost to be covered by revenue would be built up by adding together the product of the annual capital expenditure and the WACC as at the beginning of the year in which the capital expenditure occurred. Alternatively, a weighted average of the WACCs could be applied to total expenditure to date. The weighting would be determined from the size of the annual expenditures e.g. if expenditure was the same each year then each annual WACC would be equally weighted.

Clearly this is a complex process and we view the annual update of the WACC by the prevailing risk free rate, as proposed in the SAU for Module 1, as a simplification of this idealised view of 'recording' the cost of capital for its asset roll-out.¹ Although we have not modelled possible scenarios, we do not anticipate that the proposed annual update would provide a biased outcome.

Consequently we are of the view that the annual update of the WACC as proposed under section 1F.6 of the SAU should use the prevailing yield on a 10 year CGS. We reject the notion that there should be any *"... matching of the term of the risk free rate to the period during which it is applied..."* i.e. using a one year bond. Further we are of the view that an annual update of the WACC (using a 10 year CGS) better reflects the asset roll-out reality rather than arguing that it *"... should not be reset annually"* - an argument that implicitly assumes the roll-out occurs at a point in time.

¹ Annual fund raising is clearly a highly idealised view of commercial practice because the transaction costs of fund raising makes the process of, say, annual fund raising impractical. With the exception of retaining earnings we observe capital being raised less frequently than the capital is spent to minimise transaction costs, particularly those associated with public raisings.

Issue 2: Use of a Nominal Vanilla WACC in Module 2

You have referred us to the following passage on page 164 of the ACCC's Draft Decision and asked for our opinion of the concern expressed:

Whilst the adoption of a 'nominal vanilla WACC' may be considered to reflect best practice in commercial and regulatory environments today, this may not always be the case. Locking in a nominal vanilla WACC for the duration of Module 2 would also limit how revenue allowance modelling could be implemented.

It is well accepted that a regulated business should be able to earn a fair rate of return on its investment in assets. Unless this is so it will be unable to raise capital to refresh and build assets as well as finance working capital. The RAB captures the investment in long term assets and provides a basis for estimating the fair rate of return in dollar terms. This investment is independent of the manner of financing. An estimate of the WACC is then applied as the final step to reflect the financing mix.

There are numerous forms for the WACC,² usually differing in the way tax is treated e.g. before tax, after notional tax on operations, after actual tax. For each form of the WACC there is a corresponding 'consistent' definition of cash flows. A particularly attractive feature of the nominal vanilla WACC is that it does not contain a tax term and thereby assigns all tax calculations to the cash flow estimates. This enables separate modelling of annual tax estimates to reflect the tax regime and the tax rates anticipated to apply in the future.

While we cannot foresee the future with absolute certainty, we are confident that a nominal vanilla WACC will continue to be best practice in a regulatory environment and a nominal WACC (or its real counterpart) will be best practice in a commercial environment for the term of the SAU.

A nominal WACC (and its real counterpart) has been part of the corporate finance academic and commercial environment for many decades - by way of example; the 1968 version of the then popular textbook by Van Horne has a section on the rationale for the nominal WACC; Modigliani and Miller's landmark article in 1958 created a substantive focus on the area.³ We don't anticipate any change in the foreseeable future as it is a basic tenet in corporate finance. Moreover, because the nominal WACC is logically true by definition (it is an 'identity'

² See for example, Officer R R, "The Cost of Capital of a Company under an Imputation Tax System", Accounting and Finance, May 1994

³ Modigliani, F.; Miller, M. (1958), "The Cost of Capital, Corporation Finance and the Theory of Investment". American Economic Review (American Economic Association) 48 (3): 261–297; also see Nantell, T and Carlson, C (1975). "The Cost of Capital as Weighted Average," Journal of Finance, December

for its definition of cash flows), any model that replaces it, presumably because it enables better estimates, will be capable of being 'mapped' from the nominal WACC.

The use of the nominal vanilla WACC (and its real counterpart) is best suited to circumstances where the amount of interest payable in the future is 'known' or estimable. This is certainly the case in the regulatory environment in which, importantly, the NPV = 0 principle equates book and market values, making the amount of debt and interest well defined for cash flow modelling.

We cannot envisage what concern the ACCC may have about the use of a nominal vanilla WACC over the term of the SAU.

You also asked whether we had any comment on the proposed changes to clause 2D.2.1(a)(iii)(A) of the SAU to:

"a nominal vanilla WACC, estimated for the Regulatory Cycle and commensurate with the efficient financing costs for an entity with a similar degree of risk as that which applies to NBN Co in respect of the provision of services using the Relevant Assets."

We are comfortable with the proposed changes but note that we were comfortable with the prior wording and don't see need for generalising the changes.

Issue 3: Tax Allowance in Module 2

You have also asked for our view of the following passages from the Draft Decision commencing on page 166.

While the ACCC considers that the treatment of the tax allowance in this methodology is largely consistent with that adopted in standard regulatory practice for post-tax regulatory methodologies, it is difficult to be satisfied that it will remain reasonable for the duration of Module 2, given that best practice regulation and the relevant circumstances faced by NBN Co may change over the period. Therefore, the ACCC is not satisfied that the approach to calculating NBN Co's tax allowance will be consistent with the legitimate business interests of NBN Co and recovery of NBN Co's direct costs in all circumstances that could arise.

In addition, given that the ACCC is not satisfied that prescribing a nominal vanilla WACC for the duration of Module 2 is reasonable, the ACCC considers that it is by consequence difficult to be satisfied that prescribing the factors that must be taken into account when calculating a tax allowance is also reasonable. This is because the approach to the cost of capital and the tax allowance should be

consistent in regulatory methodologies to ensure that the regulated business is not under- or over-compensated relative to its tax liabilities and its cost of capital.

A key advantage of using a plain vanilla WACC is that it is agnostic with regard to taxes. All taxes are dealt with in the cash flow component of the building block approach rather than the WACC. This enables actual taxes to vary from year to year rather than assuming some representative tax rate across the overall time period as would be necessary to use a WACC adjusted for taxes. Consequently modelling different tax scenarios is far more flexible with the use of a plain vanilla WACC than with the alternative definitions of WACC. Put another way, it is much easier (the only real way) to obtain consistency between the cash flow components of the building block approach and definition of the WACC.

These comments also apply to any changes in the tax regime itself i.e. away from the current corporate tax, imputation tax and deduction environment.

The challenge of dealing with taxes in the cost of capital was addressed by the ACCC in 1998 and the decision was taken to move to a nominal vanilla WACC⁴. The changed approach has been adopted in most regulatory regimes since that decision. At that time the ACCC reported:

In sum, there is a choice between two broad alternatives. Regulatory decision-making can deploy relatively simple assessments of cash flows (that is, before tax and financing) but these must be coupled with much more complex formulations of WACC. The alternative is to use the less complex and better understood post-tax formulation of WACC, which in turn must be applied to tax- and financing-inclusive assessments of cash flows. (p170)

... and on p174

The Commission also sought advice from finance experts' Professors Bob Officer and Kevin Davis, and Dr Neville Hathaway, on the relative merits of pre-and post-tax formulations of the WACC. Putting aside the consequences for the time profile of prices and intergenerational equity, the unanimous view of the experts was that the only effective way to address the treatment of tax was to adopt a relatively simple WACC formulation, and deal with tax as an item in the cash flows

Given the agnostic nature of the plain vanilla WACC with respect to tax, we do not see a need to change section 2D.2.1(a)(iv)(A) to (G) [page 307 - 308 of the SAU] for any economic based

⁴ ACCC, "Victorian Gas Transmission Access Arrangements Final Decision", 6 October 1998

reason. The items listed are quite reasonable and comprehensive, based on current knowledge. However we are comfortable with the proposed wording change (i.e. removal of the factors specified in clause 2D.2.1(a)(iv)(A) to (G) and to change the introductory wording in 2D.2.1(a)(iv) to “a forecast tax allowance for year t, which should be consistent with the other elements of the Long Term Revenue Constraint Methodology”) if it is important to cater for (currently unforeseen) changes in the taxation regime for corporations and / or investors.

Yours sincerely

Dr Steven Bishop and Professor Bob Officer