



What can RAB multiples tell us about the cost of capital?

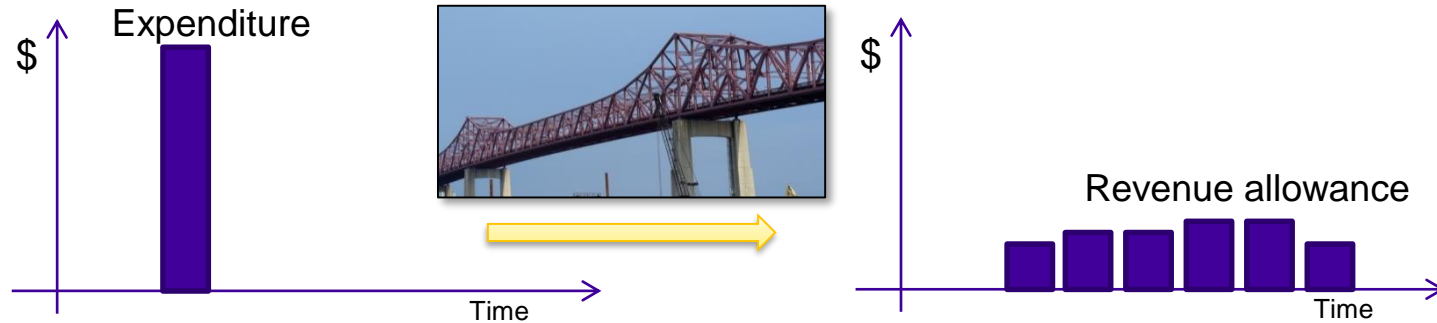
Darryl Biggar

CRG Meeting, 11 December 2017

acc.gov.au

Review of the Building Block Model

- Why does the BBM exist?



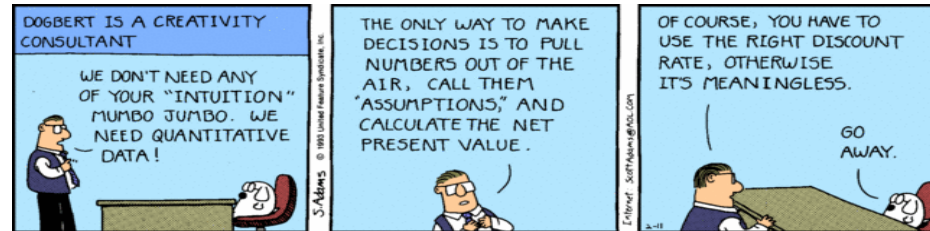
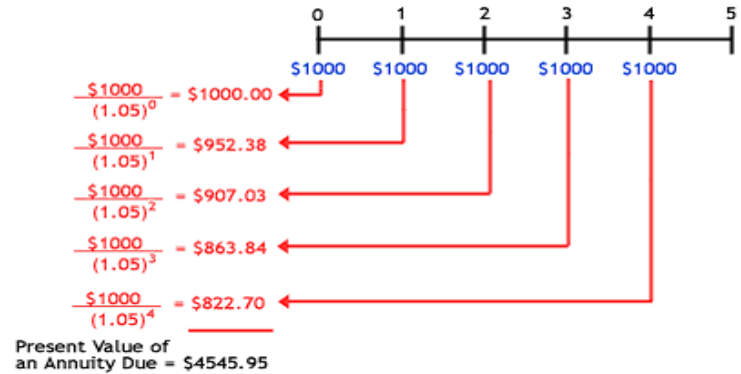
The BBM allows us to take a lumpy expenditure requirement and to spread it over time to yield a smoothed revenue allowance!

- The BBM allows us to convert lumpy expenditure into a smooth revenue stream with the same **Present Value**

Review of the Building Block Model

- The BBM is like a bank loan...
- A bank loan converts a lumpy expenditure into a series of monthly payments.
- At any given point in time the outstanding balance on the loan is equal to the present value of the future stream of payments!

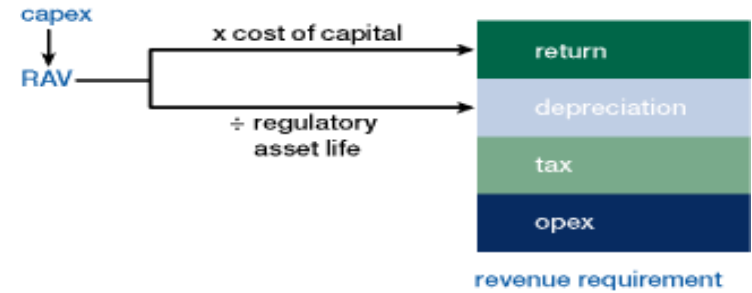
Reminder of the present value concept...



This remains true whether you pay off the loan fast or slow, or make lumpy repayments or smooth repayments.

Review of the Building Block Model

- If the regulator uses the BBM, provided certain conditions are satisfied, at each point in time the RAB is equal to the present value of the future stream of cash-flows of the firm!
- This remains true no matter what choices are made about depreciation, revenues or pricing in the future.



Return on capital (RAB x WACC) +	} Maximum Allowable Revenue
Return of capital (depreciation of RAB) +	
Forecast OPEX +	
Efficiency benefit sharing scheme (EBSS) +	
Corporate income tax (net of imputation)	

$$\text{Using the BBM, } RAB_t = \sum_i \frac{CF_{t+i}}{(1+r)^i}$$

The link between RAB and firm value

- Under standard corporate finance theory, **the value of a firm is equal to the present value of the future cash-flows.**
- Therefore we have the key result that, provided certain conditions are satisfied, the value of a firm regulated using the BBM should be equal to the RAB!

1. Discounted Cash Flow Valuation Models

- Utilizes the Present Value Method:
 - >The value of any asset is the present value of its expected cash flows
 - >Forecast the amounts and timing of future cash flows
 - >Discount the cash flows to the present using a discount rate that includes the time value of money and reflects the riskiness of the cash flows

2

$$\text{Using the BBM, } RAB_t = \sum_i \frac{CF_{t+i}}{(1+r)^i} = EV_t$$

The ratio of the EV to the RAB should be equal to one!

What are the conditions under which this holds?

- The regulator must always make use of the BBM to set the allowed revenue;
- The regulator must not systematically overestimate the expenditure of the firm;
- The regulator must not systematically underestimate the revenue of the firm;
- The firm must not expect to earn additional revenue from, say, incentive schemes.
- There must be no revaluation of the asset base that is not fully anticipated.
- The BBM must fully and accurately reflect the taxes the firm pays
- The RAB must go to zero at the end of the life of the firm.
- The regulator must set a cost of capital that reflects the firm's true cost of capital.

RAB Multiples

- From time to time we can observe the market value of a regulated firm (e.g., at the time of privatisation).
- From this we can get an idea of the value/RAB ratio.
- This is known as the **RAB Multiple** (also known as the EV/RAB Multiple, Trading Multiple, or Market-to-Asset ratio - Ofgem)
- If all the conditions on the previous slide hold:
$$\frac{EV_t}{RAB_t} = 1$$
- Many commentators ask:
 - Why can't we use the RAB multiple as a check on how the regulator is doing?
 - If the RAB multiple is well above one, isn't this a sign of a "failure" in the regulatory regime?

There is a lot of commentary about RAB Multiples

Ausgrid price explained; 1.41-times RAB



IFM CEO Brett Himbury is planning more trips to the US to agitate for asset recycling. Daniel Munoz

by Sarah Thompson Anthony Macdonald Joyce Moulakis

AustralianSuper and IFM Investors are paying 1.41-times the regulated asset base value for their 50.4 per cent stake in Ausgrid.

Amid all the confusion about Ausgrid's price - with gross proceeds flagged at \$16 billion by the NSW government on Thursday - Street Talk can reveal the number behind the deal.

RAB multiples



Another key valuation topic regarding regulated assets is the use of RAB as the base reference of value. Typically estimated via variations of the replacement cost approach, the RAB is the value of the regulated asset base from which end user pricing is derived by the relevant regulator¹.

To determine future revenues/costs, typically for a five year period, the regulator determines first the rate of return required by capital providers of the asset and then applies this rate of return to the asset's RAB. Once the tariffs are fixed, the asset is subject to volume, but not pricing, risks. Greater or lower than expected volumes will affect the profitability of the asset during the regulatory period, unless there is a revenue cap in place. Any distortions to the rate of return due to unexpected variations in volume are addressed at the following regulatory next period when the regulator has the benefit of actual data to estimate future volumes and therefore tariffs.

Past experience

In the Australian market there is extensive evidence of regulated assets traded both on-market and off-market at a premium to their RAB. This has been typically justified by factors such as:

- **Expected efficiencies:** the asset owner expects to be able to reduce the cost structure of the asset consistently beyond the regulator's expectations, especially during the final part of each regulatory period
- **Implementation of effective tax structures:** the asset owner expects to be able to minimise and/or significantly defer tax payments beyond the regulator's assumptions through means of sophisticated tax structures.
- **Mispricing of the required rate of return:** the effective cost of capital borne by the asset owner may be lower than that assumed by the regulator due to either a cheaper cost of capital and/or greater leverage

- **Income from associated unregulated operations:** either at the time of the transaction or projected, regulated assets may be able to derive revenue from unregulated operations which do not form part of the asset's RAB
- **'Real' growth:** since the regulator allows the asset's owner to recover a market return on future expansionary investments (as approved by the regulator), the absolute return on the current RAB will be greater than that implied by the weighted average cost of capital allowed.

Current RAB multiples

Prior to the commencement of the global financial crisis in 2007, several transactions of Australian regulated assets took place at RAB multiples greater than 1.5. Since then off-market transactions have significantly diminished. However, the recently announced proposed acquisition of NGA Gas Networks by ATCO Group – the largest transaction involving a pure regulated asset since 2007 – implies a RAB multiple of 1.26².

From market soundings this is indicative of a consensus view that RAB multiples have decreased substantially. Transactions are now expected to occur at RAB multiples closer to 1.0 as some of the factors traditionally supporting higher RAB multiples appear less achievable in the current market. In particular:

- While the cost of debt and equity capital have substantially increased at least in the short term, recent regulatory decisions do not appear to allow for this factor in the required rate of return.
- The ability to realise efficiencies has been diminished because of the increase in real costs
- The implementation of sophisticated tax structures and of higher-growth investment vehicles may be more difficult to achieve given the more stringent terms on debt funding following the global financial crisis.

¹ In some cases the current RAB is simply the result of the initial RAB set and then raised through new assets added and depreciation subtracted.

² We have also estimated this transaction implies an adjusted RAB multiple of 1.26 including unregulated operations of 1.17.



Bruce Girwood
Manager Regulatory Affairs
Vector Limited
Loch HP Tower
17 Featherston Street
WELLINGTON

26 August 2014

Rationale for transaction premiums to RAB value

Dear Bruce

In accordance with our initial Scope of Work dated 10 March 2014, and subsequent correspondence with you, we set out below responses and observations in relation to the Commerce Commission's paper 'Proposed amendment to the WACC percentile for electricity lines services and further consider why the 75th percentile is unlikely to be driving the RAB multiples, and to respond to:

1. General observations

In determining whether the 75th percentile is the appropriate upper bound for WACC, the Commission places significant weight on Regulatory Asset Base (RAB) multiples for Powerco and Vector, the two largest electricity lines businesses in New Zealand, as if these businesses are representative of the transactions in the case of Powerco, and Vector's current implied capitalisation, suggest that the regulatory rate of return across the sector is too high.

AMP Capital acquisition and implied premium

There are a number of reasons why AMP Capital may have paid a premium to RAB for Powerco's assets which are discussed below. While these are not directly quantifiable (in the absence of AMP investors and advisors as common transaction drivers), they are well known and recognised by us and are a consideration in relation to these types of businesses. We consider this to be at odds with market practices and our experiences as the pre-transaction advisor in New Zealand:

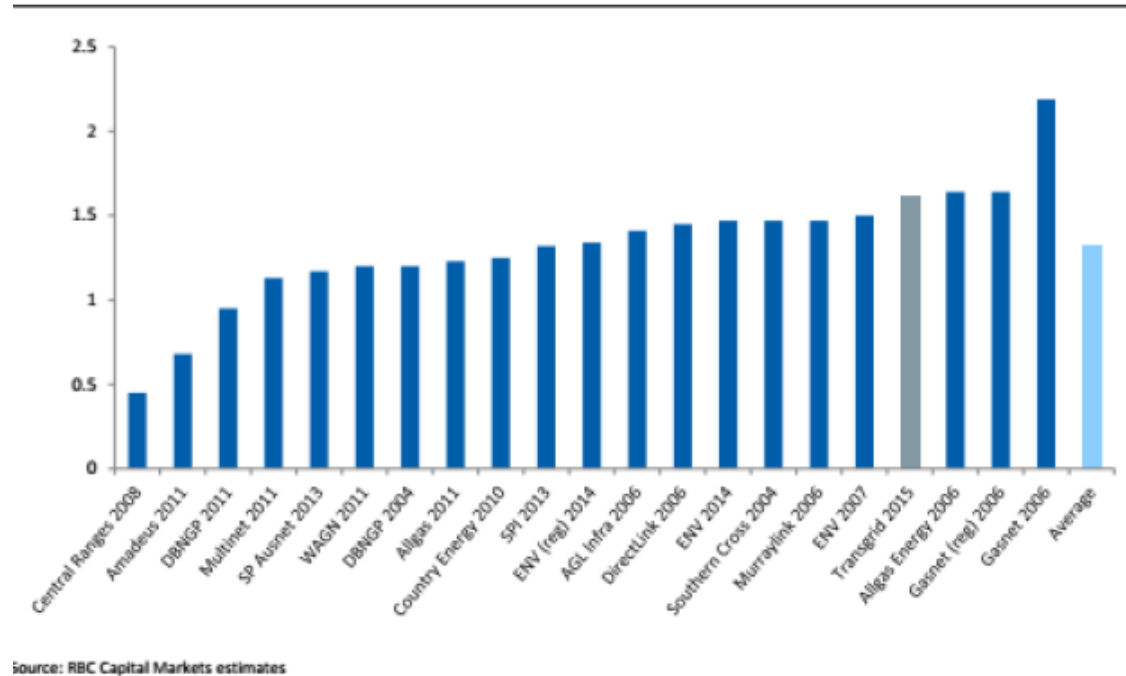
¹ Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services; 22 July 2014

² PwC has been ranked New Zealand's #1 M&A advisor by number of deals every year since 2009 (based on Thomson League Tables).

RAB Multiples in practice

- In practice RAB multiples tend to be in the range of 1.2-1.5 with some outliers
- Should we be concerned? Does this mean the system is not working?
- Can we use this information in our regulation?

Exhibit 2: EV/RAB multiples for regulated utility M&A in Australia



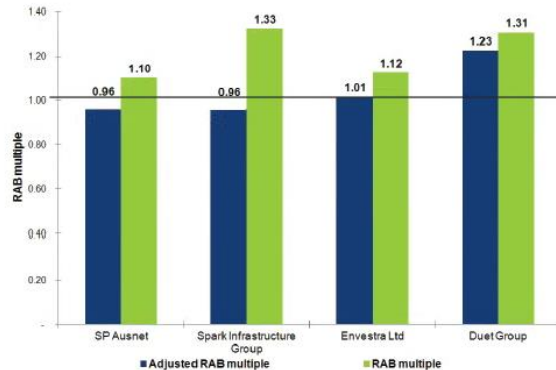
source: RBC Capital Markets estimates

Why might RAB multiples be greater than one?

- Perhaps the firm has access to additional revenue which is outside the BBM?
- Perhaps the firm expects to systematically benefit from the incentive schemes (persistently out-performing)?
- Perhaps the firm expects to pay less tax than is forecast under the BBM?
- Perhaps the buyers overpaid for strategic reasons, irrational exuberance, or winners curse?
- Perhaps the firm expects to expand output or adjust its prices within a price cap to earn more revenue?
- Perhaps the firm expects the regulation to be removed in the future?
- Perhaps the regulator overestimates the firm's cost of capital?
 - Perhaps the trailing average approach favours the firm?

Why might RAB multiples be less than one?

The figure below sets out current trading of listed infrastructure vehicles owning predominantly regulated assets. The infrastructure vehicles do not seem to be trading at a significant premium to their attributable RAB, especially when adjusted RAB multiples are taken into account.

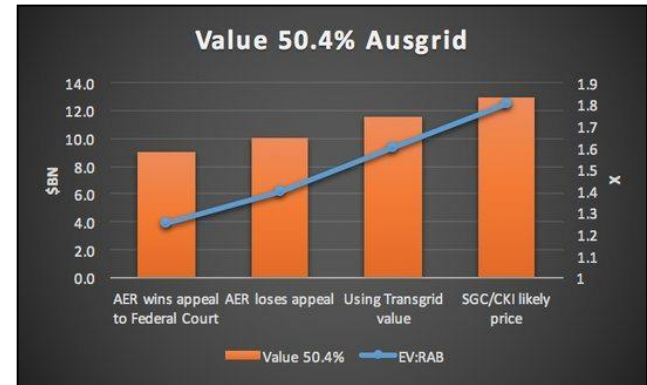


Note: adjusted RAB multiple reflects only regulated operations. The percentage of unregulated earnings to total earnings has been used to adjust the enterprise value.

- Perhaps the firm is unable to earn the allowed revenue?
- Perhaps the firm expects a downward revaluation in the RAB in the future?
- Perhaps the firm expects to underperform on its incentive schemes?
- Perhaps the regulator overestimates the value of franking credits?
- Perhaps there are timing issues?
- Perhaps the regulatory cost of capital is too low (due to the trailing average approach?).

Should we be concerned about RAB multiples?

- Any given RAB multiple could be due to a range of factors – revenue, expenditure, or cost of capital. We should always seek to understand the drivers in any specific case.
- We should be cautious about any feature of the regulatory regime which leads to systematic over-compensation.
 - Such as over-compensation for taxes, or over-forecasting of expenditure requirements (e.g., due to related party transactions)
- We should also be concerned about any systematic overcompensation of the cost of capital.
- Probably a RAB multiple in the range of 1.1-1.3 is not a cause for concern. Outside this range?

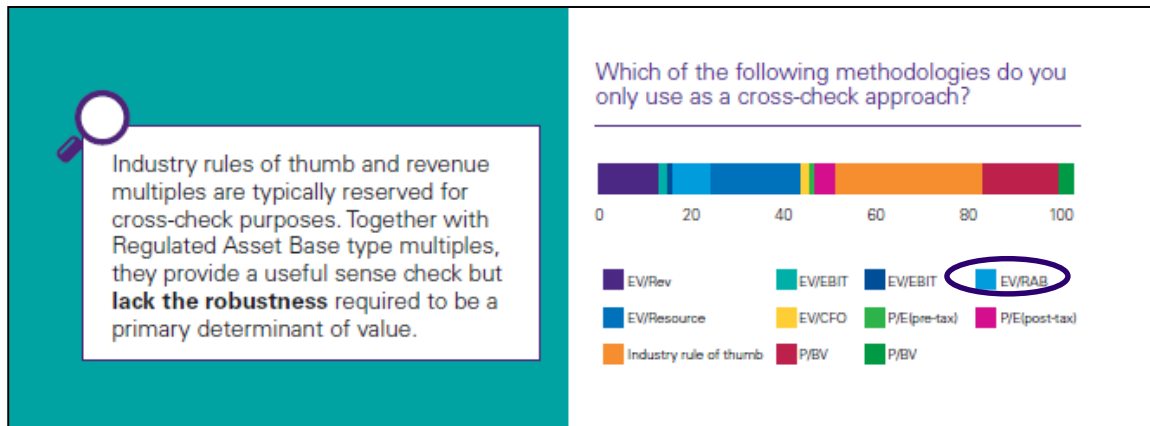


Can we use RAB multiples when setting RoR?

- A high RAB multiple is grounds for reviewing the regulatory framework to ensure there is no systematic, unintended overcompensation
- But can we use the RAB multiple directly (e.g., if the RAB multiple is 1.4, should we divide the WACC by 1.4)?
- The answer is no, due to the problem of circularity. The RAB multiple depends on future cash-flows which depend on regulatory decisions.
- If the regulator starts changing future cash-flows on the basis of the RAB multiple the information in the RAB multiple will disappear.

But this doesn't mean we can't use RAB multiples as a "sense check" or "reasonableness check" as long as we don't rely on it directly.

RAB Multiples can be useful as a sense check



We have also considered RAB multiples evidence, as an secondary reasonableness check

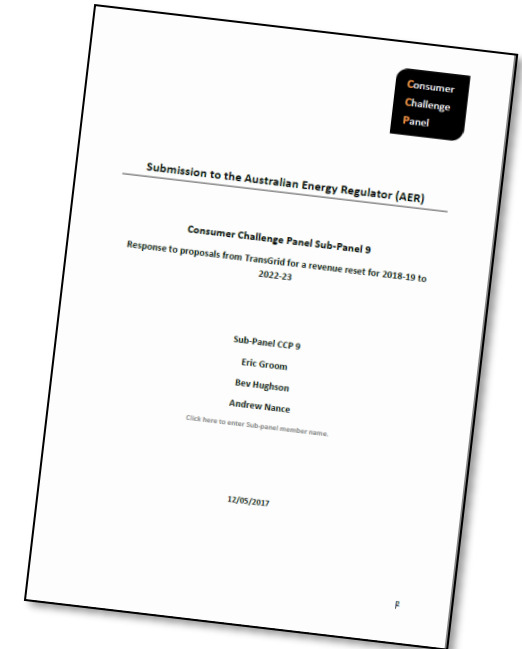
744. As part of our reasonableness checks, we have considered RAB multiples for regulated energy and airports businesses in New Zealand. RAB multiples can provide a useful indicator of whether the allowed rate of return has been set at a sufficient level to adequately compensate investors for putting their capital at risk.

What have they said?

- The CCP, May 2017 After observing that long-term leases of TransGrid and AusGrid were 1.6 and 1.4 times the RAB...

It cannot be assumed that a premium above or below the RAB value indicates that the allowed rate of return is above or below the investors required rate of return. There can be many other factors. In the case of TransGrid, the consortium stated that “the quality of the TransGrid network, the stable regulated operating environment and the consortium’s ability to run the network more efficiently made the deal compelling. The consortium is betting TransGrid’s two unregulated business units — a telecoms arm and connecting renewable energy to the grid — can provide growth opportunities to warrant the high price.” It is also likely that the bidder who makes the most optimistic assessment of these opportunities will be the likely winner and this will be reflected in its bid, adding to the systematic premiums above the RAB.

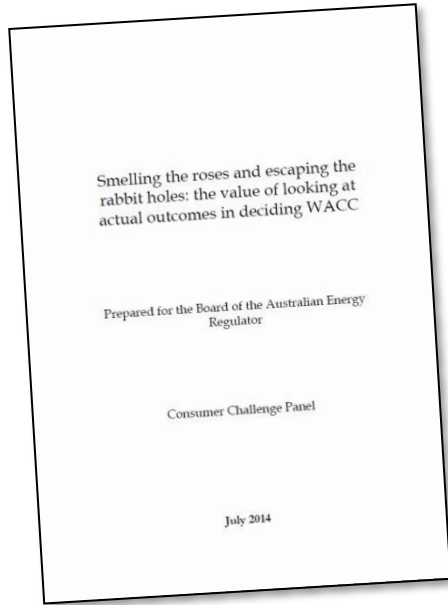
Acquisition or market values need to be treated with caution. There can be good reasons for a premium that is not inconsistent with the long-term interest of consumers or indicative of an overly generous regulatory regime. But this does not mean that such values do not have some information content. CCP 9 considers that a very conservative interpretation of the RAB multiples in the acquisitions of TransGrid and Ausgrid is that they provide strong evidence that the combined allowances for the cost of capital and tax under the AER’s current framework and recent decisions are not too low. Indeed, given the magnitude of the multiples in absolute terms and relative to multiples in other regulatory jurisdictions, one could conclude that it provides evidence that the allowances are more likely to have exceeded investors’ expectations for the required return on investment.



What have they said?

- The CCP, July 2014

In response to the observation that CKI was prepared to pay 1.51 times RAB for Envestra:



These valuations suggest that investors (in this case, highly experienced market participants APA and CKI) are valuing the regulated cash flows far more highly than the AER is in its WACC decisions. In other words, the AER's WACC is compensating investors far more generously than needed and so they are willing to pay a substantial premium to RAB to acquire those assets and the subsequent cash flows. We would

The AER's Guideline rejected taking account of RAB multiples or actual profits in its WACC assessments, and relegated information on comparisons with other regulators and corporate valuations to mere "directional" value. The AER's rationale for this diminution is that many factors may explain industry profitability or RAB multiples. There may indeed be various reasons why a firm may be more profitable than expected or valued more highly than its regulated asset value. But asserting that outcomes may be explained in many ways is not a reason not to look at those outcomes, when trying to critically assess the claims by networks on their cost of capital and to thereby decipher the long-term interests of consumers.

Is this right?

What have they said?

- The network businesses

9 **RAB multiples** as a cross check

The Businesses do not support the use of RAB multiples as a valid cross-check and support to the AER's proposed methodology. This is because rate of return is only one of many factors that affect RAB multiples. It would therefore be incorrect to conclude that a RAB multiple above 1.0 indicates that recent AER rate of return determinations are not below the efficient financing costs of a benchmark efficient entity. Using such RAB multiples is only likely to mislead the rate of return determination process.

Is this right?



Conclusions

- Under certain strict conditions, the value of the regulated firm should be equal to the RAB, so under these conditions, the RAB multiple should be one.
- But these conditions are rather strict and ignore incentive payments, mis-estimation of taxes, other sources of revenue as well as problems with estimation of the cost of capital
- Modest RAB multiples are probably not a cause for concern.
- Large RAB multiples are of concern and should trigger further investigation into why market expects higher CF (not just C of C).
- Regulators cannot rely on observed RAB multiples when setting regulated revenues due to the problem of circularity.