



## **International comparisons of rates of return**

**Comment on NERA report**

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# 1 Overview

This paper examines the report prepared by NERA for the Australian Competition and Consumer Commission, entitled “International comparison of utilities’ regulated post-tax rates of return in: North America, the UK and Australia”. In summary, our analysis strongly refutes any implication that NERA has shown that determinations by Australian regulators are in any way generous in international terms. We have identified three key failings in the analysis:

- selectivity and bias in the sample of UK regulatory decisions that are examined, which serves to misrepresent UK experience as being consistent with a set of relatively harsh cost of capital determinations;
- omission of any analysis in differences in country-specific risks, which we believe can fully account for the apparent differentials in allowed rates of return across the three jurisdictions; and
- omission of any detailed discussion of differences in the three regulatory regimes, the impact of those differences being to expose utilities in Australia to greater risk than their counterparts in the UK and US.

We emphasise that very simplistic comparisons across industries and across countries are unlikely to be particularly informative or helpful, unless the full range of explanatory variables are given careful consideration and adjustments made accordingly. As such, any move to effectively benchmark the returns that Australian regulators set for Australian companies against international comparisons of this kind are dangerous. The NERA analysis does not, and cannot, offer any justification for moving away from detailed and rigorous analysis of the individual cost of capital parameters in future access price reviews.

## 2 Review of NERA report

NERA observes that Australian regulators are declaring higher ‘vanilla’ post-tax weighted average costs of capital (WACCs) than is the case in other jurisdictions.

The ‘gap’ NERA finds is, in large part, due to the difference in assessments of the cost of equity in the three jurisdictions. This supposed ‘gap’ creates the impression that Australian regulators are being generous, if not overly generous, to investors, when compared to counterparts in the United Kingdom and North America.

The balance of this paper considers:

- the failings in NERA’s analysis which make any conclusions therefrom about Australian regulatory practice unreliable and inappropriate; and
- the implications of the preceding discussions for sound regulatory practice.

### 2.1 Failings in NERA’s analysis

We believe strongly that the report’s conclusions are simplistic and reflect three key analytical failings, namely:

- ***UK regulators have not been setting the WACC as low as the report claims***—The UK industries examined comprise only a very selective sample of regulated companies. It turns out that these industries have received the harshest determinations of all UK regulated businesses—widening the sample to include the telecommunications, rail and aviation sectors reveals that far higher market-based parameters have been adopted by other UK regulators.
- ***Where there is a differential, it is largely explained by differences in country-specific market conditions***—A lower risk-free rate is evident in the UK as a consequence of sizeable distortions in the market for UK government debt. At the same time, the equity-risk premia vary from country to country in line with differences in sovereign risk.
- ***NERA also fail to give sufficient weight to differences in the three countries’ regulatory regimes***—There are features of the three regimes which serve to expose investors in Australian firms to greater risk, and which justify a higher WACC. Most important among these risks is the optimisation-based approach that many regulators use to calculate the regulatory asset base (RAB) at periodic access price reviews. This can be shown to expose Australian investors to undiversifiable and asymmetric risks that are not apparent, or if apparent not as marked, in the US and UK regimes.

When examined closely, we believe that these considerations seriously undermine the analysis presented. Each of the three failings of that analysis is discussed in detail below.

### **2.1.1 Widening the sample of UK regulatory decisions**

A first flaw in the report concerns the sample of companies examined. Table 4.1 in the report, reproduced as Table 1 below, examines regulatory determinations in the UK water and energy sectors.

Broadly speaking, the report focuses on the decisions made by the most aggressive of the UK's seven economic regulators, overlooking recent decisions from various authorities including the Office of the Rail Regulator, Oftel and the Civil Aviation Authority's Economic Regulation Group.

This selectivity is important for at least two reasons:

1. first, there is growing evidence to suggest that some companies regulated by Ofwat and Ofgem, particularly those in the water sector, are unable to finance new investment at the returns available to investors under the most recently determined price controls, suggesting that these decisions provide a poor and ultimately unsustainable standard against which to assess regulatory performance; and
2. secondly, regulated businesses in the rail, aviation and telecommunications sectors have generally been allowed higher rates of return than the water and energy industries, and their regulators have generally taken a more cautious line on debates over the risk-free rate and equity-risk premium.

These two factors make the comparison between the UK and Australia misleading. More specifically, the narrow focus misrepresents UK 'best practice' as being consistent with a set of relatively harsh determinations, some of which have left the companies concerned in financial difficulties.

Each of these sectors will be examined in turn.

**Table 1: Declared positions on the real post-tax cost of capital in the UK (NERA)**

	Ofwat	CC	Offer	Ofgem	Ofgem	MMC	Ofgas
	1999	2000	1997	2000	2000	1997	1997
Company activity	Water sector	Water sector	National Grid Co.	National Grid Co.	Electricity Distribution	N. Ire Electricity	British Gas
Tax rate	Company specific	Company specific	33%	30%	30%	33%	33%
Tax adjustment	–	–	1.194	1.492	1.492	1.194	1.194
Equity beta	0.7–0.8	0.95	0.55–0.75	1.0	1.0	0.6–0.75	0.55–0.73
Risk-free rate	2.5–3.0%	3.0%	3.5–3.8%	2.5–2.75%	2.25–2.75%	3.5–3.8%	3.5–3.8%
Debt premium	1.5–2.0%	1.9%	0.4%	1.7%	1.4%	0.3–0.8%	0.3–0.5%
Gearing	~ 50%	50%	24%	60–70%	50%	8%	20.8%
Equity-risk premium	3.0–4.0%	4.0%	3.5–4.5%	3.5%	3.25–3.75%	3.5–5.0%	3.5–4.5%
Asset beta		0.5		0.3–0.4			
Real post-tax return on equity	4.6–6.2%	6.8%	5.4–7.2%	6.0–6.3%	5.5–6.5%	5.6–7.7%	5.4–7.1%
Vanilla Post-tax WACC	4.3–5.6%	5.8%	5.0–6.5%	4.8–5.2%	4.5–5.3%	5.5–7.3%	5.1–6.5%

**(a) The water industry**

In the 1999 periodic review of water and sewerage charges, the regulator, Ofwat, adopted a post-tax WACC<sup>1</sup> of 4.75% for the ten largest companies in England and Wales. The methodology it used represented a significant shift from the approach that the Monopolies and Mergers Commission<sup>2</sup> (the “MMC”) had adopted in four separate inquiries during 1997 and 1998, particularly in the context of the two generic, market-based, parameters: the risk-free rate and the equity-risk premium.

<sup>1</sup> Unless stated otherwise, the WACC is expressed in real terms.

<sup>2</sup> Now known as the “Competition Commission”.

As can be seen from Table 2 below, in both cases there was a striking reduction in the ranges used as Ofwat sought to argue that the correct forward-looking estimates of the two parameters were much lower than the longer-term, historical averages.

**Table 2: Regulators' cost of capital determinations 1997–1999 (%)**

	MMC (N. Ireland Electricity) April 1997	MMC (Manchester Airport) May 1997	MMC (Transco) July 1997	MMC (BT/Cellnet/ Vodafone) December 1998	Ofwat November 1999
Risk-free rate	3.5–3.8	3.5–3.8	3.5–3.8	3.5–3.8	2.5–3.0
Equity-risk premium	3.5–5.0	3.5–5.0	3.5–4.5	3.5–5.0	3.0–4.0
Pre-tax cost of capital	7.0	7.75	7.0	–	–
Post-tax cost of capital	–	–	–	–	4.75

All of the ten companies accepted Ofwat's price control proposals, although two smaller water-only companies, Mid Kent Water and Sutton and East Surrey Water, sought a referral to the Competition Commission.<sup>3</sup> Subsequently, it has become apparent that the industry is facing serious difficulties in raising finance for (substantial) new investment programmes. Many argue that the source of the problem is the financial framework used by the regulator and the mismatch between risk and reward.<sup>4</sup>

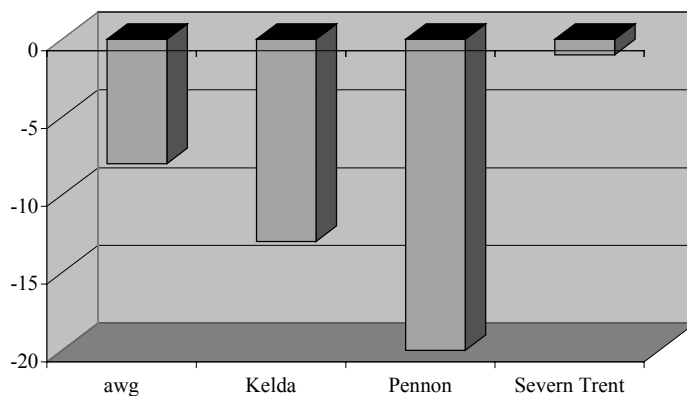
- **Debt**—only one of the equity-owned water and sewerage companies has been able to place new debt with the market since April 2000 (North West Water). Several such companies have had to cancel planned bond issues in recent months, the most high profile instance of which involved United Utilities.
- **Equity**—none of the ten water and sewerage companies have issued new equity since privatisation in 1989. When Hyder, owner of Welsh Water, developed proposals for a rights issue during 2000, negative market sentiment forced it to abandon the plans before they were put formally to the market (despite the fact that they intended to place new shares at a significant discount to the RAB).

<sup>3</sup> As set out below, the Commission took a softer line than Ofwat on both the risk-free rate and the equity-risk premium.

<sup>4</sup> Almost all of the companies concerned have announced to the UK stock market that they expect to meet and outperform Ofwat's targets for OPEX and CAPEX during the next five years.

Further evidence to suggest that Ofwat misjudged the industry's cost of capital can be seen in the relationship between companies' market capitalisation and the value of their RABs. If Ofwat had correctly assessed the cost of capital, one might expect the two to be roughly equal.<sup>5</sup> Figure 1 below presents recent analysis by Dresdner Kleinwort Wasserstein showing that this is not the case. The size of the discount varies from company to company, but in each case, there is sufficient evidence to support the hypothesis that Ofwat has allowed a rate of return that falls well short of the cost of capital.

**Figure 1: Market premium to RAB (%)**



**Source:** Dresdner Kleinwort Wasserstein: 15 February 2001.

These developments have not gone unnoticed at Ofwat. Speaking recently, Philip Fletcher, Director General of Ofwat, commented:

Companies and others have expressed concerns that there may be difficulty in raising funds from public markets, citing poor investment sentiment, depressed share prices and widening bond spreads. I take these concerns seriously.<sup>6</sup>

It is consequently puzzling that any informed observer should compare rates of return in Australia with those allowed by Ofwat and conclude that it is somehow problematic that the WACC has generally been set at a higher level in Australia.

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<sup>5</sup> The logic here is that the RAB for UK companies at any point in time represents a set of future cash flows, which will be paid as annual depreciation allowances in future control periods. If the regulator also commits to covering a firm's OPEX, and investors believe that the 'true' cost of capital is in line with the allowed rate of return, the NPV of future income streams (that is, the firm's market value) will equal the value of the RAB. If the allowed rate of return is set below the cost of capital, the NPV of future income streams falls below the value of the RAB.

<sup>6</sup> Philip Fletcher, Director General of Ofwat, Paper presented to the SSSB Bond Investor Conference, 9 February 2001.

**(b) Other sectors**

Only one of the UK's other six economic regulators, Ofgem, has followed Ofwat in pursuing the same approach to the cost of capital. In the case of the electricity wires businesses, it is difficult to make any clear conclusions about the impact of the regulator's stance on companies' ability to invest, because the vast majority of companies are part of much larger, foreign-owned groups. Moreover, as is stressed further below, the impact of a WACC determination needs to be assessed in the wider context of decisions with respect to the other factors that affect the regulated revenue requirement. Thus, in the case of the National Grid Company, a very severe determination on the cost of capital was combined with a relatively generous assessment of OPEX and CAPEX allowances, producing an extremely lenient overall package.

Much firmer conclusions can be reached in other regulated industries. In rail, aviation, and telecommunications, the regulators have largely rejected the Ofwat/Ofgem approach, resulting in higher rates of return for the companies affected. During the last 12 months, Railtrack has been allowed a pre-tax cost of capital of 8%, National Air Traffic Services (NATS) a rate of return of 7.75% and BT a nominal return of 13.5%. In each case, the assumptions made about the generic parameters were higher than those used by Ofwat and Ofgem.

Table 3 below sets out the details of recent regulatory determinations in these other sectors.

**Table 3: Most recent regulatory determinations in the aviation, rail and telecommunications sectors**

	CAA	ORR	Oftel
	NATS	Railtrack	BT
	April 2000	October 2001	March 2001
Risk-free rate	3.5–3.8	3.0	2.7
Equity-risk premium	3.5–5.0	4.0	5.0
Pre-tax cost of capital	7.75	8.0	~10.1

In the NATS case, the Economic Regulation Group of the Civil Aviation Authority (the "CAA") saw insufficient grounds for moving away from the 1997–98 consensus on the risk-free rate and equity-risk premium, explicitly rejecting the Ofwat/Ofgem argument that market conditions had fundamentally changed since this time. The CAA also noted that NATS would need to raise finance for a very major capital expenditure programme during the five-year period. The risk-free rate of 3.5-3.8% and equity-risk premium of 3.5–5.0% were chosen to match the MMC's most recent recommendations on these issues.



In the periodic review of Railtrack’s access charges, the company successfully argued that the Office of the Rail Regulator (“ORR”) needed to set the WACC at the very top end of the 6.9–8.2% range implied by the CAPM analysis. It pointed to the real uncertainty surrounding the estimation of each individual parameter, and emphasised the need for caution when interpreting the overall calculations. The Regulator’s response was as follows:

In considering the appropriate value for the cost of capital, the Regulator has had regard to his duties, including the duty not to make it unduly difficult for Railtrack to finance its relevant activities. He has therefore had due regard to the scale of the investment programme which Railtrack is expected to undertake and the need to raise substantial new debt and equity finance in order to finance this investment. As indicated in December 1999, he considers that these factors mean that the allowed rate of return should be set at the top end of his estimated range for the cost of capital.<sup>7</sup>

In stark contrast to the water companies, City analysts believed that this will enable Railtrack to access the UK’s debt *and* equity markets,<sup>8</sup> and the company has already announced plans to issue £250m of preference shares before March 2002.

One company that is already in the process of issuing new equity is BT. In its recent proposals for BT’s new network price cap, Oftel has proposed a nominal, pre-tax WACC of 13.5%, which is equivalent to a ‘vanilla’ post-tax WACC of approximately 9.5% in nominal terms.<sup>9</sup> This is almost identical to the ACCC’s most recent calculation of Telstra’s WACC for PSTN services, as demonstrated in Table 4.

**Table 4: A comparison of ACCC and Oftel determinations**

	ACCC	Oftel
	Telstra	BT
	July 2000	February 2001
Tax rate	20%	30%
Tax adjustment	–	1.43
Equity beta	0.83	1.16–1.45

<sup>7</sup> Office of the Rail Regulator, ‘The periodic review of track access charges: final conclusions’, October 2000.

<sup>8</sup> Sentiments may have changed, however, in the aftermath of the Hatfield tragedy.

<sup>9</sup> Oftel, ‘Proposals for Network Charge and Retail Price Controls from 2001’, February 2001.

	ACCC	Oftel
	Telstra	BT
	July 2000	February 2001
Nominal risk-free rate	6.4%	5.1%
Debt premium	0.8	1.5–2.0%
Gearing	40%	20–40%
Equity-risk premium	6.0%	5.0%
Nominal post-tax return on equity	11.4%	10.9–12.3%
Vanilla Post-tax WACC (nominal)	9.7%	~9.5%

Oftel, for its part, has always tended to ignore the precedents set by other regulators and stands out in the UK for taking a very different approach to setting the WACC. In this most recent review of BT’s network charges, it chose a nominal risk-free rate of 5.1% and an equity-risk premium of 5%. On the latter, its argument was as follows:

Oftel considers that the available evidence supports its estimate. It should also be borne in mind that telecommunications markets are very different to the more stable environments enjoyed by the traditional utilities. In particular, there is a large amount of discretionary investment at stake, and the consequences of underestimating the cost of capital are that this investment could be deterred, with inevitable effects on quality of service and innovation.<sup>10</sup>

The underlying logic in each of these three industries is, therefore, roughly the same—when there is uncertainty over the appropriate cost of capital, the balance of risks should push the regulator towards a cautious approach and more conservative decisions on the allowed rate of return. This is a very different approach from that articulated or adopted by Australian regulators, including the ACCC.

**(c) Conclusion**

These three additional industries, each of which were overlooked in the NERA Report, indicate that very different methodologies are currently being employed by UK regulators as they assess companies’ cost of capital, particularly the generic, market-based parameters.

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<sup>10</sup> Oftel, 'Proposals for Network Charge and Retail Price Controls from 2001', February 2001.

Surprisingly, in its study for the ACCC, NERA focuses on just one of these approaches, which is endorsed by only two of the UK's seven economic regulators and which appears to be leaving some companies facing difficulties in financing their functions. In the sectors ignored in the report, where a less aggressive approach has been followed, these problems are not apparent.

Incorporating these determinations into Table 4.1 of the report would result in quite a different summary of the cost of capital for UK utilities. Table 5 below summarises the most recent determinations made by the country's economic regulators and its appeals tribunal, the Competition Commission.

**Table 5: Declared positions on the real post-tax cost of capital in the UK (NECG)**

	Oftel	ORR	CAA	Ofwat	Ofgem	CC
	2001	2000	2000	2000	2000	2000
Company	BT	Railtrack	NATS	Water sector	National Grid Company	MKW and SESW
Tax rate	30%	Company specific	Company specific	Company specific	30%	Company specific
Tax adjustment	1.43	1.25–1.43	1.25–1.43	–	1.43	–
Equity beta	1.16–1.45	1.1–1.3	1.1	0.55–0.75	1.0	0.95
Risk-free rate	2.7	3.0	3.5–3.8	2.5–3.0	2.5–2.75	3.0
Debt premium	1.5–2.0	1.5–1.75	1.2–1.5%	1.5–2.0	1.7	1.9%
Gearing	20–40%	50%	50%	Around 50%	60–70%	50%
Equity-risk premium	5.0	4.0	3.5–5.0	3.0–4.0	3.5	4.0
Asset beta					0.3–0.4	0.5
Real post tax return on equity	8.5–10.0%	7.4–8.2%	7.1–9.3%	4.6–6.2%	6.0–6.3%	6.8%
Pre-tax WACC	~10.1%	8%	7.75%	–	6.25%	–

	Oftel	ORR	CAA	Ofwat	Ofgem	CC
	2001	2000	2000	2000	2000	2000
Company	BT	Railtrack	NATS	Water sector	National Grid Company	MKW and SESW
Vanilla post-tax WACC	6.8–7.9%	6.0–6.5%	5.9–7.3%	4.75%	4.8–5.2%	5.8%

*Note:* the UK’s two other economic regulators, Ofreg and WICS, are yet to set a price control that includes an explicit set of cost of capital assumptions.

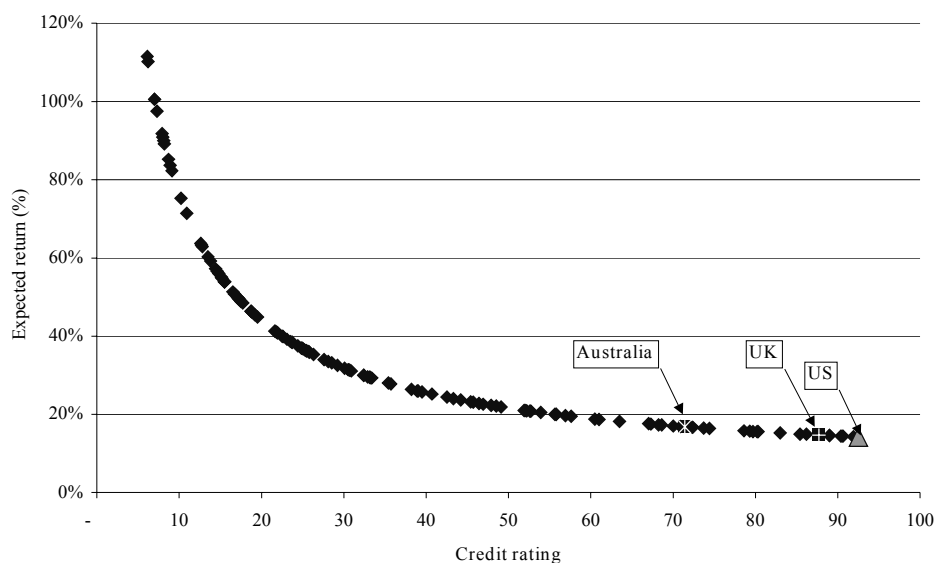
Had these comparisons been included in the NERA analysis, the ‘gap’ between UK and Australian decisions would have been significantly reduced.

## 2.1.2 Differences in international financial market characteristics

While bias in the sample is undoubtedly an important part of the explanation for the cross-country differentials apparent in NERA’s report, Table 6 still shows that UK regulators are generally setting rates of return below those allowed by their Australian counterparts. It is also apparent that the WACC set for US utilities lies, in general, slightly below the level that has been favoured by Australian regulators. However, contrary to the impression created by the report, such simple comparisons do not constitute convincing evidence that Australian regulators are being overly generous to investors. Instead, in understanding the remaining gap, attention needs to be paid to underlying differences in market conditions in the three countries, which produce a relatively high risk-free rate and equity-risk premium in Australia.

Turning first to the equity-risk premium, Figure 2 shows the relationship between expected market returns from equity markets and country risk across a sample of 45 countries. It shows that expected returns for the US are lowest (14.4%), expected returns for the UK are marginally higher (14.7%), but that expected returns for Australia are significantly higher at 16.9%. This would suggest that the equity-risk premium for the Australian equity market should be above that of both the UK and US. This differential is entirely consistent with the difference in the allowed returns of Australian and US utilities.

**Figure 2. Relationship between market returns and credit rating**



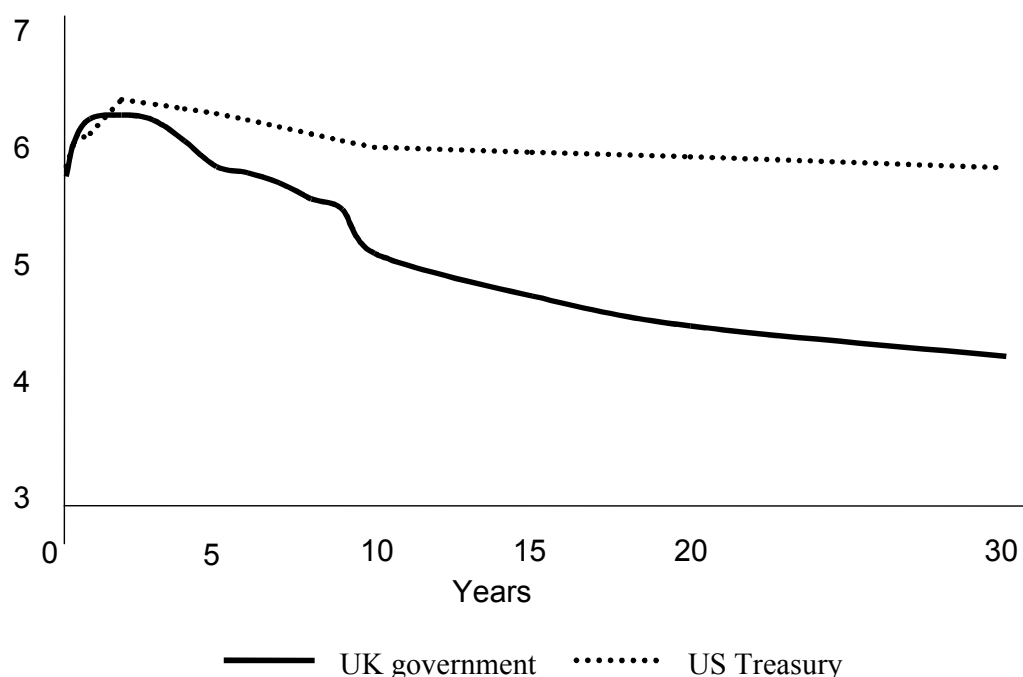
Note: The MRP for any country with an open economy will be substantially influenced by the country risk. That is, investors would require compensation for country risk in their equity investments, and country risk should therefore be included in the MRP. This figure illustrates the relationship between equity market returns and country risk.<sup>11</sup>

That said, Figure 2 can only explain a proportion of the differential between WACCs in the UK and Australia. However, there is an additional factor, not captured in Figure 2, that can account for the remainder of the gap. Figure 3 shows yield curves in the three countries in 2000. At the long end of the market, where utilities raise a large proportion of their debt, interest rates in the UK have been unusually low for more than three years, pushing regulators towards ever-lower estimates of the risk-free rate.

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<sup>11</sup> C. Erb, C. Harvey, T. Viskanta, *Expected returns and volatility in 135 countries*, Journal of Portfolio Management, Spring 1996, pp. 46-58.

**Figure 3: Yield curves for government bonds in the UK and US**



Source: Warburg Dillon Read.

This inversion of the yield curve is a temporary phenomenon, caused partly by a shortage of supply, as the UK government has started to run budget surpluses, but mainly by artificially inflated demand, which has its origins in the minimum funding requirement (MFR) for pension funds.<sup>12</sup> In its most recent inquiry, the Competition Commission acknowledged that the current mismatch between supply and demand was depressing yields, and that there was no convincing reason to assume that the situation would persist during the next five years. However, it could not ignore that interest rates currently stand at historically low levels and that companies will be able to finance their investment relatively cheaply in the immediate months ahead. It therefore chose a risk-free rate of 3%, some 0.65% lower than the midpoint of the range it had been using in 1997 and 1998.

This is not a benefit which Australian utilities, raising finance in the dollar-denominated market, are able to enjoy. As such, there is no reason to expect Australian regulators to drop their own estimates of the risk-free rate and it should hardly come as a surprise that a gap has emerged between Australian and UK determinations as UK regulators have been forced to reduce their estimates of the WACC.

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<sup>12</sup> The MFR, introduced formally in 1998 after the Maxwell scandal, has the effect of forcing pension funds to invest a certain proportion of their fund in long-dated government debt. This creates a highly inelastic demand for this type of security, significantly raising prices and reducing yields.

In this context, the differentials between countries no longer appear excessive, nor do the WACCs estimated by Australian regulators seem generous. Indeed, as can be seen from a comparison of the Beta's imputed to BT and Telstra, the ACCC has taken a relatively harsh view of the riskiness of the income streams from the regulated assets. Yet, as we show below, such harshness hardly seems consistent with the extent of the risks Australian regulation itself creates for regulated businesses.

### 2.1.3 Differences in regulatory regimes

The report briefly mentions the fact that differences in the countries' regulatory regimes might account for some differentials in appropriate rates of return. NECG believe that this is a very important consideration and that a number of features of the Australian regulatory model serve to expose investors to risks that are not apparent usually in the US or the UK. These factors include:

- the relative immaturity of the Australian regulatory regime, and the regulatory uncertainty that this creates;
- the minimalist pricing principles contained in Part IIIA;
- the very limited protection from variations in uncontrollable operating costs within control periods; and
- the methodology used to calculate the RAB at periodic reviews.

The last of these points deserves special attention. Unlike their counterparts in the UK and US, Australian regulators tend to favour depreciated optimised replacement cost (DORC) as the basis of their asset valuations, a process that allows for substantial revisions to the RAB over time, and consequently, exposes investors to greater risk.

#### (a) *Optimisation in Australia*

For regulatory assets with lives significantly in excess of a standard regulatory period, the DORC approach requires regulators to assess whether a set of assets are optimally-configured in terms of current-day best practice. If technologies, or other characteristics of the market have changed, asset values may be written down by the regulator and companies may find themselves in a position where they can no longer recover the full cost of investment through the prices that they charge customers.

To the extent that these changes are intrinsically unpredictable, they cannot be fully reflected in *ex ante* depreciation assumptions. What is more, the pace of technological change and many of the drivers of demand growth (for example, GDP) have some degree of correlation with market risk, meaning that investors will demand a higher return on their investments (that is, a higher WACC) to reflect the risk that they bear when faced with the future prospect of *ex post* optimisation. Finally, to

the degree to which regulatory optimisation decisions have a degree of bias,<sup>13</sup> in the sense of being asymmetric in their anticipated impacts, investors must be compensated for that asymmetry if they are to expect to recover the amount of their investment over the life of the relevant assets.<sup>14</sup>

The impact of DORC can be expected to emerge over a relatively long period of time, broadly commensurate with the lives of the regulated assets. The regulatory regime in Australia is relatively novel, so the size of the stranding effect has not yet fully emerged, and it is difficult to estimate this size of the insurance premium or the required increase in WACC. However, some measure of the size of the stranding risk emerges from an analysis of the difference between the firms' views of the value of their RABs and value allowed by the regulator based on DORC. Table 7 sets this out for four recent regulatory decisions in which the divergence between valuations was between 10% and 20%.<sup>15</sup>

**Table 7: Examples of write down of proposed regulatory asset base**

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<sup>13</sup> Obviously, this need not refer to bias in the sense of preference or pre-disposition of regulators to act in particular ways. Rather, bias may also arise from the nature of the decision process. Thus, if optimisation involves a choice between the current way of doing things and an alternative, and the least-cost option will always be chosen, then the option chosen can never be more expensive than that currently in place. As a result, optimisation *per se* (as distinct say, from asset revaluation) will only involve *downward* movements in the allowed asset base. Put slightly differently, the change in the value of assets between two points in time can be decomposed into price and quantity effects. So long as the previous quantities are always available (that is, so long as technological change never works to increase the weighted sum of quantities needed), then the quantity element in optimization cannot be symmetric. Hence, even if the price impacts are symmetric, the expected effect of optimization will not be.

<sup>14</sup> As a matter of principle, that recovery may occur either directly in the cash flows or in the WACC by which those allowed cash flows are determined. However, the recovery must be allowed if investors are to have an actuarial expectation of capital recovery.

<sup>15</sup> Inevitably, there is some degree of bargaining in the relations between regulated entities and the regulator, and that bargaining can be reflected in “ambit” claims with respect to the value of regulated assets. However, the extent of the phenomenon will reflect the extent of the subjectivity and inherent uncertainty involved in the valuation approach adopted by the regulator – the greater the extent to which the valuation approach is known and understood, the less the scope for this type of behaviour. By pointing to so large a gap between the valuations proposed and adopted, the data set out here also highlights the extent of the uncertainty as to the precise content of the asset valuation methodology adopted by Australian regulators. That this is the case is evidenced by the information set out below with respect to more recent regulatory reviews in the UK, where (though there are some exceptions – for example, Rail Track) there has not been so appreciable a gap between claims and outcomes. More generally, Australian regulators, and most notably the ACCC, appear to have adopted asset valuation methodologies that are far from being capable of objective audit, and hence are dependent on and vulnerable to a significant degree of judgment.



Business	Regulator	Date	Regulatory asset base (\$m)		Write down	
			Proposed	Decision	(\$m)	%
EAPL (draft)	ACCC	2000	667	540	127	19%
Transgrid	ACCC	1999	2,064	1,935	129	6%
Epic - MAP (draft)	ACCC	2000	383	310	73	19%
AGLGN	IPART	1999	2,099	1,575	524	25%

**(b) Estimation of the RAB in the UK**

UK regulators (including the Competition Commission and its predecessor, the MMC) almost always use a quite different, far more certain, methodology when calculating the value of a company’s RAB. The process comprises four elements:

- **Step one:** calculate the RAB at the time of privatisation (typically by estimating the market value of debt and equity at the end of first day’s trading and adding a small degree of uplift);
- **Step two:** add new investment at actual cost incurred;
- **Step three:** deduct annual depreciation charge according to some pre-determined, accounting rule (for example, straight-line depreciation over 33 years for electricity distribution businesses); and
- **Step four:** roll forward from year to year with respect to RPI.

This differs from the Australian approach in one very important respect: there is no role for optimisation of asset values over time—instead, the RAB is based on actual costs incurred. Since there is no risk of stranding as technology or demand changes, the UK approach allows investors to project the value of the RAB (or at least the proportion contributed by sunk investment) with a reasonable degree of certainty. As such, the UK model offers a far more secure source of income for investors and, in return, investors in UK utilities will require a lower return than they would have had under the Australian regulatory model.

That is not to say that regulators in the UK have not sought to revise the methodologies that they use in each of the steps outlined above. Almost every company has been on the receiving end of *ad hoc* interventions that have tended to reduce the value of their RABs and confounded investors’ expectations.<sup>16</sup> However, these changes are perceived to be one-off adjustments, and they represent non-market risk, allowing regulators to consistently argue that revisions will not affect the cost of capital. This has been possible because regulators, having made these changes, have then publicly

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<sup>16</sup> Northern Ireland Electricity and Transco, to give two examples, are currently embroiled in debates with their regulators about the appropriate values for their initial RABs.

committed, in a way the ACCC has not been willing to do,<sup>17</sup> to stability in the approach to asset valuation. For example, Ofgem, in considering changes to Transco's asset valuation, said the following:

Some respondents to the May 2000 consultation document stated that revising the method for establishing Transco's regulatory value as part of this price control review would increase investors' perceptions of regulatory uncertainty, and consequently might raise Transco's cost of capital. Ofgem is mindful of the benefits of minimising uncertainty over regulatory issues and is therefore committed to reaching a definitive conclusion on the valuation of Transco's pre-1992 assets as part of this price control review.<sup>18</sup>

Some support for this view emerged in the recent periodic reviews of water and sewerage undertakings, electricity distribution companies and the National Grid Company, when the regulators concerned (Ofgem and Ofwat) made it clear that they considered debate over asset valuation to have been dealt with at earlier reviews. They also acknowledged the benefits of consistency over time, for example:

The initial thoughts consultation document discussed Ofgem's view that to revisit the method for valuing NGC's regulatory asset base would increase investors' perceptions of uncertainty, thereby raising the cost of capital. A majority of respondents agreed with Ofgem's approach. Accordingly, Ofgem considers that the valuation of NGC's assets should be consistent with that adopted in the last price control review.<sup>19</sup>

If this is credible, and behaviour to date suggests UK regulators are concerned to ensure that it will be, one would expect UK utilities to have lower WACCs than Australian companies. In marked contrast, the ACCC has not been willing to commit to asset valuations once reached; the required risk premium on investments exposed to ACCC decision-making should therefore be correspondingly higher.

#### **2.1.4 Periodic review conclusions and investor expectations: recent UK experience**

In this section, NECG provides a basis of comparison for Table 1 on p.12 of its June 2001 submission to the Productivity Commission's *Review of National Access Regime*, which aimed to show that

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<sup>17</sup> Indeed, the ACCC, in documents such as its telecommunications access pricing principles, has emphasised its commitment to ongoing optimisation.

<sup>18</sup> Ofgem, 'Review of Transco's price control from 2002: Update paper', November 2000.

<sup>19</sup> Ofgem, 'The transmission price control review of the National Grid Company from 2001: Draft proposals', June 2000.

Australian regulators' access decisions have come out far below investors' expectations of future revenue streams.

**Table 1: Recent regulatory decisions - revenue at stake**

Regulator	Business	Date	Estimate of gross revenue (NPV\$bn)		Difference	
			Business proposal	Regulator decision	NPV\$bn	(%)
ORG	Victorian distribution	2000	12.7	11.0	1.8	14%
ACCC	EAPL	2000	1.0	0.7	0.3	33%
ACCC	SACL	2001	2.8	2.3	0.5	18%
IPART	AGLGN	1999	4.1	3.5	0.6	14%
ACCC	Telstra PSTN	2000	6.1	4.6	1.5	25%

Source: NECG calculations based on regulatory decisions. This analysis assumes that gross revenue proposed or allowed in the final year of the regulatory period in question continues in perpetuity. Revenues are discounted using the WACC proposed by the businesses for that regulatory decision.

We believe that a comparison of this kind is also helpful in the current context. In particular, to the extent that the outcomes of access price reviews in the UK are more predictable than those in Australia, it seems sensible to conclude that investors would demand a lower rate of return.

**(a) *Railtrack and the Office of the Rail Regulator, October 2000***

Railtrack's first regulatory review since its privatisation in 1996 was completed at the end of last year, with the company accepting, in full, the ORR's determination. The most contentious issue had been the value of the RAB at the start of the 2001/02, with ORR seeking to disallow most of the 'additional' investment that Railtrack had undertaken in the previous quinquennium. It is important, however, to note that this was not a debate about the appropriate treatment of investment made before privatisation, but rather how to deal with supposed inefficiency in the five years covered by the first regulatory period. The regulator in this case decided that the RPI – X form of control imposed the costs of any overspend on investors.

Elsewhere, the difference between the two parties' estimates of OPEX and future CAPEX were relatively small.

	<b>Railtrack</b>	<b>ORR</b>	<b>Difference (%)</b>
Operating, maintenance and renewals expenditure	16,069m	14,874m	7%
Capital costs			
– opening RAB	5,515m	6,860m	20%
– new investment	1,601m	1,700m	6%

Source: ORR (2000), The Periodic Review of Access Charges: Final Conclusions.

**(b) National Grid Company and Ofgem, October 2000**

NGC was involved in its third regulatory review since privatisation and accepted Ofgem’s final proposals at the end of last year. The level of future CAPEX was the most hotly disputed component in the price calculations, with NGC and Ofgem eventually ending up some 14% apart. However, Ofgem has put in place an error-correction mechanism that will allow NGC to earn additional revenue if new connections exceed the regulator’s forecast. This is a good example of the point made at the outset of section 2.1.3 about regulators in the UK over time coming to allow variations in uncontrollable costs to be reflected in adjustments to prices.

	<b>NGC</b>	<b>Ofgem</b>	<b>Difference (%)</b>
Controllable operating expenditure	1,047m	1,020m	3%
Capital costs			
– opening RAB	4,590m	4,590m	0%
– new investment	1,540m	1,320m	14%

Source: Ofgem (2000), The Transmission Price Control Review of the National Grid Company from 2001: Final Proposals.

**(c) National Air Traffic Services and the Civil Aviation Authority’s Economic Regulation Group, July 2001**

NATS is to be partially privatised later this year. The CAA’s determination was announced shortly before potential owners were asked to submit best and final offers for the company. Differences between the company’s proposals and the CAA’s recommendations were relatively small.

	<b>NATS</b>	<b>CAA</b>	<b>Difference (%)</b>
<b>Controllable operating expenditure</b>	<b>1458m</b>	<b>1377m</b>	<b>6%</b>

<i>Capital costs</i>			
– opening RAB	611m	611m	0%
– new investment	–	–	–

*Source:* CAA (2000), National Air Traffic Service Public Private Partnership: Setting the Charge Control for UK En Route Services for the First Five Years.

### **(d) Implications**

The comparisons with the three reviews completed in the UK during 2000 suggest that there is more predictability and certainty in the country’s regulatory regime than in Australia. This may be a consequence of the relative maturity of UK’s 17-year old regulatory approach, and the gradual build up of precedent and case law that has developed over this time. However, it is also likely to reflect a degree of appreciation, by UK regulators, of the importance of ensuring a predictable environment for capital investment going forward. The likely result is a lower cost of capital for the firms that they regulate.

### **2.1.5 Conclusion**

This paper has sought to redress three key failings in the NERA analysis:

- in section 2.1.1, the broader sample of UK utilities from the water, energy, aviation, rail and telecommunications sectors were shown to have adopted risk-free rates and equity-risk *premia* that, on average, were markedly higher than the much narrower NERA sample
- in section 2.1.2, the degree of sovereign risk in the three jurisdictions was shown to explain differentials in the countries’ equity-risk *premia*, while substantial distortions were also identified in the market for UK government bonds, justifying a reduction of more than 0.5% in the risk-free rate applied by UK regulators; and
- in section 2.1.3 and 2.1.4, it was argued that differences in the regulatory models used by the three countries serve to expose investors in Australian utilities to greater risk and lead to a requirement for higher returns.

We would therefore dispute strongly any implication that NERA’s analysis somehow supports the view that determinations by Australian regulators are generous in international terms. Very simplistic comparisons across industries and across countries are always likely to omit a range of explanatory factors, and the report overlooks two very important differences in country-specific risks, while also failing to acknowledge that its sample is not particularly representative of recent UK experience.

As such, these types of comparisons are unlikely to be particularly informative or helpful. Indeed, it would be very dangerous for any Australian regulator to revise its approach to setting the allowed rate of return merely on the basis that other regulators in other countries apparently allow investors in other businesses a lower return.

Furthermore, we do not believe, as a matter of principle, that analysis of this sort can indicate whether or not recent Australian regulatory decisions have accurately assessed investors required rate of return. Ultimately, there is no substitute for extensive and rigorous analysis of each of the individual cost of capital parameters.