Reference of the PR19 final determinations: Cost of capital – final response to working papers

Contents

This document, submitted to the CMA on 1 February 2021, contains corrections to the version submitted on 27 January 2021 as follows:

- Table 3.1 - WaSC average and WaSC median figures for the 'Floated adjusted APR-led approach – sensitivity 2' corrected to 4.30% and 4.34%
- Table 3.2 – column headings corrected to 'Real RCV' and 'Nominal RCV'.

1. Introduction

1.1 On 8 January, the CMA published its working papers for consultation on the cost of capital for its current appeals of the PR19 determinations.[1] We provided our initial response ahead of a roundtable discussion with the CMA and the disputing companies on 18 January.[2] This submission responds to additional points raised by the disputing companies and the CMA at the roundtable and references points that remain important for the CMA's final determination that were not discussed in our initial response. We do not seek to repeat issues set out in previous submissions and so this response should be read as supplemental to, rather than in place of, previous submissions.

1.2 We welcome the opportunity to provide this additional submission, particularly given the concerns we raised in our response to the CMA's provisional findings.[3] Our response highlighted that the provisional findings included decisions which themselves included a number of material departures from the conclusions drawn in the CMA's recent decision in the NERL RP3 reference, without a rationale for those changes. These issues led to a proposed allowed return that was materially above the return allowed in our PR19 final determinations, above the level that is reasonable based on our assessment of relevant data.

1.3 In their initial submissions on the cost of capital working papers, the disputing companies claim that the CMA has proposed a material departure from its provisional findings by reducing the cost of equity aiming up adjustment from 50 basis points to 25 basis points. That may well be a material change, but only from a conclusion that was always and expressly 'provisional', and it is dwarfed by the extent to which the CMA's current proposals (even taking into account this limited adjustment) represent a departure from CMA's conclusions in NERL RP3, in comparison with which there continues to be a significant differential. The NERL decision specifically concluded that there was no need for an aiming up adjustment, and adopted methodologies for calculation of cost of equity parameters (including risk free rate and total market return) that were more consistent with the approach taken in our PR19 determination (and Ofgem's more recent RIIO-2 determination). The disparity between NERL and the current case remains, in our view, inadequately explained or justified.

1.4 We maintain our view that the CMA has not gone far enough in the changes it proposes to the cost of capital which are set out in the working paper. We have

[1] CMA, 'Choosing a point estimate for the Cost of Capital –Working Paper', January 2021.
[2] Ofwat, 'Cost of capital – initial response to working papers', January 2021.
[3] Ofwat, 'Response to CMA provisional findings', October 2020.

explained this position in our initial submissions on the working paper dated 18 January, and at the round table on 20 January. We provide some further explanation and detail in this submission.

1.5 Of course, we will not repeat points that we have already fully developed. However, there is one over-arching background perspective which we urge the CMA to keep continuously in mind: the objective and interests of consumers. At this relatively late stage in the redetermination process, the submissions made to the CMA have increasingly been dominated by the well-resourced company and investor voice, on occasion to the exclusion of other perspectives. The CMA has received numerous submissions and letters putting forward that perspective, both in writing and at the roundtable. These all, unsurprisingly, urge the CMA to make allowances in their favour. At earlier stages in the process, the CMA held third party hearings with consumer bodies and they have made some written representations. Nevertheless, as the focus of exchanges has narrowed to concentrate on highly technical matters, there is a risk that the voice of the consumer is drowned out. There is accordingly a regrettable asymmetry of representation and perspective during this stage of the process.

1.6 As part of its role, Ofwat seeks to put forward an objective and expert view to support the work of the CMA, consistent with the position that we understand best meets our statutory duties in the round. The CMA is bound by the same duties and we would urge that CMA to carefully consider the issues and to ensure the interests of customers are given adequate voice and appropriately protected in its consideration of the duties in the round.

1.7 We also suggest that the CMA should be careful not to use or place weight on company analysis that is erroneous, incomplete or flawed. We cite just two examples here (though we are able to reference others). As we explain in paragraphs 2.11 to 2.15, the disputing companies' Monte Carlo analysis of the range of parameter estimates for the cost of equity, as presented by Northumbrian Water, is deeply flawed. We also made reference in our initial response to the cost of capital working papers to flawed and erroneous calculations in the market-to-asset valuation that, once corrected, would support the position we have set out.[4]

1.8 In this paper we provide additional comment on:

[4] Ofwat, Reference of the PR19 final determinations: Cost of capital – initial response to the working papers, pp. 21–22 paragraphs 2.35–2.37.

- **Section 2** - The allowed return on equity, including the CMA's proposal to aim up the allowed equity return and further comments on the parameter estimates.
- **Section 3** - The CMA's calculation of the allowed return on debt.
- **Section 4** - Bristol Water's claim for a company specific adjustment to the allowed return on capital.
- **Section 5** - The gearing outperformance sharing mechanism.

2. Allowed return on equity

Cost of equity - Aiming up

2.1 We set out our key concerns on the issue of aiming up in our initial response to the cost of capital working papers.[5] In this section we address only the additional issues raised by companies in their initial response to the cost of capital working papers, and issues raised at the cost of capital roundtable.

Incentivising investment in future regulatory periods

2.2 At the roundtable, a view expressed by the disputing companies was that, in an environment where the cost of capital is set too low, management might be 'more incentivised to look at more short-term, sticking-plaster-type approaches versus more sustainable … long-term strategies'. We consider that this claim ignores the wider regulatory framework and confuses incentives to for companies to generate equity returns with investment decisions made by the companies themselves.

2.3 The CMA distinguishes between incentivising companies to propose investment at future price reviews from investment within the PR19 period. It has correctly concluded in both its Provisional Findings and its working paper that the regulatory framework such as ODIs and the totex reconciliation provide strong incentives to efficiently deliver investment in the 2020-25 period. It remains concerned about company incentives to propose investment in future price review periods and in its working paper raised concerns about appropriate long term maintenance of assets.

2.4 We consider that the same rationale on investment within the 2020-25 period applies to efficient levels of maintenance and taking a long term approach. As the regulatory package includes ODIs, totex cost sharing reconciliations, the enforcement regime and the benchmarking approach to setting cost allowances, companies remain incentivised to spend efficiently. It is not obvious why a company would prefer to adopt a short-term investment approach, which leads to increased costs over the long term, as the costs that a company incurs will impact on its relative cost efficiency in our benchmark assessment - irrespective of the allowed return. The company also faces the risk of incurring penalties or forgoing outperformance rewards from underspending on asset health. Further, whether

[5] Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, Chapter 3 – 'Aiming up the allowed return', pp. 22-50.

or not the allowed cost of capital is high or low, if the regulatory approach does not incentivise a long term approach, companies may still be tempted to adopt a short term approach. As such there is no link between the allowed cost of capital and spending on maintenance.

2.5 The allowed cost of capital directly impacts on incentives for investors to invest in regulated companies i.e. it will affect the attractiveness of water companies as takeover targets. This will be revealed in RCV premiums for listed company shares and private transactions. It does not impact on incentives for companies to invest within the regulatory period, as the impact of the allowed return is more than offset by totex and ODI incentives.

2.6 The incentive to invest in future periods is best addressed by the cost of capital in these periods, as Ofwat has set early signal of PR19 allowed cost of capital, the same approach can be used in future periods, if there were to arise concern about attractiveness of the sector for investors. However, we note the strong historical attractiveness of the sector to investors and the continued significant premiums to RCV on listed shares and positive assessment of the attractiveness of the sector. Further, investors make judgement on a broad range of factors including low risk nature of the sector and regulatory framework, strength of RCV model and index linked returns as well as the allowed cost of capital over a number of future price reviews. These factors suggest that aiming up on the PR19 allowed cost of capital is likely to be costly and ineffective as a mechanism to attract investment at future price reviews. Moreover, the CMA's analysis neglects the potential for higher allowed cost of capital to crowd out investment and so potentially reduce rather than increase investment.

International evidence of aiming up

2.7 Our initial response to the cost of capital working papers referenced the recent decision by the New Zealand Commerce Commission that the case to justify a cost of capital uplift to meet growth in demand, investment in innovation and investment in reliability and quality was weak. In response, company representatives at the roundtable referenced this to the application of the Commerce Commission's guidelines where aiming up is on a case-by-case basis.

2.8 However, the reference made by company representatives at the cost of capital roundtable does not alter the point we set out that the Commerce Commission

decided aiming up did not fulfil the best application of its duties in its 2020 decision.[6] In summary:

- The rationale underpinning the Commerce Commission's 2020 decision was consistent with the rationale set out in our response to the provisional findings. The Commerce Commission's rationale for not providing a cost of capital uplift was based around the overall set of regulatory tools and incentives, the scale of cost for customers relative to the potential effect on incentives and the opportunity to review outcomes and the regulatory approach in the future.
- The Commerce Commission recognises that its body of knowledge of understanding has increased at each time it has assessed whether it is necessary to allow a WACC uplift, suggesting that its 2020 decision not to aim up the allowed return should carry more weight than its previous decisions.
- The Commerce Commission's expert panel advised that targeted interventions provide better outcomes than aiming up the allowed return (consistent with the application of the ODI and cost incentive regime we operate in water).

2.9 The Commerce Commission reference academic advice prepared for the Commerce Commission by Cave & Vogelsang,[7] which in its conclusion states:

'the report expresses some scepticism about the regulator's ability in this instance to establish whether to adjust the weighted average cost of capital (WACC) on the basis of asymmetry in the effects of under- and over-investment. If there is a particular risk of market failure it is likely better to be addressed by a specific targeted intervention than by the blunt instrument of a WACC adjustment.'

2.10 For all of the reasons we have previously set out,[8] we maintain that an explicit policy of aiming up the allowed return in the water sector benefits shareholders at the expense of increased cost to customers. It diminishes the benefit of an incentive based regulatory regime, significantly reducing the scope for alignment of company and investor interests with those of customers.

[6] Commerce Commission, 'Fibre input methodologies: Main final decisions', pp. 510-512, paragraphs 6.835-6.842.
[7] Cave & Vogelsang, 'Financial capital maintenance and its role in fibre regulation in New Zealand', May 2019, p.2, paragraph. X.
[8] See 1. Ofwat, Reference of the PR19 final determinations: Cost of capital – initial response to the working papers, pp.17-39 paragraphs 2.23-2.103, 2. Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, Chapter 3 – 'Aiming up the allowed return', pp. 22-50 and 3. Brian Williamson, Aiming up on the WACC and prices – the welfare and incentive impacts for the water industry, October 2020.

Company claims of improved probability distribution calculations

2.11 In their submissions, the disputing companies provide Monte Carlo analysis of the range of parameter estimates for the cost of equity. The analysis is presented as an 'improved' model to the CMA's analysis. The underlying assumptions are explained in Northumbrian Water's submission.

2.12 Wright & Mason reference that the output of Monte Carlo simulations can only be as good as the inputs and that Monte Carlo estimates should reflect bounds of parameter estimates that are admissible in a regulatory context, reflecting good judgement and not mechanically the result of econometric assumption. [9]

2.13 The analysis and results presented by Northumbrian Water are deeply flawed for the following reasons:

- The analysis centres around a cost of equity that is around 5.75% (CPIH), some 125 basis points higher than the CMA's provisional findings – Wright & Mason reference the majority of the difference between the Northumbrian Water and CMA outcomes is the result of different estimates of mean values, which are obscured in Northumbrian Water's analysis.[10]
- The analysis produces a probability distribution with extremely long tails. The range for each parameter estimate, or the cost of equity as a whole should first reflect the range within which each estimate should sit – with the effect that the range has the effect of constraining the distribution used in the Monte Carlo model. It is not reasonable for confidence intervals that extend beyond the range of plausible parameter estimates.
- As further evidence of the flawed approach to the probability distribution, we note that Northumbrian Water's analysis suggests only a 25% probability that the cost of equity should be below the CMA's central estimate in the provisional findings and a c.30% probability the allowed cost of equity should be above the level set at PR14, despite clear evidence of a required return that is materially lower than PR14.
- The probability distribution is impacted particularly by the standard error stated for the TMR, as it is based on 1-year arithmetic averages, rather than a more plausible assessment over say 5-year periods.
- Long tails are presented despite an assumption of a zero standard error for the risk free rate.

[9] Wright & Mason, 'Comments in response to the CMA roundtable on the cost of capital', January 2021, section 2.1.
[10] Wright & Mason, 'Comments in response to the CMA roundtable on the cost of capital', January 2021, section 2.1.

2.14 We accordingly submit that the CMA should not place any weight on the percentile calculations proposed by the disputing companies.

2.15 Consistent with the views set out by Wright & Mason,[11] we submit that CMA ranges (to the extent used to set the allowed return in the final decision) should be calculated at the final stage, once the central estimate of the cost of capital has been calculated. Ranges should be based on the CMA's own analysis, taking account of values at the centre of reasonable estimates of parameter estimates. Less weight should be placed on extreme values - Wright & Mason reference for example that the probability that the debt beta is zero should not be the same as that it takes some positive value). Our initial response to the cost of capital working papers set out that at the 67th percentile, the aiming up of the allowed return on equity would be 13 basis points, drawing on the distributions used by the CMA.[12]

Asymmetry

2.16 The CMA's working papers cite two reasons for aiming up the allowed return due to asymmetry (i) potential for asymmetry in the definition of the range for the cost of capital, with particular concerns referenced about the size of the reduction to the risk free rate and total market return, much of which the CMA attributed to changes in methodology; and (ii) perceived structural asymmetry in the incentive package. We addressed both issues in our initial response to the cost of capital working papers; we provide additional comment below.

Asymmetry – allowed return

2.17 We offer the following comments on the CMA's concern about the scale of the reduction to the allowed return from PR14 to PR19:

- The PR14 allowed return was 6.86% (nominal). The PR19 allowed return was 5.02% (nominal), a 1.8 percentage point reduction (27%) compared to PR14.
- The majority of these reductions are a result of movements in market parameters. Approximately 50% of the reduction in water (0.9 percentage points) is due to the lower allowed cost of debt at PR19.

[11] Wright & Mason, 'Comments in response to the CMA roundtable on the cost of capital', January 2021, section 2.1.
[12] Ofwat, Reference of the PR19 final determinations: Cost of capital – initial response to the working papers, January 2021, p.40, paragraph 2.108.

- The lower risk free rate accounts for a reduction of 0.4 percentage points in the allowed return in water, itself driven by the lower for longer trend in the risk free rate than could have been envisaged at PR14.
- Of the remaining reduction in water, 0.1 percentage points is due to lower observed equity betas and 0.4 percentage points is due to the lower Total Market Return.
- In all, this suggests that only a small proportion of the reduction to the allowed return is due to methodological changes to the calculation of the cost of capital since PR14.

2.18 To assess how much of the change is driven by market movements as opposed to methodological changes, we 'rolled forward' the PR14 methodology to the dates of both PR19 FD and the CMA provisional findings. We hold constant the variables which are not directly observed from financial market instruments, i.e. we do not change gearing, TMR, the ratio of new to embedded debt, or the allowance for debt fees. Instead we update the risk-free rate, asset beta, and the cost of new and embedded debt based on observed market movements in these parameters.

2.19 Table 2.1 below shows the findings from this analysis. We find that market movements alone explain around three-quarters of the movement in appointee WACC between PR14 and PR19. We calculate that market movements more than explain the movement between PR14 and the CMA's allowed return at provisional findings, producing a figure of 2.30% compared to the CMA's estimate of 2.57% (real, RPI) in the provisional findings.

2.20 This suggests that methodology changes adopted in the CMA's provisional findings (particularly in relation to setting the cost of embedded debt) actually increased allowed returns and therefore don't require caution in selecting a point estimate for the WACC, nor aiming up from a midpoint estimate.

Table 2.1: Estimates of the WACC at PR19 FD and CMA PFs calculated using a roll forward of the PR14 methodology

Component	PR14 FD WACC	PR19 FD (PR14 rolled forward)	CMA PFs (PR14 rolled forward)	Market movement applied?	Comment
Data cut-off	Oct-14	Sep-19	Jul-20	N/A	
Gearing	62.5%	62.5%	62.5%	No - Held the same	
Total market return	6.75%	6.75%	6.75%	No - Held the same	
Equity risk premium	5.50%	7.76%	7.86%	No - Held the same	

Risk-free rate	1.25%	-1.01%	-1.11%	Yes	Calculated using the market movement on 10 yr index-linked gilts as they are given the most weight at PR14.
Unlevered beta	0.30	0.29	0.29	Yes	The PR19 FD approach to beta estimation is consistent with the PR14 approach (i.e. weight on 2 and 5 year regressions with similar comparators), hence we use the updated estimate as at PR19 FD to account for market movements.
Equity beta	0.80	0.77	0.77	Yes	Calculated rolling forward the PR14 approach of unlevered beta / (1 - Gearing)
Cost of equity (post-tax)	**5.65%**	**4.99%**	**4.97%**	No - Calculation	
Cost of new debt	2.00%	-0.26%	-0.36%	Yes	Calculated using the market movement on 10 yr index-linked gilts.
Cost of embedded debt	2.65%	1.19%	0.92%	Yes	Calculated using the PR14 approach (10-year trailing average of iBoxx A and BBB indices minus 15 bps outperformance). Note that this produces a lower estimate of embedded debt due to the different methodology applied in PR19.
Embedded debt ratio	75 to 25	75 to 25	75 to 25	No - Held the same	
Allowance for debt fees	0.10%	0.10%	0.10%	No - Held the same	
Overall cost of debt	**2.59%**	**0.93%**	**0.70%**	No - Calculation	
Appointee WACC (vanilla)	**3.74%**	**2.45%**	**2.30%**	No - Calculation	
Ofwat PR19 final determination (RPI, real)		1.96%			Estimated market movements to 2.45% represents 72% of the movement between PR14 and the PR19 final determination figure of 1.96%
CMA provisional findings (RPI, real)			2.45%		Estimated market movements to 2.30% represents 123% of the movement between PR14 and CMA provisional finding figure of 2.45%

2.21 To the extent that the calculation of the total market return and risk free rate reflect methodological changes to those adopted in previous determinations, these reflect a better understanding and more detailed assessment of the market evidence than has been carried out in previous reviews. Where it has been identified that it would be an error to retain a previous approach, the case for continuing to embed such error is weak.[13]

2.22 Furthermore, we have set out previously that adopting an approach of slowly implementing cost of capital reductions over successive price reviews is a policy that results in asymmetric consequences to customers. For example, if the regulator is slow to pass through reductions to customers in an environment of falling returns, the regulator should reflect such an approach when the cost of equity starts to increase again. But it seems unlikely the regulator would be able to 'aim down' the allowed return from the central estimate implied by market data in an environment of increasing expected returns.[14]

Asymmetry - performance

2.23 In addition to the evidence set out in our initial response to the cost of capital working papers, we remind the CMA that it has not taken account of the evidence of outperformance across the determination package (taking account of the scope for financing, cost and service performance – specifically that the sector has historically, on average, outperformed the determination package).[15] Furthermore, evidence we have provided on debt issued by companies since publication of our final determination demonstrates companies are able to outperform the allowed cost of new debt (taking account of the outperformance adjustment included in our determination).[16]

2.24 As set out in previous submissions, we remain concerned that by aiming up the allowed return for perceived asymmetry in ODIs, the CMA has failed to take account of the scope for outperformance across the package of ODIs that results from companies' ability to manage their underperformance. By aiming up the allowed return, the CMA effectively dilutes the incentive posed by ODIs to incentivise management to focus on delivering high levels of service to customers. The increased incentive power of ODIs was a core element of the PR19

[13] Ofwat, 'Cost of capital – initial response to the working papers', January 2021, p. 19, paragraph 2.28.
[14] Ofwat, 'Cost of capital – initial response to the working papers', January 2021, p. 19-20, paragraph 2.29.
[15] Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, pp. 35-38, paragraphs 3.44-3.52
[16] Ofwat, 'Cost of capital – initial response to the working papers', January 2021, p. 50, table 3.2.

methodology, which sought to better align the interests of companies and customers.

2.25 We consider that the CMA's poorly justified aiming up to offset asymmetric ODI rates in effect asks customers to pay twice for companies to improve performance – once as part of the outcomes and cost package and a second time in the cost of capital. This approach fundamentally undermines the rationale for an incentive based regime. We are deeply concerned that the CMA's approach cuts across a key element of our approach to PR19 and will have a consequential detrimental impact on our ability as a regulator to incentivise the sector to improve service performance. The sector's performance on key metrics such as supply interruptions, sewer flooding and pollution incidents are a deep concern for customers and wider stakeholders. We ask the CMA to carefully consider its approach.

2.26 The CMA has not fully engaged with the evidence we put forward that the allowed return should not be aimed up to correct for asymmetric ODI rates, has not properly considered the empirical evidence from PR19 and PR14 that points to net positive ODI payments and has not properly explained its approach to estimating ODI risk and has not adequately considered alternative approaches to concerns about addressing ODI asymmetry.[17]

2.27 We would like to be clear that we agree with the CMA that it is in customers' interests for companies to respond to incentives, and we are supportive of companies earning higher returns than our allowed cost of equity where this is due to genuine service improvements or cost reductions, stemming from good company management, or the result of a "fair bet". This mirrors the effect of a competitive market. We are, for example, pleased that some companies are improving performance in response to the ODIs and recognise this means that they may earn returns above our estimated WACC.[18] However, the CMA's proposal to aim up simply because of skewed ODI rates means that companies which do nothing to mitigate negative shocks, despite being funded to do so, will earn positive or neutral ODI rates.

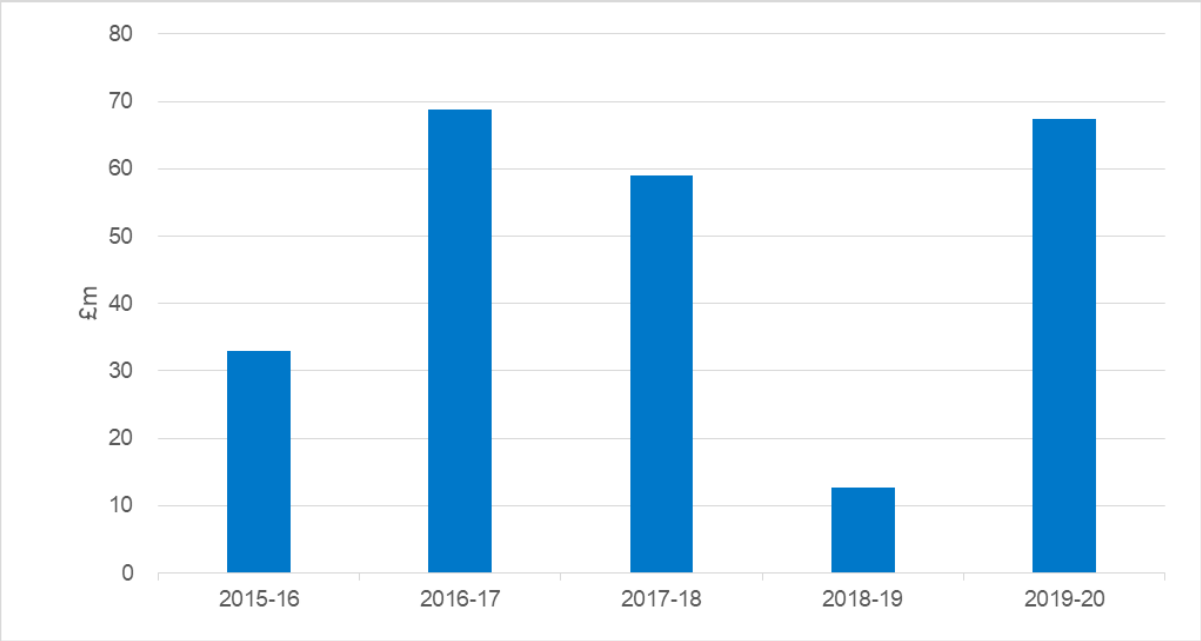
2.28 At the roundtable, companies asserted that evidence showed that there was manifest asymmetry in ODI performance. We said this was misleading. Companies' earned net-positive ODI rates in all years of PR14, once exclusions are

[17] Ofwat, 'Cost of capital – initial response to the working papers', January 2021, pp. 29-34, paragraphs 2.65-2.85

[18] As referenced in our December submission. Ofwat Reference of the PR19 final determinations: Risk and return – Ofwat December response, December 2020, pp.11-12, paragraph 2.4.

made for underperformance payments relating to two enforcement cases and the cancellation of a large scheme. This is shown in Figure 2.1 which is also included in our response to the Provisional Findings.[19]

Figure 2.1: Industry net ODI out/under performance adjustments - 2015-20 (£m)



Note: Values in 2012-13 prices.

2.29 We have previously explained that the analysis in Figure 2.1 excludes three underperformance payments relating to behaviour falling below the standard of an efficient water company or relating to non-delivery of infrastructure.[20] Including these payments would distort consideration of the ODI regime faced by the notional company. The analysis excludes a £15m underperformance ODI payment that related to enforcement action against Southern Water. It also excludes Thames Water's performance on leakage, which led to enforcement action in response to it to failing to meet its statutory obligations. Thames Water incurred underperformance ODI payments on leakage of £63m. In addition, it made £130m of underperformance payments in response to the non-delivery of a scheme specific ODI for Counters Creek where it did not deliver a strategic storm relief sewer.

2.30 We acknowledge that PR14 performance commitment levels (PCLs) were not stretching enough in some cases (for leakage, water supply interruptions,

[19] Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, pp.122, Figure A2.3.
[20] Ofwat, 'Response to PFs', paragraph A2.26

internal sewer flooding and pollution incidents) but there was also less upside than in PR19.[21] Our modelling shows that if PR19 performance is distributed in the same way as PR14 (i.e. with a positive skew), and we correct the PCL of the PCs mentioned above so that they are set at the P50 or median level on average, and apply PR19 ODI rates, there are positive expected ODI rates for all companies.[22] This is in line with the evidence we have seen from listed companies in PR19.[23]

2.31 Finally, and importantly, the logic of the CAPM is that investors should only be rewarded through the allowed return for non-diversifiable risk. ODIs are in principle a risk that is diversifiable by investors. Wright & Mason reference that adjusting the allowed return for perceived asymmetry in expected performance is not only a blunt instrument, but also one that is inappropriate.[24] We submit that should the CMA continue to perceive there is asymmetry to underperformance, adjustments should be made at the source of that expected underperformance, rather than to the allowed return.

Financeability

2.32 Our initial response to the cost of capital working papers set out our concerns that the CMA continues to uncritically accept the views set out by disputing companies that the cost of equity must satisfy certain financial ratios. Questions raised by the CMA at the cost of capital roundtable raised further concern that the CMA has not taken into consideration our representations on the issues, and risks leading it to an approach in which its cost of equity is set by reference to target level of cashflow-based financial ratios rather than a reasonable reading of CAPM parameters. This would be an error, leading to a determination that unduly favours investors at a cost to customers.

2.33 The approach in the CMA's provisional findings and working papers repeat the mistake of the revenue uplift approach Ofwat adopted at PR04. The approach was criticised as providing windfall returns to investors. It subsequently led to a joint working paper between Ofwat and Ofgem to consider alternative options to address financeability constraints.[25] The paper described the causes of the financeability constraint (driven by the effect of inflation with the application of a

[21] Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, pp.123, Table A2.2.
[22] Ofwat, 'Reference of the PR19 final determinations: Introduction – response to provisional findings responses', November 2020, pp. 43-44, Table A4.7
[23] Ofwat, 'Risk and return – Ofwat December response', December 2020, p. 11, paragraph 2.4.
[24] Wright & Mason, 'Comments in response to the CMA roundtable on the cost of capital', January 2021, section 2.2.
[25] Ofwat and Ofgem, 'Financing Networks: a discussion paper', February 2006.

real return on an inflating asset base, with RCV growth). It described options to address financeability constraints which include (i) index linked debt, (ii) gearing assumptions and equity injection, (iii) dividend constraints and (iv) cashflow profiling (termed accelerated depreciation).

2.34 As we have previously set out our concerns we do not repeat them further here,[26] except to say that a proper assessment of financeability should take account both of the underlying reasons for the financeability constraint (driven in particular by the approach to inflation at PR19)[27] and the reasonable steps that should be taken by a notional company to resolve such a constraint.

2.35 Finally, at the roundtable, Anglian Water claimed that the financeability assessment should target an adjusted interest cover ratio of 1.5-1.7x with a midpoint 1.6x. However, in its business plan Anglian Water set out that it had "targeted the minimum level for a BBB+ (Baa1)."[28] The business plan, which the company assured was financeable, achieved its proposed minimum threshold of 1.5x only after the inclusion of reconciliation adjustments for performance in the previous regulatory period.

Cost of equity - Parameter estimates

Beta

2.36 Beta is a material component of the allowed return on capital with each 0.01 increase equal to a c.20bps increase to the allowed return on equity.

2.37 Our PR19 determination included an unlevered beta of 0.29, placing weight on both 2 year and 5 year beta estimates. Our determination recognised this was a cautious decision, which was high in the range (0.25-0.31) proposed by our advisers Europe Economics and also above their proposed point estimate

[26] See Ofwat, 'Cost of capital – initial response to the working papers', January 2021, pp. 36-39, paragraphs 2.92-2.103 and Ofwat, , 'Risk and Return – response to CMA provisional findings', October 2020, pp. 43-45, paragraphs 3.69-3.77.
[27] See particularly for example, Ofwat, 'PR19 final determinations: Aligning risk and return technical appendix', December 2019, pp. 80-82, also summarised in previous submissions to the CMA.
[28] Anglian Water, 'Our Business Plan 2020-2025', September 2018, p. 269.

(0.26).[29,30] It was also high in the range considered by the CMA in its 2015 determination for Bristol Water (0.27-0.30).[31]

2.38 The CMA's provisional findings included an unlevered beta of 0.31, towards the top of its 0.27-0.32 range, with the low end of the range referenced to 2 year spot and 10 year data, the high end referenced to 5 year data.[32] The point estimate is high in comparison with the ranges stated above, and, as referenced in our January risk and return submission the CMA's range is high in comparison with the range for water identified from data stated in Ofgem's RIIO-2 decision (0.24-0.32).[33]

2.39 Overall we support the CMA's approach to the calculation of beta (though we request that it considers carefully its choice of parameter estimate). This contrasts with the views expressed by companies and their advisers who have altered their views on the calculation of beta through the dispute process.

2.40 Northumbrian Water's latest response to the working paper includes a paper from Professor Alan Gregory. The paper repeats the case for beta calculations based on daily or weekly betas for the period (i) 1991-2020 or (ii) 1 October 2014 – 28 February 2020 based on breaks identified in the beta data, and proposes an asset beta in the range 0.35 to 0.36.[34]

2.41 We disagree with Professor Gregory's position that beta data from February 2020 onwards should be omitted from the CMA's beta calculations due to the atypical nature of Covid-19 and its effects.[35] The pandemic is a clear example of a highly undiversifiable risk whose effects are already manifest in the first year of the 2020-25 control - and which look set to persist further. It is not clear therefore why such data should be considered irrelevant to the required return on equity over this period. Far from being a one-off, research suggests that major pandemics are likely to happen more frequently in future. This in turn suggests it

[29] Ofwat, 'PR19 final determinations: Allowed return on capital appendix', December 2019, p. 67.
[30] Europe Economics, 'The Cost of Capital for the water sector at PR19: final advice', December 2019, p. 36.
[31] Competition and Markets Authority, 'Bristol Water PLC, A reference under section 12(3)(a) of the Water Industry Act 1991', October 2015, paragraph 10.150.
[32] CMA, 'Provisional findings', September 2020, p. 577, Table 9-14.
[33] Ofwat, 'Cost of capital – initial response to the working papers', January 2021, p. 14, paragraph 2.16.
[34] Alan Gregory et al, 'The Evolution of Beta through the Covid Crisis', January 2021, pp. 4-6.
[35] Alan Gregory et al, 'The Evolution of Beta through the Covid Crisis', January 2021, p. 1.

is an error to assume that share prices informing betas are not influenced by growing awareness of these future risks.[36] [37]

2.42 However, even if the CMA chooses not to base its beta estimate on data since the start of Covid-19, the beta estimate in the provisional findings is high by reference to the data the CMA itself has observed (as referenced above). We submit that a reasonable estimate of unlevered beta could now be lower than that set in our final determination, and should be no higher than our final determination figure, 0.29. The CMA should treat its beta range as the range of plausible values within which beta might sit; we submit it should not accept that the confidence intervals for beta sit outside of its plausible range, nor place weight on the asset betas proposed by Professor Gregory that materially exceed the ranges proposed by the CMA in its provisional findings.

Total Market Return

2.43 Total market return is a material component of the allowed return with each 0.1 percentage point increase equivalent to c.7 bps increase on the allowed return on equity.

2.44 The total market return set in our final determination (6.50% CPIH real) reflected a balanced assessment of market evidence taking account of ex-post, ex-ante and forward looking approaches, drawing on the methodologies used in the CMA's Northern Ireland Electricity determination, updated for advances in regulatory understanding of the application of inflation under the ex-post approach.

2.45 The CMA's provisional findings placed significant weight on the ex-post approach, with increased weight placed on RPI-deflated data (and lower weight on CPI-deflated data) compared with its provisional findings for the NERL RP3 determination. This informed its higher TMR range of 6.2% - 7.2%. The CMA chose a TMR towards the high end of the range despite the CMA referencing in its

[36] For example, the UN comment that "Outbreak frequency and predictability: The frequency of pathogenic microorganisms jumping from other animals to people is increasing due to unsustainable human activities. Pandemics such as the COVID-19 outbreak are a predictable and predicted outcome of how people source and grow food, trade and consume animals, and alter environments." UN Environment Programme, 'Preventing the next pandemic – Zoonotic diseases and how to break the chain of transmission', July 2020, p. 7.

[37] The World Economic Forum list 20 major pandemics over the last 2000 years, of which 9 have been in the last 100 years, stating "The more civilized humans became – with larger cities, more exotic trade routes, and increased contact with different populations of people, animals, and ecosystems – the more likely pandemics would occur." World Economic Forum, 'A visual history of pandemics', March 2020.

provisional findings that 'even the most optimistic investors are currently expecting returns no higher than 5% to 6% (RPI real) and many are expecting returns significantly below this level'.[38]

2.46 Our initial response to the cost of capital working papers set out that the CMA has not adequately taken account of our representations to the provisional findings on the issue of the total market return, with the only additional narrative offered for the increase in the range from the CMA's NERL RP3 decision that regulators should implement changes gradually over time. We have already set out such an approach does not adequately recognise the interests of customers.[39]

2.47 In the following paragraphs we respond to issues raised by disputing companies in response to the CMA's cost of capital working papers.

Historic 'ex-post' approach

2.48 Prior expert guidance provided to regulators has focussed on the use of historic average returns to estimate the expected return that feeds into CAPM calculations. The UKRN cost of capital study referenced this as possessing the merits of implementability and defensibility.

2.49 However, as cited by Wright & Mason, approaches that focus only on long term averages will provide an upward bias where there are periods of prolonged low risk free rates. And in these circumstances the upward bias must be taken into account.[40]

2.50 Wright & Mason agree that there is no consensus amongst academics as to whether returns have predictability. They illustrate, however, the logical interpretation of the literature that finds returns are unpredictable results with an expected market return of 4.6% at the CMA's preferred risk free rate estimate of -1% with a standard error of 150 basis points – materially lower than the CMA's estimate. And that if there is some evidence of return predictability, then they are expecting below-average prospective returns:

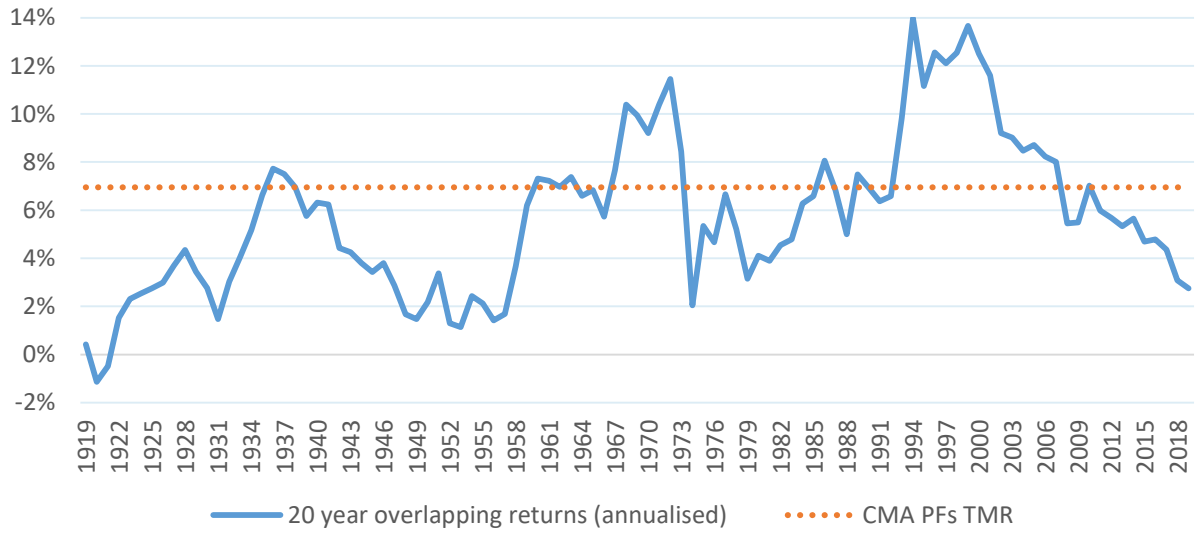
> *'almost universally the predictive approaches used by both academics and practitioners rely on the predictive power of valuation criteria such as the*

[38] CMA, 'Provisional findings', September 2020, p.557, paragraph 9.220.
[39] See for example, 'Ofwat Reference of the PR19 final determinations: Cost of capital – initial response to the working papers', pp.19-20, paragraph 2.29.
[40] Wright & Mason, 'Comments in response to the CMA roundtable on the cost of capital', January 2021, Section 1.2.

dividend yield, the cyclically adjusted P/E multiple, or relative yields on equities versus bonds. All such indicators currently point to below-average returns.'

2.51 This view is supported by Figure 2.2 considering annualised returns for 20 year overlapping holding periods. The CMA's provisional findings point estimate of TMR (6.95%) is higher than the annualised average return of 6.7% for the 20 year overlapping holding periods in the sample. In addition however, the focus on whole period averaging overlooks the recent data on 20 year holding periods which shows a clear downward trend from 2000 onwards and annualised returns since 2010 materially below 6.7%.

Figure 2.2: Annualised UK equity returns for 20 year holding periods, 1919-2019 (CPI-deflated)



Source: Ofwat analysis of DMS and Millennium Dataset data

Historic 'ex-post' approach – adjustment to geometric returns

2.52 Previous expert guidance to regulators is to start from the geometric average and make an adjustment of 1-2 basis points to account for longer holding periods and serial correlation. Starting from geometric averages when using the commonly used Credit Suisse Global Investment Returns Yearbook (aka 'DMS') is an important mitigant against the upward bias from exchange rate effects.[41]

2.53 Serial correlation is a feature of the UK data, for example, the 2019 DMS yearbook states a serial correlation of -0.8%. Serial correlation is important as it skews the

[41] DMS equity returns are expressed from the perspective of a US dollar investor, embedding GBP-USD volatility in the arithmetic average of whole period returns.

arithmetic average upwards[42] and consistent with the guidance to regulators we agree it is important this should be taken into account under the ex-post approach.

2.54 The CMA's provisional findings placed weight on an adjustment of 1.2%, drawing from PwC analysis; this analysis took account of overlapping data series. In light of a query at the cost of capital roundtable, PwC has updated its analysis based on non-overlapping periods, which results in an adjustment within the range 0.9-1.8%, for holding periods between 5 and 10 years, consistent with other expert guidance set out for regulators.[43] We note however a tension with the use of non-overlapping periods, which reduces the number of data observations in the sample.

2.55 Evidence cited in expert guidance includes:

- The UKRN cost of capital study (2018) which suggests an adjustment of between 1.0% and 2.0% for regulators, with greater serial correlation suggesting a lower adjustment.[44] Annex E of the study states 'We would, however, argue that the case for an adjustment to arithmetic averages as large as 2 percentage points (which was implied by the upper end of MMW's range) is distinctly weakened if regulators wish to set returns on a consistent basis at a relatively long (e.g., 10-year) horizon, given that (as noted in MMW) long-horizon returns have distinctly lower volatility than would be the case in a random walk stock market.'
- CVAR model variance adjustment falling from 1.2% (5 years) to 0.9% (10 years), as developed by Robertson and Wright (2002).[45] This adjustment is lower because of inclusion of additional parameters capturing predictability; and
- The Mason, Miles and Wright (2003)[46] paper concludes that the 'the gap between the arithmetic mean return and geometric return would fall to only around one percentage point over a five-year horizon, and even less over a ten-year horizon'.

[42] Stylised example of negative serial correlation is of a doubling and halving of an asset's price in successive years. If the return in percentage terms is 100% in y1 and 50% in y2, the accurate (geometric) return over the period is 0%, yet the arithmetic average is (100%-50%)/2 = 25%.
[43] PwC, 'Setting the TMR assumption: adjusting geometric returns', January 2021.
[44] UKRN, 'Estimating the cost of capital for implementation of price controls by UK Regulators', 2018
[45] Robertson D. and S, Wright, 'The Good News and the Bad News about Long-Run Stock Returns', 2002
[46] MMW, 'A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K.', p.26, 2003

2.56 On the basis of the evidence stated above, we consider an adjustment at the low end of the 1.0% -2.0% range remains appropriate for the CMA final decision (consistent with the 1.2% figure used in the CMA's provisional findings).

Historic 'ex-post' approach – non-overlapping periods

2.57 At the CMA roundtable, representatives of the disputing companies suggested that the CMA should rely on estimates derived from non-overlapping returns as referenced in table 9.3 of the provisional findings, on the basis that 'negative serial correlation should be addressed within those averages'.

2.58 Our view is that caution should be applied to 20 year non-overlapping periods when estimating the total market return as non-overlapping returns of such duration can introduce volatility to parameter estimates given the limited number of datapoints (only 5 data points over a 100 year period). We agree with the CMA's view that less weight should be placed on non-overlapping data due to the small sample size.[47]

2.59 We also submit that addressing serial correlation does not fix the upwards bias from using the arithmetic average as an estimator. As set out in Jacquier, Kane & Markus (2005), the key issue is that the sample average holding period return is a noisy estimator of the true expected return. This causes an upwards bias as the estimation error is compounded at the investor's horizon, and justifies the use of the JKM estimator as a more efficient and less biased estimator of the expected return.[48]

Forward looking approaches

2.60 The CMA's provisional findings effectively placed no weight on current and forward looking evidence in setting the total market return. This is surprising given commentary from the CMA (referenced above) about investor expectations and evidence from dividend discount models showing a drop in recent return expectations compared with historic whole-period averages.[49] Recent 'Ex-post' returns data also supports this picture. The CPI-real annualised return for holding

[47] CMA, 'Provisional findings', September 2020, footnote to table 9-3, p.549.
[48] Jacquier Kane & Markus, 'Optimal Estimation of the Risk Premium for the Long Run and Asset Allocation: A Case of Compounded Estimation Risk', October 2004
[49] For example, the dividend discount model for the UK published by Fenebris points to a nominal market return of 7.1% as at 26 January 2021.[49]

UK equities for 20 years in 2019 was 2.8% (per Figure 2.2), having followed a declining trend since 2000.[50]

2.61 We have set out evidence in previous submissions about market return expectations. We do not repeat the evidence here. We submit however that the CMA should take account of such evidence in reaching its final decision, if it is to adequately take account of the interests of customers.

Risk free rate

2.62 At the cost of capital roundtable, the CMA raised questions around the theoretical calculation of the risk free rate and the view expressed by the representatives for the disputing companies that the index-linked gilt rate should not be used. The disputing companies set out the risk free rate should instead be calculated based on observations of AAA-corporate bonds adjusted for factors including probability of default, loss given default and liquidity.

2.63 We summarised our concerns with the CMA's assessment of evidence on the risk free rate, and its calculation making use of AAA bonds in our initial response to the cost of capital working papers.[51] We do not repeat our previous representations here, other than to say that the focus on the AAA bond rate is a novel approach, not used in previous regulatory determinations, and would mark a material change in approach if adopted by regulators more broadly.

2.64 We remind the CMA that the AAA corporate bond rate is not an instrument that informs us about the general accuracy of the CAPM model. At best it can only be used as a potential cross check to the index linked gilt rate (assuming there were a broad and deep enough set of AAA corporate bonds). We consider the SONIA swap rate remains a valid cross check, which is referenced by the Bank of England as the risk-free rate for sterling markets, a significantly deeper market than that of AAA corporate bonds, with the Bank of England referencing its use to value around £30 trillion of assets each year.[52]

2.65 Our concerns about the approach adopted by the CMA in its working papers are highlighted by the independent academic view set out by Wright & Mason. [53] The

[50] Source: Ofwat analysis of DMS and Millennium Dataset data.
[51] Ofwat, 'Cost of capital – initial response to working papers', January 2021, pp. 16-17, paragraphs 2.18-2.22.
[52] Bank of England, 'SONIA interest rate benchmark', sourced 26 January 2021.
[53] Wright & Mason, 'Comments in response to the CMA roundtable on the cost of capital', January 2021, section 1.1, pp. 1-2.

academics set out that disputing companies confused positions at the roundtable, claiming to argue separately that index linked gilts should not be used as they include a 'convenience yield'.

2.66 Wright & Mason argue that both sets of arguments result in a position that the Brennan model should be applied instead of the CAPM model. We remind the CMA that the proposal to apply the CAPM model was not a contentious issue among respondents to the PR19 methodology consultation. We are concerned that the disputing companies are proposing the Brennan model should be introduced at such a late stage in the reference process instead of proposing it at a much earlier point in the process to allow adequate consideration and consultation on the merits of moving away from the CAPM.

2.67 Furthermore, as referenced by Wright & Mason, we are concerned that the introduction of the Brennan model would add material additional complexity to future determination processes. A significant advantage of the CAPM model is that it is intuitively understood by non-expert stakeholders, allowing them to engage with the regulator's assessment of data. The adoption of alternative models to the CAPM would remove the scope for intuitive challenge of regulatory decision making, and that in the long run is likely only to benefit investors.

2.68 It is not sufficient that disputing companies show the CAPM to be imperfect for it to be replaced with the Brennan model (or indeed some variant of the CAPM); the model that it replaces should be better. Europe Economics advise there is no evidence that the practical application of the Brennan model produces superior estimates to the CAPM in respect of asset prices or returns, either in general or for regulated sectors.

2.69 Europe Economics advise further that such revisions (either from the application of Brennan or adjustments to the CAPM) would have implications for the CAPM that extend beyond just the risk free rate, affecting equity risk premiums, potentially impacting on beta and affecting debt premiums.

2.70 Adopting alternative models to the CAPM (or some variation to the CAPM) should be considered in the context that there is a need to demonstrate that calculation of the allowed return is improved. The adoption of an alternative approach, increases complexity and hence the risk that regulators overweight company arguments that make the case for adjustments, with the consequence of a systematic tendency for the determined allowed return to be too high. Such an approach can only benefit companies and their investors (as we have seen in past determinations). A 'let the data' speak approach is advocated not only by our determination, but also underpins the approach adopted by Ofgem, the UKRN

cost of capital study and Europe Economics in its paper that accompanied out PR19 methodology.[54]

2.71 Finally, we note that one explanation offered by disputing companies of the consistency between the determined cost of capital and Modigliani Miller is that the PR19 risk free rate should be increased in order for the WACC to be held constant for changes in gearing. However, Wright & Mason conclude the capital allocation line, defined by the ILG yield, is the relevant one for the calculation of the cost of equity. Should the CMA continue to place weight on its proposed alternative benchmark of AAA corporate bonds for the risk free rate, we refer to the CMA to an inconsistency in its approach as referenced by Europe Economics, that the CMA has failed to make a liquidity adjustment in its calculation of the risk free rate derived from AAA bonds, whereas the CMA's treatment of debt beta includes a large liquidity adjustment. We submit that there should be consistency between the two treatments of corporate bonds.[55] If, for example, the AAA corporates include a 30 basis point liquidity premium (roughly consistent with a 0.15 debt beta), that would significantly affect the CMA's risk free range. If debt beta were lower than 0.15, the liquidity adjustment ought to be correspondingly higher.

Debt beta

2.72 The CMA's cost of capital working papers provide no further discussion of the points raised on debt beta in response to the CMA's provisional findings. The CMA references only its range of debt beta estimates, noting the high end of the range is based on decompositional analysis and the low end of the range is best supported by regression methodologies. The CMA set out that the high end is best supported by the beneficial impact that higher estimates have on the stability of the WACC model at different levels of gearing and set out that the low end appears to best match 'the intuitive exposure to systematic risk' for bondholders in highly regulated industries.[56]

2.73 We have previously set out that the CMA has adopted an inconsistent approach to its treatment of outlying data points in its 'ranges' for unlevered beta and debt beta particularly that, under the CMA's own reasoning, an implied debt beta of 0

[54] Europe Economics, 'PR19 — Initial Assessment of the Cost of Capital', December 2017, section 2.3.3, pp. 19-20.
[55] Europe Economics, 'Europe Economics position on Debt Beta', January 2021, section 1.3, p. 3.
[56] CMA, 'Choosing a point estimate for the Cost of Capital –Working Paper', January 2021, p.22, paragraph 72(b).

is very unlikely. [57] We submit that, as set out by Europe Economics, the chosen point estimates of 0 to 0.15 should not be implied to be or referred to as a range of continuous set of possibilities, as the point estimates adopt very different ways of considering the debt beta.[58]

2.74 At the cost of capital roundtable, the CMA questioned the issue of debt beta, including whether a debt beta should be applied particularly to address 'an upsloping WACC curve' as it had done in its NATS decision.

2.75 In the paper that accompanies this submission, Europe Economics explain the relevant question is the extent to which a debt beta is used for the purposes of regearing the observed market equity beta to an equity beta for the notional level of gearing – and the greater the divergence between the observed market gearing and notional gearing, the more relevant is the question of setting the correct debt beta.[59] On this basis, we agree with Europe Economics that, the methodology applied in the CMA's NERL RP3 to the treatment of debt beta is appropriate and can be seen as a development of the Competition Commission's thinking as applied in the London Airports decision in 2007, perhaps being appropriately less conservative reflecting the passage of time (we note that the 2007 judgement recognised that its use of a liquidity adjustment reflected the novelty of the whole concept of the use of a non-zero debt beta).

2.76 We have previously set out that the issues raised by the CMA in the NERL RP3 determination result in an allowed return that strictly increases with gearing, which is at odds with Modigliani-Miller. We have also set out that in the context of complex issues that were unresolved in the NERL RP3 determination, a pragmatic solution might be to adopt the gearing of the companies from which beta estimates are derived for purposes of calculating the allowed return, as the CMA adopted in NERL RP3.[60]

2.77 We submit that the CMA should consider carefully the issues set out by Europe Economics in both the application of its debt beta estimates in its final determination and the consistent application of a liquidity adjustment in both its approach to determining debt beta and the risk free rate (should it continue to place weight on AAA corporate bonds). Finally, we restate that we would support

[57] Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, pp.82-83, paragraphs 5.30-5.33.
[58] Europe Economics, 'Europe Economics position on Debt Beta', January 2021, section 1.2, pp. 2-3.
[59] Europe Economics, 'Europe Economics position on Debt Beta', January 2021, section 1.1, pp. 1-2.
[60] Ofwat, 'Risk and return – response to common issues in companies' statements of case', June 2020 pp.72-73, paragraphs 3.81-3.83

the CMA retaining the approach to debt beta as applied in the CMA's NERL RP3 determination.

Cross checks

2.78 At the cost of capital roundtable, Oxera, referred to work it had carried out for the Energy Networks Association that analysed the gap between the asset risk premia and the debt risk premia, claiming that as these are low relative to their estimates, based on bond market data. We have not identified this as an issue that has been raised by the disputing companies, and if so, we submit it is an issue that is being referenced late in the redetermination process with limited time for consideration by the parties and without any commentary or evidence on the distribution of Oxera's underlying observations. We do not comment further on this evidence at this late stage in the determination process.

3. Cost of debt

Embedded debt

Summary points

- Water has since privatisation operated an incentive-based regime based on calculating the efficient cost of sector embedded debt at 5-yearly resets.
- The regime has benefited customers who have shared in the benefits of lower market-wide interest rates and financing efficiencies passed through at each reset.
- Committing to the same benchmark over multiple periods would provide more stability, but would also fail to share the benefits of companies beating the benchmark with customers.
- The track record of debt issuance does not support the assertion that length of trailing average is a material driver of tenor-at-issuance. Our regime contains built-in financing discipline in the form of a sector (not company-specific) allowance and the expectation that companies bear the risks and rewards of financing decisions.
- Historical Ofwat policy provides no evidence of support for 20 as opposed to 15 year trailing averages.
- Mechanistically tying length of trailing average to sector or iBoxx characteristics makes the length of trail sensitive to irrelevant factors and does not assure a reasonable allowance.
- Historical tenor-at-issuance for water bonds would in any case support a tenor-at-issuance of 15 years, and thus a trailing average index of 15 years.
- Despite the company view that a 15 year trail 'disallows' debt issued pre-2005, the share of this debt in bond holdings poorly explains variation in WaSC embedded debt costs.
- The use of balance sheet data (including short-term and floating-rate debt) in benchmark-setting has been well-signalled, is consistent with previous reviews, and remains appropriate.
- The CMA's point estimate of 4.52% sits towards the upper end of the range of relevant balance sheet-led benchmarks, which are in any case overstated due to biases in the APR data.
- Measurement issues around the impact of EIB and floating rate debt are not central to the working paper's point estimate of 4.5% due to the notional-actual approach, which gives a range of 4.45% to 4.54%

History and evolution of the regulatory regime

3.1 Since we first set price controls at PR94, our approach to incentive regulation has been to set a cost of embedded debt based on benchmarks drawn from balance sheet data. From PR14 onwards we have drawn on both balance sheet and index-led benchmarks. In all controls, companies have been incentivised to beat benchmarks set at final determinations over the ensuing control period. The costs achieved over that period have been used to inform benchmark setting at the next price control. This process has benefited customers through passing through financing efficiencies ('beating the benchmark') and lower market-wide interest rates.

Index-led vs. Balance sheet-led benchmarks

3.2 We are clear that both types of benchmark can play a useful role discharging the function of the allowance – i.e. setting a reasonable return to remunerate historic debt.

3.3 An index-led approach involving external data can use criteria (e.g. credit rating) to narrow the focus onto debt more relevant to the characteristics of the notional company. The use of external companies in the index also mitigates the risk that the benchmark is not stretching enough because of sector-wide inefficiency. It should however be calibrated where there is reason to believe that the level of the index is liable to structurally misstate the costs of the notional company.

3.4 An approach based on balance sheet debt promotes a benchmark which has a clearer link to the sector's actual costs, which may increase confidence that a given allowance is reasonable. Balance sheet data may however potentially introduce distortions due to characteristics not consistent with those of the notional company (e.g. higher gearing). These types of consideration should inform a decision on where to pick within the plausible range of benchmarks.

Incentive properties

3.5 We noted concerns expressed by companies and their advisors that the current regime gives too much discretion for the regulator to decide arbitrarily and with hindsight that ex-ante 'efficiently-incurred' debt would not be remunerated. It was argued this regime had bad incentive properties to encourage efficient issuance. It was proposed that a solution to this would be to a) commit to a benchmark fixed over future periods; and b) to assess efficiency using an 'ex-ante' perspective based on information at issuance.

3.6 Our starting point is that we should set a reasonable allowance. We recognise the value of stability and predictability in our regime, but we have evolved, and will

continue to evolve, our approach where appropriate - after engaging as early as possible with companies and other stakeholders. An example of this is our move from a 10 year trail trailing average at PR14 to 15 years at PR19, because we considered that maintaining the same approach would not result in a reasonable allowance. It is a reasonable expectation we would continue to consider a 15 year trailing average as the starting point for our assessment at PR24 (and would need a good reason to change). However, we would need to take into account all the relevant circumstances at the time, including the financing conditions closer to time of our PR24 determinations.

3.7 We consider that the approach proposed by the companies is problematic, for the following reasons:

- Firstly, this would be contrary to the aims of incentive regulation. Committing ex-ante to a benchmark across multiple future price controls would mean customers forgoing all of the benefits from companies achieving efficiencies against that benchmark over time. Furthermore, it is unlikely the regulator could not step in to recalibrate the benchmark if efficient debt costs were under-remunerated (with asymmetric consequences for customers).
- Secondly, we consider that our current incentive regime of using benchmarks to proxy for a reasonable allowance for embedded debt incentivises companies to achieve what matters to customers – a reasonable cost of debt, which is paid for via customers' bills. An 'ex-ante' regime would incentivise the production of narrative by companies to justify why their high cost of debt ought to be considered 'ex-ante efficient' by the standards of the time.
- Finally (as noted by the CMA in its provisional findings) the resource implications of conducting an ex-ante instrument-level efficiency review would be substantial, and it is not clear that this would represent an effective use of time by the regulator (or even lay to rest efficiency disputes).

3.8 Given the positive outcomes we perceive from our existing regime (high investor demand for water bonds, an 'Aa' Moody's rating for stability and predictability of regulatory environment, a 'halo effect'), we consider that company arguments that the CMA's working paper proposals imply the wrong issuance incentives are unconvincing. This assertion seems largely based on arguments that the use of a 15 year trail and/or weight on balance-sheet data will encourage shorter tenor-at-issuance, or induce companies to take excessive risks through over-issuing of floating-rate debt.

3.9 If it were true that a shorter trail had a significant impact on tenor-at-issuance, we might reasonably expect to see a material decline in this metric over the PR14 control period (2015-20). As demonstrated in Figure 3.1 below, the change from

the prior control period is slight, however – consistent with the findings of our previously-submitted PwC paper that tenor is influenced by many factors which appear more important (e.g. yield curve inversion).[61]

3.10 Neither would we agree with the general principle that average tenor-at-issuance above 10 years, but lower than historical levels, should be viewed with concern. Noting the company views expressed that it is important for companies to 'asset-liability match', this opinion seems to skirt over an important protections to companies (and their bondholders) that companies benefit (in effect) from a revolving 25 year licence, a transparent and predictable regulatory regime with a 30 year track record and the RCV. As consequence of these protections is that there is no reason to consider that company treasury policies (or the regulatory determination of trailing averages for embedded debt) should by underpinned by underlying asset lives. As referenced in previous work we have submitted from PwC there are many factors that are important to driving treasury strategy.

3.11 Since having adopted a 15 year iBoxx benchmark informed by balance sheet data for PR19, we have not in practice observed a tendency to over-issue floating rate debt. As set out in our previous submission, the use of a sector benchmark promotes that companies internalise the costs of risky issuance behaviour (e.g. issuing too much floating-rate debt). This is because crystallised risks have a limited impact on the benchmark, and are thus not simply passed through to customers.

Length of trailing average for index-led approaches

3.12 The disputing company side suggested that comments made by former Ofwat director general Philip Fletcher in 2001 support the use of a 20 year trailing average for the PR19 period. We note that overall the speech does not advocate for a particular tenor of debt or trailing average, and highlight the following quotes:

> *'But companies – especially infrastructure companies – do not finance themselves for discrete periods of five years at a time: they seek to match their financing structure to their cash flows, which in long-life asset-based businesses such as water arise fairly evenly over long periods of time.'*
>
> *'We look to ensure, by reference to the key coverage ratios, that each company, provided it is efficient, will be able to sustain the kind of credit rating that, in normal market conditions, will enable it to raise additional finance readily and at*

[61] PwC, 'Efficient debt financing of water companies', December 2020.

reasonable cost. In some cases, the licences require companies to maintain an investment grade rating. This policy led us in the 1999 reviews to make special allowances for the embedded cost of fixed rate debt taken out when interest rates were at substantially higher levels, but it should not be assumed that we will always allow a pass through of high cost debt. In saying this it is certainly not our intention to prejudice appointees' ability to access the long-end of the market.'[62]

3.13 We consider that a more reasonable reading of the speech is that it argues that companies should not finance themselves over 5 year price control periods, and so there is a requirement by the regulator to allow for financing cost longer than this period of time and to allow for embedded debt. There is nothing obvious to indicate support for 20 year over 15 year tenors. It is also somewhat counterintuitive that the company side uses this speech to argue for a 20 year trail on the basis of stability and predictability, when this would in practical terms represent a doubling of the 10 year trail used at PR14, and thus a very material change in a key regulatory parameter in a short space of time. We comment further on references made by disputing companies (and investor representatives) to past Ofwat statements in Annex A.

3.14 The disputing company side suggested at the cost of capital roundtable that the length of trailing average should be mechanistically tied to statistics such as average actual tenor-at-issuance of water bonds, or the weighted-average years-to-maturity of the iBoxx A/BBB, which companies argued were near 20 years. We do not accept this view.

3.15 While recognising the mathematical neatness of having notional company debt tenor the same length as the trailing average, we have serious concerns with an approach that mechanistically uses actual data to assume issuance characteristics (i.e. tenor-at-issuance) for the notional company:

- This would 'smuggle in' a constraint on the notional structure (notional tenor-at-issuance) which has not hitherto existed as an assumption for the notional company.
- Existing characteristics of the notional company (i.e. gearing, share of index-linked debt) are not mechanistic applications of the sector average actual figures.[63]

[62] Speech by Philip Fletcher, 'Restructuring Glas', Schroder Salomon Smith Barney Sterling Bond Community Conference, February 9 2001.
[63] Sector gearing averages 70% compared to the notional 60%, while index-linked debt is around 50% of borrowings compared to the notional 33%.

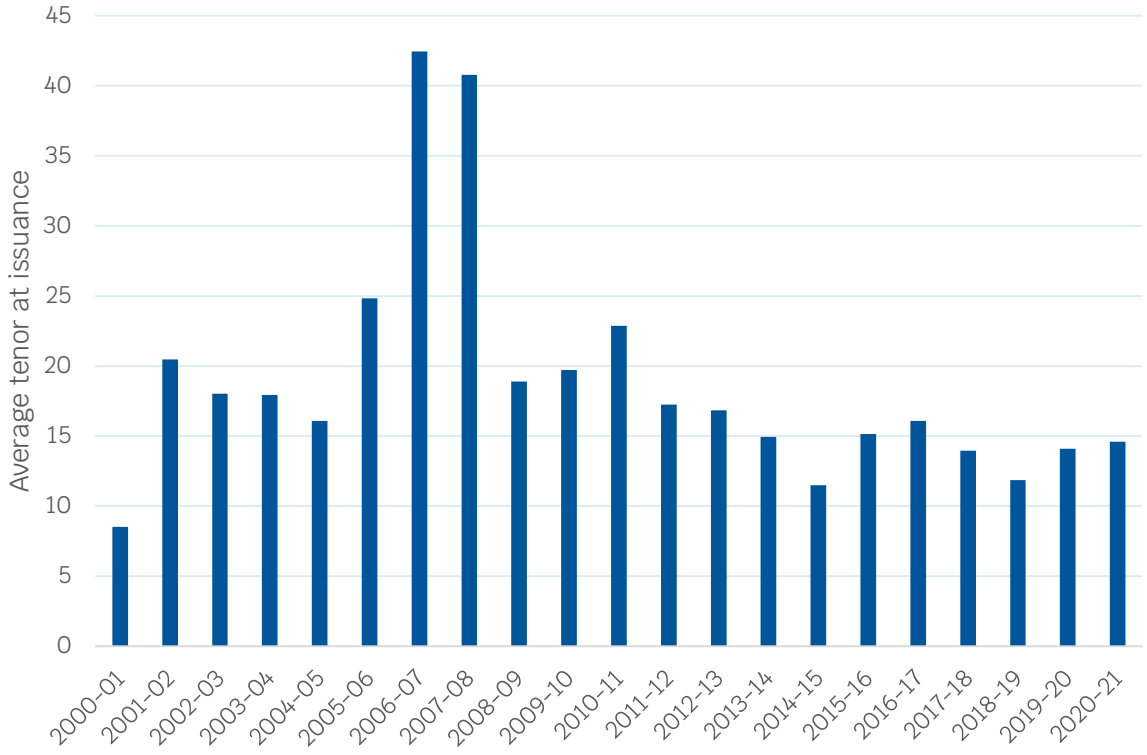
- Tenor-at-issuance analysis featured in the appeals process to date has only considered listed bonds. We have previously noted that listed bond issuance is a subset (roughly 2/3) of March 2020 water sector borrowings. The failure of tenor-at-issuance calculations to include shorter-term bank debt means point estimates should be interpreted with caution and treated as an upper bound.
- iBoxx years-to-maturity and sector tenor-at-issuance are liable to be distorted by the near-term issuance of ultra-long tenor bonds. Under the approach favoured by disputing companies this would extend the trailing average irrespective of whether additional outstanding debt is captured by the longer trail.
- The resulting trailing average may result in an allowance that is too high to be reasonable when considering the sector's actual cost benchmarks. The use of a 20 year collapsing average would return a 4.95% embedded debt allowance. This is materially higher than the cross checks in the CMA's working paper and continues to overfund 9 out of 10 WaSCs relative to actual costs. It therefore cannot be considered to provide a reasonable allowance for the sector.

3.16 Even if the CMA is minded to base its decision on length of trailing average on tenor-at-issuance, we submit that 15 years as a point estimate is well justified by the available evidence of tenor-at-issuance for water sector bonds (Figure 3.1). This is as:

- Figure 3.1 shows that the average tenor-at-issuance for water sector bonds over the most recent PR14-PR19 period is 15.4 years.
- The median of all years in the 2000-2020 period from Figure 3.1 is 16.8 years.[64] We advocate that the CMA use this statistic as the simple average is clearly distorted by the ultra-high tenor issuance in 2005-2008 - likely due to a period of historically atypical yield curve inversion.
- The true figure is likely to be lower than these benchmarks due to the fact that the analysis covers listed bonds only, and so does not capture shorter tenor bank debt.
- A 15 year trail represents an evolutionary change from the 10 years used at PR14 that fairly balances the interests of companies with longer and shorter refinancing cycles
- A 15 year collapsing average is markedly better-aligned with the CMA's cross checks from actual data.

[64] At the roundtable hearing we mentioned a figure of 17.7 years; this was calculated on a calendar year basis using a slightly smaller dataset of bonds than used in the current analysis.

Figure 3.1: Tenor-at-issuance for water companies, 2000-2021



Source: Ofwat analysis of Refinitiv, Bloomberg, and Capital IQ data

3.17 We consider that our analysis improves on previous work by disputing companies, as company analysis does not exclude matured debt, floating-rate or callable debt, and hence is more comprehensive as an account of the tenor of bonds issued by the sector historically.

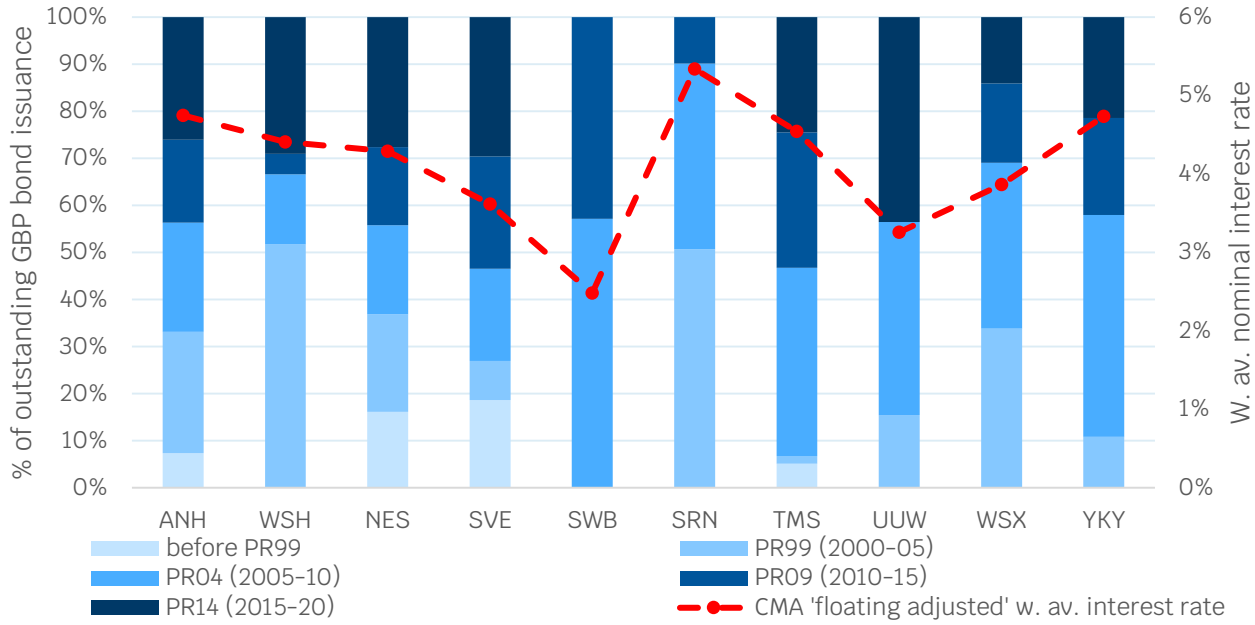
3.18 At the roundtable, the company side characterised the use of a 15 year trailing average as being 'retrospective' by disallowing a significant amount of debt that was previously allowed in price reviews and deemed efficiently-incurred. This is at best misleading.

3.19 We have never provided assurances that debt was efficiently incurred and so would be funded at future controls (and companies have not provided evidence to the contrary). The period in question (2000-05) not covered by the CMA's 15 year trailing average was also largely not covered by the 10 year trailing average period used at PR14, whose endpoint was in 2014.

3.20 In any case, the impact of debt from the 2000-05 period or before is not the key consideration when considering the challenge faced by each company relative to the 4.52% benchmark provisionally chosen by the CMA in its working paper.

Figure 3.2 breaks down the proportion of outstanding GBP-denominated bond issuance into control period of issuance.

Figure 3.2: Outstanding GBP-denominated bond issuance by control period and weighted average nominal interest rate at 31 March 2020.



Source: Ofwat analysis of Refinitiv, Bloomberg, Capital IQ data and CMA cost of debt working paper

3.21 Our analysis shows that there are several companies with a much larger share of bond debt from the period pre 2005 than Anglian and Yorkshire Water, but significantly lower March 2020 cost of debt assessed using the CMA's 'floating adjusted' data. For instance, Wessex Water has a nominal interest rate of 4.02%, but 34% of its outstanding GBP-denominated bond debt is from 2000-05, compared with 26% for Anglian and 11% for Yorkshire Water. In other respects Wessex Water has characteristics similar to the notional company.[65] This suggests that debt captured by the length of trail may be a distraction from more important issues which are causing company underperformance against the cost of debt working paper's 4.52% index-led benchmark (e.g. high gearing and expensive swaps).

Balance sheet-led benchmarks

3.22 We summarise below in table 3.1 the various exercises that use robustly-sourced data to calculate reference points for the efficient cost of debt, using actual cost

[65] Wessex has gearing (66%) and index-linked debt share (35%) close to the notional assumptions of 60% and 33%, respectively. It also does not have a securitised structure.

data. Save for 'Floating-adjusted' APR-led approach – sensitivity 2', we have referenced all data in previous submissions to the CMA. Overall, the data suggests there is little basis for an allowance higher than 4.5%, and indeed significant support for lower figures.

3.23 We include 'Floating-adjusted' APR-led approach – sensitivity 2' as disputing companies suggest data as at 31 March 2020 is unduly influenced by company use of revolving credit facilities to address Covid-19 liquidity risks. In fact, the underlying data suggests that in each of the years, floating rate debt has averaged more than 10% of total debt issued by water and sewerage companies.

Table 3.1: Balance-sheet led approaches

Data source	Description	WaSC average	WaSC median
Post-swap business plan (App 20) submissions	Company-assured submissions of balance sheet debt as at 31 March 2018. Company data is unadjusted except for the CMA's view of long term RPI inflation. Does not reflect impact of debt financed in the 31/03/2018 – 31/03/2020 period and so is an overstatement.	4.49%	4.73%
PR19 'balance sheet approach'	Company-assured submissions of balance sheet debt as at 31 March 2018 adjusted for debt refinanced to 31/03/2020. Calculations based on 'pure debt' cost using 2020 business plan (App20) submissions, and excluding swaps and other non-standard debt instruments.	4.17%	4.37%
'Floating-adjusted' APR-led approach (Ofwat)	'All-in' cost of debt as at 31/03/2020 based on audited data reported by companies in their annual performance reports. Adjusted for higher liquidity drawdown due to Covid-19 in 2020.	4.17%	4.41%
'Floating-adjusted' APR-led approach – sensitivity 1 - (CMA)	'All-in' cost of debt as at 31/03/2020 based on audited data reported by companies in their	4.31%	4.41%

	annual performance reports. Adjusted for higher liquidity drawdown due to Covid-19 in 2020.		
'Floating-adjusted' APR-led approach – sensitivity 2 (Ofwat)	'All-in' cost of debt based on audited data reported by companies in their annual performance reports for 2018, 2019 and 2020. Adjustment for higher 2020 floating debt is implied by averaging over 3 years.	4.30%	4.34%
Notional-actual approach (CMA)	Cost of debt using notional assumptions for fixed and index-linked debt and company-level costs as at 31/03/2020	4.45%	4.54%

3.24 We expect that disputing company submissions will in their 27 January and subsequent submissions seek to provide the CMA with significant additional analysis contrived to result in a higher figure than these benchmarks.[66] We submit that the CMA's review of this analysis should bear in mind the upward biases already embedded in its use of benchmarks from the APR-led data, when considering 'in-the-round' whether its final determinations allowance is fair:

- **Swap costs:** We estimate that swap costs inflate the average WaSc cost of debt benchmark by around 20-30bps.[67]
- **Yield-at-issuance:** We reported as part of our December submission that using interest rates implied by yield-at-issuance rather than coupon rates lowered the average interest cost of our outstanding bond sample by 8bps.
- **Gearing:** The weighted-average cost of debt reflects sector gearing of 70%, vs. the notional assumption of 60%. Gearing is a known driver of risk and hence higher yield, as recognised e.g. by credit rating agencies.
- **Cost of floating rate debt:** The CMA's 'floating-adjusted' approach assumes the cost of floating rate debt is approximated by a 6 month trailing average of the iBoxx A/BBB. In practice floating rate debt tends to be priced at a margin above LIBOR. We propose that a conservative assumption would be 6 month

[66] For example, a representative appointed to set out the disputing company view referenced companies financed with as much as 54% floating rate debt at the cost of capital roundtable. This reference is to the floating rate debt of Hafren Dyfrdwy, a small company owned by (and consolidated in the accounts of) Severn Trent Water. We do not consider the financing arrangements of Hafren Dyfrdwy should influence the calculation of the debt costs for the notional structure.

[67] Based on comparing post-swap App20 business plan data with the pre-swap equivalent.

LIBOR + 100bps. Alternatively the CMA may wish to use the App20 tables to inform its own assumption from instrument-level data.

Floating rate and EIB debt

3.25 The disputing company side has suggested that assuming a share of floating rate debt has not been adequately signalled, or is a 'retrospective' step that increases the interest rate risk faced by companies.

3.26 We have clearly signalled to companies early on that efficient companies will issue a diverse range of instruments. As set out by Philip Fletcher in 2001: '…an efficiently-financed company would be one that retains the flexibility to respond to changing conditions; it would be likely to have a balanced portfolio of debt, with a mix of term and interest rate structures that diversifies its risks, including refinancing risk as well as interest rate, currency and inflation risks.'[68] Considering these types of debt in allowance setting is therefore consistent with long standing Ofwat policy to encourage such issuance. We also note that floating rate debt was implict in the approach to calculating the cost of debt set at PR09.[69]

3.27 To the extent that these instruments are already liabilities embedded in most companies' balance sheets, the exposure to interest rate risk already exists. Given that all but one of the companies have a share of floating-rate borrowings and that the March 2020 sector average was around 15%, it seems reasonable to reflect this widely-held instrument in both index-led and balance sheet-led benchmarks. Moreover, providing an allowance reflecting this cost improves the alignment of revenues with costs in a way that is liable to reduce the risk faced by companies.

3.28 The company side has criticised the CMA's suggestion that an appropriate 'matching adjustment' to the 20 year collapsing trailing average would be around 40bps to reflect EIB and floating rate debt. It was proposed that the maximum defensible adjustment would be 20bps, based on their own analysis.

3.29 Despite requesting it on 20 January 2021, companies have not yet shared this analysis with us. Irrespective of its merit however, the matching adjustment should consider factors more widely than the impact of these two types of debt. If actual benchmarks are all lower than the 20 year collapsing trailing average, this either points to miscalibration of the index or structural outperformance. Both factors constitute justification for making an adjustment, the size of which does

[68] Speech by Philip Fletcher, 'Restructuring Glas', Schroder Salomon Smith Barney Sterling Bond Community Conference, February 9 2001.
[69] Ofwat, 'Future water and sewerage charges 2010-15: Final determinations', December 2009, p. 138.

not need to be based on a bottom-up calculation of the impact of each contributory factor.

3.30 Any 'matching adjustment' is in any case not central to the CMA's view that the appropriate return is 4.52%. The CMA's notional-actual cross check range of 4.45%-4.54% avoids any controversy over the use of EIB or fixed rate debt by using the notional split of index-linked and fixed-rate debt.

New debt

3.31 The company side suggested that recent evidence on the ability of companies to outperform the iBoxx A/BBB benchmark should be discounted due to the small sample size.

3.32 In our initial response to the cost of capital working papers, we referenced bonds issued by companies with credit ratings that are comparable to that assumed for the notional structure, since our final determinations.[70] These eight instruments suggest consistent outperformance in a range from 13-40bps after controlling for tenor and credit rating. This evidence cannot in our view be so easily dismissed, particularly taken in the context of previously-submitted evidence from traded yields also suggesting consistent outperformance. If there was negligible impact, we would expect to see underperformance and outperformance clustered around an average close to zero, rather than the persistent outperformance which is in practice a feature of the evidence. We note even more striking outperformance from the issue of £300m of fixed-rate bonds yielding 0.875% by United Utilities on 25 January.[71] This is in contrast to the iBoxx A/BBB yield on the same day of 1.87%.

3.33 Were the CMA to decide not to make an adjustment based on its reasoning from the cost of debt working papers, this material and persistent outperformance should at least be considered as part of the CMA's 'in-the-round' assessment of asymmetry of expected returns and evidence base for its 'aiming-up'.

Share of new debt

3.34 The company side proposed a figure for new debt share of 12.5%, based on a 20 year trailing average, and suggested that it would be appropriate as an alternative

[70] Ofwat, 'Cost of capital – initial response to the working papers', pp.50 table 3.2.
[71] Cbonds, 'New bond issue: United Utilities Water issued international bonds (XS2291328735) with a 0.875% coupon for GBP 300.0m maturing in 2029', 22 January 2021

estimate to infer a tenor-at-issuance of twice the March 2019 weighted average years-to-maturity of 14 years – or 28 years.[72]

3.35 Under the specific scenario of debt issued at a constant rate each year, with identical tenors, and over a period of time equal to the tenor, we agree that average tenor at issuance will be twice the weighted-average years to maturity. This is not, however, the case for the water sector's actual issuance, given the range of different tenors and variable rate of sector issuance. Average tenor-at-issuance cannot therefore be safely assumed to be double the weighted-average years-to-maturity – indeed our analysis from Figure 3.1 suggests it must be much lower than 28 years.

3.36 The company figure of 12.5% is based on the assumption of a 20 year trailing average and does not reflect any contribution from new debt issued to finance RCV creation.

3.37 We do not accept that 20 years is a suitable length of trailing average for setting the allowed cost of debt, and consider that a 15 year trailing average in line with the CMA's working paper is a more evolutionary approach and is also better supported by the evidence. In terms of the contribution of RCV growth, we consider that the CMA's addition of 3.9% to the end-of-period 33% may be an underestimate of the appropriate figure. This is because it is based on applying the notional gearing assumption to the change in 2020 and 2025 real-terms RCV. We consider this would in practice understate the total share of new debt, as debt financing would be issued to pay for the cost of new infrastructure in the prices of a given year (i.e. in nominal terms). We illustrate below in Table 3.2 the impact of these changes.

[72] The March 2020 weighted-average years-to-maturity for the sector is 13 years.

Table 3.2: Notional new debt share considering real and nominal RCV growth

	Description	Real RCV	Nominal RCV
A	Starting 2020/21 RCV (£m)	72,757	75,909
B	Ending 2024/25 RCV (£m)	77,088	89,071
C	Notional gearing	60%	60%
D = B x C	End 2024/25 notional debt	46,253	53,443
E	End of period share of refinancing new debt[73]	33%	33%
F = B x E	End of period refinancing new debt (£m)	15,418	17,814
G = B-A	RCV growth (£m)	4,331	13,161
H = C * G	Notional RCV new debt (£m)	2,599	7,897
I = F + H	Total end of period new debt	38.95%	48.11%
J = I / 2	Average new debt over 2020-25	19%	24%

Source: Ofwat analysis of final determinations data

3.38 We note that the nominal RCV in Table 3.2 is predicated on the inflation profile used at final determinations (2.1% CPIH and 3.1% RPI on average over 2020-25) that does not capture the near-term deflationary impacts of the Covid-19 crisis. However, as long as inflation is on average positive over 2020-25 (as seems likely), using the real-terms figures to formulate the notional share of debt assumption will result in an understated estimate.

3.39 The CMA voiced interest in understanding whether weight should be placed on point estimates of the new debt share implied by company forecasts. We concluded for PR19 final determinations that this data implied a 15% average share of new debt and have shared this calculation with companies as part of the query process. We note from the timing of companies' revised business plan data (which were submitted in April 2019) that forecasts of debt issuance would have been influenced by our provisional decisions on allowed totex for our initial assessment of plans in January 2019. At our initial assessment of plans stage, we allowed £48.8bn, while at final determinations, this figure increased to £49.7bn. This indicates that company forecast debt issuance profiles based on the former figure may understate companies' plans to issue new debt over 2020-25.

[73] Calculated using the formula N=T/M, where N = refinancing debt %, T = length of control period (5 years) and M = trailing average period (15 years)

4. Company-specific adjustments

Embedded debt

4.1 If small size attracts a financing disadvantage, it is reasonable to ask whether – after a period of significant RCV growth[74] – this still applies to Bristol Water.

4.2 As the WoC one size down from Affinity Water (which did not ask for a small company premium at PR19); and with the ability to issue debt frequently and at a discount to the iBoxx benchmark and issue its own bonds, we consider that the arguments justifying an uplift for Bristol Water are much weaker than at previous price reviews. Restated at 2.9% RPI, the company's indicative weighted-average cost of debt from the 2020 Annual Performance Report (4.75%) remains lower than two WaSCs (Yorkshire and Southern Water).

4.3 We accept that Bristol Water may have historically faced an issuance premium to the iBoxx A/BBB as a smaller company. This is however much less clear about its recent issuance (e.g. its Sun Life Loan) which suggests a discount to the iBoxx when tenor is controlled for. The implications of this are that the blended average of Bristol Water's historic and recent issuance is liable to demonstrate a lower weighted-average small company premium than the average small company premium estimated on the whole span of historical WoC bond data (which is largely concentrated in the pre-2010 period). Over time this might reasonably be expected to tend to zero. We would welcome the CMA's consideration of the question of at what point a small size uplift ceases to be appropriate in its final determination.

4.4 The panel inquired as to whether the cost of debt working paper's point estimate logically implied that the small company premium ought to be roughly the same as the 35 basis points used at PR19 final determinations. We consider that this depends on which approach is used:

- **Index-led approaches:** The constituents of the 35bps from PR19 final determinations were a 25bps outperformance wedge for the sector and the small company premium of 10bps. We continue to consider a 25bps adjustment to be appropriate, therefore we consider a 35bps small company premium remains consistent with the use of a 4.5% index-led sector allowance.

[74] Bristol's RCV has more than doubled in the past decade.

- **Benchmark-led approaches:** We have previously supplied Europe Economics analysis suggesting a 10bps premium for small WoCs over larger companies when comparing spread to benchmark gilt. This would conceptually be the most like-for-like uplift to apply to a large company benchmark based on balance sheet data.
- **Hybrid approaches:** It would be possible to apply a 'matching adjustment' to consider the broader issuance of small WoCs as well as the wider sector. We agree that WoCs have not benefited from EIB debt and so this should not feature in any adjustment. As evidenced in the 2020 APRs, small companies do make use of floating rate debt and so it would be appropriate to reflect this.

New debt

4.5 We continue to consider that the analysis we have provided on Bristol Water's Sun Life bank loan and its 19bps implied discount to the iBoxx A/BBB after controlling for tenor and credit rating is compelling evidence that the company does not face an ongoing debt issuance premium.

4.6 Bristol Water argues that it should receive an uplift of 15bps based on comparing larger company debt pricing with its recent issues. Given the evidence that Bristol can outperform the iBoxx A/BBB, were the CMA to allow a small company uplift on this basis, this ought to prompt a review of whether the unadjusted iBoxx A/BBB remains the appropriate benchmark for large companies.

Share of new debt

4.7 We note comments made by Bristol Water in support of a bespoke small company notional new debt assumption of 5% due to small company debt issuance being inherently 'lumpy' and small companies being expected to have a share of new debt ranging from 0-10% over 2020-25.

4.8 We understand the 0-10% range to be inferred from April 2019 business plan forecasts of new debt issuance and embedded debt paydown rather than a notional approach.[75] Using the formula (N = T/M) for refinancing new debt, a trailing average 'T' of 15 years and the contribution implied by real RCV growth would however result in a significantly higher range of new debt share of 16-28% for the 4 smallest WoCs.

4.9 From a company-specific perspective we also note Bristol Water's comment from its hearing that it refinanced 'around a third' of its debt in 2018. As 2018 is roughly

[75] Ofwat, 'PR19 final determinations: Allowed return on capital appendix', December 2019, p. 77, Figure 6.1.

the midpoint of the PR14 control period, it can be inferred from Bristol's forecast 0% new debt share over 2020-25 that the average over the two periods is around 1/6, or around 17%. This is well within the range of 15% - 20% which demarcates the sector estimates predicated on a 20 and 15 year collapsing trailing average, respectively. This perspective therefore also fails to amount to a compelling case for a company-specific assumption different to that of the sector.

Cost of equity

4.10 We summarise below our multiple objections around why an uplift to Bristol Water's allowed return on equity on account of its size would inappropriate:

- Bristol is the only water-only company that argued the case in principle for a cost of equity uplift during PR19, and then only after its draft determinations. It did not formally seek a company-specific adjustment for the allowed return on equity during the PR19 process.
- There is little empirical support for a cost of equity premium applying to small companies in general.[76]
- Water-only companies operate under the same incentive and regulatory protection mechanisms as other companies we regulate, these mechanisms offer all companies a similar level of protection to systematic risk. If water only companies were exposed to increased risk, we might expect them to maintain lower levels of gearing under their actual structures to provide increased protection to cost shocks. We do not see this in practice. As at 31 March 2020, the average gearing level for the water and sewerage companies (excluding Hafren as a company under Severn Trent ownership) was 69.8%. The average gearing level for the water only companies was 70.8%.
- Given the substantial premium claimed by Bristol (0.95%), this might be expected to show up in lower market-to-asset ratios implied by equity transactions for small water companies vs. large ones. However, we see no correlation between the market-to-asset valuations and the application (or not) of a company specific adjustment to the allowed return. We have set out transaction premia in previous submissions to the CMA; transaction premia for South Staffs and Dee Valley Water have been at material premia to RCV (both exceeding 40%) despite neither company benefiting from a company specific adjustment to the allowed return at PR14; lower transaction multiples were reported for Bournemouth Water and Portsmouth Water (both below 30%) despite both companies receiving a company specific adjustment to the allowed return on debt at PR14.

[76] See e.g. Aswath Damodaran, 'The small cap premium: where is the beef?', April 2015

- Bristol Water's definition of operational gearing is different to the accepted definition in the academic literature, which concerns share of fixed costs.
- Bristol Water has not demonstrated a link between its operational gearing metrics and systematic risk exposure. Its metrics rely on the incorrect assumption that the entirety of RCV run-off and allowed return acts like an equity buffer against cost shocks – ignoring the corresponding costs (e.g. debt service, maintenance) these items are earmarked to cover.[77]
- When applied to other WoCs, the relationship between RCV and calculated size of asset beta uplift (as proposed by Bristol Water) is unstable. The results demonstrate this to be a flawed measure that produces counterintuitive outcomes (e.g. smaller SES Water receiving a lower uplift, Portsmouth receiving a 128% uplift).[78]
- Bristol Water claims that its small size implies thin profit margins, but this is not the case when comparing the ratio of its notional operating profit to revenues (29%) to that of Severn Trent (29%) and United Utilities (32%). [79]
- Bristol Water claims that an uplift is required to offset its view of a 50bps ODI penalty on a mean expected basis. If the CMA determines its ODI regime is too stretching it should address the issue at source. Bristol's proposal would blunt its incentives by effectively prepaying a proportion of its expected underperformance payments.
- Bristol Water argues that allowing its proposed uplifts on cost of debt worsen notional financeability, requiring a further equity uplift. This illustrates the limitations of notional AICR as a cross-check on the WACC and why the CMA should consider cashflow reprofiling or other solutions rather than a financeability uplift.

[77] Ofwat, 'Response to Bristol Water's 27 May submission', p9
[78] Ofwat, 'Response to Bristol Water's 27 May submission', p10 Figure 2.1
[79] Ofwat, 'Response to Bristol Water's 27 May submission', pp. 9-10

5. Gearing Mechanism

5.1 Our PR19 final determinations introduced a gearing mechanism, aimed at addressing a gap in the regulatory regime, that regulatory arrangements could distort company incentives on choosing financial structures without full consideration of the potential impacts on customers and wider stakeholders.[80]

5.2 In its provisional findings, the CMA decided not to include the gearing mechanism, though it recognised our concerns as legitimate. We have previously set out our views on this issue which we do not repeat here.[81]

5.3 However, at the cost of capital roundtable, the CMA questioned what alternative solutions could be adopted to address the regulatory distortions we have set out, with particular reference to the existing cash lock up licence condition arrangements and also our response to the provisional findings which suggested the CMA should consider alternatives to the gearing mechanism.

5.4 Our response to the provisional findings referenced that the CMA could make further changes to the gearing mechanism (for example amendments to sharing rates or glidepath). Our response also said:

> *'Alternative solutions, such as a hard stop on the level of gearing or tightening the credit rating requirements, are significantly more intrusive than the incentive mechanism applied in our determination. Furthermore, such options would require licence changes to implement. […] More intrusive requirements also go against the incentive based principles of economic regulation. An incentive based mechanism allows for an element of choice for companies that rules based approaches may not.'*[82]

5.5 We offer the following comment in response to the question raised by the CMA:

- The gearing mechanism is an incentive mechanism. It has properties that are consistent with our incentive based regulatory approach as a mechanism that can be applied consistently to all companies when making future financing choices. This has benefits over a more prescriptive approach as it allows companies to make their own choices in response to the mechanism. Our view is the incentive

[80] Ofwat, 'Aligning risk and return technical appendix', December 2019, section 9.3, pp. 125–131.
[81] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to CMA provisional findings', October 2020, section 7, pp. 87–100.
[82] Ofwat, 'Risk and Return – response to CMA provisional findings', October 2020, pp. 92–93, paragraphs 7.23–24.

mechanism (or some refined version of it) should be included in the CMA's final determination.

- If the CMA remains concerned about the speed at which companies could respond to the incentive, it could amend the glidepath. We remind the CMA that the glidepath was introduced in our final determinations drawing on a proposal set out by Yorkshire Water in its draft determination response. The glidepath in our final determination started at 74% as at 31 March 2021, falling by one percentage point each year to 70% as at 31 March 2025. Yorkshire Water's response to our draft determination proposed a glidepath starting at 78% at 31 March 2021, falling by 1.6 percentage points each year to 70% at 31 March 2025. In proposing the glidepath, Yorkshire Water stated:

  'We believe that the introduction of a glide path on this basis provides an appropriate balance between encouraging gearing reduction and providing Yorkshire Water the time to achieve that reduction in the most efficient and sustainable manner possible for the long-term benefit of its customers. In summary, Yorkshire Water confirms it will apply the default sharing mechanism'.[83]

- If the CMA remains concerned about the potential cost to companies of adopting the mechanism, it could amend the sharing rate.
- Alternative approaches such as adjusting the applicable level of the credit rating trigger in the cash lock up licence conditions or introducing a hard gearing cap would require further consultation and consideration, which are beyond the scope of the CMA's determination. Our view remains that the CMA should retain our gearing incentive mechanism or some variation of it as stated above for this determination.

5.6 We remind the CMA that the absence of a mechanism to directly incentivise companies (and their investors) to take account of customer interests in their financing choices remains a regulatory concern.

5.7 We reference, that in August 2020, Moody's commented on the swap rephasing process undertaken by Yorkshire Water (which followed swap restructuring processes carried out in previous years). Moody's reference the rephasing exercise was carried out in order to maintain covenant headroom and reference such restructuring is 'economically equivalent to new super-senior borrowing' and is 'credit negative'.[84] Moody's previous credit opinion had already referenced a mark-to-market gearing, taking account of the fair value of borrowings, as 130%

[83] Yorkshire Water, 'Financeability – Yorkshire Water Draft Determination Representation', pp. 30-31.
[84] Moody's, 'Yorkshire Water Services Limited – Swap amendments weaken covenant protections', 27 August 2020, p. 1, paragraphs 2-3.

of RCV as at March 2019,[85] and a 'scorecard-indicated outcome' from its grid assessment of Baa3.[86] While the actual credit rating assigned by Moody's is Baa2 (negative), it is unusual for a higher credit rating to be assigned than that indicated by its scorecard.

5.8 We have welcomed the stated aim of Yorkshire Water to reduce its gearing levels, set out in its business plan and which it stated publicly as far back as 2017. However, we are concerned that the steps taken by Yorkshire Water, are not consistent with that aim. Nor do they appear to be the actions that might reasonably be expected of a public service company that is seeking to maintain financial resilience in the long term.

[85] Moody's, 'Yorkshire Water Services Limited Update following CMA appeal and downgrade of Class A bonds to Baa2', March 2020, p. 6.
[86] Moody's, 'Yorkshire Water Services Limited Update following CMA appeal and downgrade of Class A bonds to Baa2', March 2020, p. 10, exhibit 11.

6. Annex A – Response to references made by disputing companies to past Ofwat statements

6.1 At the cost of capital roundtable and in their submissions to the CMA, disputing companies (or their advisers) have referenced previous statements made by Ofwat as supporting a need for the CMA to set an allowed cost of debt by reference to a long term, 20 year trailing average. References made by the disputing companies to previous statements have been made in the absence of relevant context. In this Annex we respond to the claims made.

Issues raised by disputing companies

6.2 In its response to the working paper, Anglian Water makes three citations which we state below:

> "(i) Ofwat has expected companies to issue long-dated debt over time noting on 1991 that "the industry needs long term finance. Much of this is likely to be in the form of long term bonds" and that "it is clearly appropriate to consider returns over the life of assets, which are long-lived in the water industry, and not simply the period of current borrowings.
>
> (ii) Philip Fletcher commented in the early 2000s on Ofwat's statutory duty to ensure that efficient companies could finance the proper discharging of their functions: "The key here is how efficient the company has been in structuring and managing its finances…Given the exceptionally long lives of system assets, this would suggest the need for a relatively long average duration and an interest rate structure aimed at maintaining a broadly stable real interest cost over time".
>
> (iii) In July 2002 the water companies' licences were amended to a rolling 25y notice period with Philip Fletcher highlighting that "customers' interests are best served by a stable regulatory environment that keeps costs down. The longer notice period will enable companies and their investors to plan ahead more securely."[87]

[87] Anglian Water, 'Initial response to the CMA's working papers on cost of capital', January 2021, p. 6, paragraph 26.i-iii

6.3 GIIA also quote, claiming that Ofwat supported prudent long-term debt in the early 2000's and was comfortable with the refinancing and restructuring trends between 2004 and 2007

> "Indeed, it is clear from remarks made by Ofwat executives in the early 2000's that the regulator expected water companies to take prudent long-term debt at the time. In 2001, Philip Fletcher, then Director General said: "The key here is how efficient the company has been in structuring and managing its finances…Given the exceptionally long lives of system assets, this would suggest the need for a relatively long average duration and an interest rate structure aimed at maintaining a broadly stable real interest cost over time
>
> In a discussion paper issued in 2011, Ofwat also set out that it was clearly comfortable with the refinancing and restructuring trends between 2004 and 2007: "The refinancing trend began following the 1999 price review. Between 2004 and 2007, the pace of this increased, largely because the companies were able to take advantage of long tenor debt available at very cheap rates. While the availability of this cheap debt allowed the companies to outperform our assumptions at the 2004 price review, customers benefit from this cheaper financing over time through the price setting process." [88]

Our response

6.4 There is nothing in the statements Ofwat has made in the past that to support the cost of embedded debt should be based on a 20 year average, the point is just that companies should not finance themselves on a the sector can make use of debt spanning periods longer than the 5 year period of a control. We submit that any claims made by companies that relate to past Ofwat source material should be read in full as quotations reference to the CMA have been made on a selective basis.

1) Company claims that statements made in 1991 support the use of a 20 year trailing average for the embedded cost of debt at PR19

6.5 Anglian Water has made reference to a consultation paper on the cost of capital published in July 1991 shortly after the privatisation of the sector.[89] It is relevant to consider the wider context that water companies were privatised with minimal debt on the balance sheet. There was an expectation at privatisation that

[88] GIIA, 'Cost of Capital and Cost of Debt Consultation Response', January 2021, p. 3
[89] Ofwat, Cost of capital – a consultation paper, 1991, page iii

companies would need to raise debt to finance investment activities, and this statement is simply reaffirming the position that the allowed return on capital should take account of both the allowed return on debt and the allowed return on equity for a notional gearing level. And that portfolio of debt should include long term debt instruments. However, there is nothing to suggest that a 20 year tenor of embedded debt is appropriate or that a 15 year tenor of debt would be inconsistent with this quote.

2) Philip Fletcher's reference to our statutory duties

6.6 The extract referenced by the disputing companies is a partial extract from a speech Philip Fletcher made in relation to Glas Cymru and its acquisition of Dŵr Cymru. The extracts referenced by the disputing companies do not include, for example, a reference in the preceding paragraph that said 'it should not be assumed that we will always allow a pass through of high cost debt'. We provide the full extract from Philip Fletcher's speech below for reference:

6.7 Extract from "Restructuring - Glas"[90], the speech given by Philip Fletcher to the Schroder Salomon Smith Barney Sterling Bond Community Conference on London on 9 February 2001:

> "Assessment of the appropriate cost of capital
>
> There is one respect in which I can see the 'mismatch' argument may have a point. This relates to the cost of capital. It is common practice among UK regulators, including the Competition Commission, to use at each price limit review a forward-looking estimate of the weighted average cost of capital. In deriving such an estimate, reliance is placed primarily on recent market evidence of the key variables – risk-free rate and risk premiums – as this provides the best information about the markets' expectations. But companies – especially infrastructure companies – do not finance themselves for discrete periods of five years at a time: they seek to match their financing structure to their cash flows, which in long-life asset-based businesses such as water arise fairly evenly over long periods of time. So does the regulators' approach not induce the risk of a mismatch in respect of long-term financing obligations?

[90] Restructuring – Glas, 'Talk Schroder Salomon Smith Barney Sterling Bond Community Conference, London', 9 February 2001.

> There are several answers to this question. Perhaps the most helpful to this audience is: no, provided companies finance themselves efficiently. This is because I have a duty to ensure that the efficient companies can finance the proper discharge of their functions and to set price limits accordingly. This is where the 'bankability' checks come in.
>
> We look to ensure, by reference to the key coverage ratios, that each company, provided it is efficient, will be able to sustain the kind of credit rating that, in normal market conditions, will enable it to raise additional finance readily and at reasonable cost. In some cases, the licences require companies to maintain an investment grade rating. This policy led us in the 1999 reviews to make special allowances for the embedded cost of fixed rate debt taken out when interest rates were at substantially higher levels, but it should not be assumed that we will always allow a pass through of high cost debt. In saying this it is certainly not our intention to prejudice appointees' ability to access the long-end of the market.
>
> The key here is how efficient the company has been in structuring and managing its finances. In this context an efficiently-financed company would be one that retains the flexibility to respond to changing conditions; it would be likely to have a balanced portfolio of debt, with a mix of term and interest rate structures that diversifies its risks, including refinancing risk as well as interest rate, currency and inflation risks. Given the exceptionally long lives of system assets, this would suggest the need for a relatively long average duration and an interest rate structure aimed at maintaining a broadly stable real interest cost over time.
>
> I hope that provides some clarity about the treatment of embedded debt."

3) Reference made at the time of the adoption of 25 year licences

6.8 The third quote referenced by disputing companies is to a quote made in the press notice that accompanied the announcement that we proposed an increase in the minimum notice period for the termination of company licences from 10 years to 25 years. The stated objective in extending the period of company licences was to reduce uncertainty. This statement does not have any direct implications for the trailing average that should apply at PR19.

4) Other statements made by past Directors General

6.9 It is possible that disputing companies, in the last stages of this appeal could seek to take other statements made by past Directors General or statements made in past Ofwat papers out of context. To the extent that any such material is relied upon by the CMA in making its final decisions, we submit that such statements should first be checked for accuracy with us. In the remainder of this section, we set out statements made by past Directors General, which make clear Ofwat's views on capital structure and evidence considered in setting the cost of debt.

> "… Nor would we offer any protection for the creditors of a company which got into difficulties as a consequence of its chosen capital structure. Our approach to capital structures in setting price limits at PR04 reflected our concern about the lack of track record for the highly geared model, and about the potential systemic risk for the industry arising from companies that lack financial flexibility." [91]

> "Companies have recognised powerful incentives to gear up over recent years. Yet Ofwat is concerned for customers that we should not finish up with a sector so highly geared as to present risks of brittle structures snapping in response to general business pressures. Hence Ofwat takes a close interest in company proposals and may require licence changes etc as appropriate." [92]

> "Some companies are responding to the challenges of the last review by seeking to reduce the cost of finance by taking on a higher proportion of debt finance. It is up to companies to manage their own capital structures. But don't think [our] price control approach forces companies to adopt higher levels of gearing. Indeed [we] will set cost of capital in a way that seeks to avoid forcing companies to adopt over-risky structures." [93]

> "Adopting higher levels of gearing could reduce the cost of finance at least temporarily– an important aim in an incentive based regime. But it is not costless and could reduce the financial flexibility of companies in the future. Any structure must be consistent with the long-term nature of the industry. If there is increased level of financial risk (eg re-financing risk) it is a matter for the

[91] Ofwat, 'Speech to Water UK city conference – Assessing the impact of the new regulation authority – Phillip Fletcher, Chairman, Ofwat', 20 April 2006, p. 6.
[92] Ofwat, 'What's expected of NEDs – The Regulator's Perspective - Philip Fletcher - Water UK Board Room Agenda event', 19 May 2005.
[93] Ofwat, 'City briefing – Philip Fletcher's presentation', 22 March 2002.

shareholders and lenders who adopt such structures. It is not a risk to be borne by customers which is where Ofwat needs to play a role." [94]

[94] Ofwat, 'The periodic review in context – Philip Fletcher', 22 January 2002.