Water Redeterminations 2020

Cost of Debt – Working Paper

January 2021

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1. Introduction and Executive Summary

1. In the Provisional Findings (PF), the CMA expressed a preference for a long-horizon, benchmark-based estimate of the cost of embedded debt at the notionally-capitalised company. We expressed caution about the use of actual costs, even as a cross check mechanism.[1]

2. We have received extensive feedback on these proposals, plus selected submissions relating to other components of the costs of debt. This consultation paper has been produced in order to:

   a) explain the CMA's updated interpretation of the evidence relating to embedded debt in the light of those representations; and

   b) in the light thereof set out clearly the CMA's proposed process for setting an updated cost of debt allowance in the Final Determinations; and

   c) as a result, provide updated estimates of the components of the cost of debt for this price control.

3. The methodologies and estimates in this report reflect the CMA's latest thinking but do not represent the allowance to be awarded in our Final Determination. A final decision on allowances will be taken by the CMA following this consultation process, taking full account of any new evidence provided, as part of our 'in the round' redetermination and in light of the applicable duties.

4. The structure of this paper is as follows:

   In **Section 2**, we summarise the cost of embedded debt approach taken by Ofwat in its PR19 Final Determination.

   In **Section 3**, we summarise the cost of embedded debt approach taken by the CMA in its Provisional Findings

   In **Section 4**, we explain our continuing preference for using a benchmark as the primary tool in setting the cost of embedded debt allowance. We confirm our assessment that the iBoxx A/BBB 10+ remains the most appropriate benchmark.

   In **Section 5**, we discuss the CMA's continuing preferences when measuring a benchmark but acknowledge that enhancements to our measurement techniques could lead to a better-calibrated estimate of the cost of embedded

[1] Provisional findings report, paragraph 9.340

debt. We consider that the Parties' suggestion of a collapsing average approach is a more accurate measure of costs related to the benchmark over the price control. We also note our updated preference for a 15-year collapsing average approach, suggesting a cost of embedded debt allowance estimate of 4.52%. This represents a change from the 20-year approach suggested in our PFs, taking account of the broader approach to financing used by companies and the appropriate estimate of costs implied by this broader approach.

In **Section 6**, we discuss the potential adjustments that may be appropriate to capture the range of financing options available to water companies. We consider that there appears to be insufficient evidence to support Ofwat's contention that water companies can consistently raise debt at lower than benchmark yields when measured on a like-for-like basis, but note that the inclusion of floating and EIB-style instruments into any calculation could reduce an estimate of interest costs by up to 40bps. We also note that factors leading to upward pressure on costs may not as easily be measured at the industry level. We consider that a 15-year collapsing average approach provides a simple, effective and independent approximation for efficiently incurred costs at the industry level without the need for further adjustments to our selected benchmark.

In **Section 7**, we discuss the potential to use actual costs when setting the notional allowance and note the various difficulties in measuring actual costs. We retain a preference for an approach primarily based on a benchmark in this price control, but acknowledge the need for carefully considered cross-checks.

In **Section 8**, we discuss the use of actual costs as a cross-check to our selected benchmark, elaborating on the CMA's previous concerns in this area. We note the multitude of potential 'actual' costs figures that have been submitted in evidence. We discuss our preference for a range when dealing with actual costs, and suggest 4.45% to 4.82% as a suitable cross-check range.

In **Section 9**, we consider all the issues mentioned above when updating our PF approach embedded debt estimate of 4.81% (nominal). While the underlying principles of our approach remain broadly consistent with our approach at PFs, we consider our updated approach and estimate of 4.52% (nominal) to be a more accurate estimate of the embedded debt costs of the notional-capitalised company. We conclude that the actual cross-check range does not suggest any 'matching adjustment' to our selected benchmark is required.

In **Section 10**, we reassess our approach to estimating new debt, noting that April – September provides a more appropriate measurement period that avoids any overlap with the measurement of embedded debt. We continue to note a lack of compelling evidence to support either an outperformance wedge or a forward rate adjustment. We update our nominal estimate of the cost of new debt to 2.19% from the 2.38% used in the provisional findings.

In **Section 11**, we reassess our approach to estimate the appropriate ratio of embedded and new debt, taking into account submissions from Ofwat and the impact of our updated approach to calculating embedded debt. We suggest an updated range for the proportion of new debt between 18% and 22%, and use a point estimate of 20% versus the 17% used in the provisional findings.

In **Section 12** we bring these new estimates together to suggest a total cost of debt allowance of 2.12% in CPIH-real terms. An allowance of 2.12% represents a 33bps reduction versus the 2.45% used in our provisional findings. The impact on WACC (at 60% gearing) would be a reduction of approximately 0.20%.

2. The Cost of Embedded Debt - PR19 Decision[2]

5. In this section we will briefly recap Ofwat's approach to estimating the cost of embedded debt at PR19. Ofwat considered evidence from two approaches:

   a) The balance sheet approach – analysing the actual cost of 'pure' debt on company balance sheets. Ofwat considered 'pure' to mean fixed, floating rate or index-linked instruments, but not 'non-standard' instruments and swaps.

   b) The benchmark index approach – calculating an estimate using the average of the A and BBB-rated IHS Market (iBoxx) GBP non-financials 10yrs+ indices, adjusted for market-implied interest rate rises embedded in the term structure of nominal gilts and reduced by a calculated 'outperformance wedge'.

6. Ofwat focused on the benchmark index approach to calculate its estimate and used the balance sheet approach as a cross check.

7. For the benchmark index approach, Ofwat calculated 10- and 15-year trailing averages of the 10+ A and BBB-rated indices and increased these estimates for the 0.25% market-implied interest rate rise embedded in the term structure of nominal gilts. For the Draft Determination this process suggested figures of 4.07% and 4.75% respectively. Ofwat then applied a 25bps 'outperformance wedge' to reflect its assessment that water companies have shown the ability to issue debt at prices lower than suggested by Ofwat's chosen A/BBB benchmark. Applying this outperformance wedge reduced Ofwat's estimates to 3.82% and 4.50% respectively. Ofwat picked the latter figure as its point estimate.

8. Ofwat checked this 4.50% estimate against its assessment of the weighted average pure debt cost in the sector (4.25%), and the company-level median (4.65%). It concluded that as the benchmark approach was close to the median for WASCs and large WOCs, and lay within the overall range, it represented a sufficient allowance for an efficient company while maintaining incentives for companies to raise finance in a cost-efficient manner over the long term.

9. Ofwat updated this analysis for the PR19 final determination – with the 15-year average of the index minus 25bps providing a point estimate of 4.47%. It compared this to updated analysis of the WaSC and large WoC median cost

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[2] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, Section 6.3

of debt (using its balance sheet approach[3]) of 4.45% and concluded that this was an appropriate estimate.

[3] Please note that the balance sheet analysis used by Ofwat in its PR19 process uses different data to the Annual Performance Report (APR) approach subsequently proposed by Ofwat. APR data will be discussed later in this document.

3. The Cost of Embedded Debt – CMA Provisional Findings[4]

10. On the balance of evidence, we saw a strong rationale for reliance on a benchmark index approach to estimating the cost of embedded debt. Even as a cross check, there appeared to be significant difficulties and complications with using actual debt costs to arrive at an estimate of the cost of embedded debt.

11. We considered that an average of the A and BBB index 10+ represented a reasonable range of credit ratings for a company with the notional capital structure, and that the long-term average length of maturity of the instruments in these indices (21.7 years for the A and 17.2 years for the BBB) was appropriate for assessment of debt costs in a regulated sector with long investment programmes and very long-lived assets.

12. We saw various benefits associated with a benchmark-derived approach to estimating the cost of embedded debt, including:

    a) allowing a reasonable and independent assessment of the costs likely to be faced by a company deploying the notional level of gearing. This is not necessarily represented by the average of actual debt costs when the substantial majority of water companies have gearing levels higher than the notional structure;

    b) avoiding the need for complex analysis of individual debt instruments to assess whether they were issued 'efficiently' (a process that would be impossible for the CMA to conduct within the redetermination timeframe); and

    c) the ability to set one cost of embedded debt allowance for the industry, while allowing companies to apply for individual allowances for specific circumstances (such as a size-based Company Specific Adjustment).

13. We did not agree with Yorkshire's arguments in favour of adopting actual costs as the basis for our estimate. In our view, there would be little to no incentive for companies to ensure that their debt costs were as low as possible if there were a 'cost-pass-through' mechanism in place. Again, independently assessing the 'efficiency' of every debt instrument used by every company in the sector would not seem to represent the effective use of a regulator's time and resources.

[4] Provisional findings report, paragraph 9.325 – 9.360

14. We also accepted that it can be reasonable for an individual company's actual costs of embedded debt to be higher than the benchmark during a single price control period. We agreed with Yorkshire's view that the date of issue was likely to be a significant factor in actual company debt costs, and that companies could thus out- or under-perform on debt costs depending on subsequent trends in interest rates. However, we did not see any evidence that particular companies faced structurally higher or lower exposure to this risk, and remained comfortable with setting one allowance for the industry (outside of the company specific adjustment process).

15. We did not consider there to be evidence to support the use of an outperformance wedge[5] as used by Ofwat. The evidence provided by the appellant companies strongly suggested that once tenor and credit rating are adjusted for, there was no evidence of water company outperformance.

16. In our assessment, comparing individual issuance yields without taking account of tenor or credit rating seemed inconsistent with the benchmark-led approach of estimating the costs achievable by a company with the notional level of gearing and appropriate credit rating. In addition, the performance wedge approach risked encouraging companies to shorten the tenor of their debt, which may not be in the best interests of customers over the long-term.

17. In our view, it was appropriate to extend the trailing average period for measurement above 10 years but we provisionally concluded that a period of 15 years was not sufficient. Given the average maturity of the benchmark indices (approximately 19.4 years when combined), as well as the long-term nature of debt financing within the water industry, we provisionally agreed with Anglian's view that 20 years would be a more appropriate measurement period.

18. We acknowledged that 20-years was longer than the average current maturity of debt within the sector but noted Anglian's and Ofwat's analysis which showed that 20% of industry debt was issued longer than 15 years ago. In addition, the use of shorter lookbacks could provide an inappropriate signal to companies that the regulator is encouraging them to shorten the tenor of their debt in order to reduce costs, potentially trading lower short-term costs for increased financing risk.

19. We noted that the use of a 20-year investment horizon also matched the investment horizon used throughout our calculation of other WACC metrics.

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[5] A reduction to a benchmark-based estimate to account for water companies' ability to issue at yields lower than suggested by market rates.

20. We applied our preferred methodologies to the iBoxx data to calculate our cost of embedded debt allowance. Our provisional estimate:

    (i) Used a lower bound equal to the 20-year trailing average of the iBoxx A-rated 10+ index. On end-July 2020 data, this would be 4.81%;

    (ii) Used an upper bound equal to the 20-year trailing average of the iBoxx BBB-rated 10+ index. On end-July 2020 data, this would be 5.23%

    (iii) Deflated these figures by our 2.00% CPIH estimate, to give a range of 2.76% to 3.16%, compared to Ofwat's PR19 figure of 2.42%.

4. Choosing an appropriate benchmark

Main Parties Views

21. There was agreement from Anglian[6], Bristol[7], and Northumbrian[8] that Ofwat's use of the iBoxx £ A and BBB 10+ indices was an appropriate benchmark for the measurement of the cost of debt. Yorkshire was concerned that this would suggest a credit rating that was not achievable for the notionally-structured company, and suggested that that cost of debt would be more appropriately set with reference to the BBB index alone.[9] In addition, Yorkshire placed much greater emphasis on actual costs being the basis for the allowance.[10]

22. In response to the CMA's PFs, Anglian stated that it agreed with the benchmark chosen (iBoxx non-financial 10+ A/BBB) as it reflected the target credit rating and the asset lives of the notional company, the average tenor at issue across the sector, had been proven to offer comparable yields at issue (versus water bonds) and was previously agreed in consultation between Ofwat and the sector to be the most suitable benchmark overall.[11]

23. However, the parties generally disagreed with the CMA's approach of setting the allowance based on the A-rated index as a proxy for falling rates, with the companies suggesting that this method was inconsistent with the notional credit rating underpinning the remainder of the price control determination, including the financeability assessment.[12]

24. In addition, in response to the CMA's PFs, Ofwat suggested that the A/BBB 10+ benchmarks may not have been appropriate for the whole of either a 15 or 20 year look back period, and that the notional company was previously funded to have credit metrics consistent with a higher rating than the CMA's Baa1/BBB+ target. Ofwat noted that on the basis of Moody's guidance the notional company in PR99, PR04 and PR09 controls would have been more consistent with an A3 rating. As a result, the 'past' notional company should have been able to issue at the level of just the A-rated index (rather than the average of the A/BBB) and this this index should be used to measure costs in

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[6] Anglian SoC, paragraph 1208
[7] Bristol SoC, paragraph 320
[8] Northumbrian SoC, paragraph 873
[9] Yorkshire SoC, paragraph 238
[10] Yorkshire SoC, paragraph 232
[11] Anglian's response to the provisional findings, paragraphs 411-413
[12] For example, Northumbrian response to the provisional findings, paragraph 307 and Ofwat's response to the provisional findings – risk and return, paragraph 4.37. We will discuss the suggested alternative 'collapsing average' approach in Section 5 where we assess the measurement of the chosen benchmark.

these time periods (or a suitable adjustment made to the A/BBB index over this time period).[13]

Figure 1: Ofwat data on past price control financial metrics

Table 4.5: Notional company (water and sewerage companies) credit metrics and Moodys (pre-2018)[115] guidance for an A3 rating

	PR99 (2000-05)	PR04 (2005-10)	PR09 (2010-15)	Moody's guidance
Interest Cover Ratio	>3x	Around 3x	Around 3x	n/a
Adjusted Interest Cover Ratio	n/a	Around 1.6x	Around 1.6x	≥1.6x
Gearing	Min 40%	Below 65%	Below 65%	<65%

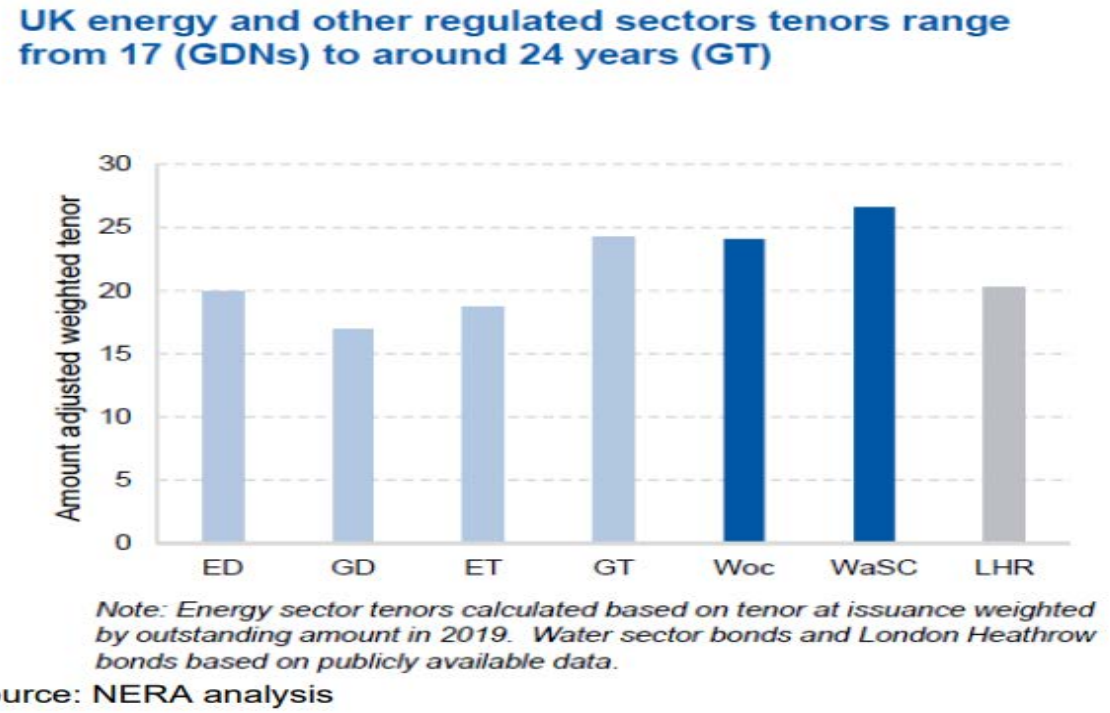
Source: Ofwat analysis of Moodys guidance and previous final determinations

Source: Ofwat Response to Provisional Findings

Third Parties

25. The Energy Network Association (ENA) submitted that it was important to consider the average tenor at issue when considering measures of embedded debt. ENA provided analysis by NERA (for ENA as part of the RIIO-2 process) that showed the average tenor at issuance for the outstanding debt of WoCs and WaSCs to be over 20 years.

Figure 2: NERA data on tenor at issue in regulated sectors



Source: ENA Response to provisional findings

[13] Ofwat's response to the provisional findings – risk and return, paragraph 4.33 including Table 4.5

Choosing an appropriate benchmark - CMA Analysis

26. The CMA acknowledges that the use of an equal weight of the iBoxx Non-Financial A and BBB 10+ indices has been uncontroversial in this redetermination

27. The CMA asked Ofwat about its suggestion of using a varying credit-rating benchmark and found that while the average financial metrics may have matched a higher credit rating in the past, all other things equal, this was not laid out as a target feature of the notionally-structured company.

Choosing an appropriate benchmark - CMA Assessment

28. On balance, we consider Ofwat's suggested 'variable' benchmark is not an appropriate benchmark. While average metrics may have suggested higher associated credit ratings over past controls, we are not convinced that this was clearly noted as the 'target' rating for the notional company for each period.

29. We have decided to retain the iBoxx A/BBB index as our benchmark for estimating the costs of embedded debt. The characteristics of the 10+ benchmark appear to be a suitable match for our investment horizon, evidence of tenor at issue in the water sector and our notional target credit rating. We also note that the iBoxx A/BBB 10+ indices benefit from previous consultation and general acceptance by the Parties.

5. The Measurement of the Benchmark

Ofwat and selected 3rd Parties

Ofwat

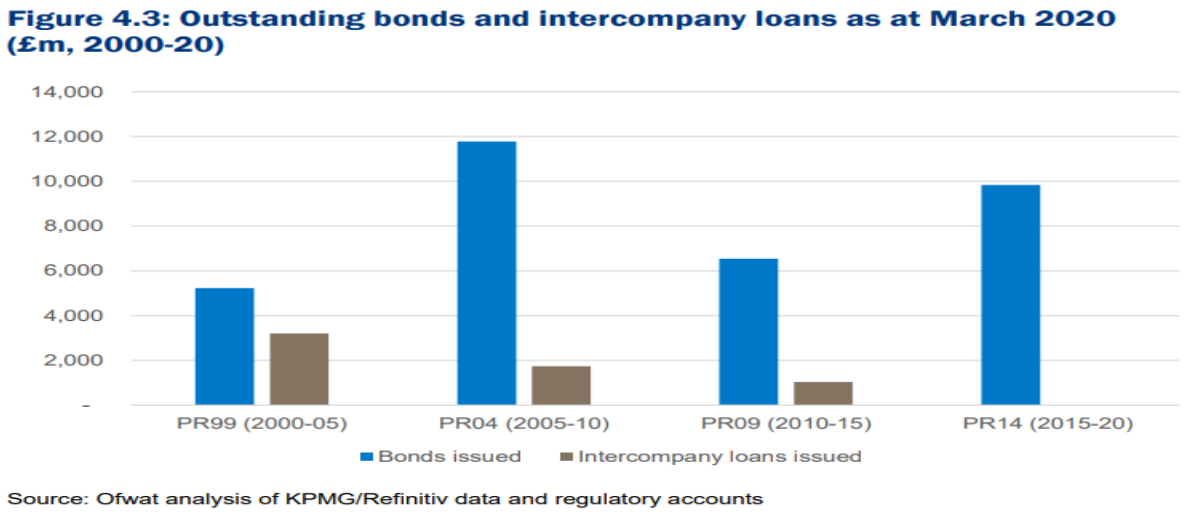
30. Ofwat stated that the CMA's decision to move to a 20-year trailing average assigns too much weight to earlier years and is calculated in a way that includes 22.5 years of total (embedded and new) data.

31. Ofwat stated that evidence showing that 20% of outstanding sector debt was issued prior to 2005 (and so outside of a 15-year average) over-estimated actual debt costs. Ofwat stated that:

a) the 20% of debt figure counts only bond data, not bank debt (which tends to offer loans over a shorter period). Ofwat estimates that bank lending accounts for approximately 18% of total borrowing; and

b) using a benchmark covering 2000-2005 gives weight to a period characterised by material long-tenor issuance for non-operational reasons (returns of capital through special dividends or intercompany loans). Ofwat suggested that 61% of the outstanding bonds issued between 2000-2005 are attributable to intercompany lending. Ofwat suggested that excluding non-operational borrowing would assign only 7.4% of total debt weighting to this period, in contrast to the 25% in the CMA's provisional approach.[14]

Figure 3: Ofwat data on proportion of debt issued for non-operational purposes



Source: Ofwat response to Provisional Findings

[14] Ofwat's response to the provisional findings – risk and return, paragraph 4.16 to 4.20, including Figure 4.3

32. Ofwat stated that a move from a 10-year trailing horizon (used in PR14) to a 20-year trailing horizon proposed by the CMA (in contrast to the change to a 15-year horizon by Ofwat in PR19) may increase expectations that 20 years will be adopted in PR24. Ofwat stated that such an approach may disadvantage companies with shorter refinancing cycles (average maturities) if interest rates rise quickly. Ofwat stated that the CMA should adopt a more 'evolutionary' change from PR14's 10-year approach (using 15 years) to balance the interests of companies with longer and shorter refinancing cycles.[15]

33. Ofwat noted that its decision to move from a 10-year trailing average to a 15-year trailing average was in line with a long-standing policy to give some weight to the cost of embedded debt on companies' balance sheets. Ofwat noted that at PR19 there was improved availability of long-term rolling averages (and that in prior controls longer averages were unavailable). Ofwat noted the outstanding average tenor of companies' debt at 13-17 years and considered it prudent and conservative to move to a 15-year trailing average (after cross checking against what companies were actually paying) to reach a view about the appropriate allowance.

34. Ofwat stated that the fall in tenor used by water companies is a symptom of the shape of the yield curve and not as a result of their policies. It also questioned the assumption that it is in the customer interest for companies to asset-liability match, given the implication that there would be a slower pass through of the benefit of falling interest rates to customers. Ofwat stated that moving to 20 years does not remove the incentive to issue in a way that beats the index, and that the regulator's choice of trailing average is not the key determinant of treasury policy.

35. Ofwat stated that if the CMA 'is minded' to retain its 20-year trailing average, then the CMA should revisit the weights used in its calculation. Ofwat stated that rather than equally weighting each year of the average, that calculation can be 'corrected' by weighting each year by the RCV growth within the water sector. Ofwat suggested that this approach would be aligned with the CMA's preferred benchmark-led approach, but would ensure that customers are insulated from paying for non-operational financing decisions. Ofwat provided a data table suggesting that the 20-year RCV-weighted average cost of debt using the equally weighted iBoxx A/BBB index would be 4.60%.[16]

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[15] Ofwat's response to the provisional findings – risk and return, paragraph 4.21 to 4.23
[16] Ofwat's response to the provisional findings – risk and return, paragraph 4.24 to 4.26, including Table 4.2

Figure 4: Ofwat estimate of an RCV-weighted benchmark

Table 4.2: Alternative iBoxx weights implied by notional debt issuance over 1990-2020

	New RCV debt (£bn)	Refinancing debt (£bn)	Total debt	Weights	iBoxx A	iBoxx BBB	iBoxx A/BBB
2000-01	0.6	0.0	0.6	1.4%	6.74%	6.95%	6.84%
2001-02	0.5	0.0	0.5	1.1%	6.43%	6.75%	6.59%
2002-03	1.1	0.0	1.1	2.5%	5.99%	6.60%	6.30%
2003-04	1.0	0.0	1.0	2.3%	5.67%	6.06%	5.87%
2004-05	1.0	0.0	1.0	2.3%	5.65%	6.11%	5.88%
2005-06	3.7	0.0	3.7	8.3%	5.13%	5.51%	5.32%
2006-07	2.0	0.0	2.0	4.4%	5.40%	5.65%	5.53%
2007-08	1.6	0.0	1.6	3.7%	5.99%	6.38%	6.18%
2008-09	0.4	0.0	0.4	0.8%	6.63%	8.06%	7.34%
2009-10	1.4	0.0	1.4	3.2%	5.70%	6.60%	6.15%
2010-11	3.4	0.8	4.2	9.4%	5.31%	5.55%	5.43%
2011-12	2.2	0.8	3.0	6.8%	5.05%	5.27%	5.16%
2012-13	2.1	0.7	2.8	6.2%	4.32%	4.74%	4.53%
2013-14	1.5	0.9	2.4	5.5%	4.46%	4.81%	4.63%
2014-15	0.5	1.3	1.8	4.0%	4.01%	4.21%	4.11%
2015-16	3.8	1.2	5.0	11.2%	3.89%	4.26%	4.07%
2016-17	2.1	1.2	3.3	7.4%	2.97%	3.27%	3.12%
2017-18	2.2	1.3	3.5	7.9%	2.94%	3.16%	3.05%
2018-19	1.7	1.1	2.8	6.2%	3.19%	3.46%	3.32%
2019-20	1.4	1.1	2.5	5.5%	2.45%	2.77%	2.61%
			Weighted average:		**4.43%**	**4.77%**	**4.60%**

Source: Ofwat analysis of historical RCV and IHS Markit data

Source: Ofwat response to Provisional Findings

36. Ofwat also noted that the CMA picked the bottom of its stated embedded debt range to reflect the view that average embedded debt costs at the notionally-capitalised company were likely to fall mechanically over the price control. While Ofwat agreed with the logic, it suggested that it would be more accurate to measure a collapsing trailing average over the 2020-25 price control. Ofwat noted that this is different to the approach it applied in PR19, but should be logically applied to the CMA's approach. Ofwat provided a 'stylised' example of this approach, suggesting a collapsing 20-year trailing average of 4.95% rather than the CMA's provisionally determined 4.81%.[17]

[17] Ofwat, Risk and return, Response to Provisional Findings, paragraph 4.37 including Table 4.6

Figure 5: Ofwat analysis of a 20-yr collapsing average approach

Table 4.6: Illustrative collapsing trailing average for the notional company – assumes simple average of the iBoxx A/BBB

	2020-21	2021-22	2022-23	2023-24	2024-25	Average
Trailing average length	20 years	19 years	18 years	17 years	16 years	18 years
Index-based allowance	5.12%	5.02%	4.94%	4.86%	4.79%	4.95%

Source: Ofwat analysis of IHS Markit data

Source: Ofwat Response to Provisional Findings

37. Ofwat strongly urged that the embedded debt over 2020-25 is explicitly modelled to be consistent with the CMA's other assumptions (such as the tenor of debt) and noted that this approach has implications for the assumed share of new debt.[18]

38. Ofwat (and the Disputing Companies) noted that the CMA had used 'up-to-date' market data with a cut-off of July 2020. While this approach may be applicable in other calculations, Ofwat (and others) noted that in the calculation of debt allowances this approach risks double counting the costs and weights used to calculate the cost of new debt (which is subject to a true-up mechanism) and total debt allowances. Ofwat (and the Disputing Companies) suggested that the correct end data for the calculation of embedded debt should be 31/03/2020, with new debt counted from 01/04/2020.[19] For brevity we will not repeat the same advice from the companies in our summaries below.[20]

Wright and Mason

39. Wright and Mason, submitting for Ofwat, stated that regulators should start from a position of being sceptical about allowing for the costs of embedded debt, as unregulated companies do not receive this kind of insurance from their customers. This issue is compounded by a historic pattern of overestimating the cost of embedded debt due to using a trailing average in a period of falling interest rates.

40. The trailing average anchors embedded debt costs in previous periods where the cost of debt was much higher. In contrast, Wright and Mason suggest

[18] Ofwat's response to the provisional findings – risk and return, paragraph 4.38
[19] Ofwat's response to the provisional findings – risk and return, paragraph 4.35
[20] See Anglian's response to the provisional findings, paragraph 428, Northumbrian's response to the provisional findings, Section 7.5.3 and Yorkshire's response to the provisional findings, p31

anchoring the cost of embedded debt to the cost of new debt (which is much lower).

41. On this basis, Wright and Mason stated that rather than 15 years (Ofwat) or 20 years (CMA), the trailing window should be zero. However, if one must be used, a shorter or weighted window should be used.

CC Water

42. CC Water noted the CMA's argument that the use of shorter lookbacks could provide an inappropriate signal to companies that the regulator is encouraging them to shorten the tenor of their debt in order to reduce costs, potentially trading lower short-term costs for increased financing risk. However, CC Water noted that there is a risk that locking in a longer tenor of debt, coupled with an expectation of a premium over actual costs, that this approach would significantly lessen the incentive for prudent financial management. Again, this would not be in consumers' interests at subsequent price reviews.[21]

Disputing Companies and selected 3rd Parties

20-year trailing average

43. Anglian agreed with the extension of the trailing average period to 20-years as this recognised the importance of timing of issuance on cost, was consistent with the tenor at issue of water company bonds, encouraged and incentivised long-term financing in line with the long-term nature of assets and allowed regulatory consistency as market levels change. The approach also avoids extracting realised benefits 'ex post' reflecting how markets moved, leaving companies exposed to losses due to falling rates.[22]

44. Bristol commissioned KPMG to consider these issues on its behalf. Through the KPMG report, Bristol stated that Ofwat's approach created incentives for companies to issue shorter term variable interest rate cost of debt, which is inconsistent with typical infrastructure financing, and is wrong as it creates re-financing and interest rate risk. Bristol noted that Ofwat highlights that it is concerned that a 20-year trailing average could crystallise refinancing risk for companies which issued shorter dated debt if interest rates increase. Bristol agreed that this was a valid concern as where rates increase, for companies which need to refinance, a long-term trailing average may not compensate all costs. However, Bristol stated that it is appropriate that this refinancing risk –

[21] The Consumer Council for Water's response to the provisional findings, paragraph 5.13
[22] Anglian's response to the provisional findings, paragraphs 421-425

driven by short-dated issuance – is allocated to companies which have departed from the iBoxx benchmark, and not translated into the specification of the notional company and its history of financing.

45. Northumbrian stated that 20 years is consistent with the investment horizon adopted through the CMA's analysis and is an effective proxy for ensuring the cost of efficiently incurred debt is properly recovered whilst reducing, but not fully eliminating, the downside risk of any shortfall arising. Northumbrian stated that this approach also provides a stable, transparent benchmark for companies and is consistent with a profile of debt issuance that minimises asset-liability mismatch and hence refinancing risk. In addition, longer averages are more stable and thus should protect customers if interest rates were to rise in the future.[23]

46. Yorkshire stated that it was imperative that the CMA retains its 20-year averaging period. Yorkshire argue that £9.8bn of current water company bonds were issued prior to 2005, representing 13% of industry RCV or more than 20% of the notionally geared industry balance sheet.[24]

47. Anglian, Bristol and Northumbrian specifically disputed the findings of Wright and Mason, highlighting the need for long-term financing of infrastructure assets, and suggest that Wright and Mason themselves identify the constraints of disallowing embedded debt costs in the form of financeability issues, increased beta and higher WACCs.

48. South East Water welcomed the CMA's recognition of the importance of long-term financing and shared its concerns that Ofwat's approach could encourage the use of shorter tenor debt and increase refinancing risk. South East Water also agreed with the use of a 20-year trailing average.[25]

49. ENA suggested that NERA evidence shows average tenors at issue for the Water companies are 24-26 years, and so supported the CMA's conclusion that allowances based on 10 or 15 year averages would be inappropriate and could provide perverse incentive on companies to shorten tenor of debt in a way that would not be in customers' interests.[26]

50. National Grid agreed with the CMA's approach of using a benchmark index to set the cost of debt, as this approach minimised the impact of company specific issues and ensures that companies are responsible for any costs

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[23] Northumbrian's response to the provisional findings, paragraphs 300-303
[24] Yorkshire's response to the provisional findings, paragraph 3.3.12-3.3.13
[25] South East Water's response to the provisional findings
[26] Energy Network Association's response to the provisional findings, paragraphs 8.1 to 8.6, including Figure 2

which arise from their borrowing profile and capital structure, thus protecting consumers from individual financing decisions. National Grid also agreed that the use of shorter lookbacks could provide an inappropriate signal to companies that the regulator is encouraging them to shorten the tenor of their debt, potentially increasing financial risk.[27]

51. Western Power Distribution stated that removing the performance wedge and extending the trailing average from 15 years to 20 years, the CMA had recognised the importance of long-term financing of long term regulated infrastructure in line with asset lives, and that it was critical to capital market conditions when debt was raised across the sector.[28]

RCV Weighting

52. Anglian[29], Bristol and Northumbrian disagreed with Ofwat's suggestion of weighting the index by RCV growth. Using analysis by KPMG, Anglian, Bristol and Northumbrian argued that Ofwat's approach suffered from significant design flaws. Specifically, Ofwat's calculation failed to capture early debt refinancing and licence changes, failed to incorporate the use of index-linked debt and used lumpy changes to notional gearing assumptions that were lagging and inappropriate indicators of the effective levels of operational debt used within the sector. They also stated that the sector average was unlikely to match the needs of individual companies and will create artificial winners and losers.

53. Anglian[30], Bristol, Northumbrian[31] suggested that linking sector-wide RCV growth to remuneration of embedded debt exposed companies to significant mismatches between their (efficient) costs and future regulatory allowances. Northumbrian stated that it is not clear why this approach would be appropriate, and suggested that it may be 'an ex post attempt by Ofwat to derive a cost of debt that is consistent with its pre-conceived view', as opposed to a robust and principles-based methodology for estimating the cost of debt.[32]

54. Yorkshire submitted that Ofwat had failed to account for refinancing of maturing debt between 2000 and 2010, and that this was unrealistic. Yorkshire stated that a straight weighting of the trailing average may not give

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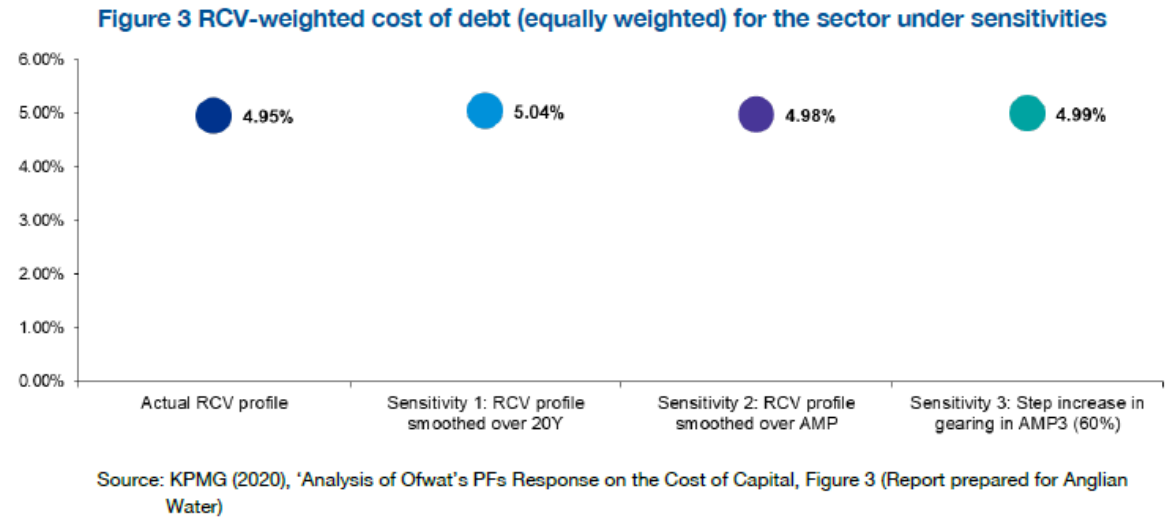
[27] National Grid's response to the provisional findings, paragraphs 3.6 to 3.8
[28] Western Power Distribution's response to the provisional findings
[29] Anglian's reply to responses to the provisional findings, paragraph 81
[30] Anglian's reply to responses to the provisional findings, paragraph 81
[31] Northumbrian's reply to responses to the provisional findings, section 3.1.4
[32] Northumbrian's reply to responses to the provisional findings, paragraph 163

an exact match to the profile of debt issuance in the sector, but it was unlikely to result in a significant costing error. As such, Ofwat's proposal should be rejected[33].

55. Anglian[34], Bristol and Northumbrian[35] have submitted their own calculated adjustments to the Ofwat approach; these adjust for a failure to include continuous refinancing of the RCV (worth 14bps), the use of exclusively fixed rate debt despite the last two controls assuming index-linked debt (worth 5bps) and a failure to model gradual changes to gearing (worth 14bps). The companies suggested that these adjustments supported an RCV-weighted estimate of 4.95%, which on different scenarios could be as higher as 5.04%.

Figure 6: KPMG's 20-yr RCV weighted index estimates



Source: Anglian

56. Anglian[36], Bristol, Northumbrian[37] and Yorkshire[38] also questioned Ofwat's analysis of non-operational financing issued pre-2006, stating that capital structures are complicated but that swapping debt for equity does not impact the capital committed to the sector. The companies stated that Ofwat's analysis is flawed in failing to consider counter-factual scenarios that suggest similar proportions of debt would have been issued in AMP3 and AMP4 by the notional company, and that there are companies which exhibit gearing similar to the current notional level which still have a significant proportion of pre-2006 public debt outstanding.

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[33] Yorkshire's reply to responses to the provisional findings, p61
[34] Anglian's reply to responses to the provisional findings, paragraph 100
[35] Northumbrian's reply to responses to the provisional findings, section 3.1.4
[36] Anglian's reply to responses to the provisional findings, paragraph 101
[37] Northumbrian's reply to responses to the provisional findings, section 3.1.6
[38] Yorkshire's reply to responses to the provisional findings, p61

Figure 7: KPMG analysis of pre-2006 outstanding and lower geared companies

Table 7 Proportion of pre-2006 debt outstanding

Company	Proportion of pre-2006 debt	Gearing at March 2020
Wessex	35%	66.24%
Northumbrian	34%	67.15%
Severn Trent	26%	64.89%

Source: KPMG (2020), 'Analysis of Ofwat's PFs Response on the Cost of Capital, Table 3 (Report prepared for Anglian Water)

Source: Anglian

Picking a point estimate

57. Anglian disagreed with the CMA's approach to picking a point estimate, and stated that picking a figure at the low end of the CMA's range is equivalent to basing the estimate on only the A-rated index. Anglian suggested that the CMA should instead adopt an 'inverse trombone' reducing trailing average for the price control, based on the A/BBB average. Anglian suggested that such an approach would suggest an average for the period of 4.95%.[39]

58. Northumbrian disagreed with the CMA's aiming down of the cost of embedded debt estimate, and that using a figure based on the A-index alone was inconsistent with the notional credit rating underpinning the remainder of the price control. Northumbrian suggested the midpoint of the range (3.06% as measured to March 2020) be used from the final determination rather than the CMA's PF of 2.76%.[40]

59. South East Water[41] and Western Power Distribution[42] disagreed with aiming down to a rate that implied A-rated debt costs.

The Measurement of the Benchmark - CMA Analysis

60. In this section we consider

a) Straight averages versus collapsing averages

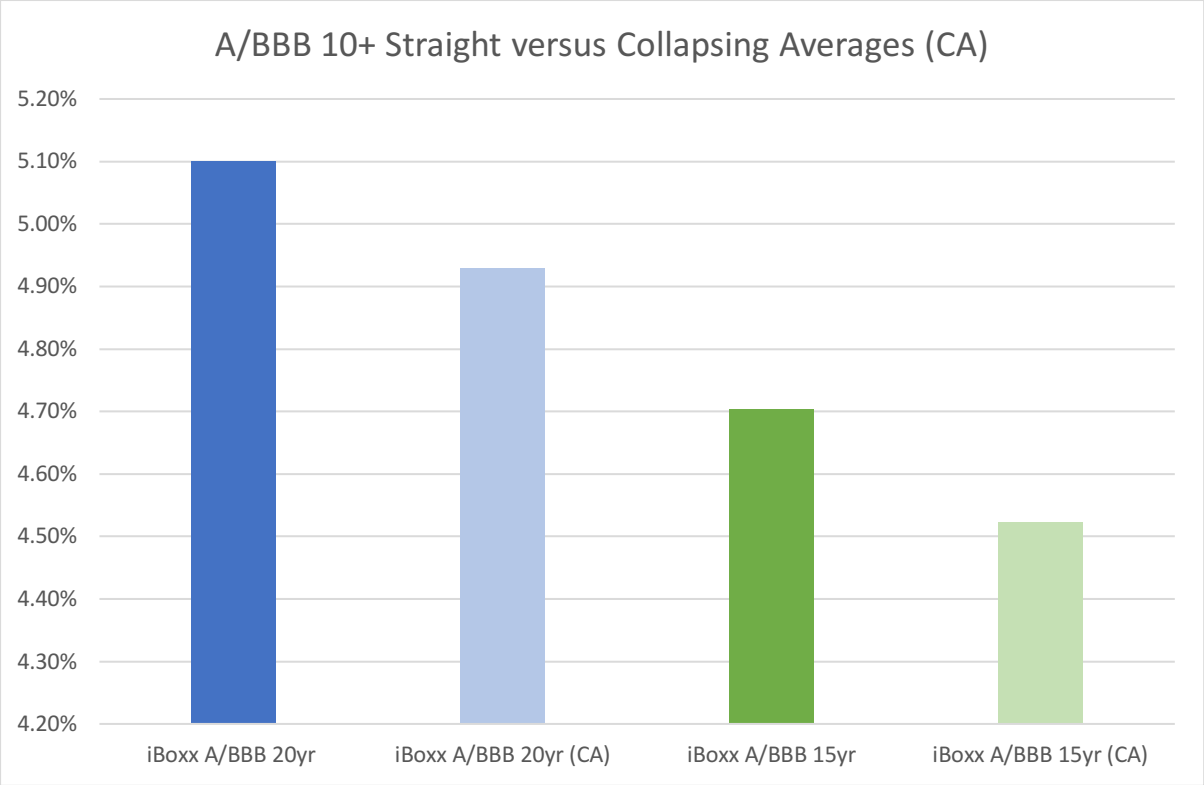
b) The most appropriate look-back period when considering the measurement of embedded debt.

[39] Anglian's response to the provisional findings, paragraphs 430-432 including Figure 17
[40] Northumbrian's response to the provisional findings, paragraphs 306-308
[41] South East Water's response to the provisional findings
[42] Western Power Distribution's response to the provisional findings

Straight averages versus collapsing averages – CMA Analysis

61. While the approach has not been deployed by Ofwat, both Ofwat and the Disputing Companies have suggested that a collapsing average would be a superior measurement technique to account for debt costs over the price control than a straight average.[43] As rates have fallen fairly consistently over the last 20 years, using a collapsing average results in a lower estimate than an equivalent straight 15- or 20-year average.

Figure 8: Straight versus collapsing averages of the A/BBB 10+ index



Source: CMA analysis of iBoxx data

62. We also note that Ofgem deploys a similar (but not identical) approach when assessing its total cost of debt allowance.

Straight averages versus collapsing averages – CMA Assessment

63. We agree with the parties that a collapsing average gives a more accurate picture of the change in embedded debt costs (at the chosen look-back horizon) as they develop over the price control. We plan to apply this technique to the measurement of our selected benchmark, and use an A/BBB average approach for all of our calculations.

[43] Versus the CMAs PF approach of setting the range as A to BBB, and aiming at the A yield as a proxy for the impact of falling rates over time.

64. At this stage we have assumed a collapsing average from 20 years to 16 years when using a 20-year horizon, and a collapsing average from 15 years to 11 years when using a 15-year horizon.

The most appropriate look-back period when considering the measurement of embedded debt – CMA Analysis

65. Ofwat have argued that there are tangible benefits to its suggested 15-year lookback. Namely:

a) A steadier regulatory progression from the 10-years used in the previous control;

b) A lookback period that excludes a period of significant non-operational financing;

c) A trailing average that will be more responsive to future changes in rates.

66. The Disputing Companies have agreed with the CMA's provisional assessment that a 20-year look back period has the benefits of:

a) Matching the overall investment horizon and the average tenor at issue;

b) Capturing the 20% of sector debt that was issued prior to 2005;

c) Encouraging (or at least not discouraging) the use of longer-term financing that better matches the lives of assets in the sector.

67. In moving from a 10-year lookback to a 15-year lookback, it would appear that Ofwat also recognises that there may be benefits to a longer-term approach. This is likely to be particularly important in this price control, as retaining a 10-year lookback would have excluded debt costs from the particularly 'expensive' period around the global financial crisis in 2008 and 2009. The question is what long-term horizon should be used.

68. In favour of a 20-year horizon is evidence that companies issue bonds at tenors at or above 20-years, on average. Long tenors such as this seem appropriate in a long asset-life industry such as regulated water. On this basis alone, it would seem inappropriate to adopt an approach that prevented companies from adequately recovering these debt costs. It may also be seen as opportunistic to disallow costs associated with the issuance of long-term debt on the basis that 'in hindsight' market rates subsequently fell.

69. In favour of a 15-year horizon when measuring the benchmark cost is evidence that companies use a range of financing tools, many of which are priced on the basis of being shorter-term than average water sector bond

issuances. Examples of this are the use of floating interest rate debt and bank financing, which together with lumpy issuance patterns and shorter-tenor issuance mean that the actual weighted average years to maturity of debt in the sector is c13-14 years – considerably shorter than 20 years.

70. Ofwat has suggested that a significant proportion (60%) of debt issued in the 15-20 year 'window' was raised for non-operational purposes. There is also a question of who should pay for the timing of the raising of debt, bearing in mind when past capital structure decisions were taken. With the benefit of hindsight, those 'WACC-neutral' capital restructurings would have been 'cheaper' for customers in absolute terms if conducted today rather than 15 or 20 years ago. However, it appears that Ofwat did not raise concerns about the use of non-operational debt at the time this debt was issued

71. Complicating this debate is the fact that there is no set investment or debt issuance horizon for the notional company in the sector.

72. Weighting the index by RCV growth may help to ensure that the customer is less exposed to costs associated with the capital structure decisions taken by shareholders. However, the merits of this approach are called into question by the significant disagreement about how to perform this calculation, with consequent differences in the resulting estimated cost of debt. Ofwat suggested an RCV-weighted 20-year average of 4.62%[44]. The companies, using KPMG analysis of the same data, suggested a figure of 4.95%, with the difference coming from a continuous refinancing of the RCV (worth 14bps), the inclusion of index-linked debt (worth 5bps) and gradual changes to gearing (worth 14bps).

73. Applying our previously discussed collapsing average methodology to Ofwat and KPMG's RCV-weighted approaches would suggest estimates of 4.41% and 4.55% respectively.

The most appropriate look-back period when considering a fair measurement of embedded debt – CMA Assessment

74. In the PFs, the CMA expressed a preference for a longer trailing average (20 years over 15 years) in order to better match the long investment horizon in the industry and in our WACC calculations; better match the average maturity of the chosen benchmark; capture an appropriate proportion of embedded

[44] Ofwat note in their separately provided calculation this this is a 2bps increase on the figure mentioned in their written submission

debt costs and avoid encouraging companies to shorten the tenor of their debt in order to reduce costs.[45]

75. In the PFs we expressed this preference through the use of a 20-year trailing average. In addition to the use of a collapsing average, we have now considered the evidence presented (post-PF) on:

a) the use of debt issued in the period 2000 – 2005;

b) the mix of debt instruments used by water companies.

76. In considering these issues, the CMA now considers that although a 20-year average of the benchmark may be a suitable measure for the fixed element of debt incurred by water companies, this measure alone may not accurately reflect the reality of the range of debt instruments used by water companies. As a result, a 20-year benchmark average approach may be an inaccurate approximation for all efficiently incurred embedded debt costs.

77. We consider that a 20-year collapsing average approach could remain appropriate as a benchmark. However, in contrast to the approach taken at PFs, our analysis in Section 6 below would suggest that such an approach would need to be accompanied by an appropriately calibrated 'matching adjustment' to take account of the non-fixed rate debt instruments used across the sector.

78. We acknowledged the Disputing Companies' argument that a 15-year rather than a 20-year approach excludes 20% of the sector's (bond) debt. However, a 15-year average appears to be a better proxy for the range of instruments used by water companies (for example, long vs short tenors, differing weights of fixed and floating debt) and thus would provide a more accurate assessment of efficiently incurred costs than an unadjusted 20-year average. The current measure of average maturity using APR data is approximately 13 years, while Ofwat estimated the range of current maturities to be 13-17 years (see paragraph 33). This suggests that a 15-year average adequately meets the CMA's objectives for a benchmark approach without the need for judgement or manipulation of data that would be inevitable with either an RCV-weighted approach or the application of an outperformance wedge .

79. On balance, while we note the potential benefits of an RCV-weighted approach, we do not consider it appropriate to adopt this methodology in this price control. We are concerned by both disagreements as to the correct calibration of the RCV-weighting calculation, as well as the implications of

[45] Provisional findings report, paragraphs 9.356-9.258

disregarding non-operational borrowing from previous periods. We note that the outcome of using this approach (alongside the previously discussed collapsing average measurement approach) provides a range of 4.41% (Ofwat) to 4.55% (KPMG), and that this is very similar to the estimate suggested by using a 15-year horizon when combined with a collapsing average approach (4.52%).

80. We now consider that matching Ofwat's use of a 15-year horizon, but with the application of a collapsing average measurement approach, is the most appropriate approach to measuring the benchmark. This methodology provides a suitable approximation of the cost associated with the range of instruments used by water companies without the need for disputed weighting calculations or the use of 'matching' or 'weighting' adjustments.

81. At this point in the analysis, we consider a 15-year collapsing average of the iBoxx A/BBB 10+ indices to be the CMA's preferred benchmark measurement approach.

6. What adjustments should be made to ensure that the benchmark approach suitably reflects the notionally capitalised water company?

Ofwat and selected 3rd Parties

Ofwat

82. Ofwat's analysis of nominal debt of at least 10 years to maturity at issuance indicated material and sustained outperformance relative to its benchmark iBoxx A/BBB over the period 2000-2018. As a result of this analysis, Ofwat applied a downward 'outperformance wedge' of 25bps to its cost of embedded debt allowance. Ofwat stated that this approach matched the CMA's approach in the 2015 British Gas Trading appeal and the Bristol PR14 Determination.[46]

83. Ofwat[47] went on to state that, while in principle controlling for tenor and credit rating would be appropriate if the aim were to isolate the debt pricing benefit of being a regulated water utility (the halo effect), this is not what it was trying to do. Rather, Ofwat's approach was to set an allowance for the cost of debt which was reflective of efficient borrowing costs and which did not materially overcompensate companies for these costs. Ofwat submitted that United Utilities, with gearing of 64.8% (close to the notional 60%), had stated that it typically outperformed Ofwat's final determination on cost of new debt by 50-100bps.

84. Ofwat argue that its historic approach had succeeded in combining strong incentives to issue debt efficiently while allowing customers to benefit from these efficiency gains at 5-year regulatory resets. Ofwat stated that the notional benchmark gives companies a target to outperform while allowances that reflect this outperformance offer more stretching targets over time. Ofwat stated that the CMA's PFs proposed a system whereby companies capture all of the gains from outperforming the index without benefit to customers.[48]

85. Ofwat stated that, based on the view that there is no evidence of outperformance of water bonds once tenor and credit rating are controlled for, and the fact the CMA has matched its notional tenor and credit rating to the historical average tenor and credit rating of the benchmark iBoxx A/BBB, there would be little prospect of notional company outperformance and Ofwat would 'understand the logic' of the CMA's position. However, Ofwat continued

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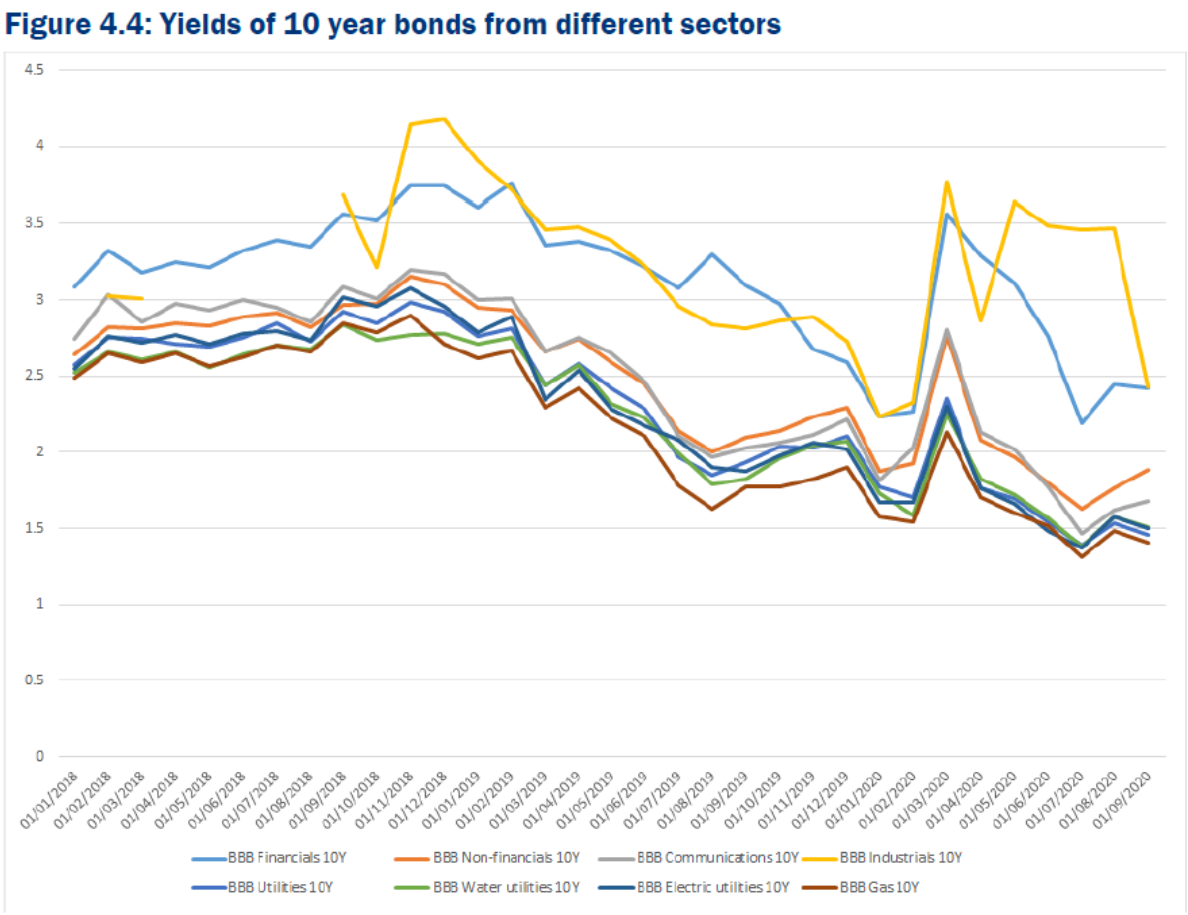
[46] Ofwat's response to common issues in companies' SoCs: Risk and return, paragraph 3.112
[47] Ofwat's response to common issues in companies' SoCs: Risk and return, paragraph 3.111
[48] Ofwat's response to the provisional findings – risk and return, paragraph 4.13 and 4.14

to believe there is evidence that water bonds can outperform a broad benchmark, even controlling for credit rating and tenor.[49]

86. Ofwat cited the view of its consultants, Europe Economics, who suggested that 'there is nothing controversial about the idea that bond yields for a specific sector might be different even controlling for these two factors'. Ofwat suggested that this is because the yield includes both credit risk and debt beta (correlation of credit risk with the wider asset return cycle). Ofwat provided a chart showing that BBB yields in different sectors are not identical, with Financials and Industrials appearing to yield a consistent premium versus other sectors.[50]

Figure 9: Ofwat evidence on water debt outperformance



Source: Ofwat

87. Ofwat also disputed the KPMG finding of no water outperformance once tenor and credit rating is controlled for. Using a filtered sample of 68 water bonds (with a weighted average tenor at issuance of 21.9 years versus the

[49] Ofwat's response to the provisional findings – risk and return, paragraph 4.28 to 4.29
[50] Ofwat's response to the provisional findings – risk and return, paragraph 4.30 including Figure 4.4

benchmark average of 19.4 years), Ofwat found a weighted average of 39bps difference to the benchmark and a negative relationship in all 'tenor buckets'. Ofwat concluded that there is no consistent relationship between longer tenor and level of discount to the benchmark and that outperformance is on average present even where tenor exceeds the benchmark tenor. [51]

88. However, the table of results presented in Figure 10 does suggest that when measuring similarly rated bonds issued at 5 years either side of the benchmark, Ofwat found a weighted average spread of only 6bps – an almost identical result to the 'no material outperformance' result found in the KPMG analysis referenced by the CMA. It also suggests a weighted average spread of 22bps, rather than the 39bps referenced in the report and that the bulk of this difference comes from comparing bonds issued at 5 to 15 years shorter duration than the benchmark average. [52]

Figure 10: Ofwat analysis of water bond outperformance

Table 4.3: Spread to relevant iBoxx index by tenor difference bucket[114]

	-15 to -5 years	-5 to +5 years	+5 to +15 years	+15 to +50 years	Overall
Weighted average spread	-0.41%	-0.06%	-0.11%	-0.15%	-0.22%

Source: Ofwat analysis of IHS Markit, Capital IQ data

Source: Ofwat

89. Ofwat acknowledged that the distribution of ratings in their sample is likely to drive 'some of the discount' to the iBoxx average, and noted that two thirds of its sample are bonds rated at A3, while the iBoxx average credit rating (and the target rating for the notional company) is Baa1 (BBB+). As shown in Figure 11, only 8.8% of the bonds in Ofwat's sample have a Baa1 rating, while 83.7% have a higher A-based rating and only 7.4% have a lower rating.[53]

[51] Ofwat's response to the provisional findings – risk and return, paragraph 4.31 and 4.32
[52] Ofwat's response to the provisional findings – risk and return, paragraph 4.32 including Table 4.3
[53] Ofwat's response to the provisional findings – risk and return, paragraph 4.33 including Table 4.4

Figure 11: Ofwat's' mix of ratings in outperformance analysis

Table 4.4: Rating at issue breakdown of Ofwat updated sample

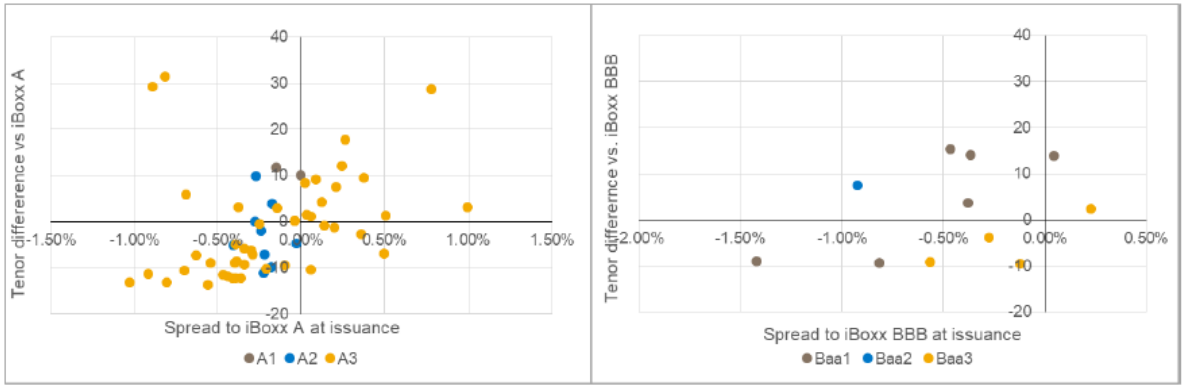
Moodys Rating	Count	%
A1	2	2.9%
A2	9	13.2%
A3	46	67.6%
Baa1	6	8.8%
Baa2	1	1.5%
Baa3	4	5.9%
Total	68	100%

Source: Ofwat

90. Ofwat also supplied scatter charts of spread at ratings for the A and BBB groups of stocks. Ofwat stated that these charts suggest there is no clear correlation between tenor and spread to the relevant iBoxx.[54]

Figure 12: Output of Ofwat 'halo effect' analysis

Figure 4.5: Credit rating and spread-at-issuance



Source: Ofwat analysis of IHS Markit and Refinitiv data

Source: Ofwat

Third Parties

91. Wright and Mason stated that Ofwat's outperformance wedge is an adjustment to reflect the historic gap between actual costs of debt and the index, but noted that this may be unclear due to naming it an 'outperformance wedge'. The use of 'outperformance' had led to analysis of whether water companies outperformed other companies with similar characteristics, rather than whether the benchmark reflects the key features of the water companies.

[54] Ofwat's response to the provisional findings – risk and return, paragraph 4.33 including Figure 4.5

The ‘wedge’ would be better called a ‘matching adjustment’ that factors in differences in tenor and credit rating.

92. Using the A/BBB without adjustment (as suggested by the CMA approach) required water customers to reward shareholders because the regulators cannot agree a way to ensure historic debt is costed correctly. Alternatively, there could be a view that it will all ‘come out in the wash’, with periods where firms’ embedded debt is cheaper than the index balanced by periods when it is more expensive. Wright and Mason had concerns about this approach, as they ‘suspect’ that in periods of higher ‘actual’ costs, financeability pressures will require the higher figures to be used – causing asymmetry.

93. Wright and Mason suggested that there is sufficient evidence for a ‘matching adjustment’ of around 25bps and that the value of the adjustment should be assessed periodically.

94. Ofgem,[55] and Citizens Advice[56] submitted that, rather than being too harsh, recent debt issuance might suggest that the 25bps performance wedge was too lenient. Citizen’s Advice stated that in adjusting the index to calculate the efficient cost of existing debt, Ofwat applies an adjustment of 25bps, compared to historical average outperformance levels of 31bps (2000-2018) and 44bps (2015-2018). Ofwat appears to have incorrectly assumed that it is necessary to adjust historical levels of outperformance downwards to reflect future uncertainty (which can only apply to future debt). Citizen’s Advice recommend that the CMA use an adjustment of 31bps which it considered is reasonable given the evidence.

95. Ofgem suggested that the CMA calibrate its estimate for RCV growth, access to European Investment Bank funding (which is subsidised by UK taxpayers) and the use of floating rate debt (which benefits from current low rates), and more explicitly compare its benchmark approach to reported average water sector debt costs. [57]

96. CC Water stated that the bottom of the CMA’s range was higher than 13 companies reported their interest costs to be in their 2019-2020 annual performance reports, and that of the Disputing Companies only Yorkshire had higher reported costs. CC Water stated that this approach would go beyond cost-pass through, with consumers in effect paying a premium above incurred costs – effectively building in financial performance from the outset. This

[55] Ofgem submission
[56] Citizens Advice further submission
[57] Ofgem Submission, paragraphs 17-18

approach would most likely benefit investors and was manifestly not in the customer interest.[58]

Disputing Companies and selected 3rd Parties

Disputing Companies

97. Anglian agreed with the removal of an outperformance wedge on the basis that there is no statistical evidence to suggest outperformance after accounting for tenor and credit-related factors. Anglian noted that KPMG had updated its analysis to September 2020 and found consistent results. Anglian argue that alternative findings would suggest that credit ratings agencies do not accurately capture the industry-wide risks to an investor of holding debt in a water company.[59] In its reply to Ofwat's response, Anglian stated that the Ofwat data on bond issuance is predicated on only two bonds, and that in the round the Ofwat analysis matches the KPMG-based evidence in suggesting no outperformance.[60]

98. Anglian stated that Ofwat's 'wedge' implies an unjustified value transfer to consumers in the short term while making it 'ultimately impossible for companies to finance themselves'. Anglian also stated that the wedge has a detrimental impact on consumers due to the abandonment of asset-liability matching, a lack of support for long-term investments as well as refinancing risk which will have to be passed on. Anglian agreed with the CMA that a Ofwat style wedge would create 'wrong incentives' for companies to issue short-dated debt and take on more interest rate risk than assumed for the notional company, and argued that this risk exposure to rising rates would ultimately be passed on to customers in the form of higher bills 'where short-tenor strategies are reflected in regulatory policy risk'.[61]

99. Bristol raised several issues with the Ofwat outperformance wedge data (in comparison to the KPMG data) but found that under both the Ofwat and KPMG approaches there is no evidence of a material 'halo effect'. In addition, in areas where Ofwat claimed there to be an irrational relationship (such as the outperformance of the +15 to +50 years bucket), this is based on a small sample size of data. Further, KPMG found that the yield curve was inverted at the time these bonds were issued, helping to explain the divergence between the yields on those bonds and the iBoxx index.

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[58] The Consumer Council for Water's response to the provisional findings, paragraph 5.12
[59] Anglian's response to the provisional findings, paragraphs 414-418
[60] Anglian's reply to responses to the provisional findings, paragraph 97
[61] Anglian's response to the provisional findings, paragraphs 419-420

100. Bristol stated that differences to the benchmark figure may be driven by either efficiency of issuance or companies taking different interest rate risks (such as use of variable rate debt or debt at shorter tenors). As a result, it was important to take into account an appropriate definition and specification of the history of financing for the notional company over the 20-year horizon. Bristol stated that it was reasonable to assume that the notional company would raise long-term debt in order to match its assets and that the notional company would raise debt in line with regulatory guidance. Where companies have chosen to adopt financing strategies that differ from the notional structure, it may not be appropriate to 'goal seek' the costs implied by the benchmark to an ex-post estimate of actual costs.

101. Northumbrian agreed with the CMA's decision to remove the outperformance wedge, citing the KPMG evidence. As with Anglian, Northumbrian noted that KPMG had updated its analysis and its conclusions remain 'approximately unchanged'.[62] In its reply to Ofwat's response, Northumbrian also noted KPMG-based evidence suggesting no outperformance once tenor and credit rating are matched.[63]

102. Yorkshire stated that Ofwat has provided the CMA with no new information to suggest evidence for an outperformance wedge once tenor and credit rating are counted for.[64]

KPMG Analysis of Ofwat 'halo effect' analysis

103. KPMG, on behalf of Anglian, Bristol and Northumbrian assessed Ofwat's analysis of the 'halo effect' (like-for-like outperformance) of water bonds at issuance. KPMG suggested that under both the Ofwat and KPMG approaches there was no evidence of a material 'halo effect' because the simple average spread to the iBoxx for bonds in the -5 to +5 year buckets is close to zero and significantly smaller than the 25bps wedge applied to embedded debt by Ofwat. KPMG suggested that this meant that Europe Economics' position (that claimed credit and tenor are not the key drivers of yields) was inconsistent with the Ofwat and KPMG findings.

104. Addressing the counter-intuitive result of a yield discount to the index at longer maturities, KPMG stated that the sample size for the +15 to +50 year bucket was small, with less than a quarter of the bonds represented in the -5 to +5 or -5 to -15 year buckets. Therefore, the statistical accuracy in the very long-term tenor range is likely to be relatively diminished when compared to

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[62] Northumbrian's response to the provisional findings, paragraphs 296-299
[63] Northumbrian's reply to responses to the provisional findings, paragraph 159
[64] Yorkshire's reply to responses to the provisional findings, paragraph 2.6.11

the other results. Moreover, when reviewing the characteristics of the two additional bonds in Ofwat's sample, KPMG found that the yield curve was inverted at the time of the bond issuance. This yield inversion contributed significantly to the divergence between the yields on the two additional bonds and the relevant iBoxx, and should not be interpreted as water-specific outperformance.

105. KPMG provided the following table comparing its analysis with Ofwat's approach:

Figure 13: KPMG analysis of KPMG and Ofwat 'halo effect' analysis

Table 2: A comparison of average spreads by tenor bucket estimated by KPMG and Ofwat

	Averaging method	Up to -15 years	-15 to -5 years	-5 to +5 years	+5 to +15 years	+15 to +50 years
KPMG	Simple	-1.17% [3]	-0.36% [29]	**-0.01% [20]**	-0.02% [11]	**+0.19% [3]**
Ofwat (non-callable)	Simple	-	-0.51% [18]	**-0.01% [16]**	-0.02% [9]	**+0.19% [3]**
Ofwat (non-callable)	Weighted	-	-0.46% [18]	**-0.08% [16]**	-0.02% [9]	**+0.09% [3]**
Ofwat base case (inc. callable)	Weighted	-	-0.41% [30]	**-0.06% [21]**	-0.11% [12]	**-0.15% [5]**

Notes: Table generated based on KPMG analysis of the Ofwat Databook 'Response to CMA PF – RR Appendix databook annex 2 (Credit rating tenor analysis Tables 4.3 4.4 Figure 4.5). Sample sizes are shown in square brackets. KPMG favours the use of a simple average when computing spreads, rather than weighting by issuance amount. This is because a bond should be priced accurately by investors to reflect its risk, regardless of how much financing is being raised by a company. Therefore, there is no informational advantage to bonds issued with large issuance amounts and as such, all bonds should attract equivalent weight in the estimation.

Source: KPMG

Third Parties

106. ENA agreed with the CMA's conclusion that there was no evidence to support the application of an outperformance wedge.[65]

[65] Energy Network Association's response to the provisional findings, paragraphs 8.1 to 8.6, including Figure 2

107. SP Energy Networks stated that the CMA recognised that the use of a performance wedge within the cost of debt risked encouraging companies to shorten the tenor of their debt, which may not be in the best interests of customers.[66]

CMA Analysis

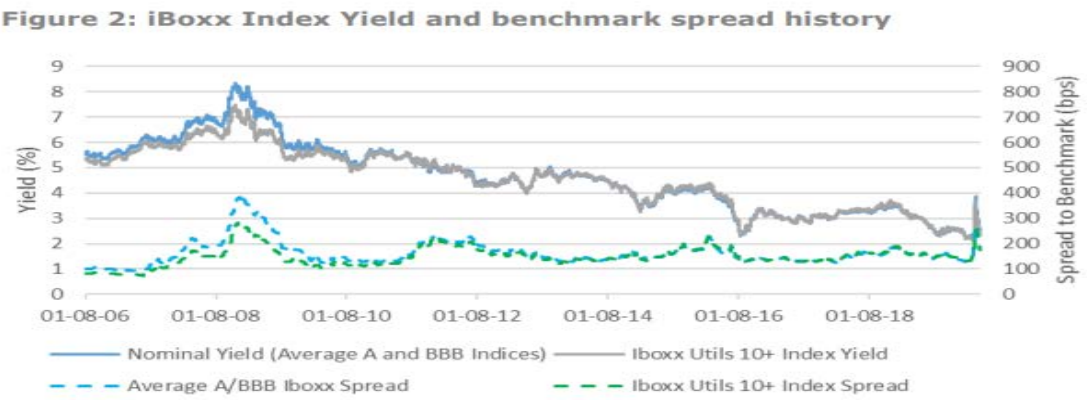
108. Much time and effort has gone in to assessing the rationale behind applying an outperformance wedge. Most of this effort has focused, perhaps inappropriately, on assessing whether water bonds can, on an 'apples-to-apples' comparison, outperform a broader index.

109. The updated evidence suggests to the CMA that scope for material and/or sustained discounts to broader market rates is negligible. Given the difficulty of measuring an exact comparison of bonds, tenor and credit rating between a relatively small sample of company bonds and a broad index, differences of 6bps as measured by Ofwat (with an acknowledged sample skew above the notional credit rating) and 1bps as measured by KPMG (both in terms of bonds -5 to +5 years relative to the benchmark average) do not seem to suggest strong evidence of a 'halo effect'.

110. Ofgem's analysis of the Utilities index versus the broad index would appear to both support this view, whilst also helping to explain why there may be periods of non-sustained 'halo effect'. Ofgem's chart of spreads (Figure 14 below) suggests evidence of higher debt betas in non-utility bonds at times of significant stress such as the global financial crisis. This was a period of significant reassessment of risk in large swathes of the economy, but largely not the regulated utilities sector. Outside of such a period, there is little evidence of material or sustained like-for-like outperformance.

Figure 14: Ofgem chart comparing the iBoxx A/BBB 10+ and the iBoxx Utilities 10+ index

Source: Ofgem



[66] SP Energy Networks' response to the provisional findings

111. As flagged by Wright and Mason in their report for Ofwat, some versions of Ofwat's description of the outperformance wedge may have distracted all parties from a more relevant issue, namely discussion of whether water companies use debt instruments that can reasonably be expected to be either structurally or currently materially cheaper than standard bond financing.

112. As subsequently noted by Ofwat, Water companies have extensively deployed floating rate debt within their overall debt mix, with Ofwat's 2020 Annual Performance Report (APR) data suggesting that the average industry allocation to floating rate debt is c.15%. If we were to assume that all floating rate debt at March 2020 cost the equivalent of the 6-month trailing average of our iBoxx A/BBB 10+ benchmark, the figure for the industry would be 2.53%. At weight of 15%, including floating debt at this rate would lead to an allowance of 4.71% versus a straight 20-year average of the iBoxx A/BBB index of 5.10%; a difference of 0.39%.[67] On these assumptions, the inclusion of floating debt alone would suggest more than the difference between the CMA's PF estimate of 4.81% and Ofwat's allowance of 4.47% or its updated APR report average figure of 4.50%.

113. However, we consider this data should be approached with caution as the companies have flagged that it may contain inappropriately classified short-term liquidity facilities, the cost of which should be accounted for in our 0.10% issuance and liquidity allowance, not the cost of embedded debt. This should be mitigated in part by our use of the iBoxx rather than the actual debt cost to price floating debt but may still be inappropriate if the average weight of floating debt (assumed above to be 15%) is inappropriate. If we were to use the 2018/19 average debt type weights as a better representation of 'normal' weights of each debt type, this would suggest an average weight to floating of 12% and a median allocation to floating of only 6%. At 12%, this would suggest a potential 'wedge' to a 20-year benchmark average of 0.31%, and at 6% a 'wedge' of only 0.15%.[68]

114. For an example of this impact, Anglian stated that they accessed a significant quantity of short-term liquidity financing in late March (APR data is end March) as a result of wanting increased financial flexibility in the face of increased COVID-19 uncertainty. Anglian stated that after announcements on potential business rates and mortgage holidays, it feared that any announcement of utility bill holidays could leave it needing increased financial flexibility. Anglian stated that these short-term liquidity facilities suggest its weight of floating debt in the APR report is too high, while the apparent cost is too low. The

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[67] Based on (15% x 2.53%) + (85% * 5.10%) = 4.71%. Thus, as 39bps discount to 5.10%
[68] (12% x 2.53%) + (88% x 5.10%) = 4.79% (6% x 2.53%) + (94% x 5.10%) = 4.95%

combined impact of this balance sheet 'snapshot' being an under-reporting of their cost of debt of 38bps.

115. These issues notwithstanding, the inclusion of floating rate debt depresses actual costs versus a fixed cost benchmark after a period of falling rates. If rates were to rise, floating rate debt would approach and (potentially) pass the benchmark average (depending on the path of rates), and thus could push actual costs higher than a purely fixed-cost benchmark-based estimate.

116. In addition, Ofwat has suggested that water companies have benefitted from £17bn of European Investment Bank (EIB) financing. Ofwat's £17bn figure appears to be a function of EIB data suggesting 15.72% of its €118.96bn invested in the UK since 1973 has been loaned to the water sector.[69] At current exchange rates, €118.96bn equates to £105.8bn (although exchange rates will have varied significantly over time). 15.72% of £105.8bn is £16.6bn.

117. Ofwat suggested that total 2019/20 net debt within the sector is £55.8bn. The CMA does not currently know how much of the £16.6bn is current or under what terms it was raised. However, for the purposes of this exercise alone, if we make the highly simplified assumptions of equal annual issuance since 1973 and a consistent 20-year life, 20/47 of this would still be in company debt books today – just over £7bn across the sector. £7bn as a percentage of the total net debt is 12.5%.[70]

118. Ofwat quoted Moody's as suggesting that EIB financing has been raised at an average of 100bps discount to market rates. This view was broadly confirmed by Ofgem. At 100bps discount to market rates, a 12.5% allocation to EIB (or equivalent) financing would make actual costs 12.5bps cheaper than the benchmark (or account for half of Ofwat's 25bps discount). However, the Disputing Companies disputed this view of EIB pricing. For example, Anglian stated that EIB debt has become less attractive due to Brexit, while the available discount to market rates experienced with its alternative 'Green' Bonds was in the order of a 'handful of basis points' rather than the 100bps suggested.

119. We also note that companies can and do use shorter-term (non-floating) debt financing options, such as issuing shorter-term fixed interest bonds or through

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[69] European Investment Bank, *United Kingdom and the EIB*

[70] This is a highly simplified assumption, based on equal investment since the EIB began UK investment in 1973. If we were to assume that investment began in 1990 in line with water sector privatisation, the ratio of debt still in company books (under our 20-year equal issuance assumption) would be higher at 20/30 or 66% of the £16.6bn. On this basis, the monetary value of EIB debt would be c£11bn or 20% of current debt books and the potential 'wedge' at 100bps discount pricing would be 20bps rather than 12.5bps. These highly simplified scenarios are shown as examples of the potential impact of subsidised debt, and neither are likely to be accurate either by company or in aggregate for the sector.

the use of bank loans. As per this discussion on potential issues with APR data, we specifically do not consider short-term liquidity facilities in this assessment, as the costs of these should be captured in the CMA's issuance and liquidity allowance.

CMA Assessment

120. The evidence presented by the Parties does not appear to support the view that water companies can consistently issue bonds at yields materially cheaper than the wider market, once tenor and credit rating are adjusted for. Ofwat's own analysis, which was biased towards higher-rated issues, found only a 6bps discount to the benchmark when measuring bonds issued at 5 years either side of the average maturity of the index. On this matter, the CMA remains of the view that the evidence does not support the use of an outperformance wedge as described by Ofwat.

121. However, as suggest by Wright and Mason, if we broaden the scope of the argument to more fully consider that water companies can and do use finance instruments that are either currently (floating rate debt) or structurally (shorter term or EIB debt) lower cost than the historic average of a bond benchmark, then some discount to the benchmark may be warranted. On the basis of the analysis above, this would seem to suggest that these features could justify a 'matching adjustment' that reduced actual company debt costs up to approximately 40bps[71] on average versus a 20-year straight average of the iBoxx a/BBB 10+ bond benchmark.

122. However, it may also be the case that there are reasons why actual debt costs (or elements of debt costs) may be higher than the broad bond benchmark. Companies may (appropriately) wish to issue bonds with a longer than 20-year maturity in order to match a long asset-life project. They may also be required to issue debt at inopportune times (in perfect hindsight) or increase the use of derivatives in the face of a lack of suitable index-linked debt available at desired maturities.

123. These issues may make any matching adjustment a skewed indicator, as it may fairly accurately capture access to tangibly cheaper financing options while inadequately capturing more opaque issues that cause upward pressure on costs due to market conditions at the time funding is required.

124. The CMA has some concerns about the proper calibration of an appropriate adjustment wedge. As noted in the previous section, we consider that using a

[71] An approximate figure assuming 15-31bps from inclusion of floating rate debt as per paragraph 114 and 12.5bps from the inclusion of EIB debt as per paragraph 119.

15-year collapsing average methodology may suitably approximate the cost of the various debt instruments and tenors used by water companies, without the need for further adjustment. As such, we reserve final judgement on the application of an outperformance wedge/matching adjustment until we have considered suitable cross checks to actual costs (discussed below).

7. The use of actual costs as the estimated allowance

125. The redetermination process has seen significant debate between the Parties as to the correct methodology for calculating bottom-up estimates of actual company and sector costs of embedded debt. Figures provided by the Parties have varied so extensively as to challenge the conventional understanding of the word 'actual'.

Ofwat and selected 3rd Parties

Ofwat

126. Pre-CMA PFs, Ofwat stated that its notional rather than actual cost approach represented a long-standing regulatory practice, which offered better incentives to issue debt cost-effectively compared to a pass-through of actual debt costs. Ofwat stated that its approach strongly incentivised companies to outperform while preventing customers from bearing all the risks associated with company financing decisions.[72]

127. In response to CMA PFs, Ofwat stated that the allowance should be a reasonable estimate of the costs of an efficiently-run company under the notional financing structure, but that it was 'not possible to recognise this description in the CMA's point estimate of 4.81%' based on a review of the March 2020 company-reported costs of debt from annual performance reports.[73]

128. Ofwat stated that these reports suggest that the simple average cost of embedded debt at the companies was 4.50% in March 2020, 31bps lower than the CMA's proposed allowance. Ofwat also stated that the CMA's proposed allowance would overcompensate the embedded debt costs at all but one of the water and sewerage companies, and that those with lower costs than the CMA's allowance accounted for 89% of total sector borrowings.[74]

129. Ofwat stated that it did not understand the CMA's 'blanket refusal' to consider actual company data within its sector-level allowance, and stated that placing zero weight on actual data was a 'radical departure' from the well-established approach in UK water regulation, breaks with the CMA's own approach

[72] Ofwat (2019), *PR19 final determinations: Allowed return on capital technical appendix*, Section 6.3.2
[73] Ofwat's response to the provisional findings – risk and return, paragraph 4.6
[74] Ofwat's response to the provisional findings – risk and return, paragraph 4.7

(referencing Bristol Water) and is inconsistent with the cross-check used in the analysis of Bristol's CSA.[75]

130. Ofwat confirmed that it considered that an instrument-level review of ex-ante efficiency would be impractical, but suggested that the data in the Annual Performance Reports is not in dispute between Ofwat and the Companies. Ofwat stated that this was in contrast to the Disputing Companies' earlier submission on the cost of debt, where Ofwat has concerns around the completeness of the analysis.[76]

131. Ofwat stated that Severn Trent and United Utilities have gearing closer to the notional, and have credit ratings of Baa1 and A3, and embedded debt figures of 3.61% and 3.18%, respectively.[77]

132. Ofwat agreed with the CMA in recognising the value of the iBoxx A and BBB indices in providing independent data points to inform an efficient allowance. However, it argued that the iBoxx indices do not capture actual water sector timing, tenor, credit ratings, floating debt proportions or access to the European Investment Bank (EIB). On this latter point, Ofwat suggested that the EIB has provided around £17bn of lending to the water sector and that Moody's estimate that EIB debt carries a yield around 100bps lower than the sectors embedded debt on March 2016.[78] This is discussed above at paragraphs 116 to 118.

133. In its reply to responses, Ofwat stated that it disagreed with Anglian's 4.95% estimate of industry actual costs, which it states is based on Ofwat's FD WaSC and large WoC balance sheet cross check figure of 4.45% plus 50bps reflecting Europe Economics December 2017 view of the impact of swaps. Ofwat stated that even if swap data should be included, this 50bps figure was now out of date. Ofwat reiterated that its approach based on the 2020 APRs should be seen as giving the definitive view of companies' cost of embedded debt as it is based on the balance sheet position as at March 2020.

134. Ofwat suggested[79] that its own allowance may have been too generous, and provided additional granular data which focuses on WaSCs (which they state represent 95% of the sectors borrowing requirements), suggesting that:

a) Close to 'notionally' geared companies such as Severn Trent and United Utilities have actual embedded debt costs over the price control of 3.38%

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[75] Ofwat's response to the provisional findings – risk and return, paragraph 4.9 and 4.12
[76] Ofwat's response to the provisional findings – risk and return, paragraph 4.10
[77] Ofwat's response to the provisional findings – risk and return, paragraph 4.11
[78] Ofwat's response to the provisional findings – risk and return, paragraph 4.12
[79] Ofwat's reply to responses to the provisional findings – risk and return, Table A1.1

(based on business plan submissions) to 3.42% (based on an assessment of listed bond data).

b) Highly-geared companies such as Wessex have costs between 4.06% (listed bond data) and 4.13% (2018 business plan submissions) over the period .

c) All WaSCs have simple average costs of 4.04% (listed bond data) and 4.05% (2018 business plan submissions).

Third Parties

UKRN

135. The UKRN stated that in explicitly choosing not to look at the balance sheet cost of debt, the CMA may have allowed a debt cost allowance that cross-subsidised equity returns.[80]

Ofgem

136. In its November hearing with the CMA, Ofgem explained that it explicitly attempts to match its chosen benchmark (and any adjustments) so that aggregate industry debt costs are neither over nor under-compensated.

137. In its written submission, Ofgem stated that if customers were to pay more than average actual debt costs, this implies a subsidy to equity returns which mean they will exceed the estimated cost of equity (and vice versa). Ofgem considered it important that actual data is considered as getting this measure wrong could be extremely costly to either water consumers or to regulated companies.[81]

138. Ofgem suggested that the CMA calibrate its estimate for RCV growth, access to European Investment Bank funding (which is subsidised by UK taxpayers) and the use of floating rate debt (which benefits from current low rates) and more explicitly compare this to reported average water sector debt costs. Finally, Ofgem pointed out that errors in the estimation of embedded debt costs are likely to have a knock-on impact on the financeability cross-check.[82]

[80] UKRN's response to the provisional findings
[81] Ofgem's response to the provisional findings, paragraphs 12-14
[82] Ofgem's response to the provisional findings, paragraphs 17-18

CC Water

139. CC Water stated that the bottom of the CMA's range was higher than 13 companies reported their interest costs to be in their 2019-2020 annual performance reports, and that of the Disputing Companies only Yorkshire had higher reported costs. CC Water stated that this approach would go beyond cost-pass through, with consumers in effect paying a premium above incurred costs – effectively building in financial performance from the outset. This approach would most likely benefit investors and was manifestly not in the customer interest.[83]

Disputing Companies and selected 3rd Parties

Disputing Companies

140. Anglian stated that the approach to actual costs needs to be conducted on an 'all-in observed cost of debt' basis for both companies and the sector, and that without this cost of debt allowances could materially under-fund companies' efficient financing costs and asset-liability matching.[84]

141. Anglian considers the actual debt costs calculated by Ofwat to understate the costs incurred by the average company in the sector. Anglian suggested that Ofwat includes short-term debt but excludes efficient derivative instruments. Combined with the falling average tenor of actual debt across the sector (which Anglian attributes to Ofwat's introduction of a 10-year trailing average and outperformance wedge in 2014) this approach is likely to provide a downward biased estimate. Anglian suggested that Ofwat's 'actual' costs should represent a floor for the cost of embedded debt allowance, and that Anglian measures the median 'all-in' cost of debt for the sector to be 4.95% (WaSCs and large WoCs). Anglian compared this to its assessment of its own all-in actual costs of 4.97%, and suggest that the CMA's provisional determination of 4.81% risks underfunding efficient financing costs within the sector.[85]

142. Anglian also stated that Ofwat's use of APR data is misleading and understates the actual cost of debt. Anglian stated that the APR data is prepared in accordance with Ofwat's Regulatory Accounting Guidance and is not consistent with even Ofwat's own balance sheet checks.[86] In addition to the 38bps impact from inclusion of short-term liquidity facilities, Anglian stated

[83] The Consumer Council for Water's response to the provisional findings,, paragraph 5.12
[84] Anglian's response to the provisional findings, paragraphs 435-437
[85] Anglian's response to the provisional findings, paragraphs 441-450
[86] Anglian's reply to responses to the provisional findings, paragraph 79

that APR data understated its cost of embedded debt by a further 15bps due to reasons such as measurement of coupons rather than yields at issue.

143. Bristol stated that the cost of debt implied by the APRs includes a number of financial instruments designed to support short-term liquidity and which could distort the observed cost of debt (including overdrafts, liquidity facilities and revolving credit facilities). This impact can be shown by the difference between interest costs based on gross debt (c4.5%) compared to the costs of net debt (c4.8%). These issues are considered by Ofwat in its own balance sheet approach (which is different to the APR approach), and Ofwat considers that costs associated with temporary liquidity and credit facilities are priced separately (through the allowance for issuance costs).

144. In addition, the inclusion of short-term instruments distorts the allowance due to the upward sloping yield curve. Where companies have followed this path, one would expect this to introduce a wedge between the cost of debt implied by the benchmark and the reported costs. Ofwat's estimate of the outperformance wedge – which is primarily driven by shorter dated issuance – suggests that the impact of short dated debt is likely to be equivalent to at least 25bps. Ofwat recognises this by excluding instruments with a tenor of less than 10 years from its analysis of the outperformance wedge, so it is inconsistent to fail to exclude such instruments from the analysis of actual costs.

145. Floating rate debt is included without taking into account forward rate adjustments, which would be +10bps based on October data. Also, the inclusion of floating rate debt reduces the reported cost of debt in the APRs by c50bps, which raises the question as to whether all costs and risks associated with floating rate debt are captured. Bristol stated that floating rate debt would need to be adjusted to capture potential volatility and risk associated with such instruments.

146. Bristol also stated that the costs in the APRs are based on coupons rather than yields at issues, and so are not representative, and are not representative of actual costs faced over the entire period.

147. Bristol stated that the Ofwat balance sheet approach should suggest a figure of 4.95% (based on Ofwat's 4.45% plus Europe Economics 'early view' that there would be a 50bps increase in costs including swaps), and that as a result the CMA allowance of 4.81% may under-state the costs of debt.

148. Bristol stated that differences to the benchmark figure may be driven by either efficiency of issuance or companies taking different interest rate risks (e.g., use of variable rate debt or debt at shorter tenors). As a result, it was

important to take into account an appropriate definition and specification of the history of financing for the notional company over the 20-year horizon. Bristol stated that it was reasonable to assume that the notional company would raise long-term debt in order to match its assets and that the notional company would raise debt in line with regulatory guidance. Where companies have chosen to adopt financing strategies that differ from the notional structure, it may not be appropriate to 'goal seek' the costs implied by the benchmark to an ex-post estimate of actual costs.

149. Bristol pointed out that even Ofwat say that "we set our allowance for the cost of embedded debt by reference to a market benchmark. This was as we [Ofwat] considered that using a trailing average of our benchmark index has the best incentive properties". Bristol stated that it is not appropriate for the regulator retrospectively and with the benefit of hindsight to under-fund long term debt issuance on the basis that companies which have issued floating rate or shorter dated debt have benefitted from outturn market conditions (which they could not control) and reduced the sector average cost of debt.

150. Northumbrian[87] also stated that Ofwat's use of APR data does not provide a good approximation of the sector average costs of embedded debt in AMP7, arguing that:

a) The APR approach includes instruments that Ofwat excludes from its own balance sheet approach (on the basis that they could distort the observed cost). This includes the use of credit facilities or other temporary financing arrangements. In the case of Anglian, drawing on a credit facility to improve liquidity during COVID-19 leads to an understatement of AMP7 debts by 38bps.

b) Short term instruments reduce the observed cost of debt but increase refinancing risk. This risk is not captured in the APR data, and leads to an understatement of long-term financing costs.

c) The APR figure is a point estimate that does not reflect costs over the period.

d) Floating rate debt does not take into account forward rate adjustments (worth c10bps at October 2020), nor is it adjusted for the associated volatility risk.

[87] Northumbrian's reply to responses to the provisional findings, paragraph 142

e) The APR figure is based on coupons not yield at issue, so may misrepresent any bonds not issued at par. Northumbrian (in a later submission) estimated the cost of this issue at c5bps.

151. Northumbrian stated that these issues make the APR data unreliable as either a primary input or a cross check. Northumbrian also suggested that Ofwat's suggestion that it can be relied upon is 'opportunistic' given that it is constructed on the basis of its Regulator Accounting Guidance (RAG) and does not match the balance sheet approach previously used by Ofwat in setting price controls. Northumbrian did welcome Ofwat's apparent indication that a cross check should include swaps. Northumbrian's analysis of a balance sheet cross check including swaps would suggest an all-in economic cost of debt of 4.95%.[88]

152. Yorkshire stated that its statement of case had sought a cost of debt allowance that covered its efficiently incurred financing costs in full, and that the CMA would be inconsistent with the finance duty if it were to consciously underfund a company's debt costs.[89]

153. Yorkshire disagreed with the CMA's view that it did not see strong evidence for Yorkshire's submissions relating to the adoption of actual costs, and the CMA's view that the use of actual costs would limit the incentive to make debt costs as low as possible. Yorkshire stated that, nevertheless, it has approached its assessment of the PF cost of debt allowance in a pragmatic way – and that however the CMA ultimately calibrates its allowance the key requirement is that Yorkshire should receive sufficient revenues to cover its 4.93% embedded cost of debt. Yorkshire stated that the currently proposed allowance of 4.81% comes close to satisfying this requirement.[90]

154. In addition, Yorkshire disagreed with the CMA's view that the use of a benchmark approach will lead to 'winners' and 'losers' that will equalise over time, suggesting that there is no reason to think that long-term debt (e.g., maturing in 2050+) will be refinanced at interest costs below the notional cost of debt. Conversely, Yorkshire did agree with the removal of the outperformance wedge.[91]

155. In addition, Yorkshire[92] stated that undertaking cross-checks on a sector-wide basis is not as simple as Ofwat seeks to portray, pointing out that the APRs

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[88] Northumbrian's reply to responses to the provisional findings, paragraph 143-145
[89] Yorkshire's response to the provisional findings, paragraph 3.3.9
[90] Yorkshire's response to the provisional findings, paragraph 3.3.10-3.3.11
[91] Yorkshire's response to the provisional findings, Table 1
[92] Yorkshire's reply to responses to the provisional findings, paragraph 2.6.4-2.6.7

are prepared in accordance with Ofwat's guidelines and should be adjusted for:

a) The difference between yields at issue and coupons (Yorkshire issued a £350m bond in April 2019 with a coupon of 2.75% but a yield at issue of 2.88%).

b) Different inflation assumptions, which are more complicated than portrayed by Ofwat. Ofwat suggests that inflation-adjusted figure is 4.81%, while Yorkshire would suggest that it is 4.84%.

c) Significantly higher than normal cash levels at March 2020, largely drawn as a buffer against potential COVID issues or due to company-specific issues. Calculating debt costs on the basis of net rather than gross debt would suggest an additional c30bps of interest costs, making the estimate more like 4.8% and very close to the CMA's PF allowance.

156. Yorkshire stated that, appropriately adjusted for inflation, the APR cost of debt would have been c5% in 2018 and c4.9% in 2019, suggesting a figure of c4.8% as a more reasonable decline profile than the drop to 4.5% suggested by Ofwat.[93] In a post-hearing submission, Yorkshire clarified that it calculated its own cost of debt to be 33bps higher than the APR data suggested (22bps from the inclusion of liquidity facilities and 9bps from other factors) while the WaSC and large WoC figure was under-reported by 33bps-38bps, 28bps of which was the inclusion of liquidity facilities while 5-10bps was the estimated impact of other factors.

157. In addition, Yorkshire stated that if the CMA's intention is that all costs that arise from holding cash and from short-term lending facilities should be covered by the 10bps 'issuance and liquidity costs', then these items should be excluded from the calculation of embedded debt costs. This process would add 20bps to the Yorkshire cost of embedded debt.[94]

Third Parties

158. Energy North West Limited (ENWL) suggested that while it agreed that starting with the notional company is practical and efficient, the financing duty will not be properly discharged if actual company positions are not considered. In conjunction, the assessment of debts should take into account all types of debt instruments and debt costs. ENWL 'continue to stress' that

[93] Yorkshire's reply to responses to the provisional findings, paragraph 2.6.8
[94] Yorkshire's reply to responses to the provisional findings, paragraph 2.6.5

derivatives are an important part of the actual debt costs and should therefore be taken into account by regulators.[95]

159. ENWL suggested that a number of companies had already commissioned external reviews of the reasonableness of their debt portfolios, and that this evidence could be relied upon by the CMA.[96]

160. ENWL stated the debt underperformance does not equate to inefficiency, and that in practice debt issuance pricing is very marginally influenced by efficiency. Rather, market rates tenor and credit rating are the most important variables. The implication of this is that at the point of issue, the best outturn with respect to tenor is unknown. Regulators have traditionally encouraged long dated issuance as this reduces refinancing risk and provides more stability to interest costs. However, this failed to predict the subsequent significant fall in interest rates.[97]

161. ENWL also stated that an underfunding of debt costs causes a feedback loop where ratings agencies downgrade companies with debt costs materially higher than the allowance, causing debt costs at those companies to rise (and vice versa). This relationship then continues to impact relative debt costs in future periods.[98]

162. ENWL stated that companies on the 'wrong side' of the average cannot rectify their position by refinancing at lower costs in the future, as the ability to match or beat the index will be a function of luck or timing, rather than anything to do with efficiency. With investment needs or maturing debt the primary driver of issuance, the regulatory regime will benefit the lucky or the large (and thus flexible) at the expense of those otherwise efficient companies who need to access the market at inopportune moments.[99]

The use of actual costs as the estimated allowance – CMA Analysis

163. 'Actual' cost of debt analysis is problematic. Ofwat's suggestion that the APR data is unambiguous is contested by the companies. Ofwat has provided a summary of the costs of debt included in the 2020 APR reports, adjusted for the CMA's use of a higher RPI inflation figure of 2.90%. The data actually contained in the APR reports would suggest a simple average of 4.34%, while the 'CMA' inflation-adjusted figure is 4.50%.

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[95] Electricity North West Ltd's response to the provisional findings, paragraphs 13-17
[96] Electricity North West Ltd's response to the provisional findings, paragraphs 18-19
[97] Electricity North West Ltd's response to the provisional findings, paragraphs 20-22
[98] Electricity North West Ltd's response to the provisional findings, paragraphs 23-24
[99] Electricity North West Ltd's response to the provisional findings, paragraphs 25-29

164. On the basis of Ofwat's inflation-updated data, the WaSC average is 4.08% and the WoC average is 5.29%. This gives a similar picture to the Ofwat 'reply' data referenced in paragraph 134 which suggested a WaSC figure of 4.04%-4.05%. The average APR cost of debt at the four Disputing companies is 4.56% on this basis.

165. We have collated and assessed the 2020 APR data for the companies in the sector, making the same adjustment to index-linked costs as Ofwat:

Table 1: Ofwat APR data adjusted for CMA inflation assumptions

	Fixed Rate	*Floating Rate*	*Indexed Rate (+30bps for CMA inflation)*	*Fixed Weight*	*Floating Weight*	*Indexed Weight*	*Weighted Average (CMA inflation)*	*2/3 Fixed, 1/3 Indexed*	*W. av. years to maturity*
ANH	4.42%	1.09%	5.35%	34%	14%	52%	4.44%	4.73%	11.2
WSH	5.17%	2.22%	4.37%	20%	5%	75%	4.41%	4.90%	11.2
HDD	3.49%	2.00%	6.63%	0%	46%	54%	4.49%	4.54%	6.4
NES	4.44%	1.88%	4.14%	61%	1%	38%	4.30%	4.34%	12.9
SVE	3.85%	1.43%	4.48%	61%	16%	23%	3.60%	4.06%	12.2
SWB	1.94%	0.92%	4.81%	47%	31%	22%	2.26%	2.90%	19.2
SRN	5.70%	1.18%	5.51%	18%	9%	73%	5.16%	5.64%	11.8
TMS	5.32%	1.71%	4.14%	31%	11%	57%	4.24%	4.93%	13.6
NWT	2.97%	0.00%	4.04%	43%	8%	49%	3.25%	3.33%	12.9
WSX	4.18%	1.50%	4.52%	51%	14%	35%	3.93%	4.29%	15.0
YKY	2.87%	1.09%	10.04%	45%	23%	32%	4.76%	5.26%	14.7
WaSC Average	4.03%	1.37%	5.28%	37%	16%	46%	4.08%	4.45%	12.8
WaSC Median	4.18%	1.43%	4.52%	43%	14%	49%	4.30%	4.54%	12.9
AFW	4.37%		4.68%	47%	0%	53%	4.54%	4.47%	15.9
BRL	4.96%	1.62%	6.32%	22%	27%	51%	4.75%	5.41%	11.6
PRT	2.30%	1.76%	6.66%	1%	15%	84%	5.89%	3.75%	10.0
SEW	4.29%	2.11%	6.04%	32%	14%	53%	4.92%	4.87%	13.0
SSC	2.84%	1.25%	6.74%	11%	9%	81%	5.85%	4.14%	22.1
SES	6.89%	4.38%	6.05%	0%	16%	84%	5.79%	6.61%	9.4
WoC Average	4.28%	2.22%	6.08%	19%	13%	68%	5.29%	4.88%	13.2
WoC Median	4.33%	1.76%	6.19%	16%	15%	67%	5.35%	4.67%	12.3
Whole Sector Average	4.12%	1.63%	5.56%	31%	15%	54%	4.50%	4.60%	13.1
Whole Sector Median	4.29%	1.56%	5.35%	32%	14%	53%	4.49%	4.54%	12.9

Source: CMA analysis of APR data

166. While we concur with Ofwat that the whole sector weighted average actual cost is 4.50% on this basis, we note that there is a large selection of figures in this table that could reasonably be argued to represent an appropriate sector-level 'actual'. We also note the Disputing Companies' concerns that this data

includes the costs of short-term liquidity facilities as well as other alleged methodological failings.

167. While potential distortions to this data may be difficult to adjust for with accuracy, we have attempted an exercise to 'normalise' the relative debt weights and debt costs to mitigate the issue of inappropriate levels of short-term credit facilities within the measure of floating rate debt.

168. We take the 2018/19 proportions of fixed, floating and index-linked debt per company, and assigning all companies a floating cost of 2.53% (the 6-month average of the iBoxx A/BBB 10+ as used in paragraph 112), we estimate a new industry-wide weighted cost of debt of 4.72% (median) to 4.77% (average). Making a further assumption that the other issues identified APR data issues, such as the use of coupons rather than yield at issue, are worth between 5-10bps, we estimate an industry 'actual' average cost of debt of 4.82%.[100]

169. This figure, if our analysis is broadly accurate, would suggests that March 2020 actual costs for the industry are remarkably close to the CMA's PF estimate of 4.81%. However, if we were to focus on the WaSCs only, adjusted actual costs would be approximately 4.45% (a floating-adjusted average of 4.31% and a median of 4.41%, plus 5-10bps for other adjustments).

170. The resulting adjustments to the weight of debt instruments and the cost of floating rate debt are shown in the table below:

[100] We note that Ofwat's Risk and Return December response estimates the adjustment for the inclusion of liquidity facilities in the APR data would be worth only 9bps, and would require the exclusion of 5bps of the 10bps of issuance and liquidity allowance (see paragraph 3.21 Objection 2). We acknowledge that different approaches to this adjustment may lead to different estimates of the impact, but believe our adjustment to be rational. In addition, we are not convinced of the need to remove any element of the liquidity allowance as part of this adjustment, as this allowance covers facilities that can be used at various times during the year, and there is no guarantee that they were deployed (and thus captured) in either March 2019 or 2020 data (as suggested by Ofwat). In addition, Ofwat found 8bps of lower cost when using yield-at-issuance rather than coupon analysis (see paragraph 3.21, Objection 5), while updating from the CMA's CPIH assumption (rather than just the RPI assumption) had a minimal impact on the data (see paragraph 3.21, Objection 6).

Table 2: Ofwat APR data updated for 2018/19 debt type weights and CMA floating rate assumption

%

	Fixed Rate	*Implied Floating*	*Indexed Rate (+30bps for CMA inflation)*	*2018/19 Fixed Weight*	*2018/19 Floating Weight*	*2018/19 Indexed Weight*	*Weighted (New Floating)*
ANH	4.42	2.53	5.35	35	6	59	4.85
WSH	5.17	2.53	4.37	32	6	62	4.52
HDD	3.49	2.53	6.63	0	54	46	4.41
NES	4.44	2.53	4.14	63	2	35	4.31
SVE	3.85	2.53	4.48	60	17	23	3.77
SWB	1.94	2.53	4.81	58	20	22	2.68
SRN	5.70	2.53	5.51	28	4	68	5.43
TMS	5.32	2.53	4.14	50	1	49	4.72
NWT	2.97	2.53	4.04	46	5	49	3.47
WSX	4.18	2.53	4.52	45	17	37	4.02
YKY	2.87	2.53	10.04	40	26	34	5.21
WaSC Average	4.03	2.53	5.28	42	14	44	4.31
WaSC Median	4.18	2.53	4.52	45	6	46	4.41
AFW	4.37	2.53	4.68	50	0	50	4.53
BRL	4.96	2.53	6.32	27	21	53	5.17
PRT	2.30	2.53	6.66	0	8	91	6.30
SEW	4.29	2.53	6.04	15	5	80	5.59
SSC	2.84	2.53	6.74	15	3	85	6.26
SES	6.89	2.53	6.05	0	8	92	5.78
WoC Average	4.28	2.53	6.08	18	7	75	5.61
WoC Median	4.33	2.53	6.19	15	6	82	5.68
Whole Sector Average	4.12	2.53	5.56	33	12	55	4.77
Whole Sector Median	4.29	2.53	5.35	35	6	50	4.72

Source: CMA analysis of APR and iBoxx data

171. In presenting this adjusted estimate, the CMA is attempting to assess actual industry debt costs. We acknowledge the use of significant assumptions in this calculation and that this adjusted estimate of industry actual costs remains imperfect.

The use of actual costs as the estimated allowance – CMA Assessment

172. The CMA noted in the PFs that it was not well placed to conduct an independent analysis of actual costs, highlighting that the analysis of all

individual debt instruments to assess whether they were issued 'efficiently' would be infeasible within the redetermination timeframe.[101]

173. We also noted that we did not see strong evidence in support of Yorkshire's request to make actual costs the primary input into our cost of embedded debt allowance, stating our view that such an approach would create little or no incentive for companies to ensure that their debt costs were as low as possible if there was such a 'cost-pass-through' mechanism. We noted that the associated requirement to independently assess the 'efficiency' of each debt instrument used by every company in the sector would not seem to represent the effective use of a regulator's time and resources.

174. We note that in varying the outperformance wedge applied to the benchmark in each price control in order to push the estimate towards actual costs, Ofwat's approach to setting the notional cost of embedded allowance could be suggested to be simply a version of averaging actual costs. Ofgem's approach does this explicitly, taking the approach further by indexing the cost of debt through the control period.

175. These approaches may reduce the potential for difference between what customers are changed and averaged debt costs that are incurred. However, the introduction of such measures after a long period of gradually falling interest rates may mean that future risk is being transferred to customers after companies have benefitted – significantly limiting the risks borne by shareholders at a point where rates may move against them. In addition, the use of actual costs would seem to specifically mitigate Ofwat's suggestion that it is appropriate to differentiate 'fair' RCV-linked debt issuance and issuance for capital structuring purposes.

176. In addition, the efficacy of this approach is predicated on being able to accurately measure 'actual' costs despite the difficulties in doing so, for example deciding how to treat derivative instruments. The companies may reasonably expect that if issuing straight debt plus a swap instrument were economically equivalent but more flexible than issuing index-linked debt (at any particular moment) these two approaches should be treated equivalently in any assessment of actual costs. We also note that Ofwat's objections to having to assess and count such instruments would seem to match the CMA's own concerns about a regulator's ability to properly audit the many different types of potential derivative instruments – and that dedicating the resources to

[101] Provisional findings report, paragraph 9.342

accurately conduct such an assessment may not be in the customer interest in the round.

177. While the notional benchmark-driven approach preferred by the CMA in the PFs may be considered to have benefits such as objectivity, strong incentive properties and a balance of risks which avoids company-specific cost pass-through, it can reasonably be criticised if it provides an allowance that causes customers to bear costs that are structurally higher or lower than the costs reasonably incurred by the companies. It may also be criticised if there is a concern that a pure benchmark approach leads to a situation where companies receive a benefit when actual costs are below notional costs but fail to take on the associated risks if actual costs rise above benchmark costs as interest rates rise.

178. For the purposes of these water redeterminations, taking the above evidence and analysis into consideration, overall the CMA currently retains a preference for a notional approach using a benchmark as the primary tool in setting the estimate of the cost of debt. As we will discuss in the following section, we nevertheless acknowledge the value in actual costs as a cross-check to this approach.

8. The use of actual costs as a cross check

179. This section of the paper focuses on the use of actual costs as a cross check to a benchmark-led approach. There is obvious overlap with the issues discussed in the previous section, and we may repeat some evidence where necessary.

Ofwat and selected Third Parties

Ofwat

180. Ofwat stated that the CMA has chosen not to carry out any cross checks on its proposed embedded debt allowance, citing 'significant difficulties and complications' in using actual data for this purpose, the impact of gearing and the inefficiency of assessing individual debt instruments.[102]

181. Ofwat stated that it did not understand the CMA's 'blanket refusal' to consider actual company data within its sector-level allowance, and stated that placing zero weight on actual data was a 'radical departure' from the well-established approach in UK water regulation, breaks with the CMA's own approach (referencing Bristol Water) and is inconsistent with the cross-check used in the analysis of Bristol's CSA. In addition, while Ofwat agreed with the CMA on the use of the iBoxx A and BBB indices, it reiterated the importance of using actual costs as a cross check.[103]

Ofgem

182. Ofgem had sympathy with the CMA's time and resource constraints, but suggested that it should take more account of Ofwat's balance sheet approach to actual costs as a cross check to ensure that the embedded debt cost allowance is not materially above a fair and reasonable estimate of the costs likely to be incurred by a notional efficient operator in the sector.[104]

The Disputing Companies

183. Anglian argued that cross-checks against actual company specific and sector-wide debt costs are merited and in line with historical regulatory approach, including the CMA's approach to Bristol Water's 2014 appeal, NATS and the

[102] Ofwat's response to the provisional findings – risk and return, paragraph 4.8
[103] Ofwat's response to the provisional findings – risk and return, paragraph 4.9 and 4.12
[104] Ofgem's response to the provisional findings, paragraph 15

calibration of Bristol's CSA in the current redetermination. [105] Anglian presented its assessment of its own all-in actual costs of 4.97%, and suggested that the CMA's provisional determination of 4.81% risks underfunding efficient financing costs within the sector.[106]

184. Northumbrian stated that the issues (identified in the preceding section of this report) make the APR data unreliable as either a primary input or a cross check. Northumbrian also suggested that Ofwat's suggestion that it can be relied upon is 'opportunistic' given that it is constructed on the basis of its Regulator Accounting Guidance (RAG) and does not match the balance sheet approach previously used by Ofwat in setting price controls.[107]

185. Northumbrian welcomed Ofwat's apparent indication that a cross-check should include swaps. Northumbrian's analysis of a balance sheet cross check including swaps would suggest an all-in cost of debt of 4.95%.[108]

186. In its response to Ofwat's reply, Yorkshire pointed out that the use of detailed actual debt costs would inappropriately shift the emphasis of the analysis toward an actual rather than notional basis. Yorkshire reiterated its view that the use of any actual costs as a cross check should focus on the individual company, not the sector average (which would suggest a 4.93% cost for Yorkshire).[109]

The use of actual costs as a cross check – CMA analysis and assessment

187. Given that we have discussed the difficulties associated with calculating actual costs, this section combines the CMA's 'analysis' and 'assessment' on the use of actual costs as a cross check.

188. The PFs highlighted concerns about the efficacy of the use of actual costs as a cross check to the notionally defined estimate. As discussed in Section 4, there is significant disagreement amongst the parties as to what actual costs are. For example, Ofwat has provided estimates of:

a) 4.25% as the weighted average pure debt cost in the sector at draft determination (PR19 FD)[110]

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[105] Anglian's response to the provisional findings, paragraphs 434-435, 438-439
[106] Anglian's response to the provisional findings, paragraphs 441-450
[107] Northumbrian's reply to responses to the provisional findings, paragraph 143-144
[108] Northumbrian's reply to responses to the provisional findings, paragraph 144
[109] Yorkshire's reply to responses to the provisional findings, paragraph 2.6.2
[110] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, Section 6.3.1

b) 4.65% as the company-level median pure debt cost in the sector at draft determination (PR19 FD)[111]

c) 4.45% as the WaSC and large WoC median cost of debt at final determination (PR19 FD)[112]

d) 4.50% as the March 2020 APR-derived figure (response to PFs)[113]

e) 3.61% and 3.18% as the actual costs at Severn Trent and United Utilities respectively (response to PFs)[114]

f) 4.04%-4.05% as the all-WaSC average actual costs (reply to responses to PFs).[115]

189. By contrast, during the redetermination process the Disputing Companies have variously estimated actual 'all-in' industry costs to range from 4.47%[116] to 5.15%.[117] We present these ranges from the Disputing Parties as indicative of the many issues that impact any measure of 'actual' costs. Differences in the instruments measured, the companies measured, the inflation assumption used, and the single date 'snapshot' nature of balance sheet checks makes it easy for different parties to provide differing measures of 'actual' costs.

190. These difficulties mean the use of actual costs as a cross check must be conducted with caution. Nevertheless in addition to the points made above, we now highlight our thoughts on preferred specific cross-check metrics.

191. Ofwat's updated preferred measure of actual costs is the 4.50% suggested by the average of the weighted average (mean) costs for the whole sector in the (CMA inflation) APR data. This would seem to have the advantage of alignment of a 'one control' approach for the whole sector. However, we have some concern that this figure is based on a c15% weight to floating-rate debt that is not clearly incorporated into the notional capital structure used across the price control. This figure would also be higher if it is correct that floating data inappropriately contains instruments that should be counted through the 0.1% issuance and liquidity allowance.

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[111] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, Section 6.3.1
[112] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, Section 6.3.3
[113] Ofwat's response to the provisional findings – risk and return, paragraph 4.7
[114] Ofwat's response to the provisional findings – risk and return, paragraph 4.11
[115] Ofwat's response to the provisional findings – risk and return, Table A1.1
[116] 4.47% is based on Bristol's SoC assessment of costs excluding a company specific adjustment, Table B1. As Bristol focus on a suitable allowance after the company specific adjustment, a more appropriate low estimate may be 4.87% - based on Yorkshire's assessment that Ofwat's 4.47% allowance included errors worth 40-50bps, Yorkshire's reply to responses to the provisional findings, paragraph 7.5.12
[117] Anglian SoC, paragraph 1183

192. On the basis of our adjustments described in paragraphs 168 - 169, the WaSC weighted average is c.4.45% while the whole sector figure is c.4.82%.

193. On balance, given the level of disagreement over the correct measurement of actual costs, our preferred cross-check methodology is to use a range of datapoints when considering an appropriate figure to use as a cross-check.

194. First, we take an 'actual-notional' approach, calculating actual costs based on a weighted average of Ofwat's APR fixed costs (weighted at 2/3) and index-linked costs (weighted at 1/3). This methodology may have the advantage of fairness to both customers and companies through the use of actually incurred costs but weighted to the assumptions on the structure of the notional company that are used throughout the price control. This methodology does not include floating rate debt, and so avoids associated issues identified above, but may still slightly under-represent other costs versus our adjusted methodology (which allows for floating rate debt and yields on issuance).

195. The 'actual-notional' approach suggests a cross check range of between 4.54% (median) and 4.60% (average) for the sector and 4.45% (average) and 4.54% (median) for the WaSCs. Taken together, we consider a range of 4.45% to 4.60% would be a reasonable cross check range.

196. Second, we include our adjusted estimate of actual industry costs of 4.45% (WaSCs) to 4.82% (sector). Including this estimate increases our cross-check range to 4.45% to 4.82%.

197. We consider that our point estimate of embedded debt allowance for the notionally capitalised company would reasonably be expected to be at or lower than our estimate of 'actual' costs and the figure suggested by the Disputing Companies' 'all-in' cost of approach. As the water companies carry more gearing than the notional company and have larger weightings to (currently) more expensive index-linked debt than the notional company, we consider that the notional company would have costs lower than the average for the sector. In particular, the increased use of index-linked debt would appear to trade off higher costs against improved financeability – a decision and risk that should sit with companies rather than customers.

198. In addition, we consider it likely that actual costs will sit above our point estimate of the price control as actual costs are measured at March 2020. While we do not know the exact path of embedded debt costs at each company, a history of falling rates suggest that embedded debt cost will be flat or declining , on average, over the course of the period 2020-2025 covered by PR19 as a result of historic and relatively expensive debt maturing

and being replaced. This effect can be seen through the impact of using a collapsing average when measuring historic benchmark yields as described in Section 5.

9. Setting a cost of embedded debt allowance

199. As described in Section 5, our updated position is that a 15-year collapsing average of the iBoxx A/BBB 10+ indices is likely to provide the most appropriate notional benchmark for setting our cost of embedded debt allowance.

200. Our updated 15-year collapsing average estimate of 4.52% sits within our preferred cross check range of 4.45% to 4.82% (identified in Section 8) without the need for any 'matching adjustment'. We consider that as an estimate of average costs over the price control, it is reasonable that our point estimate sits at the lower end of our cross-check range calculated using (adjusted) March 2020 data. We also note that our point estimate is close to our assessment of the WaSC only actual costs (4.45%).

201. In Section 5 we noted that our previous 20-year approach could continue to be used, but we agreed with evidence that suggests such an approach would likely require a matching adjustment to reflect the range of debt instruments used and the associated actual costs incurred in the industry. A 20-year collapsing average approach (using an average of the A/BBB indices) would suggest an estimate of 4.93%, and thus would likely require some form of 'matching adjustment' to avoid over-compensating average actual costs over the price control.

202. We note, as an additional cross check, that the 15-year collapsing averages of the iBoxx Utilities 10+ index would suggest an estimate of 4.43%, giving us further confidence in a benchmark-driven estimate towards the bottom of our actual cost cross-check range.

203. In the round, we consider our updated benchmark-driven estimate of 4.52% to provide a reasonable indicator of a fair allowance for the cost of embedded debt – and that this allowance adequately balances our duties to both companies and consumers.

204. While the estimation of an accurate and appropriate cost of embedded debt is clearly complicated, it is primarily an assessment of historical rather than uncertain future costs. This is different to estimating the cost of equity, which requires the prediction of future costs. As a result we see less reason to provide a WACC range for the embedded debt metric, so propose that 4.52% becomes our estimate of the cost of embedded debt for the low, midpoint and high WACC estimates.

10. Review of Approach to New Debt

Cost of New Debt allowance – PR19 Decision[118]

205. Ofwat based its allowance for the cost of new debt on recent evidence of the yield of its benchmark index, adjusted to account for the market implied increase in the 15-year nominal risk-free rate over 2020-25 embedded in the term structure of nominal gilts.

206. Ofwat lowered its view of the 'outperformance wedge' applicable to this data from its draft determination estimate of 25 basis points to 15 basis points in its final determination. This reduction reflected its view that the lower overall allowed return on capital in PR19 could potentially reduce outperformance against the iBoxx A/BBB over 2020–25.

207. Ofwat used a forward rate adjustment of 25bps to reflect market-implied rate rises.[119]

208. In its PR19 methodology document for PR19[120] Ofwat stated that it had decided to have separate approaches to embedded debt and new debt, with a fixed approach to embedded debt and an indexation mechanism for new debt. It stated that at the end of the period it would compare the revenue allowance (based on the PR19 spot rate chosen), against a trailing average of the iBoxx A/BBB index over the same period; any difference in revenues would be reflected in future revenues or RCV. Ofwat stated that its policy on how the true-up would be reflected in company revenues would be decided as part of the next price review, PR24.

Cost of New Debt allowance – CMA provisional findings

209. Our approach in this area was consistent with that applied to embedded debt in that we did not see evidence for an outperformance wedge once tenor and credit rating were accounted for.

210. We considered the A/BBB 10+ index to be the best proxy for the notional costs faced by an efficiently financed and notionally capitalised company in this sector.

211. Neither Ofwat nor the Disputing Companies raised the use of forward rate adjustments. However, we consider there is insufficient evidence that making

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[118] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, section 6.2.3
[119] Ofwat (2019), PR19 final determinations: Allowed return on capital technical appendix, Table 6.1
[120] Ofwat (2017), *Delivering Water 2020: Our methodology for the 2019 price review. Appendix 12: Aligning Risk and Return*, section 6.3

such an adjustment leads to a better estimate of the future spot rate. As a result, we did not apply a forward rate adjustment to our estimate.

212. We note that, given moves in the forward curve since Ofwat calculated its adjustment, any adjustment that would be applied on current data would be small.

213. We received no evidence to challenge Ofwat's decision to apply a true-up mechanism to the cost of new debt, and we agree that this is also the correct approach for our determination. We would expect Ofwat to measure the path of new debt costs over the period on a like-for-like basis for the Disputing Companies (including no performance wedge applied when calculating the true-up).

214. We applied our preferred methodologies to the iBoxx data to calculate our cost of embedded debt allowance. Our provisional estimate:

a) used a lower bound equal to the 6-month trailing average yield on the iBoxx A-rated 10+ index, equating to 2.22%;

b) used an upper bound equal to the 6-month trailing average yield on the iBoxx BBB-rated 10+ index, equating to 2.53%; and

c) deflated these figures by our 2.00% CPIH estimate, to give a range of 0.21% to 0.52%, compared to Ofwat's PR19 figure of 0.53%.

Cost of New Debt allowance – Post PFs Parties' views

215. Ofwat stated that, as with its provisional decision on embedded debt, the CMA has not made an adjustment to the base level of the iBoxx A/BBB to reflect the assumed ability of the notional company to issue lower-yielding bonds. Ofwat state that the CMA justified its decision by referring to arguments made by Anglian Water that there was no evidence of a wedge after tenor and credit rating were controlled for.

216. In addition, Ofwat noted that both Anglian Water and Yorkshire Water suggested that Ofwat's PR19 final determination implied a lower credit rating for the notional company than Baa1/BBB+, and thus that the cost of new debt ought to be based on the iBoxx BBB index with no performance wedge deduction.

217. Ofwat stated that it had previously supplied the CMA with analysis of traded yields on disputing company fixed-rate bonds rated Baa1 or lower. It stated that this analysis demonstrated that even bonds comparable to the

approximately 20 years-to maturity of the iBoxx A/BBB trade at a discount to our PR19 benchmark of the iBoxx A/BBB minus 15 basis points.

218. Ofwat supplied a chart showing yields on bonds issued by Severn Trent and Northumbrian, and described this as demonstrating that on average between 29 May and 13 October 2020, these bonds have traded at a 35bps discount to the iBoxx A/BBB, and that this demonstrates that an adjustment of at least the level used at its determination (15bps) remains

219. Ofwat noted its disagreement with the premise that its final determination implies a notional company credit rating below BBB+/Baa1. Its view remained that this assessment is based on a simplistic assessment of a single metric (AICR), and that companies close to its notional gearing as at March 2020 were rated at least Baa1. For instance, Dŵr Cymru (60.0% gearing) is rated A3, Severn Trent (64.9% gearing) is rated Baa1, United Utilities (67.7% gearing) is rated A3.

220. Anglian agreed with the CMA's approach to new debt, save for the lack of forward uplift. Anglian stated that applying the forward uplift simply sets the cost of new debt at a level which the market considers will prevail during the charge control, rather than at the start of the charge control.[121]

221. Bristol stated that a forward uplift should be applied to the cost of new debt estimate in recognition that the allowance will apply for the duration of the price control period. Consistent with the rationale for applying the forward rate to the RFR, the forward uplift simply takes the market view of rates over the price control period, rather than at the start of the price control period, in recognition of the fact that new debt will be raised across the 2020-2025 period.[122]

222. Northumbrian stated that the CMA should apply a forward rate adjustment to the cost of new debt. It acknowledged that the forward rate adjustment based on Bank of England data points to a lower “pickup” (10 basis points) than assumed in Ofwat’s FD19 (25 basis points) and proposed that this figure should be applied to the cost of new debt. This suggests a range of 0.31%-0.62%. Northumbrian also noted that, in practice, the forward rate adjustment would not have a material impact on the outturn allowance, given the proposal to apply a true-up mechanism in AMP 7.[123]

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[121] Anglian’s response to the provisional findings, paragraph 451
[122] Bristol’s response to the provisional findings, paragraph 69. Bristol’s other responses on this topic were in relation to its application for a company specific adjustment, and will be dealt with separately.
[123] Northumbrian’s response to the provisional findings, paragraphs 311-312

223. Yorkshire stated that Ofwat appears to have selected two bonds rated Baa1/BBB+ (one of which was issued back in 2012) to support its view on an outperformance wedge for new debt, without any consideration of other factors that would influence market views on pricing. Yorkshire believed this analysis to be extremely limited and should include a 20 year £350m bond issued by Thames Water in April 2020, rated Baa1/BBB+, at a yield similar to the prevailing A/BBB iBoxx indices at the time off issuance.[124]

Cost of New Debt allowance – CMA Analysis

224. As per submissions on the measurement of the cost of embedded debt, we acknowledge party views that measurement of embedded debt should stop at March 2020, while any measurement of new debt should begin in April 2020.

225. If we use our PF approach of taking 6 months of data in order to smooth for volatility, the average nominal cost of new debt suggested by the average of the iBoxx A and BBB 10+ indices would be 2.19%. Our estimate at PFs was a range of 2.22% to 2.53%.

Cost of New Debt allowance – CMA Assessment

226. We rely on our embedded debt assessment that there is insufficient evidence to suggest that the average water company can sustainably issue debt at yields materially lower than suggested by our benchmark (measured on a like-for-like basis). We acknowledge evidence from Ofwat that some companies have issued certain bonds at lower costs but return to Ofwat's own analysis (see Figure 13) that even with a sample overweight higher-than-notional rated instruments, any outperformance is insignificant when tenor and credit rating are matched.

227. Similarly, we still consider there to be no evidence that suggests that forward rate adjustments lead to a more accurate estimate of future spot rates. They also seem irrelevant in a metric that will be subject to a future true-up mechanism based on the actual path of debt yields. We do not propose to change our approach to forward rate adjustments.

228. As with the updated approach to embedded debt, we focus our attention on one specific estimate of new debt costs, and so will use a nominal figure of 2.19% (the average of A and BBB), deflated to 0.19% as our updated estimate of the cost of new debt allowance for the low, midpoint and high WACC estimates.

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[124] Yorkshire's reply to responses to the provisional findings, p62

11. Updates to the Proportion of Embedded and New Debt

229. Changing our approach to the cost of embedded allowance may require an update to our approach to the weight of new debt used within our total cost of debt allowance calculation. In the following paragraphs we review submissions on this topic and present our analysis and assessment.

Proportion of Embedded and New Debt - PR19 Decision

230. For its final determination, Ofwat conducted its analysis using notional, company-led and notional-actual hybrid approaches to estimating the required proportion of embedded and new debt. Ofwat noted that the company-led approach gives an estimate of around 15% new debt as a percentage of total debt, while the more notional approaches give estimates between 17-21%. Ofwat stated that, as revised business plans' debt issuance forecasts did not reflect higher final Totex allowances, it was not convinced that the average share of new debt should be as low as 15%. Noting that the other two methods give a range that is very similar to the draft determination range of 17-22%, Ofwat decided that there were insufficient grounds to move its point estimate and retained 20% for its final determination. [125]

231. Ofwat conducted detailed analysis to inform its estimate, considering three approaches: [126]

a) notional;

b) company-led; and

c) notional-actual hybrid.

Notional

232. The notional approach assumed that a new debt issuance profile can be inferred from data on the years to maturity of companies' existing embedded debt. Here the proportion of new debt at the end of the control period should be the number of years in the control period divided by the weighted average years to maturity of debt.

N = T/M

Where:

[125] Ofwat (2019), Allowed return on capital technical appendix, section 6.1.3
[126] Ofwat (2019), Allowed return on capital technical appendix, section 6.1.3

N = Proportion of new debt at the end of the control period
M = The weighted average years to maturity of debt
T = The number of years in the control period

233. Under this approach, Ofwat calculated the sector average years to maturity to be 14.2 years, and the weighted average to be 13.9 years, which suggested an end-of-period range of new debt share of 36-37%.

234. Ofwat noted that this range underestimated end-of-period share as it did not account for new RCV formation financed by debt. Assuming that real RCV growth is financed 60% by new debt (to maintain 60% notional gearing), this suggests a higher end-of-period new debt share range of 40-42%. Dividing these figures by 2 gives an average for the period of 20-21%.

235. Ofwat noted that while this approach has the benefit of simplicity, it does not capture company proposals around the paydown of embedded debt or the profiling of new debt.

Company-led

236. Ofwat stated that the company-led approach helped to deal with these issues, calculating the rolling mid-year balances of new debt and embedded debt over 2020–25 by assuming that new debt balances evolved according to company forecast debt issuance and that embedded debt balances evolved according to company forecast inflation-linked indexation and paydown of debt.

237. Ofwat noted that applying this approach resulted in an average share of new debt of 14-17% (weighted average), a range that was similar to that proposed by companies in pre-final determination representations to Ofwat.

Notional-actual hybrid

238. Ofwat stated that the notional-actual hybrid approach built on revised business plan data, while including the latest evidence on Totex allowances and its assessment of equity's contribution to new RCV. This approach assumed embedded debt balances evolved according to company forecast inflation-linked indexation and planned paydown of debt (as in the company-led approach), but for new debt used a bottom-up profile of issuance generated for each company. This assumed that 'pure' debt falling due over 2020–25 was refinanced as new debt and that growth in RCV was financed by new debt minus the contribution of equity. This resulted in an average share of new debt in the range of 17-18%.

239. Ofwat[127] stated that companies' actual share of new debt would tend to fluctuate based on historic and current investment patterns, and would, at times, out- and under-perform its notional assumption. However, Ofwat submitted that these deviations should broadly balance out over time, and that this did not necessitate a bespoke approach of setting an allowance for each company.

240. In addition, Ofwat stated that setting an allowance for each company could drive inefficient behaviour, such as incentivising companies to issue most of their debt towards the end of a price control (to ensure that it is remunerated as embedded), outweighing considerations of whether the price achieved for such issuance was efficient.

Proportion of embedded and new debt – CMA provisional findings

241. We acknowledged that this was an area with limited disagreement between the parties, with Yorkshire the only company with significant objections. As there was no definitive measure of the notional company's proportions of embedded and new debt, we considered it to be reasonable to consider evidence from both the notional benchmark used to estimate the costs of debt and the actual average debt maturity of companies within the industry when calculating our estimate. We have focused on the notional approach using these two sets of data sources.

242. Basing the notional approach calculation on the 19.4[128] years average maturity of the benchmark iBoxx A/BBB 10+ index, then using the N=T/M equation above suggested N = 5/19.4, or 26% end of period new debt and an average for the period of only 13%. This figure was significantly lower than Ofwat's notional approach calculation based on actual water company debt maturities and RCV growth discussed which would suggest an estimate of average new debt for the period of 20–21%.

243. We noted that Ofwat's company-led and notional-hybrid approaches suggested figures within the 13% to 21% range generated by the notional approach using the benchmark and actual datasets.

244. As with the costs of debt, we did not agree with Yorkshire's view that it is either desirable or practical to set the proportion of embedded and new debt according to individual circumstance.

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[127] Ofwat's response to common issues in companies' SoCs: Risk and return, paragraphs 3.103–3.108
[128] CMA analysis using iBoxx data

245. On the basis of the methodologies discussed above, our provisional estimate of the proportion of embedded and new debt:

a) Used a lower bound equal to a 13% proportion of new debt, based on our notional approach calculation using the average maturity in our A/BBB benchmark debt indices.

b) Used an upper bound equal to a 21% proportion of new debt, based on Ofwat's notional approach calculation using the average maturity of debt currently held by companies in the sector (including adjustment for RCV growth).

Proportion of embedded and new debt – Post-PF Parties' Views

Ofwat[129]

246. Ofwat noted that the CMA's provisional findings proposed a range for the share of new debt ranging from 13% to 21%, and that the CMA's decision based the upper end of the range on the notional approach from Ofwat's final determinations and the lower end on a calculation assuming that the new debt share at the end of the period can be estimated using the 19.4 year average years-to-maturity assumption for the iBoxx A/BBB index.

247. Ofwat stated that the CMA assumes that (1/19.4) per cent of new debt is issued in each year of the control, or a cumulative 26% by the end of the period. This suggests that on average the share of new debt is 13% over the control period. Placing weight on this figure in the CMA's stated range is however erroneous for two reasons:

a) the CMA's approach in calculating its lower-bound estimate implicitly assumes no contribution from RCV growth. Ofwat stated that this was an error and that it did not understand why the CMA has chosen not to factor RCV growth into its calculation given that the absence of such growth was a realistic assumption for the circumstances of the sector over 2020-25. For the calculation in its final determinations, Ofwat estimated that incorporating new debt issuance due to RCV growth resulted in a 3.9% increase in the share of new debt which would have resulted from refinancing alone.

b) it is an error to calculate the share of new and embedded debt by reference to the characteristics of the simple 20-year iBoxx benchmark, for similar reasons to those previously discussed in relation to embedded

[129] Ofwat's response to the provisional findings – risk and return, paragraphs 4.42-4.43

debt on our concerns regarding the length of the trailing average. The appropriate length of trailing average is likely to be much lower than 20 years, once factors such as non-operational issuance are stripped out. Ofwat expected a shorter trailing average to result in a higher share of new debt through a larger share of refinanced debt falling due each year.

248. Ofwat stated that correcting for both of these factors suggests the low end of the CMA's range ought to be higher, resulting in a proportion of new embedded debt that is more consistent with the high end of the CMA's stated range.

249. Anglian stated that the CMA's PF approach was inconsistent with the fully benchmark-led approach applied by the CMA to derive the estimate of the cost of debt, and that it would be more appropriate to base the estimate on the fully notional approach using the average maturity in Anglian's A/BBB benchmark debt indices.[130]

250. Bristol focused its response on the ratio of new debt appropriate for a smaller company[131], and we will discuss this in more depth in our final determination on Bristol's application for a company specific adjustment.

251. Northumbrian did not specifically mention the ratio of new and embedded debt in their response.

252. Yorkshire stated that the CMA's approach was incorrect. The formula says that when T=M all of a company's embedded debt will have matured and the weight for new debt ought to be 100%. However, M is the average number of years to maturity across a company's debt portfolio. When T=M, it is more logical to assume that approximately half of the embedded debt will have matured and half will still be in place. The CMA should correct for this error by adjusting its formula to: N = 0.5 x T/M.[132]

Proportion of embedded and new debt – CMA analysis

253. Ofwat's suggestion that the CMA's low estimate of 13% fails to account for additional debt required to finance RCV growth within the AMP appears correct. Using Ofwat's calculation of 3.9% new debt requirement would have made the CMA's range approximately 17-21%, with a midpoint of 19%.

254. Factoring in both the move to a 15-year notional lookback horizon and a collapsing average approach better matches with the average years to

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[130] Anglian's response to the provisional findings para 453
[131] Bristol's response to the provisional findings, sections 13.1 and 13.2
[132] Yorkshire's response to the provisional findings, p31

maturity currently on water company balance sheets. March 2020 APR data suggests that this figure is approximately 13 years at the sector level (with reasonable consistency between the WaSCs and WoCs). It is possible that this figure may be slightly understated by the inclusion of 'too much' floating debt for the reasons discussed in paragraph 113. Looking at APR data from 2018/19, weighted average years to maturity were 13.8 years.[133]

255. Using a bottom-up assessment based on our notional approach, a 15-year collapsing average would suggest an average of 12.5 years of embedded debt within the calculation. The remaining 2.5 years is 'filled' by the average weight to new debt over the period. This would suggest that new debt should equate to:

a) 2.5/15 = 16.6% of the total.

b) plus new debt needed within the control. Ofwat estimated this figure as 3.9%

On the basis on 16.6% + (0.5x 3.9%), we would estimate an average new debt requirement of 18.5%

256. Using the formula used by Ofwat and the CMA PFs, the calculation N=T/M calculation would suggest a 5/12.5 = 40% end weight to new debt. Including new debt to finance RCV growth would increase this to 43.9%, for an average weight to new debt over the period of approximately 22%.

257. Using actual average years to maturity (and using 2018/19 data to ensure fairness) would suggest a 5/13.8 = 36% end weight to new debt. Included new debt to finance RCV growth would increase this to 39.9%, for an average weight to new debt over the period of approximately 20%.

258. While not explicit in our previous description of the N = T/M equation, this does give an end period figure which is then dividend by 2 to get the mid-period average. In this way we agree with Yorkshire's assessment that the calculation can be shown as N = 0.5 x T/M.

Proportion of embedded and new debt – CMA assessment

259. Based on this analysis, and contingent on the result of this consultation process, we would provisionally agree with Ofwat that a more accurate representation of the ratio of new debt within our calculation would be towards the top of our previous 17%-21% range.

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[133] Ofwat (2020), *Financial monitoring report 2018-19 charts and underlying data*

260. We propose that our range should be updated to 18% to 22%, with a point estimate of 20%.

12. The CMA's new Cost of Debt Estimate

261. In Section 9 we suggested a new cost of embedded debt estimate of 4.52% (nominal). In Section 10 we suggested a new cost of new debt estimate of 2.19% (nominal). In Section 11 we suggested a new weight of new debt estimate of 20%.

262. We did not receive material feedback on our 10bps issuance and liquidity costs allowance and propose to maintain this figure.[134]

263. We combine these estimates to reach our new proposed cost of debt allowance of 2.12% as described in Table 3 below:

Table 3: CMA's provisional and updated total cost of debt estimate

		%
Metric	*Provisional Findings Estimate*	*Consultation Estimate*
CPIH Inflation	2.00	2.00
Cost of Embedded Debt (nominal)	4.81	4.52
Cost of Embedded Debt (real)	2.76	2.47
Cost of New Debt (nominal)	2.38	2.19
Cost of New Debt (real)	0.37	0.19
Weight of New Debt	17.00	20.00
Blended Cost of Debt	2.35	2.02
Issuance and Liquidity Costs	0.10	0.10
New Cost of Debt Allowance (CPIH)	2.45	2.12

Source: CMA analysis of iBoxx and Ofwat data

264. This figure of 2.12% represents a 33bps reduction versus the 2.45% used in our provisional findings. The impact on WACC (at 60% gearing) would be a reduction of approximately 0.20%.

[134] Bristol's references to smaller company costs will be dealt with separately.