December 2020

Reference of the PR19 final determinations: Risk and return – Ofwat December response

Ofwat

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1. Summary

1.1 We welcome the opportunity to provide this additional submission to the CMA. In this submission we address points raised by the CMA on the cost of capital at our hearing dated 30 November. We also set out our comments on issues raised by disputing companies in their response to our response on the CMA's provisional findings and issues raised by the disputing companies in their respective hearings.

1.2 As explained at our hearing on 30 November, our primary concern is that the CMA's provisional findings aimed up the allowed return in both its range estimates for cost of capital parameters and the subsequent aiming up to what we believe was intended to be the 75th percentile within the parameter estimates for the cost of equity. The combined effect of these steps results in an allowed return that is significantly in excess of that which we consider reasonable for water companies in 2020-25 based on a range of cross-checks.

Aiming up

1.3 Disputing companies argue that (i) the CMA's allowed return has not been 'aimed up' and (ii) it is reasonable to err on the side of caution in setting the allowed return. Our response to the provisional findings set out the reasons why there is upward bias in the CMA's cost of capital parameter estimates and the reasons why the CMA should consider the extent to which parameter estimates are biased. We agree judgement is required in setting the cost of capital parameters, but this is one reason for using evidence from appropriate cross-checks in reaching a decision on a reasonable allowed return to ensure it does not err unduly in favour of customers or investors. As we have set out our rationale on these issues previously we do not repeat our views further in this submission.

1.4 We have previously provided evidence that in past control periods, overall sector performance has on average been skewed to outperformance, and we can expect companies to be focused on achieving outperformance (and minimising underperformance) in 2020-25. In Section 2, we provide evidence cited at our hearing on 30 November from interim financial statements for the first six months of 2020-21 where companies that have not disputed our final determinations are forecasting to achieve or outperform our PR19 determinations. This evidence suggests there remains scope for companies to outperform our determinations

(and there is more potential for ODI outperformance adjustments than at any previous determination). This evidence also supports that no adjustment to the allowed return is necessary to account for uncertainties associated with achieved returns in 2020-25.

1.5 Finally, we evidence the data we shared on the availability of private equity funds for investment in infrastructure (and companies more broadly) as evidence that an 'aimed up' return is not necessary to attract new investors to the sector.

Cost of debt

1.6 A common theme arising in the company responses and the transcripts from company hearings is a challenge to the use of data from Annual Performance Reports (APR) as a cross-check to setting the cost of embedded debt, and suggested modifications to our index-led notional debt-weighted trailing average.

1.7 All previous determinations in the water sector (and for example, Ofgem's recent decision in energy) have included approaches that draw on actual sector debt costs, and we consider it important the CMA places weight on such data to provide confidence that its allowance is reasonable. The CMA did not carry out its own cross-checks on its point estimate for embedded debt in its provisional findings – such cross-checks can however be done using audited data reported by companies in their Annual Performance Reports (APRs), or data submitted and assured by companies in their PR19 business plans as a starting point. Both cross-checks indicate the allowed cost of embedded debt should be lower than set in the provisional findings, within a range of 3.4% to 4.5% nominal.

1.8 Disputing companies challenge the use of APR data as a departure from our final determination approach, however, the 2020 APR data is the appropriate starting point for such cross-checks as it is more up-to-date: it depicts balance sheet debt as at 31 March 2020 rather than 31 March 2018; the latter forming the basis of our PR19 balance sheet cross-check.

1.9 We accept that there may be some limited adjustments that need to be made to the APR-derived figures, for example to reflect debt due for refinancing in 2020-25 or to reflect the short-term use of credit facilities in response to Covid-19, but we do not consider this to be unduly complex or a reason to omit the audited APR data from the evidence base informing its allowance.

1.10 We have also brought together suggested refinements of the CMA's provisional 20 year trailing average, following the observation in our prior submission that equally-weighted years are not consistent with the other notional assumptions of a 20 year trailing average and 20 year tenor debt, when considering the sector was privatised in 1989 with no pre-existing debt. In addition to assigning weights based on notional debt issuance, we submit that the CMA should consider using a synthetic index more aligned with historical credit metrics of the notional company, apply a collapsing trailing average, adjust for the 'halo effect' , and apply a notional assumption for floating-rate debt. These refinements jointly indicate an index-led cost of debt (4.17%) which is significantly lower than the index-led point estimate of 4.81% used in the provisional findings.

Cost of equity

1.11 We recognise that detailed technical issues on the cost of capital and the use of the CAPM model will be subject to further consultation and review at a separate cost of capital round table discussion, so we do not provide further detailed commentary on the cost of equity or components of the cost of equity in this section – with one exception.

1.12 We disagree with the company argument that corporate bond yields should inform the risk-free rate point estimate, and provide further new reasoning that the index-linked gilts are the appropriate data source to inform the risk-free rate. Disputing companies have argued that Wright & Mason's previous submission[1] arguing that the marginal water investor is a net lender is irrelevant as it focuses on the water sector rather than the market portfolio. We submit an additional note by Wright & Mason that refutes this argument, noting that even if the market portfolio were the relevant focus, the marginal investor must be a net lender.[2] This is as all borrowing must be matched by lending: once cancelled out, the average/representative investor just owns the underlying assets of the companies.

1.13 We also provide cross-check evidence that supports a risk free rate at the low end of the range proposed by the CMA in its provisional findings (which is based on evidence from index linked gilts) in the provisional findings. This is based on SONIA - the Bank of England's preferred measure of the risk free rate for sterling

[1] Wright & Mason, 'Comments prepared for Ofwat on the CMA's provisional findings – cost of capital considerations', October 2020
[2] Wright & Mason, 'CMA Appeals – further comments on the risk-free rate', December 2020

markets. Our advisers, Europe Economics, support its use as a cross-check for the risk free rate in regulatory determinations.

Gearing sharing mechanism

1.14 The disputing companies argue the gearing mechanism is not required, and that current protections are sufficient to safeguard customers in the event of default by the company.[3]

1.15 As the CMA is aware, as part of our PR19 approach, we assessed evidence companies provided on the issue of financial resilience. We identified a subset of companies as needing to bring forward plans to maintain financial resilience in 2020-25. We also engage with companies that adopt more risky financial structures. However, we consider existing regulatory arrangements leave a gap in the regulatory regime whereby there are incentives for companies to make financing choices that are not aligned with the long-term nature of the sector.

1.16 Our view remains that an incentive mechanism is the most appropriate approach to addressing the gap and is an approach that is aligned with the use of incentive mechanisms elsewhere in the regulatory regime. If the CMA chooses not to apply the gearing mechanism, we would welcome further engagement in advance of the final determination on an alternative mechanism that could be applied. Such alternate reconciliation mechanism could restrict a company's ability to make any distributions subject to a defined trigger, for example, a gearing or credit rating threshold above the level that underpins the existing cash lock up licence condition. Such approach may best be delivered as a regulatory reconciliation / incentive mechanism as we note at least one of the disputing companies has indicated it is not sure it would support changes to the licence in this area.[4]

1.17 We do not comment further on these issues in this submission. We have provided the CMA with detailed explanations of the need for the gearing mechanism in previous submissions. [5]

[3] Northumbrian Water explained for example at its hearing that it did not consider there is a problem to solve. Competition and Markets Authority, 'Ofwat price determinations, Northumbrian Water hearing', December 2020, p. 91, lines 22-24.
[4] Competition and Markets Authority, 'Ofwat price determinations, Northumbrian Water hearing', December 2020, p. 95, lines 1-4.
[5] Ofwat, 'Reference of the PR19 final determinations: Risk and return – response to CMA provisional findings', October 2020, pp. 91-93, paragraphs 7.18-7.24.

Company specific adjustment

1.18 We continue to consider that evidence from previous determinations and our commissioned analysis points to the appropriate small company premium on embedded debt as being 10bps above the iBoxx A/BBB-derived benchmark. This allowance is consistent with our calculation at final determinations which also recognised Bristol's customers supported funding such an uplift. We continue, however, to believe that a benefits test (or at least some form of conditionality attached to the funding) is necessary to protect customers: a willingness-to-pay check is insufficient on its own to protect customer interests. Customers are generally not technical specialists and hence are unlikely to be well-placed to weigh the consequences of not funding a company-specific uplift.

1.19 There is no discrepancy between allowing an uplift on embedded debt but not on the cost of equity. The embedded debt uplift addresses historically higher costs from when Bristol Water was a small company. Given its current RCV of £561m this is no longer the case, and evidence on its recent issuance at a discount to the iBoxx A/BBB once tenor is controlled for suggests it does not need an uplift to its allowed cost of new debt. The required return on equity is a forward-looking rather than historic return expectation. We continue to see no evidence from empirical data or conceptually, that suggests small water companies have higher systematic risk exposure than large ones – and irrespective of this we no longer consider Bristol to be a small company.

1.20 Bristol Water has argued at its hearing that the challenge implied by the ODI regime in the provisional findings leads to asymmetric returns and downside risks that threaten its financeability. It proposes that the only remedy is to increase its allowed return on equity. As explained in our prior submission,[6] we do not expect negative ODI payments overall for an efficient company, and ODI performance should be considered in the round together with totex and financing performance. The CMA should in any case consider adjusting features of the ODI framework (e.g. Bristol's leakage ODI cap) to address any concerns about asymmetry before increasing the base return, due to the risk of blunting incentives.

Other regulatory determinations

[6] Ofwat, 'Risk and return – response to CMA provisional findings', Annex A2, pp. 110–123.

1.21 In our earlier submissions, we drew attention to the inconsistency between aspects of the CMA's Provisional Findings and its earlier conclusions in the NERL reference – in particular on aiming up and the calculation of the risk-free rate. Some of the companies now argue that NERL is not a comparable or relevant case given the circumstances in which its final determination was reached. It is suggested that NERL can be disregarded, without any need to address or explain the stark differences between the CMA's position in that case and in this. This is a surprising and unconvincing argument, for two reasons.

1.22 First, the reasons why the CMA's procedure was shortened in the NERL reference have no connection to its conclusions and reasoning on the relevant matters. Nor is there any evidence to suggest that those conclusions would have been different – still less to indicate how they would have been – had a different procedure been followed. Second, none of the companies disputed the relevance of NERL earlier in these redeterminations. Indeed, in previous submissions, Anglian, Northumbrian and Bristol all either explicitly relied upon the CMA's findings in that case or acknowledged that they could be 'read-across'. Newly-discovered arguments that the CMA can simply ignore its own findings in NERL are accordingly unpersuasive.

1.23 On 8 December, Ofgem published is final determination for energy network price controls for 2021-26. Its determination is independent of Ofwat's determination and the CMA's ongoing re-determination, but has resulted in parameter estimates for the cost of capital that are materially lower than the CMA's provisional determination for water (having considered the CMA's provisional findings) and an overall allowed return that is lower than our PR19 final determination.

1.24 We do not provide detailed comment on Ofgem's decision in this submission. We note however, there are elements of Ofgem's decision that are directly relevant to the CMA's decision for the water appeals and support an allowed return that is materially lower than that used in the CMA's provisional findings. Other elements of Ofgem's cost of capital decision are specific to energy, including for example, the beta estimate, and its decision to adjust down the allowed return on equity to reflect 0.25% expected outperformance.

Structure of this submission

1.25 The rest of this submission is structured as follows:

- **Section 2** – 'Aiming up'

- **Section 3** - Cost of debt
- **Section 4** - Cost of equity.
- **Section 5 -** Company specific adjustment
- **Section 6** – Detailed response to issues raised by companies following our response to the CMA's provisional findings and hearing transcripts.

1.26 The submission is accompanied with separate papers from PwC[7] and Wright & Mason.[8]

[7] PwC, 'Efficient debt financing of water companies', December 2020.
[8] Wright & Mason, 'CMA Appeals – further comments on the risk-free rate', December 2020.

2. 'Aiming up' the allowed return is unnecessary in water

2.1 Our response to the provisional findings set out the reasons why 'aiming up' is unnecessary in the water sector.[9] In summary:

- We agree with the CMA that regulatory judgement is required in setting components of the allowed return, but this highlights the importance of using cross-checks for components of the allowed return and the importance of setting reasonable ranges based upon available evidence. This includes balance sheet data to cross-check the allowed cost of embedded debt and data from a variety of sources to cross-check the allowed return on equity, including the traded value of listed companies.
- 'Aiming up' the allowed return is unnecessary in the water sector as (i) the assumptions and conditions in the economic model that suggests aiming up could apply to other sectors do not apply in water and (ii) transaction and trading data, and data on the availability of funds for investment in infrastructure, suggests there is no need to 'aim up' the allowed return to attract investment in the water sector.
- 'Aiming up' the allowed return to the whole RCV is a blunt and costly tool to address any perceived asymmetry in the spread of expected returns or to address a perceived financeability constraint – other approaches are available that better target the source of any perceived asymmetry and financeability constraint.

2.2 We set out the evidence that can be used to cross-check the allowed return in our response to the provisional findings.[10] In this section we provide additional evidence to support the rationale that 'aiming up' the allowed return is not necessary for the water sector.

Additional evidence 'aiming up' is not required to address perceived asymmetric ODIs

2.3 As at 16 December, 15 companies had published their interim financial statements. Most companies provide limited commentary on performance to date

[9] Ofwat, 'Risk and Return - Response to CMA provisional findings', October 2020.
[10] Ofwat, 'Risk and Return - Response to CMA provisional findings', October 2020.

against the final determination though a number of companies signal they are on track to deliver against the final determinations, for example:

- United Utilities report: 'We have accelerated our capital investment plans, with plans to spend more over the early years of AMP7 than our original business plan in order to secure improvements earlier in the period for customers and the environment, along with accompanying ODI rewards and contributing to the 'Green recovery' in a region heavily affected by the pandemic.'[11]

- Severn Trent reports in its half year results: 'The investment we made at the end of AMP6 in assets, technology and our people is paying off, with around 80% of our ODIs across waste, water and the environment in positive territory, giving us confidence in a full-year outturn of at least £25 million of ODI reward. The performance culture we have built over the past five years is now firmly embedded at every level of our business, making sector-leading outperformance on customer ODIs a multi-year and multi-AMP possibility.'[12]

- Pennon commented on its ODI performance in its half year results as follows: 'For 2020/21, South West Water is on track to meet or exceed 80% of its ODIs across a broad range of challenging bespoke, common and comparative measures. For those areas not currently on track we have introduced targeted initiatives to deliver improvements in performance. Following the achievement of fast-track status, we accelerated investments to focus on the most stretching targets and we continue to target ODI net rewards over K7.'[13]

- Yorkshire Water stated 'Our operational performance is on plan against the challenging targets set by the Final Determination'.[14]

- Wessex Water stated 'In the first six months of the year we are on track to meet the great majority of our regulatory targets and performance, despite the challenges of Covid-19'.[15]

[11] United Utilities, Half year results for the six months ended 30 September 2020, p. 21.
[12] Severn Trent, 'Half Yearly Financial Report', p. 3.
[13] Pennon, Half Year Results 2020/21, p. 18.
[14] Yorkshire Water, 'Condensed Interim Report and Financial Statements for the six months ended 30 September 2020', p. 1.
[15] Wessex Water, 'Interim results 2020 - Performance for customers and the environment', December 2020.

- Portsmouth Water stated 'We continue to work hard at driving further efficiencies within the business and are confident in delivering a strong TOTEX performance for both the year and the AMP. We have also made good progress in delivering against challenging ODIs.'[16] Portsmouth reported 'green' performance rating for 23 of its 26 ODIs for the first six months of 2020-25.

- South Staffs stated "Over the first six months of the year, we have made a good start in delivering our ambitious targets for 2020 to 2025, and are currently on track to achieve our year-end targets for around two-thirds of our performance commitments".[17]

2.4 Half year results presentations by the listed companies support that the ODI and totex regime provide incentives for marginal investment. This evidence supports our view that an 'aimed up' allowed return on equity is not necessary to incentivise investment:

- In its half year results presentation, United Utilities referenced the trade-off between ODIs and totex, where it is challenging its own teams to seek opportunities to achieve better return through the ODI framework than the incremental totex outlay, thereby challenging the company to seek opportunities for customers and/or the environment.[18]

- Similar sentiment was expressed by Severn Trent at its results presentation when the company was asked if it similarly to United Utilities, considered ODI returns more valuable than totex returns, where Severn Trent suggested the mathematics supported its pursuit of ODI outperformance. [19]

- HSBC state "the three listed UK Water companies are addressing strategic areas of operational weakness to drive regulatory performance. … All, however, are

[16] Portsmouth Water, 'Half-year report 2020', p. 1.
[17] South Staffs, 'Interim report and accounts – September 2020', December 2020, p. 7.
[18] See for example, Morgan Stanley, 'United Utilities Group PLC: 1H21 Feedback: Green economic recovery investment main focus', 25 November 2020, p. 1, who stated 'The underlying position is at the outset to deliver final determination commitments with a totex efficiency; however, management is increasingly looking at a better return on the ODI framework than the incremental totex outlay. Challenging teams to come up with opportunities for customers and/or environment. If there is an opportunity for greater investment which would result in an improved return then this is encouraged.'
[19] Severn Trent, 'Half year 2020-21 results – Live stream Q&A Session', November 2020, 26:04-27:50

focused on maximising Outcome Delivery Incentive (ODI) rewards in particular, even if it means bringing forward investment."[20]

Additional evidence that 'aiming up' is not required to incentivise additional investment in the sector

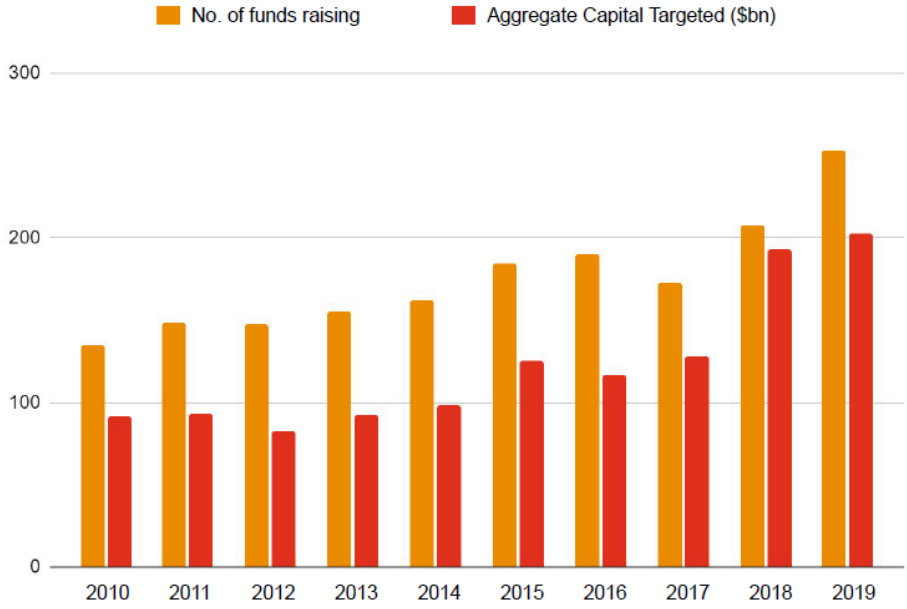
2.5 At our hearing on 30 November, we cited evidence that there remains significant investor demand for infrastructure investment. We provide the evidence supporting our statements below.

2.6 A recent PwC report prepared for the Global Infrastructure Financing Association, contained a chart (Figure 2.1 below) which referenced $200 billion of capital raised in 2019, with a markedly upward trend.[21]

2.7 Similarly, a McKinsey report commented that fund raising in private infrastructure has grown faster than any other asset class at 17% annually in the past 5 years, stating 'In a yield-starved world, investors continue to seek infrastructure opportunities, which many believe offer government bond-like risk coupled with higher yields than sovereign debt. For institutional investors with perpetual or multigenerational time horizons, infrastructure provides stable, long-term, inflation protected returns.'[22]

[20] HSBC, 'UK Water – Identifying best-in-class for 2021: M&A year?', 14 December 2020.
[21] PwC, 'Unlocking capital for net zero infrastructure', November 2020.
[22] McKinsey, 'A new decade for private markets', 2020, p. 13.

Figure 2.1: Unlisted Infrastructure Funds 2010 – 2019 [23]

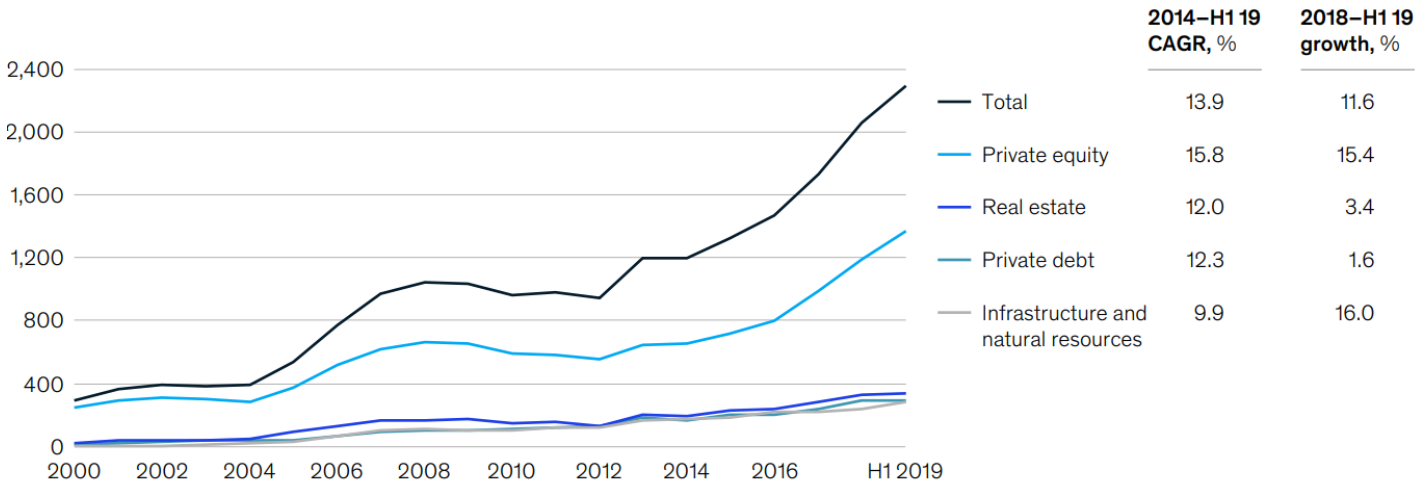


Source: PwC

2.8 The growth in private infrastructure funds is part of a wider global trend. For example McKinsey report that the international growth in private equity, which has been accompanied by a growth in capital committed but not deployed (so called 'dry powder') has grown by 14% annually since 2014, hitting a record of $2.3 trillion in 2019.[24] Such supply of funds for investment in utilities may impact on expected yields for infrastructure investment.

[23] PwC, 'Unlocking capital for Net Zero Infrastructure', November 2020, p. 7, Figure 4.
[24] McKinsey, 'A new decade for private markets', 2020, p. 23.

Figure 2.2: Growth in global committed but not deployed capital 2000-19 (US $bn) [25]



Source: McKinsey

Additional evidence that 'aiming up' is not required for potential skew in expected returns

2.9 One issue relevant to the CMA's proposal to 'aim up' the allowed return in its provisional findings is a concern about a potential skew in expected returns.

2.10 If there is an expectation of skewed returns in a price determination (either as a result of the way in which the allowed return for the sector is set or individually for one company because of its specific circumstances), there are two potential effects: it could affect the expected value of returns or it could affect the cost of capital.

2.11 There are various options available to make such adjustments in a regulatory determination:

- cost allowances, cost sharing rates or the cost efficiency challenge could be adjusted to take account of the expected skew;
- adjustments to ODIs could be made to address expected skew, such adjustments can be made to incentive rates and/or introduction of or adjustment to caps and collars;

[25] McKinsey, 'McKinsey Global Private Markets Review 2020', February 2020, p. 23, Exhibit 17.

- an adjustment could be made to the allowed return on equity by adjusting the CAPM cost of equity calculation, or adjustments could be made to the allowed return on debt(if the allowed return on debt is the driver of expected skew for the notional company).

2.12 The approach we adopted at PR19 (as for previous reviews), and which we submit the CMA should apply in its determination, is to set cost allowances, performance commitments and ODI rates and the allowed return in a manner such that an efficient company is incentivised to deliver stretching levels of performance, but has a reasonably equal prospect of out- and under-performance.[26] With respect to financing performance, our approach targets that the notionally structured company can achieve the cost of embedded debt.[27] Companies bear the cost and reward of out- and under-performance of these regulatory allowances.

2.13 In previous submissions to the CMA we have set out evidence that the sector has, on average, outperformed our determinations, taking account of cost, outcome and financing performance. We have also shown that positive skew in operational performance offset a negative skew in incentive rates. We do not repeat that evidence here.

2.14 With regard to the potential for skewness in the allowed return on equity, PwC considered academic and empirical evidence on the need to provide an additional return where skewness in returns might arise in a report for the Civil Aviation Authority.[28] As part of its empirical assessment, PwC investigated whether market returns are skewed and whether returns are skewed in regulated sectors. PwC found:

- From a review of academic literature, PwC concluded that where there is strong evidence of skewness, there are theoretical grounds for attempting to include it in the assessment of the cost of capital, though this is challenging and requires considerable judgement. PwC set out the impact of modifying the CAPM for setting an allowed return would depend on the degree of coskewness for the

[26] Though we note that with ODIs, setting the performance commitment level at the median, expected, or P50, level rather than the mean allows for a positive expected return on ODIs.
[27] Though companies had the option to request an adjustment to the allowed cost of debt to reflect company specific factors which we allowed subject to passing pre-defined tests.
[28] PwC, Cost of capital for UK Designated Airports, 2013, section 4.

company and the appropriate coskewness risk premium offset by any changes to other component parts of the CAPM calculation.[29]

- PwC found the FTSE All share may exhibit negative skew over the long term, but such skew is typically reduced in weaker economic environments.[30]

- PwC found little evidence of skewness in the regulated utilities that it investigated, including United Utilities.[31]

2.15 PwC's assessment of the evidence of skew for regulated sectors included United Utilities and a more detailed assessment of Heathrow. PwC found no evidence of negative skew in BAA's share price returns until the point it delisted. PwC found the coskewness coefficient was volatile (and more volatile than other components of the CAPM formula such as beta) providing mixed evidence of the coskewness coefficient and concluded any skewness adjustment to the CAPM derived cost of equity would be complex, somewhat arbitrary and require examination of any corresponding adjustments to beta.[32] Furthermore, PwC found utility returns to be less skewed than the market, suggesting that if an adjustment were required, it would have the effect of reducing allowed returns.

2.16 We do not propose to investigate these issues further in the context of these redeterminations, as we note the expectations of skewness of returns for PR19 could be expected to be less for water than for airports on account that (i) water wholesale controls are subject to revenue reconciliation, (ii) over 2000-2020, companies in the sector have, on average, outperformed cost allowances and (iii) over 2015-20, companies in the sector have, on average, performed in line with expectations on ODIs when measured on the basis of return on regulatory equity and (iv) as noted above, PwC found no skew in returns data for United Utilities.

[29] PwC, Cost of capital for UK Designated Airports, 2013, p. 41.
[30] PwC, Cost of capital for UK Designated Airports, 2013, p. 26.
[31] PwC, Cost of capital for UK Designated Airports, 2013, p. 26.
[32] An important point to recognise about such "Third Moment CAPM" models (CAPM models incorporating coskewness) is that the effect of (co)skewness is not simply to add to (or subtract from) the return given by the standard CAPM. For example, in a Third Moment CAPM model there may be systematic coskewness of returns across the universe of assets. That a particular asset has downside-skewed returns will not mean it has an expected return higher than that of the market as a whole if, say, its degree of systematic coskewness is less than the market average. To put the point more simply, it does not follow from a particular asset's (eg a water company's equity) returns being downside-skewed that one would therefore expect its returns to be higher than those predicted by the standard CAPM. Significantly more evidence would be required to draw such conclusion.

Evidenced on past performance was set out in previous submissions we have made to the CMA; we do not repeat the evidence here.

3. Cost of debt

3.1 In our hearing of 30 November, the CMA panel expressed an interest in the history of the embedded debt regime in water, the interaction between policy on trailing average and company financing decisions, and why we thought 15 years was the right length of trailing average. This section provides further clarification on these issues to complement the discussion from that hearing. We also address issues raised by disputing companies in their response to our response on the CMA's provisional findings and issues raised by the disputing companies in their respective hearings

Length of trailing average and historical context

3.2 Disputing companies' have raised various arguments supporting the use of a 20 year trailing average of the iBoxx A/BBB and opposing the use of the 2020 Annual Performance Reports cost of debt data. These arguments seek to discredit our use of a 15 year trail at PR19 as an opportunistic deviation from established norms, which will incentivise risky financing behaviours and harm customers' interests.

3.3 In this section we:

- explain that our PR19 approach builds on previous approaches; disputing companies have only recently supported a 20 year trailing average;
- comment on evidence which supports that companies outperform the benchmark index
- set out further evidence to determining the cost of embedded debt based on a refined trailing average (assuming the CMA retains a 20 year trail), balance sheet cross checks and comment on the analysis carried out by KPMG ;
- comment on interaction between regulatory incentives and regulatory policy; and,
- comment on the potential consequences of setting the cost of debt too high.

The PR19 approach builds on approaches adopted in previous reviews

3.4 As set out in Table 3.1, treatment of embedded debt has varied at historic price reviews, with some reviews not providing a separate allowance and use of an index-based trailing average a comparatively recent feature. Actual costs have played a role in all 6 reviews.

Table 3.1: Treatment of embedded debt at historic price reviews

Price review	Benchmarking data	Allowance for embedded debt	Length of trailing average
PR94[33]	Actual costs	No	n/a
PR99[34]	Actual costs	Yes	n/a
PR04[35]	Actual costs	No	n/a
PR09[36]	Actual costs	Yes	n/a
PR14[37]	Actual costs and iBoxx A/BBB	Yes	10 years
PR19	Actual costs and iBoxx A/BBB	Yes	15 years

3.5 The evolution of the regulatory approach shows that each determination has placed weight on evidence of interest costs reported by companies. The approach adopted in the CMA's provisional findings of relying exclusively on an external index (while using the longest trailing average ever used in economic regulation at 20 years), is the approach that is anomalous. We also note that Ofgem, in its RIIO-2 final determination has carefully calibrated the length of its 11-14 year extending trailing average for the allowed cost of debt using evidence on its regulated companies' actual cost of debt.[38]

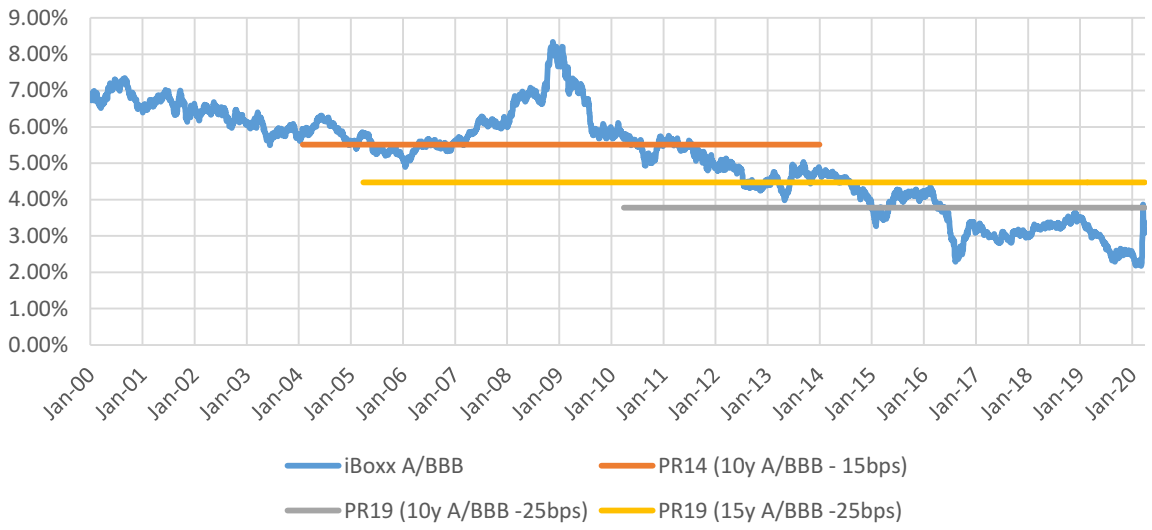
3.6 We address various technical arguments used by disputing companies to support the use of a 20 rather than 15 year trailing average of the iBoxx A/BBB in subsequent sections. Taking a step back, these arguments do not align with the fact that (i) the shorter 10 year trailing average adjusted by 15bps used at PR14 was not contentious with companies and (ii) the CMA in 2015 considered the 10

[33] Ofwat, 'Future charges for water and sewerage services', 1994, p. 50.
[34] Ofwat, 'Future water and sewerage charges, 2000-05', 1999, p. 132.
[35] Ofwat, 'Future sewerage charges 2005-10', 2004, p. 219.
[36] Ofwat, 'Future water and sewerage charges 2010-15', 2009, p. 130.
[37] Ofwat, 'Final determinations policy chapter A7 – risk and reward', 2014, p. 36.
[38] Ofgem, 'RIIO-2 Final determinations – Finance Annex', December 2020, pp. 15-19.

year trailing average represented a reasonable starting point for estimating the notional embedded cost of debt for a WaSC.[39] In both instances, our PR14 calculation and the CMA's 2015 calculation omitted debt costs for most of the 2000-05 period.

3.7 The disputing companies now reject the 15 year trailing average used in our final determination, despite this representing an increase to the 10 year trail applied at PR14. We interpret this to be because the trailing average is weighted less to debt issued in the relatively higher cost years of the 2008-09 financial crisis (2007/08 and 2008/09), producing a lower allowance (Figure 3.1). The PR19 10 year trailing average did not contain these years at all, contributing to an estimate of the cost of embedded debt that was too low compared to the sector's debt costs estimated using the balance sheet approach.

Figure 3.1: PR14 and PR19 benchmark-led embedded debt allowances



Source: Ofwat analysis of IHS Markit data

3.8 This example illustrates the point that it is unlikely that there is a normatively correct answer to the question of how long a trailing average to use over multiple price reviews. Instead, when considering the length of trail, both the context behind the data included in the trailing average and cross-checks to actual costs

[39] CMA, 'Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991', 2015, para 10.55, p. 305.

are important and should not be ignored. Both companies and regulator have implicitly placed considerable emphasis on actual costs as a cross-check to the reasonableness of the regulatory allowance.

3.9 Disputing companies argue the trailing average should match asset lives.[40] We do not consider there to be a direct link between asset lives and financing the RCV, and we have not adopted a policy of matching tenor to asset lives.[41] While the water sector is one that must operate for the long term, as noted by PwC in its accompanying note,[42] there many factors that affect a company's debt issuance decisions, including maturity profile of its existing debt, mix of debt instruments, risk appetite, treasury policy, market movements over time and shape of the yield curve.[43]

3.10 Finally, a policy of adopting embedded debt is one that recognises a pragmatic compromise between the notional company's ability to raise debt at current market rates and debt that is embedded in the balance sheet for the duration of the control. Wright & Mason argue no allowance for embedded debt should be provided on grounds that such allowance is not provided for companies in a competitive market.[44] Furthermore, Europe Economics argue that regulatory considerations about embedded debt arise due to either: (i) considerations about the costs of an equivalent competitor versus the efficient new entrant; or (ii) as a pragmatic measure recognising the extent to which the regulated company can efficiently match market rates. As the regulatory decision to adopt a policy of embedded debt is a pragmatic comprise, the length of the embedded debt trail is also an exercise in pragmatism over principle. This supports the importance of cross-checks in determining the length of trail.

Cost of debt outperformance

3.11 We provide new analysis for the CMA's consideration:

[40] For example, Anglian Water transcript, p. 76, lines 1-6.

[41] For example, at PR09 we stated "Our forward-looking cost of debt ensures that efficiently financed companies, with efficient treasury management, are able to maintain a balanced portfolio of debt, including access to debt at a range of maturities to meet their financing requirements." Ofwat, 'Future water and sewerage charges 2010-15: final determinations', 2009, p. 131.

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

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

[44] Wright & Mason, 'Response to the provisional findings: cost of capital considerations', 2020, p. 18, para 6.3.

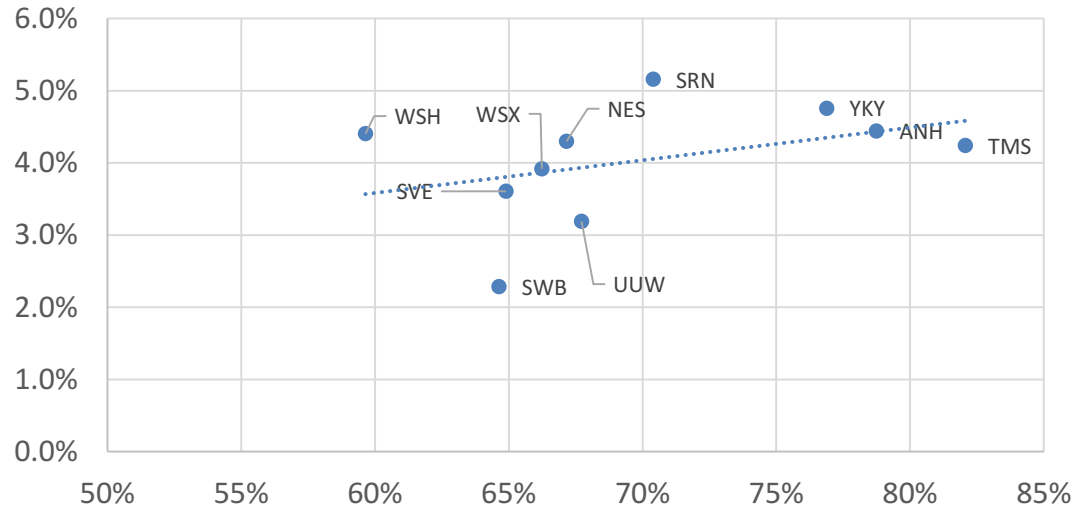
- **Our analysis of water company bonds supports an adjustment for the 'halo effect':** We have compared KPMG's daily iBoxx curves to the similarly rated bonds in our sample of bonds selected using criteria similar to those used to calculate the iBoxx A/BBB indices. This analysis reveals a 'halo effect' of 7bps, representing the remaining discount to iBoxx after tenor and credit rating is controlled for. This discount should be applied to iBoxx-based estimates of notional company cost of debt, with further adjustments if the notional credit rating or tenor is different to that of the iBoxx index in question.

- **Bond issuance since final determinations continue to support an outperformance wedge:** We have updated our sample of bonds issued since final determinations (Appendix A1). This continues to demonstrate that large companies that are aligned with our notional gearing continue to issue at a large discount vs the iBoxx A/BBB, averaging around 50bps. It is noteworthy in particular (given similarities with the CMA's assumptions concerning the notional company) that yield-at-issuance for the Baa1-rated 20 year £300m Severn Trent bond in February was 27 basis points lower than the iBoxx A/BBB. This evidence continues to support an outperfomance wedge on new debt of at least the level of 15 basis points from PR19 final determinations.

A reasonable embedded debt allowance

3.12 The CMA's provisional findings place exclusive weight on an index-led approach. Amongst other reasons, this is because of the potential for actual costs to upwardly bias the efficient cost of embedded debt due to average sector gearing (around 70%) being higher than our notional assumption of 60%. As set out in Figure 3.2, there is a positive correlation between gearing and WaSCs' cost of embedded debt.

Figure 3.2: WaSC cost of embedded debt and gearing (March 2020, assumes 2.9% RPI)



Note: SRN was 79% geared on March 2018 preceding movement of significant debt to holdco level.

Source: Ofwat analysis of annual performance reports

3.13 In spite of this finding, the CMA's proposed allowance for the 60% geared notional company is, at 4.81%, higher than the March 2020 cost of debt for all but one of the largest water and sewerage companies that together make up 95% of embedded debt. Our calculations - based on companies' own audited and assured data - suggest that the simple average WaSC cost of embedded debt on 31 March 2020 was 4.07%.[45] Applied at a sector level, the provisional findings' allowed cost of embedded debt would therefore imply substantial excess returns without the prospect of offsetting benefits for future customers. We submit the CMA should therefore consider the benchmarks derived from actual data that we have supplied to cross-check its final determinations point estimate.

3.14 In the following sections, we draw together the evidence from the two approaches we have suggested to the CMA – a refined index-led approach and evidence from our APR-led balance sheet approach. We also comment on KPMG's proposed alternative calculations submitted in support of the disputing companies' reply to our response to the provisional findings.

[45] This estimate is derived by adjusting the published APR figures to account for the CMA's long-term inflation assumptions of 2.0% CPI/CPIH and 2.9% RPI.

Index-led approach

3.15 If the CMA chooses to retain its position not to use company data as a cross-check and chooses to retain a 20 year trailing average, it is important that a number of refinements are made to the index-led approach to better reflect an efficient cost of embedded debt.

3.16 We set out in our response to the provisional findings that we did not believe that the equally-weighted 20 year trailing average of the A-rated iBoxx 10+ index was an accurate proxy for the notionally-structured company's efficient costs. We bring together proposed refinements to improve this estimate below:

- **Step 1: Notional debt-weighted iBoxx A/BBB:** As the sector was privatised in 1989 with no debt on company balance sheets,[46] it follows that years in the period more than 20 years after privatisation should carry more weight as they combine refinancing and investment to finance RCV growth (one implication of assuming 20 year tenor debt in the notional company is no refinancing prior to 2010). We calculate that a 20 year average weighted to reflect demand driven by notional debt issuance[47] would result in an allowed 4.62% nominal cost of debt based on the iBoxx A/BBB, 19 basis points lower than the 4.81% figure in the provisional findings.

- **Step 2: Correctly-rated iBoxx index:** As set out in our response to the provisional findings, our determinations at PR99, PR04 and PR09 funded notional credit metrics more consistent with an 'A' rating, whereas credit metrics at PR14 and PR19 were more consistent with a 'BBB+/Baa1' credit rating. This means it is appropriate to apply the notional weightings to a synthetic index consisting of the A-rated iBoxx to 2000-2015 and the A/BBB iBoxx from 2015-20. This results in a downwards adjustment to the nominal cost of debt stated above of 12bps.

- **Step 3: Collapsing trailing average:** If all debt is issued at tenors of 20 years, this suggests that the earlier years of the 2000-2020 trailing average will drop out of the notional company's embedded debt cost structure with the passing of years between 2020 and 2025. We accordingly calculate an average over 2020-

[46] Ofwat, 'The development of the water industry in England and Wales', January 2016, p. 38.
[47] i.e. debt issued for RCV creation, assuming RCV is financed in line with past price review gearing assumptions, and debt falling due is refinanced.

25 of the collapsing trailing average embedded debt from each year. This results in a further downwards adjustment of 6bps.

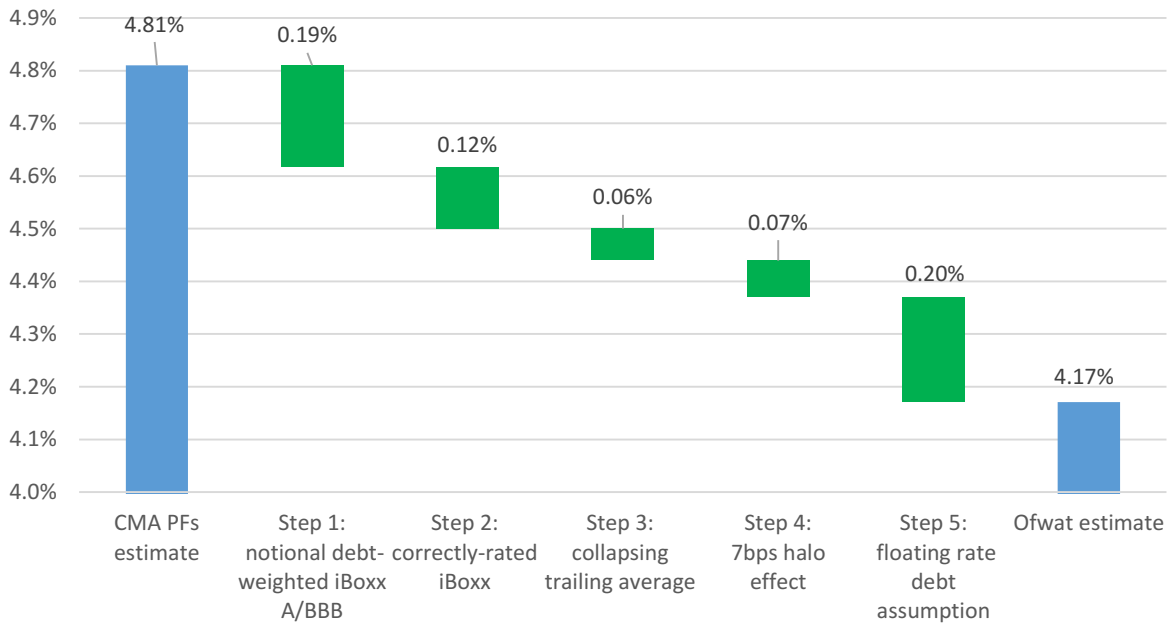
- **Step 4: Halo effect deduction:** As set out earlier in this chapter, we have used KPMG's daily iBoxx yield curves to estimate structural water bond outperformance once credit rating and tenor are controlled for (i.e. the 'halo effect'). The weighted average discount to these curves of bonds in our sample is 7bps. We deduct this from the level of the estimate implied by Step 3.

- **Step 5: Notional assumption for floating rate debt:** The 2020 Annual Performance Reports suggest that 13% of the sector's borrowings are floating-rate, with the company-level average higher at 15%.[48] There is no reason why the notional company should not contain an assumption for floating-rate debt. We cautiously propose a figure of 10%. We assume the interest cost of this debt will be the same as the CMA's provisional assumption for the cost of new debt. This results in a downwards adjustment of 20bps.

3.17 Figure 3.3 sets out the impact of these changes. Overall they indicate that an efficient allowance calculated on a notional basis would be 4.17% nominal (2.13% CPI).

[48] The equivalent figure for 2019 APRs is 9%.

Figure 3.3: Proposed refinements to the CMA's index-led approach



Source: Ofwat analysis of water sector and IHS Markit data

Balance sheet cross-check

3.18 We maintain that the balance sheet cross-check that accompanied our prior submission[49] stands as the most up-to-date projection of the sector's 'all-in' actual costs over 2020-25 – as based on our assessment of audited and assured information reported by companies.

3.19 As WaSCs make up 95% of outstanding sector debt, we consider that evidence from the WaSC dataset can be used to set a reasonable cost of debt benchmark. We restate below the approaches and resultant benchmarks that we consider the CMA's final determinations should attach weight to:

- **WaSC average (4.05%):** This is the simple average over 5 years (2020-2025) of the WaSC company-level average cost of embedded debt. This uses 2020 APR data as a starting point, and incorporates the impact of outstanding bonds which mature over this period.

[49] See: Ofwat, 'Response to PF responses – Risk and return', Annex 1, November 2020 and associated workbook, 'Rolling cost of embedded debt analysis (FINAL).xls',

- **Notional-aligned WaSC range: (3.4% - 4.1%):** This is the range derived using the above approach, except using an average of Severn Trent and United Utilities for the lower end of the range and Wessex Water and Northumbrian Water for the upper end of the range. These unsecuritised companies all have March 2020 gearing that is lower than 70% and so are more comparable to the notional company.

3.20 Our revised index-led estimate of 4.17% is broadly consistent with these estimates, adding confidence that it is a reasonable allowance for the notionally-structured company.

3.21 Disputing companies have raised a number of objections to using this evidence in their hearings and 16 November responses. We consider these objections to carry little weight and in some cases point to an even lower allowance than our point estimate being appropriate. In any case, they do not jointly constitute sufficient reason for the CMA to not carefully consider all the evidence at its disposal. We summarise our response to the substantive issues raised below:

- **Objection 1): Use of an APR-led benchmark is inconsistent with the PR19 balance sheet cross-check as it includes swap costs –** various companies object that the presence of swap costs in the APR data invalidate its use as cross-check to the balance-sheet approach used at PR19 (which did not include swaps).[50] These companies also tended to assess swaps as contributing 50bps to the sector benchmark.[51] We do not accept a 50bps adjustment for swaps as reasonable based on current data (as discussed further in the section titled 'KPMG analysis' below). The logic of this position therefore indicates an allowed cost of embedded debt that is lower than that stated in our APR-based balance sheet cross-check.

- **Objection 2): 2020 APR data distorts the headline cost of debt due to including liquidity facilities (particularly those put in place to deal with Covid-19) -** Liquidity facilities tend to be floating-rate. As noted by some disputing companies, floating-rate borrowings in some companies experienced rapid growth between March 2019 and 2020. We supply analysis with this submission that finds that the WaSC simple average would increase by 9bps if we conservatively assumed that all floating rate debt increases between 31

[50] For instance, Anglian Water, 'Reply to responses to CMA provisional findings', November 2020, p. 20, para. 94.
[51] KPMG, 'Analysis of Ofwat's PFs Response on the cost of capital', p. 24, para. 4.1.20.

March 2019 and 31 March 2020 were Covid-19 related and taken out of the cost of debt calculation. This would leave the resultant benchmark as representative of an ordinary year. As normal liquidity costs from this year would already be reflected in this benchmark, it would be appropriate to not include 5bps[52] of the 10bps[53] issuance and liquidity costs allowance which is attributable to liquidity costs.

- **Objection 3): Using an APR-led benchmark encourages short term, variable-rate debt, increasing refinancing and interest rate risk.** We argue this is not a material concern in the following section, due to competing company priorities other than economising on cost which dictate treasury strategy. Customers are also protected by our notional approach of setting the cost of debt via benchmarks. The relative insensitivity of these benchmarks to changes in individual company costs incentivises these companies to avoid taking on excessive refinancing risk - as they will bear the consequences.

- **Objection 4): The APR-led benchmark is not sufficiently forward-looking, as it does not capture the evolution of embedded debt costs over 2020-25 or the rate rise impact on floating-rate debt implied by forward rates (10bps in October).** The analysis underpinning the estimates in this section cited above does reflect debt falling due over 2020-25.[54] Reflecting a 10bps increase in the sector's 13% floating rate debt would increase the WaSC average by 2 basis points – a minimal adjustment.

- **Objection 5): The APR-led benchmark is based on coupon rate not yield-at-issuance and so cost of debt estimates are distorted.** We reviewed the sample of active water sector bonds collated by KPMG focusing on instruments where yield-to-maturity can reliably be calculated (fixed rate nominal and index-linked bonds). We found that a yield-at-issuance approach would result in a lower weighted-average cost for the sample by 8bps compared to using the coupon rate. The approach we use in our APR-led balance sheet cross-check therefore represents another source of overstatement in the estimated cost of embedded debt.

[52] Europe Economics, 'PR19 – Initial Assessment of the Cost of Capital', p. 73.
[53] This allowance has not been contentious through the PR19 and appeals process.
[54] See: Ofwat, 'Response to PF responses – Risk and return', Annex 1, November 2020 and associated workbook, 'Rolling cost of embedded debt analysis (FINAL).xls',

- **Objection 6): The APR-led benchmark does not adjust for the 2020 APR's CPI assumption.** Our APR-led benchmarks adjust for the difference in the 2020 APR RPI (2.6%) and the provisional findings' long term inflation, 2.9%. They do not however adjust for the difference in CPI, which is 1.5% and 2.0% respectively. We have explored this issue and find it makes an insignificant difference to the resultant benchmark taking account of the volume of outstanding CPI-linked bonds (£281m). Reflecting an adjustment for the CMA's higher CPI assumption does not affect the estimated average WaSC embedded debt at the level of the second decimal place.

KPMG analysis

3.22 KPMG propose various methodological alterations to the index-led approach used to calculate the 4.62% in our response to the CMA's provisional findings. If however, a purely index based approach were to be adopted, based on a 20 year trail, the approach set out in the section titled 'index-led approach' above better reflects the evolution of the cost of debt over time, producing an embedded cost of debt of 4.17%

3.23 We see value however in setting out why we do not agree with the alternative assumptions used by KPMG in its analysis (see also Section 6).

- **Notional refinancing (+15bps)** –KPMG's assumption that 1/20 of all debt is refinanced each year is inconsistent with the assumption of debt issued at 20 year tenors in the period up to 2010 because the sector was privatised in 1989 with no pre-existing debt.
- **Reflecting index-linked accretion (+5bps)** –this alteration double counts inflation compensation as it applies the nominal iBoxx rate to the post-accretion index-linked principal.
- **Smoothing notional debt profiles (+14bps)** – KPMG propose a smoothed profile of notional gearing from 2000 onwards. This results in average gearing in each control period being higher than the notional gearing assumption actually used to set prices historically, and so should be rejected.

3.24 KPMG also arrive at a figure of 4.95% using their so-called 'balance sheet cross-check'. This takes our final determinations large company median of 4.45% from our final determinations balance sheet approach and adds 50bps to account for the impact of swaps.

3.25 We do not accept this figure as a valid estimate of company actual costs of debt on 31 March 2020 or over the period 2020-25. This calculation muddles costs from different years and uses old data. The 4.45% figure is based on data on company instruments as at March 2018, and does not capture 13 bonds which have been issued between this point and March 2020 or other non-listed bond issuance. The 50bps is based on Europe Economics analysis of swap instruments as at March 2017. Due to issues with how companies reported swaps on this date, and the age of this data, we do not consider it provides a valid estimate of swap costs. In addition swaps are not debt and risks around swap arrangements should be for companies to bear. This indicates swaps should ideally not be included in the allowance for embedded debt.

3.26 By way of further evidence that this cross-check is overstated, we provide the CMA with the granular cost of debt submissions assured by companies as part of their PR19 business plan submissions and depicting balance sheets as at 31 March 2018. These submissions are unadjusted apart from making the inflation assumption consistent with the CMA's provisional 2.0% CPI and 2.9% RPI.[55] They imply a WaSC average cost of embedded debt of 4.49% as at March 2018. This figure will overstate the sector's actual costs as at March 2020 as it does not reflect issuance in the 2018-19 and 2019-20 financial years – the lowest cost years of the past two decades.

Summary of evidence on the cost of embedded debt

3.27 To assist the CMA in its exercise of estimating a reasonable allowance for an efficiently run company under our notional financial structure, we summarise below in Table 3.2 the benchmarks we have calculated that are most relevant. These benchmarks suggest a reasonable range for the allowed cost of embedded debt of 3.4 - 4.5% nominal.

[55] Ofwat, 'Summary of PR19 business plan App20 submissions'

Table 3.2: Cost of embedded debt benchmarks for the notionally structured company

Approach	Nominal cost of embedded debt	Notes
Refined 20yr index-led approach	4.17%	Uses notional debt weightings, correct iBoxx, collapsing trailing average, halo effect, and floating-rate debt assumption.
PR19 15yr index-led approach	4.47%	Assumes 25bps 'outperformance wedge' and iBoxx A/BBB.
APR-led balance sheet approach: WaSC average[56]	4.05%	Uses 2020 Annual Performance Reports projected forward using listed bond data. Estimate is an average over 2020-25.
APR-led balance sheet approach: notional-aligned WaSC range[57]	3.4 to 4.1%	Uses 2020 Annual Performance Reports projected forward using listed bond data. Estimate is an average over 2020-25.

Source: Ofwat analysis of 2020 APRs, historic price review data, and IHS Markit data

Regulatory incentives and company treasury policy

3.28 In our 30 November hearing, the CMA expressed an interest in understanding the linkages between our approach to setting an allowance for embedded debt and the impact on company financing behaviour. This line of questioning is also relevant to company arguments raised in their 16 November submissions, namely:

- That our proposals (especially 'outperformance wedge', and use of APR-derived benchmarks) encourage the issuance of shorter tenor debt.
- That shorter tenor debt is damaging to the interests of water customers as it increases refinancing and interest rate risk.

3.29 Our approach to embedded debt seeks to set a reasonable allowance with the costs of an efficiently-run notionally-structured company. Over successive price reviews, our aim is to provide financial incentives for companies to raise debt efficiently. Our approach has evolved over time to make use of cost of debt

[56] See: Ofwat, 'Response to PF responses – Risk and return', Annex 1, November 2020 and associated workbook, 'Rolling cost of embedded debt analysis (FINAL).xls',
[57] As above.

benchmarks, though information on the sector's borrowing costs has been used in each periodic review, allowing customers to benefit where the cost of debt is lower than the benchmark.

3.30 We observe that including some short term debt can be helpful in reducing refinancing risk and managing the cost of carry. For instance, matching tenor of issuance to economic life for large, long-lived projects concentrates refinancing risk in the terminal year, whereas a mix of tenors (short and long), smoothing refinancing across the economic life does not. Issuing more frequently at shorter tenors may also reduce the amount of drawn-down but unutilised debt at any given point in time, managing down the cost of carry.

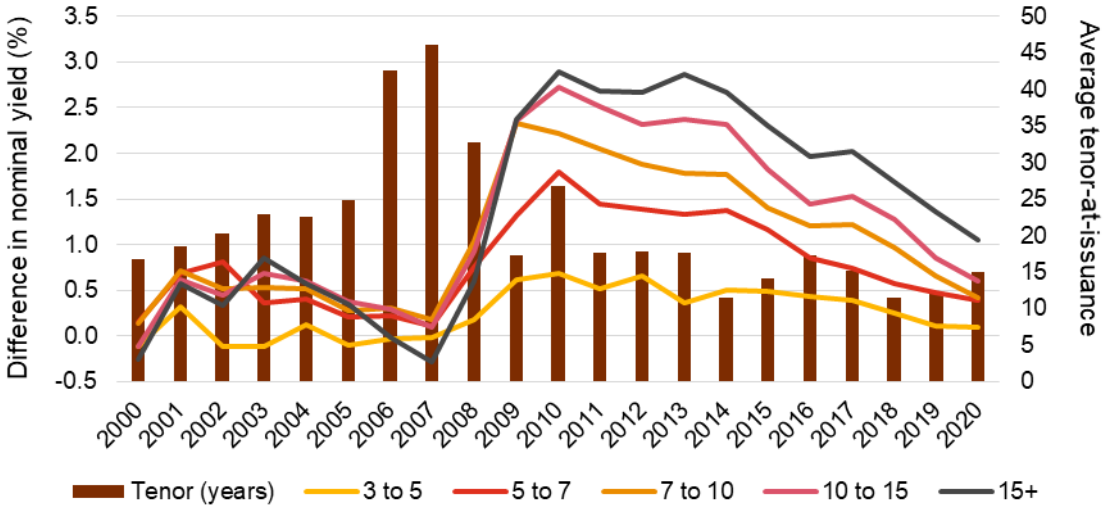
3.31 While in principle it is possible that the water sector could focus excessively on outperforming benchmarks by issuing disproportionately low-tenor (and hence lower cost) debt, the notional framework ensures that it is not in individual companies' interests to ignore the trade-off between lower costs and higher refinancing risk. This is as the costs of crystallised refinancing risk would not be a pass-through to customer bills due to our use of benchmarks to set the allowance. We consider a prudent financing strategy to be one that spreads financing risk, such that significant financing or refinancing requirements are not concentrated at specific points in time.

3.32 Contrary to at least one disputing company's claim, there is also no conclusive evidence linking our PR14 policy on trailing average and outperfomance wedge to tenor-at issuance. PwC analysis featured in Figure 3.4. overlays the profile of historic water sector bond issuance, with the spread of various iBoxx A/BBB non-financials indices of different maturities relative to the 1-3 years index.[58] There is a clear relationship with longer tenor debt issued when the yield curve was broadly flat or inverted, and then a shortening of the average tenor of debt issued when the yield curve steepened. More recently, with a flatter yield curve, there have been a number of recent issues with longer tenor. Yield curve dynamics thus appear to be a more important driver of tenor choice than regulatory policy at different price controls.

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

Figure 3.4: Yield curve movements overlaid with average tenor-at-issuance by year (all water companies), 2000-2020

Source: PwC analysis of Bloomberg, IHS Markit, and Refinitiv data



Link between the cost of debt and financeability

3.33 It is important that the CMA sets a cost of debt that is reasonable and not too high. It is in the companies' interests to argue up the cost of debt for two reasons:

- Firstly, any allowance above the cost of debt that is reasonable for the notional company is a direct increase to the allowed return on equity over and above the required level. Every 10bp of excess allowance for the cost of debt is equivalent to 15bps increase to the allowed return on equity for the notional 60% geared company.[59]

- Secondly, if the cost of debt is set too high, interest costs in the financial model are overstated, dragging down financial ratios. Where there is a financeability constraint and the allowed return on equity is increased to solve the constraint, the result is an additional return to equity, above the level that has been determined reasonable from the CAPM calculation. Extending the example above, if the cost of debt is over estimated by 10bps, and an aim is to adjust the

[59] Calculated at 10bps x 60% / 40%.

allowed return on equity to address a financeability constraint, the result would be a further c.7.5bps overstatement of the allowed return on equity.[60]

3.34 Overall, the illustration above serves to show that an overstatement of the cost of debt, combined with a company-focussed approach to address a financeability constraint, could serve to provide equity returns well in excess of the level required by investors. Our illustration shows that 10bps overstatement of the cost of debt provides equity holders in the notional company with a potential additional 22.5bps of return on equity.

3.35 The CMA's cost of debt allowance in the provisional findings is 32bps higher than provided in the final determinations, suggesting equity shareholders stand to gain an additional return of 72bps on the basis of the notional company. This increased return could be greater for companies with gearing well above the notional level.

3.36 This serves to highlight two problems which it is important that the CMA seeks to avoid:

- the problem of setting the cost of debt too high; and
- the problem of failing to consider appropriate responses to resolving a financeability constraint, in particular where this leads to the error of setting a cost of equity by reference to a target threshold of a financial ratio.

3.37 The first problem can only be avoided by using a robust process to set an appropriate cost of debt, as referenced elsewhere in this section.

3.38 The second problem can be avoided by taking a different approach to resolving a financeability constraint. As we have indicated in our previous submissions, we consider that it is wrong in principle to use the allowed return to resolve notional financeability constraints - it is a disproportionate means of seeking to address the issue, and prone to over-compensation. We remind the CMA of the alternative approaches to resolving a cashflow financing constraint below.

[60] A 10 basis point increase in the allowed cost of debt requires a further 5 bps to maintain 1.5 times interest cover. A 7.5 basis point increase to the allowed return on equity is required to provide this additional free cash for the notional geared company with 40% equity (5bps x 60% / 40%).

3.39 One reason why the use of the WACC to address financeability constraints might have a superficial attraction is that the companies persist in referring to our (and the CMA's) financing functions duty as the 'financeability duty', implying that the rate of return referred to in the duty is the tool for addressing financeability issues. This can be seen not only in their written submissions but in repeated references to this duty in the hearings. However, as we have made clear in previous submissions, this involves an error of law because it wrongly conflates the duty with the question of financeability in a way which could not possibly have been contemplated or intended by the legislation.

3.40 The CMA in Firmus stated that "financeability should not be focused solely on the outturn financial ratios and whether these are in-line with the investment grade thresholds set by the rating agencies, Rather, the interpretation of these ratios should instead be considered 'in the round'." The CMA further said in that case that a company should be expected to take reasonable steps to adjust its own position, including its capital structure, if necessary to secure its own financeabiltiy. We invite the CMA in this case to apply the same thinking and consider the same alternatives as it did in that earlier decision.

3.41 We have set out the alternative approaches to solving a financeability constraint in previous submissions, which we summarise below:

- **PAYG** – modest increases in PAYG rates to advance revenue that we applied for the final determinations is the most appropriate way of dealing with cash flow constraints caused by the low real element of the allowed return. In all but one case, revenue advanced at PR19 was less than the wedge between RPI and CPIH for the RPI linked part of the RCV. Such adjustments are of limited magnitude and should not have a significant effect on the overall credit profile of an individual company, nor give rise to intergenerational issues.[61]

- **Notional gearing** – in a competitive environment, a company's natural response to a financeability constraint may be to raise additional equity finance. The CMA expressly recognised in the Firmus reference of 2017 (para 7.98) that "if FE [Firmus Energy (Distribution) Limited] does face financeability issues, the UR

[61] The CMA recognised our PR19 adjustments were of limited magnitude – see Competition and Markets Authority, 'Provisional findings report', September 2020, pp. 700-701, para 10.96.

[The Northern Ireland Authority for Utility Regulation] was not wrong to assume that FE can address this by reducing gearing to 45%."[62]

- **Proportion of index-linked debt** –Northumbrian Water, at its hearing, recognised that the sector has index-linked debt significantly above the notional assumption.[63] As such it is appropriate for the CMA to reconsider a higher assumption for the level of index linked debt. Increasing the level of index linked debt from 33% to 48% (in line with the industry average) would materially improve adjusted cash interest cover ratio.

- **Faster transition to CPIH** – we have set out in our representations that whilst Moody's adjusts its calculation of financial ratios for revenue advanced through PAYG levers, it has acknowledged the cash flow benefits of CPI transition, it would be possible for a greater proportion of the opening RCV as at 1 April 2020 to be indexed by CPIH.

[62] Competitions and Markets Authority, 'Firmus Energy (Distribution) Limited v Northem Ireland Authority for Utility Regulation, Final determination', June 2017, p. 188, paragraph 7.123.
[63] Competitions and Markets Authority, 'Ofwat final determinations, Northumbrian Water hearing', December 2020, p. 89, lines 1-2.

4. Cost of equity

Risk free rate

4.1 In its provisional findings, the CMA placed material weight on a 6 month trailing average of an index of AAA-rated corporate bonds. Our response to the provisional findings set out our concerns that placing weight on AAA bonds in assessing the risk-free rate is inconsistent with the practical application of the CAPM and introduces significant distortions that outweigh the imperfections in index linked gilts as a risk free proxy.

4.2 For our response to the CMA's provisional findings, Wright & Mason reason that the crucial consideration for whether the risk-free rate is the index-linked gilts rate or a higher rate is the identity of the marginal investor (i.e. net lender or net borrower). Disputing companies have argued that this is irrelevant as it focuses on the marginal investor for the water sector rather than the market portfolio. We submit an additional note from by Wright & Mason that rebuts this argument, noting that even if the right focus is the market portfolio, the marginal investor must be a net lender.[64] This is as all borrowing must be matched by lending: once cancelled out, the average/representative investor just owns the underlying assets of the companies.

4.3 In addition, we provide below additional evidence about the use of the Sterling Overnight Index Average (SONIA), as an alternative cross-check to the gilt rate. SONIA was used to cross-check the risk free rate by Ofgem in its RIIO-2 determination and its use as a cross-check is supported by our advisers, Europe Economics.

4.4 SONIA is the Bank of England's preferred measure of the risk-free rate for sterling markets. In September 2020, the FCA and the Bank of England set out that it encouraged market participants to further switch to SONIA in interest rate swap markets.[65]

4.5 In its provisional findings, the CMA calculated the low end of its risk free rate range from the 6-month trailing average of 20-year index linked gilts. Our

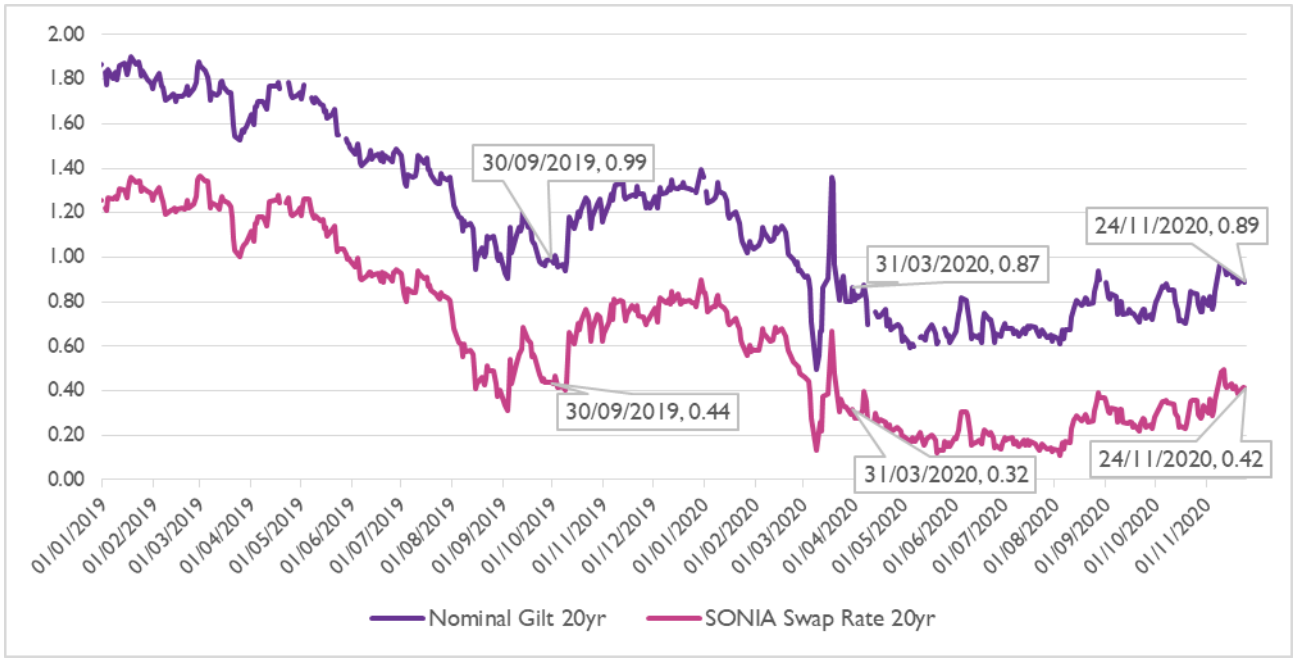
[64] Wright & Mason, 'CMA Appeals – further comments on the risk-free rate', December 2020
[65] See for example, Bank of England, 'The FCA and the Bank of England encourage market participants in further switch to SONIA in interest rate swap markets', 28 September 2020

determinations set out our rationale for setting the risk free rate by reference to the index linked gilt rate, but since SONIA swap rates are nominal, in Figure 4.1 we first compare SONIA swap rates with the nominal gilt yield. Figure 4.2 compares the 20 year index lined gilt yield to the RPI-deflated SONIA rate.

4.6 We observe the 20 year SONIA rate to be a useful cross-check for the risk free rate and often points to a lower yield for the risk free rate than the gilt rate. However, the fact that the 20 year SONIA swap rate is stated in nominal terms means there is an inflation risk premium incorporated in the stated yield, suggesting the potential for upward bias against the true risk free rate.

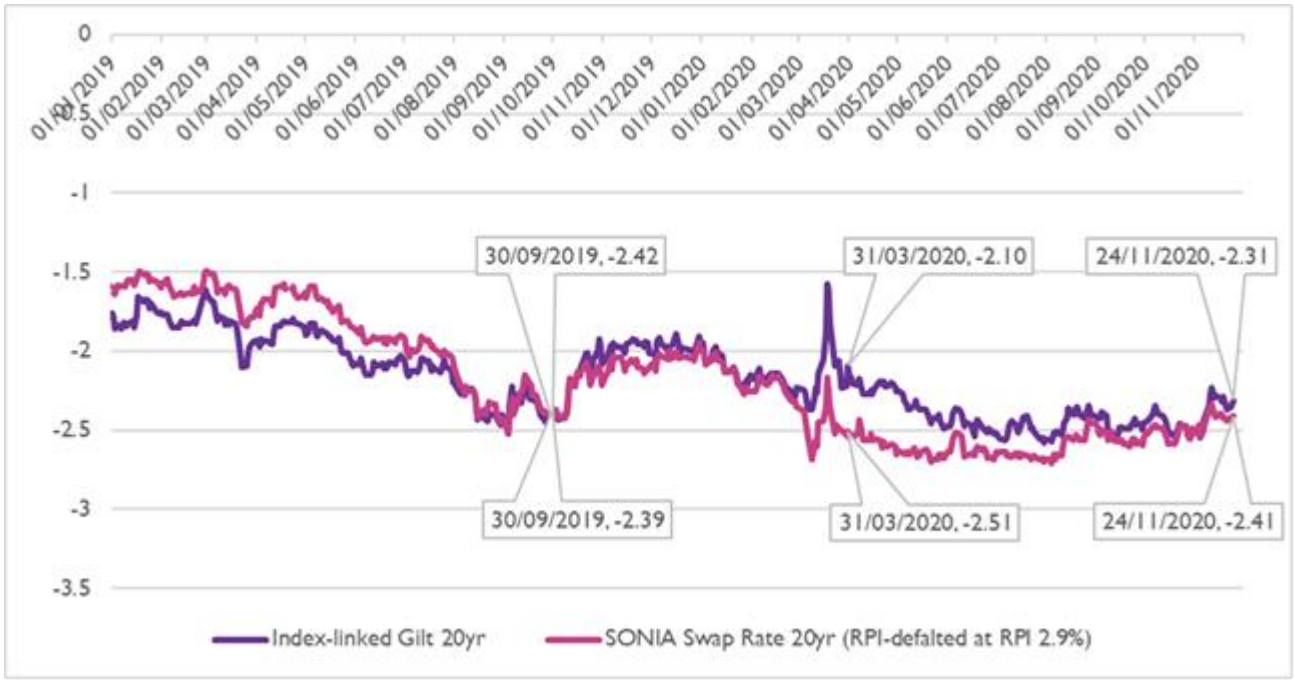
4.7 Table 4.1 compares the 20-year nominal gilt yield with the 20-year SONIA swap rate based on the CMA's 6-month trailing average approach as at 24 November 2020.

Figure 4.1: 20 year nominal gilt yield and 20 year SONIA swap rate (%)



Source: Europe Economics analysis of Refinitiv data

Figure 4.2: 20 year real gilt yield and 20 year RPI-deflated real SONIA swap rate (2.9% RPI)



Source: Europe Economics analysis of Refinitiv data

Table 4.1: Risk free rate evidence

	Methodology	Nominal	Real (2% CPIH)	Real (RPI)
Ofwat final determination	15yr RPI-linked gilts: 1 month trailing average with uplift for forward rates (September 2019)	0.58%	-1.39%	-2.35% (3.0% RPI)
CMA – approach adopted to calculate low end of the range	20yr RPI-linked gilts: 6 month trailing average as at 24 November 2020	0.37%	-1.59%	-2.45% (2.9% RPI)
20 year SONIA swap rate	6 month trailing average as at 24 November 2020	0.26%	-1.71%	-2.57% (2.9% RPI)

Source: Europe Economics analysis of Refinitiv data

4.8 The analysis supports our view that setting the risk free rate by reference to AAA bonds would result in a material overstatement of the risk free rate and allowed return. We submit that this analysis supports that the risk free rate could, in fact, be lower than that stated in our final determination.

5. Company Specific Adjustment

5.1 In our 30 November hearing, the CMA expressed an interest in three issues where we feel there would be value in providing further clarification:

1. Whether a pass on the customer support test renders the customer benefits test irrelevant.
2. How to apply the company-specific uplift in the event of a lower sector cost of embedded debt.
3. Whether there is discrepancy between awarding an uplift on the cost of embedded debt to reflect higher risks and not awarding an uplift for the cost of equity.

1) Whether a pass on the customer support test renders the customer benefits test irrelevant.

5.2 Economic regulation aims to mimic the pressures of competition for the benefit of customers. As we noted in prior submissions, in competitive settings a company with higher cost due to a characteristic (e.g. small size) cannot expect to simply pass on the resulting cost to customers. It must either provide a superior service which justifies the higher cost or find offsetting efficiencies elsewhere. Bristol Water's customer research reveals support for this principle of conditionality: 40% of customers in one survey were only willing to fund a company-specific uplift if the cost was below the company's £4.50/yr estimate of its benefits.[66] In another survey 53% were willing to fund this uplift only if it was conditional on both achieving customer service benefits and Bristol's debt costs remaining high.[67] If the CMA is minded to allow an uplift, it should respect the views of Bristol Water's customers by writing this conditionality around the uplift into its final determination.

5.3 Bristol Water has so far only evidenced that a majority (87%) of surveyed customers are 'very or fairly content' to unconditionally fund an uplift of £1.80/hh/yr.[68] This falls far short of the £6.08/hh/yr bill impact from uplifts proposed in the company's statement of case over its proposed sector

[66] ICS Consulting, 'Acceptability and ODI testing – a report for Bristol Water', August 2018, p. 8
[67] ICS Consulting, 'Acceptability and ODI testing – a report for Bristol Water', August 2018, p. 9.
[68] ICS Consulting, 'Final acceptability and ODI testing – a report for Bristol Water', March 2019, p. 9.

allowance.[69] That surveyed customers appear willing to pay £1.80/hh/yr is a necessary condition to safeguard customer interests for an uplift to this value – it is not however sufficient to demonstrate this. It is also manifestly not sufficient evidence to justify the overall £6.08/hh/yr cost of the company's overall requested uplift.

5.4 A competitive market in which customers demonstrate willingness to pay for a product that is poor value-for-money through imperfect information would not ordinarily be deemed well-functioning. A regulatory approach that mechanistically passes through such costs to customers based on willingness-to-pay would not therefore adequately take into account the customer interest. This risk is particularly acute in the issue at hand, as customers are generally not technical specialists and hence are unlikely to be well-placed to weigh the consequences of not funding a company-specific uplift. The function of the benefits test is therefore to provide the added assurance that the consumer benefit is furthered by customer benefits adequately compensating for the additional cost of funding an uplift.

2) How to apply the company-specific uplift in the event of a lower sector cost of embedded debt.

5.5 For PR19 final determinations we found a historical yield-at-issuance spread to the iBoxx A/BBB of 10 basis points. The latest Europe Economics comparison of small WoC and large company (WaSC and large WoC) spread-to-gilt-at-issuance suggests a size premium for small WoCs of 10bps. Both approaches therefore point to a premium of 10bps over the CMA's sector/large company benchmark for embedded debt.

3) Whether there is discrepancy between awarding an uplift on the cost of embedded debt to reflect higher risks and not awarding an uplift for the cost of equity.

5.6 We agree that Bristol Water was a smaller company when it issued the Artesian debt in 2000-05 that dominates its balance sheet. This provides a rationale for considering an uplift on embedded debt of 10bps for small size factors consistent with a small company notional structure. We would support allowing such an

[69] Ofwat, 'Response to Bristol Water's 27 May submission', p. 12.

uplift contingent on evidence of customer support and adequately compensating benefits to customers.

5.7 With regards to new debt, Bristol Water is no longer a small company, and so different rules should apply. Its March 2020 RCV represents a more-than doubling over the prior decade to £561m. Analysis of its recent debt issuance suggests reasons historically used to justify award of an uplift (inability to issue frequently or tap bond markets) no longer apply. Moreover, the historical average iBoxx A/BBB premium of 10bps for small companies is not evident. The company's 2018 Sun Life bond suggests it can issue at a discount of around 20bps to the iBoxx A/BBB when controlling for tenor.[70]

5.8 The required return on equity is a forward-looking rather than historic return expectation. We continue to see no evidence from empirical data or conceptually, that suggests small water companies have higher systematic risk exposure than large ones – and irrespective of this (for reasons set out above) we no longer consider Bristol to be a small company.

[70] See: Ofwat, 'Risk and return – response to provisional findings responses', November 2020, p26

6. Our response to new issues raised in hearing transcripts and further company submissions

6.1 This chapter provides our response to new issues raised relating to risk & return, as well as providing context and clarification to various issues in disputing company submissions following our submission of 16 November.

Table 6.1: Our response to issues raised in hearings and further company submissions

Topic area	Reference	Issue	Ofwat response
Aiming up	ANH 16 Nov response para 78, p18 BRL para 13, p5 NES, para 17, p4 and para 129, p23	Disputing companies argue that the CMA's point estimate is in the middle of the appropriate range and does not rely on aiming up. Disputing companies argue the true reason for aiming up is because the true WACC is unobservable, will be estimated with error and so the CMA should err on the side of caution.	We dispute that the CMA's point estimate for the cost of debt and cost of equity are in the middle of a reasonable range. We set out our reasons for this on each cost of capital parameter estimate in detail in our response to the provisional findings. We acknowledge certain judgements have to be made in arriving at cost of capital parameter estimates and this highlights the importance of considering whether bias exists in parameter estimates and the importance of appropriate cross-checks. We have evidenced that where regulators err on the side of caution, this benefits investors with higher returns than are required, at cost to customers.
Aiming up	ANH 16 Nov response para 86, p19 NES 16 Nov response paras 123-130, pp. 23-25. KPMG	Ofwat is wrong to disagree with CMA's aiming up because: a) Asymmetry in the PFs must be priced into the WACC, therefore the 10-20bps ODI downside is a floor for aiming up. b) It's unclear that normality is the right assumption for parameter ranges and even if so, standard deviation is wider than argued by Ofwat & its advisors. c) The view that there is little/no downside risk to setting a too-low WACC is wrong because	a) This is not a new argument, we set out our response to this issue in our response to the CMA's provisional findings, where we set out that both that (i) companies have significant opportunity to outperform and (ii) the CMA's expectation that ODI payments will be negative is incorrect.[71] In section 2 of this submission we set out that based on performance in the first six months of the first year of this price control period, evidence where companies are already forecasting to outperform our determination. b) For TMR the CMA acknowledges that: 'even the most optimistic investors are currently expecting returns that are no higher than 5 to 6% (RPI real).'[72] This statement suggests that it does not agree that the upper end of its 5.25%-6.25% TMR range is as likely as its midpoint, as would be the case under a uniform distribution. Similarly with debt beta, the assertion that 0 is as likely as the midpoint of 0.075 is belied by the CMA's statement that '[Ofwat's

[71] Ofwat, pp. 35-42, Risk and return response to the provisional findings paras 3.44-3.60.
[72] CMA, 'Provisional findings', p. 557, para 9.220.

Topic area	Reference	Issue	Ofwat response
		companies need finance to invest and can only do so if the allowed rate of return equals the true WACC.	decompositional approaches] provide a compelling case that the regulatory model should include a positive debt beta.'[73] Our analysis of the distribution of beta estimates used by the CMA also provide strong evidence that the CMA's modal observation is 0.28 (below our final determination) and that the distribution is very unlike a uniform one.[74] c) Our position is not that there is no risk of the WACC estimate being too low or no consequence if it were to be too low, for example risks could arise if the allowed return was set too low over multiple price controls. Our view is that regulatory incentive mechanisms (totex, ODIs) and company obligations (under the licence and the Act), incentivise efficiency and dominate the requirement for companies to continue to invest. We consider the risks and consequences of over and understatement are broadly balanced and this underpins our view in setting a reasonable allowed return. This contrasts with the argument for aiming up according to which (in some sectors) consumers lose out more, over the long-run, if the WACC is slightly too low than if it is slightly too high.
Aiming up	YKY 16 Nov response para 2.3.4. p14	Aiming up is justified to achieve target AICR consistent with the targeted Baa1 rating	The company effectively proposes backsolving an allowed return on equity to achieve rating agency guidance on AICR for a given rating. We value the role of the credit rating agencies, however, as set out in previous submissions, we consider it would be an error to set the cost of equity by reference to a target threshold of a financial ratio. We comment further in section 3 of this document.
Embedded debt	ANH 16 Nov response para 79, p18	It is argued the CMA should not consider cost of debt data from	We disagree that APR data should not be used as an approach to cross-check for embedded debt.

[73] CMA, 'Provisional findings', p. 584, para 9.314.
[74] Ofwat, 'Risk and return – response to provisional findings responses', Figure A2.1, p32

Topic area	Reference	Issue	Ofwat response
(APR data)	NES 16 Nov response para 29, p6 KPMG report, paras 4.1.3 – 4.1.14	2019/20 APRs because it does not include the all-in economic cost of debt. Disputing companies argue: a) It distorts the headline figure through including short-term debt and liquidity facilities. b) KPMG suggests the scale of this is illustrated by the sector average cost of debt on a gross debt basis (4.5%) and a net debt basis (4.8%). c) KPMG argue that including liquidity facilities in the cost of embedded debt estimate is inappropriate as PR19 remunerated liquidity costs separately from the cost of embedded debt d) KPMG argue that including short-term debt is inconsistent with our methodology for calculating the outperformance wedge, which excludes instruments issued at less than 10 years tenor.	a) The argument that liquidity and short-term debt costs are somehow irrelevant to the all-in cost of debt is weak. As set out in section 3 and our prior submission,[75] the use of some short-term and/or revolving credit facilities to finance infrastructure is well-established as sensible treasury policy. b) The suggestion of an embedded cost of debt allowance based on interest costs divided by net debt (as opposed to gross debt) is inappropriate irrespective of the treatment of short-term borrowing. The holding of cash and equivalents at financial year end is the result of a range of different factors apart from short-term debt issuance. Netting off cash and equivalents from outstanding principal would therefore distort the true weighted average cost of debt. We have set out through a more appropriate sensitivity (removing new 2019-20 floating-rate debt, on the basis that most RCFs are floating-rate) that new liquidity facilities account for at most a 9bps overstatement of the WaSC average. c) If the CMA is concerned about double counting the liquidity component, one option is to recognise that the APR figure includes liquidity costs and so to exclude this component from the 10bps issuance and liquidity allowance. The derivation of this figure implies that liquidity costs account for around 5bps of the 10bps, so the required upwards adjustment to the APR-based estimate to derive a cost of embedded debt inclusive of issuance and liquidity costs would be 5bps.[76] This is separate to any adjustment to reflect liquidity drawdown from factors set out in b). d) The aim of both approaches is to derive a reasonable estimate of the embedded debt costs of an efficient notionally-structured company. The 'outperformance wedge' analysis can be thought of as estimating what the level of the benchmark iBoxx A/BBB would be if it were composed of water bonds instead of those from a range of sectors. This is important as different sectors may have

[75] Ofwat, 'Risk and return – response to provisional findings responses', p. 27.
[76] Europe Economics, 'PR19 – Initial Assessment of the Cost of Capital', December 2017, p. 73.

Topic area	Reference	Issue	Ofwat response
		e) It encourages short term, variable rate debt, increasing refinancing and interest rate risk. f) It is inconsistent with the balance sheet cross-check used at PR19; i.e. including swap costs. g) It is static and so does not capture evolving costs over 2020-25. h) It does not capture the impact of interest rate rises implied by forward rates (estimated by KPMG as 10bps in October) on floating rate debt. i) It is based on interest cost, which is driven by coupon rate and not yield-at-issuance, which is the relevant concept. j) It is not appropriate to 'goal-seek' the cost of debt implied by the benchmark index approach to an ex-post estimate of actual costs.	different borrowing costs associated with the same credit rating and tenor. It is therefore appropriate that the criteria for selecting bonds are similar to iBoxx criteria (hence excluding bonds of less than 10 years tenor at issuance). The APR approach is a straight cross-check using a benchmark drawing on top-down actual costs, and so this criterion is not relevant. e) As set out in section 3, we do not consider a share of relatively shorter-dated and/or variable debt to be problematic. PwC analysis shows that a company's financing decisions are influenced by a wide variety of factors. A consequence of using a benchmark allowance drawing on actual data is that higher costs from risky issuance cannot easily be passed through to the allowance. We observe companies have issued at tenors of up to 30 years since PR19 final determinations, with an average of 16 years. This does not seem excessively short-dated issuance. f) KPMG estimate the impact of including swaps in their 'balance sheet cross-check' as 50bps, based on Europe Economics analysis using 2016/17 data. We do not agree that this figure is robust, however following the logic of KPMG's arguments an APR-based approach consistent with our balance sheet cross-check from PR19 final determinations would be to subtract 50bps from the APR-led WaSC average. g) Our prior submission includes a projection of embedded debt from the March 2020 APR to reflect embedded debt falling due and hence affecting the weighted average through 2020-25.[77] We do not observe a marked difference between the static WaSC average cost of debt implied by the Annual Performance Report as at March 2020 (4.07%) and the average of the 2020-25 figures (4.05%).

[77] Ofwat, 'Risk and return – response to provisional findings responses', p. 3.

Topic area	Reference	Issue	Ofwat response
			h) As at 31 March 2020, floating rate debt represents around 13% of sector borrowings. A 10bps adjustment therefore equates to a 1.3bps increase – this is evidently a very small impact to the overall cost of debt. i) We analyse the difference between adopting an interest cost and yield-at-issuance approach based on the KPMG outstanding debt dataset. The APR uses an interest cost approach. We find that using a yield-at-issuance approach lowers the weighted average interest rate of the 213 bonds in our sample by 8bps relative to a coupon-rate approach. This would overstate the impact on the APR figure as KPMG calculate that total outstanding bonds are £35.5bn, but APR borrowings are £59.6bn. j) We consider it inappropriate to conclude that a figure represents a reasonable allowance for the sector without making any reference to the sector's actual cost base. To do so is to discard the long track record of incentive regulation on embedded debt whereby companies are incentivised to outperform the allowance and customers at the subsequent review can share in this outperformance through a more cost-reflective allowance.
Embedded debt (Non-operational debt)	ANH 16 Nov response para 80, p18 YKY 16 Nov response, p62 BRL 16 Nov response, p22	Ofwat's analysis of non-operational financing should not be considered by the CMA as: a) It only identifies for further testing financing decisions which increased gearing in-year by more than 5%, ignoring other financial engineering such as increasing gearing more slowly. b) It does not consider counterfactuals – some companies at gearing close to the	a) We consider our approach to be a pragmatic and rule-based approach to interpreting the impact of non-operational intercompany borrowing. It is unlikely that a company would have to increase gearing by 5% in the course of its ordinary operations. b) This argument misses the point that customers should incur only the efficient cost of embedded debt, which should not be unduly influenced by financing choices of companies with more risky financial structures. We are only interested in the counterfactual of companies not issuing non-operational borrowing which was used in the provisional findings to justify placing 25% weight on the 2000-05 period of the 20 year iBoxx A/BBB trailing average. c) Disputing companies have not provided any evidence that this issue undermines the conclusions we draw from our analysis. We have been careful to avoid overstating the impact of non-operational debt falling due by excluding

Topic area	Reference	Issue	Ofwat response
		notional also have high levels of pre-2006 debt. c) Ofwat's approach excludes debt raised via intercompany loans but does not adjust subsequent debt issuance to exclude refinancing at lower rates of the non-operational financing identified d) Ofwat has erroneously indexed the debt that it considers to be intercompany lending by RPI inflation. It has (correctly) not simultaneously indexed the total amount of debt issuance. e) Bristol Water argues that our analysis should have excluded its intercompany loans as its gearing was not always above 65% over 2010-20, and identifies a typo ('repaid in full' should read 'repaid in part').	various instruments from our analysis where there is evidence that this debt is no-longer outstanding d) The basic point that the 2000-05 period is overweighted in the CMA's analysis stands regardless of operational debt. If all notional debt is 20 year tenor, then the only debt that matters for the trailing average is 2000-2020. KPMG's dataset of outstanding listed bonds suggests that £33.4bn were issued over this period, of which £5.2bn date from 2000-05. This means the provisional findings equally weighted trailing average assigns 25% weight to a period providing 16% (5.2/33.4) of outstanding bonds. Revising the analysis so it is in nominal terms, deducting outstanding intercompany loans reduces the share of outstanding debt from 2000-05 to £3.2bn - or only 10%. e) We clearly stated in our guidance note to the analysis: 'we exclude special dividends and intercompany loans from the running totals when company gearing falls consistently below 65% during the 2010-2020 period'. As acknowledged in the company's response, its gearing was not consistently below 65% over this period. In any case, the quantum of disputed debt is around 2% of the total non-operational debt we identify in this period and so is not material to our conclusion.
Embedded debt (Calibration of index-led approach)	NES 16 Nov response paras 169-171, p32-33 KPMG report, paras 4.5.20-23, pp. 38-39	Listed bonds are appropriate to calibrate length of index even if they ignore other debt because: a) Other debt can be long-dated e.g. EIB loans or private placements of up to 50yrs	It is not appropriate to calibrate the length of index by listed bonds alone as the approach is liable to overweight historic years. a) While recognising that some non-listed bond debt can also carry long tenors, KPMG's listed bonds dataset excludes bank debt and this type of borrowing typically involves shorter tenors than bond issuance (in turn suggesting that it is more likely

Topic area	Reference	Issue	Ofwat response
	NES 16 Nov response para 171, pp. 32-33	b) PwC found 1% of total debt is bank debt c) Analysis of public debt does not include accretion on IL debt, which would increase weight on (mostly pre-2011) debt if reflected.	to date from more recent periods).[78] Bristol Water also say in their December hearing transcript: 'It [bank debt] is typically 7 to 10 years; very, very difficult to actually get loan from a bank 20 years.' b) 2020 Annual Performance Reports suggest gross borrowing of £59.6bn vs. the total £34.5bn total outstanding listed bonds in KPMG's analysis, suggesting listed bonds are only 58% of total borrowings. In addition, the EIB has lent £17bn to the sector. These figures point to an outstanding share of non-listed lending to the sector far greater than 1%. c) We do not agree it is valid to include accretion of index-linked debt principal to overweight debt issued. While it is true that inflation compensation occurs via indexed principal in this debt rather than the nominal coupon rate, it is then inappropriate to use the iBoxx (a nominal rate embedding inflation) to establish the interest cost of this debt. To do so serves to double-count inflation compensation.
Embedded debt (15 year trailing average)	KPMG report, paras 4.3.1 – 4.3.10, pp.27-28 Anglian, hearing transcript, page 78, lines 19-21 and Anglian, page 91, lines 20-23	The 15 year trailing average period proposed by Ofwat is too short and implies the wrong incentives: a) It is shorter than the average tenor of debt as part of the cost of debt index it uses (20Y+) b) It effectively implies that no debt should be issued with the tenor of more than 15Y, which is materially lower than the useful economic lives of assets in the sector (c. 20Y) and the notional investment horizon	a) It is not clear why this criterion is more important than setting an allowance that is reasonable when cross-checked against actual costs. Moreover, a fixed 15yr embedded trailing average as used at PR19 gives an average trailing index length for the overall cost of debt of 17.5 years vs 22.5 years if a 20 year index is used. As the average tenor of the iBoxx over 2000-2020 is 19.4 years, using the 20 year trail does not obviously seem more correct. b) We have previously demonstrated this argument to be false. As our PR19 embedded cost allowance is fixed, this would mean 2005/06 iBoxx data would inform the regulatory allowance in 2024-25 (i.e. a span of 20 years). In addition, there is no clear reason why the trailing average (or indeed company treasury policy for a utility) must match average asset life (and KPMG have not supplied one). c) Incentives to beat our benchmarks by various means (shorter tenors, floating rate debt) have always existed – and will remain whether our index is 15 year or 20 year

[78] See e.g: CEPA, 'Alternative approaches to setting the cost of debt for PR19 and H7', p. 217.

Topic area	Reference	Issue	Ofwat response
		c) Calibrating the index-led allowance based on the reported, unadjusted actual cost of debt – which includes instruments with higher interest rate and refinancing risk than assumed for the notional company – could similarly encourage companies to issue short-term, variable rate debt. d) Anglian Water claims some companies are adopting greater risk by issuing shorter term debt or issuing a greater proportion of floating rate debt.	index. We set out our reasoning in section 3) explaining why issuance of this debt is not a material concern. It is anyway unclear why KPMG's proposed solution (a higher index-based allowance) would reduce issuance of the purportedly undesirable types of debt by increasing the financial rewards to companies which have done so. It is also consistent with our long-standing incentive based approach that customers incur only reasonable cost of embedded debt and share the benefits if for example efficient debt costs are lower than the benchmark. Our regulatory approach, underpinned by a reset of the price determination, allows us to reassess and recalibrate our allowed cost of debt every 5 years. For PR19, we consider a 15 year trailing average to be reasonable for the notional company. Companies are responsible for choosing their own debt financing strategies (taking account of the licence and the regulatory incentive mechanisms, and bearing the risks and rewards associated with their choice. d) We agree that outlying data points should be taken into account when carrying out a cross-check based on the balance sheet approach, and this has been taken into account for example by treating South West Water as an outlier data point, or basing the PR19 final determinations cross-check calculation on the company median.
Embedded debt (Credit rating of index)	NES 16 Nov response paras 159-160, p30 KPMG, report 4.4.20 – 4.4.21	A 50:50 weight of the iBoxx A/BBB is appropriate for the notional company. This is as a) Assuming a uniform distribution of bonds across the 3 notches encompassed by the 'A' and 'BBB' iBoxx, the average rating should be A-/BBB+. This would therefore overestimate the Baa1 target rating of the notional company.	a) We submitted analysis in support of the iBoxx A/BBB being Baa1 rated in our prior submission as part of our databook: 'R&R response to company responses databook Nov 2020 (FINAL)' b) The CMA should conclude on this based on its own review of our response to its provisional findings (Table 4.5). Further support for this position is in the actual rating-at-issue of bonds from our sample which is heavily skewed towards an 'A' rating (84% of the sample).

Topic area	Reference	Issue	Ofwat response
		It is not clear from previous reviews that Ofwat has targeted a credit rating above A3/Baa1 in the past.	
Embedded debt (KPMG alternative estimates)	ANH 16 Nov response para 102, p22 ANH 20 Nov additional letter, p12 NES 16 Nov response para 30, p6	The allowed cost of embedded debt from PFs (4.81%) is not overstated as: a) The properly calibrated balance sheet cross-check implies a cost of debt of 4.95%. b) The equally weighted inverse trombone is 4.95% c) The notional debt-weighted approach gives a figure of at least 4.90%.	a) KPMG's 'balance sheet cross-check' is based on taking our balance sheet cross-check large company median (4.45%) figure from 2019 final determinations (based on 2017/18 data) and adding a figure of 50bps purporting to be the impact of including swaps (Europe Economics analysis from 2016/17). Due to issues with how companies reported swaps in our 2016/17 data collection, and the age of this data, we do not consider it provides a valid estimate of swap costs. We also observe that our FD benchmark using 2017/18 bond data is now out of date, as it does not reflect 13 bonds issued between 2017/18 and 2019/20, totalling £2.2bn. The 2020 APRs are therefore the best guide to the actual cost of debt incurred by the sector. b) The inverse trombone is a reducing 20-15 year simple average of the iBoxx A/BBB. We consider this to give an estimate (4.95% nominal) which is unreasonably high and above 9 out of 10 WaSCs' actual costs. While not disagreeing with the principle of applying the 'inverse trombone', we submit that the CMA should adopt an index-led approach consistent with our proposals in section 4. 'A reasonable embedded debt allowance'. In addition, we submit that the CMA should place weight on benchmarks using the 2020 APR data. These benchmarks all point to an efficient cost of embedded cost of debt much lower than 4.95%. c) We address these issues above in the section 'Index-led approach'
Outperformance wedge	ANH 16 Nov response para 97, p21	Ofwat's analysis supports the KPMG finding of no halo effect: a) KPMG's analysis comparing yield-at-issue with estimated 'iBoxx yield curve' on the same day	a) We have estimated the halo effect using our sample of 68 bonds selected for consistency with iBoxx inclusion rules (and weighted average tenor of 21.9 years vs. iBoxx A/BBB 19.4 years). This suggests a 'halo effect' of 7bps once timing and tenor is controlled for. This should form part of the

Topic area	Reference	Issue	Ofwat response
	NES 16 Nov response paras. 149-155, pp. 27-29	implies no material halo effect and Ofwat has not replicated this analysis or challenged it. b) Because the average outperformance of bonds within 5 years of the relevant iBoxx is low there is no evidence of a halo effect. The finding of outperformance where bonds have longer tenor than the relevant iBoxx can be explained away as a small sample issue and because the yield curve was inverted at the time of issue.	'outperformance wedge' – which we consider to be higher than the 'halo effect' if we assume notional debt tenor matching the iBoxx A/BBB. This is as the notional company was funded to achieve credit metrics more consistent with the 'A' iBoxx over 2000-2015. b) We do not agree in principle that it would be appropriate to base the estimate of the halo effect on a circumscribed part of the dataset due to small sample issues. As the iBoxx A/BBB admits instruments with a range of tenors (from 10 years up) this would exclude the contribution of water bonds issued at tenors either side of the +5/-5 range, despite these instruments informing the cost of debt (and in our sample contributing to a weighted average tenor at issuance broadly similar to the iBoxx A/BBB). In practice, focusing on the average spread to the relevant iBoxx in the -5/+5 year maturity bucket gives a similar estimate of the halo effect (6bps). Given that companies would be more likely to issue longer when it is cheaper to do so (when yield curve inversion occurs), it seems inappropriate to exclude these datapoints from an evidence base attempting to gauge the size of the outperformance wedge.
Outperformance wedge	NES 16 Nov response paras. 156-158, pp. 29-30 KPMG, report 4.4.15 – 4.4.19	Despite Ofwat finding that weighted average tenor-at-issuance in its sample of 21.9 years compared to the iBoxx A/BBB average of 19.4 years, and estimating outperformance vs. the iBoxx of the same rating this does not mean an outperformance wedge exists. KPMG argue that the average spread for our sample does not equal the spread at the average tenor. This is as KPMG estimate the median tenor as 15	KPMG's argument is that the average spread for the sample does not equal the spread at the average tenor. This argument is at odds with the CMA's averaging of two different AAA-rated non-gilts indices (the 10+ and 10-15) to generate a risk-free yield point estimate at the CMA's chosen 20 year horizon. It also appears to assume that the notional company must have exclusively issued 20 year bonds (otherwise a mix of maturities as are present in our sample would justify an outperformance wedge). There is tension between this position and KPMG's objection that our assumption of no refinancing between 1990 and 2010 (the corollary of assuming a 20 year tenor for legacy notional debt) is 'unrealistic'.

Topic area	Reference	Issue	Ofwat response
		years - suggesting an asymmetric distribution, and that concavity in the yield curve means that bonds with shorter tenors will outperform the iBoxx by more than those with longer tenors will underperform.	
Risk-free rate	ANH 16 Nov response para 83, p19 NES 16 Nov response paras 109-114, pp. 21-22 YKY 16 Nov response, p64	Under the CAPM, the RFR should be based upon the marginal investor in the market portfolio, not the identity of the marginal investor for the particular asset being priced. Companies and their advisor KPMG cite Brennan (1971)[79] as evidence that this is the relevant focus.	We submit an additional note with this submission by Wright & Mason that responds to arguments by the disputing companies that further disputes this, noting that even if this were the case, the marginal investor must be a net lender. This is as all borrowing must be matched by lending: once cancelled out, the average/representative investor just owns the underlying assets of the companies.[80]
Risk-free rate	ANH 16 Nov response para 83, p19 NES 16 Nov response paras 109-114, pp. 21-22 KPMG report 3.2.11	The CMA could place weight on KPMG's updated estimate of R* the long-run equilibrium interest rate, following the approach set out by the Bank of England – Malik & Meldrum (2014). KPMG's updated figure is -0.3% CPI (-1.2% RPI) as of July 2020	This is not a new argument – we agree with the CMA's provisional findings view that the significant uncertainty about the timeline of bond yield convergence towards this rate means it is not robust enough to be a primary source of data for a RFR estimate. The November index-linked gilts 20 year average yield was 2.41%, and recent data is not suggestive of a reversal of the post 2016 trend for divergence from the estimated equilibrium rate.

[79] Brennan, M. *"Capital Market Equilibrium with Divergent Borrowing and Lending Rates",* Journal of Financial and Quantitative Analysis, 1971.
[80] Wright & Mason, 'CMA Appeals – further comments on the risk-free rate', December 2020

Topic area	Reference	Issue	Ofwat response
TMR	ANH 16 Nov response para 89, p19 NES 16 Nov response para 137, p25 KPMG report, Annex 5, p42	The international TMR evidence, which Ofwat suggests is used to cross-check the CMA's numbers is not a like for like comparison with the UK figures. Evidence from appropriate comparators supports TMRs above the CMA's point estimate.	The marginal investor in the CAPM is assumed to be highly diversified, therefore the appropriate cross-check is at a higher level of supranational aggregation (i.e. Europe then World) rather than the individual countries as proposed in KPMG's analysis. The respective CPI-real arithmetic means return from DMS (2019) for these geographies are 6.0% and 6.5%, respectively.
TMR	NES 16 Nov response para 122, p23 KPMG report para 3.3.8 p15	It is argued that the 1.3% volatility uplift used by the CMA is not from DMS but from the Gregory (2011) paper itself and in fact at the low end of 1.3%-1.7% from Alan Gregory's paper. This is out of date, but 2020 DMS supports an adjustment of 150bps.	The Gregory's paper's range uses data up to 2009 and does not use the whole series (specifically excluding pre-1925 data) to calculate the volatility uplift. KPMG cites 1.5% being 'supported' by 2020 DMS but does not explain why or otherwise provide a page reference. As set out in our response to the PFs, the CMA should apply a volatility uplift to Barclays Equity Gilt Study estimate calculated from that source of data, indicating a whole-period figure of 63bps.
Beta	ANH 16 Nov response para 82, p18 NES 16 Nov response paras 99-102, pp.19-20 KPMG report	Empirical analysis using the approach recommended by Wright & Mason supports asset betas in line with or materially above the CMA's estimates, with daily asset beta of 0.36.	The suggestion that the cited AGRF analysis follows the approach recommended by Wright & Mason is misleading. The basic approach used by AGRF for the 1991-2020 data uses a simple OLS regression on UUW and SVE in contrast to the UKRN study's more considered long-run GARCH and unbiased estimators. The AGRF analysis finds a raw beta for daily data of 0.58 - far higher than the UKRN authors' long-run raw beta range of 0.43-0.53 using daily data (using a wider range of frequencies, the authors propose a range of 0.3-0.5). In any case, the AGRF paper's use of beta data pre-2006 is difficult to defend as prior to this point neither SVT or UUW were pure play water companies.
Company-specific adjustment	BRL 16 Nov response para 82, p18	Ofwat has provided no evidence for its claim that Bristol Water is no longer a small company.	As clearly noted in our response to the company's 27 May Submission, BRL's RCV has more than doubled over the past decade to £561m. At the same time, a wider range of financing options have allowed the company to catch up with sector benchmarks, calling into question the premise that the company's size is an ongoing disadvantage. This is demonstrated by the company being able to lower its March 2020 actual weighted average cost of embedded debt to 4.75% (lower than WaSCs

Topic area	Reference	Issue	Ofwat response
			Southern and Yorkshire Water). We also identified in our prior submission that its Sun Life bond was issued at a 19bps discount to the CMA's cost of new debt sector benchmark (the iBoxx A/BBB) after adjusting for the 11 year difference in tenor between the bond and the iBoxx average. Our previous policy on small company premia has recognised the principle that the appropriate level of uplift is inversely proportional to company size, allowing that companies may outgrow the need for an uplift. For instance, at PR04 different debt uplifts were awarded based on the RCV band for each company. And for PR14 the water-only companies Affinity Water and South East Water did not receive an uplift owing to PwC analysis which showed that there was insufficient evidence that these companies had a higher cost of debt than WaSCs – these companies did not subsequently apply for a company-specific adjustment at PR19.
ODI Skew	ANH transcript, pp.65-67 BRL transcript, pp.52-56 NES transcript, pp.63-64 YKY transcript, pp.58-62	All four disputing companies suggest that evidence on ODI skew from 2015-20 should be discounted because PR14 targets were less challenging than PR19, with Bristol Water suggesting "[The 2015-20 period] is when companies have set the incentives and the incentive rates themselves. It is based on their own plans, by and large, not Ofwat interventions"	The distinction between how PCs/ODIs have been set in the 2015-20 period and the 2020-25 period has been overplayed. In both the periods, companies had incentives to stretch themselves, through the risk based review (RBR) at PR14 and the initial business plan assessment (IAP) at PR19 and business plans were further scrutinised by CCGs before we received them. The PCs used in both periods measure similar aspects of service, although we made greater use of common PCs in PR19, which allowed us to better benchmark performance. We also set three PCLs using a forward looking approach in PR19, in addition to a targeted challenge on leakage. There was therefore some additional challenge on outcomes in PR19 compared to PR14 but, with the exception of leakage, the CMA's provisional findings support our conclusion that the performance commitment levels are set appropriately. The relevance of the PR14 period in relation to the question of skewness is the shape of the distribution of outcomes we observed in the 2015-20 period. This showed a

Topic area	Reference	Issue	Ofwat response
			positive skew in operational performance which offsets the downside skew incentive rates. As we set out in our response to the provisional findings we think there are reasons to think this shape will be repeated. None of the disputing company points suggest it will not. Therefore it cannot be assumed that asymmetric ODIs will lead to negative expected ODIs. Our modelling shows the same distribution of performance, applied to the PR19 outcomes package, leads to positive expected ODI rewards for all disputing companies. We suggest that in considering ODI skew the CMA place weight on the evidence of what has happened in the 2015-20 period, and what has occurred in the first six months of the 2020-25 period (see section 2 above), as opposed to what the disputing companies suggest could happen in the 2020-25 period.
GOSM	ANH 16 Nov response para 104, p23 YKY 16 Nov response para 3.1.6, p25	Anglian considers we have sufficient tools to ensure financial resilience, referencing recent licence changes relating to the regulatory ring-fence Yorkshire reference existing mechanisms which limit the potential for any risk transfer.	The recent change to most companies' licences to improve the regulatory ring fence was an important step in standardising the licence conditions across the sector, though Anglian Water's and Yorkshire Water's licences already contained the cash lock up licence conditions. However, this change was not accepted by one company. Furthermore, the regulatory arrangements in place do not incentivise companies to reduce gearing and consequently reduce the risk to customers of financial distress and administration; we think this is a gap in the regulatory regime
MARs	ANH 16 Nov response para 105, p23 BRL, Hearing transcript p18 Northumbrian, page 85, lines 4-6	MARs observed for Severn Trent and United Utilities cannot be used to infer the investor cost of equity as these companies are not representative of other regulated water companies. The analysis is not robust and can be used to produce any answer you like.	Companies have not raised concerns with the use of these companies to calculate notional betas. We consider that, in a similar vein to de-levering equity beta using raw beta from these companies, the company-specific factors contributing to the premia can be stripped out. Once this is done, we consider that the residual premium represents an expectation of outperformance on the cost of equity. While recognising assumptions can change the results from MAR analysis, Europe

Topic area	Reference	Issue	Ofwat response
			Economics' latest analysis suggests that it is very difficult to explain current levels of MAR premia solely using realistic levels of outperformance on ODIs and totex.[81]
Covid-19	Northumbrian transcript, p. 100, lines 20-23	Ofwat analysis has embedded data from the Covid crisis in its parameters and this is not the right thing to do.	Professor Gregory proposes the recent emergence of effective vaccines justifies setting the WACC parameters on the basis of some sort of normal regime, not a Covid regime. The cost of capital underpinning our final determinations predated the Covid pandemic. Introduction of a vaccine itself does not alter wider market trends that support an allowed return at the level included in our determination. In previous submissions, Professor Gregory identified a structural break point in the beta data at the start of the pandemic and that such data should be excluded from the beta estimate; our view remains that it would be problematic to exclude such data for a risk that is systematic in nature if estimating the cost of capital on the basis of current market data.
Notional structure – proportion of index linked debt	Anglian, hearing transcript, page 81, lines 18-22	Anglian Water comment that it is not appropriate to assume any increase in index linked debt issuance for the notional company.	We see that the level of index linked debt reported in the latest annual performance reports at 31 March 2020 is significantly above the assumption for the notional company of 33% either through direct issuance or the use of index linked derivatives. Anglian Water reported 51.87% index-linked debt in its annual performance report for the year to 31 March 2020.[82]
Investor survey	Northumbrian Water, hearing transcript, page 8, lines 14-15	Northumbrian Water reference the Ofwat conducted investor survey, stating that "Only 29 per cent of investors think that Ofwat is listening".	The investor survey is an annual survey conducted by Ofwat, with the 2019 survey conducted in the period between the draft and final determinations and may have been influenced by the draft determinations.[83] It is important to consider the results in this context. A further 30% of respondents neither agree nor disagree and the number is significantly lower than in 2018, when 32% disagreed that Ofwat was

[81] Europe Economics, 'Response to the CMA's provisional findings', Appendix 2 – MAR model.
[82] Anglian Water Services Limited, 'Annual Performance Report 2020', July 2020, p. 124.
[83] Ofwat, 'Investors' survey 2019 – summary of results', March 2020, Ofwat, 'Investors' survey 2019 – summary of results', March 2020.

Topic area	Reference	Issue	Ofwat response
			listening to investors. A number of changes were made to final determinations reflecting the representations made to the draft determinations. The results show polarised views (as can be seen in section 2.3, Results by investor type) across the three investor types, including for this question. The same section also shows that "Private equity investors uniformly disagreed with all seven statements." As an example of this seemingly strong voting pattern, every single "strongly disagree" for this question was from equity investors in a privately owned company. We expect to publish the results of the 2020 annual survey in Q1 2021 which will show to what extent the specific point in the PR19 process influenced the results for 2019.
Financeability	Northumbrian, hearing transcript, page 88, lines 2-8 Northumbrian, hearing transcript, page 87, lines 19-20	The company suggests headroom over and above the minimum financial ratios for the target credit rating is required and equates such headroom as necessary in the spirit of the financing duty.	The financing duty does not require the regulator to target a specific credit rating or a specific level for financial ratios and our determinations provide significant headroom above the requirement to maintain a minimum investment grade credit rating. Credit metrics form only one part of the overall credit assessment which is an in-the-round assessment of a number of factors. Adjusted interest cover is also just one credit metric that credit rating agencies look at and headroom in other metrics (such as notional gearing at 60%) is likely to support lower metrics elsewhere.
Financeability	NES hearing transcript p.88 YKY hearing transcript pp. 84-85	Northumbrian Water and Yorkshire Water suggest that if there is a financeability constraint, this should be addressed by adjusting the allowed return rather than using PAYG levers.	The allowed return is not an appropriate mechanism to resolve a financeability constraint and we have set at appropriate alternatives in previous submissions. Companies have focused on only one element of the allowed return. Investors are also rewarded by the inflationary increase in the RCV. Where this causes cash flow issues, we consider it is fairer to customers to adjust the real/inflationary returns by advancing revenues or a faster transition to CPIH. We do not recognise that expecting customers to pay more now without a subsequent reduction in future bills alleviates companies' concerns about intergenerational issues.

A1: Outperformance wedge: evidence on water sector bond issuance in 2020

A1.1 Table A1.1 sets out evidence on water sector bond yield-at-issuance and spread to the level of the 10+ nonfinancials iBoxx A/BBB index following PR19 final determinations on 16 December 2019. We use a data cut-off of 13 November 2020. We exclude bonds which are floating-rate and forward-starting as these bonds are less relevant as comparators to the iBoxx A/BBB at issuance.

Table A1.1: Fixed rate water bonds issued between December 16 2019 and November 13 2020

Company	March 2020 company gearing	ISIN	Date of issue	Coupon	Tenor at issuance	Principal	Coupon type	Yield-to-maturity at issuance	iBoXX A/BBB on same day	Inferred CPI-real iBoxx A/BBB[1]	Spread to iBoxx A/BBB
United Utilities (A3)	67.7%	XS2114778140	10/02/2020	1.75%	18.0	250	Fixed nominal	1.78%	2.25%	n/a	-0.47%
Dwr Cymru (A3)	59.6%	XS2115092442	24/02/2020	1.38%	13.1	300	Fixed nominal	1.46%	2.21%	n/a	-0.75%
Dwr Cymru (A3)	59.6%	XS2115113628	24/02/2020	1.63%	6.1	200	Fixed nominal	1.69%	2.21%	n/a	-0.52%
Thames Water (Baa2)	82.1%	XS2161831776	22/04/2020	2.38%	20.0	350	Fixed nominal	2.42%	2.46%	n/a	-0.04%
Thames Water (Baa2)	82.1%	XS2168290000	12/05/2020	2.44%	30.0	40	Fixed nominal	2.44%	2.45%	n/a	-0.01%

Southern Water (Baa3)	70.4%	XS2180916871	28/05/2020	3.00%	17.0	450	Fixed nominal	3.07%	2.35%	n/a	0.72%
Southern Water (Baa3)	70.4%	XS2180916525	28/05/2020	2.38%	8.0	375	Fixed nominal	2.49%	2.35%	n/a	0.14%
Severn Trent Water (Baa1)	64.9%	XS2182065149	02/06/2020	2.00%	20.0	300	Fixed nominal	2.06%	2.32%	n/a	-0.27%
United Utilities (A3)	67.7%	XS2182444914	03/06/2020	1.88%	22.0	300	Fixed nominal	1.95%	2.35%	n/a	-0.40%
United Utilities (A3)	67.7%	XS2209789234	27/07/2020	0.01%	20.0	125	CPI-linked	-0.76%	2.01%	0.01%	-0.77%
Thames Water (Baa2)	82.1%	XS2244848011	19/10/2020	0.88%	3.0	84.7	Fixed nominal	0.90%	2.04%	n/a	-1.14%
Anglian Water (Baa2)	78.7%	XS2257836838	13/11/2020	1.76%	15.0	50	Fixed nominal	1.76%	2.11%	n/a	-0.35%

Source: Ofwat analysis of IHS Markit, Annual Performance report and Refinitiv data
Notes:
1) Inferred CPI-real iBoxx is the nominal iBoxx deflated for a long-term CPI assumption of 2.0%

Simple average	**-0.32%**
Simple average, notionally aligned	**-0.53%**
Weighted average	**-0.17%**
Weighted average, notionally aligned	**-0.50%**

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales.

Ofwat
Centre City Tower
7 Hill Street
Birmingham B5 4UA

Phone: 0121 644 7500
Fax: 0121 644 7533

This document is also available from our website at www.ofwat.gov.uk.

Any enquiries regarding this publication should be sent to mailbox@ofwat.gov.uk.

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