Anglian Water

PR19 CMA Redetermination

Anglian Water: Initial response to the CMA's working papers on cost of capital

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Cost of capital working papers initial response - Overview

1 Introduction

(1) Anglian is pleased to submit this initial response to the CMA's consultation documents 'Cost of Debt: Working Paper' and 'Choosing a point estimate for the cost of capital: Working Paper' issued by the CMA in January 2021. Given the short timescale available to provide views, this initial response focuses on some key comments on the CMA's working papers and presents some of the analysis supporting Anglian's comments. The note is divided into three parts.

(2) Part I provides Anglian's initial response on the CMA's analysis on the cost of debt. Anglian strongly disagrees with the basis for the significant change in approach that the CMA has made between the PFs and the working paper, which underfunds Anglian's efficiently incurred cost of embedded debt by 45bps. This would leave Anglian's notional company significantly underfunded and its AICR ratios well below the minimum required 1.50x. Part I provides Anglian's initial reasons and evidence demonstrating the flaws in the CMA's proposed revised approach to debt costs.

(3) Part II provides Anglian's initial response on the CMA's analysis on choosing a point estimate on the cost of capital. While it is welcome that the CMA continues to support the principles and reasons to apply an aiming up on the cost of capital, the CMA now considers that there is less uncertainty in the CoE estimates compared to its Provisional Findings just four months ago and therefore reduces the size of the aiming up from 50bps to 25bps. In Part II, Anglian provides the reasons and evidence why the CMA's proposed approach is supported neither by sound reasoning nor by robust evidence.

(4) Part III provides two annexes with initial supporting evidence and analysis. This will be the subject of further elaboration in Anglian's submission which is required by 27 January, which will respond more comprehensively to the working papers.

Part I: Cost of Debt

1 Summary of the CMA's approach to cost of debt

(6) The CMA considers a number of potential approaches in deriving its cost of debt estimate, including (1) a conceptual benchmarking approach; (2) an adjusted benchmark approach which approximates features of average actual company financing (the matching principle); and (3) a cross check against reported actual costs.

(7) It is difficult to determine from the consultation document what is the CMA's preferred approach and policy for setting the cost of embedded debt: there is ambiguity around conceptually which approach the CMA thinks is correct and which the CMA has adopted in practice.

(8) Overall, the CMA appears to attach most weight to approach (2) in deriving its proposed revised allowance for the cost of embedded debt, whilst also applying a 'matching principle' to reflect some apparent observed features of actual company financing.

(9) The CMA has in practice adopted a 15Y trailing average period (4.52%) and applied a collapsing average, which assumes that 1/15 embedded debt matures in each year of AMP7, which the CMA considers better reflects the reality of water companies' financing.

(10) The CMA also considers a 20Y trailing average (4.95%) with a downward matching adjustment of 40bps to take account of floating rate debt and EIB debt (based on its matching principle), which gives 4.55%.

(11) The CMA's cross check against an industry average indicates costs of 4.5% - 4.8% based on adjusted APR data. The CMA states that it is comfortable that its point estimate is at the lower end of the range as companies have on average adopted higher gearing than assumed for the notional company.

(12) In addition, the CMA has increased the proportion of new debt assumed from 17% to 20% justified by the CMA as reflecting its 15Y trailing average and to take into account projected RCV growth.

(13) The combined impact of this approach is a fundamental change from the position it adopted after the first nine months of the referral process resulting in a material, retrospective disallowance of historical, efficiently incurred debt. Enshrining such an approach in the regulatory framework would undermine Anglian's financeability, discourage future investors from supporting the sector, and incentivise a 'race to the bottom' of the maturity scale, ultimately unravelling the proposed regulatory policy, as we explain below.

2 Key messages on cost of debt

(14) Whilst this is a technical and complex subject, it is critical to recognise that the practical implication of what the CMA has done and its change of approach to setting the cost of embedded debt (in particular the change from 20Y to 15Y trailing average) is to leave £100m of embedded debt costs unfunded for Anglian. The CMA has made these changes despite the fact that Anglian has explained how its costs have been efficiently incurred, and that there will be material negative consequences of this change for Anglian's notional financeability.

(15) The CMA has fundamentally changed its approach to cost of debt estimation since the PFs, based on limited additional inputs and analysis beyond all the evidence it had considered up to the PFs. The reasons it has given do not justify this significant change in position.

(16) From a conceptual point of view, a 20Y collapsing average (4.95%) is the appropriate approach for embedded debt, given water industry asset lives (average over 20 years), the assumed maturity of debt instruments in the benchmark index over time (approximately 20 years) and consistency with past regulatory policy that incentivised long term finance.

(17) The CMA's move to a 15Y trailing average goes against well-grounded regulatory principles, undermines its own considerations adopted for the cost of capital determination, creates perverse incentives for the future, is inconsistent with the benchmark selected and relies on wrong and misleading data:

(i) The policy targeted under the new approach consulted on by the CMA results in very material changes on an ex-post basis to the assumed financing for the notional company. It also provides significant uncertainty for future cost allowances and a wider diminution in the confidence investors can have in the regulatory regime as it would show that regulatory policy can deviate from the underlying long-term principles and be adjusted in hindsight, with retrospective impact.

(ii) Conceptually this is equivalent to applying the outperformance wedge (which is predominantly driven by shorter-dated bond issuance) despite CMA's rejection of the wedge mechanism and the wrong incentives it implies.

(iii) The CMA's evidence to support 15Y trailing average is erroneous as it uses 'years to maturity' data, instead of using the correct data source of 'tenor at issue', and hence cannot be relied upon for calibration of the trailing average.

(iv) The implication of its choice of 15y trailing average is an unrealistic profile for a notional company debt financing profile of approximately 7.5 years to maturity, given the long-lived nature of its investments. It leads the CMA to materially under-estimate efficient costs.

(18) As a point of principle, Anglian believes that switching from a 20Y to 15Y collapsing average of a fixed index is not the right way to assess the outturn cost of efficient embedded debt, as this is not supported by robust principles or empirical evidence.

(19) Even if the CMA considers it appropriate to apply the matching principle and adjust assumed the financing of the notional company selectively for some instruments, e.g. to reflect floating rate debt and EIB debt (which Anglian disagrees with) then it should start from the 20Y trailing average of the iBoxx benchmark selected, with explicit and correct assumptions for the floating portion of debt and EIB, and including the additional costs that would be necessary to achieve such financing policies.

(20) We provide initial evidence that the selective adjustments considered by the CMA (when properly calibrated) would imply adjustments of up to 14bp for floating debt and 5bp for EIB – which results in a cost of embedded debt of 4.75% (4.95% less 20bps).

(21) In addition, the CMA's methodology for estimation of the ratio of new to embedded debt contains fundamental methodological errors which materially overstate projected refinancing across AMP7.

(22) The under-funding of the cost of debt means that:

(i) an efficient notional company is not able to recover its efficiently incurred interest costs;

(ii) the notional company is not financeable (as projected metrics are not consistent with Baa1/BBB+ thresholds); and

(iii) equity investors are not able to earn required returns on an expected basis. This has material negative effects on investors' perception of risk of recovery of historical efficiently incurred costs.

3 The approach adopted in the CMA's cost of debt consultation is wrong

3.1 The approach applied by the CMA represents a fundamental shift in approach as the CMA has departed from the benchmark-led approach applied in the PFs and re-specified the notional company on an ex-post basis to match average industry financing policies: it does not fund efficient long-term costs, has significant negative impact on financeability and undermines the principles of better regulation

(23) The approach that the CMA is consulting on is not based on robust empirical evidence and does not have a theoretical basis. The approach would adjust the cost of debt implied by the selected benchmark apparently to reflect outturn average industry financing decisions and risk positions. Conceptually this is equivalent to applying the outperformance wedge (which is predominantly driven by shorter-dated bond issuance) despite CMA's rejection of the wedge mechanism and the wrong incentives it implies.

(24) The CMA's adoption of a 15Y trailing average is not consistent with the investment horizon, and the benchmark index selected (10Y + iBoxx) has maturity of 20Y. The trailing average period should conceptually be matched to the tenor at issuance implied by the benchmark, which is around 20Y based on the iBoxx 10Y+ benchmark. This ensures that a company issuing 20Y debt on a continuous basis can expect to recover costs equal to the yield at issuance across the maturity period of each instrument. Critically, this outcome this is not achieved by the CMA's 15Y approach.

(25) By setting a 15Y trailing average period, the CMA is leaving companies which have efficiently issued long term 20Y+ debt exposed to losses due to falling rates. However, this approach is not symmetric - if interest rates were to increase sharply it is not credible that a regulator would argue that allowances should with hindsight increase over and above the cost of embedded debt implied by the benchmark.

(26) Regulatory policy should provide for recovery of efficient costs on a consistent basis over time to support the stability and predictability of the framework for cost recovery. Ofwat supported long term financing in the past, in line with asset lives:

(i) Ofwat has expected companies to issue long-dated debt over time noting on 1991 that "the industry needs long term finance. Much of this is likely to be in the form of long term bonds"[1] and that "*it is clearly appropriate to consider returns over the life of assets, which are long-lived in the water industry, and not simply the period of current borrowings*."[2]

(ii) Philip Fletcher[3] commented in the early 2000s on Ofwat's statutory duty to ensure that efficient companies could finance the proper discharging of their functions: "*The key here is how efficient the company has been in structuring and managing its finances…Given the exceptionally long lives of system assets, this would suggest the need for a r**elatively long average duration** and an interest rate structure aimed at maintaining a broadly stable real interest cost over time*"[4].

(iii) In July 2002 the water companies' licences were amended to a rolling 25Y notice period with Philip Fletcher highlighting that "customers' interests are best served by a stable regulatory environment that keeps costs down. The longer notice period will enable companies and their investors to plan ahead more securely."

(27) If the CMA is minded to change its policy for the remuneration of embedded debt prospectively this should not be implemented in a way which leaves efficient past issuance (debt issued in line with its previous policy) unfunded.

(28) The CMA's retrospective approach creates perverse incentives for companies to issue shorter term variable interest rate cost of debt as they will assume that current efficient costs of longer-term debt will not be recovered over time. This is inconsistent with typical and prudent infrastructure financing, and creates re-financing risk that CMA does not take into account.

(29) This approach could also appear to be opportunistic given the (current) low interest rate environment: it is not clear whether future AMPs will fund risks associated with such short-term strategies should interest rates increase. All else equal this increases equity risk and reduces the stability of the regulatory regime for investors.

[1] Ofwat (1991), *Cost of capital – a consultation paper, volume 1*

[2] Oxera (2002), *Ofwat – Capital structure of Water Companies*

[3] Ofwat Director General from 2000-2006

[4] Oxera (2002), *Ofwat – Capital structure of Water Companies*

(30) The CMA's change of approach has a material negative impact on financeability: it is underfunding Anglian's interest cost by approximately 45bps over AMP7, without explanation of the source of inefficiency in Anglian's financial policy at the time or evidence to suggest that, on an ex-ante basis, the notional company should have adopted different financing than that implied by the benchmark selected.

(31) The notional company is not financeable as it has a higher embedded cost of debt than adopted by the CMA in its position paper. Projected AICR ratios are around 1.38x for the notional company assuming cost of embedded debt (for illustrative purposes) of 4.95%. This is well below the minimum required level of 1.50x for Baa1/BBB+ credit rating.

(32) When financing infrastructure, investors generally are unwilling and unable to take on material market risk of any significant deviations between revenues and costs of financing over time. As a result, in competitive markets, companies would generally seek to finance assets with tenors linked to their useful economic lives.

(33) An approach which exposes water companies to the risk that regulatory policy changes and precludes cost recovery is contrary to observed market outcomes, where the financing of other infrastructure assets typically depends on the long-term stability of revenue to match debt profiles (for example long term PPAs, CfDs). Infrastructure investors would not invest at the low cost of capital assumed knowing that this exposure (i.e. a significant mismatch between revenues and costs due to e.g. ex post changes in regulatory policy) exists, and bid prices would be so high that any short-term benefit to consumers would be outweighed by the price of higher equity risk.

(34) The CMA should set a regulatory policy that promotes long term asset financing in line with the sector's fundamentals. The costs of deviating from such a policy could then be borne by the companies at the margins when they choose to do so in the future. If, instead, the regulatory policy deviates from this approach assuming adjustments to shorten implied maturity, this will lead to more companies more often taking on the risk of adopting shorter term approach with more exposure to interest rate risk. This will require further shortening of maturities in the regulatory policy in the future, ultimately leading to unravelling of incentives for long-term financing while leaving companies who have adopted a longer term approach out of the money in the meantime.

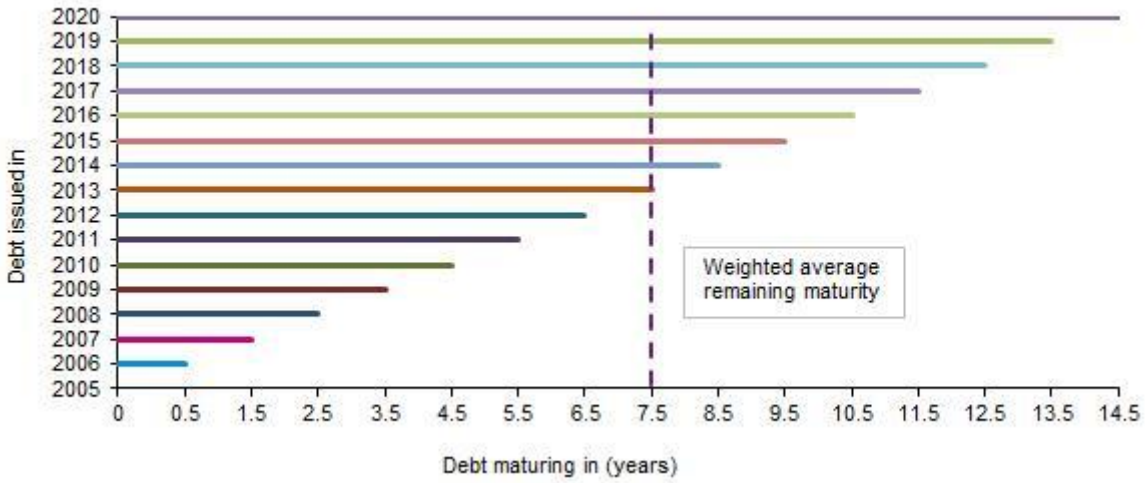
3.2 The CMA's evidence to support 15Y trailing average is erroneous as it uses 'years to maturity' data which cannot be relied upon for accurate calibration of the trailing average

(35) The CMA makes an error in that it uses 'weighted average years to maturity' (e.g. 13-14Y industry average based on the 2018/19 APRs) in calibrating its trailing average period rather than 'tenor at issue' (20Y+). Years to maturity is not relevant for direct calibration of the trailing average period as it does not reflect when the debt was issued. Put differently, as explained below, a 13-14 years to maturity would imply a tenor at issue and trailing average of say 26Y as the years to maturity metric will reflect an average across all instruments at different stages of maturity and will only reflect tenor at issue for instruments raised very recently. The 26Y tenor at issue implied by the industry average years to maturity is substantially higher than the 15Y trailing average the CMA adopts – 15 year trailing average simply does not remunerate the costs that are incurred by the companies with the outstanding maturity measured by the CMA.

(36) By way of example a 30Y bond issued in 2000 would only have 10 years to maturity (YTM) in 2020; but the YTM cannot tell one anything about when the bond was raised or the tenor at issue which, crucially, is what governs the pricing of the security.[5]

(37) The CMA's approach implies (in line with precedent) a 'mimic portfolio' for the notional company, which assumes that the notional company has raised 1/15 debt in each of the last 15 years. This 'mimic portfolio' would have had to be adopted to allow a company not to be left out of the money by the proposed policy.

Figure 1 Illustrative example of weighted average maturity of c.7.5 years implied by CMA's working paper



(38) The mimic portfolio implied by the CMA's proposed policy implies a weighted average years to maturity (YTM) at the beginning of AMP7 (2020) of only 7.5 years (as illustrated in the figure above).

(39) In general (assuming continuous debt issuance and tenor over time) this implies tenor at issue for the mimic portfolio that is *double* the yield to maturity at any given point in time. This concept is critical as the CMA relies on the actual industry average YTM in 2018/19 of 13-14Y, instead of the tenor at issue, to argue that a 15Y investment horizon would be more appropriate than the 20Y adopted in its PFs:

'In favour of a 15-year horizon when measuring the benchmark cost is evidence that companies use a range of financing tools, many of which are priced on the basis of being shorter-term than average water sector bond issuances. Examples of this are the use of floating interest rate debt and bank financing, which together with lumpy issuance patterns and shorter-tenor issuance mean that the actual weighted average years to maturity of debt in the sector is c13-14 years – considerably shorter than 20 years.'[6]

(40) However, following the mimic portfolio implied by the CMA's policy above, a 13-14 YTM would imply tenor at issue and a trailing average period of at least 26Y. A 13Y average maturity for the mimic portfolio would require a trailing average period which is materially longer than the 15Y adopted by the CMA. We calculate that (for example) assuming 23Y tenor across the last 20Y would result in a 13Y average maturity in 2020, which is consistent with public bond data for the sector.

[5] The selection of the iBoxx 10Y+ index implies c.20 years to maturity which is consistent with the assumed tenor at issuance for water companies. Yield to maturity derived from the index can be used for pricing water company debt with tenor at issuance of 20Y as the index reflects traded yields in the secondary market. However years to maturity cannot be considered when analysing water company debt as companies are locked into the yield at issuance. As a result tenor at issuance (which governs water company yields) is a more relevant metric for calibration of the trailing average period.

[6] CMA Cost of Debt: working paper, para 69, p. 23

(41) It is conceptually correct to look at the tenor at issue (and, in particular, the average tenor of benchmark i.e. 20Y) to derive the right trailing average period. This is because, if the benchmark has an average tenor of c.20Y in its portfolio and the trailing average period is 20Y, the simulated costs implied by the mimic portfolio can be recovered over time.

(42) Where a company issues 20Y debt every year at the benchmark on a continuous basis it would achieve the costs implied by the trailing average over time.

(43) If a company were to adopt different risk positions, e.g. to issue longer or shorter debt than implied by the benchmark, they would have exposure to market movements. As interest rates have fallen over the last 10 years, a company which has issued longer tenor than the benchmark in line with the nature of the assets and previous regulatory statements, would be out of the money. By contrast, a company adopting shorter maturities than the benchmark would have realised benefits (as they would have refinanced at lower rates than assumed in the 20Y mimic portfolio). The CMA retrospectively rewards the latter behaviour, with significant negative consequences for future incentives.

(44) To summarise, the CMA conflates years to maturity data with the tenor at issue: the CMA's consultation approach uses the former to calibrate the trailing average period of 15Y, when that is conceptually wrong: it is the tenor at issue that should be used. The implication of the choice of a 15y trailing average is an unrealistic profile for a notional company debt financing profile of approximately 7.5 years to maturity, in light of the long-lived nature of its investments. Put another way, if the CMA is using the 13-14 years to maturity data to support its approach, then this would mean that the trailing average period it should adopt is 26Y, instead of the 15Y it proposes to use.

3.3 The ratio between new and embedded debt is flawed and inconsistent with dynamics of the collapsing average applied by the CMA for the notional company

(45) The CMA has considered three approaches to the estimation of the ratio between new and embedded debt based on the formula above[7]:

(i) an approach based on the notional company which assumes weighted average years to maturity of debt of 15Y consistent with the 15Y trailing average preferred by CMA at this stage. This implies 5/15 debt (33%) has matured by the end of AMP7 or 16.5% on average across the AMP;

(ii) an approach based on the notional company which assumes weighted average years to maturity of debt of 12.5Y based on the 15Y trailing average preferred by CMA at this stage less a 2.5Y adjustment as a proxy for the collapsing average. This implies 5/12.5 debt (40%) has matured by the end of AMP7 or 20% on average across the AMP; and

(iii) an approach based on the actual company which assumes weighted average years to maturity of debt of 13.8Y[8]. This implies 5/13.8 debt (36%) has matured by the end of AMP7 or 18% on average across the AMP.

(46) The CMA has made an error as it is more appropriate to model a 20Y trailing average than the 15Y assumed by CMA (as above) in approaches 1 and 2.

[7] The CMA has estimated the ratio between new and embedded debt based on the following formula:

N = T/M * 50%

Where:

N = Proportion of new debt at the end of the control period
T = The number of years in the control period
M = The weighted average years to maturity of debt
50% = Adjustment to calculate average proportion across the price control

[8] CMA adopts 13.8 years to maturity based on 2018/19 company data

(47) In addition, approach 2 is not consistent with the collapsing average methodology for the notional company, as it assumes that the average tenor at issue is 12.5Y (not the 15Y assumed consistently across the trailing average and collapsing average methodology). Approach 2 implies that more embedded debt has matured across the price control (40%) than is implied by the collapsing average methodology (33%) which is based on a weighted average years to maturity of debt of 15Y.

(48) Correcting for these errors implies average new debt of 12.5% across the price control based on the notional company approach (or up to 14.5% assuming RCV growth).

(49) In relation to approach (3) the CMA has also over-estimated the proportion of new debt implied by the weighted average years to maturity on actual balance sheets (13.8Y on average across the sector based on the 2018/19 APRs), as it assumes that this implies all debt will have matured in 13.8Y. This is not correct since the 13.8Y is an average and by definition some debt will have a longer tenor and some debt a shorter tenor than the average position.

(50) The CMA calculates that 13.8Y implies 1/13.8 debt is refinanced in each year of AMP7 (36% by the end of the price control). Assuming 50% of debt has more years to maturity than the 13.8Y, the average would imply that only 18% of debt of debt will be new by the end of AMP7 (equivalent to 9% on average across AMP7 or up to 11% assuming RCV growth).

(51) As a result, the CMA's change to the new to embedded debt ratio is conceptually incorrect and inconsistent with the assumed share of embedded debt, where a new to embedded debt ratio should in fact be 11%-14.5%.

(52) We consider that the correct approach is to model how much debt would mature across AMP7 based on the collapsing average methodology. Assuming 1/20th embedded debt matures in each year of AMP7 (consistent with the 20Y investment horizon and the correct trailing average period) would imply that 25% of embedded debt matures by the end of AMP7 and 12.5% on average across the AMP. This would increase to 14.5% if adjusting for RCV growth.

3.4 The matching principle justification (adjusting the notional benchmark to approximate features of actual company financing) by the CMA is unjustified, selective and wrong. It also sets a precedent that even if companies issue debt at costs in line with the benchmark index, they would be exposed to ex post adjustments to their allowances, ultimately undermining regulatory predictability and financeability while allocating refinancing risk to customers

(53) It has been a consistent policy of Ofwat that actual company financing should be left to companies.

(54) However, on an ex-post basis, the CMA is including into the assumed financing of the notional company, an approximation of some features of actual financings that clearly deviate from the justified benchmark.

(55) The matching principle is based on an ex-post assumption that an efficient financing policy should have deviated from the long-term benchmark by shortening maturity, in contradiction to the ex-ante principles of setting a notional benchmark. This is inappropriate since it is unachievable in practice, has the wrong incentive properties and must ultimately unravel the policy of long-term financing in the future. Moreover, it creates a disturbing precedent that regulators can ex-post change the regulatory allowances on sunk costs.

(56) This ex-post approach represents a fundamental departure from how regulators have set the notional financial structure. In the past, notional company assumptions have been set ex-ante based on long term financing, rather than reflecting any benefits of outturn market conditions, while assuming that actual financing decisions are a matter for companies with the risk borne by them.

(57) The ex-post application of the matching principle creates perverse incentives as it:

(i) **Increases exposure for prudent companies** that have issued long-term fixed rate debt (or fixed-equivalent) in line with the notional company and a prudent treasury policy for a regulated network

(ii) **Assumes** that subsequent reductions in the cost of debt, which have been achieved by **taking on more risk, are a source of efficiency** (e.g. shorter tenors, floating debt). This:

i. Encourages risk taking by firms and a possible race to the bottom, rather than incentivising genuine efficiency

ii. Transfers risk to customers, assuming consistent regulatory policy when rates increase

iii. Creates an inconsistency/blurs the distinction between the assumptions of the notional company and the CoD allowance

(iii) **Increases regulatory risk** for firms because:

i. Future allowances cannot be predicted ex ante (as this would require forecasting the debt strategy of each firm in the 'pool' and then matching the weighted average strategy), so it is not possible for a prudent firm to hedge the regime

ii. It is unclear whether Ofwat would follow a sector-wide pass-through policy if interest rates rise

(58) The matching adjustments have not been assumed before and is a departure from regulatory precedent by both Ofwat and the CMA in water appeals; the regulatory precedent has assumed long term and fixed rate debt. In particular at PR14 no floating rate debt was assumed in the financeability calculations (67% fixed, 33% IL).

4 The CMA should continue to adopt the PFs approach of a 20Y trailing average which implies a cost of embedded debt of 4.95%. Even if the CMA maintains the selective and one directional matching principle set out in its consultation, the calculations used to support its proposed cost of embedded debt of 4.52% are wrong. The corrected calculations would result in a cost of embedded debt of c.4.75% before adjusting up for costs of carry and issuance costs

4.1 The 40bps matching adjustment (12.5bp EIB, 15-31bp floating) considered by CMA is wrong. The total adjustment is c.20bp at most (up to 5bp EIB, up to 14bp floating)

(59) The proportion of EIB debt assumed by the CMA is wrong: CMA assumes £7bn but this is £5.3bn in 2020 falling to c.£2bn by 2025 reflecting the consequence of Brexit and lack of issuance from early in AMP6 (based on ARs, data tables). This is a small subset of water company debt (6% by end of AMP7).

(60) The cost of EIB debt assumed by the CMA is wrong: the CMA estimate of 100bps is based on statements by Ofgem and Ofwat which are not supported by any empirical evidence. Other sources such as, for example, the Lords Select Committee indicate that 100bps it at the upper end of the range (50-100bps)[9] and benchmarking water company EIB debt (60-70bps) indicates that 100bp is likely to materially overstate the impact of EIB issuance compared to the benchmark selected by CMA. Correcting this to assume 65bp and adjusting assumed EIB debt to reflect outstanding EIB debt across the sector results in an adjustment of up to 5bp. It should be noted that from June 2016 there were no economic benefits of EIB debt compared to other market sources.

[9] European Union Committee Brexit: the European Investment Bank Chapter 4: The consequences of losing access to the EIB, para 68 (31 January 2019)

(61) In addition, the proportion of floating rate assumed by the CMA is not supported by the evidence: at the upper end of the 15 - 31 bps range the CMA calculates the simple average of floating rate debt issuance across the sector (as a proportion of total debt). The CMA is wrong to have relied on the simple average to inform its assessment as this attaches weight to outlier companies (e.g. Hafren: 54%, Yorkshire 26%, South West 20%) which have material exposure to floating rate debt and adopted very different risk positions to that assumed for the notional company, and the upper end of the range should not be taken into account. In addition, the CMA relies on 2018/19 debt composition for each company but does not adjust for credit facilities (which relate to liquidity financing so should not be included). It is more appropriate to consider the median for the sector which excluding RCFs is c.5.5% and implies a 14bp adjustment.

(62) The cost of floating rate debt assumed by the CMA is also not robust: the CMA assumes all floating debt can be raised at 2020 iBoxx, whereas in fact floating debt has been raised over a number of years when rates were higher; iBoxx measures long term debt issuance rather than short term floating rates of interest.

4.2 If the CMA considers it appropriate selectively to adjust for some elements of actual financing such as floating rate debt or the EIB debt (which we disagree with), then it should start from the 20Y trailing average of the iBoxx benchmark selected, with explicit assumptions for the floating portion of debt and EIB, and allow for the additional costs associated with such financing policies

(63) The CMA's approach of using a 15Y trailing average of a fixed rate index to capture differences between the 20Y trailing average and industry-wide features of actual company financing, driven primarily by floating rate debt, makes the regulatory policy unclear and inconsistent. This is because it is not clear whether the CMA considers that firms should issue shorter dated fixed rate debt (in line with its 15Y trailing average of a fixed rate index) or instead whether it is efficient for firms to issue a portion of floating rate debt.

(64) However, there are also several errors in the CMA's analysis, which overestimate the 40bp matching adjustment.

(65) The starting point as above is a 20Y collapsing average, as considered by the CMA in its working paper. This implies a cost of debt of 4.95%.

(66) When we do that and adjust by c.20bp then the average trailing average is c.17.5Y, 2.5Y higher than assumed by the CMA in its PFs (the impact on the cost of embedded debt is assumed to be 20bps which reduces the cost of debt to 4.75%). This is materially higher than the 15Y (4.52%) assumed by the CMA in its consultation.

(67) The CMA's approach is also selective and therefore biased since it has not incorporated any adjustments which *increase* costs for the notionally efficient company.

(68) If the CMA decided to adopt a 15Y trailing average or assume 20Y trailing average with the matching principle, which we disagree with, then a more detailed analysis of the cost of carry and costs associated with management of the transition to CPIH would be required. Ofwat has provided an allowance of c.10bps for issuance and liquidity costs. However, this is materially lower than the costs implied by companies' actual positions. Benchmarking carried out by Ofgem estimates issuance and liquidity costs at 25bps, 15bps higher than the 10bps allowed by Ofwat in its FD.

Table 1 Comparison of Ofgem and Ofwat allowances for issuance and liquidity costs

	Ofgem FD	Ofwat FD
Transaction costs	6bps	6bps
Liquidity/RCF	4bps	4bps
Cost of carry	10bps	0bps
CPIH issuance/basis mitigation allowance	5bps	0bps
Total	25bps	10bps

(69) The difference is predominantly driven by the non-provision of allowances for cost of carry (Ofgem has estimated costs associated with maintenance of cash on the balance sheet rather than just credit facilities) and CPIH issuance/basis mitigation by Ofwat (Ofgem considers that "*networks may want to raise CPI or CPIH debt for the first time in RIIO-2 due to the change in RAV inflation to CPIH. This market is relatively nascent, so we consider it reasonable to provide an additional allowance"*[10]).

(70) In practice it is not straightforward to mimic the continuous debt issuance implied by the trailing average period, and water companies typically issue on a more infrequent basis. Assuming that a notional company raises debt in alternate years (i.e in year t pre-finances year t+1) it would be exposed to additional, cumulative losses in a falling interest rate environment – in every year of issuance 100% of debt would be raised at rates in year t, but the mimic portfolio assumes that 50% of debt would be raised in year t+1 (when rates are lower).

(71) This indicates that even a 20Y trailing average period may not be realistic for the notional company to achieve a portfolio that mimics the benchmark and it already implies additional unfunded costs.

4.3 The CMA has carried out a cross check against industry average costs but: (1) it is not clear how the CMA might make adjustments to reflect the cross check; and (2) the CMA has made errors in its analysis of reported costs which under-state the cost of embedded debt

(72) It is desirable regulatory policy to determine ex-ante the objective of any cross check applied and set out, ex ante, the pre-conditions for making adjustments to reflect the cross check. If there are large deviations identified in the cross checks leading to either significant under- or over-provision then the drivers of this variance will need to be understood.

(73) Regulatory allowances should not be based on selective, one directional, ex post adjustments that deviate from a long term, well justified benchmark based on sector fundamentals. Such an approach undermines the incentive properties of the benchmark and retrospectively rewards one-sided risk taking. It would be equally wrong significantly to adjust the 20Y benchmark up on the basis that some companies adopted even longer maturity instruments, or if the rates have increased.

(74) Materially outperforming the market benchmark on an ex-ante basis is very difficult and whether this has been achieved can be assessed (e.g. through testing for a 'halo effect'). We consider that it should be presumed under a benchmark-led approach that once the halo effect has been tested for (CMA has found no evidence for a halo effect) any deviations to the benchmark are driven by different risk positions adopted by companies.[11]

(75) Where deviations are driven by risk positions adopted by actual companies that differ from the appropriate long-term benchmark these should not be adjusted for as this reflects risks adopted by actual companies in the allowance and transfers risks and potentially higher costs to customers over time. Under the benchmark-led approach if an index is selected with an implied maturity of 20Y and companies deviate from 20Y debt maturity they should bear the risk of such deviations. The practical

[10] Ofgem RIIO-2 Final Determination: Finance Annex (Table 4)

[11] Different risk positions could include debt type, tenor at issue, timing of issuance vs benchmarks

consequence is that risks associated with actual company financing decisions are clearly allocated to companies where they deviate from a long-term benchmark.

(76) As a result, any adjustment to reflect deviations from the cross check should only be applied where the drivers of the deviations do not imply different risks to the benchmark selected and should be balanced and unbiased in either direction. It is not clear from the CMA's consultation how it takes different risk positions adopted by companies into account in its cross check.

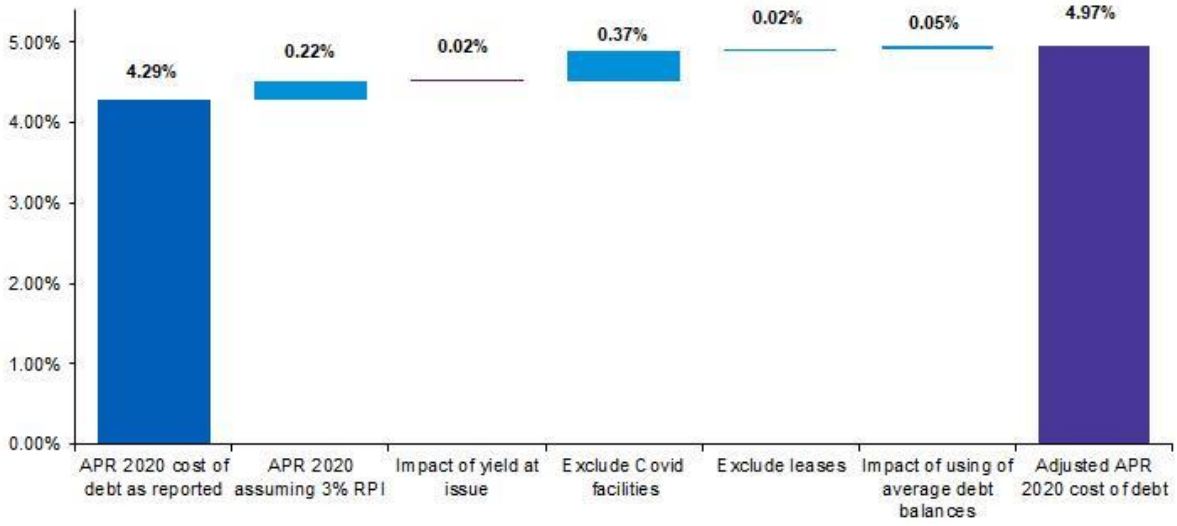
(77) Moreover, if carrying out a cross check, a robust estimate of the cost of debt reported for each company would need to be on a like for like basis with the allowance (e.g. not taking into account credit/liquidity facilities, based on yield at issuance rather than coupon, including application of a forward rate adjustment for floating rate debt).

(78) The CMA has made adjustments to reported 2019/20 data to normalise for the relative debt weights[12] and debt costs to mitigate the issue of inappropriate levels of short-term credit facilities within the measure of floating rate debt (table 2).[13] The CMA should not attach any weight to table 1 as it does not normalise for short-term credit facilities (although we recognise the 'actual-notional' approach is invariant to the proportion of floating rate debt assumed).

(79) In table 2 where CMA has sought to normalise the proportion of floating rate debt the cross check is flawed as CMA has not adjusted properly for credit facilities. The CMA assumes debt weights include no liquidity financing – this will under-state the cost of financing RCV-assets (rather than cash or working capital which is predominantly financed through credit facilities and very short-term debt). An analysis of industry costs should be on a net debt basis to exclude debt which finances cash, and on this basis the industry cross check implies 4.75% (median WaSCs and large WoCs), 30bps higher than the CMA's estimates at the low end of the range.

(80) Figure 2 below provides a reconciliation of Anglian's reported cost of debt in the 2019/20 APR (4.29%) and economic cost (4.97%). This highlights that adjusting reported costs across the sector is complex and that unadjusted reported costs cannot be relied upon as a robust cross check. The CMA's adjusted table 2 APR data (which considers 2018/19 debt type weights) assumes Anglian's cost of debt to be 4.85%, 12bps lower than Anglian's cost of embedded debt (4.97%[14]).

Figure 2 Reconciliation of Anglian APR 2019/20 cost of debt to all-in economic cost of debt



[12] Using the debt type weight from APR 2018/19

[13] CMA Cost of Debt: working paper, Table 2, p.53

[14] CMA Cost of Debt: working paper, Table 2

4.4 The CMA is wrong to consider it appropriate that its point estimate (4.52%) is at the low end of the range implied by industry cross checks

(81) The CMA assumes that it is appropriate that its cost of embedded debt estimate is consistent with the low end of the range as (1) on average companies exhibit higher gearing than assumed for the notional company; and (2) companies have raised a higher proportion of index linked than assumed for the notional company.

(82) However, this rationale is not supported by empirical evidence as pricing does not vary materially with gearing within a given rating bracket, and there is no evidence that gearing has increased the cost of water company debt issuance over time compared to the target rating for the notional company. Anglian has provided ample evidence on this point throughout the inquiry.

(83) It also appears that the CMA is not willing to take into account actual financing decisions which it considers could *increase* the cost of debt (gearing, index linked debt), but selectively matches features of actual company financing which may *reduce* observed costs (short term, floating debt).

(84) Following the CMA's logic, it should *aim up* in applying the cross check because the industry has issued more floating and short term debt than assumed in the benchmark for the notional company (rather than aim down to reflect higher gearing across the industry assumed in the notional company, as there is no empirical basis to assume that this has increased costs).

(85) It is also important to recognise that there is a broad range of reported costs – this is driven primarily by different financing strategies and risk positions adopted by companies (compared to the benchmark assumed). Where this is the case (and the low end is driven by riskier financing strategies adopted by some companies) it is wrong to consider a cost of debt consistent with the low end of the range derived from reported costs to be appropriate for the notional company.

(86) The CMA acknowledges the uncertainty in industry-wide cost of debt(s), which can be clearly seen from the wide distribution of costs across the sector, driven by different financing strategies adopted. More specifically, the Cost of Debt standard deviation is approximately 0.9% across the industry (WASC and WOC), which is relatively high when compared to an industry average of between 4% and 5% - this supports at least aiming straight in assessment of industry average costs.

Part II: Selecting a point estimate for the cost of equity

1 Summary of the CMA's approach

(87) The CMA has not updated the underlying cost of equity (CoE) parameters but has reduced the degree of aiming up from the mid-point CoE from 50bp to 25bp.

(88) Whilst the CMA appears to consider that the principle of aiming-up is sound, it now considers that there is less uncertainty in the CoE, following new modelling of the probability distribution of its CoE range.

(89) This new modelling suggests that adding 25bp to the mid-point CoE means the allowed CoE is at the 82nd percentile of the CMA's range i.e. there is only a 20% chance that the CMA's allowed CoE is too low. The CMA therefore feels comfortable that an aiming-up adjustment of 25bp is sufficient.

(90) The CMA also considers that its modelling of the probability distribution may be prudent because the approach of assuming a stable TMR in the current low RFR environment may provide an upward biased TMR estimate.

2 The approach proposed in the CMA's working paper contains implausible assumptions

(91) The CMA has significantly underestimated the uncertainty in the CoE, which results in the surprising conclusion that adding just 25bp to the CoE achieves the 82nd percentile.

(92) The CMA acknowledges that there remains significant uncertainty over the measurement of the cost of equity.

(93) However, the CMA then produces analysis which implies that adding just 25bp to the mid-point CoE means there is only a 20% chance that its CoE is too low.

(94) The CMA's analysis is based on assuming very low levels of uncertainty in its estimates of the underlying parameters – in particular TMR and beta. These low levels of uncertainty result in an artificially narrow probability distribution, which means that only small uplifts from the mid-point CoE are required to achieve the 75th/82nd percentiles.

(95) The CMA's underestimate of the uncertainty in the CoE is evident simply by highlighting the implicit assumptions behind its analysis, which include *inter alia*:

(i) The CMA is 100% confident that the 6.5% (real RPI) TMR point estimate determined by the NIE panel is not the TMR.

(ii) The CMA is 100% confident that AAA yields will not increase above the 6m trailing average over the course of the charge control.

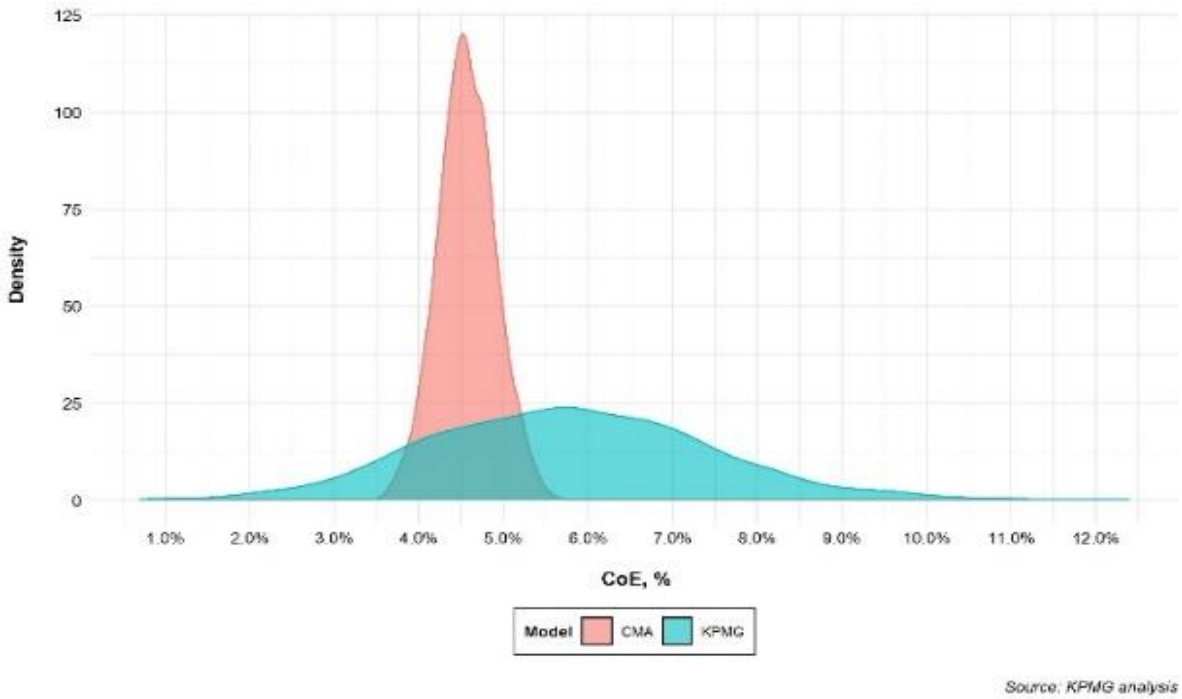
(iii) The CMA is 99.99% confident that the authors of an independent academic report by Gregory, Harris and Tharyan, are wrong that the asset beta is c.0.35-0.36.

(96) We believe that none of the above implicit assumptions are individually plausible, let alone combined.

(97) The CMA's underestimate of the uncertainty is also evident if we consider the standard errors behind the underlying estimators used for TMR and beta. Modelling a probability distribution using the underlying standard errors demonstrates that the actual uncertainty in the cost of equity is likely to be much larger than the CMA assumes.

(98) Figure 3 below compares the CMA's probability distribution with a probability distribution that takes into account the variance in the underlying parameters.

Figure 3 Probability density of the CMA's CoE versus distribution that takes account of underlying uncertainty in TMR and beta



Source: KPMG analysis

(99) Figure 3 is important for the degree of aiming-up needed to achieve a given percentile. It demonstrates that the CMA has barely aimed-up – as adding 25bp achieves the 57th percentile of a distribution that takes into account the variance in the underlying parameters. It further demonstrates that the 50bp aiming-up at the PFs is the minimum required for any meaningful degree of aiming-up.

(100) Further, the CMA's aiming-up analysis overlooks the asymmetry in the package. Adopting the CMA's 15bp mid-point RORE downside, the CMA has aimed up by just 10bp, which effectively amounts to taking the mid-point CoE (54th percentile under the adjusted distribution for the CoE only).

(101) Evidence from the New Zealand Commerce Commission (NZCC) and Blackrock strongly supports the conclusion that the CMA has underestimated the scale of the uncertainty in the CoE. For example, the the NZCC assumes a standard deviation for the ERP of 1.5%.

(102) In addition, empirical evidence – which the CMA has not engaged with in the recent working papers - continues to show that there is a higher probability that the 'true' CoE lies above the CMA's mid-point. In particular, the CMA's own TMR analysis has a mean of 6.1% real RPI or 5.9%[15] if a 35bp adjustment is made to the figures deflated using CED/RPI (for the CMA's concerns regarding the 2010 change in RPI). Yet, the CMA's probability distribution analysis assumes a mean TMR of 5.7%, real RPI.

(103) The CMA gains false comfort over its TMR range and probability distribution analysis because it considers that the approach of assuming a stable TMR in the current low RFR environment may provide an upward biased TMR estimate. This is a fundamental change in the CMA's position at a late stage in the process, which goes against regulatory practice and the recommendations in the UKRN Report. Further, Dividend Discount Models continue to support TMRs in line with or above the CMA's results from the historical data.

[15] 5.9% is the simple average regardless of whether non-overlapping returns are included or not (5.93% vs 5.87%).

Part III: Annex A: cost of debt

1 Modelling notional CoD under different assumed notional finance structures

(104) We consider that the benchmark-led notional approach should be primary method for setting the cost of embedded debt on a basis that is internally consistent with the benchmark.

(105) As the iBoxx exhibits a tenor of c.20Y this implies a 20Y collapsing average approach of the A/BBB 10Y+ iBoxx – in line with regulatory policy which is based on a fixed rate index. This gives a cost of debt of 4.95%.

(106) We strongly disagree that it would be appropriate to approximate features of actual company financing in the notional company.

(107) However we have reviewed the 43bps matching adjustment considered by CMA (para 121) and applied to the 20Y collapsing average. Whilst we agree with CMA that the 20Y collapsing average is the right starting point the 40bps adjustment (12.5bp EIB, 31bp floating debt) is wrong for the following reasons:

2 EIB debt

(108) Caution should be applied before adjusting the notional company to assume EIB debt as this debt has terms and conditions e.g. covenants which would not apply for the notional company and could impact on pricing.

(109) All else equal it may be appropriate to adjust the benchmark to reflect EIB debt pricing where this is a source of debt that is structurally cheaper than the benchmark

(110) The CMA has overstated the size of the EIB adjustment as (1) CMA has over-estimated the quantum of EIB debt outstanding across the sector; and (2) the variance between iBoxx benchmark and EIB debt is typically lower than the 100bps assumed by CMA.

(111) Analysis of company's annual accounts[16] shows that EIB debt at the beginning of AMP7 is c. £5.3bn (9% of debt), falling to c.£2bn by the end of AMP7 or 6% of embedded debt[17]. This is materially lower than the £7bn balance estimated by the CMA based on simplifying assumptions on average across AMP7[18].

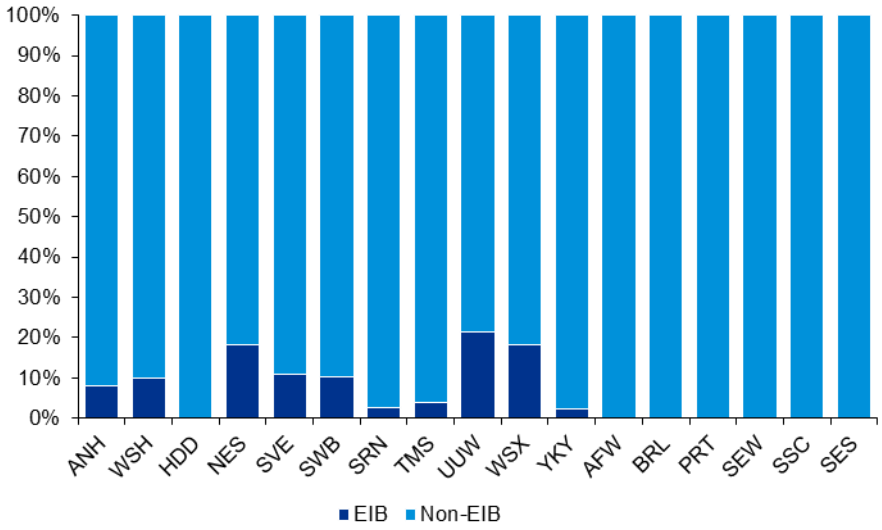
(112) In addition, this debt is not distributed evenly across WaSCs so it may not be appropriate for the average to be captured in assumed notional company financing.

[16] Supplemented by the data from APP20, for example, on maturity dates.

[17] This reflects the maturity of some instruments during AMP7 as well as the amortising nature of most of EIB debt.

[18] CMA is assuming equal annual issuance for the total £16.6bn debt issued by sector since 1973 and a consistent 20-year life and as a result that 20/47 of this would still be in company debt books today.

Figure 4 – Proportion of EIB debt by company



(113) Our preliminary analysis of EIB debt across the sector suggests that it may be structurally cheaper than the benchmark (analogous to a halo effect) by approximately 60-70bp[19]. This is also lower than the 100bps assumed by CMA).

(114) We note that this finding is consistent with the analysis of the Infrastructure Forum (referenced by the Lords Select Committee in its Brexit impact assessment), which estimates that EIB debt is typically 50-100bps cheaper than alternatives.

(115) *The Infrastructure Forum agreed that the private sector could play a greater role, noting that routine project finance outside of economic downturns is available from the private banking sector for "most current users of EIB loans", albeit at "significantly higher cost". It cited utilities markets as one example where it would be "relatively straightforward to replace EIB finance". However, it estimated that this would increase the cost by 0.5–1.0 percentage point above the rate of interest offered on EIB loans, a cost which would ultimately be passed on to consumers*

(116) Assuming a 65bp impact on pricing and c.7.7% EIB debt on average across AMP7 we estimate that the impact of EIB debt is up to 5bp, 7.5bp lower than estimated by CMA.

3 Floating Rate Debt

(117) CMA has estimated the impact of floating rate debt for the notional company by (1) estimating the proportion of floating debt on company balance sheets (2) assuming that this debt is priced at 2020 iBoxx A/BBB 10+.

(118) The CMA has considered the proportion of floating debt across the sector in 2018/19 (on the basis that 2019/20 company positions might be distorted by additional liquidity requirements arising from COVID), with the higher end based on a simple average across the sector (12%, impact 31bp) and the lower end based on the median (6%, 15bp).

(119) The CMA is wrong to have relied on the simple average to inform its assessment as this attaches weight to outlier companies (e.g. Hafren: 54%, Yorkshire 26%, South West 20%) which have adopted very different risk positions to that assumed for the notional company, and the upper end of the range should not be taken into account.

[19] KPMG analysis modelling the iBoxx yield curve at the date of each EIB issue and benchmarking the EIB yield against the relevant point on the curve will be submitted alongside the full response on 27 January 2021.

(120) In addition, CMA has not made any adjustments to exclude floating rate credit and liquidity facilities from 2018/19 reported company positions. This would reduce the median proportion of floating debt. Analysis of 2019/20 company positions excluding all credit facilities implies floating debt of 5.5% and an impact 14bps.

(121) In addition, CMA assumes all floating rate debt to have been raised at iBoxx in 2020. Whilst it is appropriate to consider the iBoxx benchmark in 2020 for pricing (as floating rate debt could be seen as new debt issued by the notional company), this is likely to under-state costs in practice as floating rate debt outstanding across the sector has been raised across the last 20Y

(122) Actual impact is up to 14bps (adopting 5.5% floating debt across the sector excluding RCFs)

4 Conclusion on modelling of matching adjustments

(123) The total impact of EIB and floating rate debt is up to 20bps, c23bps lower than the adjustment considered by CMA.

(124) All else equal applying these adjustments to the 20Y collapsing average (4.95%) would imply a cost of debt of 4.75% (23bps higher than the 4.52% point estimate set out by CMA in its working paper).

(125) This would correspond to a c.17.5Y collapsing average, 2.5Y higher than assumed by CMA in its consultation (15Y collapsing average). Ofwat's suggestion that in-house and DPC processes can fully progress in parallel is incorrect.

Part III: Annex B: Probability Distributions in the Cost of Capital

1 The CMA's provisional position on the Cost of Equity probability distribution

(126) In its PFs, the CMA set the allowed cost of equity (CoE) 50bp higher than the mid-point of the range[20]. An uplift of 50bp resulted in the allowed CoE being half-way between the midpoint and the upper end of the range i.e. the 75th percentile[21]. At the PFs, the CMA therefore implicitly assumed a uniform probability distribution between the upper and lower end of its CoE range.

(127) The CMA's latest thinking on the probability distribution of the CoE is set out in its working paper 'Point estimate for the Cost of Capital'[22]. Here, the CMA continues to assume that there is significant uncertainty over the overall level of the CoE[23].

(128) However, the CMA changes its assumed probability distribution because it considers that the mid-point is more likely to represent the 'true' CoE[24]. The CMA then models the probability distribution of its CoE range and concludes that adding just 25bp to the mid-point takes the allowed CoE to the 82nd percentile. The CMA then provisionally concludes that adding 25bp to the mid-point means "there is only around a 20% risk that the CoE is too low"[25]. We address this significant change below

2 The CMA's probability distribution contains incorrect estimates of the uncertainty in the Cost of Equity

(129) As submitted previously to the CMA[26], it is incorrect to assume that for each parameter in the CoE there are three data points known with certainty; the upper and lower end of the CMA's ranges and the mean (the mid-point of the range). This is primarily because the CMA's data points are not known with certainty[27]. Rather, each data point is estimated with uncertainty. This uncertainty can be calculated, because it is a function of the variance around the underlying estimators[28]. In this regard, the CMA's estimate of the standard error in its beta estimate contains an error – because its estimate of 0.0067 is out by an order of magnitude[29].

(130) We build on this point further by presenting an illustrative probability distribution for the CMA's CoE. To do this, we select preferred estimators for the TMR and beta and use the standard deviation estimate derived from the underlying data behind the preferred estimator[30].

[20] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021, para 18(a)

[21] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021, para 18(a)

[22] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021

[23] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021, para 57

[24] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021, para 75

[25] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021, para 69

[26] KPMG/AGRF analysis of Ofwat's PFs Response, paragraph 3.5.5

[27] For a discussion of this issue see Berk and DeMarzo Fifth Edition, p366

[28] KPMG/AGRF analysis of Ofwat's PFs Response, paragraph 3.5.5

[29] CMA assumes that the standard error of the beta range is 1/3 of the difference between the mid-point and the upper end of its beta range in the PFs. This assumption is not explained or sourced by the CMA. The underlying beta regressions support a standard error assumption which is an order of magnitude higher than the CMA's assumed standard error of 0.0067.

[30] We note that a more precise approach that allows the practitioner to take into account more than one estimator, requires simulation of the interaction between the different estimators. We propose to follow up with a more detailed simulation in our submission on 27th January.

3 Revised probability distribution, based on underlying variance in the estimators

(131) To derive a distribution that better reflects the variance in the underlying estimators we do as follows:

(i) select the 1-yr arithmetic average TMR as the preferred estimator and use the published standard error estimate for this parameter, which is 1.8%;[31]

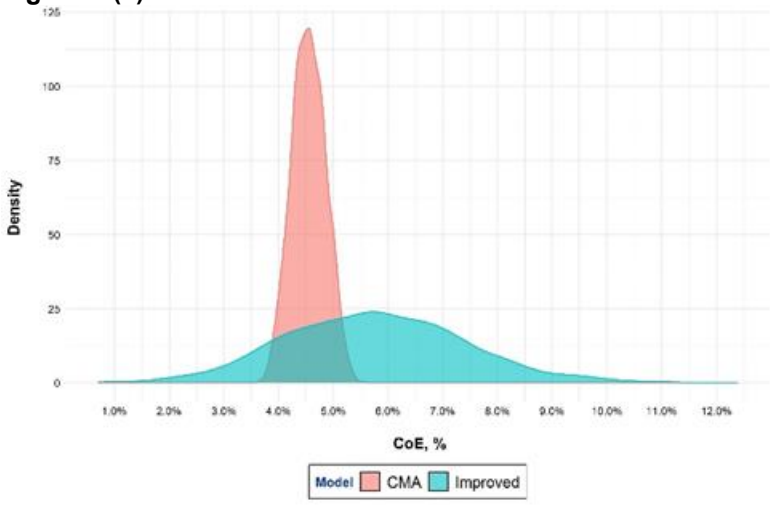
(ii) select our preferred beta time window, which is Oct '14 to Feb '20 and use the standard error estimate from the regression results[32]; and

(iii) make the prudent assumption for the purpose of this illustration that the RF-lending and borrowing rates are known with certainty. This is evidently prudent and we will reflect on this assumption in the submission for 27th January, particularly in light of the CMA's 6-month trailing average period now being entirely within the Covid-19 pandemic.

(132) Analysis using the underlying standard errors for TMR and beta results in the distribution as shown in Figure 5 (a) below. Figure 5 (b) shows that, based on the adjusted distribution, aiming-up by 25bp – indicated by the shaded area - only reaches the 57th percentile, well below the 82nd percentile the CMA provisionally considers it is achieving.

Figure 5 Probability density and cumulative probability of Cost of Equity estimates

Figure 5 (a)



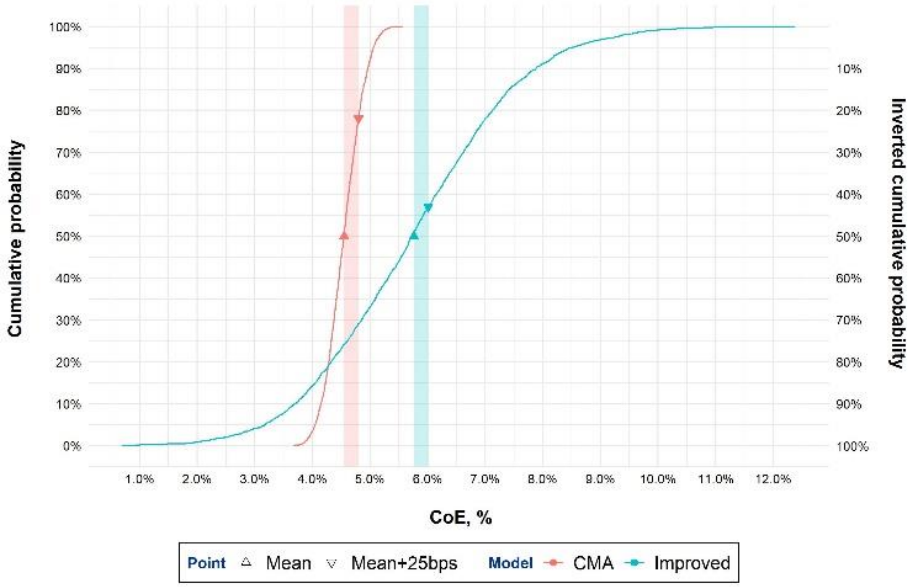
[31] See DMS 202 Table 1. Standard deviation of 19.6%, Standard error 1.8%.

[32] Raw equity beta (REB) is estimated based on weekly frequency, in the window between 1 Oct 2014 and 28 Feb 2020. Notional equity beta is then calculated by multiplying the asset beta (AB) by a regearing factor (RF), where AB=REB*(1-OG) and RF=1+(NG/(1-NG)), OG (0.523) and NG (0.6) being observed and notional gearing respectively. The SE of notional equity beta is calculated by multiplying the squared root of the standard error of AB -SE(AB)- by RF, where SE(AB)=SE(REB)^0.5*UF. This gives a mean estimate for notional equity beta of 0.846 and a SE of 0.086.

The asset beta should be calculated from the observed equity beta. In the CMA's simulation, they assume that the debt beta is uncertain. Given the non-linear distributional properties of the results of the ungearing calculation, the resultant asset beta will not be normally distributed. In this simple example, made for the purposes of simple illustration, we avoid this complication by assuming a debt beta of zero.

The correct way to proceed would be either to use the means and standard errors of the underlying raw equity betas as inputs to the simulation, or alternatively, if the input raw equity betas are regarded as equally plausible, to treat these equity betas in the same way that the debt betas are, i.e. as coming from a uniform distribution. The simulation would then proceed by sampling the raw equity betas and the debt betas, with the resultant values being used to calculate the implied asset betas

Figure 5(b)



Source: For adjusted distribution parameters: DMS and beta regression outputs. For CMA distribution parameters: CMA, Water Redeterminations 2020, Choosing a point estimate for the Cost of Capital – Working Paper, p.21

Notes: Figure 5 (a) shows the probability density of CoE under the CMA's approach vs the adjusted approach. The CMA's curve was estimated based on the information given in the cost of Capital Working Paper. The adjusted curve was derived using the following estimates of RFR, TMR and beta (RFR: M: 1.1%, SE:0%, TMR: M:7%, SE:1.8%, beta: M=0.846, SE:0.086) and assuming each of these are normally distributed and uncorrelated. Figure 5 (b) shows the cumulative distribution curves implied by Figure 5 (a). The area between the mean of each curve and then mean+25bps is shaded. The shading aims to visually illustrate the percentile reached when aiming-up by 25bps in each of the curves. The chart shows that a very high percentile is reached in the CMA curve while a substantially lower one is achieved in the adjusted curve.

(133) The extent of aiming up in bp from the CMA's PFs mid-point (and the adjusted distribution's mean) – for a range of percentiles is shown in table 2 below.

Table 2 Aiming-up in basis points required to achieve various percentiles

Percentile	55th	67th	75th	82nd	95th
Uplift from adjusted distribution	16bp	71bp	108bp	148bp	271bp
Uplift from CMA distribution	4bp	14bp	22bp	29bp	51bp

Source: CMA percentiles based on information given in its Water Redeterminations 2020, Choosing a point estimate for the Cost of Capital – Working Paper, p.21. Adjusted distribution percentiles based on distribution curves explained in Figure 1.

Notes: The table is illustrative only. CMA distribution percentiles are estimated on the basis of the information provided in the CMA's working paper and are sensitive to the randomising seed adopted. For example, the CMA states that, in its simulation, the 82nd percentile corresponds to around 25bp. In replicating the CMA's analysis we obtain 29bp for the same percentile. Please also see notes of Figure 1

(134) A more accurate estimate of the uncertainty in the CoE therefore shows that the CMA's 50bp uplift at the PFs, was at the lower end of what would be required to meet the percentiles quoted by the CMA and adopted in past precedent/literature (67th upwards).

(135) The above analysis also shows that adding just 25bp to the CoE is clearly inadequate to get close to any meaningful amount of aiming-up.

(136) In addition, the CMA's aiming-up analysis does not take into account the asymmetry in the package. Using the mid-point RORE downside from the CMA's provisional findings of 15bp[33], the CMA's aiming-up adjustment, which is purely to address the issue of uncertainty in the CoE, is just 10bp (25bp aiming-up less 15bp RORE downside). Aiming-up by just 10bp is at the 54th percentile under the adjusted probability distribution (i.e. essentially at the mid-point WACC – particularly where debt is at the 50th percentile) and the 62nd percentile using the CMA's distribution.

(137) Furthermore, the CMA's modelling of the asset beta is erroneous. Variability in the underlying raw equity betas and the debt betas will result in a more complex distribution of the asset betas than has been assumed. Specifically, the asset beta will not be normally distributed even if the input equity betas and debt betas are. In ignoring the complexity of this relationship, the CMA is making a fundamental error. As explained in footnote 10 above, we will submit a full simulation of the uncertainty in the CoE, correcting for this error by the 27th January deadline.

4 Market evidence and reg precedent on the scale of uncertainty in the CoE

(138) As previously highlighted by Professor Gregory, market evidence from BlackRock also supports a much larger inter-quartile range, than the CMA has assumed. This is illustrated by BlackRock's publicly available forward-looking return estimates for UK equities and government bonds, which is illustrated in Figure 6.

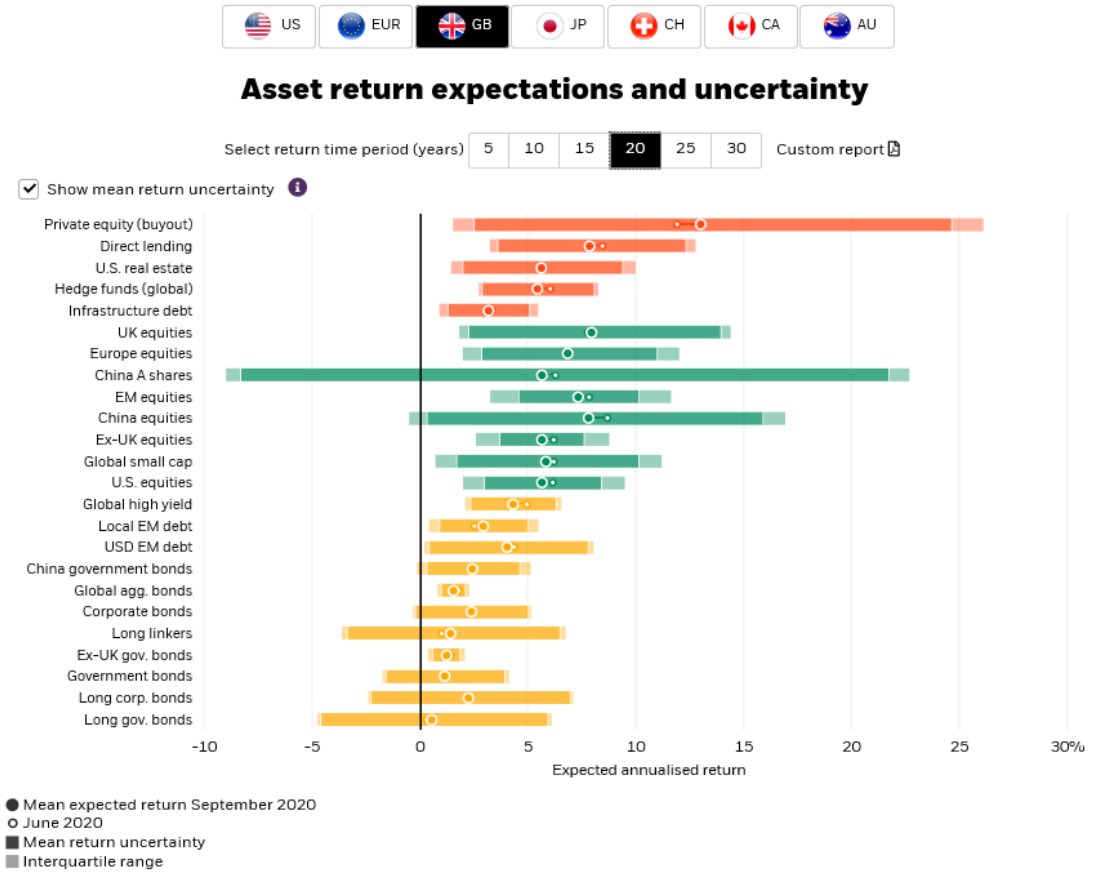
(139) Finally, we note that the precedent from the New Zealand Commerce Commission (NZCC), cited by the CMA[34], contains detailed modelling of the uncertainty in the CoE. Consistent with the analysis in this response, a 2010 NZCC paper considered the uncertainty in the CoE to be much larger than the CMA. For example, the NZCC assumed that the standard error around the ERP was 1.5%[35].

[33] CMA PFs, para 9.671

[34] Point estimate for the Cost of Capital Working Paper, dated 8 January 2021, para 11

[35] Input Methodologies (Electricity Distribution and Gas Pipeline Services), reasons paper, dated December 2010. Page 167, table 6.4.

Figure 6 Blackrock asset return expectations and uncertainty



Source *https://www.blackrock.com/institutions/en-gb/insights/charts/capital-market-assumptions*[36]

5 Is the CMA's mid-point the most likely Cost of Estimate

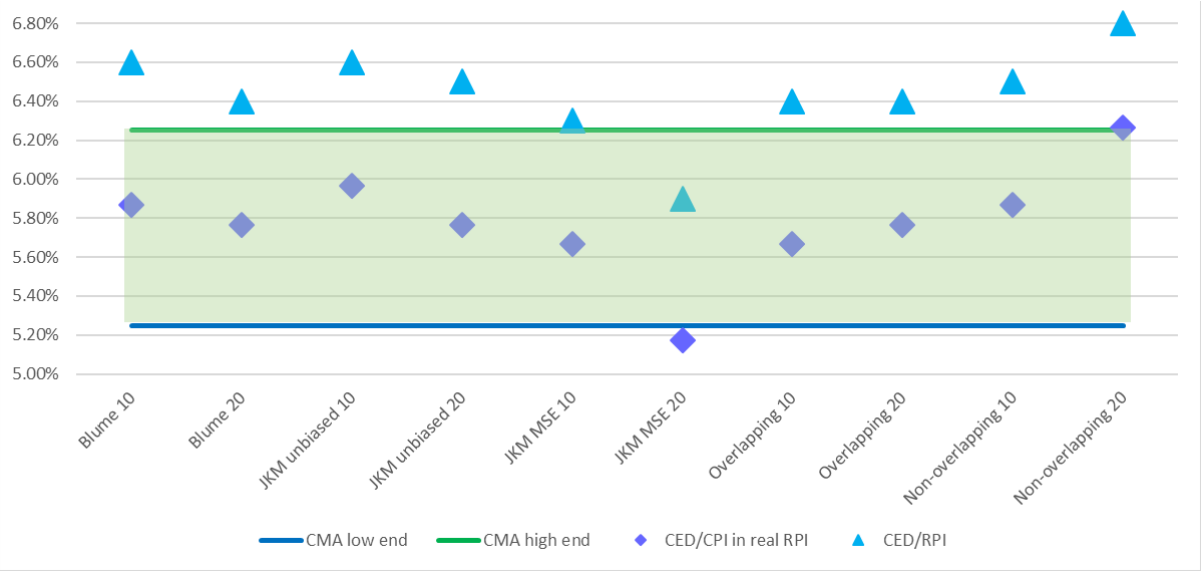
(140) The above analysis assumes that the true CoE is most likely to be at the mid-point of the CMA's range. However, the evidence continues to support numbers towards the upper end of the CMA's range, suggesting that there is a higher probability that the true 'CoE' is towards the upper end of the CMA's range:

(i) For example, the CMA's own analysis of TMR suggests that the 'true' TMR is towards the upper end of the CMA's range, as set out in Figure 7; and

(ii) In addition, the CMA's concerns with the forward rate adjustment mean that its RFR estimate lies at the lower end of the market expectations of RFR over the remaining period (2021-2025).

[36] BlackRock equity return estimates are inherent geometric averages and would need a volatility uplift for use in the regulatory CoE.

Figure 7 CMA's TMR estimates plotted against the CMA's TMR range



6 Conclusion

(141) The CMA's probability distribution is wrong because it fails to take into account the uncertainty in the underlying estimators. The CMA's underestimate of the uncertainty in the CoE is evident from: (1) the standard errors of the underlying estimators; (2) regulatory precedent from the NZCC and (3) market evidence from BlackRock.

(142) A modelled CoE distribution, which better reflects the underlying uncertainty in the parameters– in particular in beta and TMR - shows that adding 25bp is aiming-up to just the 57th percentile, under a symmetric expectation of future returns. Building in the CMA's estimate of the asymmetry in the package means the CMA is barely aiming-up (54th percentile).

(143) In order for the CMA to get close to the percentiles it cites in the working paper, uplifts of c.70bp (c.67th percentile) to 150bp (c.82nd percentile) are required.

(144) The CMA's 50bp uplift from the PFs is therefore the minimum required for any meaningful degree of aiming-up to be factored into the allowed CoE.