(1) On 8 January 2021 the CMA published three Working Papers on the cost of capital. This is Northumbrian Water's (NWL's) initial response to those Working Papers in advance of the main parties' roundtable. A further response will be submitted by 27 January 2021.

1 SUMMARY

1.1 OVERVIEW

(2) In our Statement of Case (**SoC**) we set out a series of tests that the CMA should consider in reaching its decision on the level of the cost of capital[1] which balanced affordability for customers with a fair return for investors and the financeability of the package. In its Provisional Findings (**PFs**) the CMA proposed an allowed return that broadly met those tests, albeit the level of financeability was extremely tight.[2] In its latest consultation, the CMA proposes a 30 basis point drop to the allowed return. The scale of this reduction places the revised point estimate well outside of the range quoted in our independent expert report. It is theoretically inconsistent, contains errors, and its approach alters the balance of risk between customers and shareholders. Finally, as we show, despite strong statements from the CMA of the importance of the financeability cross check, the notional company is now unfinanceable. We can only therefore conclude that the CMA's revised position represents a worse outcome than the PFs failing as it does on most of our SoC tests.

(3) In this submission we have necessarily focused on the new issues raised by the CMA in its cost of capital consultation. Before getting into that detail, however, we consider it is important to remind the CMA of the substantial volume of evidence[3] and argument presented in our submissions on the PFs and in our post-PFs hearing submission.

(4) In those submissions we presented, for instance, more analysis and comment on the cost of equity parameters. These issues were not covered during our post-PFs hearing in December 2020 on the premise that they would be addressed in the CMA's working papers and, subsequently, at the cost of capital roundtable on 20 January 2021. It is disappointing, therefore, that the CMA's consultation is focused on a limited number of issues that clearly arise from the post-PFs challenges made by Ofwat. Whilst we were pleased to see that the agenda for the WACC roundtable afforded some time to our issues and concerns the CMA's proposal to shorten the roundtable to a half day session rather than a full day means that the time available to dedicate to these issues is very limited. This further exacerbated by the CMA's inclusion of further items to the agenda, such as the Gearing Outperformance Sharing Mechanism (**GOSM**). Again, this demonstrates a focus on the issues and concerns raised by Ofwat and not the Disputing Companies. This approach appears one-sided and not balanced.

(5) The CMA's emerging thinking, that is the subject of this consultation, in itself represents a clear retrenchment from its previous estimates. Examined alongside the other consultations issued by the CMA[4] there is a material change in the direction of travel. In previous water redeterminations there has never been a second round of consultation following the PFs like this and the scale of the change is similarly novel. At the same time the consultations propose some fundamental policy shifts, both generally and in relation to the PFs in particular, reflect significant departures from long-established regulatory precedent, and contain conceptual and theoretical inconsistencies and basic factual and calculation errors. In these circumstances, particularly where the justification for the changes are particularly weak and

1 NWL SoC, Sections 8.1 and 8.4.5.

2 NWL Response to PFs, Section 8 (especially Section 8.2).

3 NWL Response to PFs, Section 7; Post PFs Hearing Submission Section 4; Follow up observations on the cost of equity, Gregory 9.12.20; and NWL Post PFs Hearings Submission Cost of Debt December 2020.

4 Including the CMA's proposal to exclude the latest costing data from its consultation on the use of 2019/20 costing data and its proposals to reduce leakage allowances for three of the four appellant companies compared to the PFs

where the opportunities to engage effectively are limited and time-constrained, we consider it important that the CMA:

- addresses the errors and inconsistencies in its analysis and approach in the first instance and issues a final decision that is both conceptually and theoretically robust and calculated correctly;
- reflects fully on the evidence base that underpins its decisions, including the information contained in the responses to these new consultations; and
- adapts it process to allow sufficient time and opportunity to engage on the issues in a thorough and more balanced way, including by extending the WACC roundtable and clearly demonstrating that it is reflecting on the evidence presented by all parties.

1.2 COST OF EQUITY

(6) The CMA's probability distribution for the Cost of Equity (**CoE**) is wrong because it fails to take account of the underlying variance in the estimators used to derive the CMA's range. An improved probability distribution, which takes into account the underlying variance in both TMR and beta, shows that **the CMA's 25bp uplift is only at the 57th percentile** and that the **50bp uplift in its PFs is the minimum required for any meaningful amount of aiming-up** in the allowed CoE.

(7) 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 improved distribution and 62nd percentile under the CMA's distribution assumptions *for the CoE only*).

(8) **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 CMA effectively assumes a standard deviation for the TMR of 0.29%, whereas the NZCC assumed 1.5% in a 2010 decision.

(9) Notwithstanding the above, **empirical evidence continues to show that there is a higher probability that the 'true' CoE lies above the CMA's mid-point**. Indeed, the mean of the CMA's historical TMR estimates is either 6.1% or 5.9% (depending on whether an adjustment is made for the 2010 change in the RPI formula effect), which is materially above the CMA's mid-point (and assumed mean in its probability distribution analysis) of 5.7%.

1.3 COST OF DEBT

(10) In this consultation the CMA has fundamentally changed its approach to the Cost of Debt (**CoD**) from the PFs. **The policy being targeted under the new approach is unclear and inconsistent, representing neither a benchmark-led approach nor a method based on actual costs**. It provides significant uncertainty for future CoD allowances.

(11) We remain of the view that **an allowance based on a 20Y collapsing average (4.95%) of iBoxx is appropriate for sector embedded debt, given timing of issuance and past regulatory policy**. The implied maturity of the index (12.5Y) is too short for the notional company and under-estimates efficient costs.

(12) **The move to a 15Y trailing average and rejection of the 20Y trailing average goes against well-grounded theoretical principles, is not supported by empirical evidence, is inconsistent with the benchmark selected and relies on wrong and misleading evidence**. If the CMA is intending to assume a different finance structure for the notional company, switching from a 20Y to 15Y collapsing average is not the right way to model the outturn CoD.

(13) The CMA has selected a 15Y collapsing average to 'match' certain features of the actual company debt portfolios (shorter tenor, EIB, floating rate debt) and risk positions. **This 'matching' approach represents a major departure from policy and precedent. Conceptually we consider 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.

(14) At the same time, **the evidence that the CMA has relied on in order to calibrate the 4.52% cost of debt allowance is wrong**:

- the CMA has relied on "*weighted average years to maturity*" which, as we evidence, will always understate the tenor at issue (which governs pricing) by design and, all else equal, will result in a trailing average that is materially too short and inconsistent with the benchmark selected; and
- the size of the CMA's adjustments for floating rate and EIB debt is not supported by evidence which would imply adjustments of up to 14bp for floating debt and 5bp for EIB debt. This means that even under an approach which applies matching adjustments to the 20Y collapsing average as set out by the CMA, the cost of debt would be 4.75% (i.e. 23bps higher than the 4.52% estimated by the CMA).

(15) The CMA has also **relied upon flawed methodologies for estimating the new to embedded debt ratio which overstate the average proportion of new debt across AMP7**. Correcting for these errors implies a ratio of new to embedded debt of 11% to 14.5%.

1.4 OVERALL PACKAGE AND FINANCEABILITY

(16) **The notional company, under the CMA's working assumption on WACC, is not financeable when the errors in setting the cost of embedded debt above are corrected**. Assuming an embedded cost of debt in the range 4.7% to 4.9% the projected AICR falls to 1.41x – 1.47x which is not consistent with the minimum thresholds required to achieve the target Baa1/BBB+ rating before modelling expected losses associated with asymmetry on ODIs (and recognised by the CMA).

(17) The under-funding of the CoD means that an efficient notional company is not able to recover efficient debt costs and means that: the notional company is not financeable from a debt perspective (as projected metrics are not consistent with Baa1/BBB+ thresholds); and equity investors are not able to earn required returns on an expected basis.

(18) Applying the prudent 50bp uplift from the CoE mid-point used in the CMA's PFs and adopting (for illustrative purposes) a CoD of 4.7% to correct for errors in setting the embedded CoD implies a WACC of at least c.3.4% in CPIH terms. This results in projected metrics in line with (and marginally above) the levels assumed by CMA in its PFs and is required to support management of asymmetric risk exposure on an expected basis, which the CMA acknowledges is reflected in the design of the package.

2 SETTING A POINT ESTIMATE FOR THE COST OF EQUITY

2.1 THE CMA'S PROVISIONAL POSITION ON THE COE PROBABILITY DISTRIBUTION

(19) In its PFs, the CMA set the allowed CoE 50bp higher than the mid-point of the range.[5] 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.[6] At the PFs, the CMA therefore implicitly assumed a uniform probability distribution between the upper and lower end of its CoE range.

5 Point estimate for the Cost of Capital Working Paper, para. 18(a).

6 Point estimate for the Cost of Capital Working Paper, para. 18(a).

(20) 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'. Here, the CMA continues to assume that there is significant uncertainty over the overall level of the CoE.[7]

(21) However, the CMA changes its assumed probability distribution because it considers that the mid-point is more likely to represent the 'true' CoE.[8] 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"*.[9] We address this significant change below.

2.1.1 The CMA's probability distribution contains incorrect estimates of the uncertainty in the CoE

(22) As submitted previously to the CMA,[10] 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 none of the CMA's data points are known with certainty.[11] 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.[12] 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.[13]

(23) 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.[14]

2.1.2 Improved probability distribution based on underlying variance in the estimators

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

- 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%;[15]
- select our preferred beta time window, which is Oct '14 to Feb '20 and use the standard error estimate from the regression results;[16] and

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7 Point estimate for the Cost of Capital Working Paper, para. 57

8 Point estimate for the Cost of Capital Working Paper, para. 75.

9 Point estimate for the Cost of Capital Working Paper, para. 69.

10 KPMG/AGRF analysis of Ofwat's PFs Response, paragraph 3.5.5

11 For a discussion of this issue see Berk and DeMarzo Fifth Edition, p366

12 KPMG/AGRF analysis of Ofwat's PFs Response, paragraph 3.5.5

13 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.

14 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 final submission.

15 See DMS 202 Table 1. Standard deviation of 19.6%, Standard error 1.8%.

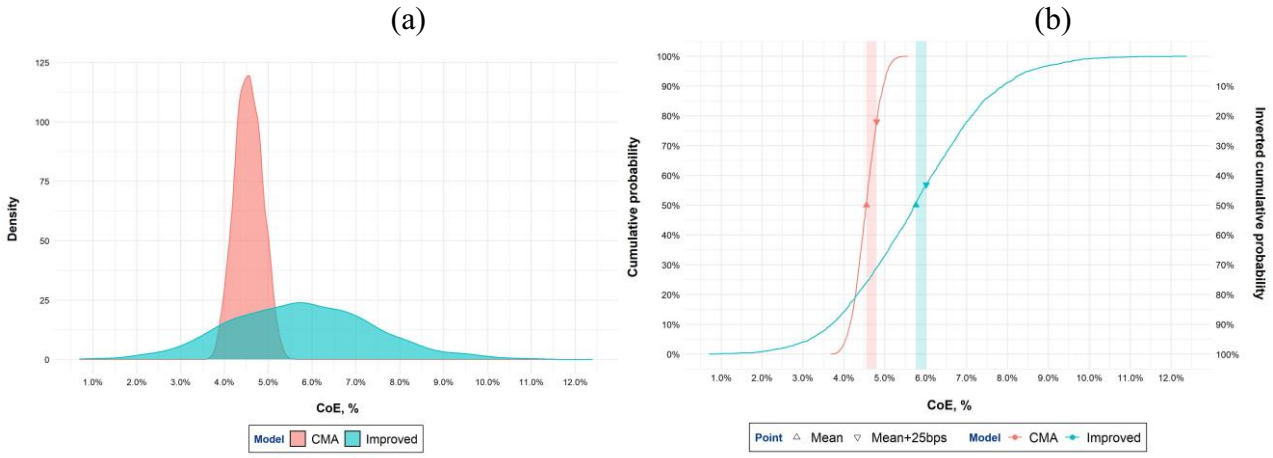
16 Raw equity beta (REB) is estimated based on weekly frequency, in the window between 1 Oct 2014 and 28 Feb 2020. Notional equity beta is then calculated by multiplying the asset beta (AB) by a regearing factor (RF), where AB=REB(1-OG) and RF=1+(NG/(1-NG)), OG (0.523) and NG (0.6) being observed and 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.

- 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 may reflect further on this in our final submission, particularly in light of the CMA's 6-month trailing average period now being entirely within the Covid-19 pandemic.

(25) Analysis using the underlying standard errors for TMR and beta results in the distribution as shown in Figure 1 (a) below. **Figure 1 (b) shows that, based on the improved 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 1: Probability density and cumulative probability of CoE estimates



Source: For improved 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 1 (a) shows the probability density of CoE under the CMA's approach vs the improved approach. The CMA's curve was estimated based on the information given in the cost of Capital Working Paper. The improved 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 1 (b) shows the cumulative distribution curves implied by Figure 1 (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 improved curve.

(26) The extent of aiming up in bp from the CMA's PFs mid-point (and the improved distribution's mean) – for a range of percentiles is shown in **Error! Reference source not found.** below.

Table 1: Aiming-up in basis points required to achieve various percentiles

Percentile	55th	67th	75th	82nd	95th
Uplift from improved 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. Improved 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.

(27) 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)**.

(28) **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.

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

(29) 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 PFs of 15bp,[17] 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 improved 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.

(30) 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. I**n ignoring the complexity of this relationship, the CMA is making a fundamental error.** As explained in footnote 14 above, we will submit a full simulation of the uncertainty in the CoE, correcting for this error by the consultation deadline.

2.2 MARKET EVIDENCE AND REGULATORY PRECEDENT ON THE SCALE OF UNCERTAINTY IN THE COE

(31) As previously highlighted by Professor Gregory, market evidence from BlackRock also supports a much larger inter-quartile range, than the CMA has assumed.[18] This is illustrated by BlackRock's publicly available forward-looking return estimates for UK equities and government bonds (see **Error! Reference source not found.** below).

(32) We note that the precedent from the NZCC, cited by the CMA,[19] 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%.[20]

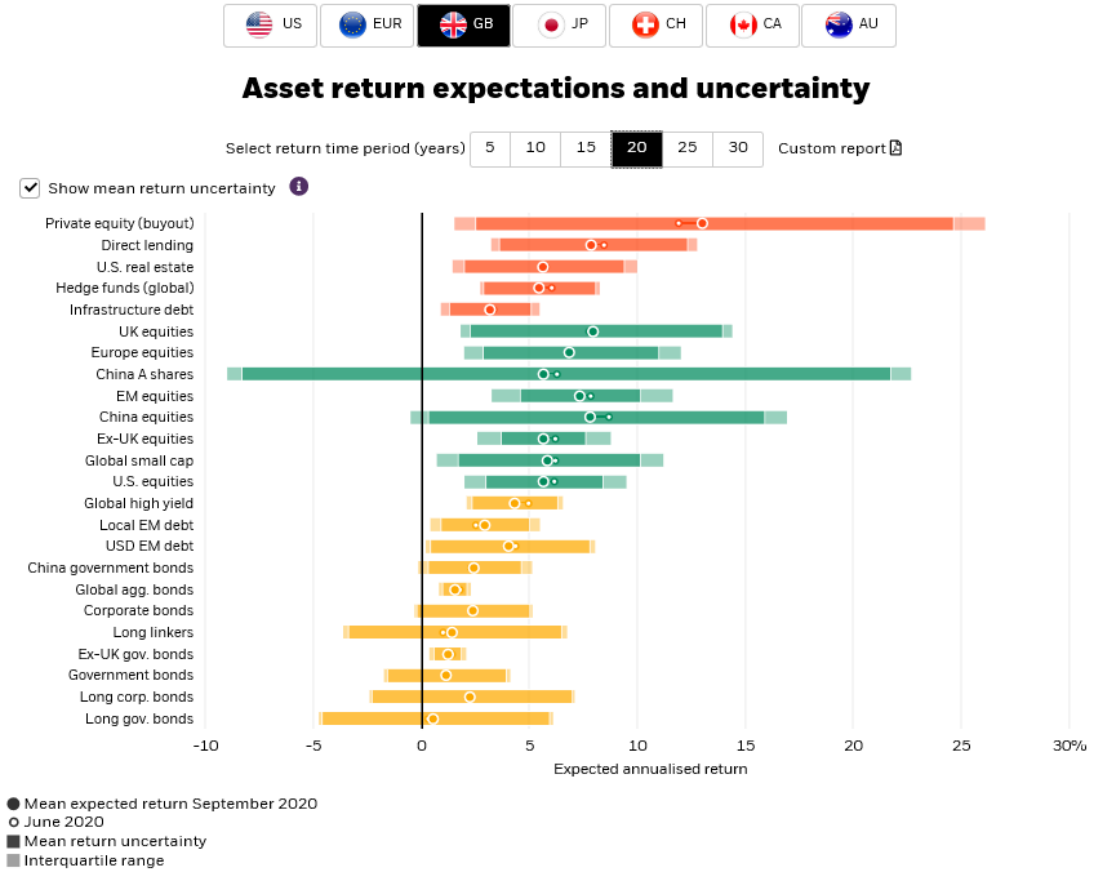
17 CMA PFs, para 9.671

18 Follow up observations on the cost of equity, Gregory 9.12.20

19 Point estimate for the Cost of Capital Working Paper, para. 11.

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

Figure 2: Blackrock asset return expectations and uncertainty



Source: https://www.blackrock.com/institutions/en-gb/insights/charts/capital-market-assumptions[21]

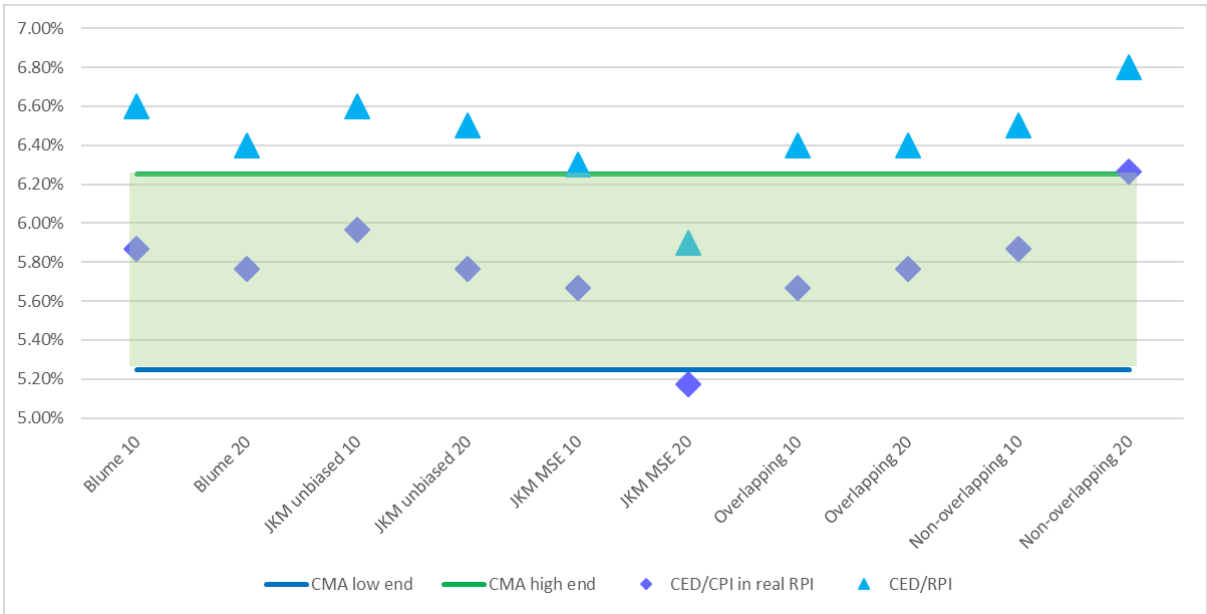
2.3 IS THE CMA'S MID-POINT THE MOST LIKELY COE?

(33) 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. 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 **Error! Reference source not found.**; and
- 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).

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

Figure 3: CMA's TMR estimates plotted against the CMA's TMR range



Source: Analysis of CMA PFs Table 9-3

2.4 CONCLUSION ON COE

(34) **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.

(35) 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).

(36) 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.

(37) 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.

3 SETTING THE COST OF DEBT ALLOWANCE

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

(39) **It is not clear which approach has primarily influenced the adjustments applied by the CMA** in its consultation paper.

(40) The CMA indicates that it prefers a benchmark-led approach and appears to attach most weight to (2) in deriving its proposed allowance for the cost of embedded debt and applying a 'matching principle' to reflect all observed features of actual company financing.

(41) 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 company financing.

(42) 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%.

(43) The CMA's cross check against industry average indicates costs of 4.5% - 4.8% based on adjusted APR data. The CMA 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.

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

(45) **This represents a very significant change from the PFs which is neither based on solid empirical evidence nor theoretical basis and has material implications for financeability**.

3.1 MOVING FROM A 20Y TRAILING AVERAGE TO A 15Y TRAILING AVERAGE

(46) **The move to a 15Y trailing average and departure from the 20y trailing average applied at PFs is not supported by empirical evidence and does not have a robust theoretical basis.**

(47) The CMA's adoption of a 15Y trailing average is not consistent with the investment horizon and the benchmark index selected (10Y + iBoxx), which 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 – but this is not achieved by Ofwat's 15Y approach.

(48) However the CMA's approach only prices debt with maturity of 10Y-15Y (as CMA is adopting 15Y collapsing average) or 12.5Y on average which is too short and: (1) exposes companies which raised long term debt in line with the benchmark to losses; (2) attaches weight to particular financing solutions adopted by some companies (thereby transferring risk to customers over time); and (3) the departure from long term financing increases risk and volatility.

(49) 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: it did not state that long-dated 20Y+ debt would not be remunerated. The CMA has similarly acknowledged in the past that a long investment horizon is appropriate for water companies. Any changes in policy going forwards should not be implemented in a retrospective manner and should not prospectively leave efficient past issuance in line with previous policy out of the money.

(50) 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 based on their useful economic lives.

(51) An approach which exposes water companies to the risk of changes in regulatory policy 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 ex post changes in regulatory policy, for example) exists.

Bid prices would be so high that any short term benefit to consumers would be outweighed by the price of higher equity risk.

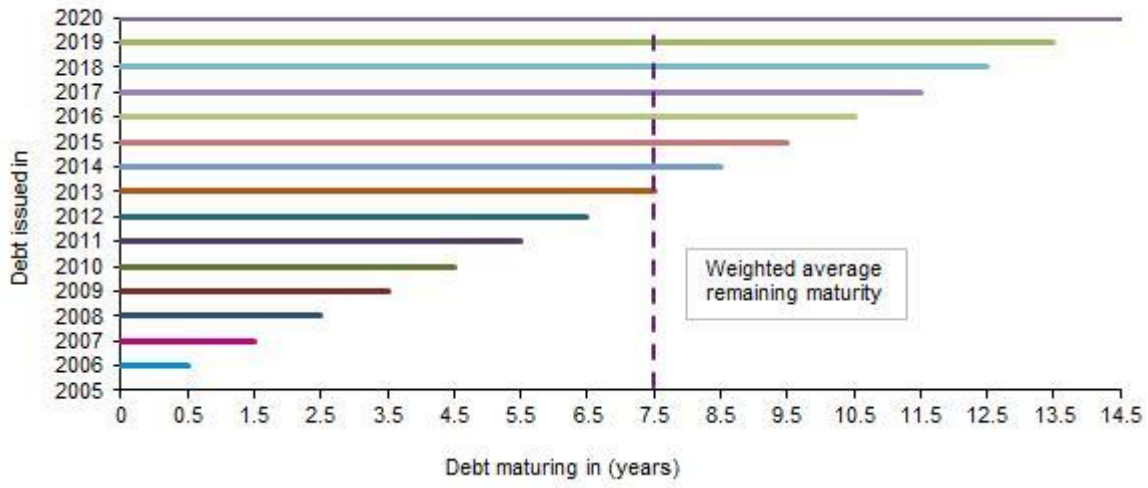
3.2 THE CMA'S POSITION RELIES ON WRONG EVIDENCE TO SUPPORT ITS ADOPTION OF THE 15Y WINDOW

(52) CMA in error attaches weight to 'weighted average years to maturity' (e.g. 13Y industry average based on the APRs) in calibrating its trailing average period rather than 'tenor at issue' (20Y+). This measure will always be shorter than the tenor at issue and cannot, by design, capture tenor at issue (which governs pricing) or when industry debt was raised (critical as trailing average is sensitive to the timing of issuance assumed).

(53) The CMA has constructed (in line with precedent) a 'mimic portfolio'[22] for the notional company which assumes that the notional company has raised 1/15 debt in each of the last 15 years.

(54) The mimic portfolio selected by the CMA implies a weighted years to maturity (**YTM**) at the beginning of AMP7 (2020) of 7.5 years (as illustrated in the figure below).

Figure 4: Illustrative example of CMA's working paper approach which implies weighted average maturity of c.7.5 years



Source: NWL illustration

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

(56) Specifically, the CMA argues that floating interest rate debt and bank debt are priced on the basis of being shorter-term than average water sector bond issuances and *"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."*[23]

(57) However, the relationship between the tenor at issue and YTM inferred from the mimic portfolio suggests that 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

22 I.e. a portfolio that closely reflects the notional portfolio's sensitivity / exposure to difference factors, for example, tenor and timing of issuance.

23 Cost of Debt Working Paper, para. 69.

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.

(58) As a result, **YTM is highly misleading and cannot be used to calibrate the trailing average period**. Instead tenor at issue (in particular the average tenor of benchmark i.e. 20Y) should be used. This should assume that: (1) the average tenor of the benchmark portfolio is 20Y; and (2) the trailing average period is 20Y in order to ensure that the simulated costs implied by the mimic portfolio can be recovered over time.

(59) 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. If companies adopt different risk positions (e.g. issuance of longer or shorter debt than implied by the benchmark) they will have exposure to market movements. As interest rates have fallen over the last 10Y companies which have issued longer tenor than the benchmark will be out of the money, and shorter than the benchmark will have realised benefits (as they will have refinanced at lower rates than assumed in the 20Y mimic portfolio).

3.3 THE NEW TO EMBEDDED DEBT RATIO ESTIMATED BY THE CMA IS FLAWED AND INCONSISTENT WITH THE COLLAPSING AVERAGE

(60) 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

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

1) 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 the 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;

2) 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

3) an approach based on the actual company which assumes weighted average years to maturity of debt of 13.8Y.[24] This implies 5/13.8 debt (36%) has matured by the end of AMP7 or 18% on average across the AMP.

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

(63) In addition, approach 2 is not consistent with the collapsing average methodology for the notional company as it assumes 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.

24 CMA adopts 13.8 years to maturity based on 2018/19 company data

(64) 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).

(65) 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. However, this is not the case as the 13.8Y is an average. Inherently some debt will have a longer tenor and some debt a shorter tenor than the average position. 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 higher years to maturity than the 13.8Y 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).

(66) As a result, the CMA's change to the new to embedded debt ratio is conceptually incorrect and implies a new to embedded debt ratio of 11%-14.5%. This is discussed further in Appendix 1 Section A1.5.

3.4 EX POST CHANGES TO THE SPECIFICATION OF THE NOTIONAL COMPANY BLUR THE DISTINCTION BETWEEN THE ACTUAL AND NOTIONAL COMPANY AND TRANSFER RISKS TO CUSTOMERS

(67) In practice the CMA has assumed (across different approaches) changes to the financing of the notional company to approximate different combinations of short dated debt, floating rate debt and EIB debt issued by the sector.

(68) **The CMA's application of the matching principle to reflect actual company financing is wrong and cannot be relied on for calibration of the embedded debt allowance** for the following reasons.

(69) First, it is based on an ex-post concept of actual financing policies, not ex ante principles. This has the **wrong incentive properties**: it creates the precedent that regulators can ex post change the regulatory allowances on sunk costs and fails to provide an independent benchmark.

(70) A notional financial structure assumes that customers should not bear the consequences of companies' actual financing decisions. In order to set the allowed returns that ensure financeability, the CMA should assume a notional capital structure consistent with that set on an ex ante basis in past regulatory determinations. This ensures that companies can finance themselves if they adopt the notional financial structure, but also bear the risks associated with their choice of adopting an actual financing structure that is different from the set notional structure.

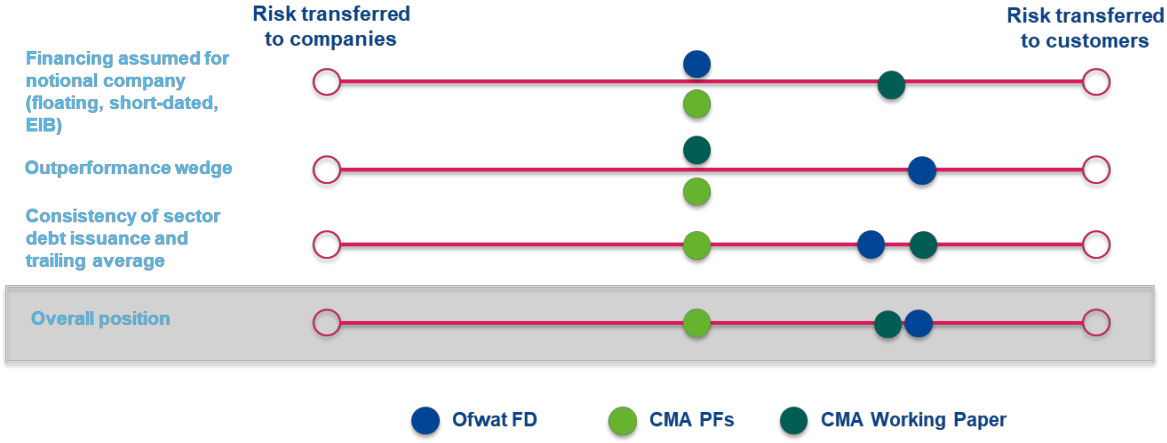
(71) The ex post application of the matching principle has the wrong incentives as it:

- 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;
- assumes reductions in the cost of debt, which have been achieved by taking on more risk, is a source of efficiency (e.g. shorter tenors, floating debt), which:
  - encourages risk taking by firms and a possible race to the bottom, rather than incentivising genuine efficiency;
  - transfers risk to customers, assuming consistent regulatory policy when rates increase; and
  - creates an inconsistency/blurs the distinction between the assumptions of the notional company and the CoD allowance; and

- increases regulatory risk for firms because:
  - 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; and
  - it is unclear whether Ofwat would follow a sector-wide pass-through policy if interest rates rise.

(72) Second, the CMA's approach represents a fundamental departure from the approach adopted in PFs which recognised the importance of selecting the right benchmark and using this to set incentives and risk allocation across companies and customers. The approach suggested by the CMA in this consultation which reflects different risk positions adopted by companies compared to the selected benchmark blurs the distinction between the notional benchmark-led approach and actual company financing and inherently transfers risks adopted by companies to customers, as illustrated in Figure 5 below.

Figure 5: Risk spectra to assess allocation of risk to companies and customers based on Ofwat FD, CMA PFs and the CMA's working paper



Source: NWL illustration

(73) The CMA has not applied the outperformance wedge (primarily driven by shorter dated debt) in part because it would incentivise shorter dated debt issuance and transfer refinancing risk to customers. It is not clear why CMA now attaches weight to different risk positions adopted by companies to calibrate the allowance.

(74) CMA is also inconsistent in its analysis of actual company financing. It considers that it would not be appropriate to match index-linked debt and company gearing[25] (higher than assumed for the notional company) observed across the industry in the notional company as these imply higher costs and *'the risks should sit with companies*':

"As the water companies carry more gearing than the notional company and have larger weightings to (currently) more expensive index-linked debt than the notional company, we consider that the notional company would have costs lower than the average for the sector. In particular, the increased use of index-linked debt would appear to trade off higher costs against improved financeability – a decision and risk that should sit with companies rather than customers".[26]

(75) However, within the same working paper the CMA considers that it would be appropriate to adopt risk positions which currently might lower costs (floating rate debt, short dated debt) in the notional company. As a result, the CMA's approximation of features of actual company financing is selective and downwards-biased.

25 Cost of Debt Working Paper, para. 197.

26 Ibid.

(76) Third, the CMA's approach penalises ex post companies which have already issued fixed rate debt in line with benchmark allowances, such as NWL. Moreover, the CMA's approach implies that, even when water companies issue debt at the most efficient cost available to them in the market at a given point in time (e.g. in line with the selected benchmark) they are still exposed to significant risks of a mismatch between their (efficient) costs and regulatory allowances in the future. Companies which issue new fixed-rate debt in line with the iBoxx benchmark are exposed to the risk that in future reviews (contingent on financing strategies adopted by other companies) regulatory policy changes and efficient costs incurred cannot be recovered. This approach allocates too much risk to companies, especially where there are large market movements and significant changes in regulatory policy over time. The implied risk exposure undermines companies' financeability and is inconsistent with its cost of capital.

(77) Fourth, the matching adjustments have not been assumed before and therefore it is a departure from Ofwat and the CMA's regulatory precedent in setting water price controls which has assumed long term and fixed rate debt. Ofwat's past regulatory policy has assumed and relied on long term, fixed bond finance issued by water companies for setting both embedded and new debt allowances.[27] This has been mirrored in the approach adopted by the CMA at PR14, which focussed on long term bonds and iBoxx:

"our analysis was based on a review of WaSC bonds and the iBoxx index.. we would not wish to take an approach which could be perceived as giving excessive weight to a company's actual short-term debt costs and therefore providing disincentives to efficient financing...the notional approach also does not take into account the savings that a notional company may make from assuming a small portion of short-term debt, which is currently cheaper than long-term debt".[28]

(78) Adjustments to regulatory policy on an ex-post basis risk undermining financeability as well as the predictability and stability of the regime.

(79) We discuss the adjustments to the notional benchmark considered by the CMA in turn.

3.4.1 Shorter dated debt

(80) Making an adjustment to the allowance based on shorter dated issuances is inconsistent with the long term 20Y investment horizon reflected in the benchmarks selected for the notional company.

(81) There is a risk that adjusting the allowance to reflect short term issuances creates the wrong incentives for companies to issue more short-term debt, to which the regulator responds accordingly by making additional adjustments. Such an approach would increase refinancing risk across the sector.

(82) Such a policy would also imply that refinancing risk is borne by customers, assuming that regulatory policy continues to reflect actual company financing over time. Where policy is on short term financing then refinancing risk is transferred to customers as all market efficient costs would be priced into the regulatory settlement and re-financing risks would not be priced through the term premium.

(83) Whilst the issuance of debt with a shorter maturity than the notionally financed firm may appear less costly on an ex post basis, it also increases a firm's ex ante exposure to refinancing risk. Therefore, it is probable that there is no 'risk-adjusted' increase in efficiency on an ex ante basis. Simply put, there is no 'free lunch'.

27 Ofwat has in the past also defined embedded debt as fixed only: At PR99 Ofwat defined embedded debt as debt, due in more than one year, in company balance sheets as at 31 March 1999 which attracts a fixed rate of interest rather than a floating rate.

28 CMA Bristol Water Redetermination 2015, paras. 10.85; 10.106; and 10.84.

(84) If the CMA now considers that policy should be based on shorter term issuances and decided to encourage that then in the transition period – as the regulator re-sets the investment horizon – it should remunerate the costs incurred in the past according to past policy which encouraged and was based on longer-dated debt issuance.

3.4.2 Floating rate debt

(85) Water companies have since privatisation received fixed ex ante allowances for both embedded and new debt.

(86) A number of companies have raised some floating debt and taken on additional risk and volatility of financing costs which is not reflected in the notional company structure (which has fixed allowances and has been assumed by Ofwat to exhibit fixed and index linked debt only). This has been recognised by the CMA.

(87) **It is wrong to adjust the assumed notional company financing to reflect floating debt on an ex-post basis** *inter alia*:

- given long-term financing raised by water companies, it would not be appropriate ex-post to determine what an efficient financing structure or debt mix is for the notional company: this needs clear ex-ante signalling. Otherwise, how should a prudent firm structure its debt book going forwards?;
- adoption of floating rate debt would penalise companies ex-post which have already issued fixed rate debt in line with benchmark/allowances/risks implied by the regime (such as NWL);
- the allowance for embedded debt is fixed ex-ante so by design does not reflect risks associated with floating rate debt. If the notional company raised floating rate debt and interest rates rise there would be exposure to these movements;
- adjusting for floating is inconsistent with the CMA's approach on the outperformance wedge which recognises that different financing risks adopted by companies should not be transferred to customers; and
- it is not appropriate to adjust for floating rate debt ex-post (with the benefit of hindsight) as on an ex-ante basis pricing would be the same (with a premium for risk) as equivalent fixed rate debt.

(88) Moreover, **the proportion of floating rate assumed by CMA is wrong**: at the upper end of the 15 - 31 bps range 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. As such 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 better to consider the median for the sector which excluding RCFs is c.5.5% and implies 14bp adjustment. This is discussed further in Appendix 1 Section A1.2.2.

3.4.3 EIB debt

(89) The **CMA has overstated the impact of EIB debt on financing costs** as: (1) its analysis 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.

(90) Analysis of company's annual accounts 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.[29] This is materially lower than the £7bn balance estimated by the CMA.[30]

(91) CMA estimates 100bps discount for EIB debt relative to benchmark but there is no empirical basis for this assumption. Evidence from Lords Select Committee (50-100bps) and benchmarking water company EIB debt (60-70bps) indicates that 100bp is likely to overstate the impact of EIB issuance compared to the benchmark selected by CMA.

(92) Assuming a 65bp impact on pricing and c.7.74%[31] EIB debt on average across AMP7 we estimate that the impact of EIB debt is c.5bp, 7.5bp lower than estimated by CMA. This is discussed further in Appendix 1 Section A1.2.1.

3.4.4 Conclusion on modelling of matching adjustments

(93) The **total impact of EIB and floating rate debt is up to 20bps**: c.23bps lower than the adjustment considered by the CMA.

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

(95) This would correspond to a **c.17.5Y collapsing average**, 2.5Y higher than assumed by the CMA in its consultation (15Y collapsing average).

4 FINANCEABILITY

(96) Before taking into account the impact of cost of debt understatement, the projected financeability metrics arising from the consultation proposals remain largely consistent with the PFs: i.e. they are very tight.

(97) However, **the notional company, under the CMA's working assumption on WACC, is not financeable when the errors in setting the cost of embedded debt above are corrected.** Assuming an embedded cost of debt in the range 4.7% to 4.9% **the projected AICR falls to 1.41x – 1.47x**. This is not consistent with the minimum thresholds required to achieve the target Baa1/BBB+ rating before modelling expected losses associated with asymmetry on ODIs (and recognised by the CMA).

(98) The under-funding of the cost of debt means that an efficient notional company is not able to recover efficient debt costs and means that the notional company is not financeable from a debt perspective (as projected metrics are not consistent with Baa1/BBB+ thresholds) and equity investors are not able to earn required returns on an expected basis.

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

30 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.

31 Based on the modelled balance of EIB debt and assuming that 40% of the sector's gross debt excluding RCFs matures by the end of the price control

Table 2: Projected metrics under different Cost of debt scenarios

Case Name	CMA PF	CMA Working Paper (WP)	CMA WP, embedded CoD of 4.7% on costs side	CMA WP, embedded CoD of 4.8% on costs side	CMA WP, embedded CoD of 4.9% on costs side
Moody's AICR	1.53x	1.54x	1.47x	1.44x	1.41x
S&P FFO/Net Debt	9.7%	9.6%	9.4%	9.3%	9.2%

Note: We have run the analysis on the Ofwat model but have used the CMA financeability model as a cross check.
Source: Analysis of CMA and Ofwat model

(99) We support more generally the CMA's position that financeability represents a valuable cross check on the CoE[32] and should therefore be taken into account when selecting a point estimate.

(100) **Applying the prudent 50bp uplift from the CoE mid-point used in the CMA's PFs and adopting (for illustrative purposes) a 4.7% assumption on embedded CoD but the CMA's working paper position on new cost of debt (of 2.19%) implies a WACC of c.3.4% in CPIH terms.**

(101) As set out in the table below, these assumptions would imply in a slight improvement on AICR relative to the PFs, increasing from 1.53x to 1.57x. We note that an AICR of 1.57x is also closer to a level consistent with stable Baa1 (i.e. an AICR of 1.6x slightly above the minimum threshold specified in rating agency methodologies). This level of headroom is appropriate in light of the asymmetry in the package, which has been recognised by the CMA. An ODI penalty of 0.15% of RoRE to account for asymmetry, reduces AICR to 1.54x, which is consistent with the level targeted by the CMA.

Table 3: Projected metrics

Case Name	CMA PF	CMA Working Paper (WP)	CMA PF CoE, Embedded debt at 4.7%	CMA PF CoE, Embedded debt at 4.7% + 0.15% RoRE penalty due to asymmetry
Moody's AICR	1.53x	1.54x	1.57x	1.54x
S&P FFO/Net Debt	9.7%	9.6%	9.8%	9.7%

Note: We have run the analysis on the Ofwat model but have used the CMA financeability model as a cross check.
Source: Analysis of CMA and Ofwat model

32 Point estimate for the Cost of Capital Working Paper, para.113.

APPENDIX 1: COST OF EMBEDDED DEBT

A1.1. INTRODUCTION

1. This annex is divided into four parts and provides an initial response to the quantitative analysis included in the CMA's cost of debt working paper. This considers:
   - modelling the notional cost of debt under different assumed notional financial structures, including quantification of the impact of EIB debt and floating rate debt if included within the notional company (Section A1.2). This analysis shows that the **CMA has materially over-stated the impact of adjusting the notional company to match EIB and floating debt costs**;
   - selecting a point estimate for the industry wide cross check including commentary on the CMA's rationale for aiming down in the range derived for the industry wide cross check (Section A1.3). This section highlights that, **at a minimum, it is necessary to aim straight when selecting a point estimate from the industry wide cross checks**;
   - industry wide actual cost of debt estimation to cross check the cost of embedded debt, including averaging methodologies used, treatment of 'net' vs 'gross' debt and the CMA's 'actual-notional' construct (Section A1.4). Initial analysis of the industry data and CMA's adjustments indicate that **the CMA's range under-estimates the cost of debt** across the sector; and
   - assessment of the ratio of new to embedded debt (Section A1.5) and methodologies used to estimate the proportion of new debt across AMP7 under both the actual and notional financial structures. This section indicates **methodological issues with the three approaches considered by the CMA which over-state assumed refinancing of embedded debt across AMP7**.

A1.2. MODELLING NOTIONAL COD UNDER DIFFERENT ASSUMED NOTIONAL FINANCIAL STRUCTURES

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

3. We agree that **a collapsing average approach is the right way to capture debt maturing across the price control where the cost of debt allowance has been set based on the investment horizon (20Y)**.

4. 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%.

5. However it is not appropriate to combine 15Y with a collapsing average as: (1) 15Y omits 20% of debt issued across the sector; (2) companies which raised 20Y debt in line with iBoxx between 2005 and 2010 will not recover efficient costs; (3) actual debt costs are flat across AMP7; and (4) tenor is 20Y not 15Y so collapsing average dynamic is not correct.

6. We **strongly disagree that it would be appropriate to approximate features of actual company financing in the notional company**.

7. However we have reviewed the 43bps matching adjustment considered by CMA[33] 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 reasons set out in the following sub-sections.

33 Cost of Debt Working Paper, para. 121.

A1.2.1. EIB DEBT

8. 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) that could impact on pricing.

9. Nonetheless, our preliminary analysis of EIB debt suggests that it may be structurally cheaper than the benchmark (analogous to a halo effect) by approximately 60-70bp.[34,35] 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.

10. We note that 60-70bps 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.

> *'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*.'[36]

11. However, **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.

12. Analysis of company's annual accounts 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.[37] This is materially lower than the £7bn balance estimated by the CMA based on simplifying assumptions on average across AMP7.[38]

13. 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.

34 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.

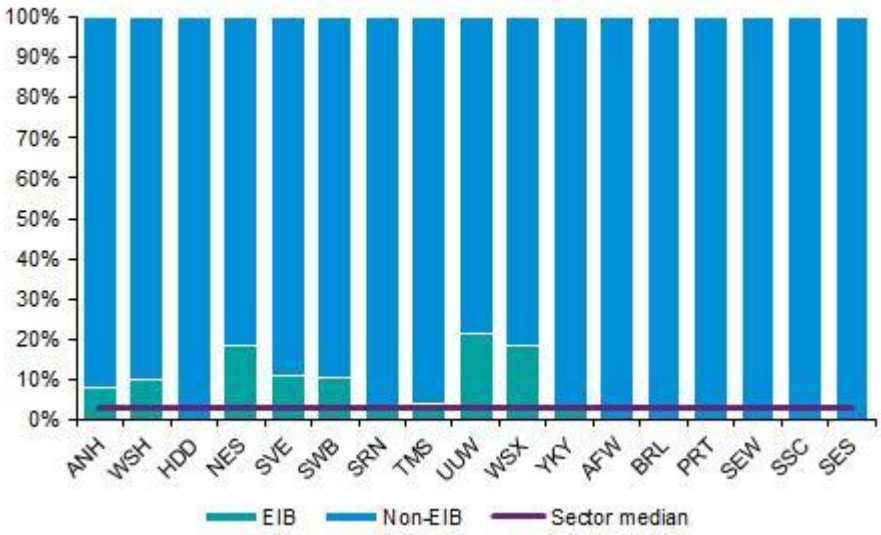
35 This is based on the yield at issue and does not take into account the additional costs that can be incurred because of a single notch credit rating downgrade as stipulated by EIB covenants.

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

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

38 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 6: %of EIB debt by company



Source: Company annual reports for 2019/20, supplemented by APP20 data

14. Assuming a 65bp impact on pricing and c.7.74%[39] EIB debt on average across AMP7 **we estimate that the impact of EIB debt is c.5bp, 7.5bp lower than estimated by CMA**.

A1.2.2. FLOATING RATE DEBT

15. 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; and (2) assuming that this debt is priced at 2020 iBoxx A/BBB 10+.

16. 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).

17. **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.

18. In addition, **the 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.

19. The **CMA also 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.

A1.2.3.CONCLUSION ON MODELLING OF MATCHING ADJUSTMENTS

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

39 Based on the modelled balance of EIB debt and assuming that 40% of the sector's gross debt excluding RCFs matures by the end of the price control

21. 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).

22. This would correspond to a c.17.5Y collapsing average, 2.5Y higher than assumed by CMA in its consultation (15Y collapsing average).

A1.3. SELECTING A POINT ESTIMATE FOR THE INDUSTRY WIDE CROSS CHECK

23. The industry wide average cost of debt should not be used directly to calibrate the cost of debt allowance as, *inter alia*, this: undermines the notional approach; exposes companies to financing strategies adopted by others which they cannot control; and implicitly transfers risk to customers over the long term.

24. Robust cross-checks against actual debt costs (company specific actual positions as well as the industry average) may be appropriate. However, it is important 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.

25. 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.[40]

26. Where deviations are driven by risk positions adopted by actual companies that differ from the 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 this benchmark-led approach, if the CMA selects an index with an implied maturity of 20Y and companies deviate from issuance of 20Y debt the companies will bear the risk. The practical consequence is that risks associated with actual company financing decisions are clearly allocated to companies.

27. 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. **It is not clear from the CMA's consultation how it takes different risk positions adopted by companies into account in its cross check**.

28. Moreover, CMA assumes 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.

29. 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.

30. 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 *reduce* observed costs (short term, floating debt).

31. 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

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

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.

32. 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.

33. 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 CoD 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.

A1.4. ERRORS IN INDUSTRY-WIDE ACTUALS COST OF DEBT ESTIMATION

34. At the upper end, the CMA's cross check is based on adjusted APR 2020 data which uses 2018/19 weights for the three types of debt in order to avoid the distortions from the abnormally high levels of short-term facilities in 2020 floating rate debt due to Covid. However, this approach is distorted by facilities drawn as at March 2019. The correct approach would be to directly adjust the floating rate balance for 2020 drawn facility values which increases the upper end of the range by 7 – 15 bps.[41]

35. As an alternative source of the adjusted (to exclude facilities) APR data, it is appropriate to also consider the cost of debt calculated on a net basis rather than gross. This would imply a cost of debt of 4.75% (WaSCs and large WoCs) and 4.98% at the sector level.

36. The lower end of the CMA's range is informed by: (1) the adjusted APR values using WASC data only; and (2) "actual-notional" approach using WASC data only, and is under-stated by up to 13bp where short term liquidity and credit facilities are excluded.

37. The CMA's 'actual-notional' approach adopts actual costs based on a weighted average of Ofwat's APR fixed costs (weighted at 2/3) and index-linked costs (weighted at 1/3) in line with the notional structure.[42]

38. This approach is not robust as: (1) it could give disproportionate weight to fixed debt raised recently, rather than the type of debt per se - a robust counterfactual would need to estimate the cost of debt assuming fixed debt was raised at the same time as index linked debt replaced; (2) companies' financial structures should be considered as an indivisible whole - any variant (for example the debt mix assumed) may not have been achievable in practice; and (3) adjusting for debt mix only is selective and does not align company specific positions with the investment horizon for the notional company. It is more appropriate to apply the actual debt weights in the cross check recalibrated to exclude floating rate debt.

39. In both cases, the low end of the range is driven by more aggressive financing strategies (floating, short term) adopted by some companies which should not be taken into account for allowance calibration.

41 This uses the same rates as included in Table 2 in the CMA's consultation document on cost of debt but the debt mix is based on 2020 values with floating rate quantum adjusted for drawn revolving credit facilities sourced from S&P Capital IQ. 7 bps based on sector average and 15 bps sector median consistent with CMA's approach/

42 Note: the CMA describes this as "the assumptions on the structure of the notional company that are used throughout the price control". This is not consistent with CMA's assumptions elsewhere that the notional company would have raised 6-15% floating debt.

40. Table 4 sets out the different variants of the actual debt cross check (before the application 5-10 bps uplift applied by the CMA). This illustrates that **the CMA has under-stated both lower and upper ends of the range**.

Table 4: Variants of the actual cross-check

	CMA		Corrected cross-check		
	Actual-notional	Adjusted APR	Adjusted APR using RCF data	Adjusted APR using net debt data	Actual-notional *(Using actual IXL & FIX Proportions)*
WaSC average	4.45%	4.31%	4.50%	4.39%	4.65%
WaSC median	4.54%	4.41%	4.43%	4.48%	4.54%
WaSC + large WoC average	4.48%	4.42%	4.57%	4.49%	4.70%
WaSC + large WoC median	4.54%	4.52%	4.54%	4.75%	4.54%
Sector average	4.60%	4.77%	4.83%	4.83%	5.06%
Sector median	4.54%	4.72%	4.87%	4.98%	4.98%

Source: Analysis of the CMA's data in table 2 of the working paper. Information on drawn revolving credit facilities sourced from Capital IQ. Note: Pink highlights mark the sources for the lower end of the range, blue mark the upper.

A1.5. RATIO OF NEW TO EMBEDDED DEBT

41. CMA has adopted a new to embedded debt ratio of 20%; this implies that 40% of notional company debt will be new debt (either through refinancing existing debt or issuance of new debt) by the end of AMP7.

42. The CMA has arrived at this estimate by considering three different approaches as per the table below. In each case it is assumed that the new debt issuance due to RCV growth results in an additional 3.9% increase in the share of new debt relative to what would have resulted from refinancing alone.

Table 5: Analysis of CMA approaches to calculating new/embedded debt mix

Approach & Description	CMA's estimate	Corrected estimate	Commentary
Approach 1 – notional. Based on a 15Y collapsing average	18.6%	14.5%	This approach is mechanistically correct however uses a 15Y collapsing average rather than 20Y. If adjusted to reflect the correct 20Y collapsing average this approach will yield a 14.45% ratio of new debt including the debt attributable to RCV growth.
Approach 2 – notional Based on N=T/M ratio[43] to reflect a 15Y collapsing average	22%	N/A	This approach cannot by design accurately reflect the notional new debt ratio. This is because it is assuming that debt tenor reflects the trailing average period (e.g. 15Y) *less* 2.5Y. This is not consistent with the trailing average assumption and so overstates the proportion of new debt. As a result, this approach should not be considered.
Approach 3 – actual Based on N=T/M ratio with remaining maturity sourced from 2018/19 APR	20%	11%	It would be internally consistent to base the estimate on the fully notional approach, however analysis of the actual position may be useful as a cross check. The actual approach will need to reflect the fact that the remaining maturity or M (13.8Y) is a weighted average figure across a portfolio of different instruments. This means that c. 50% of the portfolio has a remaining maturity higher than the weighted average figure. In contrast the T/M ratio applied by CMA assumes that all of the existing debt will have matured by the end of 13.8Y. It is appropriate to adjust the calculation to reflect that 50% of the portfolio will mature after 13.8Y. The proportion of new debt at the end of the control period therefore should be N = 0.5 x T / M.

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

Applying the formula to the 13.8Y remaining maturity results in a new debt proportion of 11% across the price control.[44]

Source: NWL analysis of CMA working paper

43. The table below shows the new debt ratio for a 12.5Y and 15Y collapsing averages. The 21.95% ratio based on a 12.5Y collapsing average is the same ratio as calculated by the CMA under Approach 2 which suggests that Approach 2 understates the length of the trail and overstates the new debt issued during the period. The 18.6% ratio based on 15Y approach is consistent with the estimate based on Approach 1 from the CMA. This confirms that in principle this approach can proxy the ratio accurately if the correct collapsing average is used.

Table 6: New debt ratio of 12.5 and 15Y collapsing averages

		31 March 2020	31 March 2021	31 March 2022	31 March 2023	31 March 2024	31 March 2025	Average
Approach 1 (15Y trailing average)	Embedded	15	14	13	12	11	10	
	New		1	2	3	4	5	
	Ratio	0%	7%	13%	20%	27%	33%	16.67%
	Ratio including RCV growth							18.62%
Approach 1 (12.5Y trailing average)	Embedded	12.5	11.5	10.5	9.5	8.5	7.5	
	New		1	2	3	4	5	
	Ratio	0%	8%	16%	24%	32%	40%	20.00%
	Ratio including RCV growth							21.95%

Source: NWL analysis of new debt ratio using approach 1 at different trailing average periods

*44 Calculated (5/13.8*0.5+3.9%)*0.5=11%*