

Initial commentary on the Balance Sheet Cost of Debt Model and implications for the cost of embedded debt

September 2023



1 Important notice

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2 Context and scope

Ofwat in the PR24 Final Methodology ('FM') has set a single allowance for the cost of embedded debt primarily based on projected actual debt costs for WaSCs and large WoCs over AMP8. This is, in principle, in line with the CMA's PR19 Final Determination ('FD'). Ofwat has published a Balance Sheet Cost of Debt Model ('Model') which outlines how it has calculated projected actual debt costs for the sector over AMP8, supplemented by commentary in the FM.

Water UK has commissioned KPMG to develop an estimate for the cost of embedded debt based on company business plans, latest market data and 2023 APRs. The analysis will be submitted to Ofwat in November.

This Note sets out initial commentary on the methodology applied in the Model and implications for the cost of embedded debt, ahead of the submission of the analysis. It covers (1) refinancing; (2) amortisation and accretion; (3) modelling of debt balances; (4) model functionality and methodological considerations; (5) inclusion criteria; and (6) initial analysis of the potential impact of updating the Model for latest market data.

3 Refinancing

- a) The Model does not include debt required to finance projected RCV growth between 31 March 2022 and the end of AMP7. Additional debt issuance required to finance RCV growth over the remainder of AMP7 should be captured. For context, at the sector level around £1.5bn in additional debt needs to be raised to finance RCV growth at 60% notional gearing over the remainder of AMP7¹. As the cost of new debt is at present higher than the cost of embedded debt, inclusion of additional debt in AMP7 could increase the cost of embedded debt. For illustration, iBoxx A/BBB 10+ yields were 5.89% over June 2023 which compares to 2.31% over the first two years of AMP7.
- b) The Model refinances fixed and index linked debt maturing in AMP7² at Ofwat's cost of new debt assumption for AMP8³. This is based on a 1m trailing average of iBoxx A/BBB 10+ yields less a 15bps benchmark index adjustment. However, the CMA determined for AMP7 that there was insufficient evidence to apply an outperformance adjustment⁴. Moreover, debt issuance in the sector for the remainder of AMP7 may not in practice support application of an outperformance adjustment. Careful analysis of recent debt issuances in the sector is warranted to assess whether there is robust evidence to support an outperformance adjustment. Removing the 15bps outperformance adjustment would increase the cost of embedded debt.
- c) The Model refinances floating rate debt maturing in AMP7 at an all-in rate comprised of the floating rate benchmark as at September 2022 and the margin on the existing instrument. However, it may be more appropriate for the margin used for refinancing to reflect the latest market conditions and be applied on a sector-wide basis in line with the approach used for fixed rate and index linked debt⁵.
- d) The Model does not refinance fixed and index linked debt maturing on the last day of AMP7 (i.e. 31 March 2025). Refinancing debt maturing on this day at Ofwat's cost of new debt assumption has a relatively significant impact on the cost of embedded debt⁶.

⁶ The formula in column AZ of <Mastertab> should assign a refinancing case of 1 to fixed and index linked instruments with years to maturity of exactly 3 years. Amending the formula in column AZ for this (while holding all else equal) increases the cost of embedded debt by 5bps from 2.34% to 2.39% in CPIH real terms



¹ Based on projected nominal RCV values as at 31 March 2022 and 31 March 2025 from the PR19 FD models

² In this Note 'debt maturing in AMP7' refers to debt maturing between 31 March 2022 and the end of AMP7

³ Fixed and index linked instruments that are assigned a refinancing case of 1 in column AZ of <Mastertab> mature in AMP7 and are refinanced at Ofwat's cost of new debt assumption

⁴ CMA (2021), PR19 FD, para. 90

⁵ The formula in column CH of <Mastertab> refinances floating rate debt maturing in AMP7 and AMP8 at an all-in rate comprised of the floating rate benchmark as at September 2022 and the margin on the existing instrument. The floating rate benchmark used for the refinancing is the same as that for the existing instrument i.e. existing debt linked to 6m SONIA is refinanced with new debt linked to 6m SONIA. However, it may be more appropriate for all floating rate debt in the sector to be refinanced with reference to a single floating benchmark plus a single, sector-wide margin

- e) Ofwat provides separate allowances for embedded debt and new debt raised over AMP8. However, the Model refinances embedded debt maturing in AMP8 with new debt and includes the cost of this new debt in the cost of embedded debt. In particular, the Model refinances embedded fixed and index linked debt maturing in AMP8 at Ofwat's cost of new debt assumption⁷, and floating rate debt at the all-in rate noted above. As a result, the Model partially double-counts the cost of new debt raised over AMP8 in the cost of embedded debt. Removing the double-count is likely to reduce the cost of embedded debt.
- f) Relatedly, given the scale of refinancing and the capital programme in AMP8, Ofwat will need to carefully evaluate the share and cost of new debt for AMP8.
- g) The Model excludes swaps and intercompany debt⁸. The Model implements this by excluding the cost of existing swaps/intercompany debt and any refinancings⁹. This implicitly assumes that swaps/intercompany debt will be refinanced with the same category of debt. This may not necessarily be the case in practice and consequently it may not be appropriate to exclude swap/intercompany debt refinancings as a starting point. For example, Ofgem at ED2 "excluded intercompany loans from embedded debt costs but assumed they are refinanced at their maturity with 20-year fixed rate debt raised at the forecast benchmark rate for that year"¹⁰. Including these swap/intercompany debt refinancings could increase the cost of embedded debt.

4 Amortisation and accretion

- a) The Model adjusts principal balances as at 31 March 2022 for amortisation and accretion until the end of AMP7¹¹. However, it does not adjust for amortisation and accretion over AMP8. As a result, interest costs projected for AMP8 may be misstated.
- b) The Model assumes that all amortising debt in the sector is amortised on a straight-line basis from issuance. In particular, the Model calculates an average annual amortisation rate from issuance to 31 March 2022, and applies the same rate to the remainder of AMP7¹². However, most amortising debt has an initial period of no amortisation and is then amortised straight-line until maturity (particularly EIB debt which is widely present across the sector). As a result, the current approach to modelling amortisation risks under-statement of amortisation.
- c) The Model includes a check to assess whether amortisation is calculated accurately. Specifically, the check identifies cases of over-amortisation i.e. where the amortisation adjustment results in a negative principal balance for an instrument, the check forces a zero balance¹³. However the check does not identify cases of under-amortisation i.e. where an instrument in practice matures, it may have a non-zero balance in the Model due to under-amortisation. Given that the Model checks for over- but not under-amortisation, this could amplify the risk of under-amortisation.
- d) The Model assumes for index linked debt that principal balances as at 31 March 2022 are linked to March 2022 inflation index values¹⁴. However, in practice, principal balances are likely to be linked to index values from several months earlier. For example, in March 2022, an instrument may be linked to the July 2022 index value (8 month lag). Older issuances of index linked debt in the sector typically have a lag of 8-10 months whereas more recent issuances tend to have shorter lags. These lags should be taken into account in the modelling of accretion for AMP7 and (when included) AMP8.

¹⁴ The formulas in cells F14-15 of <Inputs> imply that principal balances as at 31 March 2022 are linked to March 2022 inflation index values



⁷ Fixed and index linked instruments that are assigned a refinancing case of 2 in column AZ of <Mastertab> mature in AMP8 and are refinanced at Ofwat's cost of new debt assumption

⁸ The formula in column CM of <Mastertab> excludes swaps and intercompany debt (as well as other categories of debt) ⁹ Includes (1) refinancing intercompany debt and balance sheet accretion on index linked swaps with new debt; and (2) replacing swaps with new debt

¹⁰ Ofgem (2022), RIIO-ED2 DD – Finance Annex, para. 2.59

¹¹ Using 'Step 4 - Amortisation adjustment' and 'Step 5 - Accretion adjustment' in <Mastertab>

¹² The formula in column BM of <Mastertab> calculates an average annual amortisation rate from issuance to 31 March 2022. The formula in column BN then applies this same rate to the remainder of AMP7

¹³ The formula in column BR of <Mastertab> checks for over-amortisation and the formula in column BS forces a zero balance where there is over-amortisation

e) The Model refinances debt maturing in AMP7 at the interest rates noted above. However, for debt maturing in AMP7 that is amortising, the balance is in many cases amortised to a value close to zero at maturity in AMP7 and is not then refinanced before AMP8 i.e. the balance stays close to zero over AMP8¹⁵. In consequence, the interest rates assumed for refinancing are paired with balances which are close to zero.

5 Modelling of debt balances

- a) The calculation of the cost of embedded debt should incorporate interest costs and debt balances that are (1) on a consistent basis; and (2) capture all relevant adjustments such as issue discounts/premia (and wrapping fees). In relation to (1), the Model calculates interest costs using an effective interest rate approach¹⁶, but uses principal outstanding balances as the relevant debt balance¹⁷ which is not consistent with an effective interest rate approach. In relation to (2), the effective interest rate approach used to calculate interest costs appropriately reflects any issue discounts/premia, but the principal outstanding balances used as the relevant debt balance do not¹⁸. These issues could result in misstatement of the cost of embedded debt.
- b) The Model seeks to directly estimate an average cost of embedded debt over AMP8, instead of modelling debt balances and interest costs on an annual basis over AMP8 and then calculating an average cost of embedded debt. The approach adopted in the Model reduces the transparency of projected costs and limits scope to sense check results.
- c) The Model effectively calculates interest costs in each financial year by multiplying interest rates with debt balances at the financial year end position¹⁹. This means that all instruments are assigned an interest cost of zero in their financial year of maturity²⁰. This only holds where an instrument matures at the beginning of the financial year, however this is unlikely to be the case in practice and so a majority of instruments will incur interest costs in their financial year of maturity. It follows that, by disregarding each instrument's actual maturity date, the Model may be distorting the cost of embedded debt.

6 Model functionality and methodological considerations

- a) The Model has been populated with company data from 2022 APRs and market data from September 2022. The Model will need to be updated on an ongoing basis for the latest APR and market data. The potential impact of using market data until June 2023 is discussed in 8(a)-(c).
- b) The Model has not been set up with scenario functionality to consider the impact of different macroeconomic sensitivities. As such, the FM does not include sensitivities for inflation and interest rates. In consequence, it is not clear whether the allowance will reasonably cover company costs under a range of plausible macroeconomic conditions. This is particularly important for AMP8 since inflation and interest rates have generally been on upwards trajectory in the recent past and remain volatile. For context, iBoxx A/BBB 10+ yields increased by over 2.5x between the first two years of AMP7 (2.31%) and June 2023 (5.89%). Ofgem at ED2 stress tested its cost of debt allowance under a range of macroeconomic and totex scenarios²¹.
- c) The cost of embedded debt is based on the median cost of debt across WaSCs and large WoCs. To inform the selection of the averaging measure, the FM considers the distribution of the cost of

²⁰ This is not immediately apparent from the Model because it does not have separate rows for an existing instrument and its refinancing. This can be seen from the formula in, for example, column BB of <Mastertab> which for fixed and index linked debt maturing in AMP8, calculates a weighted average interest rate for AMP8 across the existing instrument and its refinancing ²¹ Ofgem (2022), RIIO-ED2 FD – Finance Annex, para. 2.84



¹⁵ This can be observed in columns BT-BV of <Mastertab> after filtering both column BG by 'TRUE' and column BH by '1.00' ¹⁶ The formulas in columns AJ-AL of <Mastertab> calculate effective interest rates which are then used to derive the interest costs in column AP. This is only applied for fixed and index linked debt. For floating rate debt, the coupon as reported in the APR is used as the relevant interest rate. This may be reasonable as there are only a few floating rate instruments not issued at par and hence in the majority of cases, the effective interest rate is equal to the coupon (where wrapping fees are omitted) ¹⁷ The formula in column F of <Company benchmarking> calculates the cost of debt as interest cost / principal outstanding

¹⁸ Principal outstanding balances are based on an issue price of 100

¹⁹ This is not immediately apparent from the Model because it does not model debt balances and interest costs on an annual basis as noted in 5(b). However this treatment is implied by the formula in, for example, column AP of <Mastertab> which calculates interest costs by multiplying effective interest rates with principle outstanding balances as at 31 March 22

debt among the sampled companies. This approach appears reasonable and will need to be reevaluated taking into account updated market and APR data as well as the results of macroeconomic scenarios.

d) The cost of embedded debt is calculated by assigning equal weight to (1) 'All-in' cost which is a weighted average interest rate across a company's instruments; and (2) 'Actual-notional' cost which is a weighted average of a company's interest rates for fixed rate and index linked debt²². The CMA at PR19 triangulated its allowance in part on the basis that the approaches it considered – i.e. 'All-in', 'Actual-notional' and one based on fixed and index linked debt costs only – implied consistent estimates for the cost of embedded debt. The 'All-in' approach appears to be inherently most relevant as a primary basis for calculating the cost of embedded debt as it directly reflects the costs actually incurred by the sector.

7 Inclusion criteria

a) The Model currently excludes swaps, junior debt, intercompany debt and liquidity facilities²³. The treatment of these categories of debt is discussed below.

7.1 Treatment of swaps

- a) The Model currently excludes all swaps apart from cross-currency swaps. The key rationale set out in the FM²⁴ for this treatment is considered below.
- b) The FM recognises that interest rate swaps can be used to synthetically replicate debt instruments (e.g. index linked debt), but notes that this is not the sole function for which these instruments have been used. The FM considers that other functions of interest rate swaps (e.g. risk management) are not intrinsic to debt financing and therefore including them would (1) venture beyond the regulatory objective of remunerating efficient debt interest costs; and (2) make the cost of debt allowance less relevant for the notional company.
- c) Interest rate swaps should be included because (1) risk management is inherent to any debt issuance and so swaps cannot be distinguished from 'pure debt' on this basis; (2) where swaps are used to synthetically replicate 'pure debt', they may be more efficient than direct issuance; (3) swaps are used extensively by the sector and so a notional company based on sector dynamics would be expected to use them; (4) the exclusion of swaps would imply an ex post change to treasury policies which is likely to misstate all-in costs; and (5) this position is supported by recent CMA precedent. These reasons are covered in turn below.
- d) <u>Distinguishing between swaps and 'pure debt' as risk management tools</u>: The FM recognises that swaps may be used for risk management. However, it considers that the benefit of swaps used for risk management accrue in the first instance to shareholders and not customers, and thus such swaps should not be included.
- e) Assuming that only swaps are used for risk management introduces an artificial distinction between these instruments and 'pure debt'. Risk management is inherent to 'pure debt' issuance as well as swaps. Issuance of 'pure debt' involves adopting a risk management position in relation to, *inter alia*, tenor, currency, debt type. Different options would imply varying degrees of exposure to interest rate, currency, inflation, and wider cost of debt performance risk in the context of prevailing and expected future market conditions and regulatory policy. Companies implement risk management policies using a combination of swaps and 'pure debt' to achieve holistic risk management objectives.

²³ It also excludes debenture stock because these typically have equity-like characteristics, and preference shares because these are hybrid instruments which may be more debt or equity-like. Ofwat notes that it may potentially include preference shares at DD/FD, specifically, it will consider evidence that these instruments are more 'debt-like' on a case-by-case basis ²⁴ Ofwat (2022), PR24 FM, Appendix 11 – Allowed return on capital, p. 62



²² Weights of 67% : 33% are applied to interest rates for fixed rate debt : index linked debt respectively. This is in line with the debt mix for the notional company set out in the FM

- f) Swaps can be a useful tool for facilitating management of risk exposures implied by the dynamics of the regulatory regime. For example:
 - Index linked swaps can be used to manage inflation risk including the asset liability mismatch and the real nominal mismatch in cashflows (the difference between returns set on a real basis and nominal debt costs).
 - The full transition to CPIH at AMP8 and the nascent nature of the market for direct CPI/CPIHlinked issuance are both fully outside company control. To this end, basis swaps can be used to manage the risk of mismatch between CPIH-linked assets and RPI-linked debt.
- g) Exclusion of swaps from the cost of embedded debt could disincentivise companies from using these instruments to facilitate risk management. This could potentially result in a suboptimal toolkit available for risk management, which in turn could adversely impact on the cost of debt funded by customers over the long term.
- h) <u>The use and impact of swaps for synthetic replication of 'pure debt'</u>. The FM recognises that synthetic replication of direct issuance is a valid function of swaps. However, it does not acknowledge that issuing synthetic debt has been more efficient than issuing equivalent 'pure debt' at different times in the past. For example, companies' current portfolios include index linked swaps that were entered into during times of illiquidity in the index linked bond/debt market, such as during the global financial crisis.
- i) <u>Consistency between actual and notional company use of swaps:</u> A cost of debt policy based on sector costs implicitly assumes that it represents a good benchmark for the efficient cost incurred by the notional company. Swaps are extensively used in the sector by companies with different financing strategies and policies and so are an integral part of the sector's financing. All else equal, this suggests that a notional company based on sector costs would be expected to use swaps. Exclusion of swaps would imply that notional company financing would not match the economic reality of financing observed across the sector.
- j) <u>Potential impact from ex post changes to the sector's treasury policies</u>: Exclusion of swaps from company debt portfolios would imply a retrospective change to treasury policies. This is because it implicitly assumes that if, in a counterfactual scenario, a company had not entered into swaps, it would have issued the same 'pure debt' as in the factual scenario without reconsidering its approach to 'pure debt' issuance in light of its risk management objectives. Whilst the counterfactual cannot be known with certainty, the assumption that companies would have issued 'pure debt' on an unchanged basis in combination with an exclusion of corresponding swaps is likely to misstate all-in costs for AMP8.
- k) <u>Implications of CMA precedent</u>: The FM considers that the analysis carried out by the CMA as part of its PR19 re-determinations which reflected companies' post-swap cost of debt does not represent a valid reason to include swaps. The FM suggests that the CMA's approach may have been out of necessity as the only available up-to-date information source at the time was expressed on a post-swap basis and does not indicate that the CMA would consider that these instruments warrant inclusion in sector costs where pre-swap data is available. This does not appear to be consistent with the CMA's recent position on cost of debt, which recognises that swaps may warrant inclusion in sector costs. For example:
 - In addition to basing its cost of debt allowance on the post-swap position, during the PR19 redetermination the CMA commented that "the companies may reasonably expect that if issuing straight debt plus a swap instrument were economically equivalent but more flexible than issuing index-linked debt (at any particular moment) these two approaches should be treated equivalently in any assessment of actual costs"²⁵.
 - In the RIIO-2 FD, the CMA noted that "in theory, it may be useful to count some derivative instruments when calculating an average actual cost of debt for a regulated sector. The most useful derivative instruments to count would seem to be those that are used to synthetically replicate debt instruments, such as index-linked debt – particularly when such approaches

²⁵ CMA (2021), Water Redeterminations 2020, Cost of Debt – Working Paper, para. 176



are used when useful debt instruments such as index-linked debt are not readily available in the size or tenor required³²⁶.

- It is possible for swaps to be used for other functions aside from synthetically replicating direct issuance and risk management. These other functions could potentially result in a distortion of embedded debt costs for AMP8 due to reprofiling of financing costs over time. It may be appropriate to exclude or make adjustments for such swaps. However, it does not appear appropriate to exclude almost all swaps as in the FM.
- m) Overall, the exclusion of all swaps could result in a material under-statement of the all-in cost of debt for an efficient notional company. An appropriate starting position for the calculation of the cost of embedded debt based on sector costs would be to include all swaps and make exclusions and adjustments where these are warranted based on the nature of specific instruments.

7.2 Treatment of junior debt

- a) The key rationale in the FM for excluding junior debt is (1) its low-ranking repayment priority which could result in a sub-investment grade rating; and (2) its association with companies with highly-geared structures. The FM considers that these features make junior debt less relevant for a notionally-structured company.
- b) Junior debt may have resulted in an overall reduction in the net cost of financing. Specifically, junior debt may have supported the enhanced credit quality of senior tranches, which in turn would have lowered the yield on these senior tranches and offset the higher yield attached to junior tranches. The exclusion of junior debt could present a misleading picture of financing costs by reflecting the benefits of junior debt i.e. in form of senior tranches issued at lower yields whilst excluding corresponding costs. To accurately capture the all-in cost of debt, either:
 - Junior debt should be included; or
 - The impact of excluding junior debt on the rating and pricing of other structurally related but more senior instruments would need to be understood. This could be used to inform the specification of a counterfactual scenario where junior debt was not issued. It is necessary to demonstrate that costs in the counterfactual scenario would have been lower than costs in a scenario which excludes junior debt to support the assumption that junior debt can be excluded from sector costs as implied by the FM.
- c) The calculation of the cost of embedded debt based on sector costs is agnostic to companies' actual gearing levels. The exclusion of junior debt on the grounds of its association with companies with highly-geared structures implies that different weight should be attached to instruments based on the structures of issuing companies.

7.3 Treatment of intercompany loans

- a) The Model provisionally excludes intercompany loans to ensure that projected sector costs do not include costs associated with shareholder loans, as these instruments could have equity-like characteristics. Ofwat has signalled its intention to undertake further engagement to understand the nature and purpose of intercompany lending.
- b) Where intercompany loans have been issued on a *pari passu* basis with an external issuance at a rating equivalent to or higher than the OpCo's, these instruments would be no different from those directly issued by the notional company and should be included in the calculation.
- c) The FM notes that the inclusion of intercompany debt has negligible impact on the cost of embedded debt based on 2022 APR data. The sensitivity of the cost of embedded debt to the inclusion of intercompany debt will need to be analysed based on 2023 APR data and under different macroeconomic scenarios.

²⁶ CMA (2021), RIIO-2 FD, Volume 3: Individual grounds, para. 14.250



7.4 Treatment of liquidity facilities

- a) The Model excludes costs associated with liquidity facilities, overdrafts, and RCFs as these are accounted for in the allowance for issuance and liquidity costs. This approach is appropriate where such facilities are used entirely for day-to-day liquidity management as is the case with the majority of facilities in the sector.
- b) However, there appear to be several facilities which are at least in part used for RCV financing. The component of these facilities used for RCV financing should in principle be included in the calculation of the cost of embedded debt to accurately capture the cost of RCV financing across the sector. It follows from this that the inclusion of such facilities would need to be considered on a case-by-case basis.

8 Initial analysis of the potential impact of updating for latest market data

- a) At this stage the Model has been updated for market data available as at June 2023 but not 2023 APRs. No changes have been made to the calculation methodology.
- b) The Model has three categories of inputs that would require updates to reflect the latest market data: (1) refinancing assumption for fixed and index linked debt; (2) inflation assumptions used for accretion up to the end of AMP7; and (3) calculation of the floating rate adjustment. These inputs have been updated in the following manner:
 - The refinancing assumption in cell C7 of <Inputs> has been updated based on the average yield over June 2023 on iBoxx A/BBB non-financials 10+ index less a 15bps benchmark index adjustment. These rates were sourced from Refinitiv Datastream.
 - The RPI and CPI values in cells C14-E15 of <Inputs> that feed into the calculation of compound inflation used for accretion on index linked instruments until the end of AMP7 have been updated based on March 2023 forecasts from the Office of Budget Responsibility.
 - The floating rate adjustment calculation in column CG of <Mastertab> has been updated based on base rate and SONIA rates from June 2023. These rates were sourced from Refinitiv Datastream.
- c) Updating each of these inputs to reflect a cut-off of June 2023 (and continued use of APR 2022 debt inputs) results in an increase in the cost of embedded debt from 2.34% to 2.50% in CPIH real terms. This is based on assigning equal weight to 'All-in' and 'Actual-notional' costs, however the cost of embedded debt based solely on the 'All-in' cost would be 2.59% in CPIH real terms.



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