WATER PR24 REFERENCES

Provisional Determinations Volume 4: Allowed Return, Risk & Return, Provisional Determinations, Next steps - Chapters 7–10

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CMA
Competition & Markets Authority

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The Competition and Markets Authority has excluded from this published version of the final report information which the inquiry group considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [✂]. Some numbers have been replaced by a range. These are shown in square brackets. Non-sensitive wording is also indicated in square brackets.

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Allowed return summary

7.1 This chapter sets out our approach to estimating, and our provisional decisions on, the allowed return on capital.

7.2 The allowed return, multiplied by the RCV, determines the amount of allowed revenue which companies can recover from customers to ensure that debt and equity investors are appropriately remunerated for the risks of providing capital to the regulated businesses. The allowed return component in Ofwat's PR24 FD represented approximately 26% of the industry's total allowed revenue.[1]

7.3 The allowed rate of return is set with reference to a WACC. The cost of equity component of the WACC reflects returns required by equity investors, while the cost of debt component compensates for efficiently incurred costs of existing and new debt. The two costs are weighted in proportion to the debt and equity in a capital structure to give an overall WACC.

7.4 There is significant uncertainty around the expected cost of capital, and the true cost of capital is never observed. Put differently, realised returns on capital, in a given price control period, do not reveal what the true cost of capital was over that period.

7.5 Ofwat and the Disputing Companies had very different views on the right level of the allowed return, which contributed significantly to their different views on overall allowed revenues. In its PR24 FD, Ofwat estimated a 4.03% Appointee CPIH-real allowed return. This represents an increase of 83bps from the CMA's allowance in the CMA's PR19 redeterminations and an increase of 107bps from Ofwat's PR19 final determinations.[2] All of the Disputing Companies argued that the increase since PR19 did not appropriately reflect latest market evidence on required returns for the sector.

7.6 The Disputing Companies included the following CPIH-real Appointee WACC estimates in their submissions:

(a) Anglian: 4.86%;[3]

(b) Northumbrian: 4.51–4.66%;[4]

[1] Ofwat (2024) Key Dataset 2 Costs, Past Delivery and Risk and Return data. Select 'Industry (without TMS & SRN DM)' on the 'Company selector' sheet. See 'Allowed revenue' sheet, J24 as a percentage of J30.
[2] At PR19 Ofwat and the CMA set a CPIH-real Appointee WACC of 2.96% and 3.20%, respectively. CMA (2021) PR19 Final Report, p1099, Table 9-37.
[3] Anglian SoC, pp189–190, Table 23.
[4] Northumbrian SoC, p156, Figure 52.

(c) South East: industry Appointee WACC of 4.89%, and a South East specific WACC of 5.01%;[5]

(d) Southern: industry Appointee WACC of 4.98%, and a Southern specific WACC of 5.15%;[6] and

(e) Wessex: did not include a point estimate or range for the cost of capital in its statement of case, but it did use an Appointee WACC of 4.58% in its financial modelling, based on 4.52% wholesale WACC[7] plus a retail margin adjustment (**RMA**) of 0.055%.[8]

7.7 We have received a large volume of submissions on this topic from all parties. In this chapter, we set out the key themes from the submissions and explain how they have influenced our reasoning. However, while we have carefully considered all the points put to us in reaching our provisional decision, we have not sought to respond to every single methodological or empirical point raised in the statements of case and in the numerous consultancy reports submitted on behalf of the Disputing Companies.

7.8 After considering the relevant evidence, we estimate an allowed return that we consider appropriately balances our duties under the Water Industry Act 1991. The allowed return used in a price control can have a material impact on the level of customer bills. Our aim is to provide an allowance that ensures appropriate levels of investment within the sector without overcompensating investors at the expense of customers.

7.9 In line with the cutoff set out in our CMA PR24 Approach document,[9] we have used market data up to 30 June 2025 to estimate our provisional WACC. We provisionally conclude on an Appointee real CPIH-based WACC of 4.29%. This is 26bps higher than the Ofwat PR24 FD Appointee WACC, as set out in Table 7.1 below.

7.10 We note that there have been significant changes in market data since Ofwat's cutoff date of 30 September 2024. Yields on index-linked government gilts (**ILG**s) have increased by around 90bps and nominal corporate bond yields have increased by around 50bps. Updating for these market movements alone increases the Appointee WACC by more than 20bps.[10] There have also been

[5] South East SoC, p82, Table 6.2 included the cost of equity estimate of 6.32%. South East referred to the KPMG report (KPMG (2025) Estimating the Cost of Capital for PR24, p19, Table 6) for the cost of debt and cost of capital.
[6] Southern SoC, p508, Table 12. The South East specific WACC includes an increase in the cost of embedded debt of 30bps.
[7] See 'RCV' sheet, rows 45–50 in Wessex's financial modelling.
[8] Wessex SoC, paragraph 10.12(f).
[9] CMA PR24 Approach document, p22, paragraph 83. See also chapter 3 (Approach and prioritisation), paragraphs 3.47–3.49.
[10] Note the increase only reflects changes to the ILG and iBoxx yields on the risk-free rate and cost of new debt respectively.

other changes (for example, movements in beta estimates and updates to total market return (**TMR**) data) which partially offset the increase.

7.11 Our methodology changes explain any remaining differences to Ofwat's WACC, with our methodology further increasing the allowed return on equity (reflecting the higher risk of the sector in our view) but offset by a reduction in the allowed return on debt (reflecting higher expected inflation). We also set the wholesale WACC equal to the Appointee WACC, based on our provisional view that there is no double counting of returns between the wholesale and the retail controls. This increases our wholesale WACC by a further 6bps compared to Ofwat's FD.

Table 7.1: CMA's provisional determination WACC estimates compared to Ofwat's PR24 FD

CPIH-real	CMA provisional determination	Ofwat PR24 FD
Notional gearing	55.00%	55.00%
RFR	2.49%	1.52%
TMR	7.00%	6.83%
ERP	4.51%	5.31%
Unlevered beta	0.31	0.28
Debt beta	0.10	0.10
Listed comparator gearing	53.8%	52.3%
Asset beta	0.36	0.33
Re-levered equity beta	0.68	0.62
Cost of equity (mid-point)	**5.60%**	**4.83%**
Aiming up	0.30%	0.28%
Cost of equity Appointee	**5.90%**	**5.10%**
Cost of embedded debt	2.38%	2.77%
Cost of new debt	3.86%	3.74%
Share of new debt	27%	24%
Additional borrowing costs	0.20%	0.15%
Cost of debt	**2.98%**	**3.15%**
Appointee WACC	**4.29%**	**4.03%**
Retail margin adjustment		(0.06%)
Wholesale WACC	**4.29%**	**3.97%**

Source: CMA analysis; Ofwat (2025) PR24 Final Determinations Aligning Risk and Return - allowed return appendix, Table 1. Note: totals in the table above do not always reconcile due to rounding.

7.12 We set out below a summary of our provisional decision on each element of the allowed return.

(a) Cost of equity CAPM parameters:

(i) we set a provisional risk-free rate (**RFR**) estimate of 2.49%. We use a one-month average of a 20-year ILG yield of 2.11% plus an RPI-CPIH 'wedge' of 38bps. We do not make any other adjustments to the ILG yield;

(ii) we set a provisional TMR range of 6.70% to 7.30%. The lower end of our range is based on the historical ex-ante TMR estimate of 6.70%. To inform the top end of our range, we consider ERP evidence in addition to TMR evidence. We estimate a historical ex-post ERP of 4.80%. We

add this to our RFR estimate of 2.49% to give a TMR estimate of 7.30%;[11] and

(iii) we set a provisional unlevered beta range of 0.28 to 0.34. We estimate 3-year betas for Severn Trent, United Utilities and Pennon to inform the top end of our range. We estimate 10-year betas for Severn Trent and United Utilities to inform the bottom end of our range. We do not make any adjustments to our econometric beta estimates.

(b) We provisionally select a point estimate for the cost of equity of 5.90%, 30bps above the mid-point of our CAPM range. This is primarily to ensure the sector is sufficiently attractive to investors to fund the delivery of large-scale capital investment programmes in PR24 for current and future customers. We also note that there is a low debt-to-equity premium implied by the cost of new debt and the mid-point of our CAPM range.

(c) We provisionally set notional gearing at 55% given that all parties, except one, did not propose a change, the minimal impact a change in notional gearing would have on the allowed return, and given that the decision on notional gearing to a large degree is a matter of regulatory judgement.

(d) Cost of debt parameters:

(i) we provisionally set a real cost of embedded debt of 2.38%. This is based on a nominal cost of debt of 4.84% and a long-term CPIH assumption of 2.4%. Our cost of embedded debt estimate is balance-sheet led. We continue to rely on both 'all in' and 'actual-notional' estimates, and we adopt the same instrument 'inclusion criteria' as Ofwat to construct these estimates (ie we exclude non-cross currency swaps). Our CPIH assumption is based on OBR's long-term CPIH forecast;

(ii) we provisionally set a real cost of new debt allowance of 3.86%. We use a one-month average of the benchmark cost of debt index (the average of the iBoxx A/BBB 10+ non-financial indices) to estimate the nominal cost of debt. We provisionally find that a +30bps adjustment to the benchmark is appropriate. We use the 2.4% long-term CPIH assumption to derive the real cost of new debt;

(iii) we provisionally estimate the share of new debt of 27%. The key driver of the increased estimate – as compared to the Ofwat PR24 FD – is updated assumptions for RCV growth;

[11] While we present all WACC input to two decimal points, we choose to round our TMR range to one decimal point, given the inherent uncertainty in the TMR.

(iv) we provisionally provide for an additional borrowing costs allowance of +20bps. To estimate this, we include (i) a +5bps estimate for issuance costs and (ii) a +15bps liquidity costs allowance, based on latest information on year-end cash balances held by companies; and

(v) taken together the various estimates produce an overall real cost of debt of 2.98%.

Context and methodology

Context

7.13 Ensuring that regulated companies can attract debt and equity capital at reasonable cost is critical to enabling the companies to operate their businesses efficiently, and to deliver the investments needed to provide the appropriate level of service to customers.

7.14 We therefore understand the importance of appropriately calibrating the allowed return component of the overall allowed revenue in delivering these objectives. We maintain the established notional approach to setting the WACC.

7.15 We also observe that since the CMA PR19 Final Report, there have been growing calls for consistency in estimating the WACC across UK regulated sectors. In 2022, the Government asked Ofwat, Ofgem and Ofcom to work together, through the UK Regulators Network (UKRN), to identify areas where there is already significant alignment in cost of capital methodologies and areas where further alignment could be achieved.[12] In response, the UKRN produced guidance on the cost of capital methodology in 2023. The UKRN noted that greater transparency and consistency in decisions should reduce the uncertainty associated with the final price control outcome and should allow for easier cross-sector comparisons. However, UKRN also noted that the guidance is not binding, and each regulator will continue to make decisions in accordance with its own statutory duties.[13] The Independent Water Commission also included a recommendation for a common WACC methodology to be set for all UK regulated sectors.[14]

7.16 In making our provisional decision on the allowed return in this determination, we have not been bound by the UKRN guidance. However, we are generally supportive of the general direction of travel towards greater consistency in cost of capital decisions.

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[12] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p3.
[13] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p4. The regulators which are expected to have regard to the guidance include Ofwat, Ofgem, Ofcom, the Office of Rail and Road (ORR), Utility Regulator for Northern Ireland (UREGNI), and the Civil Aviation Authority (CAA) (after the end of CAA's H7 and NR23 reviews which were ongoing at the time).
[14] Independent Water Commission (2025) Final report, p221.

7.17 Against this backdrop, in deciding on the appropriate methodology and in reviewing the evidence put to us, we had regard to the following principles in our provisional determination.

(a) **Maintaining consistency**: consistency and predictability over time of regulatory WACC decisions is likely to have a positive impact on the overall attractiveness of UK water infrastructure to investors, which in turn might be expected to benefit customers (by allowing firms to secure low-cost finance). However, consistency does not mean methodologies should not evolve over time, to reflect changes in market conditions and/or practical developments in estimating the WACC.

(b) **Reducing regulatory complexity**: the breadth and depth of WACC analysis continues to increase at each price review. While the WACC methodology should be theoretically robust, it also needs to be transparent and practicable to implement.

(c) **Recognising uncertainty**: Given that the allowed return is a significant driver of allowed revenues, it has become common regulatory practice to estimate the overall WACC and its components to two decimal points. This practice risks creating an illusion that it is possible to estimate these components with this level of precision and potentially encourages an ever-longer list of adjustments for different parameters. However, there is significant uncertainty around the expected cost of capital. It is important to consider the evidence in the round, and it is generally desirable to limit the number of more subjective adjustments to the underlying market data.

Methodology

7.18 The WACC is given by the following expression, where Ke is the cost of equity, Kd is the pre-tax cost of debt, and D and E are market values of debt and equity respectively:

$$WACC = K_e \frac{E}{(D+E)} + K_d \frac{D}{(D+E)}$$

7.19 We use the Capital Asset Pricing Model (**CAPM**) to determine the cost of equity. The CAPM relates the cost of equity (K_e) to the expected return on a risk-free asset (risk-free rate or r_f), the expected return on the market portfolio overall (TMR or R_m), and a firm-specific measure of investors' exposure to systematic risk (beta or β) as follows:

$$K_e = r_f + \beta\,(R_m - r_f)$$

7.20 The CAPM is an established methodology with well-understood theoretical foundations, and which makes use of observable market data as far as possible.

The CAPM is used by all UK regulators, and was the framework used by Ofwat in its PR24 FD and by the CMA in all previous WACC determinations. We perform our own assessment of each of the parameters of this model, using up-to-date market data. We also consider market-based cross-checks in addition to the CAPM.

7.21 For the cost of debt, we estimate a separate allowance for the cost of embedded debt using data on companies' actual debt costs, and we estimate a separate allowance for the cost of new debt, using a benchmark index. This approach is reasonably well-established and was used by Ofwat in its PR24 FD and by the CMA in its PR19 Final Report. The cost of new debt allowance will be subject to an end of period reconciliation for changes in the benchmark index over the price control, consistent with PR24 and PR19 approaches. This means that where our cost of new debt allowance is different to Ofwat's due to changes in the benchmark index, these changes will flow through to all companies in the sector at the end of the price control.

Indexation of the cost of equity

7.22 We continue to set a fixed cost of equity allowance for the duration of the price control. While there was some consideration of indexing the risk-free rate component of the cost of equity during the PR24 process, Ofwat did not pursue this option in the end. We have seen limited support for indexation through our redetermination process (discussed in more detail in the Risk-free rate section below). A move to indexation would represent a relatively major policy change, which we consider is best implemented at the industry level.

7.23 Nonetheless, we consider that there could be benefits from indexation in future price controls, as it would reduce the risk of error in the allowed return. The implementation of risk-free rate indexation would require careful thought, as it would imply a transfer of risk from investors to customers.

Inflation and estimating the cost of capital in real terms

7.24 The real WACC is multiplied by each Disputing Company's RCV to calculate the allowed return element of revenues in each year of the price control. The RCV is also indexed by inflation in each year, and therefore the cost of capital is expressed in real terms. The measure of inflation used to index the RCV varies by regulated sector. In water, the PR24 FD completes the move away from using the Retail Price Index (**RPI**) to the CPIH, a process which started at PR19, with the RCV now fully indexed to CPIH. Therefore, all of our WACC estimates are quoted in CPIH-real terms.

7.25 In the following sections, many of our estimated metrics are presented in CPIH-real terms. In order to calculate these metrics, we need to deflate nominal input data and adjust RPI-real input data into CPIH terms.

7.26 This predominately impacts the cost of debt, where some debt statistics are only available in nominal terms (reflecting the fact that companies issue significant amounts of nominal fixed rate debt). There is also an impact on our estimation of the risk-free rate, where most market metrics are quoted in either RPI-real or nominal terms, and on our estimation of the TMR, where the available historical data is quoted in nominal terms.

7.27 In order to make these adjustments we are required to take a view on the most appropriate inflation assumptions to use for the price control.

Deflating nominal debt costs

7.28 The nominal yield on a fixed-rate bond reflects the market's expectations of inflation over the bond tenor (the time until the bond matures) at the time the bond is issued. These expectations will be relatively long-term, given the typical bond tenor in the water sector of around 15 years – 20 years.[15]

7.29 Ofwat's approach to deflating nominal debt costs is to use a long-term inflation assumption. Provided this assumption is not systematically biased upwards or downwards relative to market's inflation expectations embedded in bond yields, this approach should ensure that companies are remunerated for efficiently incurred nominal debt costs over time. We consider this to be a reasonable approach and continue to apply this approach in our redeterminations.

7.30 This means we need a long-term estimate of CPIH, given that we are estimating a CPIH-real cost of debt. We provisionally conclude on a long-term CPIH of 2.4%, as discussed below.

7.31 For the cost of embedded debt, we follow a balance-sheet led approach. Actual debt costs of water companies reflect a mix of nominal and index-linked (mostly RPI-linked, and some CPI-linked) debt. Consistent with Ofwat, we first convert the actual costs of index-linked debt (**ILD**) to nominal terms (using a RPI assumption of 2.9% and a CPI assumption of 2%), before deflating the total nominal cost of debt into real CPIH-terms.

Adjusting RPI-real gilt yields

7.32 The ONS has decided to align the calculation of RPI with that of CPIH from 2030. This means that ILG yields will effectively become CPIH-linked from 2030 and

[15] Based on CMA analysis of 2024-25 APR data.

therefore in future regulatory decisions these yields can be used directly to proxy the CPIH-real RFR. However, until then we still need to adjust observed ILG yields for the expected difference between RPI and CPIH (the RPI-CPIH 'wedge').

7.33 We rely on official forecasts and market-based measures to estimate the RPI-CPIH wedge, as described in more detail in the Risk-free rate section.

Estimating real total market returns

7.34 An important source of evidence in estimating the total market return is long-run historical realised stock market returns. These are available in nominal terms and require deflating into real terms. We discuss our approach in more detail under 'TMR (ie total market return)' below, but where possible we use inflation measures most closely aligned to CPIH to deflate historical data, given we are estimating a CPIH-real WACC.

Long-term CPIH inflation assumption

7.35 Sector regulators and the CMA have typically relied on externally anchored[16] inflation assumptions or inflation forecasts from official sources like the OBR and not forecasting inflation themselves.[17]

7.36 There are also market-based measures of inflation, derived from inflation swaps (transactions converting nominal payment streams into real terms). One issue with inflation swaps is that currently most swaps transactions are for RPI and CPI measures, rather than CPIH.

Ofwat's PR24 FD approach

7.37 Ofwat noted in its final methodology that it intended to continue to use a 2.0% CPIH assumption based on the following assessment:

(a) CPI inflation has on average been close to Bank of England's 2.0% CPI target set in December 2003; and

(b) CPI and CPIH have tracked each other closely over time.[18]

7.38 Ofwat maintained the 2% assumption throughout in the PR24 DD and in the PR24 FD. Ofwat noted that while it was not unusual for CPIH and CPI to diverge,

[16] Such as relying on Bank of England's 2.0% CPI inflation target.
[17] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p13.
[18] Ofwat (2022) PR24 final methodology: Appendix 11 Allowed return, p6.

historically there was no tendency for one measure to be consistently higher than the other, and that the long-run difference between the two was relatively small.[19]

7.39 In the PR24 FD, Ofwat also considered medium term CPI forecasts from HM Treasury and found that a 2% CPI assumption was broadly aligned with those forecasts.[20]

Parties' submissions

7.40 All Disputing Companies have used a 2% CPIH long-term inflation assumption in their cost of capital submissions and did not raise any specific issues with this assumption in their statements of case.[21]

Ofwat

7.41 In response to Disputing Companies' statements of case, Ofwat submitted that to the extent that the Disputing Companies have asked for the allowed return to be revisited, the recent evidence published by the OBR on long-term CPIH should also be considered when setting the allowed return.[22]

7.42 Ofwat submitted that the OBR's revised forecast of long-term CPIH-CPI wedge of 0.4% (rather than 0.0%) suggested that on a forward-looking basis the central estimate of long term CPIH is greater than CPI. Ofwat submitted that if the long-term CPIH assumption (of 2.0%) was not changed (to 2.4%), this would have a direct benefit to equity returns.[23]

7.43 Ofwat submitted that there is a greater range of potential upward variation in the central forecast for long-term CPIH than the potential range of downward variation.[24]

Disputing Companies

7.44 The Disputing Companies submitted that the OBR's October 2024 forecast does not represent an expected long-term estimate for the wedge for use in the regulatory WACC calculations.[25] The Disputing Companies submitted that:

[19] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, Annex 1: Deflation assumptions, p130.
[20] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, Annex 1: Deflation assumptions, p130.
[21] Kairos (2025) Setting the Allowed Return on Equity for PR24, paragraph 68, p25, KPMG (2025) Estimating the Cost of Capital for PR24, p100, footnote 225, Oxera (2025) PR24 Cost of equity estimation, p14.
[22] Ofwat (2025) Response to common issues on risk and return, paragraph 1.11.
[23] Ofwat (2025) Response to common issues on risk and return, paragraphs 1.63–65.
[24] Ofwat (2025) Response to common issues on risk and return, paragraph 1.65.
[25] Disputing Companies (2025) Joint reply to Ofwat's Response, p27, paragraph 120.

(a) the CPIH-CPI wedge had been negative for over half of the past 22 years, with an average of -11bps and a P90 of 26bps. A 0.4% wedge aligned with the P96 placing it outside the historical norm;

(b) the 0.4% wedge was based on a 3.8% long-term earnings growth assumption. This appeared to be inconsistent with recent trends, implying productivity gains not seen since before the GFC and a sharp rise in growth between 2028/29 and 2029/30;

(c) long-term earnings growth was highly uncertain. Historical data shows persistent gaps between actual outcomes and forecasts made five years earlier – the longest reliable window for comparison;

(d) forecasts of long-term earnings growth heavily depend on assumptions about productivity growth and the GDP deflator. The OBR's latest estimate of the CPIH-CPI wedge acknowledged that it would keep the methodology under review – implying that this revised wedge may change; and

(e) Ofwat's proposal (to revise the CPIH-CPI wedge from 0.0% to 0.4%) would result in a reduction of allowed revenues without a corresponding decrease in cash interest costs. All else being equal this would reduce RoRE headroom by approximately 0.5% at each rating level, exacerbating financeability constraints for the notional company.[26]

Latest inflation forecasts

7.45 The forecast published in October 2024 is the OBR's first long-term CPIH forecast. CPIH inflation is almost identical to CPI but includes owner occupied housing (OOH) costs and council tax.

7.46 To estimate the long-term CPIH, the OBR combines its CPI inflation forecast (of 2%) with council tax and OOH forecasts. [27]

(a) Its council tax forecasts are informed by known referendum principles, announcements by councils, and examining recent trends. For the years in which policy is not currently set, the OBR's policy-neutral assumption is that levels will grow by 4.8%.

(b) The OBR forecasts OOH in line with CPI actual private rental inflation. The OBR finds that the long-run response of private rents to average earnings is close to one-to-one. The OBR assumes that in the long-run private rents will grow in line with average nominal earnings growth, estimated at 3.8%.

[26] Disputing Companies (2025) Joint reply to Ofwat's Response, pp27–28, paragraph 120.
[27] OBR (October 2024) The economic and fiscal outlook.(accessed 20 August 2025)

7.47 These assumptions together translate into a 0.4% long-term CPIH-CPI wedge. The OBR noted that its forecast of the wedge largely depends on its assumption around average earnings growth, which in turn depends on its forecasts for productivity and GDP deflator.

7.48 The OBR published its latest economic and fiscal outlook in March 2025. The updated outlook has not changed the OBR's view of the long-term CPIH-CPI wedge of 0.4%.[28]

Our assessment and provisional decision

7.49 We acknowledge that if we were to revise the level of CPIH inflation from the current 2.0% to 2.4%, the real allowed cost of debt would decrease, all else equal. However, we do not consider it appropriate to exclude the OBR's latest forecast for CPIH when we are taking into account updated data for other parameters.

7.50 In relation to financeability, we assess the implications of the changes made to the price control in the round under 'Financeability' in chapter 8 (Risk and Return).

7.51 We acknowledge that this is the first and only long-term CPIH forecast available to us, and that it is based on particular assumptions around productivity and earnings growth. As with other parameters, we will continue to monitor for new evidence between our provisional and final decisions.

7.52 We provisionally use the latest OBR forecast of 2.4% as our long-term CPIH assumption.

Notional gearing

Summary

7.53 We provisionally set notional gearing at 55% given the minimal impact a change in notional gearing would have on the allowed return, and the lack of evidence submitted by the Disputing Companies that a different level of notional gearing is a superior alternative.

Introduction

7.54 Gearing refers to the amount of debt within a company's capital structure. In the case of water companies, it is defined as net debt (debt minus cash) divided by the RCV of the company. In more general terms, gearing can be thought of as debt divided by the total capital base (debt plus equity).

[28] OBR (March 2025) The economy forecast (accessed 20 August 2025).

7.55 Gearing determines the proportion of the cost of debt, and by implication the proportion of the cost of equity, within the overall cost of capital.

7.56 Both Ofwat and the CMA calculate the allowed return on capital with reference to a notional company with a predetermined level of gearing. This notional approach allows companies to make their own choices about their financial structure whilst ensuring that customers only pay for costs associated with the efficient cost of capital for a notionally structured company.

Ofwat's PR24 FD approach

7.57 Ofwat reduced the level of notional gearing from 60% at its PR19 Final Determinations to 55% at PR24 FD. Ofwat stated that the level of notional gearing would be set within a framework that reflected the need to:[29]

(a) incentivise efficient financing choices given the balance of risk faced by water companies;

(b) reflect the scale and nature of investment needs;

(c) take account of a range of appropriate benchmarks and evidence; and

(d) allow it to set a price control that is in the best interests of current and future customers.

7.58 Ofwat also noted that the period of high inflation during AMP7 provided the notional company (and many companies under their actual structures) the ability to reduce gearing ahead of 2025. Ofwat stated that signalling its decision in its final methodology, in December 2022, provided companies the opportunity to revisit and align their structures with the notional level ahead of PR24 should they wish to.[30]

Parties' submissions

Disputing Companies

7.59 Four[31] of the five Disputing Companies included notional gearing of 55% in their cost of capital estimates. Southern[32] was the only disputing company to deviate from Ofwat's 55% notional gearing assumption in its cost of capital submissions, including 60% gearing in its cost of capital estimates.

[29] Ofwat (2022) PR24 final methodology: Appendix 10 Aligning risk and return, p27.
[30] Ofwat (2022) PR24 final methodology: Appendix 10 Aligning risk and return, p33.
[31] Anglian SoC, paragraph 676. South East SoC, Table 6.2, p82. Wessex SoC paragraph 10.10. Northumbrian SoC, paragraph 580. Wessex and Northumbrian reference to Kairos (2025) Setting the Allowed Return on Equity for PR24, Table 14, p61.
[32] Southern SoC, p502, paragraph 585.

7.60 Southern noted that Ofwat had placed weight on companies' actual cost of debt to estimate the embedded cost of debt, and submitted that it should be consistent by placing weight on actual gearing levels in its assessment of gearing.[33]

7.61 Southern also stated that Ofwat was wrong to consider market evidence from enterprise value (**EV**) gearing of UK listed water companies, RCV gearing for GB energy companies and EV gearing for European energy companies in its analysis. Instead, Southern submitted that Ofwat should have placed weight on the RCV gearing of UK water companies and that this would not have supported the reduction in notional gearing.[34]

7.62 KPMG, South East and Southern's advisers, provided a response to each of the points set out in Ofwat's PR24 FD.[35]

(a) **Efficient financing choices:** KPMG argued that assuming a lower notional gearing cannot improve the company's overall financial position, with a constant level of business risk at both gearing levels, and instead a reduction in notional gearing transfers risk exposure from debt to equity.

(b) **Scale and nature of investment needs:** KPMG stated that an assumed reduction in notional gearing all else equal, exacerbates the requirement for new equity capital and the scale of the equity financeability challenge. KPMG noted that it is inherently more difficult to attract and retain equity capital, compared to debt capital.

(c) **Appropriate benchmarks:** KPMG noted that 55% sits materially below the average sector gearing, and Ofwat is wrong not to consider this when setting notional gearing. KPMG submitted that Ofwat was inconsistent in its approach to not using actual company data in setting the level of notional gearing, but it did use company data when setting the cost of debt allowance.

(d) **Impact of inflation:** KPMG noted that higher than forecast inflation did act to reduce observed gearing in the sector, particularly in 2022, however KPMG stated that inflation has subsequently stabilised at close to Bank of England target levels and sector average gearing has increased. KPMG noted that there are other factors which exert upwards pressure on gearing, such as Return on Regulated Equity (**RoRE**) performance.

[33] Southern SoC, p501, paragraph 575.
[34] Southern SoC, p501, paragraph 577.
[35] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 7.2.2.

Third parties

7.63 MCC Economics, on behalf of CCW, retained a 55% gearing assumption in its cost of capital calculations but did not include any comments on Ofwat's methodology.[36]

Ofwat

7.64 Ofwat stated that it would support the CMA deprioritising the redetermination of the notional capital structure,[37] including notional gearing.[38] Ofwat noted that its position on notional gearing was set out in its PR24 documentation, and therefore it did not include any new material in its response.[39]

Our assessment and provisional decision

7.65 Ofwat's 55% notional gearing assumption is a 5% reduction from its PR19 assumption of 60%. A 5% change notional gearing is not unprecedented in water, and other regulatory, determinations. Since privatisation, there has only been one price control in water (PR99 with 50% notional gearing) which retained the notional gearing assumption from the previous price control. From PR04 to PR14, Ofwat increased notional gearing by 2.5–5% at each review. At PR19, Ofwat reduced notional gearing by 2.5% from 62.5% to 60%. In the PR24 final methodology, Ofwat signalled that it considered a need for a greater role of equity in the notional capital structure to ensure that the incentive based regime operates effectively, to reflect the strength of the incentives regime and to ensure companies are to maintain access to the significant levels of finance that will be necessary to deliver the projected capital investment programmes for 2025–30.[40]

7.66 The Modigliani-Miller theorem[41] sets out that a firm's cost of capital will be invariant to its level of gearing. This is due to a higher level of gearing resulting in a higher weight given to the cost of debt (which is cheaper than the cost of equity), but this reduction being offset by an increase in the cost of equity. We note that this is not always the case in practice due to other relevant factors. However, when assuming 60% notional gearing, instead of 55% in our WACC calculations,

[36] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, Table 1, p4.
[37] Ofwat sets an allowed return and tests financeability using an assumed capital structure for the notional company. Ofwat makes assumptions for notional gearing, share of index-linked debt, type of index-linked debt, dividend yield and equity issuance costs.
[38] Ofwat (2025) Response to common issues on risk and return, paragraph 3.13.
[39] Ofwat (2025) Response to common issues on risk and return, paragraph 3.17.
[40] Ofwat (2022) PR24 final methodology: Appendix 10 Aligning risk and return, p3.
[41] The Modigliani-Miller theorem suggests that as gearing rises shareholders of a company are exposed to more systematic risks (there is less of an equity buffer to deal with shocks), often measured as a rise in beta. This increasing risk to equity holders is described as a rising 'cost' of equity, in that higher returns are required to offset these higher risks.

there is only a 1–2bps difference in our estimates at the bottom and top end of our range.[42]

7.67 We also consider the points set out by Ofwat in its PR24 FD on the rationale for a reduction in notional gearing and KPMG, South East and Southern's advisers', submissions. On the first three points (efficient financing choices, scale and nature of investment needs and appropriate benchmarks) we note that these are all issues which require regulatory judgement.

7.68 With regard to inflation, all else equal, the higher than forecast inflation in AMP7 will have helped the companies reduce their levels of gearing in line with the 5% notional reduction assumed by Ofwat.[43] We recognise that during AMP7 other factors, such as operational performance, will have placed upwards pressure on gearing. However, Ofwat signalled at an early stage of the price review process that it intended to reduce notional gearing at PR24 FD. Companies have therefore had an opportunity to amend their capital structures and fund operational overspends through a mix of equity and debt. This was an approach taken by South East, whose shareholders injected £200 million of equity in May 2025 to reduce gearing below 65% and reinforce the financial stability of the company.[44]

7.69 Given the minimal impact a change in notional gearing would have on the allowed return and the fact that the change in notional gearing was signalled early on in the PR24 process we maintain Ofwat's assumption of 55% notional gearing as the basis of our cost of capital calculations and financeability assessment.

Allowed return on equity

Risk-free rate

Summary

7.70 We set a provisional RFR estimate of 2.49%. We use a 20Y ILG yield of 2.11% plus an RPI-CPIH 'wedge' of 38bps. We make no further adjustments to the ILG yield.

[42] Using 55% notional gearing, our provisional WACC range is 3.92-4.40%. Using 60% notional gearing, our provisional WACC range is 3.91-4.41%.
[43] Gearing is measured as net debt divided by the RCV. The RCV increases in line with inflation. The amount repayable for existing index-linked debt also increases with inflation, but the amount repayable for existing fixed (or floating) rate debt does not increase with inflation. Therefore, for a company which holds any fixed or floating rate debt, higher inflation will result in a larger increase in the RCV than net debt, resulting in a reduction in gearing.
[44] South East (2025) Result of Equity Issue - 15 May 2025.

Introduction

7.71 The RFR in the CAPM represents the rate of return expected by investors for holding a risk-free asset, ie the rate of return that an investor can expect to earn without taking any systematic risks.

7.72 RFR is a hypothetical number as no investment has absolutely zero risk. As a result, it has become common practice to use the expected return (usually termed 'yield') on very high-quality debt instruments, often government bonds with strong credit ratings, as the best proxy for a risk-free investment rate.

7.73 In UK regulation, this has traditionally meant using the yield on an RPI indexed-linked government gilt (**ILG**) at a relevant maturity (time until redemption) as the proxy for the RPI-real RFR, as it is assumed that ILGs have negligible default and inflation risk.

7.74 In regulatory decisions prior to and then following the GFC, it was common practice to estimate the RFR with reference to longer-term averages of gilt yields. As interest rates were consistently falling over that period, this meant allowed RFRs were typically above prevailing spot rates.

7.75 The 2018 UKRN study looking into estimating the cost of capital to implement in price controls[45] brought this practice into question. This 2018 UKRN study describes the historical approach taken by the UK regulators as the 'dragging anchor' approach where in the interest of regulatory stability, the regulators would adjust their assumptions which would not respond instantaneously to every movement in the market rate.[46]

7.76 This 2018 UKRN study argued that there is merit in using historical averages for parameters of cost of capital that cannot be directly observed, such as the equity risk premium (**ERP**) or the TMR.[47] However, the RFR can be observed with minimal error and therefore does not require the same estimation strategy.[48] In decisions that followed regulators switched to placing weight mainly on recent yields.

7.77 For the PR19 Final Report, the CMA chose to place equal weight on UK 20-year gilts and UK AAA non-government bonds using a 6-month average to estimate the RFR.[49]

[45] UKRN (2018) Estimating the cost of capital for implementation of price controls by UK Regulators.
[46] UKRN (2018) Estimating the cost of capital for implementation of price controls by UK Regulators, p33.
[47] UKRN (2018) Estimating the cost of capital for implementation of price controls by UK Regulators, p34.
[48] UKRN (2018) Estimating the cost of capital for implementation of price controls by UK Regulators, p34.
[49] CMA (2021) PR19 Final Report, p790, paragraph 9.241.

7.78 Since the PR19 Final Report, a mix of approaches have been adopted with some regulators using only ILGs and some also placing weight on other proxies.[50] We note the UKRN guidance recommends the following:

(a) using long-dated ILGs at the assumed investment horizon in relevant sector as the risk-free proxy;

(b) recent yields (going back no more than a year) are reasonable to inform the RFR;

(c) the weight a regulator places on a sample of recent yields in determining the RFR point estimate, or range will be influenced by the methodological approach adopted.

7.79 The UKRN guidance also notes that non-ILG RFR proxies when stripped of accurately measured risk premia could provide a useful sense check in times of ILG market volatility or to help define the range.[51]

7.80 Before we go into the specific issues in estimating the RFR, we note that in principle the RFR is a parameter which is arguably the easiest to estimate in the CAPM (ie in some respects we agree with the sentiment of the UKRN (2018) Study which noted the RFR can be estimated with minimal error). While the debate on the appropriate approaches has expanded in recent years, going back to the principles we set out earlier, we think there is a good case for taking a step back and considering whether a relatively simple approach, rooted in readily observable market data, might be preferable in our redeterminations and in regulatory practice going forward.

7.81 We start by summarising Ofwat's PR24 FD approach and providing an overview of parties' submissions on RFR. We then go into more detail on the specific issues around estimating the RFR, including parties' specific points in relation on the issues and our provisional assessment and decision on each issue.

Ofwat's PR24 FD approach

7.82 Between the PR24 DD and the PR24 FD, Ofwat maintained its approach to estimating the RFR but did update the inputs using the latest available information.

7.83 Ofwat's approach to estimating the RFR was based on (see Table 7.2 below):

(a) a 1-month average of the 20-year RPI-linked gilts rate; plus

[50] UKRN (2024) Cost of Capital report – 2024 update, Table 6 Risk-free rates: approaches and estimates in CPI/CPIH-real terms, p18.
[51] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p14.

(b) an adjustment to a CPIH basis using a 33bps RPI-CPIH wedge based on 20-year inflation expectations inferred from inflation swaps and official forecasts.[52]

7.84 Ofwat chose to use the RPI-linked gilts rate as the sole risk-free proxy and did not place any weight on other available proxies concluding that placing weight on other proxies[53] was either unreliable or did not materially impact the estimate.[54]

7.85 Ofwat did not calibrate its RFR estimate for a convenience yield, considering evidence to be insufficiently reliable to apply to 10–20-year CAPM horizon.[55]

7.86 Ofwat chose not to apply a forward rate adjustment to its estimation of RFR, concluding forward rates demonstrated poor and upwardly biased forecast performance of 20-year gilt yields, finding spot 30-day trailing average to be superior.[56]

7.87 During PR24 methodology development, Ofwat consulted on indexing the RFR as one of the potential means to address estimation uncertainty and received limited support for the proposal.[57] While Ofwat retained the option of indexing the RFR in the PR24 final methodology, it ultimately decided against it in the PR24 DD.

Table 7.2: Ofwat PR24 FD RFR estimate

Parameter	Ofwat PR24 FD
20Y 1-month average RPI-linked gilts	1.19%
RPI-CPIH 'wedge'	0.33%
RFR (CPIH, real)	1.52%

Source: Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix Table 3, p21.

Overview of parties' submissions

7.88 All Disputing Companies submitted in their statements of case that Ofwat's estimate of the RFR is too low.

7.89 Disputing Companies estimated RFR ranges between 2.30% (CPIH, real) to 2.84% (CPIH, real) driven by the increase in the ILG yields between Ofwat's data cut-off date of 30 September 2024 and Disputing Companies' cut-off date of end of January 2025 as well as the proposed adjustments to the ILG yields (see Table 7.3 below).

[52] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p9.
[53] Other proxies which Ofwat considered but did not use as part of its RFR estimate included nominal gilts, AAA-rated nominal bond indices (and constituents), AAA-rated RPI-linked bonds and the SONIA swap rate. Ofwat (2024) PR24 final determinations: Aligning risk and return - Allowed return appendix, p10.
[54] Ofwat (2024) PR24 final determinations: Aligning risk and return - allowed return appendix, pp9–10.
[55] Ofwat (2024) PR24 final determinations: Aligning risk and return - allowed return appendix, p10.
[56] Ofwat (2024) PR24 final determinations: Aligning risk and return - allowed return appendix, p10.
[57] Ofwat (2024) PR24 final determinations: Aligning risk and return - allowed return appendix, p19.

7.90 Northumbrian Water acknowledged that the underestimation is partly due to the movement in the market with the remaining gap being due to the approach used.[58]

7.91 Disputing Companies submitted that Ofwat's use of ILGs as a sole proxy for the RFR is too simplistic and is a departure from the precedent set by the PR19 Final Report.[59]

7.92 Disputing Companies submitted that Ofwat underestimates the RFR by not accounting for the additional premium implicit in the ILG yields, a 'convenience yield' due to their unique "money-like" safety, liquidity, excess demand for highly rated government bonds driven by regulatory requirements and their ability to provide a valuable source of collateral.[60]

7.93 Kairos, Northumbrian's and Wessex's advisers, also submitted that the RFR should include a forward rate adjustment. Some Disputing Companies also mentioned the Brennan CAPM framework.[61]

Table 7.3: Disputing Companies' estimated RFR range

Parameter	Oxera		Kairos		KPMG	
		Low	High	Low	Point estimate	High
20-year 1-month average RPI-linked gilts	1.78%	1.80%	1.80%	1.85%	1.85%	1.85%
Adjustments[62]	0.24%	0.17%	0.47%	0.16%	0.41%	0.67%
RPI-CPIH 'wedge'	0.28%	0.33%	0.33%	0.32%	0.32%	0.32%
RFR (CPIH, real)	2.31%	2.30%	2.60%	2.33%	2.59%	2.85%

Source: Oxera (2025) PR24 Cost of equity estimation, p18; KPMG (2025) Estimating the Cost of Capital for PR24, p49, Table 9: Overall range and point estimate for the RFR; Kairos (2025) Setting the Allowed Return on Equity for PR24, p29. [Oxera, advisers to Anglian; Kairos, advisers to Northumbrian and Wessex; KPMG, advisers to South East and Southern].

UK ILGs as the basis of the RFR - choice of bond tenor

7.94 We first start by considering ILG evidence. ILGs remain a suitable input into the RFR estimation, as they are close to being risk free. Two key issues are the choice of bond tenor and the averaging period. We discuss each of these issues in turn.

[58] Northumbrian noted that Ofwat's RFR estimate is 0.8% and 1.1% below the RFR with approximately 0.3% of the difference is due to methodology and 0.6% of the difference being down to market movements since Ofwat's analysis was performed. Northumbrian SoC, paragraph 582.
[59] Northumbrian SoC, paragraph 582, Anglian SoC, paragraph 731, South East SoC, paragraphs 6.14–6.15, Southern SoC, p435, paragraph 118, and Wessex SoC, p89, paragraph 10.12(a). Disputing Companies' SoC were also supported by advisors' reports: KPMG (2025) Estimating the cost of capital for PR24, pp28–49; Kairos (2025) Setting the Allowed Return on Equity for PR24, pp15–31; and Oxera (2025) PR24 Cost of equity estimation, pp8–18.
[60] Anglian SoC, paragraph 730, Northumbrian SoC, paragraph 582, South East SoC, paragraph 6.14. Southern SoC, pp435–437, paragraphs 118 and 129–141.
[61] KPMG (2025) Estimating the cost of capital for PR24, pp34–36; Kairos (2025) Setting the Allowed Return on Equity for PR24, pp19–21, p28, p31 for Brennan (1971) and pp26–27 and p31 for forward rate adjustments.
[62] Adjustments figure represents the cumulative proposed adjustments including: convenience yield, lending vs borrowing rates (Brennan, 1971).

Ofwat's PR24 FD approach

7.95 In PR24 Ofwat adopted a 10-20 year investment horizon for estimating the CAPM cost of equity. This is consistent with typical regulatory practice, including the UKRN guidance.[63] Ofwat subsequently used 20-year ILGs to estimate the RFR. Ofwat concluded that using 20-year ILGs (rather than using an average of 10-year and 20-year ILGs) provides inbuilt headroom should the RPI-linked gilts be downwardly-distorted proxies for the true RFR.[64]

Parties' submissions

Disputing *Companies*

7.96 The Disputing Companies did not raise concerns with Ofwat's approach of using 20-year tenor noting it broadly matched the long asset lives in the sector.[65] On behalf of Southern and South East, KPMG submitted that using 20-year ILGs rather than an average of 10-year and 20-year was appropriate because 20-year ILGs would broadly match the duration of cashflows implied by the average remaining asset life and would maintain consistency across the allowed return by aligning the tenor used for RFR and the tenor of the benchmark index used for cost of new debt.[66]

Ofwat

7.97 Ofwat, in its response to the Disputing Companies' statements of case, submitted there are strong reasons for maintaining a 10-20 year CAPM horizon, rather than a 20-year horizon as suggested by KPMG, for the reasons listed below (in addition to being in line with UKRN guidance and responses to PR24 methodology consultation):

(a) the horizon reflects reasonable uncertainty about the horizon relevant to water investors;

(b) the default risk premium in gilts rises with tenor. As the RFR should not embed such premia, the 10-year gilt rate is closer to this ideal than the 20-year;

(c) linking CAPM horizon to asset lives is not necessary considering the regulatory framework involves resets to the allowed return at 5-yearly intervals. Reasonable alignment in the regulatory approach between price

[63] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p14.
[64] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p13.
[65] Southern SoC, p435, paragraph 117.
[66] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 12.0.22.

controls means there should be a significant degree of predictability but also allows for the approach to evolve over time;

(d) assumptions used for the cost of new debt benchmark index are not relevant to the CAPM horizon used for cost of equity estimation;

(e) CAPM horizon used by Ofwat now is not different to the time horizon used by the PR19 Final Report, where the CMA used 10- and 20-year holding periods for TMR estimation; and

(f) Southern and other Disputing Companies did not challenge the use of a 10-20-year CAPM horizon during the draft and final methodology consultations.[67]

Third parties

7.98 CCW referred to the work by its advisers, MCC Economics who submitted that Ofwat's estimate of the RFR is overstated and does not align with the 10-20 year CAPM horizon, referring to Ofwat's use of 20-year RPI-linked gilts rather than 15-year RPI-linked gilts which were used in PR19.[68]

7.99 CCW submitted that Ofwat was inconsistent in using longer-tenor gilts to estimate the RFR considering Ofwat did not find evidence of existence of a convenience yield convincing. CCW did not accept Ofwat's justification of a 'possibility' of downward distortion of RPI-linked gilts as the reason to use a longer-tenor gilt rate.[69] CCW noted that had Ofwat used 15-year gilts, the RFR would have been approximately 30bps lower.[70]

Our assessment and provisional decision

7.100 We provisionally conclude that 20-year ILGs are a good proxy for an RFR. While we recognise CCW's point that Ofwat could have used a shorter tenor which would also have been consistent with the 10-20-year investment horizon, we consider 20-year ILGs strike a reasonable balance between different evidence on the appropriate investment horizon. We also note that Ofwat has been consistent in its use of the 20-year tenor throughout the PR24 process and it is not something parties have generally challenged.

7.101 The 20-year tenor is also not out of line with regulatory precedence, with Ofwat using a 15-year ILG in PR19, and the PR19 Final Report using 20-year ILG.

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[67] Ofwat (2025) Response to common issues on risk and return, paragraph 5.18.
[68] Consumer Council for Water (CCW) (2025) submission on the Water PR24 References, pp16–17.
[69] Consumer Council for Water (CCW) (2025) submission on the Water PR24 References, pp16–17.
[70] Consumer Council for Water (CCW) (2025) submission on the Water PR24 References, p17.

UK ILGs as the basis of the RFR - Averaging period

7.102 A key issue in the choice of averaging period is whether gilt yields are generally assumed to be a random walk (ie to drift unpredictably over time)[71] or whether they tend to display some mean-reversion (ie settle back to a typical level after moving up or down). Ofwat noted in its PR24 final methodology that movements in government bond yields are commonly found to have no empirical tendency to revert to a stable mean.[72]

7.103 We consider it reasonable to assume that spot yields are the best estimate of future expected yields at any given point in time. However, spot yields are volatile and can be affected by one-off events. This is why it is common practice to consider a short-term average, such as a 6-month average (CMA PR19) or a 1-month average (Ofwat PR19, PR24).

Ofwat's PR24 FD approach

7.104 Ofwat used a 1-month average throughout the PR24 process, concluding in the PR24 FD that it struck a good balance between focusing on recent data while smoothing intraday volatility.[73]

Parties' submissions

Disputing Companies

7.105 KPMG, on behalf of Southern and South East, supported Ofwat's decision to use 1-month trailing average of 20-year ILG yields considering it was 50bps above the 12-month trailing average (using January 2025 as cut-off point).[74] KPMG submitted that the 1-month average better reflected the market expectation that the spot rates on bonds will increase over AMP8.[75]

7.106 KPMG also submitted that the forward rates for 20-year ILGs (and nominal gilts) suggested that the market expected for the spot rates on these bonds to increase over the price control. KPMG submitted that 1m trailing average should be retained if the upward trend in spot rates holds.[76]

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[71] Random walk theory suggests that changes in interest rates (and asset prices) are random and unpredictable. The work of Fama and others has shown that securities prices follow a random walk where the next observable price may be higher or lower but the mean drift of the trend line will generally be followed.
[72] Ofwat (2022) PR24 final methodology Appendix 11 Allowed return, p16. Ofwat quotes findings from ECB (2005) An international analysis of earnings, stock prices and bond yields, p19, where analysis finds UK gilts to have a 'unit root' meaning the root to be non-stationary.
[73] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p19.
[74] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 4.1.9.
[75] KPMG (2025) Estimating the Cost of Capital for PR24, paragraphs 4.1.10, 4.1.12.
[76] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 4.1.12.

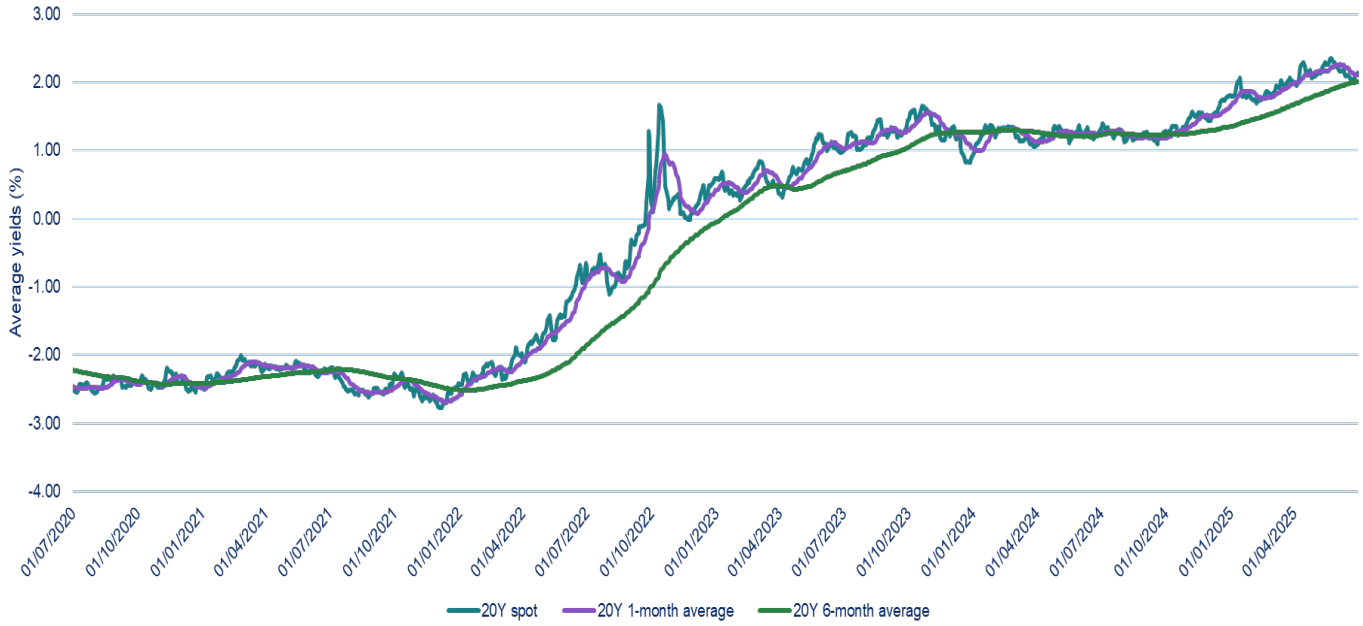
7.107 Oxera, adviser to Anglian, and Kairos, advisers to Wessex and Northumbrian, also used a 1-month trailing average to estimate the RFR (as shown in Table 7.3 above).

Our assessment and provisional decision

7.108 We looked at 20-year ILG yields using a 1-month and a 6-month averaging period to consider whether any single interval offers a better averaging period which would reduce the risk of capturing volatility in the data.

7.109 Figure 7.1 below shows 20-year ILG yields over the last 5 years using various averaging periods. The data does demonstrate, as expected, that 1-month average is more volatile than a 6-month average. However, this needs to be counter-balanced against the risk of using less relevant data.

Figure 7.1: 20-year ILG yields



Source: CMA analysis of Bank of England 20Y ILGs, using spot rates.

7.110 As of 30 June 2025 (our PD analysis cut-off date) the 1-month average of 20-year ILGs is 2.11% compared to 1.78 – 1.85% used by the Disputing Companies and 1.19% used by Ofwat in the PR24 FD. The 1-month average has increased materially since the PR24 FD (by 90bps), potentially highlighting both the benefits and risks of using short averaging windows. The benefit of using a 1-month average is that it will be more reflective of current market data but the potential risk is that it makes the WACC estimate more sensitive to the choice of the cut-off date.

7.111 Taking into account the importance of incorporating the latest market data into the RFR we provisionally conclude that a 1-month averaging period is suitable, but we

will further review the market movements between now and the final decision to consider if this averaging period is still appropriate.

RFR indexation

7.112 Consideration of the suitable averaging period also brings into question whether there is a good case for RFR indexation, with a benefit of removing one aspect of volatility in cost of equity estimation if the RFR was indexed on an annual basis.

7.113 None of the Disputing Companies argued for indexation of the RFR in their statements of case. In its response to the statements of case, Ofwat noted that gilt yields had increased materially since the cut-off date used for the PR24 FD and the updated cut-off date used by the Disputing Companies, and that if Ofwat had seen movements of this magnitude between draft and final determinations, it would have revisited its decision not to index the cost of equity.[77] However, Ofwat recognised that the implementation of such a mechanism through our redeterminations would require adequate consultation and consideration to mitigate the risk of unintended consequences.[78]

7.114 During the hearings, the Disputing Companies submitted that they were not averse to RFR indexation. However, they noted the extensive time and effort that would be required to implement such considerable change which would only apply to the Disputing Companies (and not the entire sector) alongside other issues being considered as part of our redeterminations.[79]

7.115 The Disputing Companies submitted that RFR indexation should be explored as part of a wider consultation across all companies, looking forward at PR29.[80]

7.116 Overall, we provisionally conclude that such a significant change in the methodology should be considered at an industry level, rather than on individual company basis.

Forward rate adjustment

7.117 The RFR is set for the five years of the price control. Some argue that a forward rate adjustment is required to the RFR to account for potential inaccuracy in the estimate and potential changes in interest rates over the price control period.

7.118 Only Kairos, Northumbrian and Wessex's advisers, proposed a forward rate adjustment to the RFR. We set out their submission, Ofwat's position on forward rate adjustment and our assessment and provisional decision below.

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[77] Ofwat (2025) Response to common issues on risk and return, paragraph 5.39.
[78] Ofwat (2025) Response to common issues on risk and return, paragraph 5.39.
[79] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p35, line 22–26, p36 lines 1–2.
[80] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p36, lines 3–6 and 12.

Ofwat's PR24 FD approach

7.119 In the PR24 FD, Ofwat maintained its approach in PR24 final methodology not to apply a forward rate adjustment.[81]

7.120 In its final methodology, Ofwat noted that the evidence suggesting forward rates overstate gilt yields does not support making a forward rate adjustment.[82] Ofwat updated its analysis in the PR24 DD, noting that forward rate adjustment appeared to overstate the true risk-free rate, and at a three-year horizon, a 30-day moving average outperformed forward rates.[83]

Parties' submissions

Disputing Companies

7.121 Northumbrian submitted that Ofwat should not have ignored a forward uplift to account for market-based quotes forecasting the evolution of yields on proxy instruments over PR24.[84] Kairos submitted that because the cost of equity is fixed for the price control period, the estimated RFR should reflect the return an investor can expect to achieve on a risk-less asset, at a specified point in time over the PR24 price control period, for the duration of the relevant investment horizon.[85] Kairos submitted that forward rates quoted today provide estimates of the level at which an investor can lock in the RFR.[86]

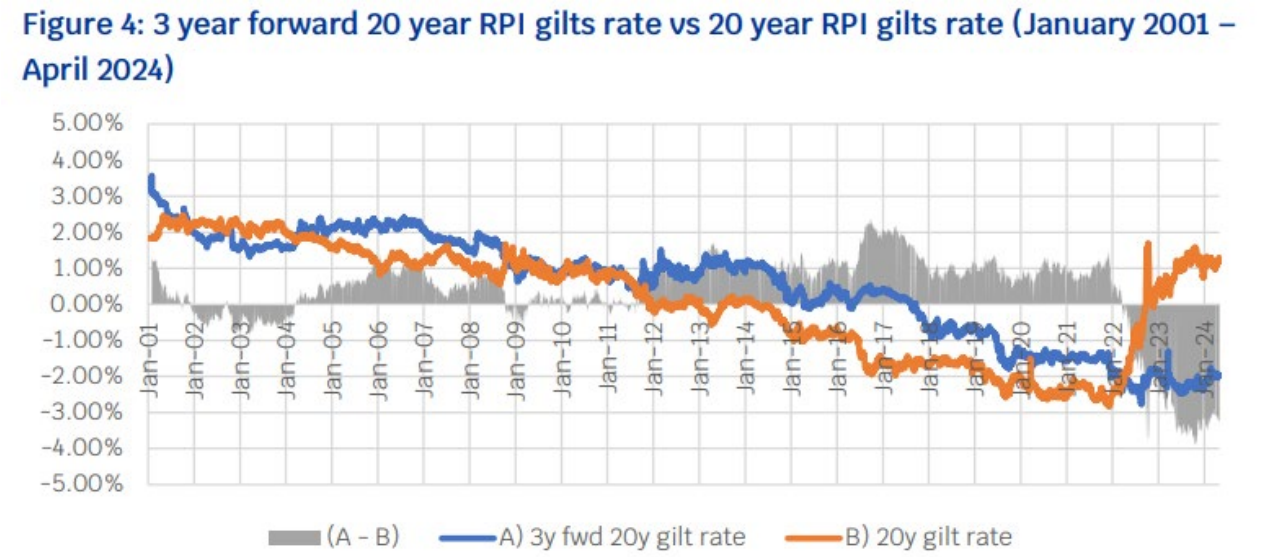
7.122 Kairos submitted that an uplift of 14bps is required to be added to the RFR to reflect the future RFR an investor is expected to achieve on a risk-less asset.

Our assessment and provisional decision

7.123 We are not persuaded by the arguments put forward to include a forward rate uplift in the RFR as overall forward rates do not appear to have good predictive power for spot rates. In the PR24 DD, Ofwat presented analysis of forward 20-year ILGs compared to 20-year ILG spot rates between 2001 and 2024. Ofwat noted that historically, forward rates appear to mostly overstate the true RFR sometimes at a significant margin of over 100bps (see Figure 7.2 below).[87] More recently, as can be seen from the graph, forward rates have been a poor predictor of the upward trend in interest rates.

[81] Ofwat (2024) PR24 final determinations Aligning risk and return Allowed return appendix, p19.
[82] Ofwat (2022) PR24 final methodology Appendix 11 – Allowed return on capital, pp7–18.
[83] Ofwat (2024) PR24 Draft determinations Aligning risk and return Allowed return appendix, p18.
[84] Northumbrian SoC, paragraph 582.
[85] Kairos (2025) Setting the Allowed Return on Equity for PR24, p26.
[86] Kairos (2025) Setting the Allowed Return on Equity for PR24, p26.
[87] Ofwat (2024) PR24 Draft determinations Aligning risk and return Allowed return appendix, Figure 4, p18.

Figure 7.2: 3 year forward 20-year RPI gilts rate vs 20-year RPI gilts rate (January 2001 – April 2024)



Source: Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, Figure 4, p18.

7.124 We consider this evidence supports the hypothesis that forward rates are not a better predictor of future RFR than spot rates.

7.125 We provisionally conclude not to apply a forward rate adjustment.

Converting RPI ILGs into CPIH-real RFR

7.126 Given that ILGs are linked to RPI, we need an estimate of the RPI-CPIH wedge to convert our the 20-year ILG yield into CPIH real terms.

Ofwat's PR24 FD approach

7.127 To estimate the RPI-CPIH 'wedge', Ofwat placed equal weight on official forecasts and 20-year RPI and CPI swap rates.

7.128 The official forecast method uses short-term inflation forecasts to 2030 to estimate the RPI-CPIH wedge, and then it is assumed that the wedge is zero, given the ONS decision to align RPI with CPIH from 2030. While in the PR24 DD Ofwat used the official forecasts produced by the OBR, in the PR24 FD Ofwat noted that the OBR's November inflation forecasts arrived too late to be considered in its decision making process.[88] Instead, Ofwat chose to use the August 2024 version of the HM Treasury's (HMT) comparison of independent forecast series to provide the data.[89]

7.129 The swap-based method directly estimates the RPI-CPI wedge using 20-year market-implied rates. Under the swap method, Ofwat assumed that CPIH can be

[88] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p20.
[89] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p20.

proxied directly by CPI.[90] Ofwat estimated the average 'wedge' from the 'official forecast' method of 0.23% and a market-implied 'wedge' of 0.43%, which it then averaged to arrive at an RPI-CPIH 'wedge' of 0.33%.[91]

Parties' submissions

Disputing Companies

7.130 All the Disputing Companies followed the same approach to estimating the RPI-CPIH wedge as Ofwat.

7.131 Kairos, on behalf of Northumbrian and Wessex, submitted that there is merit in considering both approaches of relying on official forecasts and market quotes of RPI and CPI inflation swaps.[92]

7.132 Kairos submitted that both sources had their flaws, with official forecasts not capturing the market forecasts for inflation risk premium and with inflation swap-based estimates carrying liquidity risk and transaction costs.[93]

7.133 KPMG, on behalf of Southern and South East, submitted Ofwat's approach to estimating the RPI-CPIH wedge to be reasonable in principle.[94] However, KPMG submitted that the CMA should monitor evidence on the RPI-CPIH wedge and consider whether it is appropriate to assume a CPI-CPIH wedge of zero over the period until the 2030 UKSA RPI reform.[95]

Ofwat

7.134 Ofwat's advisers, CEPA submitted that the OBR latest forecasts of CPIH support a smaller upward adjustment to RPI-linked ILGs to arrive at a suitable RFR.[96]

Our assessment and provisional decisions

7.135 We provisionally conclude to continue to use Ofwat's approach to estimating the RPI-CPIH wedge.

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[90] Ofwat noted in its PR24 final determinations Aligning risk and return Allowed return appendix that it had assumed CPI and CPIH to be interchangeable due to similarities between long-run averages of both series and lack of a persistent positive or negative CPI-CPIH 'wedge'. Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p14, footnote 20.
[91] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p21.
[92] Kairos (2025) Setting the Allowed Return on Equity for PR24, p28, paragraph 84.
[93] Kairos (2025) Setting the Allowed Return on Equity for PR24, p28, paragraph 84.
[94] KPMG (2025) Estimating the Cost of Capital for PR24, p48, paragraph 4.5.9.
[95] KPMG (2025) Estimating the Cost of Capital for PR24, p48, paragraph 4.5.10.
[96] Ofwat (2025) Response to common issues on risk and return. CEPA (2025) Supplementary evidence on the cost of equity: response to statements of case, p2.

7.136 Ofwat's approach to estimating the RPI-CPIH 'wedge' appears reasonable. The Disputing Companies did not raise concerns with the approach of placing equal weight on official and market-implied forecasts for inflation.

Official forecasts approach

7.137 We use the OBR's latest available official forecast published in March 2025. To arrive at the RPI-CPIH wedge we took the annual inflation forecast up to 2030 and have assumed a zero wedge going forward. We then calculated the average wedge for the full 20-year of 0.18% (see Figure 7.3 below).

7.138 This does not appear to be unreasonable considering the assumption that RPI and CPIH will converge post-2030.

Figure 7.3: RPI-CPIH wedge calculation

	RPI (OBR)	CPIH (OBR)	RPI-CPIH wedge
2025-26	4.16%	3.74%	0.41%
2026-27	3.08%	2.27%	0.81%
2027-28	3.00%	2.10%	0.89%
2028-29	2.83%	2.05%	0.78%
2029-30	2.83%	2.09%	0.74%
Average	3.18%	2.45%	0.73%
Long-term assumption	2.40%	2.40%	0.00%
20Y average			0.18%

Source: CMA analysis based on OBR March 2025 economic and fiscal outlook.

Swap-based approach

7.139 When using 20-year RPI-linked swap yield of 3.05% and CPI-linked swap yield of 2.45%, the wedge is estimated at 0.59%. This is considerably higher than the official forecast (estimated to be 0.18%, see Figure 7.3 above).

7.140 We have provisionally concluded not to make an adjustment for the CPI-CPIH wedge to the market-implied forecast using swaps. While the OBR's October 2024 forecast included a long-term estimate of CPI-CPIH wedge of 0.4%,[97] and we use this in our estimation of the cost of debt (as explained under 'Long-term CPIH inflation assumption' above), we are cautious about applying this wedge directly to the swaps-based estimate of CPI. This is because the swap-based CPI of 2.45% is much higher than the official Bank of England target of 2%.

[97] Office for Budget Responsibility (OBR) Economic and fiscal outlook – October 2024.

7.141 We provisionally conclude on an RPI-CPIH wedge of 0.38% based on a simple average of the two approaches above (ie an average of 0.18% and 0.59%).

Convenience Yield

Introduction

7.142 The debate about convenience yield previously arose during the CMA's PR19 Final Report, with some parties suggesting that observed ILG yields are below the true RFR due to their special features.

7.143 A convenience yield (**CY**) is often described as a discount on the yield investors are prepared to accept because of several characteristics of government bonds, such as their money-like nature, superior liquidity, superior collateral value, and excess demand from institutional investors driven by regulatory requirements.

7.144 In the PR19 Final Report, the CMA chose to apply the Brennan CAPM framework to estimate the RFR (as discussed in more detail below) and placed weight both on ILGs and AAA bond yields to derive the RFR range. The CMA then chose a point estimate within that range, which was above the ILG rate. While this was mainly in recognition that the Brennan CAPM allowed for different borrowing and lending rates, it also implicitly allowed for the possibility of ILGs containing a positive CY.[98] However, the CMA did not make an explicit adjustment to gilt yields for a CY, as this risked a double correction.[99] We further note that the context for the PR19 Final Report was unusual, with yields on ILGs being strongly negative in real terms at the time of the inquiry.

Ofwat's PR24 FD approach

7.145 In its PR24 FD, Ofwat concluded not to apply a CY adjustment for the 20-year ILGs due to insufficiently strong evidence to accurately estimate an adjustment for the 10-20 year CAPM horizon.[100]

7.146 Ofwat noted in its PR24 FD that the paper by Diamond and Van Tassel (2021) is still the only academic estimate of the CY available for the UK and it only considers CY at short tenors of up to 2 years.[101]

7.147 Ofwat also noted that the premise of a CY in long-dated gilts was undermined by the AAA-rated index of corporate bonds having a lower average yield than the 20-year nominal gilts rate with comparable maturity. Ofwat stated that given numerous representations arguing that gilts were affected by a CY, Ofwat would

[98] CMA (2021) PR19 Final Report, pp795–796, paragraph 9.264.
[99] CMA (2021) PR19 Final Report, p789, paragraph 9.235.
[100] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p18.
[101] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p18.

have expected this to be reflected by a positive spread-to-gilt in the AAA-rated bond index.[102]

Parties' submissions

7.148 Before summarising parties' submissions, we note that Ofwat has reviewed a range of empirical evidence on the presence and potential size of CY during the PR24 process. Disputing Companies have subsequently cited a lot of this evidence in their submissions. We do not systematically go over each individual academic paper presented to us on the topic but we highlight the key themes below before providing our assessment.

7.149 We adopt this approach because overall there is no dispute that there is empirical evidence that historically positive CYs have been a feature of government bond yields in many developed economies.[103] However, most of the evidence has tended to be US-focused and tended to be focused on short-term nominal government bonds.

7.150 We observe that there is agreement between Ofwat and the Disputing Companies that the approach taken in Diamond and Van Tassel (2021) last updated in 2025, is the most robust.[104] This is also the only paper which provides UK evidence, for the period from 2005 to 2020.

7.151 Diamond and Van Tassel (2021) infer RFRs from index options prices to estimate safe asset CYs in ten G11 currencies. The paper's objective was to compare the yield of a safe or money-like asset to a RFR implied by the prices of assets that are not themselves safe or money-like.

7.152 Diamond and Van Tassel (2025) latest estimates of CY are set out in Table 7.4 below.

Table 7.4: Summary convenience yields for government bonds between Jan'05 to Jul'20

Country	3-month	6-month	1 year	2 years	3 years
USA	0.34%	0.36%	0.36%	0.35%	
UK	0.22%	0.30%	0.35%	0.29%	
Euro	0.29%	0.29%	0.28%	0.24%	0.21%
Switzerland			0.00%	0.14%	0.19%
Canada	0.47%	0.37%	0.36%	0.29%	
Australia	0.61%	0.63%	0.60%		

Source: Diamond W and Van Tassel P (2025) p16.

[102] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p16.
[103] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p27, lines 15–18 (CMA); p27, lines 19–21 (Disputing Companies); p29, lines 23–26 (Ofwat).
[104] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p29 lines 23–26 (Ofwat); p33, lines 2–4 (Disputing Companies). Diamond W and Van Tassel P (2025) Risk-free rates and convenience yields around the world.

Disputing Companies

7.153 Disputing Companies overall argued that CY evidence for short-dated nominal gilts is sufficient to assume the presence of a positive CY at longer maturities for ILGs.

7.154 On behalf of Anglian, Oxera submitted that the range of implied CY based on different estimation periods and methodologies for US treasuries shows a wide range of estimates but which is consistently positive.[105] Oxera submitted that research by the Bank of England found UK government bonds to exhibit similar properties to those of US treasuries, suggesting that CY also exists in the UK.[106]

7.155 Oxera estimated a CY of 24bps, by comparing the yields on the iBoxx AAA non-gilt indices (10–15 years and 10+) to duration-matched nominal gilts using a five-year average to 31 January 2025.

7.156 On behalf of Northumbrian and Wessex, Kairos submitted that despite the reasonable uncertainty across estimates of the CY, the estimates presented in the Diamond and Van Tassel (2025) paper are materially greater than zero, and are consistently above zero which warrants an adjustment.[107]

7.157 Kairos also submitted that there was no evidence to suggest that investors' willingness to sacrifice a return on short-term nominal gilts does not apply to a sufficient degree to gilts of regulatory investment horizon (ie 10 – 20 years).[108]

7.158 Kairos further submitted that estimates of the CY provided by nominal gilts may overestimate or underestimate the CY that applies to ILGs.[109] Kairos submitted that in January 2025, the total principal amount of ILGs outstanding was £625bn representing approximately 24% of outstanding stock of both all gilts suggesting that the liquidity of ILGs may not be sufficiently different to that of nominal gilts which would require an adjustment to an estimate of the CY for ILGs on the basis of liquidity alone.[110]

7.159 Kairos estimated a CY of 17bps, by taking a weighted average spread for the iBoxx AAA non-gilt indices (10-15 years and 10+) against tenor-matched gilt benchmark equivalent bonds, taking a 1-month average in the period preceding 17 January 2025. These spreads were 13bps and 21bps for the 10-15 index and for the 10+ index respectively, with an average of 17bps.[111]

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[105] Oxera (2025) PR24 Cost of equity estimation, p9.
[106] Oxera (2025) PR24 Cost of equity estimation, p9.
[107] Kairos (2025) Setting the Allowed Return on Equity for PR24, p23, paragraph 61.
[108] Kairos (2025) Setting the Allowed Return on Equity for PR24, p28. paragraph 82.
[109] Kairos (2025) Setting the Allowed Return on Equity for PR24, p23, paragraph 63.
[110] Kairos (2025) Setting the Allowed Return on Equity for PR24, p23, paragraph 63.
[111] Kairos (2025) Setting the Allowed Return on Equity for PR24, pp20–21, paragraph 52.

7.160 KPMG, representing South East and Southern, submitted that it is reasonable to assume that CY holds for longer-dated safe assets because the term structure of CY in academic literature is mostly upward sloping; and the collateral value component of CY for longer-dated safe assets is at least the same as that for shorter-dated safe assets.[112]

7.161 KPMG submitted that vast majority of the CY factors apply similarly to nominal gilts and ILGs but nominal gilts may be more liquid than ILGs. Due to the similarities in characteristics of nominal gilts and ILGs, KPGM suggested that nominal gilts are a good benchmark for CY for ILGs.[113]

7.162 KPMG submitted that based on the calculations performed in its KPMG September 2023 Cost Equity report the range for 2-year CY for ILGs is between 2 and 29bps. KPMG took the midpoint of this range of 15.5bps as its point estimate of CY, to be added to the 20-year ILG yield.[114]

Ofwat

General issues

7.163 In Ofwat's response to the Disputing Companies' statements of case, Ofwat submitted that conflicting evidence exists to suggest that CYs are lower than when this issue was considered at PR19, are lower at longer durations and may even be negative.[115]

7.164 Ofwat reiterated some of its PR24 FD reasoning that the Diamond and Van Tassel (2025) estimates of CY for short-dated gilts was not sufficient evidence to assume the presence of a positive CY for longer-dated ILGs.[116] [117]

7.165 Ofwat also submitted that in Diamond and Van Tassel (2025) itself there was a declining term structure of CY for most countries.[118]

7.166 Ofwat also submitted that longer-dated securities are more sensitive to changes in interest rates, making them less valuable as collateral, citing evidence from the Bank of England on typical haircuts for lending collateral for gilts.[119]

[112] KPMG (2025) Estimating the Cost of Capital for PR24, p33, paragraph 4.2.23.
[113] KPMG (2025) Estimating the Cost of Capital for PR24, p32, paragraph 4.2.20.
[114] KPMG (2025) Estimating the Cost of Capital for PR24, p44, paragraphs 4.4.31–4.4.32.
[115] Ofwat (2025) Response to common issues on risk and return, p17, paragraph 1.47.
[116] Ofwat (2025) Response to common issues on risk and return, p89, paragraph 5.21.
[117] Ofwat (2025) Response to common issues on risk and return, p91, paragraph 5.27; Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p19, paragraph 3.13.
[118] Ofwat (2025) Response to common issues on risk and return, p92, paragraph 5.23.
[119] Ofwat (2025) Response to common issues on risk and return, pp92–93, paragraph 5.26.
[119] Ofwat (2025) Response to common issues on risk and return, p90, paragraph 5.26.

Impact of fiscal and monetary policy

7.167 Ofwat further cited a paper by Jiang et al (2024) which showed CY in US treasuries declining significantly in recent years, with larger declines for longer-dated instruments, with CY on long-dated bonds negative towards the end of the period.[120] Mason, Robertson and Wright , advisers to Ofwat, also noted that Jiang et al findings point to considerable variability in CYs over time with reversal in signs not unusual.[121]

7.168 Ofwat submitted that the greater supply of safe assets from quantitative tapering and tighter monetary policy has reduced the CY, quoting a speech by Isabel Schnable, a member of the Executive Board of the European Central Bank, who noted that 'persistently large fiscal deficits and central bank balance sheet normalisation are gradually reducing the safety and liquidity premia that investors have long been willing to pay to hold scarce government bonds'.[122]

7.169 Mason, Robertson and Wright presented more recent evidence that the CYs of government bonds may now be negative on longer maturities.[123] Mason, Robertson and Wright stated that the evidence suggests this is due to the change in the fiscal policy, with governments switching from quantitative easing to quantitative tightening, large fiscal deficits and central bank balance sheet normalisation.[124]

7.170 Both Ofwat and Mason, Robertson and Wright also cited a paper by Du et al (2024) which found that CYs in the US and the UK are negative, with the sign reversal in the CY changing in the last two years from positive to negative, to argue that a CY may now be negative or close to zero.[125]

Disputing Companies' CY estimates

7.171 In relation to the quantitative estimates of CY derived by the Disputing Companies' advisers:

(a) Ofwat submitted that it had concerns that estimates of a CY based on spreads between gilt yields and yields on other instruments might be reflecting the liquidity premium for those instruments, rather than a CY;[126]

[120] Jiang et al (2024) Bond convenience yields in the Eurozone currency union, pp22–23.
[121] Jiang et al (2024) Bond convenience yields in the Eurozone currency union, p18, p20 and p25, Figure 2 (Panel A).
[122] Ofwat (2025) Response to common issues on risk and return, p89, paragraph 5.23.
[123] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p21, paragraph 3.18.
[124] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p21, paragraph 3.18.
[125] Du et al (2024) Quantitative tightening around the glove: what have we learned?.
[126] Ofwat (2025) Response to common issues on risk and return, pp84–85, paragraph 5.5.

(b) Ofwat submitted that a proper calibration of CY is an important issue because making adjustments that are poorly-evidence can exacerbate rather than correct any distortions caused by any embedded CY;[127] and

(c) Mason, Robertson and Wright submitted that Oxera's approach to estimating the CY by using Macaulay duration[128] of indices works in principle. However, they argue that Oxera's use of Macaulay duration does not replace the evidence gap as to the CYs at 10 and 20 year maturities.[129]

Disputing Companies' reply

7.172 Disputing Companies submitted that in Diamond and Van Tassel (2025) the structure of the CY in the UK is mostly upward-sloping and noted that non-UK data is less relevant for CY driven by institutional factors such as collateral regimes and liability driven investor demand.[130]

7.173 Disputing Companies submitted that Mason, Robertson and Wright's analysis of Jiang et al (2024) findings of CY structure for the Eurozone countries to be downward-sloping to be misleading.[131] The Disputing Companies noted that the paper used Germany CY as the benchmark. Germany's CY is the highest and therefore makes all other countries' CY negative in comparison. Disputing Companies noted that assuming that CY for longer-dated bonds is negative towards the end of the period is therefore incorrect.[132]

7.174 Disputing Companies submitted that on the term structure of CY, the Jiang et al (2024) paper found that Finland and the Netherlands are the only countries not to have a downward-sloping CY structure, and that this is due to liability-driven investor demand for long-dated government bonds, which is well-established in the US and is much greater in the UK than in the US.[133]

7.175 Disputing Companies noted that Diamond and Van Tassel (2025) observe that CY has a positive relationship with interest rates and interest rates have risen significantly.[134] Even if quantitative tightening does have a negative effect on CY for gilts, Disputing Companies submitted that because of the increase in interest rates, the impact on CY is positive. They therefore note that it cannot be assumed that the current CY has declined.[135]

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[127] Ofwat (2025) Response to common issues on risk and return, p88, paragraph 5.20.
[128] Macaulay duration of a bond is the weighted average time until a bond's cash flows are received. By definition, they are typically shorter than the maturity of the bond.
[129] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p24, paragraph 3.22.
[130] Disputing Companies (2025) Joint reply to Ofwat's Response, p20, paragraph 86.
[131] Disputing Companies (2025) Joint reply to Ofwat's Response, pp20–21, paragraph 87.
[132] Disputing Companies (2025) Joint reply to Ofwat's Response, pp20–21, paragraph 87.
[133] Disputing Companies (2025) Joint reply to Ofwat's Response, pp20–21, paragraph 87.
[134] Disputing Companies (2025) Joint reply to Ofwat's Response, pp20–21, paragraph 87.
[135] Disputing Companies (2025) Joint reply to Ofwat's Response, pp20–21, paragraph 87.

Our assessment and provisional decisions

7.176 We acknowledge the extensive empirical evidence on existence of a CY for nominal bonds with short tenors, in different developed economies. However, it is difficult to estimate with any precision what the likely CY is for UK longer-dated index-linked assets. Given that the RFR is arguably the most observable CAPM parameter, we need to consider carefully whether subjective adjustments to observable market data genuinely improve on our estimate.

7.177 The literature exploring the relationship between maturity and CYs is quite limited and provides conflicting evidence. While we do not dispute that intuitively some of the reasons which explain the presence of a CY for short-dated nominal gilts may similarly apply to long-dated ILGs (eg superior liquidity, demand from institutional investors to satisfy regulatory requirements) there are also some features which might be less relevant for long-dated ILGs (eg superior collateral value).

7.178 Similarly, just because nominal gilts and ILGs share similar characteristics, we cannot be confident that estimates of CY for nominal gilts can be directly applied to ILGs.

7.179 Further, Diamond and Van Tassel's (2025) estimates of CY are for the period to 2020. Interest rates have risen considerably since then, the quantitative easing is over, and governments are running fiscal deficits. While we recognise that the empirical evidence on most recent trends in CY is also limited, the presence of a materially positive CY in government bonds in current market conditions seems less likely to us than five years ago.

7.180 The practical solution which is being put forward – to calculate the spread between AAA corporate bonds and gilts – is not obviously the right answer. This is not the approach used in the literature, and as we can see from the submissions, there is not a single agreed methodology for calculating the spread. The AAA bonds considered by the CMA in the PR19 Final Report currently trade below the 20-year nominal gilt (see Figure 7.4 below). While this might be in part because these AAA indices have lower durations than the 20-year gilts, this illustrates how such an approach cannot be consistently applied from one price control to the next. AAA corporate bond yields would also include a liquidity and a default premium, which would be expected to account for some of the spread to gilts. We discuss the potential limitations of using AAA bonds further below.

7.181 We provisionally decide not to adjust for a CY. Any adjustment would be quite subjective in our view, without necessarily improving the accuracy of our RFR estimate.

7.182 The choice of averaging period and tenor potentially have a bigger impact on the RFR estimate than the quite subjective decision of whether to adjust for a CY. We

therefore do not consider that not including an adjustment for CY means our RFR estimate is downwardly-biased.

Brennan CAPM

7.183 The Sharpe-Lintner CAPM assumes that investors can borrow and save at the same RFR.

7.184 The Brennan (1971) capital asset pricing framework (**Brennan CAPM**) focuses on the inequality of interest rates faced by borrowers and lenders.[136] Brennan CAPM argues that the divergence of borrowing and lending rates should be incorporated into the market equilibrium model. Brennan CAPM argues that the appropriate RFR for the CAPM lies between the two rates (borrowing and lending).

7.185 In the PR19 Final Report, when estimating the RFR, the CMA took an average between the ILG yield and AAA non-gilt indices yields to estimate the RFR, assuming the ILGs are a reasonable proxy for the RFR faced by lenders, and that AAA corporate bonds are a reasonable proxy for the RFR faced by borrowers.[137]

Ofwat's PR24 FD approach

7.186 Ofwat noted in its PR24 FD that the question of which framework to use has divided regulators. Ofwat concluded that there is benefit in operating a single CAPM framework and a single RFR in terms of simplicity and coherence which has strong backing in previous regulatory decisions and in corporate textbooks.[138]

7.187 In its PR24 FD Ofwat concluded not to use nominal AAA corporate bonds as a proxy for the following reasons.

(a) Ofwat compared its RFR using ILGs to an average of AAA corporate bond yields and ILGs (effectively replicating the PR19 Final Report approach) and found negligible difference between the two.

(b) Ofwat reviewed KPMG's alternative estimation of the borrowing rate based on spreads for a selection of RPI-linked AAA-rated bonds and found that the weighted-average years to maturity of those bonds to be around eight years and did not match to the maturity of 20-year ILG. Ofwat also reviewed the bid-ask spreads of KPMG's bond sample and found them to be potentially illiquid (noting high bid-ask spreads).

[136] Brennan M J Capital market equilibrium with divergent borrowing and lending rates (1971).
[137] CMA (2021) PR19 Final Report, pp795–796, paragraph 9.264.
[138] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p12.

(c) Ofwat noted its reservation in principle of relying on Brennan CAPM which could bring added complications without a clear solution, with no other jurisdictions using Brennan framework to set the cost of equity.[139]

Parties' submissions

Disputing Companies

7.188 KPMG submitted that since PR19, other UK regulators have broadly followed the PR19 Final Report approach to setting the RFR, citing recent CAA and UREGNI decisions.[140]

7.189 KPMG submitted that the CMA's application of Brennan CAPM is relatively simple and not a significant departure from the Sharpe-Lintner CAPM. KPMG submitted that its application balances the desirability for an accurate estimate of the RFR that reflects the real world with the need to avoid undue complexity.[141]

7.190 KPMG calculated the spread on three AAA RPI-linked bonds and suitably matched ILG, which it found to be 67bps. KPMG used this as its estimate of the adjustment needed to ILG yields to estimate the appropriate borrowing rate.[142]

7.191 Kairos submitted that in practice there may be a difference between the riskless rates at which investors can lend or borrow.[143] They argue that the existence of a material spread between AAA-rated corporate bonds and their government-issued equivalents indicated that there was likely to be a difference between riskless lending and borrowing rates in practice.[144]

Ofwat

7.192 In its response to the statements of case, Ofwat submitted that Kairos and KPMG's approaches implied ranges for the RFR of 2.3% - 2.6%[145] and 2.3% - 2.9% using January 2025 data. Ofwat found these ranges to be overstated because they departed from the PR19 Final Report approach of taking the midpoint of RFR of borrowers and RFR of lenders at the relevant CAPM horizon.[146]

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[139] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p11.
[140] KPMG (2025) Estimating the Cost of Capital for PR24, p36, paragraph 4.3.24.
[141] KPMG (2025) Estimating the Cost of Capital for PR24, p37, paragraph 4.3.32.
[142] KPMG (2025) Estimating the Cost of Capital for PR24, pp42–43, paragraph 4.4.18.
[143] Kairos (2025) Setting the Allowed Return on Equity for PR24, p19, paragraph 49.
[144] Kairos (2025) Setting the Allowed Return on Equity for PR24, p19, paragraph 50.
[145] Kairos' report notes its conclusion that a range of 2.3% to 2.6% is more appropriate than the range based on CMA PR19 approach (of 2.1% to 3.1%) because Kairos assumes that the modelled AAA-rated corporate bond yields are upward biased and the range of 2.3% to 2.6% is more in line with the Brennan CAPM. Northumbrian SoC Kairos (2025) Setting the Allowed Return on Equity for PR24, pp29–30, paragraph 88.
[146] Ofwat (2025) Response to common issues on risk and return, p93, paragraph 5.33.

7.193 Ofwat submitted that in Kairos' and KPMG's analysis the AAA-ILG spreads were based on tenor- or duration-matching which were then applied to the 20-year ILG yield to derive the RFR of borrowing.[147] Ofwat submitted this was inappropriate because AAA-ILG spread is calculated for gilts with tenor much lower than the assumed 20 years.[148] Ofwat also submitted that this practice is unnecessary because AAA-rated indices exist at 10 and 20 year horizons to directly estimate these rates.[149]

7.194 Mason, Robertson and Wright stated that they remained sceptical about the application of Brennan because the estimation of AAA-rated corporate bond yields at appropriate maturity was not straight-forward, with the Disputing Companies not being able to agree on a single approach. Unlike the 20-year ILG, Mason, Robertson and Wright stated that there was no single reference figure the AAA-rated corporate bond yield.[150] Mason, Robertson and Wright continues to hold its view from PR19 of the importance of establishing the identity of the marginal investor.[151]

7.195 Mason, Robertson and Wright also stated that there was another issue which needed to be considered, if the Brennan framework were to be applied. MRW submitted that both borrowers and lenders face spreads (with lenders facing the buy price, and borrowers facing the ask price) and noted that the spread on the risk-free lending rate (taking this to be the ILG yield) is relatively small (around 0.04% of the ask price) comparing to spreads on AAA-rated corporate bonds which are higher: 0.5–0.6% of the ask price.[152] Mason, Robertson and Wright argued that if spreads were taken into account, this would have the effect of reducing the gap between the borrowing and lending rates, and of moving the mid-point of the range closer to the lending rate.[153] Mason, Robertson and Wright continued to advocate for the use of a single RFR.[154]

Our assessment and provisional decision

7.196 Sharpe-Lintner CAPM and Brennan CAPM are both theoretical models relying on assumptions. We acknowledge that the Brennan CAPM is a well-accepted and recognised framework. However, the Sharpe-Lintner CAPM is widely used by

[147] Ofwat (2025) Response to common issues on risk and return, p93, paragraph 5.33.
[148] Ofwat (2025) Response to common issues on risk and return, p93, paragraph 5.33.
[149] Ofwat (2025) Response to common issues on risk and return, p93, paragraph 5.33.
[150] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p24, paragraph 3.23.
[151] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p24, paragraph 3.23.
[152] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, pp24–25.
[153] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, pp24–25.
[154] Ofwat (2025) Response to common issues on risk and return, Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p25, paragraph 3.27.

regulators and practitioners and is simpler to the extent that it assumes one RFR (rather than two).

7.197 In principle, both approaches to estimate the CAPM are acceptable in our view, and simplicity is not the only (or even the main) criterion which should drive methodology choices.

7.198 However, we observe that if we were to directly replicate the approach adopted by the CMA in the PR19 Final Report, the RFR would not be too dissimilar to the estimate we arrived using our chosen approach. Applying the PR19 Final Report now would estimate a borrowing rate of 2.58% (the average of the two iBoxx AAA nominal indices deflated by 2.4%) compared to a lending rate of 2.49% (based on the 20-year ILG). A simple average of the two rates would produce an RFR of 2.54%, only 5bps higher than an estimate based just on ILGs.

7.199 As noted earlier, this might be because the AAA corporate bonds have a duration of less than 20 years. Duration is the weighted average time to a bond's cash flows which will typically be lower than a bond's time to maturity, when a bond pays positive coupons. We use zero-coupon government bonds when considering evidence on ILGs or nominal gilts. However, the AAA corporate bonds are typically coupon-paying.

7.200 The average remaining time to maturity of the corporate bonds in the iBoxx GBP non-gilts 10+ and the iBoxx GBP non-gilts 10-15 is around 29 years and 12 years respectively,[155] but the average portfolio duration is around 12 and 9 years for the two indices respectively. This clearly introduces a margin for error into any application of Brennan framework, if the borrowing rates are based on AAA corporate bonds. The yields on these indices cannot be directly compared to a 20-year gilt yield, and we cannot assume that the alternative tenor- or duration-matched AAA-gilt spreads, as calculated by the parties, do not change with tenor/duration.

7.201 A further source of potential error is that the AAA yields include other premia, namely liquidity and default risk, and an inflation risk premium, which means that they are likely to be above the true RFR.

7.202 Finally, the AAA bond indices have relatively limited coverage. The iBoxx GBP non-gilts 10+ index consists of 12 bonds with two bonds representing more than a third of the index (with one bond representing around 20% of the index and another around 14%). The small pool of bonds is mostly issued by international issuers, including the European Investment Bank. The composition of the iBoxx

[155] Ofwat (2025) Response to common issues on risk and return, p93, Table 5.3.

GBP non-gilts 10–15 index raises similar questions. It contains five bonds with two of the largest bonds representing over 60% of the index.

7.203 All of these factors taken together illustrate the uncertainties around calibrating the appropriate borrowing rate in the Brennan framework. Other issues have also been raised, such as the identity of the marginal investor, and the need to account for spreads. Both are valid points in principle, but, leaving theory aside, it is worth considering the context in which the CMA previously chose to apply the Brennan framework, ie at PR19. In that decision, the CMA 'looked for a helpful marker of the likely ceiling to any potential [RFR] estimate'.[156] The CMA did so using the intuition of the Brennan CAPM, but it did so in the context of negative and falling real interest rates, and ongoing debate around potential downward distortions to ILGs.

7.204 Interest rates are now positive, inflation is continuing to run above target in the UK, and the government's fiscal deficit is increasing. The arguments around the prevailing ILG rates being below a true RFR are likely to be less strong. With RPI fully aligning to CPIH from 2030, there is also an added benefit of regulatory decisions aligning around the use of ILGs, as in a few years' time, there will be a relatively 'clean' CPIH-based market proxy for the RFR.

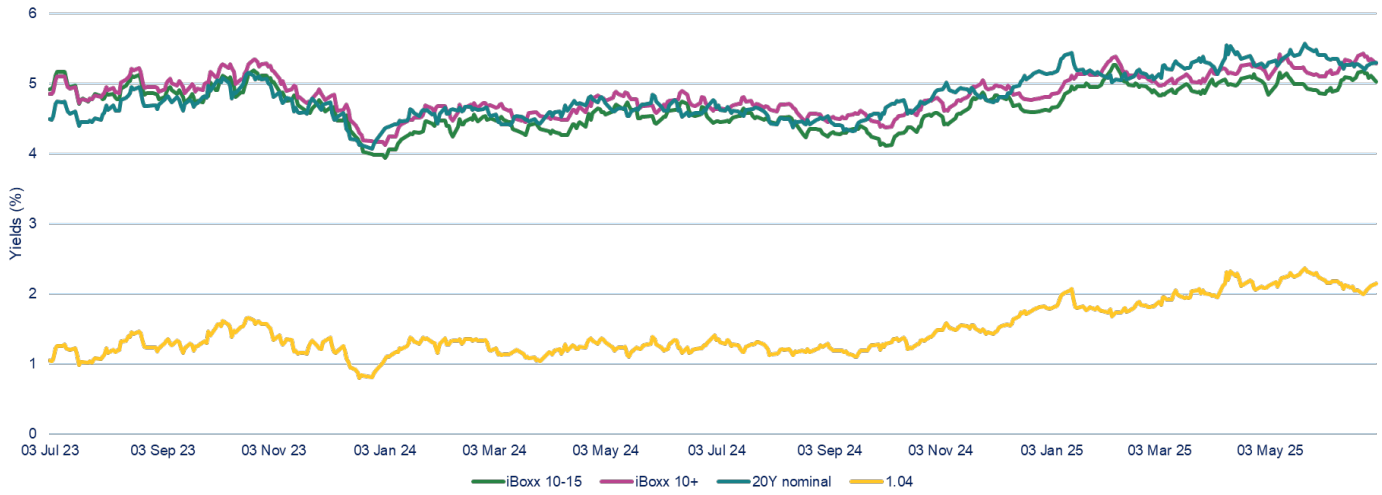
7.205 We further note that in the next section on total market return, we think it is important to consider the implied level of the ERP. Available ERP evidence typically considers the ERP relative to government bonds, which is another reason to favour a CAPM with one RFR based on government bonds.

7.206 We therefore provisionally conclude that using a single RFR, based on the ILGs, is appropriate.

7.207 As can be seen from Figure 7.4 below, real 20-year ILGs are trading at around 2.1% with nominal 20-year gilt trading around 5.3% and the iBoxx indices trading around the 5.0% mark. Once we account for the expected RPI-CPIH wedge of around 0.4% and long-term CPIH inflation of 2.4%, we consider that ILGs do not look out of line with these other benchmarks, once we allow for an inflation risk premium, and other premia driving some of the difference.

[156] CMA (2021) PR19 Final Report, p772, paragraph 9.160.

Figure 7.4: Spot yields on AAA corporate bond indices, 20Y nominal gilt and 20Y ILG between 3 Jul'23 to 30 Jun'25



Source: CMA analysis (Refinitiv and Bank of England data).

CMA provisional RFR estimate

7.208 We provisionally estimate an RFR of 2.49%. We use a 1-month average of the 20-year ILG yield adjusted for the RPI-CPIH wedge. We consider that using a single proxy, based on observable market data, is preferable in the current context. We estimate the RPI-CPIH 'wedge' by placing equal weight on the OBR's latest available inflation forecasts and on evidence from inflation swaps.

Table 7.5: CMA provisional decision on estimated RFR

Building blocks	CMA provisional view of RFR
20Y 1-month average ILG	2.11%
RPI-CPIH 'wedge'	0.38%
RFR (CPIH, real)	2.49%

Source: CMA analysis

TMR (ie total market return)

Summary

7.209 We set a provisional TMR range of 6.70% to 7.30%. The lower end of our range is based on the historical ex-ante TMR estimate of 6.70%. To inform the top end of our range, we consider ERP evidence in addition to TMR evidence. We estimate a historical ex-post ERP of 4.80%. We add this to our RFR estimate of 2.49% to give a TMR estimate of 7.30%.[157]

[157] We round our TMR range to one decimal point.

Introduction

7.210 The TMR is the total return that investors require for investing in a diversified basket of equities. It is the sum of the RFR and the ERP, which is the part of the TMR that compensates investors for the additional risk associated with investing in equities, rather than in risk-free assets.

7.211 To estimate the TMR it can either be assumed that the TMR is broadly stable,[158] (ie that the total required return from the market is broadly stable), or that the ERP is broadly stable (ie the level at which the market will outperform the RFR is broadly stable). UK regulators, including the CMA in the PR19 Final Report, have typically taken a stable TMR approach and then estimated the ERP as the difference between the TMR and RFR.[159]

7.212 There is no universally accepted method for deriving the TMR, because it concerns investors' ex-ante expectations of returns, which are largely unobservable. The substantial academic literature on the subject can be categorised into three types:

(a) studies that assume that historical realised returns are equal to investors' expectations ('historical ex-post' approaches);

(b) studies that fit models of stock returns to historical data to separate out ex-ante expectations from ex-post good or bad fortune ('historical ex-ante approaches'); and

(c) studies that use current market prices and surveys of market participants to derive current forward-looking expectations ('forward-looking approaches').

Ofwat's PR24 FD approach

7.213 In the PR24 FD, Ofwat took a stable TMR approach, assuming that TMR is broadly constant over time and does not change with movements in the RFR. Ofwat noted that the ERP is more unstable than the TMR, and thus that long-run averaging should focus on estimating the latter rather than the former.[160]

7.214 Ofwat estimated its TMR range using historical ex-post and historical ex-ante approaches. Ofwat used the Dimson, Marsh and Staunton (**DMS**) dataset of nominal realised returns from 1900.

7.215 For its historical ex-post range, Ofwat:

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[158] A broadly stable TMR approach can also be known as the 'through the cycle' or 'fixed TMR' approach.
[159] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p6.
[160] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p27.

(a) used arithmetic overlapping averages with 10-year and 20-year holding periods. Ofwat noted that it used these longer holding periods due to evidence of negative serial correlation in historical equity returns and to align with its CAPM investment horizon of 10 to 20 years;[161]

(b) deflated historical returns using a composite CPIH and CED series;[162] and

(c) estimated a historical ex-post range of 6.87% to 6.98%.

7.216 For its historical ex-ante range, Ofwat:

(a) used the DMS decompositional and Fama French dividend growth model methodologies to estimate its historical ex-ante TMR range. These methodologies are discussed in more detail in the Historical ex-ante section below; and

(b) Ofwat estimated a historical ex-ante range of 6.68% to 6.91%.

7.217 Ofwat used the lower end of the historical ex-ante range and the upper end of the historical ex-post range to construct its overall range for its PR24 FD TMR range of 6.68% to 6.98%.

Overview of parties' submissions

Disputing Companies

7.218 Anglian submitted a TMR range of 7.0 to 7.5%, estimated by Oxera. The lower end of the range was based on the historical ex-post arithmetic average TMR with annual holding periods and the upper end of the range reflected Oxera's estimate of the TMR in periods of higher interest rates, which Anglian stated were comparable to current rates.[163]

7.219 Northumbrian[164] and Wessex[165] submitted a TMR range of 6.86 to 6.97%, estimated by Kairos using historical ex-post estimates of arithmetic 1-year averages, and overlapping averages with 10-year and 20-year holding periods from the 2024 DMS dataset.

[161] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, pp32–34.
[162] Ofwat (2022) PR24 final methodology Appendix 11 Allowed return, p29.
[163] Anglian SoC, p195, paragraph 744.
[164] Northumbrian SoC, p154, Figure 51.
[165] Wessex SoC, p89, paragraph 10.12(b), refers to analysis in the Kairos Economics report. Kairos (2025) Setting the Allowed Return on Equity for PR24, p36, paragraphs 113–115.

7.220 South East[166] and Southern[167] included an TMR estimate of 6.93%, based on the historical ex-post method, using a simple 1-year arithmetic average, as estimated by KPMG.[168]

Third parties

7.221 MCC Economics, on behalf of CCW, submitted a TMR estimate of 6% using the geometric average plus an uplift. MCC noted a TMR of 6% or 6.5% can also be achieved by putting more weight on Blume, JKM, precedents and non-overlapping estimates.[169]

Historical ex-post

7.222 The historical ex-post approach is based on the assumption that expected (real) returns remain constant over time and that historical returns provide a reliable indicator of expected returns in the future. This assessment requires considering the longest available dataset on realised returns since equity returns are very volatile year-on-year. In UK regulatory practice, there is agreement that the DMS dataset[170] of nominal realised returns from 1900 is the best data source. Since the data is available in nominal terms and on an annual basis, there are questions around:

(a) how to deflate the nominal data to CPIH real terms;

(b) what averaging methodology to use; and

(c) the assumed holding periods.

Deflating nominal returns

7.223 In the PR24 FD, Ofwat used a composite Consumption Expenditure Deflator (CED)/CPIH series to deflate historical returns.[171]

(a) Data from 1900-1949: Ofwat used the composite CPI series constructed by O'Donoghue et al. (2004) and also featured in the 'Original CPI' series of the Bank of England's Millennium Dataset. This is based on the CED developed by Feinstein (1972).

(b) Data from 1950-1988: Ofwat used the ONS' updated May 2022 modelled back-series of CPIH.

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[166] South East SoC, p82, Table 6.2.
[167] Southern SoC, p457, Table 3.
[168] KPMG (2025) Estimating the Cost of Capital for PR24, p11, paragraph 2.4.1.
[169] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p18.
[170] Data available to purchase from Dimson, Marsh and Staunton (2025) Global Investment Returns Yearbook 2025.
[171] Ofwat (2022) PR24 final methodology Appendix 11 Allowed return, p29.

(c) Data from 1988 onwards: Ofwat used the ONS CPIH All Items inflation series.

7.224 There is agreement between Ofwat and the Disputing Companies on using the composite CED/CPIH series to deflate nominal returns to CPIH real.

7.225 The choice of appropriate inflation indices has been extensively debated in previous regulatory decisions (including in the CMA PR19 Final report). Since then, a consensus has emerged amongst regulators on the use of the CED dataset for the period up to 1949, consistent with CMA PR19. For the period 1950-1988, several choices exist: the ONS' 2022 modelled series of CPIH, the Bank of England's or the ONS' modelled historical CPI, and outturn RPI.[172]

7.226 Given that we are estimating a CPIH-real WACC and that a backcast series for CPIH is now available for 1950-1988, we agree with Ofwat's methodology and use the CED/CPIH series to estimate the CPIH real historical ex-post TMR. However, we note that given the long lookback period for the nominal TMR data, inevitably all historical inflation measures will be imperfect, adding another source of uncertainty around the real TMR estimates.

Averaging methodology

7.227 In the PR24 FD, Ofwat used arithmetic overlapping averages to estimate the historical ex-post TMR.[173] Ofwat did not place weight on non-overlapping estimators or geometric averages in its historical ex-post TMR range. Ofwat noted that non-overlapping averages can be volatile, vulnerable to small sample issues and overall do not add useful information to the overlapping estimator of the same horizon.[174] Ofwat used a geometric to arithmetic conversion cross-check but did not place weight on this in its historical ex-post TMR range.[175]

7.228 The Disputing Companies and their advisers all used arithmetic averages to estimate the historical ex-post TMR range. KPMG and Oxera used 1-year holding periods which are non-overlapping. Kairos used overlapping averages.

7.229 In estimating the expected return the theoretically correct measure is the arithmetic mean. This is in line with the approaches adopted by Ofwat and the Disputing Companies. However, this does not necessarily mean that the best estimator of the arithmetic mean is an arithmetic average of annual returns when considering multi-period investment horizons.

[172] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p18.
[173] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p36.
[174] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p35.
[175] Ofwat (2022) PR24 final methodology Appendix 11 Allowed return, p36.

7.230 The DMS historical equity returns data is on an annual basis, but the CAPM investment horizon we use is 10 to 20 years. This therefore raises the question of whether the simple 1-year average of returns is the most appropriate estimate of the TMR.

7.231 The arguments primarily relate to:

(a) whether there is evidence of negative serial correlation[176] in the historical data. If there is evidence of negative serial correlation, this suggests longer holding periods should be used. This is because a 1-year holding period average would be an upwardly-biased estimator of the true arithmetic mean; and

(b) whether the TMR should reflect investor or capital budgeter perspectives. Depending on which perspective is more appropriate, alternative estimators exist which attempt to correct for potential upward or downward biases in the arithmetic average of annual returns.

Parties' submissions

Disputing Companies

7.232 Kairos, Wessex and Northumbrian's advisers, estimated the historical ex-post TMR using the 1-year arithmetic average, and overlapping arithmetic averages of 10- and 20-year returns, given the statistical and data-driven complexities with conditional TMR estimates, particularly over 10 to 20-year time horizons, and the regulatory precedent of using long-run ex-post approaches to set TMR.[177]

7.233 KPMG, Southern and South East's advisers, estimated the historical ex-post TMR using a 1-year simple arithmetic average.[178] KPMG noted that there was no statistically significant evidence of serial correlation at 5% significance level in UK real returns used for TMR estimation based on its empirical analysis.[179] KPMG also stated that the regulatory WACC serves a dual purpose: it facilitates investors in calculating the expected future value of their investments in regulated companies, and it assists regulated companies in determining present values for capital budgeting decisions. KPMG stated that to represent a neutral rate, the TMR estimate must be free of any assumptions regarding holding periods,

[176] Serial correlation (or autocorrelation) refers to the degree of correlation of variables between two (or more) different observations. Negative serial correlation would indicate that a period of high returns is likely to be followed by a period of low returns, and vice versa. In the Parties' views below we use the term serial correlation as this was included in the Parties' submissions, in this case the term is interchangeable with the term negative serial corelation.
[177] Kairos (2025) Setting the Allowed Return on Equity for PR24, paragraph 113.
[178] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 5.1.11.
[179] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 5.1.7.

investment horizons, and reinvestment patterns and therefore a 1-year holding period was appropriate.

7.234 Oxera, Anglian's advisers, concluded that using a 1-year arithmetic average remains a more robust estimation methodology.[180] Oxera also stated it found no statistically significant serial correlation in the returns.[181]

Ofwat

7.235 Ofwat submitted that it continued to consider UK historical returns to be characterised by serial correlation.[182] Ofwat none the less noted that its use of 10-year and 20-year holding periods for estimating historical ex-post TMR was not reliant on a statistically significant finding of serial correlation in the data. Ofwat submitted that it is reasonable to consider holding periods aligned with the 10–20-year horizon used in our implementation of the CAPM.[183]

Our assessment and provisional decision

7.236 We set out below the historical ex-post TMR estimates using the 1-year arithmetic average and 10-year and 20-year overlapping arithmetic averages, using the latest 2025 DMS dataset.

Table 7.6: Historical ex-post TMR estimates, 1900-2024 CPIH-real

Holding period	Arithmetic mean
1 year	6.92%
10 years	6.84%
20 years	6.95%

Source: CMA analysis of DMS 2025 data

7.237 We note that the 1-year non-overlapping, 10-year and 20-year overlapping arithmetic averages are similar, with only 11bps difference between the lowest (10-year) estimate and highest (20-year) estimate. Furthermore, submissions (from Kairos) using the 10-year and 20-year arithmetic averages take an average of the two estimates to inform the ex-post TMR resulting in only a 3bps difference between using a 1-year holding period compared to placing weight on 10- and 20-year holding periods.

7.238 It has previously been recognised by the CMA that where returns are serially correlated and investors have a holding period of more than a year, the arithmetic mean return for a single year will be an upwards biased estimator of returns.[184] This is the main reason for considering historical averages of multi-period returns,

[180] Oxera (2025) PR24 Cost of equity estimation, p37.
[181] Oxera (2025) PR24 Cost of equity estimation, p37.
[182] Ofwat (2025) Response to common issues on risk and return, paragraph 5.60.
[183] Ofwat (2025) Response to common issues on risk and return, paragraph 5.58.
[184] CMA (2021) PR19 Final report, p819, paragraph 9.329.

to ensure the TMR estimate is not biased upwards. Even if there is no statistically significant serial correlation in returns, the premise of a broadly stable TMR approach is predicated on there being some mean reversion in returns over time.

7.239 It is therefore potentially counter intuitive that the 20-year arithmetic average is higher than the 1-year arithmetic average. This was an issue raised during the Hearings where Oxera stated that the assumption that going for longer holding periods means that investors require a lower return is not borne out by the data. Oxera noted that the 10-year methodology splits up 124 years of DMS data into ten-year chunks which are then geometrically averaged over those ten years. Then the calculation overlaps all of those ten years. This results in geometric averaging which moves away from the arithmetic average. There is also uneven sampling of the data because years 1 to 9 are given less weight, as are years 116 to 124. Oxera concluded that it is not clear that chopping up all the data gives any additional information to just simply averaging the annual returns.[185]

7.240 The difference between the various estimates is not large but nonetheless raises questions about the robustness of the overlapping averages. We conclude that while in principle, it is reasonable to consider the evidence on multi-period holding averages when the assumed investment horizon is longer than one year, in the current context we are not persuaded that including the 10-year and the 20-year overlapping averages materially improves the reliability of our historical ex-post TMR estimates.

7.241 On balance, we provisionally conclude that using the simple 1-year arithmetic average is preferable due to its simplicity and transparency, and also given that there is no reason to conclude that one perspective, either that of the capital budgeter or of the portfolio investor, is 'correct'.

Historical ex-post – conclusion

7.242 Our provisional historical ex-post TMR estimate is 6.9%.

Historical ex-ante

7.243 There are two primary methodologies for estimating the historical ex-ante TMR, the DMS decompositional methodology and the Fama French dividend growth model.

7.244 The DMS decompositional methodology infers the TMR by breaking down the historical equity premium into elements that correspond to investor expectations and elements of non-repeatable good or bad luck. These elements are the mean dividend yield, the growth rate of real dividends and the expansion of the

[185] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p41, line 20 to p42, line 10.

price/dividend ratio. The first two elements are taken to inform investors' expectations, while the latter is considered to be 'non-repeatable', at least in expectation.

7.245 Fama and French use a dividend growth model to break-down historical returns into an underlying expected return, equal to the average dividend yield plus the average dividend growth rate, and an unexpected return (comprising capital gain in excess of the rate of dividend growth).

7.246 Ofwat included both of these methodologies in its TMR analysis in the PR24 FD.

7.247 None of the Disputing Companies placed weight on historical ex-ante estimates in the TMR ranges included within their statements of case. The Disputing Companies argued that we should not place weight on historical ex-ante approaches as they required subjective assumptions.[186]

7.248 However, there is general agreement between the Disputing Companies and Ofwat on the historical ex-ante methodologies and assumptions. In their Draft Determination responses Anglian,[187] South East,[188] Southern[189] and Wessex[190] included a TMR range of 6.74-6.93% based on analysis undertaken by KPMG.[191] The bottom end of the KPMG range was informed by historical ex-ante TMR estimates, 6.68–6.82%, using the Fama French dividend growth model and DMS decompositional methodology.

7.249 Northumbrian also placed weight on historical ex-ante estimates in its Draft Determination response,[192] based on analysis undertaken by Kairos.[193] Kairos also used the Fama French dividend growth model and DMS decompositional methodology to derive an historical ex-ante TMR range of 6.85–6.92%.[194] Kairos' analysis varied from KPMG's due to differing definitions of trailing dividend yield used.

7.250 The Fama French and DMS decompositional methodologies submitted by KPMG in response to the Draft Determination were adopted by Ofwat in its PR24 FD.[195]

7.251 Fama and French highlight that the average stock return is equal to the average dividend yield plus the average rate of capital gain. They then note that, assuming that the price-dividend ratio is mean-reverting over a long period of time the

[186] Anglian SoC, paragraph 801(ii). Northumbrian SoC, paragraph 584. Southern SoC, p45, paragraph 59. Wessex SoC, paragraph 10.12(b).
[187] Anglian (2024) Anglian Water PR24 Draft Determination Representations, p134.
[188] South East (2024) South East Water Draft Determination Response – Financial Issues, p24.
[189] Southern (2024) Southern Water Draft Determination Response, p208.
[190] Wessex (2024) Wessex Water Draft Determination Response – Risk and return annex, p25.
[191] KPMG (2025) Estimating the Cost of Capital for PR24, p47.
[192] Northumbrian (2024) Northumbrian Water Draft Determination Response, p36, paragraph 143.
[193] Kairos (2024) A review of Ofwat's Total Market Return at PR24, p6, Table 2.
[194] Kairos (2024) A review of Ofwat's Total Market Return at PR24, p6, Table 2.
[195] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p31.

compound rate of dividend growth can be expected to approach the compound rate of capital gain, such that the expected stock return would be equal to the average dividend yield plus the average growth rate of dividends.[196] They use this model to breakdown historical returns into an underlying expected return, equal to the average dividend yield plus the average dividend growth rate, and an unexpected return (comprising capital gain in excess of the rate of dividend growth).

7.252 The Fama French methodology uses arithmetic averages for dividend yield and growth rate. When projected forward these averages yield an equivalent of an expected geometric return. It is necessary to then apply an adjustment to account for the fact that dividend growth is less volatile than price growth.

7.253 The DMS decompositional approach is similar to the Fama French dividend growth model methodology. The DMS decompositional methodology estimates the geometric average of the dividend yield and adjusts for the geometric growth rate of real dividends and a geometric-to-arithmetic conversion.[197]

7.254 We agree with the Disputing Companies that there is some judgement involved in the estimation of the historical ex-ante approaches, due to adjustments made for past good or bad luck in historical returns. However, we consider that they still provide a useful reference point for our overall TMR range.

7.255 Given the methodologies used by the Disputing Companies earlier in the PR24 process were later adopted by Ofwat in its PR24 FD we view these methodologies as uncontroversial and implement these to estimate our historical ex-ante TMR range, updating for the 2025 DMS dataset.

7.256 Table 7.7 and Table 7.8 set out the Fama French dividend growth model and DMS decompositional methodology for estimating the historical ex-ante TMR using the 2025 DMS dataset.

Table 7.7: Fama French dividend growth model, DMS data (real, CPIH)

	Fama-French DGM approach	
Average dividend yield	4.41%	A
Average dividend growth rate	1.72%	B
Bias adjustment	0.53%	C
Ex-ante TMR (arithmetic)	6.65%	D=A+B+C

Source: CMA analysis of DMS 2025 data

Table 7.8: DMS decompositional, DMS data (real, CPIH)

	DMS decompositional approach

[196] Fama, Eugene F and French, Kenneth, R, (2001) The Equity Premium.
[197] Estimated as half the variance of the log return of the equity total return index.

Geometric mean dividend yield	4.55%	A
Growth rate of real dividends	0.64%	B
Geometric-to-arithmetic conversion	1.61%	C
Ex-ante TMR (arithmetic)	6.79%	D=A+B+C

Source: CMA analysis of DMS 2025 data

7.257 Our provisional historical ex-ante TMR range is 6.7–6.8%. These estimates are not significantly lower than the historical ex-post TMR. This is in part because specifically for the UK market, the expansion of the price/dividend ratio (the re-rating of equities) has been a relatively modest contributor to the historical ERP.[198] However, we consider it is still useful to include these estimates in our range. The TMR is highly uncertain and the literature around historical levels of returns potentially being high relative to expectations is relatively well-established.[199]

Forward-looking approaches

7.258 Ofwat did not place weight on forward-looking approaches when estimating its PR24 FD TMR range.[200] None of the Disputing Companies suggested forward-looking approaches in their Statements of Case.

7.259 Forward looking approaches to estimate TMR require subjective judgements and different input assumptions can result in a wide TMR range. The UKRN guidance recommends that the TMR should be primarily based on historical ex-post and historical ex-ante evidence.[201] We agree that forward-looking approaches are generally too subjective for use in regulatory WACC determinations, and therefore, we do not consider such approaches in deriving our TMR range.

Through the cycle approach

7.260 As set out above, UK regulators typically take a 'through the cycle' approach to estimating TMR which assumes that the TMR is more stable than the ERP. This approach is consistent with the UKRN's guidance, however, UKRN's guidance also sets out that 'it is important to recognise that depending on the macroeconomic environment, this largely "through-the-cycle" approach could either overstate or understate returns required by investors in a specific price determination'.[202]

7.261 The alternative methodology, to the 'through the cycle' approach, is to assume that the ERP is broadly stable, and that TMR moves one-to-one with changes in the RFR.

[198] Dimson, Marsh and Staunton (2025) Global Investment Returns Yearbook 2025, p92, Table 13.
[199] For example, as discussed in PR19 Final Report, p822, paragraph 9.339.
[200] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p23.
[201] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p21.
[202] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p19.

Parties' submissions

Disputing Companies

7.262 All of the Disputing Companies submitted that Ofwat's 'through the cycle' approach to TMR is not appropriate given the increases in interest rates since Ofwat's FD.

7.263 Anglian submitted that Ofwat's TMR does not correctly reflect returns for PR24. Anglian stated that the 'through the cycle' approach to TMR ignores the requirement for the sector to attract new equity in a high-interest rate environment.[203] Anglian challenged that Ofwat had assumed long-term investors will invest even when expected returns are below the cost of capital, in the expectation that 'the tide will turn'.[204]

7.264 Anglian also noted that in practice Ofwat has not used a constant TMR in previous price controls and TMR has reduced by nearly 1.5% over the last five price controls.[205]

7.265 Northumbrian noted that whilst Kairos (its advisers on the cost of capital) and Ofwat rely on the assumption that TMR is more stable than ERP, TMR at PR24 may be above the TMR at PR19, owing to the significant increase in RFR between the two periods.[206]

7.266 Wessex noted that Ofwat had given no weight to the possibility that the TMR has moved higher in response to the emergence of 'higher-for-longer' interest rates.[207]

7.267 South East submitted that it may be appropriate to drop the generally agreed long-term historical approach to TMR. South East noted that the 'higher-for-longer' interest outlook will have resulted in a step up in expected returns on all asset classes, including stock market investments.[208]

7.268 Only Oxera, Anglian's advisers submitted a TMR range which reflected a move away from the 'through the cycle' approach. Oxera submitted that the upper end of the TMR range needs to be increased towards the CPIH-real equivalent TMR assumptions made by Ofwat in PR04 (8.3%) and PR09 (7.9%), when interest rates were last similar to current levels. Oxera submitted a TMR range of 7.0-7.5% CPIH-real.[209]

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[203] Anglian SoC, paragraph 737.
[204] Anglian SoC, paragraph 739.
[205] Anglian SoC, paragraph 742.
[206] Northumbrian SoC, paragraph 584.
[207] Wessex SoC, paragraph 10.12(b).
[208] South East SoC, paragraph 6.23.
[209] Oxera (2025) PR24 Cost of equity estimation, p38, section 4.4.

Ofwat

7.269 Ofwat submitted that Oxera's approach to base its TMR range on TMR estimates from PR04 and PR09, significantly misrepresents Ofwat's historical regulatory policy and risks embedding parameter-level aiming up. Ofwat also noted that Oxera's proposed approach was a clear departure from established norms of TMR estimation in UK regulation, given the ex-post and ex-ante evidence suggested figures entirely below Oxera's range.[210]

7.270 Ofwat submitted that approaches that use a TMR based on combining a long-run estimate of the ERP with a contemporary estimate of the RFR are commonplace, particularly in Europe and in the Antipodes. Ofwat noted it used this approach up to and including PR09, and moved to a stable, or 'through the cycle' TMR approach at PR14.[211]

Third parties

7.271 MCC Economics, on behalf of CCW, stated that now was not the time to move from a fixed TMR to a fixed ERP framework. MCC noted that doing so may subject customers to windfall loses after supporting relatively high returns on equity. Such a change would also not be consistent with the principle of regulatory consistency and predictability.[212]

Our assessment and provisional decision

7.272 As set out in the Risk-free rate section above, the RFR has increased by approximately 100bps from Ofwat's decision. However, the TMR using historical ex-post and ex-ante methodologies has remained broadly unchanged. Based on Ofwat's TMR range and the updated RFR of 2.5%, the implied ERP range is 4.2–4.5% (CPIH-real), compared to the implied ERP range of 5.2–5.5% in the PR24 FD. While the levels of ERP have not been discussed extensively in recent regulatory decisions, we consider it is important to consider the implied ERP when estimating the cost of equity, even if we largely focus on estimating the TMR.

7.273 We consider that the stable TMR approach adopted by regulators post the GFC has supported relatively high allowances for the cost of equity across the different regulated sectors.[213] This is because a stable TMR approach implicitly assumes that required equity returns are not particularly sensitive to movements in interest

[210] Ofwat (2025) Response to common issues on risk and return, pp104–105, paragraph 5.71.
[211] Ofwat (2025) Response to common issues on risk and return, p105, paragraph 5.72.
[212] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, pp17–18.
[213] See Appendix 5, 2024 UKRN Cost of Capital Report.

rates, while in practice there is likely to be some positive relationship between real interest rates and real returns on equity.[214]

7.274 If investors have a relatively long-term investment horizon, a through the cycle approach to estimating the TMR should not systematically overreward or underreward investors in different interest rate cycles. However, we are concerned that a mechanistic application of the 'through the cycle' approach to estimating TMR may lead to an underestimate of the cost of equity at a time when the water sector needs to raise significant new capital to fund large investment programmes. We therefore also consider that ERP evidence can be informative for concluding on our TMR range.

7.275 We estimate the historical ex-post ERP using the DMS data set. We construct an ERP index using DMS UK nominal Government Total Return index and the DMS UK nominal equity Total Return index. We apply the same methodology as we use to estimate the historical ex-post TMR (set out above) estimating the simple 1-year arithmetic average of the ERP and using the composite CED/CPIH series to deflate nominal returns to CPIH real.

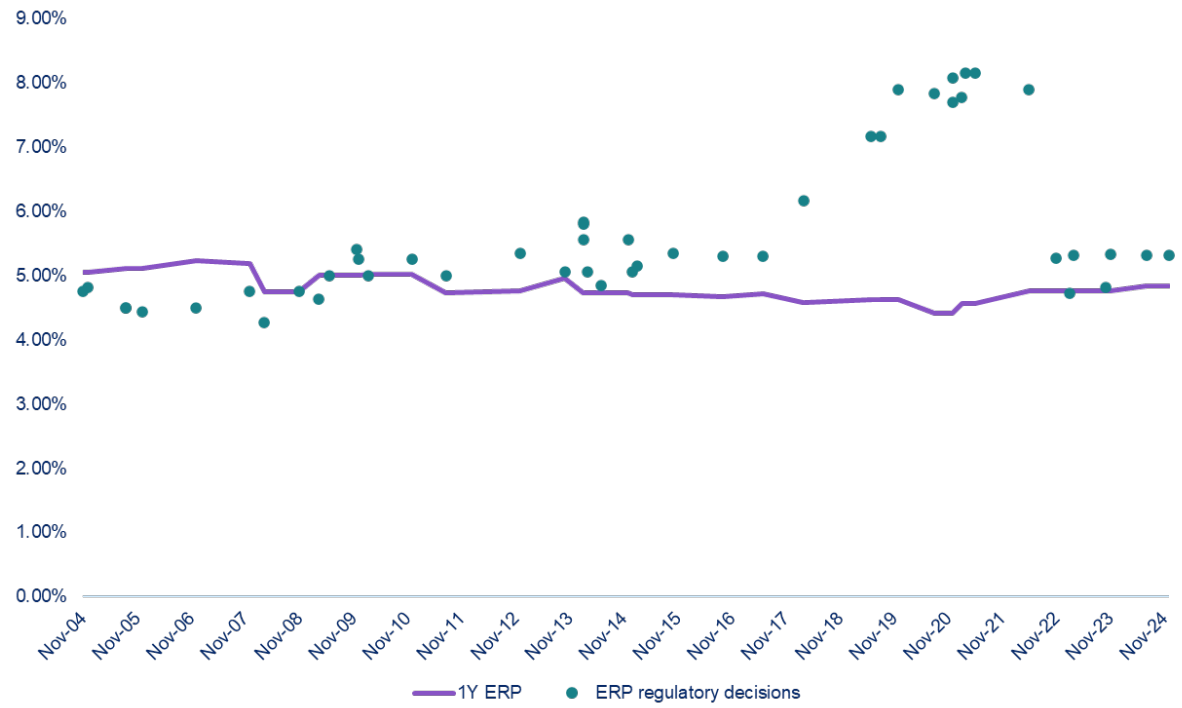
7.276 This methodology gives an implied ERP of 4.8% (CPIH-real). As the historical ex-post ERP is somewhat above the level implied by the TMR methodologies discussed earlier, and there is significant uncertainty around the expected levels of ERP and TMR, we think it is prudent to give some weight to this evidence by calibrating the top end of our TMR range using this evidence. Together with our RFR estimate this results in an implied upper end for the TMR of 7.3%.

7.277 We do not consider this to be a departure from a stable TMR approach. We think of it as a way to recognise that a stable TMR does not necessarily imply the values used by regulators should be fixed through time, especially when interest rates move significantly between regulatory periods. As with the TMR, there are numerous approaches to estimate the ERP: the historical ex-post method is just one of them, and even with the historical ex-post method, there is more than one way to estimate the ERP. However, we think that giving some weight to the simple arithmetic average of historical annual ERP as a way to ensure a reasonable calibration of our TMR range is sensible in the current context.

7.278 We note Oxera's suggestion to place weight on Ofwat's previous TMR decisions, from PR04 and PR09, to inform the TMR estimate for PR24. Figure 7.5 below sets out the implied ERP of previous regulatory decisions in the UK over the last twenty years, as well as the rolling historical ex-post ERP.

[214] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p20.

Figure 7.5: Previous regulatory implied ERP and rolling historical ex-post ERP



Source: CMA analysis of DMS and UKRN data.

7.279 Figure 7.5 above shows that regulatory ERP decisions have typically been just above the historical ex-post 1-year simple average ERP in the last 15 years (noting that ERP decisions were significantly above this during periods of negative interest rates). Prior to the GFC, regulatory ERP decisions were below the historical ex-post 1-year simple average ERP. Although previous regulatory decisions can provide helpful context, we think it is more appropriate to estimate the historical ERP and TMR using the latest data rather than infer the implied TMR from previous regulatory decisions.

7.280 There are a number of challenges with inferring a TMR for PR24 from previous regulatory decisions.

(a) **Available data**. The data available for ERP and TMR analysis has moved on since these regulatory decisions. There are 15–20 years of additional data available in the DMS data. In addition, the approach to deflating nominal returns has changed. As set out above, there is now general agreement in the use of the composite CED/CPIH series to deflate historical returns.

(b) **Inflation.** Ofwat's PR04 and PR09 decisions were set in RPI real terms. This contrasts with the current approach, where cost of capital decisions for PR24 are set in CPIH-real terms. Oxera included a CPIH-real estimate of 7.9% for the PR09 TMR decision. Ofwat's PR09 RPI-real TMR was 7.4%. Oxera has converted this to CPIH-terms using a 0.5% RPI-CPIH wedge (based on 2.5%

RPI[215] assumed in the PR09 decision and 2.0% CPIH used in Oxera's WACC analysis[216]). There is significant uncertainty regarding what inflation measures should be used to adjust these figures and converting an RPI-real estimate to CPIH-real terms using the assumed inflation in the price control could result in an over or underestimate of the TMR in CPIH-real terms.

(c) **Parameter level aiming up.** At PR09 Ofwat chose the top end of its ERP range, noting that doing so reflected its view that it should assume a high ERP given the economic conditions at the time within which the cost of capital is set.[217] We do not consider it appropriate to reflect Ofwat's parameter level aiming up from previous price reviews in our ERP/TMR range. We set out our assessment of the available market data and arguments for and against the need to aim-up at the cost of equity level later in this chapter.

7.281 Our provisional estimate for the TMR taking into account the stable ERP approach is 7.3%, reflecting the historical ex-post ERP of 4.8% plus an RFR of 2.5%. We set out below how this is incorporated in our overall TMR range.

CMA's provisional view on TMR

7.282 There is significant uncertainty when setting the TMR. We therefore draw on evidence from historical ex-post and ex-ante estimates as well as 'stable ERP' methodologies to inform our provisional TMR range.

7.283 The historical ex-ante TMR estimate of 6.7% informs the lower end of our provisional range.

7.284 To inform the top end of our range, we consider ERP evidence in addition to TMR evidence, using the historical ex-post methodology to estimate the ERP results in an ERP of 4.8%. We add this to our RFR estimate of 2.5% to give a TMR estimate of 7.3% to inform the top end of the range.

7.285 This results in our provisional view of the TMR range of 6.7% to 7.3%.

Beta

Summary

7.286 We set a provisional unlevered beta range of 0.28 to 0.34. We estimate 3-year betas for Severn Trent, United Utilities and Pennon to inform the top end of our

[215] Ofwat, Future water and sewerage charges 2010-15: Final determinations, p138.
[216] Oxera (2025) PR24 Cost of equity estimation, p9, section 2.2.2.
[217] Ofwat, Future water and sewerage charges 2010-15: Final determinations, p128.

range. We estimate 10-year betas for Severn Trent and United Utilities to inform the bottom end of our range.

Introduction

7.287 Beta within the CAPM framework reflects an asset's (or a portfolio of assets') exposure to systematic (or common) risks relative to the broader market.

7.288 A commonly referenced systematic risk is the performance of the overall economy. Systematic risks are distinct from idiosyncratic risks, which may impact only a small number of assets, or may simultaneously impact different assets positively and negatively. The models we use to estimate the cost of equity assume that idiosyncratic risks are diversified away, and so we only concern ourselves with exposure to systematic risks.

7.289 The beta faced by investors in a company's assets is often called the asset beta. However, investors normally invest in securities (which are able to call on returns earned on those assets), rather than directly investing in the assets themselves. Where this is the case, the asset beta (βa) can then be split into equity beta (βe), the exposure of shareholders to systematic risk, and debt beta (βd), the exposure of bondholders to systematic risk. In estimating the asset beta, debt and equity betas are weighted by the proportion of debt (g) and equity (1 – g) within the capital structure, as shown below.

$$\beta a = g * \beta d + (1 - g) * \beta e$$

7.290 This is the Harris-Pringle formula, where βa is the asset beta, βe is the equity beta, βd is the debt beta, and g is gearing, as defined by net debt/(net debt + equity).

7.291 Raw equity betas[218] are estimated through regression analysis of share price returns for listed comparators on total market returns, typically using a range of estimation periods (eg 2-year, 5-year, 10-year) and a range of returns data (eg daily, weekly or monthly). There is a trade-off between using more recent data, which may be more relevant to market expectations of future risk, and longer estimation windows which improve statistical significance and may be less influenced by one-off events.

7.292 Estimated raw equity betas are typically unlevered through the Harris-Pringle formula to allow for more precise comparisons of risk across firms with different levels of gearing. An asset beta is therefore a measure of operating risk not affected by the financial capital structure choices of each comparator.

7.293 Some regulators, including Ofwat, isolate the impact of the debt beta assumption on de-levering, by making a distinction between an asset beta (as defined in the

[218] The raw equity beta is the direct econometric estimate of beta derived from market data.

equation above) and an 'unlevered beta' (which is based on the same definition as the asset beta but assumes a zero debt beta).

7.294 To estimate the notional equity beta, the asset beta is re-levered using the regulator's assumptions for the notional gearing and debt beta for the relevant notional company.

7.295 We begin this section by providing the overall context to the beta analysis, by summarising Ofwat's approach to estimating the beta at PR24 FD, an overview of the estimates provided by the Disputing Companies and presenting recent trends in betas for listed water companies. We then turn to the discussion of the key methodology debates and our assessment and provisional decision on each.

Ofwat's PR24 FD approach

7.296 Ofwat's approach to estimating the beta in the PR24 FD was based on:[219]

(a) 5- and 10-year estimation windows. Ofwat stated that shorter-term betas are volatile and were liable to be misleading estimates of future beta; measurements, while longer window betas capture more data, which tended to increase the statistical precision of estimates; [220]

(b) spot daily sampling frequencies, Ofwat noted that this gave greater precision of estimates and lack of 'reference day' effect observed with lower-frequency data;[221]

(c) equal weights placed on Severn Trent and United Utilities with no weight on Pennon; and

(d) application of the Harris-Pringle formula[222] and a debt beta range of 0.05 to 0.15.

7.297 Ofwat set an unlevered beta range of 0.268 to 0.295 with a midpoint of 0.282.[223] It applied United Utilities 5-year daily spot for the lower end of the range and Severn Trent 10-year daily spot for the upper end of the range.[224]

[219] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p38.
[220] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, pp40 and 42.
[221] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p38.
[222] The Harris-Pringle formula for de- and re-levering beta is: Asset beta = raw equity beta x (1-gearing) + debt beta x gearing. Re-levered equity beta = (asset beta – (debt beta x gearing)) / (1- gearing).
[223] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p58.
[224] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, pp57–58.

Overview of the parties' submissions

Disputing Companies

7.298 All Disputing Companies submitted calculated betas using daily sample frequencies and spot betas.[225]

7.299 Oxera, Anglian's advisers, argued for an unlevered beta range of 0.31 to 0.34,[226] which sits above Ofwat's final determination estimate.[227] It submitted that the lower end of the range was based on the simple average betas of Severn Trent, United Utilities and Pennon 2-, 5- and 10-year betas and the upper end was based on the Severn Trent, United Utilities and Pennon 2-year betas.[228] To address Ofwat's concern of the 5-year beta for Pennon not being a 'pure play'[229] beta it also estimated betas with a 3-year window to remove the impact of the sale of Viridor on the business risk and the cash balances of Pennon.[230] Oxera noted that the 3-year window beta estimates increase relative to the 5-year window ones, suggesting that there was a systematic reassessment of the level of risk faced by the industry.[231]

7.300 KPMG, South East and Southern's advisers, argued for an unlevered beta range of 0.32 to 0.36.[232] This was based on 10-year spot daily betas.[233] KPMG submitted that 2-year betas are inherently more volatile and statistically less robust than longer-term estimates but could capture recent shifts in the company's risk profile, which will not be reflected in longer-term estimates.[234]

7.301 KPMG initially derived an unlevered beta range of 0.29 to 0.36, with the lower end informed by the unadjusted 10-year beta for Severn Trent and United Utilities, and the upper bound on the adjusted 10-year beta for Pennon, adjusted for the full period of Covid restrictions.[235] KPMG stated that both historical and forward-looking evidence suggested 0.29 is likely to materially underestimate the risk. KPMG narrowed the overall range to reflect only the upper half, adopting an unlevered beta range of 0.32 to 0.36 based on forward-looking risk evidence.[236]

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[225] Kairos (2025) Setting the Allowed Return on Equity for PR24, p4; Oxera (2025) PR24 Cost of equity estimation, p27; KPMG (2025) Estimating the Cost of Capital for PR24, p56.
[226] Oxera submitted a re-levered equity beta range of 0.69 to 0.76 which is equivalent to an unlevered beta range of 0.31 to 0.34.
[227] Oxera (2025) PR24 Cost of equity estimation, p28.
[228] Oxera (2025) PR24 Cost of equity estimation, pp27–28.
[229] By 'pure play' in this context we mean only, or mostly, carrying out Appointee water activities and not non-regulated or other activities.
[230] Oxera (2025) PR24 Cost of equity estimation, p27.
[231] Oxera (2025) PR24 Cost of equity estimation, p27.
[232] KPMG (2025) Estimating the Cost of Capital for PR24, p78.
[233] KPMG (2025) Estimating the Cost of Capital for PR24, p56, paragraph 6.0.3.
[234] KPMG (2025) Estimating the Cost of Capital for PR24, p77, paragraphs 6.4.44–6.4.46.
[235] KPMG (2025) Estimating the Cost of Capital for PR24, p61, paragraph 6.2.13.
[236] KPMG (2025) Estimating the Cost of Capital for PR24, p78, paragraph 6.6.4.

7.302 Kairos, Northumbrian and Wessex's advisers, estimated an unlevered beta range of 0.319 to 0.337 over an approximately 10-year period, adjusted for the effects of the COVID-19 restrictions and the Viridor sale.[237] Kairos based the lower bound on the value weighted portfolio of Severn Trent and United Utilities accounting for the COVID-19 period of restrictions and Viridor's spinoff and the upper bound on the value weighted portfolio of Severn Trent, United Utilities and Pennon accounting for the COVID-19 period of restrictions and Viridor's spinoff.[238]

7.303 Kairos submitted that there is a trade-off between relevance and reliability. Longer samples generate more reliable estimates that are less heavily influenced by atypical and transient events which may not be representative of the ensuing control period than shorter samples, but may be less relevant to market expectations for future risk.[239] However, Kairos relied on the existence of a structural break at the start of PR14, as found by Gregory, Harris and Tharyan in their report during the CMA's PR19 redeterminations and submitted that this supported the sole use of an approximately 10-year time window.[240] For this reason, Northumbrian submitted that the primary approach should be a 10-year window at daily sampling frequencies.[241] Wessex Water however submitted that Ofwat's mistaken reduction in beta was also due to placing no weight on short term beta estimates, which reflect the change in the investment environment.[242]

Third parties

7.304 MCC Economics, on behalf of CCW, submitted an unlevered beta of 0.25. MCC Economics used the Generalised Autoregressive Conditional Heteroskedasticity (GARCH) model, as it stated that this could lead to more accurate estimates of beta. MCC's beta point estimate was based on the 5-year Unitised Utilities GARCH unlevered beta.[243]

Trends in water company betas

7.305 In the water sector, only three companies are listed on the stock market. These are United Utilities, Severn Trent (which also owns Hafren Dyfrdwy) and Pennon Group (which owns South West Water, Bristol Water, Bournemouth Water and SES).

7.306 We consider that using daily data is appropriate, given these are liquid stocks, and given that daily data leads to greater precision of estimates and avoids the 'reference day' issue. The use of daily data is also not contentious between the

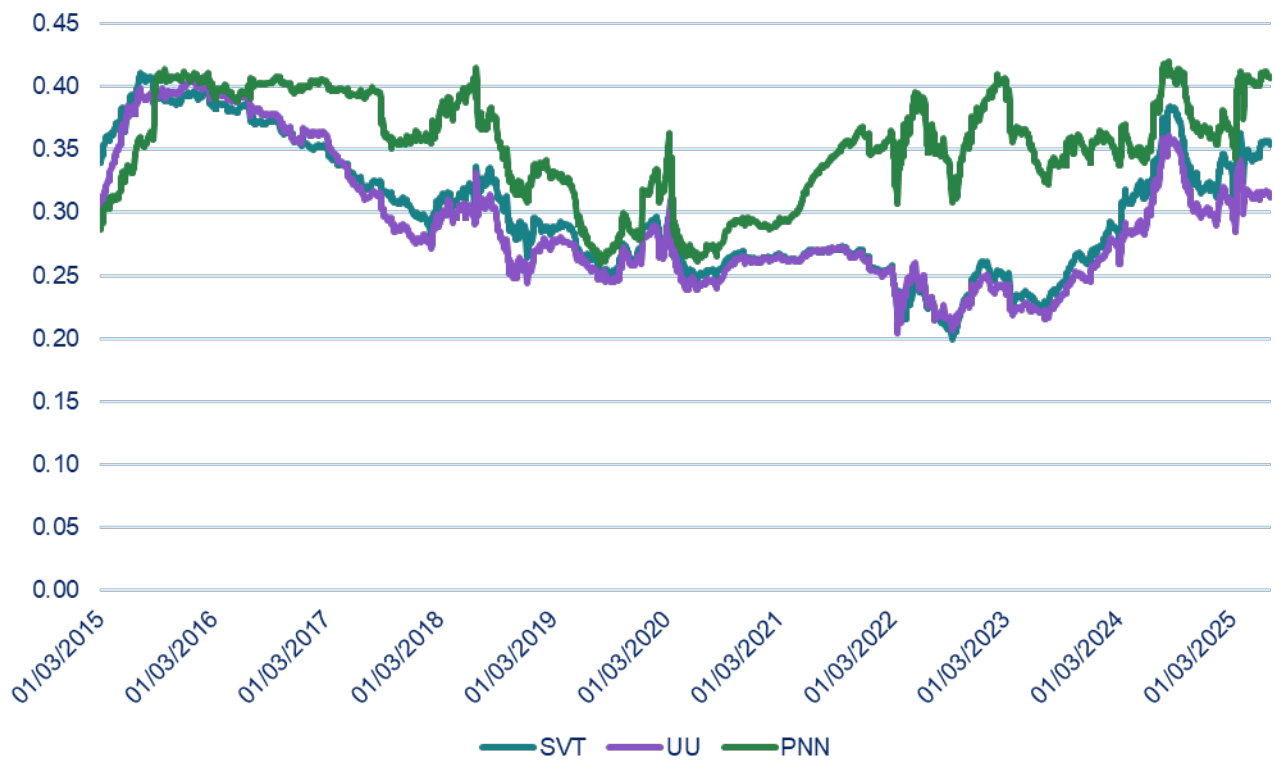
[237] Kairos (2025) Setting the Allowed Return on Equity for PR24, p4.
[238] Kairos (2025) Setting the Allowed Return on Equity for PR24, p56, Table 13 and p57, paragraph 194.
[239] Kairos (2025) Setting the Allowed Return on Equity for PR24, p39, paragraph 124.
[240] Kairos (2025) Setting the Allowed Return on Equity for PR24, pp59–60, paragraph 202.
[241] Northumbrian SoC, pp154–156, figure 51.
[242] Wessex SoC, pp89–90, paragraph 10.12 (c).
[243] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, pp21–22.

Disputing Companies and Ofwat (although we note that CEPA, Ofwat's advisers, submitted that short-term movements in daily betas need to be treated with caution).[244]

7.307 Averages of rolling betas offer a way to mitigate the tendency of spot betas to be disproportionately influenced by outliers but underweight the periods at the start and the end of the data sample. For this reason, we consider that using spot betas is generally more appropriate (in line with the approach adopted by all parties), however, we find rolling beta estimates useful to identify any trends.

7.308 Figure 7.6, Figure 7.7 and Figure 7.8 below show the evolution of unlevered betas for the three listed companies at typical estimation frequencies (2-year, 5-year and 10-year).

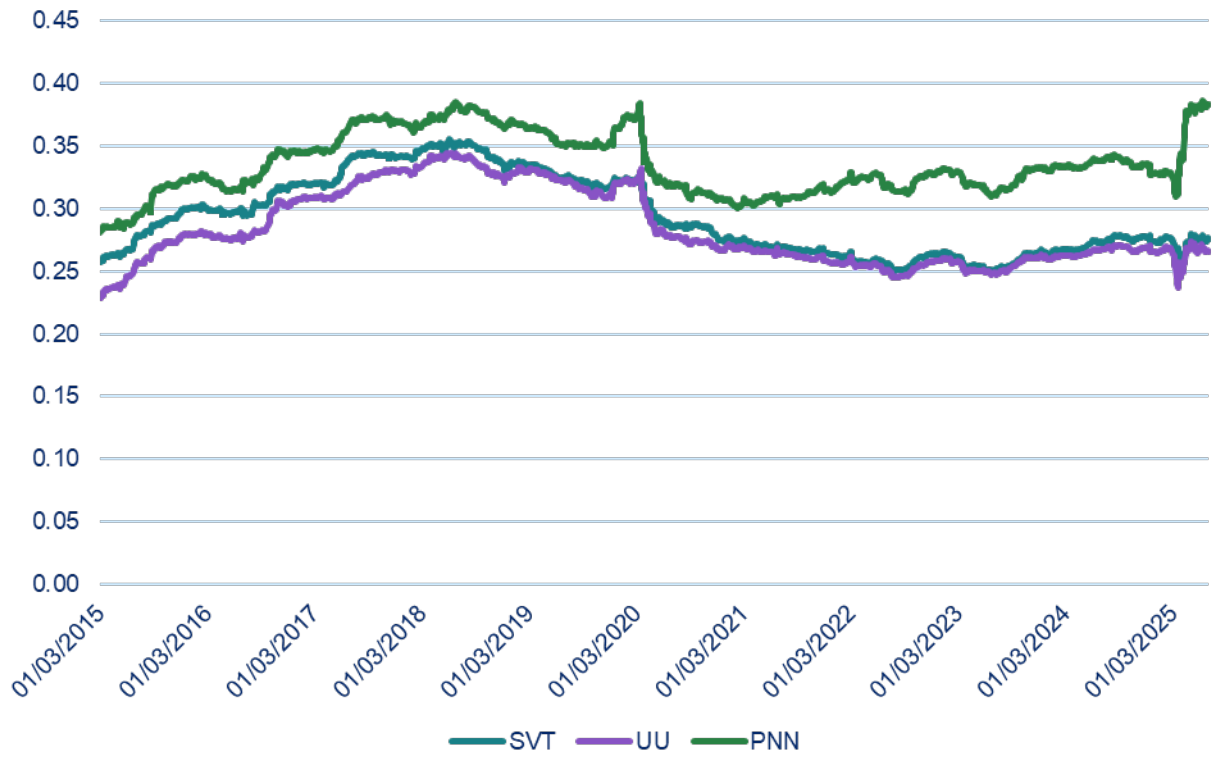
Figure 7.6: 2-year rolling daily unlevered betas



Source: LSEG Refinitiv data and CMA analysis.

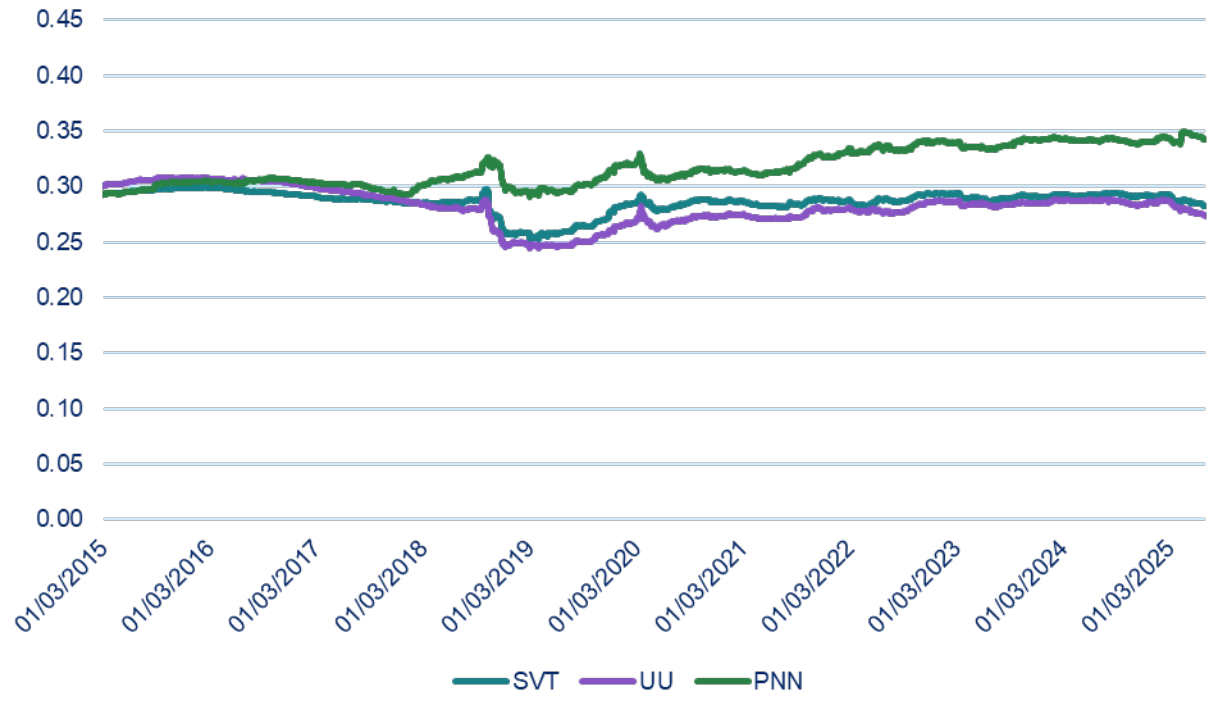
[244] CEPA (2025) Supplementary evidence on the cost of equity: response to statements of case, p4.

Figure 7.7: 5-year rolling daily unlevered betas



Source: LSEG Refinitiv data and CMA analysis.

Figure 7.8: 10-year rolling daily unlevered betas



Source: LSEG Refinitiv data and CMA analysis.

7.309 Across all three estimation windows, Pennon's beta is higher than the betas of Severn Trent and United Utilities. The 10-year betas are reasonably stable for all three companies (in particular for Severn Trent and United Utilities), in the range of 0.25 to 0.35 with more volatility in the 5-year and 2-year unlevered betas.

7.310 The table below sets out the spot, daily unlevered betas for the three listed companies over different estimation windows. The Pennon unlevered beta is higher than Severn Trent and United Utilities across all estimation windows. For Severn Trent and United Utilities, the 5-year and 10-year betas are broadly similar with higher 2-year betas. Pennon's beta increases as the estimation window shortens.

Table 7.9: Unlevered beta estimates

Unlevered beta	2-year	5-year	10-year
Severn Trent	0.36	0.28	0.28
United Utilities	0.32	0.27	0.27
Pennon	0.41	0.38	0.34

Source: LSEG Refinitiv data and CMA analysis.

7.311 The key issues which the parties have raised in estimating beta are:

(a) the inclusion of Pennon;

(b) the impact of COVID-19; and

(c) the impact of increasing capital intensity.

7.312 We consider each of these issues in turn. We also cover the debt beta and submissions on the low beta anomaly before setting out our provisional conclusions on beta.

Inclusion of Pennon

7.313 As set out above, raw equity betas are estimated using comparable listed companies. When estimating the beta for a price control decision, these listed companies should form suitable comparators for the regulated activities, and should either individually or in aggregate have similar systematic risk exposure to the notional company. In the UK water sector there are three listed water companies, United Utilities, Severn Trent and Pennon.

7.314 It is agreed between Ofwat and the Disputing Companies that Severn Trent and United Utilities should be included in beta estimations. MCC Economics, CCW's advisers, also submitted that it agreed with Ofwat's comparators: United Utilities

and Severn Trent.[245] We also include Severn Trent and United Utilities in our beta analysis. This section considers the arguments for and against the inclusion of Pennon.

Ofwat PR24 FD approach

7.315 Ofwat did not include Pennon in its comparator set due to its concerns over the potential distortive impact of its previously owned waste management business, Viridor, on betas.[246] Ofwat based its beta range on 5- and 10-year estimation windows. Ofwat concluded there was not sufficient 'clean' data for Pennon as it had only been a 'pure play' company since Viridor's sale in July 2020.[247] Ofwat also stated that Pennon's company specific factors may lead to uncertainty around its long-term financial structure.[248] Ofwat stated that Pennon's acquisition of Bristol Water in 2021 and highly-geared SES in January 2024, the sale of Viridor in 2020 and the uncertainty around future equity financing plans were factors which may have created discontinuity in Pennon's gearing.[249]

7.316 Mason, Robertson and Wright, Ofwat's advisers, recognised the potential value of including additional data in the estimation of beta as there are so few publicly listed UK water companies, but had concerns about the differences between Pennon and Severn Trent and United Utilities.[250] They stated that the instability of the Pennon beta can be linked to changes in gearing and composition of the assets.[251]

Parties' submissions

Disputing Companies

7.317 All Disputing Companies included Pennon in their comparator set.

7.318 The Disputing Companies submitted that Pennon has been a 'pure play' water company since it sold its waste management business, Viridor, in 2020. The Disputing Companies submitted that incorporating Pennon's data is crucial as it would improve the beta estimation.[252]

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[245] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p20, paragraph 55.
[246] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p38.
[247] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p5.
[248] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p54.
[249] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p54 and Ofwat (2025) Response to common issues on risk and return, p107.
[250] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p9, paragraph 2.12.
[251] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p10, paragraph 2.14.
[252] KPMG (2025) Estimating the Cost of Capital for PR24, p11, paragraph 2.5.3, Northumbrian SoC, pp151–p152, paragraph 583, Wessex SoC, pp89–90, paragraph 10.12 (c), South East SoC, p79, paragraph 6.17.

7.319 Anglian submitted that it was possible to either rely on beta estimation windows shorter than 5 years or to adjust for the alleged gearing distortions.[253]

7.320 Southern submitted the following.

(a) The acquisition of SES Water had a negligible impact on Pennon's gearing and that Pennon had recently closed its equity financing gap with its recent £490 million right issue.[254]

(b) Furthermore, the enforcement action[255] did not have a statistically significant impact on Pennon's beta and that the announcement of enforcement action did not have an impact on the differential between Pennon and Severn Trent/United Utilities betas. Southern also noted that Ofwat had recently opened enforcement cases[256] against Severn Trent and United Utilities.[257]

(c) Pennon's retail activities contributed less than 2% of its operating profit, while Severn Trent's contributed around 10% of its operating profit, suggesting that Pennon is more representative of a 'pure play' water company than the other two comparators.[258]

7.321 The Disputing Companies also investigated trends in betas with different estimation windows post Viridor sale. Oxera compared the 2-year asset beta movements of Severn Trent, United Utilities and Pennon. Oxera stated that, despite the sale of its Viridor waste management business, Pennon's beta has trended upward, suggesting that the market did not consider Pennon to be riskier relative to Severn Trent and United Utilities before the divestment. Oxera added that after the divestment, Pennon's beta had been persistently higher than Severn Trent's and United Utilities' and as such, given a lack of full convergence of Pennon with the other two listed companies post the divestment, Oxera considered the inclusion of Pennon data from before the divestment to be appropriate.[259] KPMG compared Pennon with Severn Trent and United Utilities and indicated that there had been a trend of divergence between 10-year betas since around 2019 and that the differential had not notably reduced since the sale of Viridor.[260]

7.322 KPMG and Kairos also conducted structural break analysis to investigate Viridor's impact on Pennon's betas and included a Viridor dummy variable representing the

[253] Anglian SoC, p196, paragraph 749(ii).
[254] Southern SoC, p445, paragraph 216.
[255] Ofwat proposes £24 million enforcement package on South West Water for failures in managing its wastewater treatment works and network - Ofwat (accessed August 2025).
[256] Ofwat announces enforcement cases against four more companies in wastewater treatment investigation - Ofwat (accessed August 2025).
[257] Southern SoC, p445, paragraph 216.
[258] Southern SoC, p446, paragraph 218.
[259] Oxera (2025) PR24 Cost of equity estimation, p25.
[260] Anglian SoC, p197, paragraph 751.

period of time following the disposal of Viridor on 8 July 2020.[261] KPMG and Kairos found the impact of the Viridor disposal did not have a statistically significant effect on Pennon's beta.[262] In their joint reply to Ofwat's response, the Disputing Companies agreed that gearing at the sale completion was not reflective of Pennon's long-term capital structure. However, Kairos' analysis found no structural break based on the date of formal close of the sale and concluded that Pennon should be included in the comparator set.[263]

Ofwat

7.323 In its response to the Disputing Companies' statements of case, Ofwat noted that CEPA found that minor adjustments to the specifications of the Viridor dummy variable for the structural break analysis resulted in very different results.[264] For example, Ofwat noted that adapting KPMG's analysis and applying the Viridor dummy start date on the date of the announcement rather than the financial close date lead to a statistically significant fall in betas after the disposal of Viridor.[265]

7.324 Furthermore, Ofwat stated that additional reasons may drive higher beta for Pennon, compared to Severn Trent and United Utilities: about 25% of Pennon's revenues were attributable to non-price control activities, equity analysts noted a lack of clear equity financing plan and Pennon's exposure to environmental fines was likely larger than for the other two listed companies.[266]

Our assessment and provisional decision

7.325 Ofwat argued against including Pennon whereas all Disputing Companies and their advisors included Pennon in their comparator set. We set out below our assessment of the inclusion of Pennon in our beta estimates.

7.326 We consider that there are three key issues which may affect the suitability of Pennon as a comparator. These are: business mix, capital structure, and comparability to the notional company.

7.327 Regarding **business mix**, we note that Pennon is a FTSE 250 listed company which owns South West Water, Bournemouth Water, Bristol Water and SES. Pennon acquired South West Water in 1989, Bournemouth Water in April 2015, and Bristol Water in June 2021, which merged with South West Water, Pennon's largest business, in February 2023. Pennon later acquired SES in January

[261] Kairos (2025) Setting the Allowed Return on Equity for PR24, paragraphs 155–156, and KPMG (2025) Estimating the Cost of Capital for PR24, p65, footnote 130.
[262] KPMG (2025) Estimating the Cost of Capital for PR24, p65, paragraph 6.3.19 and Kairos (2025) Setting the Allowed Return on Equity for PR24, p47, paragraph 158.
[263] Disputing Companies (2025) Joint reply to Ofwat's responses, p18, paragraph 74.
[264] Ofwat (2025) Response to common issues on risk and return, p116, paragraph 5.110.
[265] Ofwat (2025) Response to common issues on risk and return, p116, paragraph 5.110.
[266] Ofwat (2025) Response to common issues on risk and return, p117, paragraph 5.112.

2024.[267] Pennon previously owned Viridor, a waste management business which Pennon sold in July 2020.

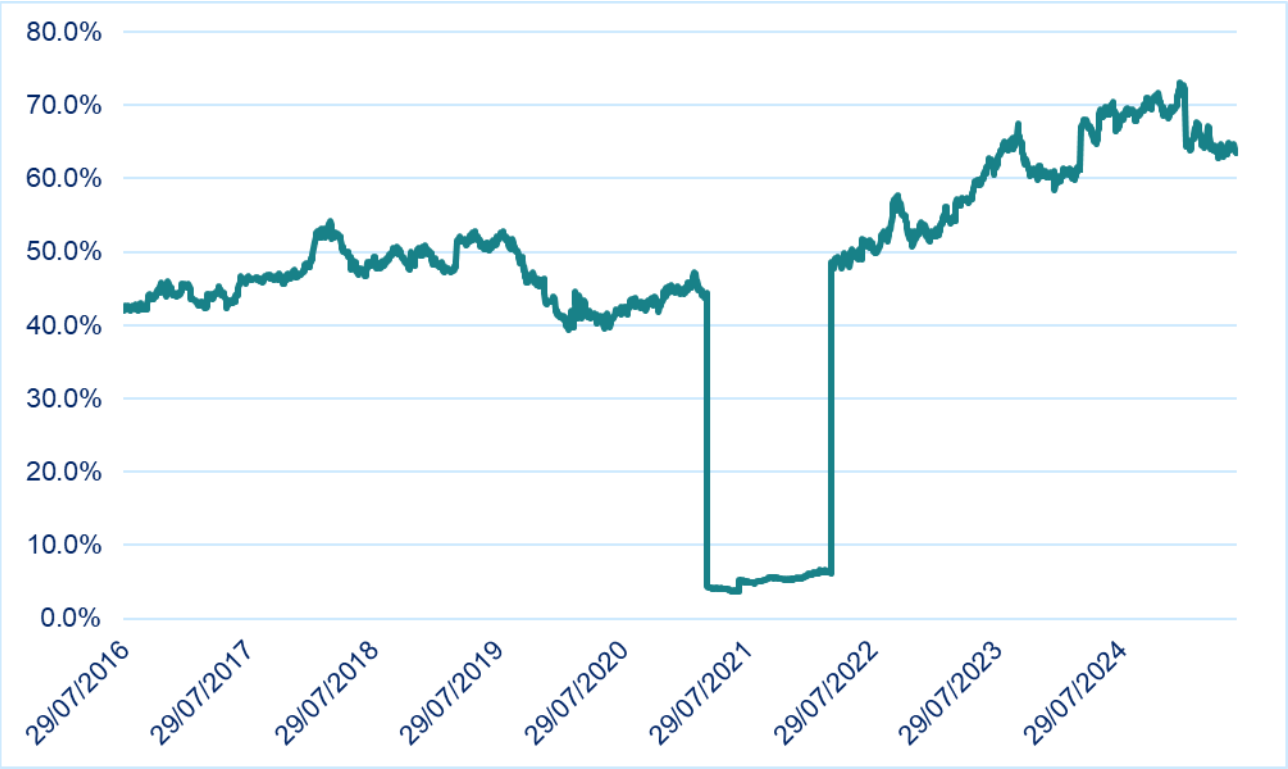
7.328 Ofwat also submitted that Pennon had a higher share of non-regulated revenues than Severn Trent and United Utilities and therefore was not sufficiently pure play. While we agree than Pennon has a non-trivial share of non-regulated activities on a revenue basis (around 30%), profits generated by non-regulated activities are negligible.[268] We do not view this as a sufficiently good reason to exclude Pennon from the beta analysis post the Viridor sale.

7.329 We now consider the points relating to Pennon's **capital structure** since the Viridor sale.

7.330 Pennon has gone through several acquisitions and a sale over recent years, with subsequent impacts on its gearing levels as shown in Figure 7.9 below. After the Viridor sale, Pennon held the cash proceeds from the sale and repaid a large portion of its debt with the proceeds of the sale, and gearing levels dropped sharply in March 2021 and returned to 'normal' levels in March 2022. Before the Viridor sale, the Pennon Group borrowings not relating to South West Water totalled approximately £1.2 billion and the significant majority of the borrowings were drawn to fund the investment phase of Viridor.[269] In March 2021 Pennon repaid approximately £1.1 billion principal debt.[270] During that period Pennon's gearing differed significantly both from its long term average, and from Severn Trent's and United Utilities' gearing. This raises the question of what gearing level to use to un-lever Pennon's equity beta. While it is typical to use average gearing over the beta estimation period as the best proxy of the market's expectations of long-term gearing, there may have been greater uncertainty around appropriate gearing during this period for Pennon.

Figure 7.9: Daily Pennon gearing

[267] Pennon (2025) About us (accessed August 2025)
[268] Pennon (2025) Annual report 2025 p63 (accessed August 2025). Share of underlying EBITDA generated by non-regulated activities was negative (-0.8%) in 2025.
[269] Pennon Annual Report and Accounts 2021, p60.
[270] Pennon Annual Report and Accounts 2021, p60.



Source: LSEG Refinitiv data and CMA analysis. We estimated each figure using the daily market cap data and rolled forward the net debt figures.

7.331 We provisionally conclude that the unusually high cash balances post the Viridor sale are a relevant factor to consider when estimating the beta for Pennon. However, we consider that some of the uncertainty around Pennon's long-term capital structure should have been resolved by now, especially given the completion of the equity raise process in February 2025. While the process of un-levering estimated equity betas introduces some uncertainty into beta estimates, we do not think this is a sufficiently good reason to completely exclude Pennon from the comparator set. We consider that relatively 'clean' data to estimate a beta for Pennon is available from the end of March 2022.

7.332 Regarding the comparability of Pennon to the **notional company**, we consider that given the overall paucity of listed comparators in the sector, more data points is better than fewer. Pennon now owns a WaSC and three WoCs, together comprising around 5.0%[271] of the industry RCV. The characteristics of a notional company are somewhat subjective in any case.

7.333 Ofwat also raised arguments relating to enforcement action against Pennon which reduced its suitability as a comparator for estimating beta. We note that in July 2024, Ofwat also announced enforcement action against Severn Trent and United Utilities.[272] It is therefore not appropriate to exclude Pennon on this basis.

[271] Oxera (2025) PR24 Cost of equity estimation, p25.
[272] Ofwat proposes £24 million enforcement package on South West Water for failures in managing its wastewater treatment works and network - Ofwat (accessed August 2025).

7.334 Finally, we note that all advisers have suggested Pennon can be included in estimations which rely on data before the divestment and provided slightly different reasoning to justify this.

7.335 However, as a matter of principle, we have concerns about relying on Pennon data pre-Viridor sale. Pennon was a different business before the sale and we consider it would be more robust to exclude it altogether from that period. Further, noting our concerns around cash balances we provisionally conclude that it we can more reliably estimate a beta for Pennon, which is representative of a pure play water company, using data from March 2022.

7.336 This does imply that, if we were to give weight to Pennon in our beta range, we would need to rely on relatively short estimation windows (of around 3 years or slightly longer). However, on balance we consider that the additional information value provided by using Pennon as a comparator outweighs any drawbacks of using shorter-term betas.

7.337 We therefore consider 3-year betas in addition to the 2-year, 5-year and 10-year betas presented earlier in this section. We conclude on the overall beta range after we consider the other issues raised by the parties.

Table 7.10: Unlevered betas for Severn Trent, United Utilities and Pennon

Unlevered betas	2-year	3-year	5-year	10-year
SVT	0.36	0.33	0.28	0.28
UU	0.32	0.31	0.27	0.27
PNN	0.41	0.38	0.38	0.34

Source: LSEG Refinitiv data and CMA analysis.

Impact of COVID-19

7.338 The COVID-19 pandemic resulted in the shutdown of large sections of the economy, with subsequent profound economic consequences. As shown in Figure 7.6, Figure 7.7, and Figure 7.8 there was a reduction in water company betas (across 2-year, 5-year and 10-year estimation windows) in March 2020. In the shorter-term betas we also see an increase in betas as the impact of the initial shutdown period drops out of the data (this can be seen in March 2022 for the 2-year betas and March 2025 for the 5-year betas).

7.339 Market volatility typically increases during crises but share prices of safe stocks are generally more resilient to macroeconomic shocks, as investors tend to hold or increase their holdings in such stocks rather than sell them. This may lead to a reduction in the covariance of the stock's returns with the market and therefore the equity beta. While the equity beta might be lower, periods of market volatility can therefore reveal useful information about the insurance value of such stocks.

7.340 Therefore, our starting point is that it is important not to disregard periods such as the COVID-19 pandemic from the estimation completely, but there is a question of how representative the historical betas are, estimated over typical estimation windows which include the pandemic, of forward-looking risk.

7.341 The treatment of the pandemic in beta estimation has come up in recent regulatory decisions. In the PR19 Final Report, the CMA stated that the pandemic represented a systematic event which should not be excluded from their data.[273] However, the CMA recognised that this type of economic crisis was relatively rare and therefore placed less weight on the lower estimates from the dataset to December 2020 relating to the pandemic period, rather than to the dataset to February 2020 (which excluded the start of the pandemic).

7.342 In its Heathrow H7 price control decision the CAA applied a COVID-19 adjustment to the baseline beta, in the context of having no pure-play comparators and a large increase in the observed betas for the imperfect comparators it did have during the pandemic.[274] This approach was subsequently found not to be wrong by the CMA on appeal.[275]

Ofwat PR24 FD approach

7.343 Ofwat did not manually adjust its beta estimate for the impact of COVID-19. Ofwat stated that reweighting or omitting data relating to the period affected by COVID-19 was unnecessary for a robust beta estimate.[276] Ofwat stated that such approaches are reliant on subjective judgments to define periods that need reweighting and the weights used.[277] Furthermore, Ofwat stated that during the Heathrow H7 decisions the CMA panel agreed with its assessment on the impact of Covid stating that 'the impact of the pandemic on water betas was relatively small compared to airport groups'.[278]

7.344 Ofwat submitted that the obvious and large sensitivity of betas of airport groups to pandemic risk explained the reweighting approach taken by the CAA in its final determination for Heathrow H7.[279] Ofwat submitted such an approach for water would have been disproportionate for such an uninfluential factor.[280] Furthermore, it submitted this approach could have worsened the beta estimation accuracy as this period is relevant to water beta dynamics over 2025-30.[281]

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[273] CMA (2020) Final report, paragraph 9.468.
[274] CMA (2023) Heathrow H7 Licence Modification Appeals - Final determinations, pp143–144, paragraphs 6.22–6.25.
[275] CMA (2023) Heathrow H7 Licence Modification Appeals - Final determinations, p160, paragraph 6.78.
[276] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p42.
[277] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p42.
[278] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p44, citing CMA (2023) Heathrow H7 Licence Modification Appeals - Final determinations, p162, paragraph 6.83 and Figure 6.1.
[279] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, pp45–46.
[280] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, p46.
[281] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, p46.

7.345 Ofwat noted that there were other potential periods for which a case to reweight or truncate the beta had been made and adjusting for all of them would have risked potentially mis-weighting other factors and stripping out beta data.[282] Ofwat stated the application of a long span of data was sufficient to capture a diverse range of systematic risk without being dominated by more recent periods.[283]

Parties' submissions

Disputing Companies

7.346 All Disputing Companies except for Anglian adjusted for the effects of COVID-19 restrictions in their beta calculations as they raised the need to adjust for the downwards effects of the pandemic. Kairos and KPMG performed different methodologies, which included regressions with dummy variables and structural break analysis.

7.347 Kairos, Wessex's and Northumbrian's advisers, included the effects of COVID-19 restrictions in its beta estimates. It added a number of macroeconomic variables and dummy variables representing the periods of time during COVID-19 for which restrictions were in place to the beta regressions.[284] Kairos' restrictions periods capture dates between 16 March 2020 and 23 June 2020 and between 6 January 2021 to March 2021.[285] It found substantial differences between beta estimates that did, and did not adjust for the period of COVID-19 restrictions, and that the estimated effect of excluding COVID-19 periods was statistically significant at a daily frequency for all listed comparators.[286] Kairos included the betas adjusted for COVID-19 to construct its range.

7.348 KPMG, Southern's and South East's advisers, applied a structural break analysis to the 10-year beta estimation window for the Severn Trent/United Utilities composite.[287] A dummy variable was used to capture the periods affected by COVID-19 restrictions from 16 March 2020 to 19 July 2021, based on UK Covid-19 lockdown timeline.[288] This dummy variable was then included in the beta regression to identify the impact of the structural break on beta values.[289] KPMG submitted that the negative and statistically significant coefficient indicated the COVID-19 restrictions led to a significant reduction in the raw equity beta.[290]

[282] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p39.
[283] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p39.
[284] Kairos (2025) Setting the Allowed Return on Equity for PR24, p43, paragraph 144.
[285] Kairos (2025) Setting the Allowed Return on Equity for PR24, p43, footnote 92.
[286] Kairos (2025) Setting the Allowed Return on Equity for PR24, p44, paragraph 147.
[287] KPMG (2025) Estimating the Cost of Capital for PR24, p59, paragraph 6.2.5.
[288] KPMG (2025) Estimating the Cost of Capital for PR24, p59, paragraph 6.2.5.
[289] KPMG (2025) Estimating the Cost of Capital for PR24, p59, paragraph 6.2.5.
[290] KPMG (2025) Estimating the Cost of Capital for PR24, p59, paragraph 6.2.6.

KPMG submitted that adjusting for these distortions yielded a beta range of 0.29 to 0.36.[291]

7.349 During a hearing, Professor Gregory, adviser to Wessex and Northumbrian, stated that large sectors of the economy, such as the travel and hospitality sectors, were shut down during the pandemic and their betas increased as a consequence.[292] Professor Gregory noted that the lockdowns induced a mechanical effect, as the average market beta still had to remain 1 by definition. Professor Gregory noted that if the affected sectors' betas went up other betas and therefore water sector betas had to fall.[293] Professor Gregory concluded that by not adjusting one was effectively assuming that the same response is equally likely to happen during the next ten years.[294]

7.350 Oxera, Anglian's advisers, did not manually adjust for COVID-19. However, during one of the hearings Anglian noted that Anglian adopted a 2-year beta. Anglian stated that the advantage of a 2-year beta was that it inherently included Pennon in the comparators set, excluded the COVID-19 period and reflected higher capital intensity.[295]

Ofwat

7.351 Ofwat reiterated its view that the proposed approaches sought to exclude periods of lower betas but did not apply the same criteria to potentially exclude periods of higher betas. Ofwat submitted that such approaches are reliant on subjective judgements to define periods that need reweighting and the weights to be used.[296]

7.352 Mason, Robertson and Wright, advisers to Ofwat, carried out a structural break analysis for Brexit and submitted that there are a number of potential candidates for periods of time which could be adjusted for in beta estimates and it would be very difficult to know when to stop.[297] Mason, Robertson and Wright also submitted that given the short-run instability of betas, it is relatively easy to find apparent evidence of structural instability.[298]

7.353 CEPA, Ofwat's adviser, submitted that KPMG selected an unsuitable start date to define the affected period.[299] CEPA replicated KPMG's analysis and by applying a new date the impact on beta fell by two-thirds and became statistically

[291] KPMG (2025) Estimating the Cost of Capital for PR24, p61, paragraph 6.2.13.
[292] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p71, lines 18–26.
[293] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p71, lines 18–26.
[294] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p72, lines 1–6.
[295] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p87, lines 15–25
[296] Ofwat (2025) Response to common issues on risk and return, p114, paragraph 5.99
[297] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p7, paragraph 2.5.
[298] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p8, paragraph 2.8.
[299] CEPA (2025) Supplementary evidence on the cost of equity: response to statements of case, p7.

insignificant.[300] CEPA also applied an approach similar to KPMG's to assess the impact of Brexit and found that pre-Brexit measurements were higher and that the difference was statistically significant.[301] Furthermore, it submitted that it would be a mistake to assume that periods of market volatility, 'flight to safety' conditions or low beta estimates are anomalies that are irrelevant to forward-looking assessments of beta.[302]

Disputing Companies' reply

7.354 In a joint response, the Disputing Companies submitted that the purpose of the structural break analysis was not to exclude periods of unusually 'low beta' or 'high beta' but to account for periods which are not expected to repeat with comparable frequency.[303]

7.355 The Disputing Companies also submitted that Kairos extended its analysis of structural breaks for the period of COVID-19 under the assumption that the number and timing of structural breaks are unknown, meaning structural breaks are determined using the data itself.[304] The Disputing Companies submitted that Kairos found that the only break date to commonly occurred across specifications during 2020 is 17 March 2020, which was consistent with the use of a start date of 16 March 2020 for their structural break analysis.[305]

Our assessment and provisional decision

7.356 Our starting point is that the bar for adjusting econometric beta estimates (through applying dummy variables or re-weighing) should be high. This is because historical data will capture a range of different economic conditions and events, and while the future is unlikely to be exactly like the past, predicting how likely certain risks are in the future is inherently subjective and uncertain. Periods of higher market volatility can also be useful to illustrate how stocks respond to negative shocks, which can be informative for estimating beta.

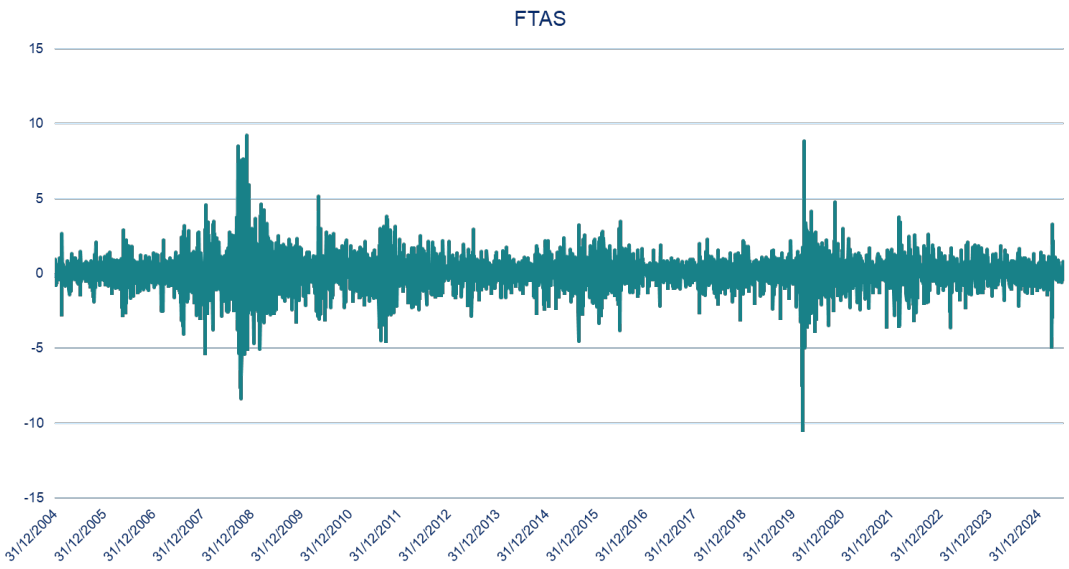
7.357 We also consider that UK water is relatively unique compared to other regulated sectors in that we have pure-play listed companies for which we can directly estimate the beta. This in our view further reinforced the need to be cautious about adjusting econometric beta estimates. This goes back to the earlier principles we set out about maintaining consistency and reducing the number of subjective adjustments to underlying market data.

[300] CEPA (2025) Supplementary evidence on the cost of equity: response to statements of case, p8.
[301] CEPA (2025) Supplementary evidence on the cost of equity: response to statements of case, p8.
[302] CEPA (2025) Supplementary evidence on the cost of equity: response to statements of case, p5.
[303] Disputing Companies (2025) Joint reply to Ofwat's response, p14, paragraph 59.
[304] Disputing Companies (2025) Joint reply to Ofwat's response, p16, paragraph 67.
[305] Disputing Companies (2025) Joint reply to Ofwat's response, p16, paragraph 67.

7.358 We also note that the impact of COVID-19 does not appear to be particularly material for water companies. While we observe a fall in the 2-year and 5-year unlevered betas (see Figure 7.6 and Figure 7.7) following the first lockdown (announced on 17 March 2020), and the betas then stay at lower levels until this date falls out of the estimation window, these short-term movements do not appear particularly atypical in a longer-term context.

7.359 We are also not persuaded that the COVID-19 impact on the stock market was necessarily that atypical. While the governments' responses to the pandemic were unusual and perhaps are unlikely to be repeated in the future, the stock market experienced one large fall in March 2020 and stock market volatility somewhat increased during the pandemic, these movements do not appear that unusual when considered in the longer-term context (see Figure 7.10 below).

Figure 7.10: FTSE All Shares total returns



Source: CMA analysis of LSEG Refinitiv data.

7.360 We note the point raised by Professor Gregory (paragraph 7.349) that there is a mechanical effect to estimating beta, as the average market beta has to remain 1 by definition. We agree that this is the case, however, beta is a measure of risk relative to the market overall. If other stocks become relatively riskier in response to a crisis, we agree this will 'push' down the beta of low-risk stocks, but this seems to just reflect what beta is supposed to measure – relative risk to the market – not total risk. The mechanistic element of beta estimation does not therefore necessitate an adjustment during crises.

7.361 Structural break analysis involves a subjective exercise due to the subjective nature of the date ranges applied. For instance, KPMG and Kairos applied two different date ranges in their analyses. Kairos used the periods from 16 March 2020 and 23 June 2020 and between 6 January 2021 to March 2021 and KPMG used the period from 16 March 2020 to 19 July 2021. The differences applied by

two advisers looking to undertake the same analysis highlights the challenges of objectively undertaking structural break analysis for distortive periods such as COVID-19.

7.362 To the extent that COVID-19 had a downward impact on betas, and to the extent that we do not want to overweigh this in our analysis, we also note that we now have more than 4 years of data post the dates identified by Kairos and KPMG as having a 'distortive' effect on the beta.

7.363 Our view is that it is not appropriate to apply manual adjustments to econometric beta estimates for the impact of COVID-19. Doing so risks introducing further errors and inconsistencies into the estimation. We will consider what weight to give to the COVID-19 data as a judgement in the round, in our assessment of the overall beta range.

Impact of increasing capital intensity

7.364 The cost of capital should reflect the forward-looking risk of investing in the regulated activities, but the available evidence on risk is backward-looking. Betas are typically estimated using regression analysis of share price returns on the stock market returns, using historical data. This type of analysis implicitly assumes that risks faced by investors historically are broadly representative of forward-looking risk.

7.365 Throughout the PR24 price review process, water companies argued that the level of risk in the sector is increasing and therefore Ofwat's beta was too low and did not sufficiently reflect the increase in risk.[306] Ofwat did not explicitly adjust its econometric beta estimates for forward-looking risk in its PR24 FD.

Ofwat's PR24 FD approach

7.366 Ofwat concluded the conditions of PR24 did not necessitate a departure from the use of econometric beta estimates from listed water companies.[307] Ofwat also stated that it is rare to adjust econometric betas in proportion to capex intensity in UK regulation.[308]

7.367 Ofwat noted that adjusting econometric beta estimates carried an inherent risk of measurement error and also risked double counting the impact of forward-looking risk (as betas to some extent will reflect information about the future).[309]

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[306] Northumbrian SoC, p15–16, paragraphs 47–49; Wessex SoC, p89, paragraph 10.12 (c); South East SoC, pp79–80, paragraphs 6.18–6.20; Southern SoC, pp427–428, paragraph 85; Anglian SoC, p199, paragraph 759; Ofwat (2025) Response to common issues on risk and return, pp81–82 and p110, paragraph 5.84
[307] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p45.
[308] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p47.
[309] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p47.

Furthermore, Ofwat noted that if the outturn beta turns out to be higher than expected this higher beta will be reflected in the PR29 control.[310]

7.368 Ofwat submitted it agreed with CEPA's position that the 2025-30 average of annual capex-to-RCV is a more informative measure than the 2025-30 capex as a share of closing 2024-25 RCV.[311] This is as it is used by other regulators (aiding comparability), and it is more representative of the impacts of capex intensity, reflecting that growth in the RCV generates additional cashflows in the form of higher allowed return and RCV run-off payments which can act as a buffer to absorb shocks from the capex programme.[312] Ofwat also submitted that it agreed with CEPA's assessment of previous UK regulatory decisions that, while capex-to-RCV has occasionally been a consideration in determining equity beta, its role has often been unclear, and increases have not been in proportion to the size of the ratio.[313]

7.369 Ofwat noted the forecast average annual capex-to-RCV for PR24 was slightly higher than the average over the past 15 years.[314] Ofwat stated that the link between higher capex intensity and higher undiversifiable risk was weak from a theoretical and empirical standpoint. Furthermore, Ofwat noted that its PR24 FD provided enhanced risk protection compared to PR19 and it expected this to reduce beta risk.[315]

7.370 Furthermore, Ofwat stated that an analysis commissioned by CEPA found that a very long (16.5 year) spot daily beta gave an average unlevered beta for Severn Trent and United Utilities of 0.283 which was very close to the midpoint of Ofwat spot 5- and 10- year beta, giving them confidence the range was consistent with a long span of data and was representative of the type of risks investors might expect over the long-run.[316]

7.371 Ofwat noted its long-standing approach from previous controls has been to not make ex-ante adjustments to econometric estimates of beta in anticipation of how betas might change in the ensuing control period.[317] It submitted that no adjustments were made at PR09 to reflect the move to a revenue control, or at PR19 to reflect cost of new debt indexation, despite both changes arguably having a downward impact on systematic risk.[318] Ofwat noted this approach reflected difficulties in accurately calibrating the impact of regulatory changes on betas.[319]

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[310] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p51.
[311] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p37.
[312] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p37.
[313] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, p38.
[314] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p47.
[315] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p47.
[316] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p58.
[317] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, p41.
[318] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, p41.
[319] Ofwat (2024) Draft Determinations Aligning Risk and Return, Allowed Return appendix, p41.

7.372 While CEPA suggested an adjustment for capital intensity was not necessary for PR24, Ofwat noted that selecting an allowed return on equity in the upper end of its range would support the companies to secure financing for the PR24 investment programme. Therefore, Ofwat proposed an allowed return on equity of 5.10% which was the rounded upper-bound of their cost of equity range.[320]

Parties' submissions

Disputing Companies

7.373 All Disputing Companies submitted that Ofwat's beta estimates did not reflect the increase in risk in the sector at PR24.[321] All Disputing Companies included the effects of forward-looking risk in their beta or cost of equity estimations as they submitted that it was necessary to properly reflect the increase in risk.

7.374 Anglian stated that 2-year betas have been significantly more responsive to the changes in policy towards greater investment.[322] Oxera, Anglian's advisers, submitted that the 2-year beta estimates may be the most reflective of the forward-looking risk expected for AMP8.[323] Oxera submitted that its focus on the 2-year estimates for the upper end of its range reflects the heightened risk environment facing the sector.[324]

7.375 South East submitted that the CMA can widen the comparator set to bring in data from companies like National Grid that have encountered a step up in investment requirements several years earlier than water companies.[325]

7.376 South East also submitted that the CMA could also ensure that its PR24 estimate is positioned logically against previously used beta values (South East submitted the PR19 beta as an example)[326] and against the betas that are being used currently in other comparator sectors (eg the RIIO-3 beta for energy network companies).[327]

7.377 KPMG, South East's and Southern's advisers, submitted that the sector is no longer in a steady state and one of the most significant drivers of risk relevant to beta during AMP8 is the increase in capital intensity. KPMG submitted three different analyses on the changes in risk for PR24.

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[320] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p84.
[321] Southern SoC, p46 paragraph 59, Northumbrian SoC, paragraph 47 and appendix 1 section 3.4.4, Wessex SoC, paragraph 10.12 (c).
[322] Anglian SoC, paragraph 754.
[323] Oxera (2025) PR24 Cost of equity estimation, p23.
[324] Oxera (2025) PR24 Cost of equity estimation, p28.
[325] South East SoC, paragraph 6.21.
[326] Ofwat's PR19 unlevered beta was 0.29 and the CMA's PR19 mid-point unlevered beta was 0.29. CMA (2021) Final report, p881 and Ofwat (2019) PR19-final-determinations-Allowed-return-on-capital-technical-appendix.pdf, p4.
[327] South East SoC, paragraph 6.21.

(a) KPMG submitted that National Grid may provide useful evidence as its historical capital intensity aligns more closely with the projected capital intensity for PR24 (with the caveats that National Grid's historical capex intensity did not fully capture the increase at PR24 and that there was a growing perception of greater risk in the water sector compared to energy).[328] KPMG estimated that the 10-year beta for National Grid was 0.33, which was above the midpoint of its BAU[329] beta range of 0.32.[330] KPMG stated that its analysis of National Grid's beta suggested that the upper half of its beta range was more relevant for estimating a forward-looking beta.[331]

(b) KPMG also investigated the relationship between capital intensity and beta based on the analysis of non-financial UK stocks included in the FTSE 350. It classified companies into ten equally sized portfolios to form decile portfolios every year based on their capital intensity ratios.[332] KPMG performed a 10-year CAPM regression on each portfolio to estimate the portfolio betas and found a positive correlation between equity beta and capital intensity ratio.[333] KPMG used this analysis to estimate a forward-looking beta of 0.37.[334]

(c) KPMG also considered evidence from translating the impact of the increasing capex intensity on RoRE range to the equity beta. This was because regulators typically consider risk in RoRE terms.[335] KPMG noted that equity beta can be decomposed into the correlation between a company's returns and the market portfolio, multiplied by the ratio of the company's return volatility to that of the market portfolio.[336] It noted that the increase in RoRE variance indicated higher return volatility for the notional company.[337] Based on the difference in the total risk exposure associated with the increasing capex intensity, KPMG estimated an unlevered beta of 0.36 to capture forward-looking risk.[338]

7.378 Based on the RoRE risk evidence and the relationship between capital intensity and beta, KPMG uplifted the midpoint of the beta range.[339] KPMG narrowed the overall range to reflect only the upper half, adopting a beta range of 0.32-0.36.[340]

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[328] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 6.3.30.
[329] BAU beta refers to business-as-usual beta. It Is the beta that reflects the company's ongoing activities under normal circumstances. It reflects the risk profile of the business excluding any unusual events.
[330] KPMG (2025) Estimating the Cost of Capital for PR24, p70, paragraph 6.4.3.
[331] KPMG (2025) Estimating the Cost of Capital for PR24, p70, paragraph 6.4.5.
[332] KPMG (2025) Estimating the Cost of Capital for PR24, p70, footnote 151. This was calculated as capital expenditure divided by opening total assets, excluding opening long-term receivables and current assets.
[333] KPMG (2025) Estimating the Cost of Capital for PR24, p70, paragraph 6.4.6–6.4.8.
[334] Southern SoC, p451, paragraph 254.
[335] KPMG (2025) Estimating the Cost of Capital for PR24, p73, paragraph 6.4.13.
[336] KPMG (2025) Estimating the Cost of Capital for PR24, p74, paragraph 6.4.18.
[337] KPMG (2025) Estimating the Cost of Capital for PR24, p74, paragraph 6.4.19.
[338] KPMG (2025) Estimating the Cost of Capital for PR24, p75, paragraph 6.4.25.
[339] KPMG (2025) Estimating the Cost of Capital for PR24, p78, paragraph 6.6.3.
[340] KPMG (2025) Estimating the Cost of Capital for PR24, p78, paragraph 6.6.4.

7.379 In relation to capex-to-RCV ratios, KPMG submitted that a more relevant measure would be the price control average capex-to-opening RCV ratio as it captures the cumulative investment commitment and accounts for the scale of the activity relative to the size of the business.[341]

7.380 Kairos, Northumbrian and Wessex's advisers, submitted it expected the forward-looking beta to be above the mid-point of its unconditional beta range estimated using historical data given the step change in investment at PR24.[342]

7.381 Kairos assessed whether its unconditional betas was reflective of forward-looking beta estimates for PR24.[343] Kairos recognised that regulated water companies benefit from risk mitigation mechanisms under the regulatory regime that may not expose investors to the same level of risk as non-regulated companies.[344]

7.382 Kairos investigated international evidence on the relationship between changes in investment and CAPM beta for US, European and other developed market privatised utilities.[345] Kairos found that, with the exception of the lowest investment portfolios, the general tendency was for the CAPM beta to increase as investment increased.[346]

7.383 Kairos then tested for an effect from capital expenditure on estimates of beta for the UK listed water comparators Severn Trent, United Utilities and Pennon.[347]

7.384 Kairos noted that due to the risk mitigation mechanisms, it examined whether there is a relationship between investment and beta for regulated water companies specifically. Kairos conducted an analysis regressing excess returns on portfolios of the three listed water companies over the return provided by short-dated government-issued bills against excess returns of the FTSE All Share Index, and observable variables that proxy for the level of 'capital intensity'.[348]

7.385 To proxy for capex intensity Kairos considered the amount of prevailing capital expenditure expressed as a proportion of: (i) lagged observations of total assets, (ii) lagged observations of property, plant and equipment, and (iii) concurrent observations of the enterprise value.[349] Kairos found statistically significant evidence that increases in capex intensity were associated with increases in beta for portfolios of listed comparators comprised of Severn Trent and United Utilities and Pennon, across all three proxy measures of capex intensity.[350]

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[341] KPMG (2025) Estimating the Cost of Capital for PR24, p75, paragraph 6.4.29.
[342] Kairos (2025) Setting the Allowed Return on Equity for PR24, pp3–4, paragraph 6(a).
[343] Kairos (2025) Setting the Allowed Return on Equity for PR24, p48, paragraph 162.
[344] Kairos (2025) Setting the Allowed Return on Equity for PR24, p49, paragraph 165.
[345] Kairos (2025) Setting the Allowed Return on Equity for PR24, p49, paragraph 165.
[346] Kairos (2025) Setting the Allowed Return on Equity for PR24, p51, paragraph 172.
[347] Kairos (2025) Setting the Allowed Return on Equity for PR24, p49, paragraph 165.
[348] Kairos (2025) Setting the Allowed Return on Equity for PR24, p51, paragraph 174.
[349] Kairos (2025) Setting the Allowed Return on Equity for PR24, p52, paragraph 176.
[350] Kairos (2025) Setting the Allowed Return on Equity for PR24, p52, paragraph 178.

7.386 The evidence on capex was used in Kairos cost of equity range and considered more weight should be placed at the top of its cost of equity range.[351]

Ofwat

7.387 Ofwat reiterated some of its PR24 FD reasoning in its reply, emphasising that adjustments to beta for capex intensity were not commonplace in UK regulation, that any adjustment would need to take into account other changes to the risk and uncertainty package at PR24, that evidence from unregulated firms was unlikely to be relevant, that the lack of demand risk meant that operational gearing is a less significant driver of risk, and that there was a real risk of double-counting to the extent the estimated betas already reflect the market view of risks.[352]

7.388 Mason, Robertson and Wright, Ofwat's advisers, submitted that the betas on the deciles of KPMG's analysis were close to or above 1, so well above the betas of the water companies.[353] It submitted that this points to the real difficulties of using not just non-water, but also non-regulated companies to make inferences about the betas of regulated water companies.[354]

7.389 Mason, Robertson and Wright also considered Kairos analysis. It found that after excluding the COVID-19 dummy variable from the capex regression of Severn Trent and United Utilities, the effect of capex on beta for Severn Trent was statistically insignificant, although its significance for United Utilities remained.[355] Therefore it concluded that the COVID-19 period played some sort of role in Kairos' results.[356] It also noted that with limited variation of capex intensity in Kairos' sample, considerable caution needed to be exercised when making inferences about (out-of-sample) predictions of how beta will alter with substantially higher levels of investment.[357]

Disputing Companies' reply

7.390 In their response, the Disputing Companies submitted that not including a dummy variable to represent the Covid period in the regression analysis to investigate the

[351] Kairos (2025) Setting the Allowed Return on Equity for PR24, p75, paragraph 242.
[352] Ofwat, Response to common issues on risk and return, pp118–119.
[353] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p12, paragraph 2.20.
[354] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p12, paragraph 2.20.
[355] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p12, paragraph 2.22.
[356] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p12, paragraph 2.22.
[357] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p12, paragraph 2.24.

relationship between capex intensity and beta, as Mason, Robertson and Wright have done, biased estimated coefficients.[358]

7.391 The Disputing Companies noted that while regulatory protections may mitigate the impact of high capex intensity on operating leverage this dynamic has been explicitly considered in KPMG's March 2025 analysis.[359] They noted that the analysis adopted a deliberately conservative interpretation of evidence from non-regulated sectors to reflect the unique characteristics of the regulated water industry.[360]

Third Parties

7.392 MCC, CCW's advisers, agreed with Ofwat's reasoning and noted that the consequences of a large investment programme should largely be diversifiable and therefore should not impact the beta estimate.[361]

7.393 Compass Lexecon submitted supplementary evidence on the effect of higher operational gearing on beta on behalf of the Thames Investor Group. It proposed a theoretical framework for linking changes in operational gearing to beta and estimated an upward adjustment of around 0.03 to the unlevered beta.[362]

Our assessment and provisional decision

7.394 We do not manually adjust our econometric beta estimates for changes in risk at PR24. We recognise that intuitively there may be a theoretical link between beta and capital intensity. However, there is no clear methodology on how to estimate the impact of forward-looking changes, including forward-looking risk, on econometric beta estimates and we therefore consider that applying manual adjustments would risk introducing additional errors to our beta range.

7.395 We broadly agree with Ofwat's approach in the PR24 FD, that although capital intensity is increasing at PR24, there is a question of how material that increase is and therefore what impact that might have on the beta, if any. While we recognise that there are different ways to measure capital intensity, we find Ofwat's analysis of Capex to RCV for PR24 FD relative to previous prices controls, including in other sectors, informative.[363] Although the level of capital intensity is increasing at PR24 it is still below the levels observed in recent energy price controls and for Heathrow T5.

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[358] Disputing Companies (2025) Joint reply to Ofwat's responses, p19, paragraph 81.
[359] Disputing Companies (2025) Joint reply to Ofwat's responses, p20, paragraph 85.
[360] Disputing Companies (2025) Joint reply to Ofwat's responses, p20, paragraph 85.
[361] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p29, paragraph 85.
[362] Thames Investor Group (2025) Third party submission on the Water PR24 References, Annex 4: Compass Lexecon (2025) Third-party submission on behalf of Investor Group, p22, paragraph 2.18(b).
[363] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p48.

7.396 We also consider that the Disputing Companies have focused on one aspect of risk (capital intensity) without due consideration of how other factors may be changing risk, in particular, the various increased risk protections in this price control relative to the previous one.

7.397 In principle, we consider that there may be a link between capital intensity and risk. As the value of the firm can be thought of as the net present value of revenues less costs, a greater share of capital costs (which tend to be relatively fixed) is likely to increase the volatility of returns. However, the extent to which some of that increase in risk is systematic and how much of that risk is already picked up through our beta estimates is difficult to unpick.

7.398 Going back to our earlier observation that the water sector is relatively unusual in having pure-play comparators we can use to estimate beta, there is an even stronger case for not adjusting the underlying market data.

7.399 We note that none of the Disputing Companies suggest a mechanistic adjustment to the beta for the increase in capital intensity at PR24. Instead, the Disputing Companies use this evidence to support their selection of the overall beta range and point estimate. We broadly agree with the approach taken, to not manually adjust econometric beta estimates, but disagree with the weight given to the empirical evidence of the relationship between beta and capital intensity presented by the Disputing Companies and their advisers.

7.400 As set out above, KPMG and Kairos undertook different types of analysis to estimate the impact of increasing risk in their beta ranges. These analyses primarily related to capex intensity and betas for non-UK regulated water companies.

7.401 Our view is that a limitation of these methodologies is that they all apply different measures of capital intensity, leading to results that are not necessarily comparable, especially in the context of UK water companies. Even if this analysis finds a statistically significant relationship between some measure of capital intensity and beta, we do not consider that we can directly use to assess what beta range is more appropriate.

7.402 We also do not propose to include National Grid's beta in our analysis. National Grid is governed by a different regulatory framework, it is not a 'pure play' company and has a significant part of its operations outside the UK, which will result in differences in risk exposure compared to water companies. Even if National Grid has comparable capital intensity to the water companies, all these other factors mean that its beta is not necessarily comparable to betas of the water companies.

7.403 The estimation of betas involves analysis of historical data. However, more recent periods of that data will reflect investors' expectations of changes in risk in the future. To the extent that systematic risk is increasing, the increase can be captured in more recent beta estimates and by giving weight to shorter-term beta estimates. We discuss this further in our provisional conclusion on beta below.

Low beta anomaly and CAPM biases

7.404 The Disputing Companies and their advisers have raised other issues with Ofwat's estimation of betas in their submissions: low beta anomaly bias and attenuation bias.

Parties' submissions

Disputing Companies

7.405 We received submissions on the low beta anomaly and CAPM biases from Oxera and Kairos.

7.406 Oxera submitted that there is an extensive academic literature suggesting that low beta, low volatility companies are characterised by a cost of equity implied by the CAPM which understates their actual observed returns earned.[364]

7.407 Oxera and Kairos submitted that market evidence shows that the security market line, which portrays the rate of return as a function of systematic risk, is empirically flatter than predicted by the CAPM-implied beta.[365] This means that by underestimating the beta, the CAPM understates the rate of return required for systematic risk.[366]

7.408 Oxera and Kairos submitted that because regulated utilities usually have equity betas lower than one, the CAPM might underestimate the required return.[367] For this reason Oxera noted that it was reasonable to choose a beta estimate towards the top-end of the beta estimate range.[368] Kairos also submitted that the CAPM suffers from omitted variables bias and has been proven to perform particularly poorly for low beta stocks.[369]

[364] Oxera (2025) PR24 Cost of equity estimation, p20.
[365] Oxera (2025) PR24 Cost of equity estimation, p20; Kairos (2025) Setting the Allowed Return on Equity for PR24, pp62–63, paragraph 213(b).
[366] Oxera (2025) PR24 Cost of equity estimation, p20.
[367] Oxera (2025) PR24 Cost of equity estimation, p20; Kairos (2025) Setting the Allowed Return on Equity for PR24, pp62–63, paragraphs 213–214.
[368] Oxera (2025) PR24 Cost of equity estimation, p20.
[369] Kairos (2025) Setting the Allowed Return on Equity for PR24, pp62–63, paragraph 213.

7.409 Oxera also noted that another empirical issue (the attenuation bias) might have an effect on betas, citing Jegadeesh et al.[370] Oxera submitted that the academic literature suggests that this bias causes CAPM-based betas to tend towards zero.[371] It submitted that this is caused by the presence of measurement errors in the market returns.[372] Oxera concluded that caution should be exercised when selecting a beta point to ensure that the cost of equity does not significantly underestimate the return.[373]

Ofwat

7.410 Mason, Robertson and Wright noted that Jegadeesh et al. looked at two-stage regressions.[374] The errors-in-variables problem which is present in the second stage gives rise to the attenuation problem cited by Oxera.[375] They noted that this problem is absent in the CAPM used by regulators, as equity betas are estimated in a single-stage regression.[376]

7.411 Mason, Robertson and Wright acknowledged that in the standard one-stage beta estimation regression the expected return on the market portfolio is measured with error.[377] They noted this can be addressed through tried-and-tested techniques such as instrumental variables and that the FTSE All Share could be replaced with a global stock portfolio, so that the home bias could decrease.[378]

7.412 Mason, Robertson and Wright concluded that regulators should look at a wide range of estimates of beta and form a view in the round.[379] The concerns on underestimation of expected returns on low beta stocks should be reflected in the in-the-round assessment after the estimation of all CAPM components to avoid double or triple counting.[380]

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[370] Oxera (2025) PR24 Cost of equity estimation, p20; and Jegadeesh, N, Noh, J, Pukthuanthong, K, Roll, R and Wang, J (2019) 'Empirical tests of asset pricing models with individual assets: Resolving the errors-in-variables bias in risk premium estimation', *Journal of Financial Economics*, pp273–298.
[371] Oxera (2025) PR24 Cost of equity estimation, p20.
[372] Oxera (2025) PR24 Cost of equity estimation, pp20–21.
[373] Oxera (2025) PR24 Cost of equity estimation, pp20–21.
[374] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.28.
[375] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.28.
[376] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.28.
[377] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.29.
[378] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.29.
[379] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.30.
[380] Mason, R, Robertson, D and Wright, S (2025) A report on allowed return issues in disputing companies' statements of case, p15, paragraph 2.30.

Our assessment and provisional decision

7.413 We do not dispute that the CAPM has empirical shortcomings and, as with any asset pricing model, it comes with estimation challenges.

7.414 However, the debate tends to be heavily skewed to one side, with companies pointing out various research which supports the hypothesis that the allowed cost of equity is too low. The low-beta anomaly, the Brennan CAPM we discussed earlier and the multi-factor models we discuss below are all, to some extent, motivated by empirical findings that the CAPM does not fit the historical data that well. We do not dispute that many of these arguments are based on sound academic research, but we are also wary that there is a risk of cherry-picking and that there are likely to be arguments on the other side which suggest our methodology overestimates the cost of equity. To give an example, while we use a stock market index to estimate the beta, an argument can be made for using a global index, or better yet, if the data permitted, a global index of all traded assets (which is what theoretically should be used in the CAPM). A beta relative to such an index might look very different to our estimates, but we simply cannot control for all such issues in our estimation.

7.415 We conclude that there is a risk of double counting various errors in the estimation, if we were to give weight to each of these arguments. We also reiterate our preference for a consistent and proportionate approach to estimating the allowed return.

7.416 Overall, while Oxera and Kairos point out a few interesting pieces of academic research, we do not consider that we need to explicitly take them into account when arriving at our beta range and picking a point estimate.

Debt beta

7.417 Debt beta is a measure of systematic risk borne by bondholders. Debt beta has a relatively small effect on the overall WACC and is generally more difficult to measure than equity beta as bonds are less well traded than equities and so the quality of bond returns data is likely to be lower than that of share price data.

7.418 There are four ways to estimate debt beta:

(a) the direct approach involves regressing bond returns directly on equity market returns;

(b) the indirect approach requires a two-step methodology. The first step involves regressing a company's bond returns against returns on an index of government bonds and the returns on the shares of the same company. The second step is to multiply the coefficient on the company's equity returns (this

is the elasticity of debt with respect to equity) obtained from the regression in the first step, by the company's equity beta;

(c) the structural approach involves viewing equity as a call option on the firm's assets, and debt a put option, with a strike price equal to the face value of debt. Under particular assumptions, the Black-Scholes formula can be used to value those options. In turn, the debt beta can be calculated from these resulting values; and

(d) the decompositional approach involves decomposing the debt spread (the spread between yields on corporate and government bonds) into three components—default premium, default risk premium and liquidity premium.

7.419 The debt beta range in UK regulatory decisions since December 2019 has been 0.05–0.125.[381]

Ofwat PR24 FD approach

7.420 Ofwat's range is informed by FTI's 2022 report, which provided four different approaches to estimating debt beta (direct, indirect, structural and decompositional).[382] Ofwat noted that FTI's debt beta range of 0.05 to 0.15 has a high relevance as it drew on more recent data and covered more approaches than the PR19 Final Report.[383]

7.421 Ofwat noted that more recent evidence suggests that the water sector debt beta may have increased.[384] It noted that Barclays assumed a debt beta of 0.2 and that the debt risk premium of listed water bonds yields was higher relative to historic levels.[385] Ofwat however noted that its notional gearing, of 55%, was lower compared to PR19's 60% and that there was evidence that gearing and debt beta may be positively correlated.[386]

7.422 Ofwat concluded that a debt beta range of 0.05 to 0.15 was a reasonable assumption.[387]

[381] UKRN, 2024 UKRN Cost of Capital Report, p20, table 8.
[382] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p55 and FTI Consulting (2023) FTI Consulting - Early view of water sector betas for PR24 (updated June 2023) - Ofwat.
[383] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p55.
[384] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p55.
[385] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p55.
[386] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, pp55–56; CEPA (2019) 'Considerations for UK regulators setting the value of debt beta', pp14–15.
[387] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p56.

Parties' submission

Disputing Companies

7.423 Kairos, Northumbrian and Wessex's advisers, submitted that it considered that 0.05 – 0.10 represented an appropriate range for the debt beta.[388] However, it set a range between the midpoint and the top of the range, 0.075-0.1 in light of the evidence suggesting that there is a perception that the relative risk associated with an investment in regulated water assets has increased and Ofwat's recognition that the cost of debt for the notionally financed company has risen in relative terms.[389]

7.424 KPMG, South East and Southern's advisers, applied a debt beta of 0.10.[390] Southern, despite applying a 0.1 debt beta, also cited a Barclays estimate of 0.40 asset beta for the water sector, following Ofwat's PR24 FD, based on a debt beta point estimate of 0.2.[391]

Our assessment and provisional decision

7.425 Debt beta was broadly an uncontentious issue between the Parties and we did not receive many submissions on it. Three of the five Disputing Companies used Ofwat's PR24 FD debt beta range of 0.05–0.15, while Kairos, advising Northumbrian and Wessex, used a different debt beta range, albeit its debt beta range of 0.05–0.10 is within Ofwat's range.

7.426 We note that there is significant calculation uncertainty associated with debt beta. Debt beta also has a relatively small effect on the overall WACC, so changes to the range would not significantly affect our overall cost of equity results.

7.427 Although Kairos and Ofwat's submissions suggest that there is a perception that the relative risk associated with debt investment in regulated water assets has increased, we tested how sensitive our re-levered equity beta range is to changes in debt beta and found that it does not change materially with different debt betas.

7.428 We therefore provisionally decide to retain Ofwat's final determination debt beta range of 0.05–0.15.

CMA provisional conclusions on beta

7.429 In estimating our unlevered beta range, we considered:

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[388] Kairos (2025) Setting the Allowed Return on Equity for PR24, p58, paragraph 198.
[389] Kairos (2025) Setting the Allowed Return on Equity for PR24, p58, paragraph 198.
[390] KPMG (2025) Estimating the Cost of Capital for PR24, p78, Table 28.
[391] Southern SoC, p454, paragraph 271 and footnote 111.

(a) whether to use spot or rolling data;

(b) the frequency over which to estimate beta;

(c) the relevant estimation windows;

(d) the relevant comparators to include in our analysis;

(e) the impact of COVID-19; and

(f) the impact of increasing capital intensity.

7.430 We noted at the start our preference for using spot daily betas, and we provisionally conclude that this is a reasonable approach, having reviewed the underlying evidence. On the three key debates, we provisionally conclude that:

(a) there are no good arguments to exclude Pennon as a comparator post the Viridor sale and post the normalisation of Pennon's gearing. While this means we can more reliably use data after March 2022 to estimate Pennon's beta, this is not a reason to exclude it. Including Pennon is likely to reveal additional information on the relative risk of the sector, not available in previous decisions;

(b) it is not appropriate to adjust betas for the impact of the COVID-19 pandemic. These periods can provide important insight into relative risk of assets during crises, and it is important to take it into account. However, we can reduce the impact of the pandemic period on our range by giving some weight to betas post all the restrictions (for which we now have around 4 years of data) and by considering sufficiently long-term betas (such as 10 years) which are less affected by the pandemic than other measures of long-term betas (such as 5 years); and

(c) we agree that capital intensity is increasing on a forward-looking basis, and that this may have some impact on risk. However, we conclude that it is not possible to isolate the impact of this effect on beta. We also consider that more recent beta estimates are likely to incorporate this effect (to the extent that it exists and is material). This is another argument in our view to give some weight to shorter-term beta evidence.

7.431 All in all, we provisionally conclude to derive our unlevered beta range as follows.

(a) We derive the lower end of our range using a simple average of Severn Trent and United Utilities 10-year daily spot betas. We consider it is important to consider long-term trends, to aid consistency and predictability, and recognising that shorter-term betas tend to be more volatile.

(b) We derive the upper end of our range using a simple average of the Severn Trent, United Utilities and Pennon 3-year daily sport betas. This allows us to include Pennon. This period also excludes the COVID-19 period, and the shorter-term betas are likely to be more responsive to any changes in forward-looking risk. We have chosen 3-years over 2-years to reduce the impact of volatility in shorter-term betas on our range.

7.432 We are aware that the arguments for and against different estimation windows change from one price control to the next, and this can risk creating inconsistencies in the approach. For example, at PR19, Ofwat used short-term betas but water companies generally argued against that, because such an approach implied lower betas. At PR24, Ofwat chose to use longer-term betas, but some companies are now arguing for using short-term betas (or alternatively arguing for adjustments to longer-term betas to reduce the impact of low beta periods).

7.433 Overall, while we are aware of these debates, and the risks of inconsistency, we consider that the choice of estimation windows does require regulatory judgement at each price control, taking into account the various evidence in the round. We consider that our proposed approach is a balanced response to that evidence.

7.434 As shown in Table 7.11, this gives us an unlevered beta range of 0.28 to 0.34.

Table 7.11: CMA provisional beta range

CMA provisional view	Lower bound	Upper bound
Unlevered beta	0.28	0.34
Debt beta	0.15	0.05
Listed comparator gearing	52.4%	55.2%
Asset beta	0.36	0.37
Notional gearing	55.0%	55.0%
Re-levered equity beta	0.61	0.76

Source: LSEG Refinitiv data and CMA analysis.

Cross checks and selecting a cost of equity point estimate

Summary

7.435 We provisionally select a point estimate for the cost of equity of 5.90%, equivalent to 30bps above the mid-point of our CAPM range. This is primarily to ensure the sector is sufficiently attractive to investors to fund the large-scale capital investment programmes in PR24. We also note that there is a relatively low debt-to-equity premium implied by the cost of new debt and the mid-point of our CAPM range.

Introduction

7.436 Consistent with standard regulatory practice, we estimate a range for the cost of equity, recognising the inherent uncertainty around the estimates. The table below sets out our provisional CAPM cost of equity range, based on the analysis set out in the sections above.

Table 7.12: CMA provisional CPIH-real cost of equity range

CPIH-real	*Low*	*High*
Notional gearing	55.00%	55.00%
RFR	2.49%	2.49%
Total market return	6.70%	7.30%
ERP	4.21%	4.81%
Unlevered beta	0.28	0.34
Debt beta	0.15	0.05
Listed comparator gearing	52.41%	55.20%
Asset beta	0.36	0.37
Re-levered equity beta	0.61	0.76
Cost of equity Appointee	5.07%	6.13%

Source: CMA analysis

7.437 Given the uncertainty in estimating the cost of equity, it is important consider other sources to sense check the resulting range and select a point estimate.

7.438 Ofwat selected a point estimate of 5.10%, at the top of its CAPM range. This equated to 28bps above the mid-point of its CAPM range.[392]

7.439 Ofwat noted the following two arguments that it considered were key in selecting a cost of equity point estimate above the mid-point of the range.[393]

(a) Investor sentiment towards the water sector is currently low. Ofwat considered it important that its determinations are seen to support investment and investor confidence at a time when all companies (whether good or poor performers) are expected to continue to raise record levels of debt and equity finance, while competing with other sectors and internationally for the allocation of that capital.

(b) Companies and their consultants have argued that a large capital programme increases risks associated with capital intensity. Ofwat stated that while CEPA's advice and past regulatory decisions, alongside the other protections it has introduced, suggests that an adjustment for capital intensity is not necessary for PR24, an allowed return on equity that is in the upper end of Ofwat's range should support companies to secure external financing required to deliver the PR24 investment programme over 2025–30.

[392] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p7.
[393] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p84.

7.440 This section considers the cross checks for the CAPM cost of equity submitted by Ofwat, the Disputing Companies and third parties, as well as other considerations for selecting a point estimate for the cost of equity.

7.441 The UKRN guidance sets out five issues which have been considered in recent regulatory decisions when selecting a point estimate from the CAPM cost of equity range.[394]

(a) **Cross-checks from market evidence**. Since the CAPM is just one model of expected returns, market benchmarks provide a sense-check on the CAPM point estimate when such market data are available.

(b) **The welfare impact from underinvestment**. Views have been set out that given that the true required return is not known, this could result in underinvestment if the allowed return is set too low. It has been argued that the consequences of misstatement are asymmetrical, with underinvestment a worse outcome for customers than over-remuneration.

(c) **Asymmetry in the package of incentives**. The expected returns to capital providers depend not only on the allowed rate of return but also on performance against a range of financial incentives in a price control. If the overall distribution of returns is skewed such that the expected return on equity does not equal the base return on equity, it has been argued it may be appropriate to adjust the base level of allowed return to achieve this.

(d) **Asymmetry in the choice of parameters**. Ranges for the individual CAPM parameters rely on a degree of judgement, and it has been argued that it might be inappropriate to assume that the mid-point of the CAPM range is the most likely point estimate.

(e) **Financeability**. Some regulators model the financial ratios of the regulated entity to assess the adequacy of expected cash flows to service debt payments and to raise new finance on reasonable terms. It has been argued that where modelled cashflow ratios are too low regulators should adjust the allowed return on equity to remedy this.

7.442 The UKRN guidance notes that it has been periodically suggested that regulators should choose a cost of equity point estimate above the midpoint of the CAPM range by default, to address issues (b) through to (e) above. The UKRN guidance cautions against this, and states that there must be clear and convincing evidence that such a decision is in customers interests.[395]

[394] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, pp26–27.
[395] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p27.

7.443 At PR19, the CMA took account of similar considerations to those outlined in the UKRN guidance when selecting its cost of equity point estimate. The CMA noted that there were three broad arguments for picking a point estimate higher than the midpoint for the cost of equity.[396]

(a) To promote short- or long-term investment in the water sector, and address the risk of an exit of capital if the cost of equity is set too low.

(b) To reflect structural asymmetry in the overall determination, specifically around the skew in the incentives package.

(c) To take into account a cross-check on market data and financeability ratios.

7.444 In this section we consider the evidence along the five themes identified by the UKRN guidance (as set out in paragraph 7.441) as we consider that they encompass the right considerations for selecting a point estimate. Specifically in relation market-based cross-checks, we note that this is an area which has expanded considerably in recent regulatory practice. The CAPM remains the primary methodology for setting the allowed return on equity and we consider that a proportionate approach to cross-checks is required.

Market-to-asset ratios

7.445 In the water sector, market to asset ratios (**MARs**) have become a widely used cross check to the CAPM cost of equity. MARs analysis compares the market value of a listed company to the RCV. A MAR above 1 indicates that the market is willing to pay a premium over the regulated asset value of the business. As the regulated asset value represents the discounted value of future cash flows, a MAR above 1 could be indicative of expected outperformance against future price controls.

7.446 In the PR24 FD, Ofwat calculated an RCV-weighted average MAR premium of 9% (for the three listed water companies). This analysis resulted in an indicative cost of equity range of 4.3% to 6.3% using a perpetual dividend growth model and an average of the three listed companies (the individual companies had indicative cost of equity ranges of: United Utilities 4.1-6.1%, Severn Trent 3.6-5.6% and Pennon 5.2-7.2%).[397] Ofwat noted that MARs analysis is widely used by investors and utility equity analysts as a guide to investor sentiment and can provide an indication of the required equity return whilst also noting that there are uncertainties associated with company valuation.[398] Ofwat therefore concluded that MARs analysis is suited to providing an indicative range within which the likely

[396] PR19 final report, pp1057–1058, paragraph 9.1240.
[397] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p69.
[398] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p67.

required return on equity lies, rather than the precise calibration of a point estimate.[399]

7.447 Anglian submitted that a robust MARs analysis supports a significantly higher cost of equity. Anglian stated that updated to January 2025, the MARs range for the cost of equity is 4.95-6.38% CPIH-real, averaged across Pennon, United Utilities and Severn Trent[400] (the individual companies had indicative cost of equity ranges of: United Utilities 4.97-6.30%, Severn Trent 3.75-5.52% and Pennon 6.13-7.34%).[401] Anglian also noted that Severn Trent and United Utilities have material premia over RCV, whereas Pennon does not. Anglian stated that Pennon is more reflective of the sector median, and as such, MARs analysis should use Pennon as the cross check, which would result in a higher indicative cost of equity.[402]

7.448 Northumbrian stated that Ofwat's MARs analysis is based upon an unrealistically low assumption for future growth of relevant RCVs of 0-2%.[403] Kairos suggested an alternative approach to estimating the MARs inferred cost of equity where the value of the stream of dividends is truncated into a short-term period, and a terminal value. Kairos stated that this alternative approach allowed the RCV growth over the short and long-term to be set separately and are more easily interpretable when relying on empirical evidence to support assumptions.[404] Northumbrian argued that using Kairos' approach and updating to a more reasonable assumption for RCV growth, the implied cost of equity range would be 5.2-6.8% (the individual companies had indicative cost of equities of: United Utilities 5.8%, Severn Trent 5.2% and Pennon 6.8%).[405]

7.449 In making our assessment of the MARs cross-check, we agree that it is difficult to use MARs to accurately select a point estimate for the cost of equity and there could be a number of drivers for a MAR deviating from 1. However, MARs analysis of the listed water companies may provide useful information about the broad appetite for equity investment in the sector.

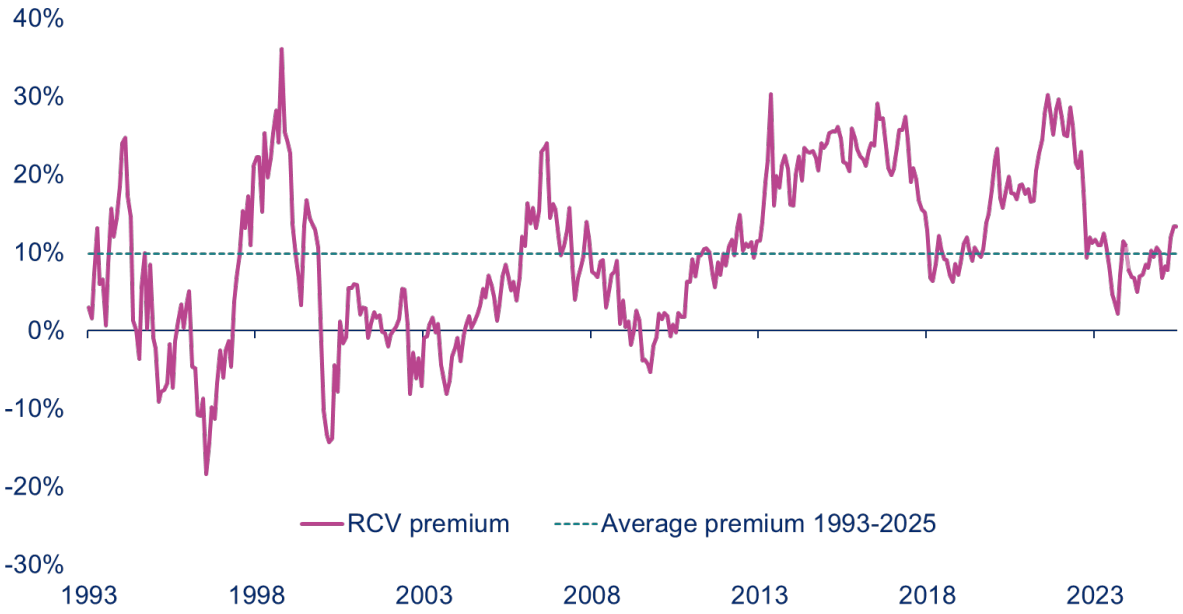
7.450 In our MARs analysis we consider the three listed water companies (Severn Trent, United Utilities and Pennon), analysing the trend in MARs over time and estimating the MARs inferred cost of equity for June 2025.

7.451 Figure 7.11 below shows the trend over time of the weighted-average[406] MAR premium for the listed water companies. As of June 2025, there was a 13% average MAR premium (ie that the listed water companies' enterprise value was

[399] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p67.
[400] Anglian SoC, paragraph 674.
[401] Oxera (2025) PR24 Cross-checks to CAPM estimation, Table 3.2, p23.
[402] Anglian SoC, paragraph 674.
[403] Northumbrian SoC, paragraph 585(e).
[404] Kairos (2025) Setting the Allowed Return on Equity for PR24, paragraphs 230–231.
[405] Kairos (2025) Setting the Allowed Return on Equity for PR24, p68, Table 17.
[406] The weighted average is calculated as the total adjusted EV for the three listed companies divided by the total RCV for the three listed companies.

13% higher than the RCV). This is above the long-term average premium of 10%, and the highest premium observed since September 2022.

Figure 7.11: Weighted average water sector MAR premium, January 1993 to June 2025



Source: CMA analysis of Refinitiv data and equity analyst reports.

7.452 To infer a cost of equity range from the MARs we use a Dividend Growth Model, adjusting for expected future RoRE performance and real RCV growth. This is the same methodology as used by Ofwat,[407] and adopted by Oxera[408] and KPMG[409] in their reports submitted with the Statements of Case. We note that Kairos employed an alternative methodology which used a higher, shorter-term assumption on RCV growth and a terminal value after 20 years. Although we recognise that it may be useful to assume differing RCV growth assumptions for the short and longer term, we note there is uncertainty in the estimation of the terminal value in Kairos' analysis and therefore we conclude that Kairos' methodology is not obviously more robust than that employed by Ofwat, Oxera and KPMG.

7.453 Table 7.13 below sets out the assumptions used in our analysis.

Table 7.13: Assumptions used for MARs analysis (June 2025 data)

	Low scenario	High scenario
Notional gearing	55%	
Discounting horizon	In perpetuity	

[407] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, pp99–104.
[408] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 3.
[409] KPMG (2025) Estimating the Cost of Capital for PR24, section 9.5.

Allowed return on equity (CPIH-real)		5.60%	
RoRE performance	0%		2%
Real RCV growth	0%		2%

Source: CMA analysis

7.454 Using June 2025 market data, the inferred cost of equity ranges for each of the listed companies is set out in Table 7.14 below.

Table 7.14: MARs and MARs inferred cost of equity ranges (June 2025 data), CPIH-real

		MARs inferred cost of equity	
Company	**MARs**	**Low scenario**	**High scenario**
United Utilities	1.14	4.3%	6.3%
Severn Trent	1.17	4.0%	6.0%
Pennon	1.03	5.3%	7.3%
Average (simple average)	1.11	4.5%	6.5%

Source: CMA analysis of LSEG Refinitiv data[410] and equity analyst reports[411] provided by Ofwat. Note: the allowed return on equity is based on the mid-point of our estimated range, as shown in Table 7.12 above.

7.455 Our analysis uses daily market capitalisation data. Daily data for the RCV, net debt and non-regulated activities inputs are not available. Therefore to estimate the inferred MARs cost of equity range, the RCV, net debt and non-regulated activities inputs are estimated using a linear extrapolation from the March 2025 actuals to the forecast position in March 2026.

7.456 We note that an assumption of zero real RCV growth in perpetuity may be conservative, especially in the context of the large investment programmes for PR24, which implies that the inferred cost of equity in the low scenario might be understated. Conversely, perpetual annual RoRE outperformance of 2% is likely to be too optimistic, which implies that the inferred cost of equity in the high scenario might be overstated. Taking these two factors together, a cost of equity range somewhere between the low and the high ends of our inferred MARs range are likely to be more plausible.

7.457 We note the MARs implied cost of equity analysis results in a wide range, particularly if the individual company ranges are considered in addition to the averages. However, we note that our CAPM range sits within the middle of the average MARs implied cost of equity range and therefore we conclude our CAPM cost of equity range is consistent with the observed MARs.

[410] The daily market capitalisation data is sourced from LSEG Refinitiv.
[411] The equity analyst reports include a forecast for net debt, RCV and non-regulated activities as at March 2026 for each of the listed companies. These forecasts, and the March 2025 actuals, are used to calculate a linear extrapolation to estimate MARs consistent with our June data cut-off.

Debt-to-equity premia

7.458 It is a general principle that the risk faced by equity investors, for a given level of gearing, is higher than the risk faced by debt investors. It therefore may be useful to consider the relationship between expected risk premia to debt and equity, and how this has changed over time, to inform our selection of a cost of equity point estimate.

7.459 The company-specific expected ERP is an output from our CAPM range. There is no widely accepted methodology for estimating the expected debt risk premium. We note that while there are methodologies for estimating the probability of default and the loss in the event of default, estimating the underlying debt risk premium is not without uncertainty or judgement.[412]

7.460 In this section we consider a number of debt-to-equity premia cross checks and comment on their usefulness in informing our selection of a cost of equity point estimate. We note that in this context it is important to consider the debt risk premium on new debt only, to ensure both the debt and equity benchmarks reflect forward-looking expectations of returns.

General points on debt-to-equity premia

7.461 As discussed under 'TMR (ie total market return)' above, Ofwat's methodology assumes that the TMR is relatively stable through time (a 'through the cycle' or 'fixed TMR' approach). We also adopt broadly the same approach although we calibrate our TMR estimates by placing some weight on ERP evidence. The implication of the fixed TMR assumption is that the ERP falls when interest rates rise and vice-versa, leading to a relatively stable real cost of equity allowance between regulatory decisions, even when interest rates change. This means that the debt-to-equity premia will generally fall when interest rates rise and vice-versa.

7.462 Had debt to equity premia analyses been used to cross-check previous water regulatory determinations, such as PR19, when interest rates were very low, it would have shown a significant difference between the allowed cost of equity and the spot cost of new debt at the time.

[412] Previous analysis by the Competition Commission estimated a separate liquidity premium for corporate debt, to be deducted from the observed yields, implying that there could be other factors which drive a difference between the promised yield and the underlying debt risk premium. Competition Commission (2007), BAA Ltd Report on the economic regulation of the London airports companies (September 2007), Appendix F: Cost of Capital, p26 Table 5.

Levered cost of equity

Ofwat's PR24 FD approach

7.463 Ofwat noted in the PR24 FD that the premium between the cost of equity and the cost of debt had narrowed over time but that it considered this was consistent with its adoption of a 'fixed TMR' approach which makes the allowed return on equity less sensitive to changes in interest rates, than the allowed cost of debt.[413]

Parties' submissions

Disputing Companies

7.464 Northumbrian stated that the PR24 FD cost of equity provided a premium above the estimate for the cost of new debt of 1.36%, compared to 4.5% by the CMA at PR19. Northumbrian submitted that this highlights that Ofwat's cost of equity is not sufficient to provide equity holders with a reasonable return, when compared with expected returns on related available debt-based investments.[414]

7.465 Southern argued that Ofwat's debt-to-equity premia for AMP8 is smaller than it allowed for previous AMPs, specifically, the spread between Ofwat's allowances for equity and new debt is at its lowest level since at least PR04.[415]

Third parties

7.466 MCC, on CCW's behalf, noted that it is a natural consequence of the fixed TMR approach that the gap between debt and equity will narrow when interest rates are higher. MCC also noted that the premium was lower, than it is in the PR24 FD, for the ten-year period between 1995 and 2005.[416]

Ofwat

7.467 In its response to the Disputing Companies' Statements of Case, Ofwat noted that it was unaware of any financial theory which posits the need for a minimum wedge between the cost of debt and equity (although Ofwat recognised that new debt should normally carry a lower required return on account of ranking senior to equity in repayment order). Ofwat stated that a reason driving a narrower debt-equity differential may be a higher debt beta, due to the perception that

[413] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix p64.
[414] Northumbrian SoC, paragraph 585(d).
[415] Southern SoC, p461, paragraph 311.
[416] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, paragraphs 69–71.

bondholders may be facing a higher share of systematic risk than was previously the case.[417]

Our assessment and provisional decision

7.468 Our initial starting point is that comparing expected returns to debt and equity investors can be a helpful sense check on the allowed return on equity, but one that is not straight forward to interpret.

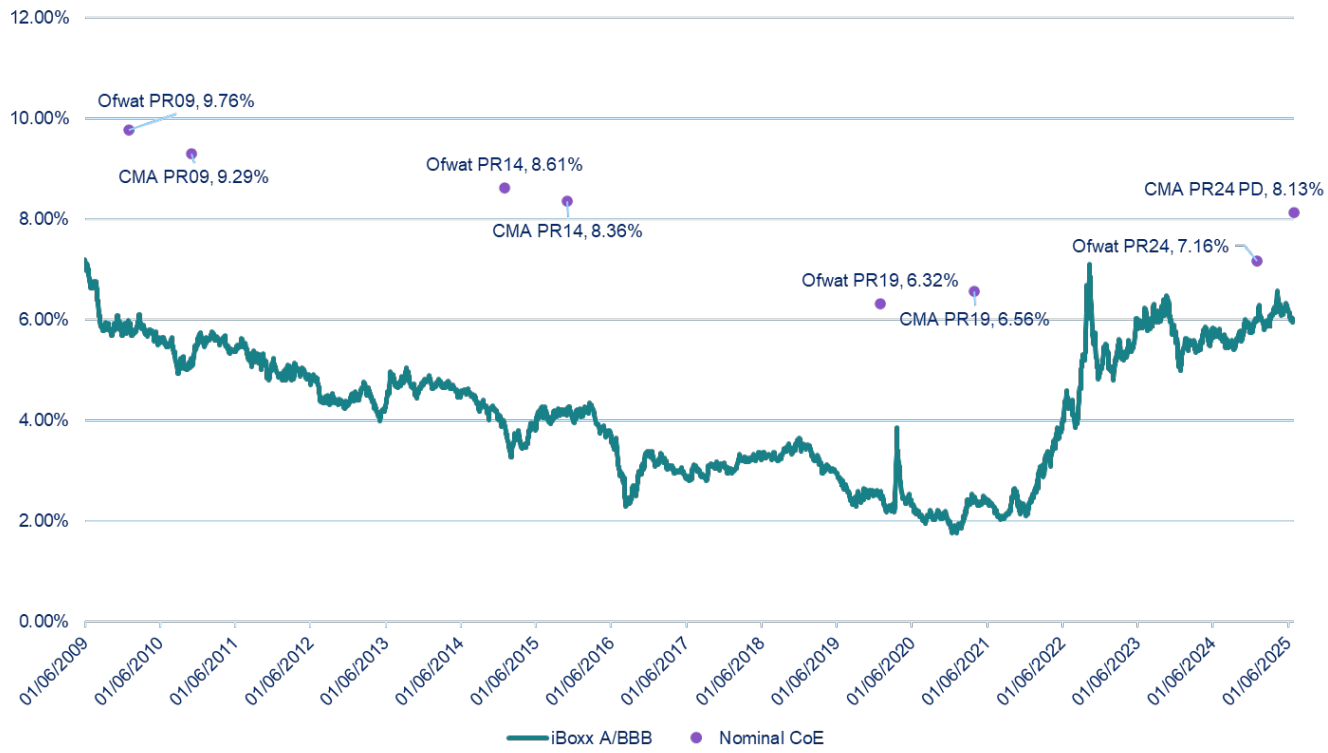
7.469 Observed data on expected returns to debt investors typically comes in the form of nominal promised yields on long-term bonds. These yields will embed the market expectations of: (i) inflation over the bond tenor; (ii) a potential inflation risk premium typically required on nominal fixed-rate investments; and (iii) expected loss given default. Traded debt instruments may also attract a liquidity premium compared to listed shares. While we agree that equity investors should reasonably demand a higher return to compensate for higher risk (ie higher variability) of equity returns compared to debt, it is not clear how these various other factors affect this hierarchy of returns. Bearing these uncertainties in mind, we now consider the available evidence.

7.470 There have been changes in the methodology used by Ofwat (and the CMA) to set the allowed cost of new debt over previous water price controls. In the PR24 FD, Ofwat used the iBoxx A/BBB to estimate the cost of new debt, and this was also the basis for the cost of new debt allowance at PR19 implemented by both Ofwat and the CMA. We therefore use the iBoxx A/BBB index as a benchmark for the cost of new debt allowance against which to compare the allowed return on equity. The chart below shows the nominal iBoxx A/BBB index with the allowed cost of equity from decisions in the water sector since PR09 (converted to nominal terms using the inflation assumptions used in the relevant price control decision).

7.471 We note that Kairos included a similar analysis in its report.[418] Kairos presented the allowed return on equity in nominal terms using both official forecasts and swap-based estimates for inflation.[419] We note that using swap-based inflation estimates will result in a higher wedge between the nominal allowed return on equity and the iBoxx A/BBB.

[417] Ofwat (2025) Risk and return – common issues, paragraph 5.148.
[418] Kairos (2025) Setting the Allowed Return on Equity for PR24, Figure 4, p70.
[419] Kairos (2025) Setting the Allowed Return on Equity for PR24, Figure 4, p70.

Figure 7.12: Nominal iBoxx A/BBB and cost of equity decisions in water



Source: CMA analysis of iBoxx data and previous Ofwat decisions. Note: CMA PR24 PD shows the mid-point of our CAPM range.
]

7.472 Figure 7.12 above shows that the difference between the iBoxx A/BBB and the allowed return on equity for Ofwat's PR24 FD was lower than previous price controls set by Ofwat and the CMA.

7.473 The mid-point of our provisional cost of equity range is 2.1% above the iBoxx A/BBB index, which is lower than the premia in previous water price control decisions. We note that there are limitations to this analysis as, first, it uses the long-term inflation assumption at the time of the price control decision and, second, the notional gearing has changed over time. The decisions shown all had notional gearing above 55% which, all else equal, will increase the allowed return on equity. We note that the reduction in the spread between the iBoxx A/BBB and the allowed return on equity is largely due to the 'through the cycle' approach to TMR. As set out under 'TMR (ie total market return)' above, we have amended the approach to TMR to take account of changes in interest rates, but we would still expect the premia between debt and equity to be lower than previous price controls, due to higher interest rates.

Unlevered cost of equity

7.474 As noted above, the risk faced by equity investors, for a given level of gearing, is higher than the risk faced by debt investors. This principle can be extended further to note that the debt risk premium should not theoretically exceed the ERP for an

unlevered firm. This is because, as gearing rises, the debt becomes more like equity, and in the extreme will take on risks similar to those taken by equity investors in an unlevered firm.

7.475 It can therefore be useful to compare the cost of equity for a fully equity financed company (ie an unlevered company) with the cost of debt. For the purposes of this analysis, we consider the forward-looking allowances for debt and equity investors ie the cost of new debt allowance and the allowed return on equity.

Ofwat's PR24 FD approach

7.476 In the PR24 FD, Ofwat set a CPIH-real allowed cost of new debt of 3.74% and a CPIH-real allowed return on equity of 5.10% (based on 55% notional gearing). On an unlevered basis, this equates to an unlevered cost of equity of 3.34% CPIH-real.

Parties' submissions

Disputing Companies

7.477 Anglian stated that the unlevered cost of equity, ie equity return assuming no gearing, and based on solely FD parameters, shows a negative result over the cost of new debt of -0.32%,[420] ie the cost of equity is lower than the cost of new debt. Anglian argued that the PR24 FD is asking investors to receive a lower return for holding greater risk.[421]

7.478 Oxera noted that using the parameters of the PR24 FD, this test shows that the relationship between equity and debt returns is violated as the unlevered cost of equity is below the cost of new debt.[422]

Our assessment and provisional decision

7.479 The cost of new debt is a promised yield, and while the default risk on investment grade debt is low, it is not zero (for example, Oxera proposes a 30bps adjustment to the yield to account for this).[423] There is also uncertainty around the expected inflation embedded into nominal debt yields.

[420] Note Anglian's analysis includes an unlevered cost of equity of 3.42% compared to our estimate of 3.34%. Anglian's estimate is based on analysis from Oxera which calculates the implied asset beta using the mid-point of the RFR, TMR and debt beta ranges. However, for our analysis we estimate the implied asset beta using the top of the Ofwat ranges for all CAPM parameters as Ofwat implicitly used the top of the range for each parameter in its allowed return on equity. Using Oxera's approach results in a higher implied asset beta, and therefore a higher unlevered cost of equity.
[421] Anglian SoC, paragraph 669.
[422] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.2.
[423] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.3.1.

7.480 As set out above, our provisional allowed return on equity range is 5.07-6.13% (CPIH-real). This equates to a CPIH-real unlevered return on equity of 4.00-4.26%, with a mid-point of 4.13% (CPIH-real). Our provisional cost of debt analysis results in an allowed cost of new debt of 3.86%, based on a 2.4% CPIH assumption. There is no defined level or required premia between the cost of equity and the cost of debt. While our cost of new debt is below the unlevered cost of equity, the gap is relatively narrow, especially for the cost of equity values in the bottom half of our range.

7.481 Notwithstanding earlier comments that these comparisons are subject to uncertainty, we are mindful that from an investor perspective, looking at headline returns, such a narrow gap might not be sufficiently attractive to bring in record levels of new capital needed into the sector. Therefore we may want to pick a point estimate above the mid-point of our CAPM range to ensure there is a sufficient debt to equity premium.

ARP-DRP

Introduction

7.482 The asset risk premium to debt risk premium (ARP-DRP) analysis put forward by Oxera on behalf of Anglian provides an alternative to the simple comparison between the unlevered cost of equity and the cost of new debt. Oxera's ARP-DRP analysis sought to estimate a lower bound for the cost of equity by adjusting the cost of debt for gearing through analysing the premia on assets over debt. To estimate the lower bound, Oxera re-levered the cost of debt to estimate the DRP at 100% gearing, ie it assumed the notional company is fully debt financed.[424]

7.483 Oxera estimated the ARP as the asset beta multiplied by the ERP, using the CAPM parameters. It estimated the DRP as the cost of new debt less expected loss less the RFR. In its analysis, Oxera used observed water company bond yields, gilt yields corresponding to the Macaulay duration and an expected loss of 30bps.[425] Oxera noted that the 30bps estimate used annualised default rates based on Feldhütter and Schaefer (2018),[426] and that using Moody's default rates would produce a lower expected loss assumption and a higher DRP.

7.484 Oxera noted that the advantages of the ARP-DRP methodology are that, first, it is neutral to the treatment of inflation, as the risk differential will be the same whether it is derived in nominal, RPI- or CPIH-real terms, and second, other premia in the debt yields are accounted for through the deduction of the expected loss.[427]

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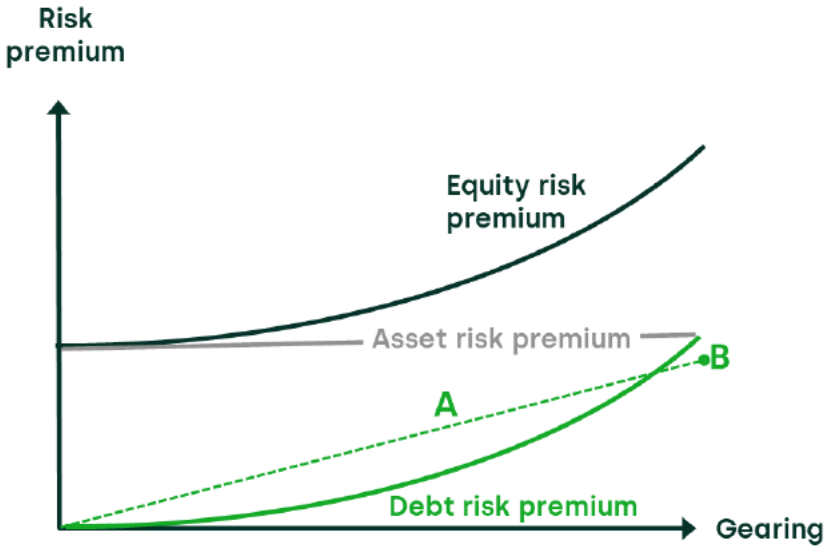
[424] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.3.1.
[425] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.3.1.
[426] Feldhütter, P, Schaefer, S (2013) The Myth of the Credit Spread Puzzle.
[427] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.3.1.

7.485 Oxera concluded that its ARP-DRP analysis resulted in a strict lower bound on the cost of equity of at least 6.20% (CPIH-real).[428]

Linear extrapolation as a minimum bound for the ARP

7.486 Oxera suggested using the implied DRP at 100% gearing as a minimum bound for the ARP, by assuming a zero DRP at 0% gearing and interpolating between the origin and the DRP at 55%. This is illustrated in Figure 7.13 below. Oxera noted that a linear extrapolation is likely to be an underestimation of the actual risk premium that would be expected for a hypothetically 100% debt-financed company and therefore this calculation provides a tighter and more informative lower bound for the ARP and hence the cost of equity.[429]

Figure 7.13: Oxera submission on the relationship between risk premia and gearing



Source: Oxera (2025) PR24 Cross-checks to CAPM estimation, Figure 2.2.

7.487 Ofwat raised other concerns about Oxera's ARP-DRP methodology to derive its assumption for the 100% geared debt risk premium. Ofwat stated that Oxera's methodology estimated the ARP by assuming the observed DRP is at March 2024 gearing. Ofwat noted that this methodology implicitly extrapolates a linear relationship assumed to hold between the DRP at zero gearing and the observed DRP at March 2024 gearing. Ofwat also stated that the analysis implies that the first tranche of debt issued by the ungeared company has a zero DRP (ie it is priced at the RFR).[430]

7.488 In relation to the linear extrapolation argument, we note that Oxera relies on a single observation (point A in the graph above) to estimate the linear DRP

[428] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.4.
[429] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 2.3.1.
[430] Ofwat (2025) Response to common issues on risk and return, paragraph 5.150.

function. This data point is based on water company bond yields less the corresponding gilt yields less 30bps. The yield on these bonds reflects companies with different risk profiles, different credit ratings and different levels of gearing (we note that Oxera use the companies actual gearing to control for this). In addition, as noted by Ofwat it is unlikely that the first tranche of debt for a previously unlevered company will be at (or near close to) the RFR. Taken together, these factors imply that the slope of the dotted line can be quite different to the example above, and that the value of point B in the graph is also very uncertain.

7.489 As set out above in our discussion of the unlevered cost of equity and the cost of new debt, debt-to-equity premia can provide a useful cross-check on the allowed return on equity. We note that Ofwat's academic advisers agreed with this during the Hearings.[431] However, we do not agree with Oxera's interpolation to 100% gearing and the implication of using the ARP-DRP analysis as a strict lower bound on the cost of equity.

7.490 In our view, this further shows that estimating the underlying debt risk premium in the observed cost of debt – which is truly comparable to the risk premium in the cost of equity – is subject to significant uncertainty. Therefore, we do not place much weight on Oxera's arguments relating to linear extrapolation providing a minimum bound.

Comparator companies used in the analysis

7.491 Oxera's analysis used observed bond yields from water companies, excluding bonds from Thames Water, Southern, United Utilities and Severn Trent, which it considered to be outliers.

7.492 Ofwat submitted that Oxera's range depends on excluding Severn Trent and United Utilities from its analysis and that if Oxera's approach was used on these companies then it would give a range of 5.03-5.09% (CPIH-real).[432] Ofwat argued that given these companies are the main source of 'pure play' beta data, and carry a stable Moody's rating of Baa1, consistent with the notional company, it would be reasonable for the source of the debt risk premium to use these companies. Ofwat stated that the companies used by Oxera (ie companies other than Severn Trent and United Utilities) should be excluded due to their excessively high debt

[431] Professor Mason, Ofwat's academic adviser, stated that 'The latest iteration that Oxera has done really does seem like a material improvement matching up actual water bonds in terms of maturity… So actually the methodology right up to the last step, we have got agreement. It is just whether you take a straight or a weighted average.' (Non-confidential) transcript of the Third Party Hearing for CCW on 23 June 2025, p109, lines 2–15.
[432] Oxera stated its ARP-DRP methodology is used to inform a strict lower bound for the cost of equity. Ofwat did not specify if this is a strict lower bound or an indicative range for the cost of equity but stated that they used the same approach as Oxera, with different inputs.

premium driven by their worse credit rating outlook and higher gearing, that make them a poorer match for the characteristics of the notional company.[433]

7.493 We consider that it is useful to include United Utilities and Severn Trent bonds within the ARP-DRP analysis as they carry Baa1/BBB+ ratings. However, we do not agree with Ofwat that sole weight should be placed on these bonds.

Conclusions on Oxera's ARP-DRP analysis

7.494 Taking account of the above points, our view is that Oxera's ARP-DRP analysis is not informative to provide a strict lower bound on the allowed return on equity.

Hybrid bonds

7.495 Hybrid bonds are securities with both debt and equity-like characteristics. Hybrid bonds typically offer periodic payments, like debt. However, they are subordinate to other debt instruments in the capital structure, which means they carry a higher risk of loss in the event of default. Hybrid bonds therefore have a higher yield to compensate for the increased risk.

Parties' submissions

Disputing Companies

7.496 Southern included Frontier Economics' analysis of hybrid bonds as a cross-check to the CAPM cost of equity. The analysis was prepared for the Energy Networks Association in relation to the RIIO-3 price control.

7.497 Frontier Economics analysed the cost of equity implied by hybrid bonds issued by National Grid.[434] Southern stated that Frontier Economics ensured that the analysis was appliable to water companies by showing that (1) the characteristics of National Grid are similar to water companies and (2) a recent quote on a potential hybrid bond issuance by Severn Trent implied similar results to the analysis of National Grid.[435]

7.498 Frontier Economics derived an implied cost of equity of 6.6% CPIH-real by undertaking the following steps.[436]

(a) Taking the spread at issue and adjusting this for risk of default.

[433] Ofwat (2025) Response to common issues on risk and return, paragraph 5.149.
[434] Frontier Economics (2024) Updated cost of equity cross-check evidence, Section 2.
[435] Southern SoC, p465, paragraph 329.
[436] Frontier Economics (2024) Updated cost of equity cross-check evidence, Table 1.

(b) Applying a 50% equity-likeness assumption. Frontier Economics assumed the hybrid bonds had 50% equity-likeness and therefore increased the return.

(c) Added this to the iBoxx Utilities yield to derive an inferred nominal equity return.

(d) Deflated the nominal equity return by 2% CPIH to derive a CPIH-real return.

Ofwat

7.499 In its response to the Statements of Case, Ofwat noted that it expressed caution on extrapolating the hybrid bond analysis to the water sector. Ofwat stated that:[437]

(a) the specific bond upon which the analysis is based is unusual;

(b) from a different sector;

(c) has an annual call schedule from 2025 until maturity; and

(d) appears to be highly illiquid.

Our assessment and provisional decision

7.500 Frontier Economics' analysis uses a single National Grid bond to estimate an implied cost of equity. Frontier Economics' rationale for using the National Grid bond (and not including SSE bonds in its analysis) was that SSE has a greater share of non-regulated activities and therefore may not be as relevant as a cross-check on the regulatory allowed cost of equity.

7.501 The rationale set out in our beta analysis on why we do not think it is appropriate to include National Grid in our comparator set, is also relevant to Frontier Economics' hybrid bond analysis. We note that National Grid has US operations, in addition to its non-regulated activities and UK regulated networks, and therefore, is not directly comparable to a UK regulated water network. We also note the Frontier Economics report submitted by Southern was prepared for the Energy Networks Association and not in relation to the PR24 Business Plan or our redeterminations.

7.502 Frontier Economics' analysis also makes assumptions about the pricing of default risk and the percentage equity-likeness of the hybrid bond. We note that the implied cost of equity from the hybrid bond analysis is highly sensitive to these assumptions, particularly the percentage equity-likeness of the hybrid bond.

[437] Ofwat (2025) Response to common issues on risk and return, paragraph 5.154.

Frontier Economics performed sensitivities on its hybrid bond analysis resulting in a range for the implied cost of equity of 5.8% to 8.4% CPIH-real.

7.503 Due to the use of a single, non-UK water hybrid bond as the basis for the analysis and the wide range for the implied cost of equity when applying sensitivities, we do not consider this to be a helpful cross-check to select a point estimate for the cost of equity.

Inference analysis

7.504 KPMG's inference analysis is another debt-to-equity premia cross-check. KPMG's analysis estimates an empirical relationship between debt and equity values, recognising that both debt and equity are contingent claims on a firm's assets. KPMG uses it to infer the required return on equity from the observed debt return.[438]

7.505 We summarise high level points raised by KPMG, the Disputing Companies and Ofwat in relation to inference analysis here. Appendix F sets out the methodology used by KPMG and a more detailed discussion of technical aspects of the analysis which are in dispute.

Parties' submissions

Disputing Companies

7.506 KPMG noted that a benefit of inference analysis as a cross-check on the CAPM cost of equity is that it is independent of the CAPM and instead derives the expected return on a stock based on the yield on debt, rather than the expected return on the market.[439]

7.507 KPMG submitted that based on the debt pricing at the time and the relationship between debt and equity, the inferred cost of equity range was 6.50% to 6.73% (CPIH real).[440]

Ofwat

7.508 In its response to the Statements of Case, Ofwat highlighted two key criticisms with KPMG's inference analysis:

[438] KPMG (2025) Estimating the Cost of Capital for PR24, section 9.3.
[439] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 9.3.6.
[440] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 9.3.16.

(a) that the excess debt returns are based on index data not company debt costs. Ofwat also raised concerns about the 40bps uplift adjustment applied to the index data;[441] and

(b) that the elasticity estimates used to infer the cost of equity are based on a regression which has some statistically insignificant coefficients (ie leverage and RFR), with wide confidence intervals.[442]

Our assessment and provisional decision

7.509 We consider that the economic intuition behind inference analysis is sound and draws on a relatively well-established framework in the academic literature.

7.510 However, there are limitations to KPMG's analysis (which are set out in detail in Appendix F), relating to the following aspects:

(a) statistical significance of coefficients;

(b) differences between elasticities for United Utilities and Severn Trent;

(c) use of an index rather than company specific cost of debt; and

(d) applicability of the Merton framework to regulated firms.

7.511 Due to the reasons set out above, and in Appendix F, we do not consider that the inference analysis fundamentally adds to the simpler debt-to-equity cross-checks we considered earlier and as such we do not place weight on KPMG's inference analysis when selecting a point estimate for the cost of equity.

Multi-factor models

7.512 The CAPM uses a single risk factor, the market risk factor, whereas multi-factor models (**MFMs**) use additional risk factors to price returns. The Disputing Companies propose the use of the Hou et al q-factor model[443] which incorporates risk factors for size, investment and return on equity in addition to the market risk factor.

[441] Ofwat (2025) (Confidential) Response to common issues on risk and return, paragraph 5.153.
[442] Ofwat (2025) (Confidential) Response to common issues on risk and return, paragraph 5.152.
[443] Hou, K., Xue, C. and Zhang, L (2025) 'Digesting Anomalies: An Investment Approach, 2015', *The Review of Financial Studies,* pp650–705 (Hou et al 2015).

Ofwat's PR24 FD approach

7.513 Ofwat did not place weight on MFMs when selecting a point estimate for the cost of equity in its PR24 FD. The Disputing Companies propose using MFMs as a cross-check on the CAPM cost of equity.

Parties' submissions

Disputing Companies

7.514 Northumbrian stated that whilst the CAPM is one model that can be used to estimate the return on equity, it has known flaws in the form of omitted variables and underestimating the cost of equity for low beta stocks (like utilities). Northumbrian noted that academics and investment practitioners have therefore long-since used MFMs either as a primary tool or as a means of triangulating the CAPM cost of equity.[444]

7.515 Southern[445] and South East[446] submitted that MFMs have superior power than the CAPM for explaining observed stock returns. Southern also stated that this is because MFMs more completely capture a stock's systematic risk than the CAPM by virtue of their additional factors.

7.516 Kairos, advisers to Northumbrian and Wessex, and KPMG, adviser to Southern and South East, both relied on the academic paper by Tharyan et al (2024), which investigates the performance of MFMs in the UK and tests the CAPM, Fama-French 5 factor (FF5F) and Hou et al q-factor models in a UK setting. Kairos noted that the authors found that testing the models over a 44-year period suggests that either the FF5F or the q-factor models have better explanatory power than the CAPM when pricing the cross section of larger UK stock returns.[447]

7.517 Both Kairos and KPMG subsequently estimated an MFM cost of equity for the listed UK water companies under the q-factor model, using the factor and test portfolio data from Tharyan et al (2024).[448]

Ofwat

7.518 In its response to the Disputing Companies Statements of Case, Ofwat noted the following concerns with the use of MFMs to set the allowed cost of equity: [449]

[444] Northumbrian SoC, paragraph 585(c).
[445] Southern SoC, p470, paragraph 370.
[446] South East SoC, paragraph 6.27(c).
[447] Kairos (2025) Setting the Allowed Return on Equity for PR24, paragraph 216.
[448] Tharyan et al (2025) An investigation of multi-factor asset pricing models in the UK.
[449] Ofwat (2025) Response to common issues on risk and return, paragraphs 5.159–5.160.

(a) two of the three factor premia (size and profitability) in the model were unstable and individually insignificant;

(b) there is evidence of instability over time in the additional q-factor premia, which suggest the cost of equity would be volatile over time. Ofwat stated that estimates that vary make the setting of the allowed cost of capital too sensitive to the timing of the regulatory decision; and

(c) MFMs bring material increase in complexity, particularly how to forecast factor premia and factor betas that may not have a stable long-term average.

Third parties

7.519 MCC Economics, CCW's advisers, stated that it agreed with Ofwat that MFMs do not meet the necessary standard to be given weight in regulatory decision making.[450]

Our assessment and provisional decision

7.520 We consider that there are limitations to existing MFM analysis in a regulatory price control context at this stage which mean we do not place weight on MFMs as a cross-check on the CAPM cost of equity.

7.521 As set out in Appendix F, we are not aware of any theoretical or empirical work on the q-model for firms in regulated markets. Regulated industries have different characteristics to competitive markets. The economic intuition behind the investment and the profitability factors in the q-model does not obviously apply to regulated firms.

7.522 The q-factor model is based on the assumption that firms will continue to invest as long as the marginal investment has a positive net present value (NPV). However, investment levels for UK water companies are largely determined through the price review process, and revenue and cost allowances are set such that the expected NPV should be close to zero across the investment programme.

7.523 Second, while we welcome the evolution of the academic research on this topic using UK data, we only have a single paper by Tharyan et al, which is still going through peer review.

7.524 Due to the reasons set out above, and in Appendix F, we do not consider that the development of MFMs in the UK is sufficiently advanced to allow us to draw any inference on the appropriate cost of equity for UK water companies. We therefore place no weight on MFMs when selecting a point estimate for the cost of equity.

[450] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p25.

Top-down cross checks

Infrastructure fund returns

Ofwat's PR24 FD approach

7.525 Ofwat did not include an analysis of infrastructure fund returns in its PR24 FD as a cross-check on the CAPM cost of equity.

Parties' submissions

Disputing Companies

7.526 Anglian submitted that infrastructure fund IRRs should be considered as a cross check on the allowed cost of equity as water companies are competing for capital with a range of infrastructure investments in other regulated industries.[451]

7.527 Oxera, Anglian's advisers, undertook an analysis of infrastructure fund returns as a cross-check on the CAPM cost of equity. Oxera adopted the methodology used by Ofgem in its RIIO-2 price control process which considered the returns of a range of infrastructure funds and calculated an adjusted discount rate, with an average of 9.02% CPIH real.[452] Oxera noted there were limitations to this analysis due to the differences in risk profiles between regulated water companies and the infrastructure fund portfolios.[453] Oxera undertook further analysis, selecting the two funds with significant holdings in regulated assets, which it submitted were most likely to have risk profiles comparable to water companies. For these two funds, Oxera adjusted the nominal discount rate for the difference between Net Asset Value and share price, the funds' inflation assumption and the funds gearing (to re-lever the cost of equity to the 55% notional gearing level). This provided a range of 7.12–7.24%.[454]

7.528 Southern submitted that infrastructure fund IRRs should also be considered to cross check the cost of equity, noting that this is a methodology used by Ofgem.[455]

7.529 KPMG, Southern and South East's advisers, also undertook analysis based on Ofgem's RIIO-2 approach, by adjusting the discount rates for the premium to net asset value (**NAV**) of each fund. KPMG noted that it had excluded outliers due to the wide range of results. To draw inferences to the allowed cost of equity in water, KPMG considered the differences between the median implied IRR and the

[451] Anglian SoC, paragraph 676.
[452] The adjusted discount rate is calculated as the discount rate multiplied the Net Asset Value by share, divided by the share price.
[453] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 4.
[454] Oxera (2025) PR24 Cross-checks to CAPM estimation, section 4.
[455] Southern SoC, pp465–66, paragraphs 331–336.

allowed cost of equity at PR19 and PR24. KPMG noted that the delta had increased from PR19 to PR24 and submitted that this indicated the equity return needed to remain competitive and attract investment in regulated utilities.[456]

7.530 During the hearings the Disputing Companies noted that returns available from other infrastructure assets are used as a reference point by financial institutions when they go through equity and debt raise processes.[457] We address these points under 'Investability' in chapter 8 (Risk and Return).

Ofwat

7.531 In its response to the Disputing Companies' Statements of Case, Ofwat replied that not applying a NAV discount lowers Oxera's implied cost of equity range to 4.90%-5.23%.[458] Ofwat also included a figure from a UBS publication of nominal pre-tax returns and noted that Ofwat's PR24 allowed return is the second highest against European peers.[459]

Our assessment and provisional decision

7.532 We note that there are significant ranges in the values for infrastructure fund returns submitted by the Disputing Companies and Ofwat, varying from 4.90% (in Ofwat's response to the Statements of Case) to an average of 9.02% in Oxera's analysis of discount rates used by infrastructure funds. With such a wide range of returns it is difficult to draw conclusions to inform our selection of a cost of equity point estimate.

7.533 The infrastructure funds included also represent a range of investments, which will have varying risk profiles and therefore varying returns. The differences in risk profiles to a UK regulated water network, limit the usefulness of the infrastructure returns as a cross-check on the allowed return on equity for a UK water company. We therefore do not use infrastructure fund returns as a cross-check on our allowed return on equity.

[456] KPMG (2025) Estimating the Cost of Capital for PR24, p99–100, paragraphs 9.4.5 to 9.4.11.
[457] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, p98, lines 8–23.
[458] Ofwat (2025) Response to common issues on risk and return, p133, paragraph 5.172.
[459] Ofwat (2025) Response to common issues on risk and return, p133, paragraph 5.173.

Equity analyst reports

Ofwat's PR24 FD approach

7.534 Equity analyst reports often include an estimate of the allowed return. In the PR24 FD, Ofwat noted that four recent reports[460] included a range between 5.0% and 5.6% which enveloped its 5.1% allowed return on equity estimate.[461]

Parties' submissions

Disputing Companies

7.535 KPMG, Southern and South East's advisers, referenced estimates from Barclays and JP Morgan which could be used for indicative benchmarking purposes and imply a cost of equity range of 5-7% CPIH real. KPMG noted that other analyst reports published after Ofwat's PR24 FD lacked sufficient detail to infer the required cost of equity for the notional company.[462]

7.536 Oxera, Anglian's advisers, submitted that most equity analyst reports comment on their expectations of the cost of equity allowance set by Ofwat, rather than what they deem sufficient to attract equity investment. In addition, Oxera referred to a Deutsche bank report which cited an expected return on equity for the listed companies that is on average 1% higher than their estimated cost of equity for the sector. Oxera also noted that the three listed companies are the strongest performers in the sector and therefore not reflective of the cost of equity for the sector as a whole, or the notional company.[463]

Ofwat

7.537 In its response to the Disputing Companies' Statements of Case, Ofwat stated that its survey of equity analysts' expectations of the allowed return at the PR24 FD found a median (3.98%) and mean (4.00%) of return expectations of equity analysts, within a range of 3.81% to 4.14%.[464]

Our assessment and provisional decision

7.538 The equity analyst and survey estimates submitted by Ofwat and the Disputing Companies cover a wide range from 3.8% to 7% CPIH-real. We do not consider this to be a useful range to inform our selection of a cost of equity point estimate. In addition, we agree with Oxera, that the allowed return in equity analyst reports

[460] All date October or November 2024.
[461] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p69.
[462] KPMG (2025) Estimating the Cost of Capital for PR24, p102, paragraphs 9.5.8–9.5.11.
[463] Oxera (2025) PR24 Cost of equity estimation, pp39–40, section 5.1.
[464] Ofwat (2025) Response to common issues on risk and return, p23, paragraph 1.69.

often represent an estimate of the allowed return expected to be set by the regulator, rather than the required return expected by investors. We are therefore of the view that placing weight on cost of equity estimates included with equity analyst reports to select a point estimate for the allowed return on equity could cause a circularity.

Conclusions on cross-checks

7.539 Overall, we have reviewed a large volume of evidence on cross-checks and we find that drawing conclusions from these is difficult, and many of the cross-checks put forward do not shed much light on where in the CAPM range to pick a point estimate. This comes back to our opening remark that this is an area of the WACC estimation which might benefit from a more proportionate approach going forward.

7.540 From the various evidence we considered, we take some comfort from the observation that listed companies are trading at a MAR above one and that our CAPM range is consistent with the indicative cost of equity ranges implied by the MAR analysis.

7.541 We find that the debt-to-equity cross-checks may imply that numbers in the lower half of our CAPM range might be too low to incentivise the record levels of investment needed in this AMP, and this might be a reason to select a point estimate about the midpoint.

7.542 We do not place weight on any of the other cross-check evidence.

Other considerations when selecting a point estimate

Welfare impacts of underinvestment

Ofwat's PR24 FD approach

7.543 In the PR24 FD, Ofwat recognised that the sector needs to raise significant amounts of debt and equity finance in the 2025-30 period, above the levels raised in any previous regulatory period and a significant increase on PR19.[465] Ofwat stated that adopting an allowed equity return above the midpoint of its CAPM range in addition to targeted amendments to the risk and return package will further support the sector to raise the finance that is necessary to deliver the required investments that will deliver longer-term service improvements to customers and the environment.[466]

[465] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p81.
[466] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p81.

Parties' submissions

Disputing Companies

7.544 Northumbrian submitted that the consumer welfare implications of setting the return on equity too low are greater and more wide-reaching than the consumer welfare implications of setting it too high. It is therefore best practice to err on the side of caution and aim-up above the mid-point to reduce the risk of setting the return on equity too low, particularly where there is a large amount of investment required.[467]

7.545 Kairos, Wessex and Northumbrian's advisers, noted that quantifying the consumer harm that arises if the allowed cost of equity is set too low, is challenging. However, Kairos submitted that companies may try and deliver on their commitments whilst spending less by implementing solutions that may cost less in the short-term but more in the long-term.[468]

7.546 KPMG, Southern and South East's advisers, stated that the core principle underpinning aiming up is to mitigate the greater welfare loss arising from underestimation rather than over-estimation of the cost of capital. It added that as the demand for most regulated services is driven by the essential nature of the services provided, the welfare loss from underinvestment is substantial and the detrimental impact on customers is not symmetric when the allowed return deviates significantly from the true cost of capital.[469]

Our assessment and provisional decisions

7.547 The PR24 capital programme represents a step change in the level of investment to be delivered by water companies in England and Wales. Therefore, when considering the welfare impacts of underinvestment our primary consideration is whether investors will be willing to put new capital into the sector to deliver the large-scale capital programme needed to deliver service, resilience and environmental improvements. Ofwat's financeability analysis in its PR24 FD suggested that £12.7 billion of new equity would be required over AMP8.[470]

7.548 One line of argument, which supports selecting a point estimate for the cost of equity above the mid-point of the range to minimise the risk of underinvestment and the potential welfare loss to customers is based on the following reasoning.

[467] Northumbrian SoC, p153, paragraph 585(b).
[468] Kairos (2025) Setting the Allowed Return on Equity for PR24, p77, paragraph 248.
[469] KPMG (2025) Estimating the Cost of Capital for PR24, paragraphs 10.1.1–10.1.2.
[470] Ofwat (2024) Final Determinations Aligning Risk and Return, p6.

(a) That there is substantial uncertainty over the level of the WACC, as recognised in the estimated range for the cost of equity.

(b) It is known that significant amounts of investment are required over this AMP, and it is likely that there will be a period of sustained high investment for multiple future AMPs as companies will need to design and invest in an enhanced capital programme, to meet a growing number of statutory requirements and to meet the challenges raised by climate change.

(c) If the WACC is set too low, there is a risk that investors may not be fully compensated over the lifetime of their investments. While the risk of error in the WACC might balance out from one price control to another, the overall remuneration to each set of investors will depend on when they invest in the sector and when they exit, and at what price. If investors do not feel confident that they will earn a reasonable return over the life of their investment, they may be unwilling to invest, to the detriment for customers.

    (i) Current investors do not exit but focus on short-term cash flow gains, by sweating the assets and pursuing short-term efficiencies, to the long-term detriment of customers.

    (ii) Investors choose to exit the sector or are unwilling to put in further capital at the allowed WACC, resulting in a higher cost of capital from new investors who are willing to put money into the sector. This leads to higher prices in future price controls; or investment obligations do not get delivered, if new capital is not secured. Customers are overall worse off if the investment is not delivered.

7.549 To counterbalance these arguments, regulatory frameworks have other mechanisms of incentivising investment, as noted by the UKRN guidance, of which the following are of most relevance to the water sector.[471]

(a) **Statutory requirements**: a significant proportion of the capital programme is driven by statutory requirements or official planning exercises, as opposed to purely commercial motivations. Where statutory investment is included in the price control, failure by regulated companies to fulfil their statutory duties can result in enforcement action and could ultimately result in them forfeiting control of the license to operate, which is a powerful incentive against under-investment.

(b) **Service delivery incentives**: regulators increasingly rely on service delivery incentives to reduce the risk of underinvestment (eg in general maintenance,

[471] UKRN (2023) UKRN guidance for regulators on the methodology for setting the cost of capital, p28.

asset health and in circumstances where spend is discretionary). Such incentives may mitigate the risk of underinvestment in existing infrastructure.

(c) **Separate treatment of large one-off projects**: it may be possible to treat new investments separately from existing assets within the price control, where the cost of capital is set by a market exercise. For example, Ofwat is making use of DPC, in which water companies seek bids from third parties to design, finance, operate and build new infrastructure.

7.550 We consider that the decision to set a cost of equity above the mid-point is one which needs careful thought, and that aiming up should not be a default position.

7.551 However, the context for this price review is a big step up in investment for the sector, requiring significant amounts of new capital. It is not clear that the other mechanisms discussed above are appropriate or sufficient on their own to ensure that this capital is forthcoming. We note that Ofwat itself, through its investor engagement, formed a view that the overall investor sentiment towards the sector is low. The true WACC is not known, and there are risks from setting the WACC too low which in welfare terms may exceed the costs to customers resulting from aiming up on the cost of equity.

7.552 Given the relatively unique circumstances of this price control, a modest degree of aiming up on the cost of equity may overall be beneficial to customers. We take this into account in our overall conclusion on selecting a point estimate below.

Asymmetry in incentives package

Ofwat's PR24 FD approach

7.553 Ofwat updated its assessment of the balance of risk in its PR24 FD following representations to its PR24 DD. In its PR24 FD, Ofwat concluded that there is a slight negative skew to the distribution of outcomes RoRE but there is a positive skew in financing performance, leaving a broadly symmetrical distribution of returns at package level. Ofwat therefore concluded that asymmetry in the incentive package is not a material consideration for choosing a point estimate for the allowed return on equity.[472]

[472] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p67.

Parties' submissions

Disputing Companies

7.554 Anglian[473] and South East[474] submitted that if the asymmetric risk identified in their Statements of Case was not addressed then the cost of equity should aim up further to address the downward asymmetry.

Ofwat

7.555 In its response to the Statements of Case, Ofwat stated that it had calibrated the risk and uncertainty package such that an efficient company with the notional capital structure should have a reasonable prospect of earning the base allowed return. Ofwat noted that the Disputing Companies had not engaged with the evidence that financing performance and inflation bring to the RoRE performance of the notional structure.[475] Ofwat added that any revisions to the risk and return package should be considered at the source of the expected out and under performance, rather than poorly-targeted adjustments to the allowed return on equity.[476]

Third parties

7.556 Citizens Advice submitted that arguments that price control settlements are skewed against companies should be viewed in the context of historical performance. Citizens Advice noted that due to structural advantages the companies have, compared to regulators and those representing consumer interests, it is reasonable to assume that settlements are likely to favour companies.[477]

7.557 MCC Economics, on behalf of CCW, stated that Ofwat had not fully reflected the changes which reduce risk for investors, and had it done so, it could have concluded there is a material prospect of the companies exceeding the regulatory return on equity.[478]

Our assessment and provisional decision

7.558 We provide our assessment on the 'Balance of risk and return' in chapter 8 (Risk and Return). We do not repeat our response and reasoning to the various

[473] Anglian SoC, p200, paragraph 767.
[474] South East SoC, p82, paragraph 6.28(b).
[475] Ofwat (2025) Response to common issues on risk and return, p132, paragraph 5.169.
[476] Ofwat (2025) Response to common issues on risk and return, p132, paragraph 5.169.
[477] Citizens Advice (2025) Third party submission on the Water PR24 References, p12.
[478] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p26.

arguments on this issue in this chapter here but we note our provisional conclusion that the overall package is broadly balanced.

7.559 Generally, we are of the view that where possible any arguments around potential skew in the package should be dealt with 'at source' and this is the approach we took in these determinations. Aiming off the cost of equity is generally not the best means to address issues around potential skew in the package.

Parameter asymmetry and uncertainty

7.560 The aim of any cost of capital determination is to set a point estimate for the cost of capital, which is then translated directly into returns for investors. We consider that the primary approach to doing so is to use the CAPM in order to estimate the appropriate returns to equity. However, we note that use of this model comes with parameter uncertainty. The CAPM cost of equity is not directly measurable and the parameters are subject to both theoretical debate and statistical uncertainty.

Ofwat's PR24 FD approach

7.561 In its PR24 FD, Ofwat acknowledged that it is appropriate to consider whether the balance of evidence for individual CAPM parameters points to the upper or lower end of the range. Ofwat considered that there was not strong evidence to suggest that its beta, TMR and RFR estimates are downwardly skewed.[479]

Parties' submissions

Disputing Companies

7.562 Kairos, Northumbrian and Wessex's advisers, stated that it considered Ofwat's CAPM cost of equity range to be downwardly biased. Kairos noted that Ofwat's ranges of the RFR, TMR and beta all included downward bias.[480] Kairos undertook an analysis of the range of CAPM cost of equity results using different estimates from their RFR, TMR and beta ranges. From this analysis, Kairos concluded that its CAPM cost of equity estimate is unlikely to be materially biased in either direction.[481]

7.563 KPMG, Southern and South East's advisers, undertook an analysis of whether each cost of equity parameter in Ofwat's PF24 FD methodology reflected the balance of available evidence. KPMG concluded that Ofwat's cost of equity methodology does not appear to reflect a balanced consideration of evidence,

[479] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p68.
[480] Kairos (2025) Setting the Allowed Return on Equity for PR24, pp75–76, paragraph 243.
[481] Kairos (2025) Setting the Allowed Return on Equity for PR24, p75, paragraph 242.

which could increase the risk that allowed returns are not sufficient to attract equity capital across AMP8.[482]

7.564 In addition, Kairos,[483] KPMG[484] and Oxera,[485] Anglian's advisers, all made points regarding the asymmetry in Ofwat's estimation of the individual CAPM parameters. These arguments are similar to those we have set out in the sections for each individual parameter, and we therefore do not repeat them here.

Ofwat

7.565 In its response to the Statements of Case, Ofwat stated that it did not consider it necessary to quantify aiming up in terms of an overall cost of equity distribution, and to do so would place too much confidence in the ability to correctly determine the distributional properties of CAPM components.[486]

Our assessment and provisional decisions

7.566 We consider that the arguments raised by Kairos and KPMG are largely criticisms of the underlying methodology used by Ofwat to derive the various parameters. While it is possible to construct a probability distribution around the CAPM range, to reflect the uncertainty in the beta and TMR estimates, we do not think that this is necessary to help us choose a point estimate.

7.567 We consider our estimates of the ranges for individual CAPM parameters to be broadly balanced around the midpoint of the range, and that the range is sufficiently wide to reflect the underlying parameter uncertainty in a regulatory context. While statistically speaking, we recognise that there is some probability that the true cost of equity is outside our CAPM range, a range that is too wide in a regulatory context is not helpful and can reduce the predictability of regulatory decisions.

Financeability

Ofwat's PR24 FD approach

7.568 At PR24 FD, Ofwat did not consider notional financeability considerations to be a direct constraint on the allowed return on equity as the financeability assessment is primarily a test of the cashflow headroom in its determinations. However, it did

[482] KPMG (2025) Assessing the balance of evidence in PR24 FD CoE estimates, p7.
[483] Kairos (2025) Setting the Allowed Return on Equity for PR24, pp74–76, section 5.3.
[484] KPMG (2025) Estimating the Cost of Capital for PR24, p104, paragraphs 10.1.1.
[485] Oxera (2025) PR24 Cost of equity estimation, pp40–41, section 5.2.1.
[486] Ofwat (2025) Response to common issues on risk and return, p132, paragraph 5.167.

consider that the higher allowed return on equity adequately supports efficiently run companies to secure financeability.[487]

Parties' submissions

Disputing Companies

7.569 Anglian submitted that an assessment of debt financeability over the next five AMPs demonstrates that the notional company will need to attract more equity in the future to maintain its key rating agency credit metrics.[488]

7.570 South East stated that the assessment of financeability acts as a valuable cross-check on a CAPM cost of equity calculation.[489]

Our assessment and provisional decision

7.571 In setting our provisional determinations for the five Disputing Companies we have undertaken a notional financeability assessment for each company. Our analysis is set out under 'Financeability' in chapter 8 (Risk and Return). There are multiple levers which can be used to address notional financeability concerns and we do not consider financeability as a direct cross check when selecting a point estimate for the allowed return on equity.

Our provisional decision on selecting a point estimate

7.572 In addition to the CAPM, we have considered a range of market-based cross-checks and other considerations to estimate the cost of equity.

7.573 We received no sufficiently persuasive evidence that the suggested alternative cross-checks provide a materially more accurate picture of the cost of equity than the CAPM. We therefore consider the cross-checks upon which we place weight as supporting evidence, to select a point estimate within our CAPM range, rather than primary methodologies for deriving the cost of equity and acknowledge that each approach has pros and cons.

7.574 We conclude that we will place weight on the following market cross-checks when selecting a point estimate:

(a) MARs; and

(b) debt to equity premia.

[487] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p83.
[488] Anglian SoC, p201, paragraph 771.
[489] South East SoC, p81, paragraph 6.27(b).

7.575 As set out above, the cost of equity range, 4.5% to 6.5% CPIH-real, inferred by the MARs analysis envelops our CAPM cost of equity range, 5.07% to 6.13%. We therefore conclude our CAPM cost of equity range is consistent with the observed MARs.

7.576 Our analysis of the unlevered cost of equity and the cost of new debt suggests that the implied difference between the cost of new debt allowance to the mid-point of the unlevered cost of equity range may be too narrow to incentivise equity investment and therefore we may want to pick a point estimate above the mid-point of our CAPM range to ensure there is a sufficient debt to equity premium.

7.577 In terms of other considerations, we also take account of the potential welfare implications of underinvestment. We conclude that in the unique circumstances of this AMP a modest degree of aiming up can overall benefit customers. This is because it might reduce the risk of the sector being unable to attract new capital to finance the large-scale capital programme needed to deliver improvements in service and resilience. A successful delivery of the capital programme is ultimately in customer interests.

7.578 We conclude that it is appropriate to select an estimate for the cost of equity above the mid-point of the CAPM range.

7.579 Our provisional decision is to set an allowed return on equity of 5.90%, equivalent to 30bps above the mid-point of our CAPM range as shown in the table below.

Table 7.15: CMA's provisional determination cost of equity estimates compared to Ofwat's PR24

CPIH-real	*Ofwat PR24 Final Determination*	*CMA Low*	*CMA High*	*CMA Provisional Determination*
Notional gearing	55.00%	55.00%	55.00%	55.00%
RFR	1.52%	2.49%	2.49%	2.49%
TMR	6.83%	6.70%	7.30%	7.00%
ERP	5.31%	4.21%	4.81%	4.51%
Unlevered beta	0.28	0.28	0.34	0.31
Debt beta	0.10	0.150	0.050	0.10
Listed comparator gearing	52.29%	52.41%	55.20%	53.81%
Asset beta	0.33	0.36	0.37	0.36
Re-levered equity beta	0.62	0.61	0.76	0.68
Aiming up	0.28%			0.30%
Cost of equity Appointee	**5.10%**	**5.07%**	**6.13%**	**5.90%**

Source: CMA analysis and Ofwat's PR24 FD.

Allowed return on debt

Introduction

7.580 The cost of debt estimate reflects the likely costs of debt financing over the price control period, with four components:

(a) the cost of embedded (ie existing) debt, which reflects interest costs paid over the price control period associated with debt raised in previous periods;

(b) the cost of new debt, ie interest costs associated with debt raised during the price control period;

(c) the share of new debt, an estimate of the relative weights of embedded and new debt over the price control period; and

(d) an allowance for additional, non-interest costs associated with raising debt, such as issuance and liquidity costs.

Cost of embedded debt

Summary

7.581 We provisionally set a real cost of embedded debt of 2.38%. This is based on a nominal cost of debt of 4.84% and a long-term CPIH assumption of 2.4%. Our cost of embedded debt estimate is balance-sheet led. We continue to rely on both 'all in' and 'actual-notional' estimates, and we adopt the same instrument 'inclusion criteria' as Ofwat to construct these estimates (ie exclude non-cross currency swaps). Our CPIH assumption is based on the OBR's long-term CPIH forecast.

Introduction

7.582 The cost of embedded debt allowance compensates for interest costs on debt already held (ie embedded) at the start of the price control period, and expected to remain for at least part of the FY25 – FY30 period.

7.583 In this section, we set out our provisional views on the methodology used by Ofwat in its PR24 final determination, Disputing Companies' submissions, and Ofwat's response.

7.584 We then provide our estimate for the cost of embedded debt, based on our preferred methodology.

Ofwat's PR24 FD approach

7.585 Ofwat's PR24 FD approach was largely consistent with its final methodology, as set out in December 2022.[490] Ofwat took a 'balance sheet-led' approach to its

[490] Ofwat (2022) Our Final methodology for PR24, Appendix 11- Allowed return on capital, pp59–71.

estimation of the cost of embedded debt, meaning that its estimate was primarily based on an average of actual debt costs across the sector.[491]

7.586 This estimate was supported by an 'index-led' cross check, primarily using historical data from its benchmark index (ie the average of the iBoxx non-financial 10+ A and BBB indices).[492] In a change following its PR24 DD, Ofwat no longer set this cross check as an 'upper limit' to the allowance for embedded debt, citing current market dynamics and a need to remunerate reasonable debt costs to support investor sentiment.[493]

'All in' and 'actual notional' balance sheet-led estimates

7.587 Ofwat's balance sheet-led estimates placed weight on two types of benchmarks, largely sourced from water companies' financial data to September 2024, with companies' projected debt issuances being used beyond this cut-off to March 2025:

(a) 'all-in' debt costs, estimated using instruments in the proportions held by companies (provided these met Ofwat's inclusion criteria, which we set out below); and

(b) 'actual-notional' cost, focused exclusively on companies' index-linked and fixed rate instruments, in the proportions defined in the notional structure (ie 33% index-linked and 67% fixed-rate).

7.588 Ofwat's 'all-in' estimate used a range of debt instruments in the balance sheets of all WaSCs and Large WoCs (eg bonds, bank loans, finance leases), provided that debt instruments met Ofwat's inclusion criteria.[494] In general – in determining the inclusion or exclusion of instrument types – Ofwat considered (i) the extent to which financing instruments were sufficiently debt-like in nature, and (ii) if debt-like, whether such instruments were likely to be used by the notional company achieving the target Baa1/BBB+ credit rating.[495] Table 7.16 sets out the instruments included in the balance sheet estimates, and Ofwat's rationale for inclusion.

[491] This is as compared to an 'index-led' approach, approximating efficient debt costs using – for example – an external index reflecting average debt costs. To create its balance sheet led estimates, Ofwat used Annual Performance Report (APR) Table 4.1 data, as provided by companies to its September 2024 data cut-off, as well as companies' projected debt issuance to March 2025. See Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p86.
[492] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p93.
[493] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p93.
[494] Ofwat (2022) Our Final methodology for PR24, Appendix 11- Allowed return on capital, Table 4.1 and related discussion, pp61–69.
[495] Ofwat (2022) Our Final methodology for PR24, Appendix 11- Allowed return on capital, Table 4.1 and related discussion, pp61–69.

Table 7.16: Inclusion criteria for embedded debt balance sheet estimates

Instrument	Included	Ofwat rationale
Bond, loan, debenture, private placement	Yes	Standard instruments with clearly debt-like characteristics.
Finance lease	Yes	Effectively a secured loan.
Debenture stock	No	Typically has equity-like characteristics.
Preference shares	No	Hybrid instrument which may be more debt or equity-like.
Intercompany loan/ Holdco debt	No	Typically has equity-like characteristics.
Liquidity facility/ overdraft/ RCF	No	Cost accounted for in issuance and liquidity allowance.
Junior/ subordinated debt	No	Low-ranking repayment priority may result in sub-investment grade credit rating Typically associated with highly geared structures; not relevant to a notionally-geared company.
Interest rate and inflation swaps	No	Lacking in debt-like characteristics Issuance may reflect actual structure considerations. Not necessary for the purpose of understanding underlying debt costs. Not included in previous price reviews.

Source: Ofwat (2022): Final methodology for PR24, Appendix 11- Allowed return on capital, Table 4.1 and related discussion, pp61–69; Ofwat (2024),Ofwat (2024) PR24-FD-RR02-Cost-of-debt.xlsx, sheet 'Inputs'.

7.589 In its PR24 FD, Ofwat maintained the view from its final methodology on the exclusion of non-cross currency swaps,[496] that:[497]

(a) while recognising swaps can be used to synthetically replicate debt instruments in the proportions held by the notional company (eg to issue ILD), they are also used for functions not intrinsically linked to debt financing (ie risk management), making them less relevant for the notional company; and

(b) swaps can create new risk exposures as well as insulating companies from existing risks. Additionally, the benefits of swaps accrue to shareholders in the first instance who would otherwise fully absorb the risk being hedged against. This may be seen as a 'de-risking of equity' at cost, and Ofwat disputed the fairness of requiring customers to fund both this cost and the allowed return on equity, unchanged for a risk reduction.

7.590 Ofwat's 'actual-notional' estimate was calculated using an adjustment to its 'all-in' estimates. It was estimated for each company by applying a 67% weighting to total observed embedded fixed-rate debt costs, and a 33% weighting to embedded index-linked debt.[498] The median for all WaSCs and large WoCs (South East and Affinity) was calculated to provide Ofwat's 'actual-notional' estimate.[499]

7.591 The mean of the 'all-in' and 'actual-notional' estimates (ie effectively placing weight of 50% on each) produced a nominal estimate, at the time of the PR24 FD, of

[496] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p90
[497] Ofwat (2022) Our Final methodology for PR24, Appendix 11- Allowed return on capital, pp62–63.
[498] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p90.
[499] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p91.

4.82%.[500] Deflating using Ofwat's 2.0% long-term CPIH estimate, produced a real estimate of **2.77%**.[501]

Parties' submissions

Disputing Companies

7.592 Many aspects of the core methodology used by Ofwat were not in dispute. This included, in particular, the focus on balance-sheet led estimates rather than an alternative index-led approach (used in previous price controls). Disputing Companies' submissions primarily focussed on: (i) the exclusion of non-cross currency swaps from the balance sheet assessment; and (ii) the use of the 'actual-notional' estimate. Southern also proposed a cost sharing mechanism on the cost of embedded debt.

7.593 Northumbrian submitted that while it had some concerns with methodology, it did not seek to materially challenge the allowance for the cost of embedded debt over the PR24 period.[502]

Inclusion of non-cross currency swaps, use of 'actual notional' estimates

7.594 Anglian,[503] Southern[504] and South East[505] reflected or referred to arguments set out in a report prepared on their behalf by KPMG.[506] To a lesser extent Wessex[507] also reflected arguments from this report. This report's key proposed adjustments to Ofwat's approach were:

(a) **Including non-cross currency swaps** in its balance-sheet assessment (which added 11bps to its cost of embedded debt allowance compared to Ofwat's estimate).[508] KPMG submitted that a number of water companies have used interest rate swaps to proxy the notional company's debt issuance profile, which is not directly achievable in other ways.[509] Similarly, in respect of inflation swaps, KPMG submitted that these have been used to efficiently create synthetic ILD (eg to proxy the notional structure), and that use of swaps is often the most efficient way to raise ILD.[510] More broadly, KPMG argued that risky use of swaps is uncommon, and presented previous

[500] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p92.
[501] Ofwat (2024) Final Determinations Aligning Risk and Return, Allowed Return appendix, p93.
[502] Northumbrian SoC, p149.
[503] Anglian SoC, pp201–203.
[504] Southern SoC, pp479–483.
[505] South East SoC, paragraph 6.33.
[506] KPMG (2025) Estimating the Cost of Capital for PR24, pp111–139, section 11.
[507] Wessex SoC, p90, paragraph 10.12(e).
[508] KPMG (2025) Estimating the Cost of Capital for PR24, p16, paragraph 2.9.3.
[509] KPMG (2025) Estimating the Cost of Capital for PR24, p115, paragraphs 11.1.40–11.1.46.
[510] KPMG (2025) Estimating the Cost of Capital for PR24, pp116–118, paragraphs 11.1.47–11.1.61.

commentary from Ofwat and other regulators recognising that the use of swaps can be expected to form part of debt financing and treasury management strategy.[511] KPMG discussed its view that the exclusion of non-cross currency swaps ignores the counterfactual: ie considering only the underlying debt instrument (rather than a 'synthetic issue' involving an underlying instrument and a swap) implies a retrospective change to treasury policies, and assumes that companies would have issued the same conventional debt without change were the use of swaps unavailable to them;[512]

(b) **Attaching no weight to the estimate of 'actual-notional' costs**, and only recognising an 'all-in' balance sheet estimate (which added 6bps to its cost of embedded debt allowance compared to Ofwat's estimate). KPMG submitted that the use of the 'actual-notional' framework 'double notionalises' the balance sheet, by first 'sanitis[ing]' it to remove instruments not considered to be sufficiently representative of the notional company (to produce the 'all-in' estimate), and subsequently 'superimpos[ing]' the notional fixed to index-linked debt mix. KPMG further submitted that the methodology is simplistic, and adjusts the weighted average timing of debt issuance. Here, KPMG suggested that – in general – companies tend to issue ILD in a higher interest rate environment, and fixed-rate debt in a lower interest rate environment. Applying a 67% weighting to fixed-rate debt therefore assumed – in KPMG's view – that 67% of a company's debt was raised in a low interest rate environment; and

(c) **Updating for further debt issuances** since Ofwat's September 2024 data cut-off (+1 bp).

7.595 KPMG's work resulted in an estimate for the nominal cost of embedded debt of **5.00%** (equivalent to 2.94% CPIH-real, deflated by KPMG's 2.0% long-term CPIH assumption).

Potential for cost sharing

7.596 Southern argued that – given the embedded debt allowance is based on a sector average – it structurally over- and under- funds companies compared to actual cost.[513] Southern submitted that much of a company's embedded debt cost is as a result of factors outside of its control: eg dependent on the interest rate environments at the time of issuance, which in turn is generally driven by point-in-time needs for capex and debt refinancing (over which companies have relatively little control).[514] Southern submitted that cost sharing would recognise that some

[511] KPMG (2025) Estimating the Cost of Capital for PR24, pp119–121, paragraphs 11.1.65–11.1.83.
[512] KPMG (2025) Estimating the Cost of Capital for PR24, pp121–122, paragraphs 11.1.84–11.1.90.
[513] Southern SoC, p483, paragraph 453.
[514] Southern SoC, pp483–84, paragraphs 456–461.

companies are effectively 'over-funded' by the embedded debt allowance whereas others are 'under-funded'.[515]

7.597 Southern therefore proposed a cost sharing mechanism for the embedded debt allowance.[516] Southern submitted that a sharing rate of 75:75 could be applied on an ex-ante basis. Southern submitted that its actual nominal cost of embedded debt is 6.04% compared to KPMG's industry estimate of 5.00%. Southern proposed that applying the 75:75 risk sharing factor (with out- and underperformance shared across companies) would imply its cost of debt allowance would be 5.26% in nominal terms (or 3.20% in CPIH terms using KPMG's 2% long-term CPIH assumption).[517]

7.598 In reply to Ofwat's response to its statement of case, Southern continued to highlight exposure to point-in-time risk, given: (i) volatility in market interest rates – it submitted – is fully outside of its control; and (ii) its ability to control timing of issuance is constrained, including by regulatory requirements driving capex needs.[518]

Ofwat

Inclusion of swaps

7.599 Ofwat submitted that non-cross currency swaps should continue to be excluded from the calculation of the cost of debt, as these are not relevant to a company with the notional structure.[519] Ofwat submitted that this is a continuation of a policy that it (and other regulators) has applied in the past for the purposes of setting a regulatory determination,[520] and discussed that companies use swaps for a range of reasons that relate to their own treasury (ie not strictly debt financing) policies.[521] Ofwat also submitted that:[522]

(a) the use of swaps had – at times – been associated with companies managing short term challenges under their 'actual' financial structures. Ofwat submitted that 'kick the can' swaps, which could be used to improve short term cashflow ratios, may result in significant and high risk liabilities;

(b) incorporating swaps in the cost of embedded debt assessment would complicate the assessment, requiring a detailed understanding of each swap

[515] Southern SoC, p485, paragraph 465.
[516] Southern SoC, p483, section 3.4.3.
[517] Southern SoC, p488, paragraphs 479–483.
[518] Southern (2025) Reply to Ofwat Response, pp9–10, table associated with paragraph 8.
[519] Ofwat (2025) Response to common issues on risk and return, p61, paragraph 4.17.
[520] Ofwat (2025) Response to common issues on risk and return, pp59–61, paragraphs 4.14–4.17.
[521] Ofwat (2025) Response to common issues on risk and return, pp59–61, paragraphs 4.14–4.17.
[522] Ofwat (2025) Response to common issues on risk and return, pp59–61, paragraphs 4.14–4.17.

instrument to make a judgement about how relevant costs could be included in the estimation of embedded debt costs; and

(c) at a sector-level, the inclusion of swaps made little difference to the overall estimate, having slight upward and downward impacts for different companies. Ofwat showed larger positive increases in costs for Yorkshire Water and Southern if swaps were included, and noted that these companies had made use of risky (ie 'kick the can') swap arrangements historically.

Use of the 'actual notional' estimate

7.600 Ofwat submitted that the 'actual notional' approach was introduced by the CMA in the PR19 Final Report, and Ofwat had subsequently adopted it as part of its PR24 methodology.[523]

7.601 Concerning the difference in outputs between the 'all in' and 'actual-notional' benchmarks, Ofwat set out that this may reduce depending on movements in interest rates used to estimate floating rate debt costs.[524] Ofwat set out that, for example, a reduction in the Bank of England base rate to 3.75% may reduce the difference between 'all in' and 'actual-notional' costs from approximately 13bps to 6bps.[525]

Company specific circumstances (ie cost sharing)

7.602 Responding to both Southern's cost sharing proposal and South East's Company-Specific Adjustment (considered separately at paragraphs and 7.735 to 7.779 and 7.596 to 7.598), Ofwat extended its analysis of its index-led cross check to include increases in each company's RCV since privatisation.[526] It found that this cross check produced an estimate below its cost of debt allowance for the industry as a whole, and for each Disputing Company.[527] It submitted that this did not suggest company specific examination of the details of when funding was required to increase the RCV was required.[528]

[523] Ofwat (2025) Response to common issues on risk and return, p58, paragraph 4.11.
[524] Ofwat (2025) Response to common issues on risk and return, pp58–59, paragraph 4.12.
[525] Ofwat (2025) Response to common issues on risk and return, pp58–59, paragraph 4.12.
[526] Ofwat (2025) Response to common issues on risk and return, p61, paragraphs 4.18–4.20, Table 4.2.
[527] Ofwat (2025) Response to common issues on risk and return, p61, paragraphs 4.18–4.20, Table 4.2.
[528] Ofwat (2025) Response to common issues on risk and return, p61, paragraph 4.20.

Third parties

7.603 CCW commissioned a report by MCC Economics. This argued that an index-led approach should dominate the cost of embedded debt estimate, or at the very least set a maximum value.[529]

7.604 In its report, MCC Economics discussed that financial resilience factors (eg high gearing and financial distress) of a number of water companies were likely to have contributed to a recent 'spike' in debt costs. MCC Economics expressed concern that significant reliance on 'actual' debt costs of water companies may risk embedding the consequences of aggressive structuring decisions into the price control framework.[530]

Our assessment and provisional decision

7.605 Having considered the submissions of Ofwat, Disputing Companies and third parties, we provisionally conclude that it is appropriate to base our estimate on a balance sheet-led (rather than index-led) approach, in line with recent practice in this sector. We make adjustments to better enable the estimate to reflect efficient debt costs of notionally structured companies. This includes (i) excluding non-cross currency swaps from balance sheet estimates, and (ii) including an 'actual-notional' benchmark, in addition to the 'all in' benchmark.

Inclusion or exclusion of non-cross swaps

7.606 We consider that the use of inflation and interest rate swaps can be part of a measured financing and treasury management strategy, including allowing companies to raise 'synthetic' debt to better enable target debt mixes (eg raise index-linked debt in a less well established primary market). However, this does not necessitate the inclusion of swaps in the estimation of the cost of embedded debt using the balance sheet approach.

7.607 We recognise that some derivative exposures have contributed to riskier financing structures. Ofwat – in its response to the Disputing Companies' statements of case – highlighted the particular derivative exposures of Southern and Yorkshire Water.[531] Similarly Fitch – in its ratings assessments – removes its generic sector-level uplift in its credit opinions for [✂] on the basis that mark-to-market derivative liabilities have exceeded 10% of RCV.[532]

[529] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p11, paragraph 31.
[530] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p12, paragraph 34.
[531] Ofwat (2025) Response to common issues on risk and return, pp60–61, paragraphs 4.15–4.17.
[532] Fitch (2025) UK Water in AMP8: navigating challenges, p4.

7.608 UKRN guidance sets out that, typically, regulators have not reflected the impacts of derivative exposures in the cost of debt allowance.[533] This is primarily – it says – because the function of swaps is around treasury risk management rather than financing investment, and the allowed return is intended to compensate only the latter.[534] We similarly consider that – to the extent that additional downside risk or upside benefits are created by the use of swaps for treasury risk management – these should impact shareholders (ie impact achieved equity returns), rather than customers as would be the case if they were reflected in the embedded debt allowance.

7.609 We find that sector average proportions of index-linked and fixed rate debt, on a pre-swap basis,[535] are broadly comparable to that of the notional structure. Table 7.17 sets out the proportions of the total debt held in the industry, as measured and used in the embedded debt model, following our updates for debt issuances since Ofwat's September 2024 data cut-off. This suggests that – at a sector average level, which is the basis of the 'all-in' allowance – the industry's debt mix is broadly similar to the notional debt mix. This means that the inclusion of swaps is not required – at a sector average level – to achieve a debt mix close to the notional structure.

Table 7.17: Fixed, index-linked, and floating rate debt proportions used to calculate 'all in' and 'actual notional' costs following updates to March 2025

	WaSCs and large WoCs	Total industry	Notional assumption
Proportion of fixed rate debt	59%	58%	67%
Proportion of ILD	33%	34%	33%
Proportion of floating rate debt	8%	8%	-
Total	**100%**	**100%**	**100%**

Source: CMA analysis of Ofwat embedded debt model, updated for debt issuances from 30 September 2024 to 31 March 2025.

7.610 We also consider that the inclusion of swaps would require an understanding of each instrument to determine its risk profile and form a judgement on its suitability for inclusion. We provisionally find that this additional complexity would not be outweighed by sufficient benefit to the accuracy of estimated embedded debt costs, and – given information asymmetries between the regulator and water companies – could inadvertently encourage or remunerate riskier financing choices.

7.611 While we recognise that the use of swaps can be a part of legitimate financing and treasury management strategy, we provisionally find that the use of swaps is associated primarily with treasury management, and additional risks and benefits

[533] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p32.
[534] UKRN (2023) Guidance for regulators on the methodology for setting the cost of capital, p32.
[535] Ie excluding the impact of non-cross currency swaps.

should impact shareholders (ie equity returns) rather than customers in the embedded debt allowance. We therefore continue to adopt estimates which exclude the impact of non-cross currency swaps.

Treatment of 'all in' and 'actual notional' estimates

7.612 We propose to place weight on both 'all in' and 'actual notional' approaches to estimate the cost of embedded debt.

7.613 Under a balance sheet approach to estimating the cost of embedded debt, care should be taken to ensure that allowing recovery of 'actual' debt costs is consistent with customers funding efficiently incurred costs. In our view, rather than 'double notionalising', placing weight on the 'actual notional' approach aims to ensure that the estimate – while built using actual reported costs – can better reflect efficient costs incurred by notionally structured companies.

7.614 In respect of concerns around whether applying the 'actual notional' framework alters assumptions on timing of issuance: we consider that the assumption – outlined in an illustration by KPMG[536] – that fixed-rate debt is more likely to have been raised in low interest rate environments (and index-linked debt more likely raised in high interest rate environments) is likely to be a simplified characterisation. We note that there was no attempt to isolate the impacts of timing (rather than other factors), with KPMG submitting that adjusting the calculation for timing of issuance would be challenging to implement in practice.[537] We consider that choices on whether to raise fixed or index-linked debt will depend on a range of company specific strategies and factors, including individual company expectations of (unknowable) likely future changes in rate environment.

7.615 KPMG found that the difference between full reliance on the 'all-in' estimate, and effectively placing 50:50 weight on the 'all-in' and 'actual notional' estimates, was +6bps.[538] This was likely influenced by the fact that industry-wide fixed and index-linked debt mixes are similar to the notional structure, as demonstrated above. We provisionally find the inclusion of the 'actual notional' approach in the embedded debt allowance helps to ensure that the allowance remunerates efficiently incurred costs more likely to be associated with the notional structure. We therefore continue to adopt an estimate which draws on both the 'all-in' and 'actual-notional' approaches.

[536] KPMG sets out an example of a company's portfolio comprising two equally sized bonds: one index linked bond issued when rates were high, and one fixed rate bond issued when rates were low. See KPMG (2025) Estimating the Cost of Capital for PR24, p114, paragraph 11.1.26–11.1.29.
[537] See KPMG (2025) Estimating the Cost of Capital for PR24, p114, paragraph 11.1.29.
[538] KPMG (2025) Estimating the Cost of Capital for PR24, p112, paragraph 11.1.4.

Potential for cost sharing

7.616 We acknowledge that cost sharing is a common feature of regulatory policy and that in principle embedded debt costs could be a candidate for cost sharing. However, we also note that it is a long-standing policy to set an industry-wide fixed cost of embedded debt allowance (for large companies) and we are not aware of any discussion of cost sharing on embedded debt costs in the PR24 methodology development. While Southern's request is presented as a form of cost sharing, it is effectively a request for higher cost companies like Southern to have a higher cost of debt allowance.

7.617 We consider that this would be a relatively major departure from the established methodology used to set the allowed return on debt and would imply a change in the current risk allocation between shareholders and customers (or shareholders of other companies). Southern submitted that this does not reallocate new costs to customers but rather reallocated costs across companies.[539] We do not agree – cost sharing would transfer some of the cost of the companies' financing decisions onto customers, and it is not clear that this is appropriate.

7.618 We acknowledge that timing of issuance – itself driven by capex and refinancing needs at any given point-in-time – can significantly impact an individual company's embedded debt costs. However, the use of broad sector-wide averages, incorporating a wide range of instruments with different characteristics (including dates of issuance), mitigates this at the sector level when setting the allowance.

7.619 We also consider that a move closer to a company-specific allowance may dampen the incentives to raise debt efficiently. Timing-of-issuance is driven by capex and refinancing needs, but also individual company decisions on financing structure (eg whether to fund financing needs with debt or equity). Risks (ie out or underperformance) associated with individual company financing choices are to be borne by company shareholders, rather than customers or shareholders of other companies in the sector. This is because individual companies (and their own shareholders) are best placed to take the financing choices that influence these risks, as compared to customers or shareholders of other companies.

7.620 Informed by our view that broad sector averages sufficiently incorporate and remunerate a range of debt issuance profiles, and that individual financing choices which may influence out or underperformance are to be carried by companies rather than customers or the broader sector, we do not propose to introduce a cost sharing mechanism for the allowance for embedded debt.

[539] Southern SoC, p485, paragraph 467.

Updated estimates using the balance sheet approach

7.621 Following the methodology set out above (ie continuing to exclude non-cross currency swaps, and continuing to place weight on the 'actual notional' framework), we have updated the estimate of the cost of embedded debt to account for actual debt issuances since Ofwat's September 2024 data cut-off to 31 March 2025 (Ofwat used company forecast issuances, assuming instruments were issued at the cost of new debt, for this six-month period).[540]

7.622 In doing this, we have updated Ofwat's model only for relevant issuances from its 30 September 2024 cut-off date to 31 March 2025.To the extent that there are any differences in the latest FY25 APR data for instruments issued before Ofwat's September 2024 cut-off (eg as a result of companies restating historical data), we have not adjusted for these.

7.623 Table 7.18 shows the 'all in' and 'actual notional' estimates for all water companies, updated for July 2025 (ie for the year ended 31 March 2025) APR submissions.

Table 7.18: 2025–2030 estimated debt costs for water companies, informing the 'all in' and 'actual notional' estimates

	Company	'All-in' (nominal)	'Actual notional' (nominal)
WaSCs	Anglian	5.03%	5.02%
	Northumbrian	4.77%	4.80%
	South West Water	5.43%	5.39%
	Southern	5.43%	5.52%
	Severn Trent	4.41%	4.35%
	Thames Water	4.86%	4.79%
	United Utilities	4.46%	4.13%
	Dŵr Cymru	4.89%	4.71%
	Wessex	5.25%	5.25%
	Yorkshire Water	4.81%	4.80%
WoCs	Affinity	4.42%	4.54%
	South East	5.31%	4.50%

Source: CMA updated estimates using Ofwat's published model: Ofwat (2024) PR24-FD-RR02-Cost-of-debt.xlsx.

7.624 Table 7.19 shows sector average benchmarks for WaSCs and large WoCs, in line with the methodology set out.

[540] Updated APR data became available in July 2025. Our update is consistent with Ofwat's approach, which effectively used a data 'cut-off' of March 2025. We make a mechanistic addition to Ofwat's embedded debt model by incorporating qualifying new additions to the 'Actuals' sheet of this model.

Table 7.19: 2025 – 2030 updated estimated debt costs (nominal and CPIH)

	WaSCs and Large WoCs	
	Nominal	CPIH
Company average ('All in')	4.92%	2.46%
Company average ('Actual-notional')	4.82%	2.36%
Company median ('All in')	4.88%	2.42%
Company median ('Actual-notional')	4.79%	2.34%
Mean of means	4.87%	2.41%
Mean of medians	4.84%	2.38%

Source: CMA updated estimates using Ofwat's published model: Ofwat (2024) PR24-FD-RR02-Cost-of-debt.xlsx.

7.625 We have updated Ofwat's cost of embedded debt analysis for:

(a) Actual (rather than forecast) issuances since Ofwat's September 2024 cut-off to 31 March 2025;

(b) Updates to the Bank of England base rate, and SONIA reference rates for floating rate debt; and

(c) Inflation estimates to convert the cost of ILD to nominal figures, using 2.0% for CPI inflation, and 2.90% for RPI inflation, for CPI- and RPI-linked embedded debt respectively (the majority of non-RPI index-linked embedded debt is linked to CPI).

7.626 We take the mean of the 'all-in' median cost of 4.88% (compared to Ofwat's estimate of 4.89%) and the 'actual-notional' median cost of 4.79% (compared to Ofwat's estimate of 4.76%), which produces a nominal estimate for the cost of embedded debt of 4.84% (compared to Ofwat's estimate of 4.82%). Deflating using our long term 2.4% CPIH assumption (see paragraphs 7.49 to 7.52)), this results in an estimate for the cost of embedded debt of **2.38%** (CPIH, real). This compares to Ofwat's estimate, using a 2.0% CPIH assumption, of 2.77%.

Cost of new debt

Summary

7.627 We provisionally set a real cost of new debt allowance of 3.86%. We use a one-month average of the benchmark index (the average of the iBoxx A/BBB 10+ non-financial indices) to estimate the nominal cost of debt. We provisionally find that a +30bps adjustment to the benchmark is appropriate. We use the 2.4% long-term CPIH assumption to derive the real cost of new debt.

Introduction

7.628 New debt is raised over the price control period, primarily to finance growth in RCV and to refinance maturing debt balances. In this section, we assess Ofwat's approach in its PR24 FD and Disputing Companies' submissions, before setting out our assessment and provisional conclusion.

Ofwat's PR24 FD approach

7.629 Ofwat's cost of new debt estimate was determined using:[541]

(a) a one-month trailing average of both of the A and BBB-rated iBoxx GBP non-financials 10+ indices (the average of these two indices forms the 'benchmark index'), to its 30 September 2024 data cut-off;[542] and

(b) the addition of a +30bps positive adjustment to this benchmark index (the 'benchmark adjustment') . This adjustment reflected an assessment of primary bond issuances and secondary market yields, which demonstrated that – at the time of the PR24 FD – water company bonds holding the target Baa1/BBB+ credit rating traded at a premium to the benchmark index.

7.630 The length of the trailing average was determined to be consistent with that used for the RFR (see Risk-free rate section above).[543] The benchmark index was chosen in line with principles set out in Ofwat's final methodology.[544]

7.631 The cost of new debt estimate was subject to an end-of-period reconciliation at PR29, calculated with a cost of new debt reconciliation model, to reflect movements in the benchmark index over the price control period.[545]

7.632 To assess its +30bps adjustment, Ofwat considered:[546]

(a) yield-at-issue of all fixed-rate, GBP issuances with tenor more than 10 years in the water sector, to its 30 September 2024 data cut-off, as compared to the benchmark index.[547] Ofwat noted that company issuances were below the benchmark index until November 2022 and after this date issuances had been more aligned to or above the benchmark index, before increasing in more recent months to its data cut-off date. This was the 'primary issuance analysis'; and

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[541] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp95–98.
[542] '10+' in this context means that the bonds contained in the indices have a tenor of more than 10 years.
[543] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp94, 98.
[544] Ie that it is transparent, authoritative, independent, similar to the notional company, and sufficiently large (to avoid being skewed by characteristics of specific bonds). For more information see: Ofwat (2022) Our final methodology for PR24: Appendix 11 – Allowed return on capital, p72 onwards.
[545] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p98.
[546] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp96–97.
[547] The benchmark index comprises GBP-issued non-financial sector bonds with tenor of over 10 years.

(b) secondary market yields of Baa1/BBB+ rated bonds contained within the benchmark index, as compared to the benchmark index, for the six months from March 2024 to September 2024. This was the 'secondary market analysis'.

7.633 Ofwat placed weight on its secondary market analysis – given the ability to isolate performance of water company bonds held in the benchmark index with notional-like credit ratings – to determine its upwards benchmark adjustment. It assessed that, over the six months to its September data cut-off, these bonds traded at an average premium to the benchmark index of +24bps. Informed by considerations of the need to raise significant finance to support investment over the price control period, including in international debt markets, Ofwat provided for a benchmark adjustment of +30bps in the cost of new debt allowance.[548]

7.634 In its PR24 FD, Ofwat noted uncertainty as to whether yield spreads to the benchmark index would persist over the price control period.[549] Ofwat suggested the possibility of indexation of the benchmark adjustment, but determined this would be a late stage change and would be accompanied by implementation challenges.[550]

7.635 Ofwat deflated the nominal one-month trailing average of the benchmark index for September 2024 using its long-term CPIH assumption of 2.0%.[551]

Parties' submissions

Disputing Companies

7.636 Several core components of the cost of new debt estimation were not in dispute, including (i) the choice of benchmark index, (ii) the choice of averaging period, and (iii) the indexation mechanism.

7.637 Northumbrian submitted that it did not seek to materially challenge the allowances for the cost of new debt over the PR24 period, but requested that the CMA update the estimate (ie the benchmark index average) for latest market data.[552] Wessex did not make any specific comments with respect to the cost of new debt methodology.[553]

[548] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp97–98.
[549] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p98.
[550] Ie analysis at the end of the price control period to assess yield premia to the benchmark, to inform a reconciliation similar to that used with the benchmark index. See Ofwat (2024) PR24 Final Determinations Aligning Risk and Return, Allowed Return appendix, p98.
[551] Ofwat (2024) PR24 Final Determinations Aligning Risk and Return, Allowed Return appendix, p98.
[552] Northumbrian SoC, p149.
[553] Wessex SoC, p90, paragraph 10.12(e).

7.638 Anglian,[554] South East[555] and Southern[556] submissions referred to a report prepared for them by KPMG,[557] which focused on the benchmark adjustment and the analysis which underpins this. KPMG's work argued that we should consider a higher benchmark adjustment (with a point estimate of +40bps) on the basis that:

(a) updated yield at issuance analysis from November 2022 – January 2025 supported a positive adjustment to the benchmark of +46bps;

(b) evidence from the secondary market trends, which it submitted supported an adjustment of 30 – 50bps; and

(c) the notional company would be unlikely to achieve and maintain the target credit rating of Baa1/BBB+ across all three major ratings agencies (given arguments discussed in relation to financeability, see 'Financeability'). KPMG therefore used secondary market movements of Yorkshire Water bonds (rated at the time as Baa2 by Moody's but BBB+ by Fitch and S&P). KPMG's analysis suggested a yield, as at January 2025, approximately 59bps higher than the benchmark index.

7.639 In reply to Ofwat's response to the statements of case, the Disputing Companies jointly submitted that the deterioration in credit risk is systemic at the industry level and a benchmark adjustment of 30bps is insufficient.[558]

KPMG's yield at issuance analysis

7.640 KPMG, advisers to Anglian, South East and Southern, submitted primary issuance analysis which compared yield-at-issue of a range of water company bonds to hypothetically constructed iBoxx A and BBB yield curves, adjusting for tenor and rating of instruments.

7.641 To implement this, separate hypothetical yield curves were constructed for each of the iBoxx A and BBB non-financial indices. These used a broader range of indices tracking bond portfolios with a range of tenors (ie the 1-3 year index, 3-5 years, 5-7 years, 7-10 years, 10+ years and 15+ years), to create an estimate of yields at each integer tenor.[559] Bonds of a particular credit rating were then compared to either the A or BBB simulated yield curve at their tenor. Figure 7.14, produced by KPMG in response to a question from us, sets out an example of this for two bonds with different credit ratings.

[554] Anglian SoC, p203, section 3.2.
[555] South East SoC, p84, paragraph 6.39.
[556] Southern SoC, p488, paragraph 486.
[557] KPMG (2025) Estimating the Cost of Capital for PR24, p122–128, section 11.2.
[558] Disputing Companies (2025) Joint reply to Ofwat's Response, paragraph 27.
[559] To achieve this in practice, KPMG used cubic spline interpolation: South East response to South East RFI02, Q7, pp6–8.

Figure 7.14: Illustration of KPMG's rating and tenor-adjusted yield at issuance assessment for two bonds of different tenors and credit ratings

Instrument	Severn Trent (ISIN: XS2925933173)	Anglian Water (ISIN: XS2921533761)
Issue date	24 October 2024	22 October 2024
Maturity date	24 January 2042	12 September 2044
Moody's rating at issue	Baa1	A3
Calculated tenor at issue	17.3 years, rounded to 17 years	19.9 years, rounded to 20 years
Comparison	The bond's yield at issuance is compared to the simulated 17-year yield on the iBoxx BBB curve as of 24 October 2024	The bond's yield at issuance is compared to the simulated 20-year yield on the iBoxx A curve as of 22 October 2024

Source: South East response to South East RFI02, Q7, p8.

7.642 The results of KPMG's primary market (yield at issuance) analysis suggested an average yield difference to the benchmark index – over the period 1 November 2022 to 31 January 2025 – of +46bps.[560]

KPMG's secondary market analysis

7.643 KPMG, advisers to Anglian, South East and Southern, noted a scarcity of new bond issuances from the publication of the PR24 FD to its data cut-off of January 2025.[561] For this reason, it assessed secondary market data in a similar way to Ofwat: comparing secondary yields of Baa1 (ie Moody's target notional company credit rating) bonds held within the benchmark index, to the benchmark index (see paragraph 7.629(b)).[562]

7.644 However, KPMG submitted that it had adjusted Ofwat's methodology in two key ways:[563]

(a) controlling both the yields of traded bonds and the iBoxx benchmark for tenor, using what are known as G-spread estimates;[564] and

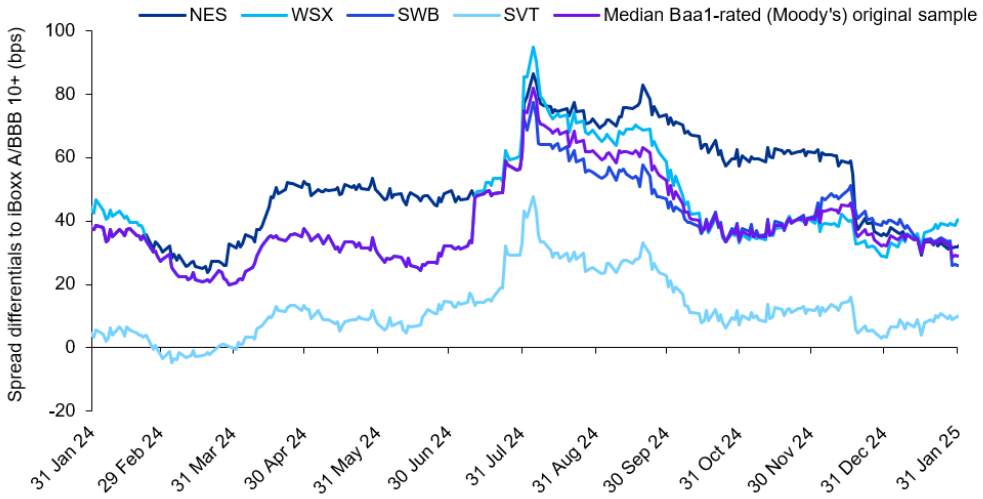
[560] KPMG (2025) Estimating the Cost of Capital for PR24, p126, paragraph 11.2.16.
[561] KPMG (2025) Estimating the Cost of Capital for PR24, p126, paragraph 11.2.17.
[562] KPMG (2025) Estimating the Cost of Capital for PR24, pp126–127, paragraphs 11.2.18–11.2.27.
[563] KPMG (2025) Estimating the Cost of Capital for PR24, p127, paragraph 11.2.23.
[564] To assess the G-spread of a given corporate bond with a given maturity date, yields of government bonds with similar maturity dates (slightly before and slightly after the corporate bond) are sourced. The slope of the straight line between these two government bond yields at different maturity dates is assessed to estimate the theoretical government bond yield at the maturity date of the corporate bond under assessment (known as 'linear interpolation'). The difference between (i) the corporate bond's yield (ii) the constructed government bond yield, is the corporate bond's G-spread.

(b) shortening the averaging period to one month (compared to six months used by Ofwat), citing volatility in water company bond spreads.

7.645 KPMG's G-spread estimates theoretically allow for comparison of traded bonds with different tenors – or maturity dates – to each other, by estimating the hypothetical yield of a UK government bond at a given tenor (or maturity date).[565]

7.646 In its secondary market analysis, KPMG compared G-spreads over time of Baa1-rated water company bonds held within the benchmark index to estimated G-spreads of the benchmark index.[566] Its results are shown at Figure 7.15, below.

Figure 7.15: KPMG's secondary market analysis comparing yields of Baa1 to the benchmark index, adjusting for tenor using G-spreads



Source: KPMG (2025) Estimating the Cost of Capital for PR24, section 11.2.

7.647 Under KPMG's assessment, the median spread differential for the one-month period of January 2025 is approximately +33bps.[567]

7.648 As a result of the Disputing Companies' submission that the notional company is unlikely to achieve the notional target credit rating of Baa1/BBB+ (see Financeability), KPMG extended this analysis to assess the spread of Yorkshire Water bonds (at the time rated Baa2 by Moody's but BBB+ by S&P and Fitch). It submitted that this analysis suggested an average spread to the benchmark index over January 2025 of +59bps.[568]

KPMG's proposed benchmark adjustment

7.649 On the basis of:

[565] South East response to South East RFI02, Q7, pp6–9.
[566] South East response to South East RFI02, Q7, pp6–9.
[567] KPMG (2025) Estimating the Cost of Capital for PR24, p127, paragraph 11.2.23.
[568] KPMG (2025) Estimating the Cost of Capital for PR24, p127, paragraphs 11.2.24–11.2.26.

(a) its assessment of yield-at-issue analysis supporting a +46bps adjustment; and

(b) secondary market yield spreads to the benchmark index of: (i) a range of Baa1 rated water company bonds (lower bound estimate); and (ii) its assessment of Yorkshire Water bonds (upper bound estimate),

KPMG's report suggested a positive benchmark adjustment to the cost of new debt of +30bps to +50bps, with a point estimate of +40bps.[569]

Ofwat

7.650 Ofwat submitted that it disagreed with the Disputing Companies' (and their adviser KPMG's) approach in three key areas.

(a) **The relevant credit rating to assess performance of secondary market trends**, ie that the use of Yorkshire Water more closely ties the analysis to an actual company, and that – given Yorkshire Water's Baa2 rating, sub-investment grade junior debt, and significant mark-to-market derivative liabilities – it is unlikely to represent the notional company.[570]

(b) **That tenor adjustments have theoretical and practical limitations**.[571]

(i) Theoretically, water companies can outperform the index by issuing bonds at shorter tenors than assumed by the benchmark index.

(ii) Ofwat conducted analysis to show that – in practice – tenor adjustments for bonds held by the same company often do not resolve differences in yield, and can produce unexpected results (eg increase yield differences).

(c) **The interpretation of market data to inform a possible benchmark adjustment.**[572] Ofwat presented analysis to demonstrate that average interest rates of recent bond issuances suggested that companies were able to issue in line with the PR24 FD allowance, including at a range of tenors. Ofwat noted the CMA's decision in the PR19 Final Report to remove a negative benchmark adjustment on the basis of insufficient data, and uncertainty as to whether historical trends would persist in future.

[569] KPMG (2025) Estimating the Cost of Capital for PR24, p128, paragraphs 11.2.28–11.2.30, and p111, paragraph 11.0.4 and Table 43.
[570] Ofwat (2025) Response to common issues on risk and return, p60, paragraphs 4.38–4.40.
[571] Ofwat (2025) Response to common issues on risk and return, p60, paragraphs 4.38–4.40.
[572] Ofwat (2025) Response to common issues on risk and return, pp68–73, paragraphs 4.45–4.57.

7.651 Ofwat presented some arguments in favour of no benchmark adjustment at all. It concluded that, in any case, current evidence made no case to increase the benchmark adjustment.[573]

7.652 Following hearings with us and the Disputing Companies, Ofwat submitted that updated data would have led to it setting an adjustment of +20bps, rather than +30bps.[574]

Third parties

7.653 CCW commissioned a report by MCC Economics which submitted concerns about the benchmark adjustment (+30bps at the PR24 FD). MCC Economics submitted that it believed there may be scope for reconsidering how judgement has been exercised, given its view that aggressive financial structures employed by shareholders had influenced observed elevated debt costs as compared to the benchmark index.[575] It submitted that an adjustment of -15bps is more consistent with the long-term trend and the characteristics of the notional efficient company.[576] MCC Economics further submitted that Ofwat ought to have pursued a true-up mechanism for the benchmark adjustment, as well as the underlying benchmark index, given the importance of the adjustment and uncertainty as to whether a premium to the benchmark would persist over the price control period.[577]

Our assessment and provisional decision

Choice of benchmark index and averaging period

7.654 We consider that the choice of index (the average yield of both of the iBoxx non-financial 10+ A and BBB indices) continues to represent a sensible benchmark for the cost of new debt over the price control period. It targets the notional credit rating, and its use in a number of price control decisions can contribute to regulatory predictability and consistency. We therefore continue to adopt this benchmark index to produce our estimate.

7.655 We also continue to use a one-month trailing average to establish our opening estimate of the cost of new debt. This is consistent with our approach to estimating the risk-free rate. We continue to adopt an indexation mechanism, meaning that –

[573] Ofwat (2025) Response to common issues on risk and return, paragraphs 4.41–4.58.
[574] Ofwat (2025) Written response to the Hearings, p2. Ofwat's opening statement slides set out that it would have applied at 10bps lower adjustment on the basis of updated secondary market data, based on updated analysis of secondary market yields. See Ofwat opening statement slides for the hearing for Ofwat on 10 July 2025, pp13–14.
[575] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, pp12–14, paragraphs 35–43.
[576] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, pp12–14, paragraphs 35–43.
[577] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, pp12–14, paragraphs 35–43.

at the end of the price control – the allowance reflects interest rate movements over the PR24 period.

Evidence for an adjustment to the benchmark index

Tenor and rating adjustments

7.656 We do not propose to make tenor or rating adjustments either for individual instruments or for the benchmark index.

7.657 The conceptual question we are considering – when assessing whether a benchmark adjustment is required – is: can water companies with the target credit rating (BBB+/Baa1) raise debt at costs in line with those implied by the benchmark index?

7.658 In answering this question, we have a preference for reliance on observed, ie unadjusted, market prices and yields. We note that methods to control for tenor (eg hypothetical yield curves, or linear interpolation used to estimate G-spreads) may not always accurately control for differences in yield which are solely a result of tenor differences. Ofwat's primary issuance analysis is, in any case, limited to bonds with tenors over 10 years (ie aligned with the 10+ benchmark). Ofwat's secondary market analysis is similarly limited to Baa1/BBB+ rated water company bonds held in the benchmark index (having maturities in line with the index). We consider that the number of bonds (of a range of tenors, all over 10 years) held in the benchmark index, is sufficient to provide comfort that a comparison of observed water company yields to observed benchmark performance is likely to help us answer our core question.

7.659 We also have some concerns around KPMG's primary issuance analysis which aims to control for rating. For example – in its yield at issue analysis – comparing a Baa1 rated bond to a simulated BBB iBoxx index (rather than the chosen A/BBB benchmark) does not represent an assessment of the 'spread to the (chosen) benchmark'. The benchmark index is the average of the A and BBB indices, and not the simulated BBB index.

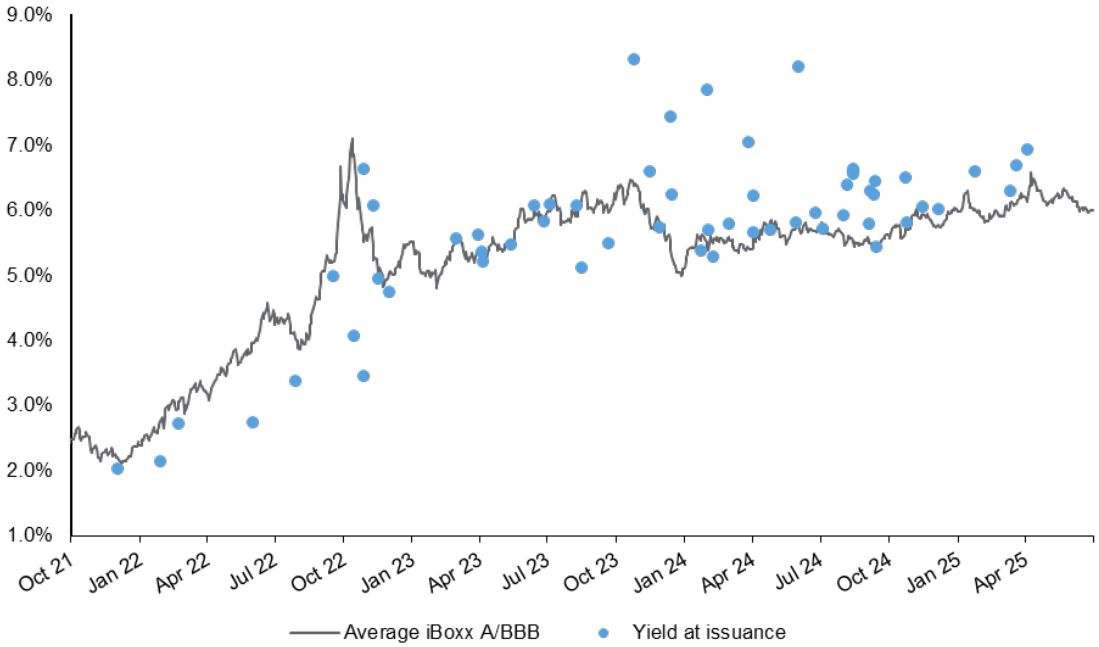
Choice of relevant credit rating to inform benchmark adjustment

7.660 Given the aim to assess likely efficient debt costs over the price control period, we focus our analysis on instruments with credit ratings in line with the Baa1/BBB+ target. Consistent with KPMG's work, our analysis focuses on Baa1 Moody's ratings, given that fewer water companies are rated by both of Fitch and S&P. We consider whether notionally structured companies can achieve this rating (Baa1/ BBB+) in our financeability assessment (see section titled 'Financeability' above).

Assessment of recent market evidence

7.661 At Figure 7.16, we have extended Ofwat's yield-at-issue analysis to include water company debt instruments issued since Ofwat's September 2024 cut-off, up to our data cut-off of 30 June 2025, as reported by water companies in their FY25 APR data, and in response to a question from us.[578]

Figure 7.16: Yield at issue of water company fixed rate GBP instruments of 10+ tenor, as compared to the benchmark index



Source: CMA analysis of Ofwat's submitted primary issuance analysis, company APR data and response to RFIs.

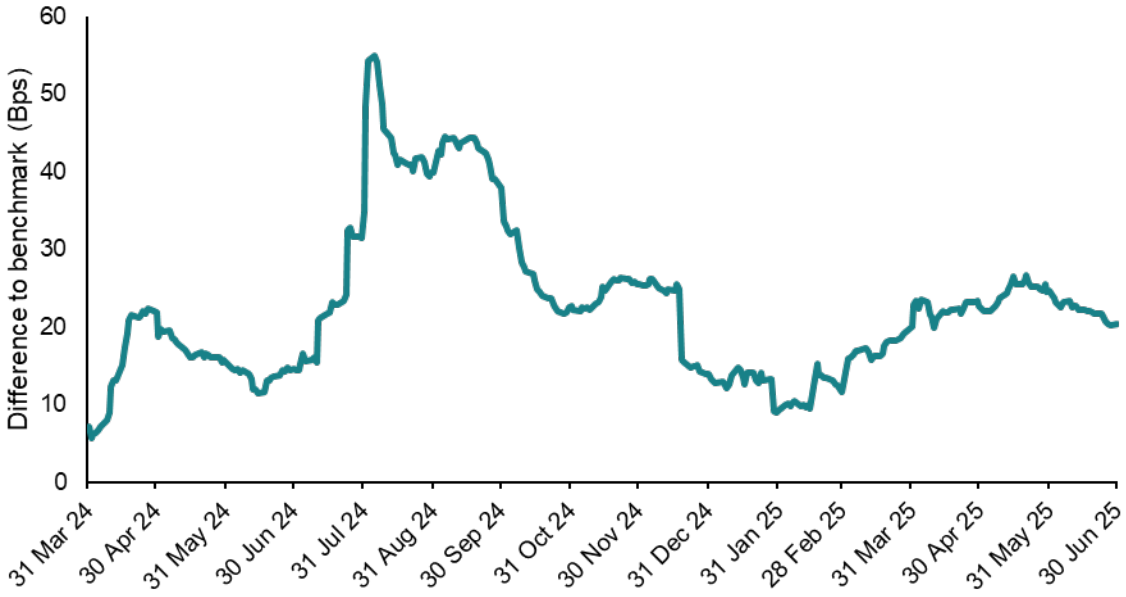
7.662 Three relevant (ie fixed, GBP, 10+ tenor) Baa1-rated bonds were issued since Ofwat's 30 September 2024 data cut-off, to our 30 June 2025 data cut-off. Bonds were issued by Severn Trent (October 2024, +9bps yield premium to the benchmark index), Wessex (March 2025, +61 bps yield premium), and Northumbrian (April 2025, +77bps yield premium).

7.663 To account for this very low number of relevant Baa1/BBB+ issuances since Ofwat's September data cut-off, as was the case with both Ofwat and KPMG, we also assess secondary market trends against the benchmark index.

7.664 Figure 7.17 below shows aggregate secondary market yields of bonds of seven companies with a Baa1 credit rating as of our June 2025 data cut-off (Anglian, Northumbrian, Severn Trent, South West Water, Wessex Water, Dŵr Cymru, and United Utilities), considering the movements of 21 bonds, with each assessed as of the time the issuing company held a Baa1 credit rating.[579]

[578] Northumbrian response to Disputing Companies RFI06, Q1; Ofwat response to Ofwat RFI18, Q1.
[579] Bond are included throughout the period, if consistently Baa1. Anglian bonds are included from 17 February 2025.

Figure 7.17: Secondary market yields as compared to the iBoxx benchmark of Baa1-rated water company bonds, as at the date issuer became Baa1-rated



Source: S&P global data.

7.665 The average premium to the benchmark over the 6 months to 30 June 2025 for all Baa1 bonds held in the benchmark index was **+19bps**. Extending this to the 9 month period to 30 June 2025 (ie since Ofwat's 30 September 2024 cut-off), the average spread to the benchmark was **+20bps**.

7.666 We note that the secondary market analysis suggests a lower benchmark adjustment than as at the time of Ofwat's PR24 FD. However, primary market issuances have continued to show high premia to the benchmark. We recognise concerns (for example, from CCW) about the influence of past company financing choices on high current debt costs, but note that recent issuances suggest that companies with credit ratings in line with (and above) the notional target are observing significant yield premia to the benchmark. In setting our cost of new debt allowance, we aim to ensure that it remunerates efficiently incurred, notional-like, cost.

7.667 On the basis of the evidence available – noting downgraded credit ratings of a number of water companies in early 2025, and high effective interest rates in recently issued debt (albeit available data is limited) – we provisionally continue to include a **+30bps** adjustment.

7.668 In response to MCC's request – and Ofwat's suggestion – to consider a true-up mechanism at the end of the price control period, we provisionally conclude that this would not be appropriate. As was the case at Ofwat's PR24 FD, determining the level of the adjustment requires judgement in considering both primary issuances and secondary market movements, themselves open to discussion on: (i) the availability of relevant data; (ii) the inclusion or exclusion of certain

instruments; and (iii) the relevant time period of assessment, among other factors. Any true-up mechanism would therefore require a significant degree of judgement to be exercised ex post, and we do not consider the potential benefits of providing a more accurate allowance outweigh the potential drawbacks from increased uncertainty around the final allowance.

7.669 We will continue to monitor market data ahead of our final decision.

Deflating the nominal cost of new debt

7.670 As set out in the inflation section (paragraphs 7.49 to 7.52), we deflate the nominal estimate using our long-term CPIH assumption of 2.4% to estimate our provisional CPIH-real cost of new debt.[580]

Provisional estimate for the cost of new debt

7.671 We have calculated a one-month trailing average of the benchmark index at 30 June 2025 of 6.05%. Applying the +30bps adjustment set out above produces a nominal cost of new debt allowance of 6.35%. Applying our long term CPIH assumption of 2.4% results in a cost of new debt estimate of **3.86%**.

Share of new debt

Summary

7.672 We provisionally estimate the share of new debt to be 27%. The key driver of the increased estimate – as compared to the Ofwat's PR24 FD – is using updated assumptions for RCV growth.

Introduction

7.673 This estimate determines the relative weights of new and embedded debt used to calculate the overall cost of debt allowance. It is estimated based on an assessment of debt refinancing and capital investment (ie RCV growth) needs, and – as with the rest of the cost of debt allowance – is generally a sector-wide, rather than company specific, assumption.

Ofwat's PR24 FD approach

7.674 Ofwat estimated a 24% share of new debt by assessing a sector average of new debt needs.[581] Following company requests to apply company specific weights, it

[580] The 2.4% CPIH assumption should also be used to deflate the nominal iBoxx in Ofwat's indexation mechanism.
[581] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp99–100.

maintained this sector average approach following its PR24 DD.[582] It assessed that the majority of individual differences between companies' new debt needs were driven by refinancing maturing debt rather than RCV growth, and its intention was to ensure that customers were not impacted by individual companies' financing choices.[583]

7.675 To estimate the allowance, Ofwat assumed:[584]

(a) **refinancing:** all debt instruments maturing over the FY25 to FY30 period were assumed to be refinanced as new debt;

(b) **RCV growth:** applying an assumption of 5% annual real RCV growth, 55% of this is funded by debt and 45% funded by equity, in line with the notional structure;

(c) **accretion:** Ofwat's PR24 FD noted an assumption of 2.0% accretion for CPI-linked balances and 2.9% for RPI-linked balances; and

(d) **rounding:** the proportion is rounded to the nearest whole percentage point.

Parties' submissions

Disputing Companies

7.676 Northumbrian did not make specific comments on the methodology, but submitted an updated estimate of the proportion of embedded debt of 74.7% (implying a share of new debt of 25.3%).[585] Wessex did not make any specific comments on the share of new debt estimation.[586]

Inputs for the sector-wide estimate

7.677 Anglian,[587] South East,[588] and Southern[589] referred to arguments set out in KPMG's report,[590] with Anglian giving particular focus to its view that Ofwat used an incorrect RCV growth assumption. KPMG assessed the inputs for Ofwat's estimation, and submitted that a number of adjustments should be made:[591]

(a) **sample of companies**: KPMG submitted that using all water companies' embedded debt balances was not consistent with the approach to setting the

[582] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp99–100.
[583] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp99–100.
[584] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp99–100.
[585] Northumbrian SoC, p156, Figure 52.
[586] Wessex SoC, p90, paragraph 10.12(e).
[587] Anglian SoC, pp203–204, paragraphs 787–789.
[588] South East SoC, p83, paragraph 6.33.
[589] Southern SoC, p492, paragraph 507, Table 10.
[590] KPMG (2025) Estimating the Cost of Capital for PR24, pp128–129, section 11.3, Table 48.
[591] KPMG (2025) Estimating the Cost of Capital for PR24, pp128–129, section 11.3, Table 48.

embedded debt allowance (ie using embedded debt costs of WaSCs and large WoCs);

(b) **gearing assumption**: KPMG submitted that using the notional (ie 55%) gearing assumption was not consistent with the way the embedded debt allowance is set, in which debt balances reflect 'actual' gearing;

(c) **accretion:** KPMG submitted that this should be 'split' between embedded and new debt, which would reduce the new debt requirement;

(d) **inflation:** KPMG implied that including accretion for ILD balances, but incorporating a 'real' assumption for RCV was inconsistent, and submitted that it is more 'intuitive' for the calculation to be performed based on expected nominal RCV growth;

(e) **RCV growth:** KPMG submitted that the PR24 FD implies a growth rate of 5.7% (real), or 8.1% (nominal). It submitted that Ofwat's 5% assumption was based on data received in advance of the PR24 DD, and was therefore outdated. KPMG applied an 8.1% nominal RCV growth rate in its own calculations; and

(f) **opening RCV:** KPMG submitted that this value was included from the PR24 DD, albeit it was broadly consistent with the value implied by the PR24 FD.

7.678 KPMG's calculations produced an estimate for the share of new debt of 28% (as compared to Ofwat's 24%), with the increase essentially driven by its application of an 8.1% nominal RCV growth assumption, and its sector average gearing assumption.[592]

Company specific RCV growth assumptions

7.679 Southern submitted that its real RCV growth rate over AMP8 is significantly higher than the average for the industry (a simple increase of 59% compared to 28% implied by Ofwat's PR24 FD).[593] It submitted that this is driven by a capital programme mandated by regulation, and is outside of its control.[594] As the cost of new debt is higher than the cost of embedded debt, Southern submitted that an understated share of new debt underfunds its new debt, which disincentivises it from investing.[595] It submitted that adjusting KPMG's calculation for its company

[592] KPMG (2025) Estimating the Cost of Capital for PR24, section 11.3, Table 48, pp128–129; 'KPMG - Estimating the Cost of Capital for PR24 2025 - databook for CoDe, share of new debt and overall CoD.xlsx', appended to Disputing Companies reply to Disputing Companies RFI01, Q1.
[593] Southern SoC, pp492–493, paragraphs 508–509. The file Southern reference to make this submission (its PR24 DD financial model) implies an annual nominal RCV growth of around 12%. See Southern SoC, supporting document titled 'SOC-7-0074_Southern_Water_PR24_DDR_financial_model.xls'.
[594] Southern SoC, p493, paragraph 509.
[595] Southern SoC, p493, paragraph 510.

specific RCV growth rate results in an uplift to the estimated share of new debt of 36%.[596]

Ofwat response

Inputs for the sector-wide estimate

7.680 In respect of KPMG's submissions on RCV growth and opening RCV inputs, Ofwat submitted that RCV growth can only be calculated once decisions have been made and financial modelling completed to take account of totex, PAYG and RCV run-off allowances.[597] Ofwat submitted that calculating the share of new debt is therefore an iterative process (ie cost of debt inputs are needed for financial modelling, and an RCV growth estimate is needed to estimate the cost of debt).[598] It submitted that the inputs to the share of new debt were therefore not fully updated for its PR24 FD.[599]

7.681 Ofwat estimated that using updated inputs was likely to have a 1bp impact on the overall allowed cost of debt, and this could be positive or negative depending on movements in interest rates impacting the PR29 reconciliation for the cost of new debt.[600]

7.682 In respect of KPMG's submissions on accretion, Ofwat submitted that KPMG had misunderstood Ofwat's use of accretion in Ofwat's calculation.[601] Ofwat submitted that it had updated its embedded debt model ahead of its PR24 FD to mean that accretion of ILD balances over the price control period is included in the embedded debt allowance, meaning that accretion of ILD balances does not need to be added to the allowance in the same way it had been before.[602] Ofwat's updated model made an allowance for change in accretion to calculate refinancing needs.[603]

Company specific RCV growth assumptions

7.683 Ofwat submitted that application of a sector-wide share of new and embedded debt is a consistent application of regulatory policy, and applying company-specific weights would have been a material late stage change to its methodology.[604] It

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[596] Southern SoC, p493, paragraph 511.
[597] Ofwat (2025) Response to common issues on risk and return, p75, paragraph 4.68. On RCV run-off, see further paragraph 8.191 below.
[598] Ofwat (2025) Response to common issues on risk and return, p75, paragraph 4.68
[599] Ofwat (2025) Response to common issues on risk and return, p75, paragraph 4.68.
[600] ie the estimated impact on the overall allowance could be positive or negative depending on whether the cost of new debt is higher or lower than the cost of embedded debt following reconciliation at PR29. See Ofwat (2025) Response to common issues on risk and return, paragraphs 4.69.
[601] Ofwat (2025) Response to common issues on risk and return, p75, paragraph 4.70.
[602] Ofwat (2025) Response to common issues on risk and return, p75, paragraph 4.70.
[603] Ofwat (2025) Response to common issues on risk and return, p75, paragraph 4.70.
[604] Ofwat (2025) Response to common issues on risk and return, pp75–76, paragraphs 4.71–4.72.

submitted that implementing this would introduce further complexity for PR24 and future price controls, requiring adequate consultation.[605] It further submitted that company-specific weights (ie influenced by individual refinancing needs) would risk unwinding the notional approach and increase customers' exposure to individual companies' financing choices.[606]

Our assessment and provisional decisions

7.684 Before discussing the detailed points made, we first note that Ofwat's approach already gives some weight to individual companies' circumstances by using data on individual forecast refinancing needs and RCV growth. The second observation is that the most material assumptions for the calculation are the assumed rate of RCV growth and the gearing assumption. These two factors explain most of the difference between KPMG's and Ofwat's estimates.

Updating inputs to the estimate

7.685 Many of the core aspects of the methodology for the calculation of the share of new debt are not in dispute, with KPMG adopting a broadly similar approach to Ofwat in its estimates.

7.686 With respect to the **opening RCV balance**, we have updated this for PR24 FD inputs, noting that it makes no difference to the rounded share of new debt estimated percentage.

7.687 For the **gearing assumption**, we continue to use the notional gearing of 55% (as did Ofwat), rather than use sector average gearing. This is more consistent with the notional capital structure and reduces the risk of customer exposure to the impact of companies' individual financial choices. We note that changing the gearing assumption in the KPMG model to 55% reduces its estimate of the share of new debt to 26%.

7.688 Regarding the **choice of companies** (ie the whole industry or only WaSCs and large WoCs), first we note that the assumption makes little difference to the rounded percentage estimated share of new debt. However, we continue to use the industry wide figures as we consider it to be consistent with the approach to estimating the embedded debt allowance under Ofwat's methodology for this price control. The embedded and new debt allowances may be adjusted for small companies' additional costs, but the share of new debt estimate – at this price control – applies to the industry as a whole.

[605] Ofwat (2025) Response to common issues on risk and return, p76, paragraph 4.72
[606] Ofwat (2025) Response to common issues on risk and return, p76, paragraph 4.73.

7.689 Regarding the points around **accretion** and **RCV growth**, we have the following observations. Our provisional decision is that it is appropriate to use nominal RCV growth to estimate the share of new debt, as using Ofwat's approach to real RCV growth implies that all new debt is index-linked, which understates the new debt requirements for AMP8. We therefore use a nominal RCV growth rate when estimating the share of new debt. To reflect the 33%/67% split of index-linked and nominal debt of the notional company, we deduct CPIH accretion (applied to 33% of the new debt) from our estimate of annual new debt required. As we perform our calculation on a nominal basis, there is no longer a requirement to adjust for accretion on embedded debt.

7.690 In practice, we note the circularity and iterative nature of the estimation process. This is because RCV growth assumptions are required to estimate the share of new debt, but cost of debt and WACC inputs are needed for financial modelling to estimate RCV growth.

7.691 We provisionally use an estimate for the nominal industry RCV growth rate of **8.5%,** based on an inputted, rounded, real RCV growth rate of 6.0% (derived from the PR24 FD industry-wide real RCV growth rate), adjusted for our long-term CPIH assumption of 2.4%. We then separately estimate the accretion on new ILD to calculate the net new debt requirement (the accretion reduces the amount of debt to be raised). This calculation results in a share of new debt of **27%**, rounded to the nearest percentage point.

Applying company-specific RCV growth assumptions

7.692 We recognise that different companies may have different capital investment requirements, impacting differences in RCV growth rates across the sector. However, we consider that many other aspects of the price control framework already sufficiently compensate for this (ie in setting base and enhancement allowances).

7.693 Adopting separate RCV growth assumptions for each regulated water company – resulting in a separate WACC estimate for each company – represents a major change in methodology which would increase the complexity of the price control framework. It would also depart from the standard approach – used across cost of capital parameters – to apply an industry wide allowance. We note that the current share of new debt estimate already incorporates inputs from across the sector, including 'actual' refinancing expectations and modelled expectations for RCV growth. We anticipate that the overall impact on each company's allowed WACC would be small, meaning that this additional complexity is unlikely to be justified by sufficient benefit to the price control framework.

7.694 For the purposes of our cost of debt estimate, we therefore continue to adopt a sector average approach.

Our share of new debt estimate

7.695 Largely maintaining Ofwat's methodology, we:

(a) apply a 2.4% CPIH inflation assumption for new ILD balances;[607]

(b) input a rounded 6% RCV real growth assumption, translating to an 8.5% nominal growth assumption (using our 2.4% CPIH assumption), updating the opening RCV assumption for FD outputs; and

(c) include our updates to embedded debt for qualifying debt issuances between Ofwat's 30 September 2024 cut-off to 31 March 2025. As set out above, we no longer make an adjustment for accretion to embedded debt.

7.696 Table 7.20 shows the share of new debt calculation used to produce our estimate, largely consistent with Ofwat's methodology.[608]

Table 7.20: CMA updated share of new debt calculation

			FY25	FY26	FY27	FY28	FY29	FY30
A	Opening embedded debt	= C (t – 1)		76.4	72.1	68.9	65.1	61.0
B	Change in embedded debt			4.3	3.2	3.8	4.1	3.7
C	Closing embedded debt	= A – B	76.4	72.1	68.9	65.1	61.0	57.3
D	Opening new debt	= H (t – 1)		0.0	6.7	15.0	24.2	34.1
E	Change in embedded debt	= B		4.3	3.2	3.8	4.1	3.7
F	New debt for 8.5% RCV growth			2.5	5.1	5.6	6.1	6.6
G	Less: accretion on new ILD			0.05	0.12	0.20	0.27	0.35
H	Closing new debt	= D+E+F–G	0.0	6.7	15.0	24.2	34.1	44.0
I	**Proportion of new debt**	**= H / (H +C)**		**8.5%**	**17.9%**	**27.1%**	**35.8%**	**43.4%**

Source: CMA analysis of updated Cost of Debt model

7.697 Averaging the new debt requirement over the price control period results in an updated estimate for the share of new debt of **27%**.

Additional debt costs

Summary

7.698 We provisionally provide for an additional borrowing costs allowance of +20bps. To estimate this, we include: (i) a +5bps estimate for issuance costs; and (ii) a

[607] Our methodology assumes that all new debt is CPIH-linked.
[608] For comparison with Ofwat's PR24 FD, see Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p101, Table 23.

+15bps liquidity costs allowance, based on latest information on year-end cash balances held by companies.

Introduction

7.699 Companies incur costs – in addition to interest – associated with raising debt finance. Examples include issuance fees to financial intermediaries, and costs associated with maintaining sufficient liquidity to raise debt at competitive interest rates. In this section, we assess Ofwat's approach to its allowance for additional debt costs, Disputing Companies' submissions and Ofwat's response, before setting out our provisional view on an appropriate allowance for additional debt costs.

Ofwat's PR24 FD approach

7.700 In its PR24 FD, Ofwat applied an adjustment of +15bps to account for the additional debt costs associated with issuance, liquidity and cost of carry. This comprised:[609]

(a) a **+5bps allowance for issuance costs**, based on an assessment of issuance costs submitted in Table 4B of companies' APR data, which Ofwat said ranged from 10bps for short duration debt to less than 1bp for the longest duration debt. The 5bps allowance was consistent with previous reviews; and

(b) a **+10bps allowance for liquidity** and 'cost of carry', reflecting companies' need to maintain adequate levels of cash liquidity, including to raise finance at competitive interest rates and maintain credit ratings. Ofwat's calculations were set out in its published model,[610] which assessed:

(i) sector-average liquidity requirement forecasts based on PR24 DD financial models. These assessed 'liquidity runways' over the price control period (primarily driven by capex requirements) for each company, ignoring debt refinancing needs. The average of this[611] was assumed to be raised six months in advance of need, held at an assumed cost of holding cash. The assumed cost of holding cash was based on a comparison of daily benchmark index yields to Bank of England data on overnight index swap spot rates over a two year period from calendar years 2020 – 2022.[612] (estimated to be +7bps); and

[609] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp102–104.
[610] Ofwat (2024) PR24 RR06 - Analysis of liquidity requirements.xls.
[611] Ie averaging across WaSCs and large WoCs, and across the 2025-30 price control period.
[612] Ofwat (2024) PR24 RR06 - Analysis of liquidity requirements.xls.

(ii) the cost of holding revolving credit facilities (RCFs) requirements to cover a full year based on PR24 DD forecast liquidity and refinancing needs, assessed using average RCF commitment fees reported in companies' APR data submissions (estimated to be +3bps).[613]

7.701 Table 7.21 and Table 7.22 illustrate Ofwat's calculations, as demonstrated in its published model, to estimate the +10bps liquidity and cost of carry allowance.

Table 7.21: Ofwat's inputs to the liquidity cost allowance of +10bps at the PR24 FD

Component	How is it estimated?	Estimates used
Average yearly liquidity needs for WaSCs and large WoCs	Forecasting annual 'liquidity runway' needs for each company, using outputs of the PR24 DD financial models. • net cash generated in operations, less: capex, interest expense, tax. • requirement for 12 months is divided by the total gross debt balance for each company, for each year of the price control. • estimates are constructed for each year of the 2020-2025 price control for each company are averaged to produce one input estimate.	Taking averages for each WaSC and large WoC over each year of the price control period: -- Mean: **6.28%** -- Median (of averages): **6.02%**
Average yearly liquidity plus refinancing needs for WaSCs and large WoCs	For each company, and for each year of the price control: • forecast yearly refinancing requirements are added to the liquidity runway estimates calculated above. • requirement is divided by total gross debt for each company, for each year of the price control. • estimates are similarly averaged to produce one input estimate.	Taking averages for each WaSC and large WoC over each year of the price control period: -- Mean: **12.39%** -- Median (of averages): **12.28%**
Estimated cost of holding cash	Using month-end data: (i) benchmark index average at the end of each month, less (ii) overnight index swap spot rate. This estimates the 'cost of holding cash' (or raising debt in advance of need). Using an average of this over calendar years 2020-2022.	Mean: **2.2%**
Estimated RCF commitment fee	Simple average of non-zero RCF commitment fees reported in companies' submitted APR data.	Mean: **0.25%**

Source: CMA analysis of Ofwat's published model: Ofwat (2024) PR24 RR06 - Analysis of liquidity requirements.xls.

Table 7.22: Ofwat's calculation of the liquidity cost allowance (using inputs set out in previous table)

	Cost of raising on average 6 months in advance	RCF covering liquidity plus refinancing	Total estimate
Average	6.28% x 2.21% x (6/12) = **7bps**	12.39% x 0.25% = **3bps**	**10bps**

[613] Ofwat (2024) PR24 RR06 - Analysis of liquidity requirements.xls.

Median (of averages)	6.02% x 2.21% x (6/12) = **7bps**	12.28% x 0.25% = **3bps**	**10bps**

Source: Ofwat (2024) PR24 RR06 - Analysis of liquidity requirements.xls.

7.702 In respect of what is known as 'basis risk', having assessed companies' submissions, Ofwat made no allowance for this.[614] Basis risk is risk that arises from the mismatch between an RCV indexed by CPIH, and the majority of ILD being linked to another inflation measure, RPI. Ofwat's assessment set out that – to the extent that companies choose to incur claimed costs associated with mitigation of basis risk – this is a risk management choice of the company in question (and is therefore to be borne by shareholders rather than customers).[615] It further discussed that: (i) companies had not engaged with its PR24 DD assessment that the presence of fixed rate debt in the notional structure mitigates this risk to the extent that outturn inflation tends to be higher than the Bank of England target; and (ii) analysis from KPMG on beta risk had not considered that Ofwat's policy was known and should already be impacting beta.[616]

Parties' submissions

Disputing Companies

7.703 All companies referred to analysis by KPMG on additional debt costs. Anglian,[617] Southern,[618] and South East[619] referred to the report discussed in earlier sections, submitted for the purposes of our redeterminations.[620] Northumbrian[621] and Wessex[622] asked us to reconsider their PR24 DD responses, which appended an earlier version of a KPMG report which made similar arguments.[623] We set out the relevant key aspects of these reports below.

Issuance costs

7.704 None of the companies disputed the +5bps allowance for issuance costs, and KPMG adopted this estimate in its report prepared for the purposes of our redeterminations.[624]

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[614] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p104.
[615] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p104.
[616] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p104.
[617] Anglian SoC, p201, paragraph 774.
[618] Southern SoC, pp493–500, paragraphs 516–569.
[619] South East SoC, p83, paragraph 6.33.
[620] KPMG (2025) Estimating the Cost of Capital for PR24, pp129–138, section 11.4.
[621] Northumbrian SoC, p154, paragraph 588.
[622] Wessex SoC, p90, paragraph 10.12(e).
[623] KPMG (2024) Estimating the Cost of New Debt and Additional Borrowing Costs for PR24 (submitted as Northumbrian SoC, Annex SOC224).
[624] KPMG (2025) Estimating the Cost of Capital for PR24, p129, paragraph 11.4.1.

Liquidity and cost of carry

KPMG's report prepared for our redeterminations

7.705 In the report submitted for the purposes of our redeterminations, KPMG estimated a liquidity allowance of 21-30bps, largely driven by assumptions that: (i) cash holding needs are higher than estimated by Ofwat (ie there is a need to include debt refinancing as well as 'liquidity only'); and (ii) debt should be pre-financed for a longer period.

7.706 KPMG made the following updates to Ofwat's broad methodology.[625]

(a) KPMG used cashflow and debt refinancing forecasts from the PR24 FD – rather than the PR24 DD – financial models. Using these updated inputs, it calculated 'liquidity runways' and debt refinancing needs consistently with Ofwat's methodology (set out above). It primarily relied on median outputs for liquidity and liquidity + refinancing estimates. Its key estimates were **7.97%** (median, liquidity only), and **14.15%** (median, liquidity + refinancing). For the RCF component, it relied on a mean liquidity + refinancing estimate of **14.60%**.

(b) KPMG changed Ofwat's estimates for the 'cost of holding cash' using one month averages of overnight index swap spot and forward rates as compared to its updated estimate of the cost of new debt. This compares to Ofwat's approach, which used daily benchmark index yields compared to overnight index swap spot rates over a two year period from calendar years 2020 – 2022. KPMG's updated estimate for the cost of holding cash was **2.4%**.

(c) KPMG submitted that liquidity requirement estimates derived from credit rating agencies, accounting standards, and company policies consistently support a liquidity runway of 12 to 15 months.

(i) in its upper bound estimate, KPMG assumed: (i) finance for liquidity needs is raised 12 months in advance; and (ii) debt refinancing-only needs are raised six months in advance (see Table 7.23).

(ii) in its lower bound estimate, KPMG assumed that total liquidity plus refinancing needs were raised 6 months in advance (see Table 7.23). It submitted that this sensitivity assumes that 100% of RCFs are available to reduce pre-financing requirements, noting that – in its view – this

[625] KPMG (2025) Estimating the Cost of Capital for PR24, paragraphs 11.4.2–11.4.24; 'KPMG - Estimating the Cost of Capital for PR24 2025 - databook for liquidity and carry costs.xlsx', appended to Disputing Companies reply to Disputing Companies RFI01, Q1.

scenario does not provide a liquidity buffer for managing unforeseen circumstances or shocks.

(d) KPMG calculated the RCF component of the allowance with its updated PR24 FD inputs, using the same estimate for RCF commitment fees (**0.25%**) and substantially the same methodology as Ofwat.

7.707 Table 7.23 demonstrates the final step of KPMG's calculation – using the inputs set out above – for comparison with Ofwat's calculation (shown at Table 7.22).

Table 7.23: KPMG's calculation of the liquidity cost allowance, using inputs set out above

	Cost of carry	Liquidity (RCF component)	Total estimate
Lower bound	14.15% x 2.4% x (6/12) = **17bps**	14.60% x 0.25% = **4bps**	**21bps**
Upper bound	(7.97% x 2.4% x (12/12)) + ((14.15% - 7.97%) x 2.4% x (6/12)) = **26bps**	14.60% x 0.25% = **4bps**	**30bps**

Source: 'KPMG - Estimating the Cost of Capital for PR24 2025 - databook for liquidity and carry costs.xlsx', appended to Disputing Companies reply to Disputing Companies RFI01, Q1.

KPMG's report prepared in response to the PR24 DD

7.708 As noted above, Northumbrian[626] and Wessex[627] asked us to reconsider their PR24 DD responses, which appended an earlier version of a KPMG report on the cost of debt.[628] This report proposed an estimated allowance of 12 – 14bps for the cost of carry and liquidity, based on the construction of three estimates with three separate methodologies.[629]

(a) An updated version of Ofwat's methodology (set out above), the 'updated Ofwat model'. This assumed: (i) an 18-month pre-financing period; and (ii) a cost of holding cash based on comparing short term interest rates with the benchmark index, including a benchmark adjustment of +34bps (consistent with its proposed cost of new debt adjustment).

(b) The 'KPMG model': this was a 'top-down model', based on forecast RCV growth, forecast RCF facility size (as a percentage of RCV) and forecast cost of holding cash. It used the share of new debt estimate to assess the total

[626] Northumbrian SoC, p154, paragraph 588.
[627] Wessex SoC, p90, paragraph 10.12(e).
[628] KPMG (2024) Estimating the Cost of New Debt and Additional Borrowing Costs for PR24 (submitted as Northumbrian SoC, Annex SOC224).
[629] KPMG (2024) Estimating the Cost of New Debt and Additional Borrowing Costs for PR24 (submitted as Northumbrian SoC, Annex SOC224), pp36–43.

financing requirement in AMP8, and applied a primary assumption of 18 months for its pre-financing period.

(c) The 'CMA PR19 and Ofgem model' which assessed average industry cash and cash equivalent balances expressed as a percentage of net debt. These were multiplied by an estimated cost of holding cash. KPMG set out that this model was unlikely to capture increases in pre-financing requirements driven by capital programmes over the AMP8 period.

7.709 The key request of this report – based on its recommended allowance and recommended choice of models (ie the 'updated Ofwat model' and 'KPMG model') – appears to be to apply an 18-month pre-financing period in the estimation of the allowance.

Basis risk

7.710 The two KPMG reports submitted by the Disputing Companies (see paragraph 7.703) argued that an additional allowance, with a point estimate of 6bps, was required to compensate companies for what is known as 'basis risk'.[630] Because both reports produce substantially similar estimates based on similar arguments, we focus on the most recent KPMG report which was prepared for the purposes of our redeterminations (rather than for response to the PR24 DD).

7.711 Basis risk is risk exposure caused by a 'mismatch' between an RCV linked to one inflation measure (CPIH), but embedded and new debt balances linked to others (generally RPI, but also CPI).

7.712 KPMG's analysis estimated the impacts of: (i) 'bearing' basis risk; and (ii) 'hedging' basis risk.[631]

(a) To assess the impact of 'bearing' basis risk, KPMG compared the difference in the standard deviation of equity (RoRE) returns between a notional company facing basis risk, and a notional company without it. It assessed this was 0.61% for a notional company with basis risk, versus 0.57% without it, indicating a 1.08x increase in total risk exposure. It translated this into an equity beta uplift, submitting that inflation is a macroeconomic risk factor beyond companies' control (and therefore basis risk likely has a significant systematic component). KPMG used these estimates as a 'cross check', but

[630] In the case of the assessment of basis risk, both sets of KPMG reports provided by Disputing Companies (ie submitted in response to PR24 DDs and for the purposes of our redeterminations) made substantially similar arguments and produced the same point estimates. See KPMG (2024) Estimating the Cost of New Debt and Additional Borrowing Costs for PR24 (submitted as Northumbrian SoC, Annex SOC224) pp27–35; KPMG (2025) Estimating the Cost of Capital for PR24, paragraphs 11.4.25–11.4.50.
[631] KPMG (2025) Estimating the Cost of Capital for PR24, pp133–138, paragraphs 11.4.25–11.4.50.

relied on its assessment of the cost of 'hedging' the risk (below) to estimate its proposed allowance.

(b) To assess 'hedging' basis risk, KPMG distributed a questionnaire to seven banks to gather data on swap pricing, any illiquidity premium in the CPIH-debt market, and qualitative investor insights.

(i) To estimate risk on embedded ILD (largely RPI-linked), it used questionnaire responses. It calculated that for RPI-CPI basis swaps for a 5-year tenor, costs on average were around 7bps, with a maximum of 12bps. It noted that embedded debt swapped to CPI would remain exposed to risk associated with the CPI-CPIH wedge.

(ii) To assess risk on new debt, KPMG estimated the costs of: (i) directly issuing CPIH-linked debt (assessing an illiquidity premium of 9-13bps);[632] and (ii) issuing nominal – eg fixed rate – debt and entering into CPI inflation swaps, assessing this cost at 58 – 62bps.

7.713 Figure 7.18 and Figure 7.19 below show KPMG's calculations for embedded and new debt.

Figure 7.18: KPMG's estimates for basis risk on embedded debt

	Basis of pricing	Estimate
Lower bound	The lower bound reflects the median cost of hedging the risk, based on information gathered from banks regarding basis swap charges.	7bps
Upper bound	The upper bound represents the maximum cost of hedging the risk based on bank surveys. This is corroborated by the quantification of the additional volatility arising from basis risk, which translates into a 20bps adjustment on CoD.	12bps
Overall range		7-12bps
Share of embedded debt		72%
ILD proportion		33%
Pricing of basis risk on embedded debt		2-3bps

Source: KPMG analysis
Note: Based on a 28% share of new debt estimated in this Report.

Source: KPMG (2025) Estimating the Cost of Capital for PR24, Table 52.

[632] KPMG submitted that there is likely to be an 'illiquidity premium' on CPIH-linked debt, because this is a relatively new form of index linked debt (as compared to RPI-linked or CPI-linked debt).

Figure 7.19: KPMG's estimates for basis risk on new debt

	Basis of pricing	Estimate
Lower bound	The lower bound reflects the additional costs from issuing more illiquid CPIH-linked debt to maintain asset-liability matching.	9-13bps
Upper bound	The pricing is based on CPI inflation swap charge information gathered from banks. Survey responses indicate that the demand for inflation-linked bonds is limited relative to swaps and that there is virtually no market for CPIH swaps, suggesting that swapping nominal debt into CPI may be the most effective way of issuing CPI-linked debt.	58-62bps
Overall range		11-60bps
Share of new debt		28%
ILD proportion		33%
Pricing of basis risk on embedded debt		1-6bps

Source: KPMG analysis
Note: Based on a 28% share of new debt estimated in this Report.

Source: KPMG (2025) Estimating the Cost of Capital for PR24, Table 53. Note that the final row was intended to read 'Pricing of basis risk on new debt'.

7.714 KPMG's estimated allowance for basis risk was 2-3bps on embedded debt and 1-6bps on new debt, with a total point estimate of 6bps.[633]

Ofwat response

Issuance costs

7.715 Ofwat noted that no concerns or views had been expressed by Disputing Companies in respect of issuance costs or its calculation.[634] Ofwat submitted that – given the potential for selectivity in statements of case – it would welcome further consideration of this issue by the CMA.[635]

Liquidity and cost of carry

7.716 Ofwat submitted that – throughout the PR24 process – it gave significant opportunity for companies to provide evidence, from their own financing arrangements, in support of issuance and liquidity allowance requests.[636] It submitted that, despite this, no evidence was given by companies themselves[637] (ie implying that, instead, claims were primarily based on adviser reports).

[633] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 11.4.44.
[634] Ofwat (2025) Response to common issues on risk and return, paragraph 4.80.
[635] Ofwat (2025) Response to common issues on risk and return, paragraph 4.80.
[636] Ofwat (2025) Response to common issues on risk and return, paragraph 4.84.
[637] Ofwat (2025) Response to common issues on risk and return, paragraph 4.85.

7.717 Ofwat submitted that it did not agree with KPMG's assessment of the amount of cash that would be expected to be seen on company balance sheets, given that: (i) ring-fencing certificate requirements require companies to certify that they have 'sufficient financial resources and facilities' to carry out regulated activities for at least a twelve-month period; (ii) a range of measures – including RCFs – can support liquidity; and (iii) as evidenced by APR data, companies do not typically maintain cash necessary to support cashflows for a full 12 month period.[638] Ofwat submitted that only five companies held sufficient cash balances for 12 months pre-financing at the start of FY24 (the latest complete year), but that year-end data may not be typical and the cash held could be greater than normal.[639]

7.718 In respect of cost of holding cash estimates, Ofwat submitted that its estimates were comparable to KPMG's when its +30bps benchmark adjustment is accounted for.[640]

7.719 Ofwat submitted that a full and detailed assessment of reasonable – notional-like – liquidity would be necessary to establish if the claimed costs are reasonable.[641] It submitted that this would require a full appraisal of: (i) ongoing cash balances of companies throughout the year; (ii) facilities such as RCFs; and (iii) consideration as to whether the arrangements are reflective of efficient arrangements for a notionally structured company.[642] It assessed that the evidence presented in the statements of case did not satisfy the evidential threshold for a different approach.[643]

Basis risk

7.720 Ofwat submitted that, consistent with PR19, its view was that it is not reasonable for customers to bear the claimed costs of basis risk mitigation, with these costs arising as a result of company financing and risk management choices.[644] Ofwat reiterated its assessment set out in the PR24 FD that companies did not fully engage with its assessment that the presence of fixed rate debt in the notional structure mitigates risk.[645] It submitted that – as a result of considerations relating to changed inflation expectations – there is an increased likelihood of overall benefit since its PR24 FD.[646]

[638] Ofwat (2025) Response to common issues on risk and return, paragraph 4.81.
[639] Ofwat (2025) Response to common issues on risk and return, paragraph 4.82.
[640] Ofwat (2025) Response to common issues on risk and return, paragraph 4.83.
[641] Ofwat (2025) Response to common issues on risk and return, paragraph 4.86.
[642] Ofwat (2025) Response to common issues on risk and return, paragraph 4.86.
[643] Ofwat (2025) Response to common issues on risk and return, paragraph 4.86.
[644] Ofwat (2025) Response to common issues on risk and return, paragraphs 4.87–4.88.
[645] Ofwat (2025) Response to common issues on risk and return, paragraphs 4.87–4.88.
[646] Ofwat (2025) Response to common issues on risk and return, paragraphs 4.87–4.88.

Our assessment and provisional decisions

Issuance costs

7.721 Ofwat's estimate of issuance costs was based on a bottom-up assessment of average costs across the industry, and was consistent with past practice. This was not disputed by the Disputing Companies, and no updated evidence or assessment was submitted to counter the approach of the PR24 FD. We continue to adopt a **+5bps** estimate for issuance costs.

Liquidity costs

7.722 The key differences in perspective between Disputing Companies' and Ofwat's approaches[647] relate to: (i) the size of cash liquidity needs in various inputs to the calculation,[648] and (ii) the assumed length of time a company needs to hold cash in advance of this assessed need. Both of these directly impact the proportion (or amount) of cash held at any point in time.

7.723 As a starting point – to assess the submission that liquidity needs (ie the cash holding needs) have increased – we considered FY24 and FY25 APR data relating to year-end cash and debt balances. Table 7.24 shows average cash balances and RCF facilities held as a proportion of gross debt, across water companies, as reported in FY24 and FY25.

Table 7.24: Debt and cash balances, as reported by companies in APR submissions, FY24–FY25

		FY24		FY25	
		RCF facilities size/ total debt	**Cash and cash equivalents/ total debt**	**RCF facilities size/ total debt**	**Cash and cash equivalents/ total debt**
Total	Industry	9.9%	6.6%	5.8%	7.7%
Total	WaSCs and large WoCs	9.8%	6.4%	5.7%	7.6%
Mean	Industry	9.5%	8.1%	9.8%	9.7%
Mean	WaSCs and large WoCs	9.3%	4.5%	7.0%	8.1%
Median	Industry	9.2%	5.4%	7.8%	9.0%
Median	WaSCs and large WoCs	10.0%	2.8%	7.6%	8.6%

Source: CMA analysis of companies' submitted APR data, cash and cash equivalents and gross debt are sourced from Table 1E; RCF facility sizes are sourced from Table 4B.

[647] This includes considering KPMG's earlier report as appended to the Wessex and Northumbrian statements of case. See section '*KPMG's report prepared in response to the PR24 DD*' in this chapter.
[648] Eg whether these should assess only 'liquidity runways' or also include debt refinancing needs, as set out in Ofwat's and KPMG's updated methodologies.

7.724 We note that differences in the way companies classify liquidity and RCF facilities in Table 4B of APR data (informing RCF facility size totals) may influence year-on-movements in average RCF facility sizes. Influenced by this, we place weight on the **median** RCF facilities size, and we note that the choice of median from FY24 or FY25 makes very little difference to our overall estimated allowance. Table 1E of APR submissions (reporting total cash and debt balances for appointed activities) is reported more consistently by each company, and is less exposed to classification differences. We therefore have more confidence in the estimated averages for cash balances expressed as a percentage of total debt, and these inputs make up the majority of our allowance as set out below.

7.725 Table 7.24 demonstrates that both mean and median cash and cash equivalent holdings across the industry have increased significantly from FY24 to FY25. We recognise limitations in assessing year-end balances.[649] However, given the sample of companies assessed on an industry-wide basis, this nonetheless evidences the submission that liquidity (or cash holding) requirements have increased since Ofwat last assessed FY24 data at the time of its PR24 FD.

7.726 To simplify the approach to – and increase the transparency of – the estimated liquidity allowance, we adopt an alternative approach based on the above outturn data. This also benefits from reduced circularity, ie it does not rely on finalised financial model outputs, which themselves rely on liquidity cost estimates.

7.727 To calculate the liquidity cost allowance, we carried out the following assessment.

(a) For the RCF component, we assessed:

(i) industry average RCF commitment fees as reported in FY25 APR data, which give an average across all reported RCF facilities of **0.17%**;

(ii) median industry RCF facilities as a proportion of gross debt in FY25 (7.8%, see Table 7.10), which inform an RCF proportion assumption of **8.0%**; and

(iii) these multiplied (ie 8.0% multiplied by 0.17%) to give an RCF component estimate of **1.4bps**.

(b) For the cash liquidity component:

(i) we assessed the cost of holding cash by comparing our benchmark index (including the +30bps benchmark adjustment) to the OIS three month spot rate. Taking a three year average to our data cut-off of 30

[649] ie that they represent one point in time and may vary over the year.

June 2025, this produces an estimate of **1.5%** for the cost of holding cash;

(ii) given that FY25 data demonstrates a median industry cash balance, as a proportion of gross debt, of 9.0%, we adopt a **9.0%** cash proportion assumption; and

(iii) these multiplied (ie 9.0% multiplied by 1.5%) give an estimated cash component estimate of **13.3bps**.

(c) Rounded, these add to a liquidity allowance of **15bps**.

7.728 For the purposes of our provisional determinations, we therefore apply a liquidity allowance estimate of **15bps**.

Basis risk

7.729 The transition to full CPIH indexation for the RCV has been well signalled for some time, and is therefore not unexpected by companies or their (prospective) equity investors. While inflation does represent a macroeconomic risk factor (suggesting it has a systematic component), regulated water companies' exposure – as a result of indexation embedded into the price control framework – is significantly more favourable than for companies operating in competitive markets. For these reasons – in respect of the estimated allowance to 'bear' basis risk – it is unclear that inflation impacts (including impacts relating to the CPIH transition) would not already be 'priced in' to observed betas in the sector.

7.730 In respect of KPMG's estimates of the cost to 'hedge' basis risk, we have so far seen insufficient evidence that companies are systematically entering into – for example -- RPI-CPI basis swaps to change the profile of index-linked embedded debt balances (eg so that embedded ILD is largely linked to CPI or CPIH, rather than RPI). This suggests that companies may see this exposure as risk neutral, or perhaps beneficial.

7.731 As set out in chapter 8 (Risk and Return), we observe that in a different report, KPMG's own risk modelling demonstrates that – in the base case – exposure to basis risk is expected to be positively skewed for the notional company.[650]

7.732 In this context, we provisionally decide that it would be inappropriate to increase costs to customers for a feature of the price control framework which is expected to be risk-neutral, or beneficial, to companies. We therefore apply no allowance for basis risk.

[650] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company (which was submitted as eg Southern SoC, supporting document SOC-1-0001, and Northumbrian SoC, Appendix SOC573), Table 17.

Provisional decision on additional debt costs

7.733 For the purposes of our provisional determinations, we set an allowance for additional debt costs of **+20bps**. This comprises:

(a) an issuance allowance of **+5bps**; and

(b) a liquidity allowance of **+15bps**.

Overall allowed return on debt

7.734 Our provisional decision is to set a real allowed return on debt of 2.98% (representing a nominal return of 5.45%, estimated using our 2.4% CPIH assumption), as shown in the table below.

Table 7.25; CMA's provisional determination on the allowed return on debt

	Nominal	CPIH-real
Long-term CPIH Inflation assumption	N/A	2.40%
Cost of embedded debt	4.84%	2.38%
Cost of new debt	6.35%	3.86%
Share of new debt	27%	N/A
Cost of debt (excl additional borrowing costs)	5.25%	2.78%
Additional borrowing costs	0.20%	N/A
Cost of debt	5.45%	2.98%

Source: CMA analysis

Company specific adjustment

Introduction

7.735 At a number of previous price controls, qualifying small companies (in practice, WoCs) have received an uplift to their allowed return on debt, known as a company specific adjustment (**CSA**).[651] This has been based on evidence that – as a result of size factors largely outside of management control – smaller companies face structurally higher debt costs. South East has not had a CSA applied since PR09.[652]

7.736 South East asked the CMA to apply a CSA to its cost of embedded debt because – it submits – it is an infrequent debt issuer. In this section, we outline Ofwat's approach to CSAs at the PR24 FD, South East's and Ofwat's submissions, before setting out our assessment and provisional view.

[651] Known as a small company premium prior to PR19.
[652] (Non-confidential) transcript of the hearing for Risk & Return (day 1) on 1 July 2025, or p149, line 26 to p150, line 6.

Summary

7.737 We recognise South East's relatively infrequent debt issuance profile, and that this may have historically exposed it to greater point-in-time risk when issuing debt (given market interest rate fluctuations). However, we provisionally do not apply an adjustment to South East's cost of embedded debt. This is primarily because we consider that these risks have been historically allocated to shareholders. We therefore do not consider it appropriate to apply a forward-looking adjustment to allowed returns to compensate for these risks. We also do not consider that the claimed past risks are undiversifiable (ie likely to impact beta and therefore the allowed return).

Ofwat's PR24 FD approach

7.738 Ofwat's methodology applied to two broad 'tests' to water companies' applications for a CSA.[653]

(a) **Level of uplift assessment:** requiring companies to demonstrate evidence of additional financing costs – relating to size rather than factors within management control – which might reasonably be faced by a notional small company. This was also subject to a sense check that the relevant company faced higher actual costs than sector benchmarks.

(b) **Customer support assessment:** companies' requests needed to be accompanied by high quality, compelling evidence that their customers supported funding an uplift.

7.739 Ofwat used these tests to assess submissions by Portsmouth Water, South Staffordshire Water plc (**South Staffordshire Water**), SES (with a CSA no longer needed following its acquisition by Pennon), and South East.[654]

Ofwat's assessment of South East

Level of uplift assessment

South East's submissions to Ofwat

7.740 Ofwat assessed South East's claim for a 30bps uplift to its overall cost of debt (comprised of an adjustment to both embedded and new debt), on the basis that it is an infrequent debt issuer.[655]

[653] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p105.
[654] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p105.
[655] Ofwat (2024) Draft Determinations: Aligning risk and return: Allowed return appendix, p86.

7.741 South East relied on analysis submitted in a report by KPMG,[656] which made a number of similar arguments to those set out in the report submitted for the purposes of our redeterminations (summarised below).

7.742 In respect of embedded debt, KPMG used three broad approaches to estimating a proposed adjustment:[657]

(a) approach 1 compared South East's forecast embedded debt costs to the sector wide allowance, estimating an upper bound estimate of +65bps to the overall cost of debt;

(b) approach 2 only allocated a portion of the difference between South East's actual embedded debt costs and the sector benchmark, estimating a total CSA of +36bps; and

(c) approach 3 used a simulation to estimate the difference in standard deviation of RoRE between notional frequent and infrequent issuers (similar to the approach adopted in the KPMG report submitted to us, discussed below). This estimated a total CSA of between 16bps (using Ofwat's risk ranges) and 38bps (using KPMG's risk ranges).

7.743 KPMG estimated an uplift to the cost of new debt by taking an approach which it submitted was similar to that of Ofgem in its RIIO-ED2 final determinations, allowing a premium of +26bps on the costs of new debt reflecting an assessment of constant maturity swaps.[658]

Ofwat's assessment

7.744 In response to the estimates on the cost of embedded debt, in its PR24 FD, Ofwat set out that – consistent with its PR24 DD conclusions – pass through or risk sharing mechanisms (ie approaches 1 and 2) would not represent a fair and balanced allocation of risk between the company and its customers.[659] Ofwat assessed that these approaches would dilute companies' incentives to issue debt efficiently and expose customers to the risks of past company decisions on financing structure.[660]

7.745 In respect of simulation-based estimates (approach 3), Ofwat found that these were based on a 'chain of contentious assumptions', required to link KPMG's simulation modelling of the cost of debt and equity beta.[661]

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[656] KPMG (2024) PR24 DDs: Cost of debt – Company Specific Adjustment- Prepared for South East Water.
[657] KPMG (2024) PR24 DDs: Cost of debt – Company Specific Adjustment- Prepared for South East Water, p20.
[658] KPMG (2024) PR24 DDs: Cost of debt – Company Specific Adjustment- Prepared for South East Water, p36.
[659] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p108, Ofwat (2024) Draft Determinations: Aligning risk and return: Allowed return appendix, pp91–92.
[660] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p108.
[661] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p109, pp131–133

(a) Ofwat found that KPMG's simulation involved a mismatch of time periods (ie conducting a simulation based a 20 year cost of debt simulation and assuming that this affects 5-year RoRE and daily-level stock returns), and it ignored that companies' embedded debt is fixed going into the five-year price control period, so there is no return distribution relating to frequency of issuance in the embedded debt allowance for the PR24 control period.

(b) Ofwat discussed that – even if it were to put these factors aside and accept that infrequent debt issuance increases the standard deviation of daily returns – KPMG had not adequately demonstrated that this would increase beta, ie it had not demonstrated that the increase in volatility of returns was due to an increase in the covariance with the market or a decrease in the market volatility (the two factors which define the beta).

(c) Ofwat set out that – under KPMG's simulations – there was no evidence that infrequent issuance changed the expected performance against the sector cost of debt allowance, but only the distribution of outcomes at long-horizons.

7.746 Ofwat further noted that Moody's applied tighter guidance to small WoCs such as South Staffordshire Water, Portsmouth Water, and SES, but that this approach was absent in South East's most recent rating assessment, suggesting that Moody's did not see the company's size as a driver of credit risk.[662]

7.747 Finally, Ofwat also observed that:[663]

(a) South East did not request an CSA at PR19, and at PR04 it had the lowest CSA in the sector (of 10bps), as one of the largest small companies;

(b) similarly sized Affinity had a cost of embedded debt anticipated to be below the allowance for 2025-30, indicating that South East's projected underperformance might be due to previous management decisions rather than structural factors related to its size; and

(c) South East's submissions were difficult to reconcile with its decision since 2004 to maintain a gearing level above 70%. Ofwat set out that this level of gearing was significantly above the level of the notional company in subsequent price controls, as well as being above sector average.

7.748 Ofwat also did not accept South East's arguments for an uplift on the cost of new debt.[664]

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[662] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, pp109–110.
[663] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p106, Ofwat (2024) Draft Determinations: Aligning risk and return: Allowed return appendix, p92.
[664] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p110.

7.749 On the basis of these considerations, Ofwat determined that South East did not pass the 'level of uplift' assessment.[665]

Customer support assessment

7.750 In its PR24 DD, Ofwat assessed that South East did not present compelling evidence that its customers supported funding its proposed bill uplift.[666]

7.751 Ofwat noted in its PR24 FD that South East had not supplied further representations or evidence relating to its assessment of customer support.[667] It determined that it did not pass this aspect of the CSA assessment.[668]

Parties' submissions

South East

7.752 During our redeterminations, South East requested an adjustment only to its cost of embedded (rather than new) debt of +30bps. It requested that the CMA consider whether an industry-average approach to setting the allowance for embedded debt is appropriate in its different circumstances, as a relatively small company that issues debt relatively infrequently.[669]

7.753 South East submitted a report, written by KPMG, which conducted simulation-based analysis to assess an appropriate infrequent issuer premium.[670]

The premise of KPMG's report and the definition of an infrequent issuer

7.754 KPMG's report presented analysis which set out that:

(a) infrequent issuers need to wait to allow requirements (ie capex and refinancing) to build to a sufficient size to issue 'benchmark-level' debt. KPMG defines this as £150 million from FY2000 – FY2010, and £250 million thereafter,[671] because – it submitted – this is the threshold for inclusion in the iBoxx benchmark index, and financing strategies have recommended this is

[665] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, Table 25, pp111–112.
[666] Ofwat (2024) Draft Determinations: Aligning risk and return: Allowed return appendix, p93. Ofwat estimated the bill impact of South East's request to be approximately £3.40 per household per year. It assessed that (i) only a slim majority (54%) of the surveyed sample found a £4 bill impact to be acceptable; and (ii) (b) the wording of the question used to establish support was potentially misleading, as it implied that providing the uplift would make the company 'resilient to any potential future shocks', which was too strong a claim.
[667] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p108.
[668] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, Table 25, pp111–112.
[669] South East SoC, p83, paragraph 6.34.
[670] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium.
[671] KPMG define 'benchmark level' issuances as £150 million from FY2000 to FY2010, and £250 million thereafter, as it submits that the benchmark size for inclusion in the iBoxx GBP indices was raised from £100 million to £250 million on 31 December 2010, and in the later years a higher amount was required to optimise liquidity and was more consistent with prevailing issuance sizes. See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp21–22.

the minimum efficient size to optimise pricing tension, flexibility and execution risk on public bond issuances.[672] Because of this need to 'build up' to benchmark level issuances, KPMG set out that each debt issuance represents a more material proportion of the debt book, and has a more material impact on the cost of debt;[673] and

(b) as a result of these factors (ie limited control over capex and refinancing needs, and the need to 'build' to benchmark-level issuance), infrequent issuers have less control over timing of issuance, and are more exposed to 'point in time' risk. This means that infrequent issuers are more likely to issue debt at higher or lower cost than the sector average, because they are more exposed to the prevailing interest rate environment at the time of each (infrequent) issuance.[674]

7.755 KPMG conducted analysis using a 25 year look-back period (2000 – 2025) to assess the notional capex and refinancing needs (ie debt issuance needs) of all WaSCs and large WoCs, for each year, over this time.[675] It assessed the implied frequency of issuance, by assessing the time taken – on average – for each company to be able to issue debt at 'benchmark size'.[676] Based on this, it assessed that South East, Affinity and others meet the definition of being notional 'infrequent issuers'.[677] In its simulation assessment (set out below), KPMG defined an infrequent issuer as being a company which issues benchmark-level debt less frequently than once per year.[678]

KPMG's simulation assessment

7.756 KPMG submitted that the interest rate risk that South East was exposed to has a systematic component, and should be priced.[679] KPMG conducted a simulation to assess the difference in financing risk exposure between a notional frequent and infrequent issuer.[680]

(a) A simulation was conducted for two notional companies: one frequent issuer (ie issuing at benchmark size annually) and one infrequent issuer (ie issuing benchmark sized debt less frequently than annually, assumed to be every 3 years). Assumed debt costs were aligned with the benchmark index on the date of issue, and interest payments and debt balances were calculated over

[672] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p19.
[673] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp19–20.
[674] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp23–26.
[675] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp26–27.
[676] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp26–27.
[677] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p27, Table 2.
[678] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p34.
[679] KPMG assessed that South East was exposed to higher interest rate risk as a result of a requirement to issue at least benchmark size, the higher materiality of each – infrequent – issuance to its smaller total debt balance, and its lower scope to spread maturity concentration and manage refinancing risk. See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp30–31.
[680] See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp34–35.

a 20 year tenor. The annualised cost of debt for each issuer was determined as the cumulative annual interest payment divided by the total debt balance at the end of the 20-year period. This analysis was run for 2,000 simulations. KPMG submitted that its results demonstrated the notional infrequent issuer faces a significantly greater spread of embedded debt costs, from just over 4.00% to just under 5.60%, whereas the notional frequent issuer saw embedded debt costs in the range of 4.5% to 4.85%, with significant distribution around the middle of the range.

(b) KPMG translated these results into estimated volatility in RoRE , which it submitted were controlled for factors such as credit rating and gearing.[681] It submitted that its results indicated that being an infrequent issuer would increase the RoRE (%) P10-P90 risk range by 59bps.[682] Based on a 1.09x increase to the standard deviation of expected returns, KPMG applied a 1.09x increase to the notional infrequent issuer's equity beta.[683]

(c) Working from the impact on overall WACC, KPMG submitted that its analysis implied an uplift to embedded debt of +35bps.

KPMG's response to Ofwat's assessment

7.757 Ofwat assessed in its PR24 PD that similarly sized Affinity's low embedded debt cost suggests that South East's expected underperformance may be due to previous management decisions rather than size-factors.[684] KPMG assessed that Affinity's relatively low cost of embedded debt – compared to the sector average – was essentially a result of it having benefited from the 'upside' of increased exposure to point-in-time risk.[685] KPMG set out that a significant proportion of South East's debt was raised before or during the GFC (2002 – 2006, and 2010), but Affinity had raised more debt after this period, when interest rates were lower.[686]

7.758 In response to Ofwat's assessment that South East had maintained high gearing over a long period, KPMG conducted a simulation involving two scenarios: (i) the factual scenario where South East increased gearing to actual levels from 2004, and (ii) the counterfactual scenario where South East increased gearing to notional levels from PR99 to PR19. On the basis of this analysis, KPMG estimated the impact of gearing on South East's achieved embedded cost of debt to be up to 13bps.[687] In response to Ofwat's PR24 FD assessment that it does not follow that all of the remainder of any difference can be attributed to factors outside of

[681] See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p37.
[682] See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp38–39.
[683] See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp38–39.
[684] Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p106.
[685] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp31–32.
[686] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p31.
[687] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp32–33.

company control, KPMG submitted that its core analysis focussed on the notional infrequent issuer (rather than a comparison of actual company costs) as its primary approach.[688]

7.759 In respect of Ofwat's assessment that Moody's does not apply tighter ratings thresholds to South East (but does to small WoCs), KPMG set out that increased interest rate risk was a result of higher point-in-time risk exposure, rather than default risk on raised debt as assessed by Moody's, implying that credit ratings assessments were less relevant to pricing of risk in this case.[689]

7.760 In response to Ofwat's finding that KPMG had not adequately demonstrated that increased volatility of debt cost outcomes would increase beta, KPMG submitted that a mathematical formulation is not necessary to demonstrate this point. It set out that imprecision in the ability to quantify this based on unknowable data does not negate the existence of the risk – ie that it follows that market based interest rate variability is driven by macroeconomic factors.[690]

7.761 In reply to Ofwat's response to its statement of case (see below), South East reiterated the key findings of KPMG's report, and submitted that Ofwat had not properly engaged with South East's arguments and evidence on the consequences of infrequent debt issuance.[691]

7.762 Following hearings with us and Ofwat, South East submitted that it considered that:[692]

(a) a portfolio of companies with infrequent issuance profiles would not diversify the higher risk associated with infrequent issuers for investors. This is because the issuances across the portfolio cannot be coordinated to replicate the issuance profile of one frequent issuer; and

(b) higher risk arising from infrequent issuance could not be diversified by constructing a portfolio including both frequent and infrequent issuers, because returns of frequent issuers are not negatively correlated with those of infrequent issuers. South East did not provide further evidence to substantiate this.

Ofwat response

7.763 Ofwat submitted that it did not agree with South East's argument that underperformance on embedded debt is mainly due to factors outside of company

[688] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp32–33.
[689] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p32.
[690] KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, p41.
[691] South East (2025) Reply to Ofwat Response, paragraphs 4.3–4.4.
[692] South East (2025) Written Response to PR24 Hearings, p5.

control.[693] It set out that companies maintain significant control over drivers of yield such as timing and tenor, and can choose financial structures that do not result in being assigned a low credit rating.[694]

7.764 In respect of South East's question as to whether an industry-average approach is appropriate (in its own circumstances), Ofwat submitted that it considered that a mechanistic sharing mechanism for underperformance would dilute incentives to issue debt efficiently and expose customers to the cost of high-risk financial structures.[695] Ofwat submitted that while it fundamentally disagrees with the adoption of such a policy, if such a policy were adopted it should apply symmetrically to all companies.[696]

7.765 Ofwat submitted that arguments from KPMG's RoRE-based simulation analysis had already been addressed. Ofwat set out that:[697]

(a) there was a time horizon mismatch between KPMG's 20 year embedded debt cost simulation and its input into a 5 year RoRE model for 2025 – 30; and

(b) differences between actual embedded debt cost and the embedded debt allowance were not a driver of RoRE risk over the price control period, because both the allowance for embedded debt and actual embedded debt costs are fixed (ie known) at the start of the AMP.

7.766 Ofwat set out that it rejected the broader premise that RoRE volatility must necessarily increase beta. Using the formula for deriving beta estimates,[698] Ofwat set out that KPMG's analysis assumed that higher volatility in RoRE could cause the numerator of the formula to increase. Ofwat submitted that KPMG had not demonstrated either empirically or through reasoned argument why higher volatility must increase covariance with the market portfolio. Responding to KPMG's assessment that higher variance in expected returns intuitively increased beta, Ofwat said that it is not intuitive why this kind of risk cannot be diversified – eg through forming a portfolio of investments with exposure to debt that complements that of the infrequently issuing company. Ofwat referenced adoption of 'an aggressive financing structure' by South East in 2004, submitting that this had constrained its ability to issue debt more frequently.

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[693] Ofwat (2025) Response to common issues on risk and return, paragraph 7.19.
[694] Ofwat (2025) Response to common issues on risk and return, paragraph 7.19.
[695] Ofwat (2025) Response to common issues on risk and return, paragraph 7.19.
[696] Ofwat (2025) Response to common issues on risk and return, paragraph 7.19.
[697] Ofwat (2025) Response to common issues on risk and return, paragraphs 7.20–7.22.
[698] Ofwat set out the formula for deriving beta estimates as $\beta_i = \frac{Covariance\ (i,m)}{(\sigma_m)^2}$ where i = water stock returns, m = market returns, and $(\sigma_m)^2$ = the variance of market returns. See Ofwat (2025) Response to common issues on risk and return, paragraph 7.23.

7.767 Ofwat discussed its customer support assessment for South East, submitting that this was designed to provide protection to the company's customers analogous to that in a competitive market. It submitted that it had identified no information in South East's statement of case which would alter its view set out in the PR24 FD.[699]

Our assessment and provisional decision

7.768 KPMG's analysis essentially argues that South East, and possibly other water companies (those that have needed to issue benchmark-sized debt less than annually), have historically been exposed to greater financing risks, which increases the required return.

7.769 We expect that the company-specific circumstances of a number of water companies may lend themselves to similar arguments across the industry, ie that various factors have affected the volatility of returns relative to the notional company, and these should be compensated for in the forward looking period (we note that South East submitted that it expected to be a more frequent issuer going forwards, and so did not request an uplift to new debt).[700]

7.770 Adopting the approach suggested risks opening the possibility of ex-post adjustments to forward looking returns, based on particular risks which have crystallised not in companies' favour, despite the past risks[701] being allocated to shareholders. We provisionally consider that this would risk inappropriately increasing costs to customers for historical downside risk (and upside potential) which has already been borne by shareholders.

7.771 We also note that South East did not receive a company specific adjustment to the cost of debt at PR19, and Ofwat sets the industry-wide cost of embedded debt allowance which includes the embedded debt costs of larger WoCs (South East and Affinity).

7.772 Putting these points aside, we have some reservations about KPMG's approach. In assessing South East's submissions and KPMG's report, we have considered (i) whether South East is a relatively infrequent issuer, on an 'actual' and 'notional' basis, and (ii) if so, whether it is appropriate to make an adjustment to forward-looking equity returns, translated into an adjustment to the allowed return on embedded debt.

[699] Ofwat (2025) Response to common issues on risk and return, p143, paragraph 7.25.
[700] This is in contrast to its submissions during the PR24 process, as set out above. See South East SoC, p83, paragraph 6.36, footnote 129.
[701] Ie, in this case, exposure to volatility in outcomes.

South East's 'actual' and 'notional' debt issuance profile

7.773 Considering South East's embedded debt profile, we acknowledge that the instruments materially driving its expected underperformance against the allowance were raised in or before 2010, ie before and during the global financial crisis.[702] We consider that South East may have been able to outperform the allowance had it raised more of its debt after 2010. However, this is also true for much of the industry. Based on the updated embedded debt model, around 36% of the total principal outstanding over AMP8 was raised in 2010 or before.[703] Making specific adjustments for South East's issuance profile would represent a policy shift away from an allowance based on median debt costs (ie it could require similar adjustments for a range of companies with varied debt profiles, influenced by a range of company-specific factors within and outside of management control).

7.774 We also acknowledge that South East has raised debt relatively infrequently, and it has a small number of instruments forming its total debt balance, meaning that each debt instrument has a greater impact (than for larger companies with more instruments). However, we have reservations about KPMG's simulation which relies on water companies needing to 'build up' refinancing and capex requirements to benchmark-level issuance. KPMG's simulation depends on the assumption that companies must make issuances of £250 million since 2011 (£150 million in earlier years of the simulation). It submitted that this is the threshold for inclusion in the iBoxx benchmark index, and that financing strategies have recommended this is the minimum efficient size to optimise pricing tension, flexibility and execution risk on public bond issuances.[704]

(a) The embedded debt allowance, using the PR24 FD methodology, is primarily constructed based on median 'actual' debt costs across the industry: incorporating bonds, private placements, finance leases, bank loans and a range of debt instruments of different sizes. In other words, the primary estimate is not based on only bonds which are included in the benchmark index, but all qualifying WaSC and large WoC debt issuances, of all sizes, contribute to the estimation of the allowance. The median facility size of qualifying debt issuances, since 2011, included in our updated embedded debt model is around £60 million (mean: around £130 million).[705] This is much lower than the £250 million 'benchmark size', demonstrating that

[702] Based on South East's APR data submissions and our updated cost of embedded debt model, we estimate that the nominal 'all-in' cost of South East's qualifying instruments raised before 2010 is 6.04%, and the nominal 'all-in' cost of qualifying instruments raised from 2011 onwards is 4.14%. These compare to an embedded debt allowance of 4.84% (under our updated estimate).
[703] CMA analysis of updated estimates using Ofwat's published model: Ofwat (2024) PR24-FD-RR02-Cost-of-debt.xlsx.
[704] See KPMG (2025) PR24 cost of debt: analysis of the infrequent issuer premium, pp13 and 19.
[705] CMA analysis of updated estimates using Ofwat's published model: Ofwat (2024) PR24-FD-RR02-Cost-of-debt.xlsx. Mean and median averages of all qualifying debt issued in or after 2011, including only issuance sizes greater than 0. If including only issuance sizes greater than £1 million, the median since 2011 becomes £75 million (mean: around £150 million).

companies do not generally assess a need to 'build' to £250 million issuances. The reason for any need to match 'benchmark' issuance size (to align with an allowance which is not itself primarily based on a benchmark index) is therefore unclear.

(b) In response to a question from us on documentary evidence used to substantiate that benchmark-level, £250 million, issuances represent the 'minimum' efficient size to optimise pricing, South East sent copies of two emails from debt investors, in response to a specific request from South East (written after our request for information, rather than feeding into KPMG's report).[706] Together with evidence from actual issuance sizes, we do not consider that this provides compelling evidence that £250 million issuances are required to achieve interest costs in line with the embedded debt allowance.

7.775 We therefore acknowledge South East's relatively infrequent issuance profile, meaning that the materiality of its relatively expensive embedded debt raised before the global financial crisis is more significant than for others in the industry. However, we provisionally consider that a number of companies diverge from the median (ie outperform or underperform the allowance) for a variety of company-specific reasons. Forming an allowance based on median (rather than company-specific) embedded debt costs remains a policy choice we adopt, to incentivise efficient debt issuance and limit the impact of past company financing choices on customers. We also provisionally consider that KPMG's analysis – which relies on companies needing to issue facility sizes of at least £250 million (£150 million in earlier years) – does not reflect the reality of the industry, or the way in which the allowance itself is set, meaning that the reason for a need to wait until financing requirements reach 'benchmark size' is unclear.

The appropriateness of an adjustment to the allowed return

7.776 Based on our assessment that South East has issued debt relatively infrequently, we consider that it is likely that South East has faced greater point-in-time risk at the times that it has needed to raise debt finance. This may have increased the potential volatility of returns to its shareholders in previous periods. As set out above, we have in-principle concerns about adjusting forward looking returns for past risks, already allocated to shareholders. However, putting this aside, it is not clear that this increased volatility was undiversifiable (ie systematic).

(a) In addition to capex and refinancing needs, exposure to point-in-time risk will also be linked to treasury policy, and financing choices (ie whether to raise

[706] South East response to South East RFI06, Q4, Annexes RFI6.6 and RFI6.7.

funding needs through debt or equity) which we expect to be largely driven by company-specific strategies and factors.

(b) Our WACC, and beta estimates, rely on the assumption that equity investors invest in widespread portfolios representing companies in a range of industries and geographies, and that impacts of idiosyncratic factors (such as frequency of debt issuance, even if companies are – to some extent – limited in their control over this) are diversified away.[707]

7.777 We therefore do not consider it reasonable to assume that increased simulated standard deviation in RoRE returns can translate to an increase in expected beta.

7.778 For these reasons – ie (i) that it is inappropriate for customers to bear the costs arising from past risks allocated to shareholders, and (ii) that it is unclear that these past risks – in any case – are undiversifiable, we consider it inappropriate to make an adjustment to South East's beta estimate (translated to an embedded debt adjustment).

Provisional conclusion on a CSA for South East

7.779 In respect of a 'level of uplift' assessment, we therefore provisionally determine that it is inappropriate to provide an adjustment to South East's cost of embedded debt.

Retail margin adjustment

Summary

7.780 We provisionally remove the retail margin adjustment given the level of uncertainty in estimating the level of systematic risk faced by the retail business and the lack of evidence to substantiate a double count of this systematic risk.

Introduction

7.781 Prior to PR14, water companies earned an allowed cost of capital on the total assets of the integrated water business. At PR14, Ofwat adopted a new approach when it set separate price controls for wholesale and retail businesses for AMP6.

7.782 One of the challenges of separating the two price controls was the allocation of the RCV from the start of PR14. Ofwat decided that existing fixed assets used to provide retail activities would remain in the wholesale RCV. The effect of this was

[707] In other words, we consider that investors are likely to construct portfolios with a range of issuance profiles, as well as other company-specific features, rather than a portfolio of infrequent issuers, as primarily suggested by South East when discussing whether the risk is undiversifiable.

that return on retail investments made by the companies before the start of PR14 were paid for through PR14 wholesale revenues.

7.783 Ofwat said that, over time, the retail business would build up its own assets, and the legacy retail assets in the RCV wholesale would depreciate away.[708] The period of this depreciation would be shorter for retail assets as, unlike a wholesale business which had significant long-lived tangible assets, a retail business was more asset light. Ofwat assumed that all retail fixed assets in the wholesale RCV were fully depreciated by 2020.[709]

7.784 Ofwat calculated its PR14 retail control allowances by adding together operating costs and a net margin. The allowed margin was calculated by benchmarking against other retail margins[710] and was determined to be 1.0% for household. At PR19, Ofwat retained the 1.0% retail margin.

7.785 Ofwat explained that, since the retail business generated positive margins, this represented a return on the RCV which should be netted off the WACC to give a wholesale WACC. Ofwat said this would ensure that returns on notional retail assets were not included twice (in both the retail margin and the WACC).[711]

7.786 In its PR14 final determination, Ofwat made a 14bps deduction for the retail margin adjustment from the allowed return on the wholesale RCV to avoid double counting.

7.787 At PR19, the wholesale RCV was effectively free of retail assets. However, there was still a potential double count issue. This is because the retail margin could be conceived as covering three financing cost items:

(a) required return on fixed assets;

(b) required return on working capital; and

(c) required return to compensate for additional systematic risk.

7.788 While items (a) and (b) were no longer double-counted in the Appointee-level WACC, item (c) was potentially included twice since the Appointee-level WACC (applied to the wholesale RCV) compensates both for the risks of the wholesale and the retail business. Ofwat made a 4bps deduction for the RMA, to account for this double-count issue. In the PR19 Final Report, the CMA increased the RMA to 8bps.[712]

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[708] Ofwat (2014) Setting price controls for 2015-20 – risk and reward guidance, p34
[709] Ofwat (2019) PR19 final determinations Allowed return on capital technical appendix, p14.
[710] These margins were taken from other regulatory determinations. See Setting price controls for 2015-20 – risk and reward guidance, p28, Figure 6.
[711] Ofwat (2014) Setting price controls for 2015-20 – risk and reward guidance, p34.
[712] PR19 decision, p1029, paragraph 9.1149.

Ofwat's PR24 FD approach

7.789 In its PR24 FD, Ofwat set the retail margin at 1.5%. Ofwat's retail margin of 1.5% was based on a bottom-up calculation and a cross-check against top-down benchmarks. First, the bottom-up calculation included estimates for the required revenue for return on retail fixed assets, an estimated revenue for return on working capital and a return for retail systematic risk.

7.790 Second, Ofwat considered a number of other retail margins. These margins for energy retailers typically range from 1.25% to 2.60% with an average of 1.8%. Ofwat noted that the top-down estimates from other sectors were not directly comparable as benchmarks to compare against the water retail margin, as the retail comparators used are mostly deregulated, and thus demand risk will represent a significant component of these estimates (and water companies do not face demand risk).[713]

7.791 Ofwat said the increase in the retail margin was due to a change in its approach to creditor balances and using updated company data on fixed assets and working capital costs.[714]

7.792 Ofwat explained that in order to determine the allowed return for wholesale controls an adjustment must be made to the Appointee allowed return to remove the impact of the allowed retail margin, using similar reasoning to PR19.

7.793 Ofwat stated that it compensates water companies for systematic (ie non-diversifiable) risk through supplying an equity beta input to the CAPM that is derived from Appointee-level data – ie reflecting risk from all controls, including retail. Because the retail margin also provides compensation for systematic risks faced by the household retail control, allowing companies both return allowances would double count this compensation.

7.794 Ofwat said that to correct for this, it applies an RMA to the Appointee WACC to ensure that companies are only compensated once for bearing systematic household retail risk. This involved deducting the allowance corresponding to systematic retail risk compensation from the Appointee WACC, where this is estimated as the part of retail margin revenues not assigned to financing fixed capital costs and working capital.[715]

7.795 In the PR24 FD, Ofwat calculated the RMA, the required return for retail systematic risk to be deducted from the Appointee WACC, to be 0.06%.[716]

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[713] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p125.
[714] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p124.
[715] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p122.
[716] Ofwat (2025) Final Determinations: Aligning risk and return – allowed return appendix, p124.

Parties' submissions

Disputing Companies

7.796 Northumbrian stated that Ofwat was wrong to round the retail margin from 1.53% to 1.50% in its financial model, and the CMA should use the unrounded figure.[717]

7.797 None of the other Disputing Companies challenged Ofwat's retail margin of 1.5%. The arguments presented below are all in relation to the RMA applied to calculate the wholesale WACC.

7.798 Anglian submitted that the RMA should be removed. Anglian stated that Ofwat's approach to the adjustment is internally inconsistent: either the retail business is part of an integrated Appointee, in which case the whole capital base should be funded in line with the Appointee WACC (at a minimum); or it is standalone, in which case, its financing cost would be much higher, considering its lack of RCV.[718]

7.799 Northumbrian[719] and Wessex[720] noted that Ofwat had confirmed that it had made an unambiguous error in the modelling of the RMA which resulted in an RMA of 6.0bps rather than 5.5bps. Northumbrian and Wessex requested that the CMA address this error in our redeterminations.

7.800 Southern stated that Ofwat's PR24 financial model indicates that (1) notional gearing is set for the Appointee; and (2) the notional company raises debt up until notional gearing to support only the RCV. This means that the retail business for the notional company cannot be financed with debt as otherwise Appointee gearing would increase above the notional level. Southern argued that in consequence, the retail business must be financed with equity and therefore at the Appointee cost of equity.[721]

7.801 Southern also submitted that Ofwat's calculation includes the revenue on DPC[722] and SIPR[723] assets but excludes the cost of financing these fixed assets, as these are mechanisms of capital delivery through off-balance sheet methods.[724]

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[717] Northumbrian SoC, Appendix 1: Supporting information, paragraph 210.
[718] Anglian SoC, p205, paragraph 798–799.
[719] Northumbrian SoC, Appendix 1: Supporting information, paragraph 209.
[720] Wessex SoC, p90, paragraph 10.12(f).
[721] Southern SoC, p456, paragraphs 276–277.
[722] Direct procurement for customers is an alternative approach, through competitive tendering, for water companies to deliver large scale, discrete programmes of work by means of a third party, which potentially may include the design, construction, financing, ownership, operation and maintenance of an asset.
[723] Specified Infrastructure Project Regulations, secondary legislation made under the Water Industry Act 1991 making provision for a delivery mechanism for large schemes that extend beyond a single AMP.
[724] Capital delivery through DPC and SIPR are delivered through third parties and the corresponding assets are not reflected on the balance sheet of the Appointee, whereas the revenues related to these assets are collected by the Appointee.

Southern stated that revenue and costs for DPC and SIPR assets should be reflected in the calculation of the RMA.[725]

7.802 KPMG stated that the application of the RMA is heavily reliant on certain key assumptions. KPMG noted that Ofwat assumes that (1) the systematic risk of retail activities is higher than that of wholesale activities, and (2) the risks associated with retail activities are fully reflected in the allowed retail margin. KPMG explained that if the first assumption did not hold, the wholesale WACC would be equal to or higher than the Appointee WACC and if the second assumption did not hold, the margin would be understated, thereby reducing the potential for double-counting.[726]

Third parties

7.803 MCC Economics, on behalf of CCW, included a 6bps RMA in its cost of capital calculations but did not include any comments on Ofwat's methodology.[727]

Ofwat

7.804 Ofwat stated that Southern's issues concerning the RMA are also indirectly issues relating to the bottom-up calculation of the retail margin, because Southern essentially argues that the allowance for the return on fixed assets and working capital financing rate should be based on the allowed return on equity or WACC allowance.[728]

7.805 Ofwat also noted that the retail control is different in character to the wholesale controls. It said that the retail business activities are essentially customer service and billing, implying a different type of capital requirement that is much more short-term than needed to finance long-lived infrastructure assets and that applying a working capital financing rate based on the sector WACC with a long-run (10-20 year horizon) overstated the true working capital financing rate relevant to household retail.[729]

7.806 Ofwat disagreed with Southern that the retail margin is an economically significant contributor to Appointee gearing. Ofwat stated that of the three components (of the retail margin) the return on fixed assets is the sector WACC (and so aligns with notional gearing), working capital debt is short term and matched with a short-term

[725] Southern SoC, p456, paragraph 280.
[726] KPMG (2025) Estimating the Cost of Capital for PR24, paragraph 8.2.2.
[727] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, Table 1, p4.
[728] Ofwat (2025) Response to common issues on risk and return, paragraph 6.12.
[729] Ofwat (2025) Response to common issues on risk and return, paragraph 6.14.

cash receivable (bill payments), and systematic risk compensation is analogous to a return on equity.[730]

7.807 Ofwat stated that Southern misunderstood the lack of inclusion of DPC and SIPR assets in fixed assets within the retail margin. Ofwat explained that retail fixed assets are those capital assets linked to household retail activities (ie billing and customer service) and these activities do not sit within DPC/SIPR projects, whose unitary charge is recovered by the Appointee from its customer base. Ofwat concluded that there are therefore no additional fixed assets from DPC/SIPR activities not accounted for in this line item.[731]

7.808 Ofwat recognised that the compensation for systematic risk in the retail margin and RMA is not estimated with precision. Ofwat stated that this is a reflection of the lack of pure-play listed household retail companies to provide estimates of beta, and the lack of representations from companies on the issue over the course of the PR24 process, which it stated suggests it was not significant.[732]

Our assessment and provisional decisions

7.809 We consider the arguments raised by Ofwat and the Disputing Companies to inform our provisional view on the RMA.

Retail margin

7.810 We note in chapter 3 (Approach and prioritisation) that in line with the CMA PR24 Approach document, we have deprioritised updating the residential retail allowances.[733] We have therefore decided not to review the level of the retail margin.

7.811 We note Northumbrian's submissions on rounding the retail margin to two decimal places. We understand that Ofwat placed weight on both the bottom-up calculation of the retail margin but also top-down cross-checks and formed a judgement on the appropriate level in the round. We consider that it would be spurious accuracy not to round the retail margin to one decimal point.

7.812 We therefore retain Ofwat's retail margin of 1.5% in the financial model.

Retail margin adjustment

7.813 Our starting point is that total allowed returns to the Appointee business should not increase just because the regulator sets two separate price controls rather than

[730] Ofwat (2025) Response to common issues on risk and return, paragraph 6.15.
[731] Ofwat (2025) Response to common issues on risk and return, paragraph 6.16.
[732] Ofwat (2025) Response to common issues on risk and return, paragraph 6.19.
[733] CMA PR24 Approach document, paragraph 93.

one. Or put differently, to the extent that separation has had any impact on risk, this is reflected in our Appointee beta estimates, and the total returns to the Appointee business should reflect the Appointee WACC (earned on its entire capital base – wholesale and retail combined).

7.814 Ofwat's application of the RMA, which has the effect of reducing the wholesale WACC below the Appointee WACC, implies that the systematic risk of retail activities is higher than that of wholesale activities and therefore the beta for an integrated water company is higher than that of a hypothetical water company which only operates wholesale activities.

7.815 Ofwat has not provided evidence that this is the case, but if this assumption holds true (and assuming the retail margin is consistent with retail systematic risks) then it conceptually makes sense to reduce the Appointee WACC to ensure that companies are not doubly compensated for systematic risk relating to retail activities, both in the WACC applied to the wholesale RCV and the retail margin.

7.816 Ofwat's methodology for estimating the level of the RMA, and therefore the systematic risk exposure of the retail business, depends on the assumed financing costs for retail working capital and retail fixed assets, as set out in Table 7.26 below. Ofwat assumed that retail fixed assets are financed at its Appointee nominal WACC (of 6.1%), whereas the retail working capital is financed at a lower working capital financing rate (of 4.65%, derived from PR24 business plan data). In this table we also set out an alternative methodology which finances the costs for working capital and retail fixed assets using our provisional Appointee nominal WACC.

Table 7.26: Ofwat PR24 FD and illustrative alternative methodology for calculation of the RMA

	Calculation	***Ofwat PR24 FD[734]***	***Alternate methodology (cost of financing CMA provisional determination WACC)***
Fixed asset balance for retail controls	A	318.0	318.0
Cost of financing fixed assets	B	6.10%	6.79%
Required revenue for return on retail fixed assets	**C = (A x B)**	**19.4**	21.6
Debtor balance	D	2,078.0	2,078.0
Creditor balance	E	99.0	99.0
Measured Income Accrual	F	2,062.0	2,062.0

[734] We set out Ofwat's calculations as per Table 30 of its Ofwat (2025) PR24 final determinations: Aligning risk and return - allowed return appendix, p126. We note that Wessex and Northumbrian submitted that there was an unambiguous error in the RMA, and that it should be 0.055% rather than 0.06%. Ofwat agreed with this and noted that it would adjust for the difference in its PR24 reconciliations at PR29. Ofwat, PR24 Final Determination Inbound query, Ref OFW-FD-NES-016.

	Calculation	*Ofwat PR24 FD734*	*Alternate methodology (cost of financing CMA provisional determination WACC)*
Advance receipts	G	1,459.0	1,459.0
Annual working capital requirement	H = (D + F) - (E + G)	2,582.0	2,582.0
Working capital financing rate	I	4.65%	6.79%
Required revenue for return on working capital	**J = H x I**	**120.1**	175.4
Total retail-specific capital costs	**K = C + J**	**139.5**	197.0
Retail margin allowed revenue apportioned to households.	L	212.0	212.0
Required return for retail systematic risk	M = L - K	72.5	15.0
Average RCV (2020-25)	N	121,790.0	121,790.0
Retail margin adjustment	**O = M / N**	**0.06%**	0.01%

Source: Ofwat PR24 FD and CMA analysis.

7.817 We note that there is uncertainty in the level of the financing costs specifically for the retail fixed assets and working capital. We do not agree with the Disputing Companies that these financing costs should be the Appointee cost of equity. The financing costs of the integrated Appointee is equal to the Appointee WACC, and it is therefore reasonable to use these assumptions for the cost of financing all assets (both short and long-lived) as all finance is raised at the Appointee level. If the nominal Appointee WACC is used, then the RMA reduces to 1bps.

7.818 We consider it appropriate to estimate the RMA using the Appointee WACC. The very small estimate of the RMA, using our alternative methodology set out in Table 7.26 (which is not materially different to zero), therefore suggests Ofwat's 1.5% allowance for the retail margin correctly remunerates the retail business for the required return on its capital employed and further adjustment is not required.

7.819 We therefore provisionally remove the RMA adjustment and equal the wholesale WACC to the Appointee WACC.

Overall allowed return

7.820 As described above, we consider that there are a number of benefits from choosing a point estimate of the cost of equity above the mid-point of the range. Our view is that this will result in an appropriate balance of risk in the round across the determination, including addressing the level of risk to investment in the sector

associated with setting the cost of equity too low, particularly in the context of a large capital investment programme in AMP8.

7.821 Taking these considerations together, our provisional decision is to use an Appointee cost of equity point estimate 30bps above the middle of our 5.07% to 6.13% Appointee cost of equity range (ie 5.60%), which results in a point estimate of 5.90% (CPIH-real).

7.822 As described above, we have set a cost of embedded debt allowance of 2.38%, a cost of new debt allowance of 3.86% and an additional borrowing cost allowance of 0.20%. We assume a 27% average proportion of new debt over the price control. Taken together, these factors amount to a cost of debt allowance of 2.98%.

7.823 At our assumed 55% notional level of gearing, our cost of equity and cost of debt allowances lead to an overall wholesale WACC of 4.29%. This cost of capital allowance is 0.33% higher than Ofwat's PR24 FD allowance of 3.97%.

Table 7.27: CMA's provisional determination WACC estimates compared to Ofwat's PR24

CPIH-real	***Ofwat PR24 FD***	***CMA low***	***CMA high***	***CMA provisional determination***
Notional gearing	55.00%	55.00%	55.00%	55.00%
RFR	1.52%	2.49%	2.49%	2.49%
TMR	6.83%	6.70%	7.30%	7.00%
ERP	5.31%	4.21%	4.81%	4.51%
Unlevered beta	0.28	0.28	0.34	0.31
Debt beta	0.10	0.150	0.050	0.10
Listed comparator gearing	52.3%	52.4%	55.2%	53.8%
Asset beta	0.33	0.36	0.37	0.36
Re-levered equity beta	0.62	0.61	0.76	0.68
Aiming up	0.28%			0.30%
Cost of equity Appointee	**5.10%**	**5.07%**	**6.13%**	**5.90%**
Cost of embedded debt	2.77%	2.38%	2.38%	2.38%
Cost of new debt	3.74%	3.86%	3.86%	3.86%
Share of new debt	24%	27%	27%	27%
Additional borrowing costs	0.15%	0.20%	0.20%	0.20%
Cost of debt	**3.15%**	**2.98%**	**2.98%**	**2.98%**
Appointee WACC	**4.03%**	**3.92%**	**4.40%**	**4.29%**
Retail margin adjustment	(0.06%)			
Wholesale WACC	**3.97%**	**3.92%**	**4.40%**	**4.29%**

Source: CMA analysis and Ofwat PR24 FD

8. Risk and Return

Overview

8.1 In this chapter, we cover several other risk and return issues, in line with the scope we outlined in the CMA PR24 Approach document.[735]

Balance of risk and return

8.2 Disputing Companies have raised concerns about the overall balance of risk in the price control, arguing that the overall package is skewed to the downside. Our approach on the various building blocks has been to address issues at source where possible, taking into account that it is in customer interests to ensure efficient costs are funded and companies are incentivised to deliver service improvements.

8.3 In this chapter, we review Ofwat's approach to assessing the overall balance of risk, focusing on its assessment of the overall RoRE, a measure of return that is calculated relative to the notional capital structure, and how the resulting risk range for the notional company compares with the risk analysis presented by the Disputing Companies.[736]

8.4 We provisionally conclude that the overall package is broadly balanced and therefore no further adjustments to the price control are needed:

(a) on costs, we provisionally conclude that the package is broadly balanced;

(b) on outcomes, we provisionally conclude that the ODI regime implies a slight downside skew for the notional company (of no more than -0.2% RoRE)[737] – this is similar to Ofwat's PR24 FD view;

(c) on finance, we provisionally conclude that a small positive skew is likely but we do not expect it to be as high as the 0.3% of RoRE expected by Ofwat.

Aggregate risk sharing mechanisms and outcome adjustment mechanism

8.5 The PR24 price control includes a number of risk protections. We have reviewed the ASM and the OAM as these are the only risk protection mechanisms which were raised by the Disputing Companies.

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[735] CMA PR24 Approach document, paragraph 2.
[736] RoRE is often presented as a variation from the allowed return on equity.
[737] Ofwat's base-case is stated to be –0.22% for WaSCs and –0.25% for WoCs in KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 2 and Table 3.

8.6 We provisionally conclude to retain the ASM and the OAM in their current form (ie as per Ofwat's PR24 FD). We have considered and where appropriate made changes to address the Disputing Companies' concerns around the balance of risk in the package at source, which is the approach preferred by all parties. The ASM and the OAM provide greater protection against significant variation of returns compared to the previous price control, and we do not consider that there are good arguments to further reallocate risk away from shareholders to customers.

Cost recovery

8.7 We provisionally largely retain the approach to cost recovery as adopted by Ofwat in the PR24 FD.

Financeability

8.8 Our provisional view is that we have taken an approach to our wider redeterminations which properly takes account of the risks of setting allowances too high and too low. We have re-assessed the WACC and wholesale totex requirements. Our provisional view is that our revised totex allowances represent a reasonable level of costs for each of the Disputing Companies. We have also reduced some of the downside risks in the outcomes package relative to the Ofwat's PR24 FD. Each of these factors improves financeability.

8.9 In line with regulatory practice, we have completed a financial ratio analysis based on the approach taken by the credit rating agencies (in particular regarding the level of cash flow) and concluded that this supports the view that our determinations are financeable for the notional company. Our base case ratio analysis produces ratios broadly consistent with a strong investment grade credit rating (BBB+/Baa1). We have also considered a range of downside sensitivities and concluded that the notional company can maintain an investment grade credit rating.

Investability

8.10 In our view, our provisional determination provides an investable settlement for the Disputing Companies on a notional basis.

(a) We have assessed the allowed return afresh, reflecting the latest market data and evidence. We have also selected a point estimate for the allowed return on equity above the mid-point of our CAPM range, recognising that the sector needs to attract significant amounts of new capital to deliver the large-scale investment programme, the delivery of which is in long-term customer interests.

(b) We have updated the cost allowances and made some targeted adjustments to the outcomes package, to ensure efficient costs are funded and that performance targets are stretching but achievable.

(c) We have considered the arguments around the balance of risk and reward, and have satisfied ourselves that the package is broadly balanced.

(d) We have tested the financeability of a notional company, including against reasonable downside scenarios, and have concluded that the notional company can maintain an investment grade credit rating.

(e) We have retained an assumption of a cash dividend yield of 4%, regardless of RCV growth. We have also funded equity issuance costs of 2.5% for notional company structures.

Tax

8.11 We have recalculated the tax allowances for the Disputing Companies and provisionally confirm that it is a zero allowance for all Disputing Companies, given the high level of capital expenditure in this price control.

Balance of risk and return

Introduction

8.12 At PR24 FD, Ofwat said that it considered the balance of risk and return of the overall package in the round. In practice, Ofwat aimed to:

(a) align the interests of companies and investors to those of customers by setting the appropriate balance of risk and return;

(b) incentivise companies to deliver stretching levels of efficiency and levels of service that improve over time; and

(c) ensure that investor returns in 2025-30 fairly reflect the levels of service and cost efficiency that are delivered for customers.[738]

8.13 Ofwat recalibrated the allowed return, costs allowances and the outcomes package between PR24 DD and PR24 FD in response to companies' and investors' concerns.[739]

8.14 As part of the recalibration Ofwat took account of more recent data from the financial markets, the outturn performance and financial information reported by

[738] Ofwat (2024) PR24 final determinations: Aligning risk and return, p14.
[739] Ofwat (2024) PR24 final determinations: Aligning risk and return, p2.

the companies in their 2024 Annual Performance Reports.[740] This resulted in increased funding for base and enhancement cost allowances which Ofwat considered to reduce the perceptions of risk compared to its PR24 DD.[741]

8.15 Ofwat noted that its PR24 FD provided greater protections to companies and customers than those which were in place for the 2020-25 period.[742] The significant changes made between AMP7 and AMP8 are presented in Table 8.1 below.

Table 8.1: Protections introduced between AMP7 and AMP8 to manage the balance of risk and return

Amendments	Description
Protections for changes in costs over and above reflected in general inflation	Relative price effects which cover labour costs, energy, plant and material enhancement costs.
'Cost sharing'	Standard 50:50 'cost sharing' (ie cost overrun or underspend pass-through to customers) extended to bioresources and bespoke pass-through arrangements for expenditure on enhancements .
ASM	The ASM was introduced in PR24 for outcomes and wholesale cost allowances to reduce the impact on customer bills and equity returns in case of extreme levels of outperformance or underperformance.
OAM	The OAM was introduced in PR24 for the outcomes package to ensure that the package is balanced. The mechanism allows adjustment of returns of all companies should the sector performance be materially different to what is expected.
Extension of uncertainty mechanisms for cost items where there is insufficient certainty in the efficient costs allowances (eg PFAS)	These mechanisms were expanded to provide additional expenditure allowances should investment requirements arise, and ensuring the final package is broadly balanced for an efficient company.

Source: Ofwat (2024) PR24 final determinations: Aligning risk and return, pp3–4,16 and 19.

Ofwat's PR24 FD approach

8.16 To assess the overall 'balance of risk' implied by its PR24 FD, Ofwat considered the distribution of the RoRE for a notionally efficient water company in AMP8 (ie the probability of different levels of RoRE occurring over the period).[743] This exercise involved estimating plausible distributions of realised outcomes and expenditures (ie the probability of different levels of under-/outperformance occurring over the period), and simulating the resulting distribution of RoRE given the incentive schemes and risk mitigations built into the PR24 settlement. Ofwat concluded that the risk around the central estimate was broadly balanced, and that efficient companies had a reasonable prospect of earning the base allowed return on equity.[744]

[740] Ofwat (2024) PR24 final determinations: Aligning risk and return, p2.
[741] Ofwat (2024) PR24 final determinations: Aligning risk and return, p2.
[742] Ofwat (2024) PR24 final determinations: Aligning risk and return, p2.
[743] Ofwat (2024) PR24 final determinations: Aligning risk and return - appendix, pp5–10 (section 1.1).
[744] Ofwat (2024) PR24 final determinations: Aligning risk and return - appendix, p10.

8.17 Three of the Disputing Companies (Anglian, South East and Southern) submitted the results of an alternative simulation prepared by KPMG.[745] Using different assumptions, KPMG concluded that the notional WaSC can be expected to earn 2.35 percentage points less than the allowed return on equity in a base case scenario[746] Northumbrian and Wessex broadly echoed the concerns raised by the Disputing Companies which commissioned the KPMG analysis, either by directly referencing the KPMG analysis or largely expressing their concerns qualitatively.[747]

8.18 Some third parties similarly submitted that the risk and reward balance in PR24 was negatively skewed, driven by the imbalance in the outcomes package, a mis-calibrated WACC allowance and gaps in funding.[748] That view was not shared by all parties, with Pennon and CCW submitting that PR24 was a fair and balanced package.[749]

8.19 We focus on reviewing the KPMG analysis in this section as this was the most extensive quantitative piece of work put to us on the balance of risk. Many other issues raised were largely related to issues with the underlying building blocks, which we have considered in other chapters.

8.20 Table 8.2 and Table 8.3 below, based on our analysis of KPMG and Ofwat data, show the contribution of different risk factors to the RoRE distribution under Ofwat's and KPMG's analyses for a notional WaSC and a notional WoC, respectively. The presentation of 'risk ranges' in both Ofwat's and KPMG's results focuses on three points in the estimated distribution of RoRE, which can be interpreted as follows:[750]

(a) the 'worst-case' or 'P10' scenario: the notional company is expected to earn a return below the RoRE reported for that scenario with a 10% probability, and above with 90% probability;

(b) the 'best-case' or 'P90' scenario: the notional company is expected to earn a return below the RoRE reported for that scenario with a 90% probability, and above with 10% probability; and

[745] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company.
[746] CMA analysis of KPMG 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11).
[747] Wessex SoC, Annex A5, p160, paragraph 1.28 and Northumbrian SoC, pp110–113, paragraphs 395–406.
[748] Water UK (2025) Third party submission on the Water PR24 References, eg p4; Yorkshire Water (2025) Third party submission on the Water PR24 References, pp1–2; Thames Water Third party submission on the Water PR24 References, p4, paragraph 15; GIIA (2025) Third Party Submission on the Water PR24 References, p2.
[749] Pennon (2025) Third Party Submission on the Water PR24 References, p1; MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, pp30–35, paragraphs 92–103.
[750] Risk ranges in Ofwat's PR24 FD are described as P10, P90, and midpoint. Consistent with the KPMG report, we refer to these as the worst-case, best-case, and base-case, respectively. See KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 2, footnote 5; Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p25.

(c) the 'base-case' scenario, which is defined slightly differently by Ofwat and KPMG: for Ofwat, the outcome reported for the base case scenario is simply the mid-point between the outcomes for the worst-case and best-case scenarios; whereas for KPMG, the base-case scenario is based on the median or P50 scenario (that is, the notional company is expected to earn a return below the RoRE reported for that scenario with a 50% probability, and above with 50% probability).

8.21 By way of example, in Ofwat's analysis, the RoRE outcomes for the notional WaSC are: 0.03% in the base case scenario, -5.84% in the worst-case scenario, and 5.90% in the best case scenario (Table 8.2 below). This means that the notional WaSC is expected to earn roughly its allowed return on equity in the base case scenario, but there is a 10% chance that its return on equity will be at least 5.84% below the allowed level, and a 10% chance that it will be at least 5.90% above the allowed level.

8.22 Much of the discussion in the submissions to us on the balance of risk has focused on the base-case scenario. Table 8.2 and Table 8.3 below show that, under KPMG's approach, the two primary contributors of downside risk are the risk of underperformance against enhancement expenditure allowances and the risk of underperformance against ODIs. There is also an important divergence of view between Ofwat and KPMG with respect to the risk implications of financing activities: Ofwat expects that financing activities will generate a small upside skew in the base case (which offsets the small downside skew generated by ODI schemes), whereas KPMG expects that financing activities will generate a small downside skew even in the base case scenario. Accordingly, we have focused our assessment on these three risk factors: enhancement expenditure, ODIs, and financing. We briefly discuss the risk associated with base expenditure in paragraph 8.23 below.

Table 8.2: Notional WaSC RoRE risk ranges: Ofwat PR24 FD compared to the KPMG analysis

	Ofwat PR24 FD risk ranges			**KPMG risk ranges**		
	Worst-case	Base-case	Best-case	Worst-case	Base-case	Best-case
Totex	-2.83%	0.00%	2.83%	-2.76%	-1.55%	-0.07%
Base exp	-2.41%	*0.00%*	*2.41%*	*-2.27%*	*-0.14%*	*0.85%*
Enhancement exp	-0.42%	0.00%	0.42%	-2.64%	-1.08%	-0.07%
Retail	-0.30%	0.00%	0.30%	-1.21%	-0.20%	0.78%
ODIs + MeXes	-1.91%	-0.22%	1.48%	-1.74%	-0.69%	0.24%
Financing	-0.75%	0.28%	1.30%	-1.92%	-0.08%	1.66%
Revenue & Other	-0.05%	-0.03%	0.00%	-0.05%	-0.03%	0.00%
RoRE (additive)	**-5.84%**	**0.03%**	**5.90%**	**-7.68%**	**-2.54%**	**2.61%**
RoRE (simulated)	**N/A**	**N/A**	**N/A**	**-4.96%**	**-2.35%**	**0.23%**

Source: CMA analysis of Ofwat (2024) PR24 final determinations: PR24 RoRE model, PR24-FD-RR04-PR24-RoRE (version 2.1), tabs 'Table – PR24 FD RoRE' and 'Chart – PR24 FD RoRE' and KPMG 'PR24 notional company risk model' provided in Northumbrian

response to Northumbrian RFI01, Q1 (Document 1 of 11). For Enhancement exp, Retail and Financing risk we use KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 11, Table 12, and Table 17 (which was submitted as eg Southern SoC, supporting document SOC-1-0001, and Northumbrian SoC, Appendix SOC573).
Note 1: KPMG's enhancement expenditure risk includes cost performance risk, non-delivery PCD risk and time incentive PCD risk, whereas Ofwat's enhancement expenditure risk includes only time incentive PCD risk.
Note 2: Ofwat identifies the median across all WaSCs and WoCs using the average of the 8th- and 9th-ranked companies (Hafren Dyfrdwy and Wessex), with the ranking based on overall midpoint of the RoRE risk range. The CMA applies the same approach to identify the median separately for the WaSC and WoC, finding the median WaSC is Hafren Dyfrdwy and the median WoC is South Staffordshire Water.
Note 3: KPMG revised its RCV data subsequent to the publication of KPMG (2025) PR24 Final Determinations – risk analysis for a notional company (see Northumbrian response to Northumbrian RFI02, Q1, paragraph 5). This changes the results in KPMG's report. For this reason, we re-run KPMG's 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11) and use these revised results.

Table 8.3: Notional WoC RoRE risk ranges: Ofwat PR24 FD compared to the KPMG analysis

	Ofwat PR24 FD risk ranges			KPMG risk ranges		
	Worst-case	Base-case	Best-case	Worst-case	Base-case	Best-case
Totex	-2.75%	0.00%	2.75%	-3.58%	-0.69%	2.16%
Base exp	*-2.25%*	*0.00%*	*2.25%*	*-4.52%*	*-0.07%*	*2.77%*
Enhancement exp	*-0.50%*	*0.00%*	*0.50%*	*-1.38%*	*-0.51%*	*0.09%*
Retail	-0.30%	0.00%	0.30%	-1.21%	-0.20%	0.78%
ODIs + MeXes	-2.37%	-0.25%	1.87%	-2.55%	-0.78%	0.70%
Financing	-0.75%	0.28%	1.30%	-1.92%	-0.08%	1.66%
Revenue & Other	-0.05%	-0.03%	0.00%	-0.05%	-0.03%	0.00%
RoRE (additive)	**-6.21%**	**0.00%**	**6.21%**	**-9.31%**	**-1.76%**	**5.31%**
RoRE (simulated)	**N/A**	**N/A**	**N/A**	**-5.86%**	**-1.94%**	**1.75%**

Source: CMA analysis of Ofwat (2024) PR24 final determinations: PR24 RoRE model, PR24-FD-RR04-PR24-RoRE (version 2.1), tabs 'Table – PR24 FD RoRE' and 'Chart – PR24 FD RoRE' and KPMG 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11). For Enhancement exp, Retail and Financing risk we use KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 11, Table 12, and Table 17.
Note 1: KPMG's enhancement expenditure risk includes cost performance risk, non-delivery PCD risk, and time incentive PCD risk, whereas Ofwat's enhancement expenditure risk includes only time incentive PCD risk.
Note 2: Ofwat identifies the median across all WaSCs and WoCs using the average of the 8th- and 9th-ranked companies (Hafren Dyfrdwy and Wessex), with the ranking based on overall midpoint of the RoRE risk range. The CMA applies the same approach to identify the median separately for the WaSC and WoC, finding the median WaSC is Hafren Dyfrdwy and the median WoC is South Staffordshire Water.
Note 3: KPMG revised its RCV data subsequent to the publication of KPMG (2025) PR24 Final Determinations – risk analysis for a notional company (see Northumbrian response to Northumbrian RFI02, Q1, paragraph 5). This changes the results in KPMG's report. For this reason, we re-run KPMG's 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11) and use these revised results.

8.23 KPMG's results indicate that water companies also incur a small downside risk with respect to base expenditure: the RoRE loss attributable to base expenditure is 0.14% for the notional WaSC and 0.07% for the notional WoC. This result arises because KPMG's simulation uses a distribution of base expenditure centred on the median of PR24 DD forecasts submitted by the companies.[751] Because Ofwat's PR24 FD allowances for the median company are below the median companies' forecasts, this assumption mechanically generates a RoRE loss in the base case scenario.[752] We do not consider that this is a valid approach. The purpose of the

[751] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 8.2.2.
[752] CMA analysis of (i) Base totex distribution parameters found in KPMG's 'PR24 notional company risk model', tab 'C_Distribution', rows 291 and 292 provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11). The notional company expected baseline is found in KPMG's 'PR24 notional company risk model', tab 'C_AMP8', rows

risk modelling exercise is to model the RoRE risk faced by a notionally efficient company, and it would not be coherent to assume that the notionally efficient company will overspend its allowance in expectation. We have assessed the companies' concerns and requests with respect to base cost allowances, and having done so, it would not be coherent to assume that the resulting allowances still understate the expected costs of an efficient company. For this reason, and because the risk associated with this item is relatively small, we have not considered the risk associated with base expenditure further.

Enhancement cost risk

8.24 The vast majority of the totex cost risk estimated by KPMG arises from enhancement cost risk. Enhancement cost risk may arise either from differences between actual and allowed costs (ie cost performance) or from incentive schemes involving rewards and penalties, particularly non-delivery PCDs and time incentive PCDs. Below we review the implications of these three factors (cost performance, non-delivery incentives, and time incentives).

Cost performance risk

8.25 In its PR24 FD, Ofwat acknowledged that enhancement expenditure can be more uncertain than base expenditure, notably because enhancement schemes can be more bespoke.[753] In its simulation, Ofwat used a risk range of ±8.5% for totex overspend/underspend, which reflected the widest outturn cost performance range of any five-year period from 2000 to 2020.[754]

8.26 In contrast, KPMG's assumptions regarding cost performance were primarily derived from its analysis of a separate database of 56 infrastructure projects initiated between 1989 and 2022. For each project, the database contained information on planned and actual durations, planned and actual costs, and an indicator of complexity. KPMG applied a K-means clustering algorithm to group projects based on their characteristics (forecast costs, planned duration, and complexity).[755] The subset of projects that most closely resemble the characteristics of future AMP8 enhancement projects was used to estimate AMP8 cost performance risk.[756] This cluster contained 27 projects, of which 12 were water infrastructure projects, with other projects belonging to other sectors such as

30, 32, and 34 provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11), and (ii) Ofwat FD allowance found in KPMG's 'PR24 notional company risk model', tab 'C_AMP8', rows 31, 33, and 35 provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11).

[753] Ofwat (2024) PR24 final determinations: Expenditure allowances, p6.

[754] Ofwat (2024) PR24 final determinations: Aligning risk and return - appendix, p19.

[755] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 8.2.3 (including Table 23).

[756] KPMG estimates the characteristics of future AMP8 projects as follows: (i) planned duration is estimated based on direct engagement with the companies that commissioned the KPMG report (South East, Anglian, Southern, and Thames Water); (ii) Complexity is estimated using enhancement cases submitted in companies' PR24 Business Plans; (iii) planned cost is estimated based on the observed composition of enhancement allowances across the sector. See Disputing Companies response to Disputing Companies RFI03, Q1, paragraphs 19, 20, and 23.

transport, energy, healthcare, and education. 25 of the 27 projects were UK projects.[757] More than 90% of the 27 projects were started in 2015 or later.[758] KPMG said that non-water infrastructure projects were included to account for the significant size and complexity of investment in AMP8.[759] [760]

8.27 Using this sample of 27 projects, KPMG estimated a distribution of cost overspend for infrastructure projects. It submitted that this fitted distribution implied that cost overspends are between -10% and 36%, with a base case of 6%.[761] As a cross-check, KPMG also estimated a distribution of overspend for completed enhancement projects in AMP7 for four water companies, which it submitted showed a base case overspend of 8%.[762] The distribution for infrastructure projects was then used to conduct a Monte Carlo simulation of the impact of enhancement overspend on RoRE.[763] The simulation involved taking multiple draws from the estimated distribution of expenditure outcomes, and, for each draw, computing the resulting RoRE outcome.

8.28 Table 8.4 below shows KPMG's estimated cost performance risk ranges from -2.09% to 0.21% (base case: -0.63%) for a WaSC, and from -1.35% to 0.12% (base case: -0.48%) for a WoC.[764]

Table 8.4: Cost performance risk (%RoRE) for WaSCs and WoCs, KPMG

Percentile	WaSCs	WoCs
P10	-2.09%	-1.35%
P50	-0.63%	-0.48%
P90	0.21%	0.12%

Source: KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 11. Ofwat did not place weight on KPMG's analysis of its project infrastructure database in its PR24 FD.[765] Ofwat conducted an analysis of 3,842 AMP8 and 1,359 AMP7 enhancement schemes across 15 companies, finding that the average cost of KPMG's project differed to that of AMP7 and AMP8 enhancement projects.[766] In particular, the average cost of projects was £36 million in KPMG's set of comparators, and under £10

[757] Disputing Companies response to Disputing Companies RFI03, Q1, paragraph 43.
[758] Disputing Companies response to Disputing Companies RFI03, Q1, Table 1.
[759] Disputing Companies response to Disputing Companies RFI03, Q1, Table 1.
[760] A step change in enhancement expenditure is discussed in: Ofwat (2024) PR24 final determinations: Expenditure allowances, p5; Anglian SoC, p15, paragraph 52; Northumbrian SoC, pp46–47, paragraph 146; South East SoC, p33, paragraph 4.1; Southern SoC, Chapter 3, paragraph 1; and Wessex SoC, p23, paragraph 4.16.
[761] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 24.
[762] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 24.
[763] For each enhancement scheme, KPMG calculates cost overspend as the percentage difference between actual and planned costs and fits a Gaussian distribution to this data. The 10th, 50th, and 90th percentiles from the Gaussian distribution are then used to create a Metalog distribution, from which simulated overspend percentages are drawn. These were converted into absolute overspend by applying the cost allowance for the AMP8 enhancement scheme of a notional firm, and then multiplied by the cost sharing rate to estimate the cost borne by the company. This cost was aggregated across all schemes to determine total cost performance risk. The process was repeated 10,000 times to generate a distribution of outcomes, from which the 10th, 50th, and 90th percentiles and the average were calculated. We note that KPMG made an adjustment to the distribution for large gated schemes.
[764] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 11.
[765] Ofwat (2025) Response to common issues on risk and return, p12, paragraph 1.34 and p41, 2.56; Ofwat (2024) PR24 final determinations: Aligning risk and return - appendix, p22.
[766] Ofwat reviewed only water supply, supply interconnectors, storm overflows, and phosphorus removal. Note AMP8 enhancement projects costs are from Ofwat's expenditure enhancement models.

million for water projects in AMP7 and AMP8.[767] *Also, Ofwat said the activities*[768] *that companies will need to carry out in AMP8 are similar to those carried out in AMP7,*[769] *and show that the median and average cost per scheme across these activities in AMP7 is similar to that in AMP8.*[770]

Our assessment and provisional decisions

8.29 On behalf of Anglian, Northumbrian, South East and Southern, KPMG argued, in summary, that because infrastructure companies tend to overspend their cost forecasts on large projects, we should assume that Disputing Companies will systematically overspend their enhancement allowances in AMP8.

8.30 We are not persuaded by this argument for two reasons.

(a) First, the sample of projects used by KPMG is small relative to the thousands of enhancement schemes and contains projects that are unlikely to be good comparators for enhancement schemes in AMP8, notably because they tend to be larger, and less than half of KPMG's 27 infrastructure projects belong to the water sector.

(b) Second, and more fundamentally, we see no reason to assume that the process for setting allowances for enhancement expenditures in PR24 generates a systematic bias. In the context of the water sector, the process for setting allowances for enhancement projects uses a combination of historical outturn data for similar projects (for modelled schemes), and the companies' own forecasts (for modelled and unmodelled schemes). It is not clear to us why this process would systematically understate the cost of delivering projects. The historical data used in the process is by construction not liable to any optimism bias. Two Disputing Companies also told us that they continually update cost forecasts to reflect the latest information (which we expect to include historical cost overruns).[771]

8.31 Having assessed all the Disputing Companies' claims with respect to enhancement allowances, we do not consider it appropriate to conclude that the resulting allowances are likely to systematically underestimate the cost of delivering projects, simply based on the observation that the cost of delivering a small sample of infrastructure projects – in other sectors and regulatory contexts – has tended to exceed forecasts.

8.32 We acknowledge that water companies have overspent their enhancement allowances in AMP7. However, AMP7 was affected by a series of exceptional cost shocks related to labour, energy, material, plant and equipment, and therefore the

[767] Ofwat (2025) Response to common issues on expenditure allowances, p221, paragraph 7.85.
[768] Ofwat's analysis included the following activities: water supply, supply interconnectors, storm overflows, and phosphorus removal.
[769] Ofwat (2025) Response to common issues on expenditure allowances, p220, paragraph 7.79.
[770] Ofwat (2025) Response to common issues on expenditure allowances, p222, paragraph 7.86, Table 24 and Table 25.
[771] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p26, lines 21–25; p27, lines 1–8.

overspend observed for that period cannot be interpreted as evidence that the process for setting enhancement allowances systematically delivers allowances that are too low. Moreover, companies' exposure to enhancement overspend is reduced by PR24's ex-post RPE true-ups for labour, materials, plant, and equipment.[772]

8.33 For these reasons, we provisionally conclude that the regulatory regime for enhancement spend does not give rise to a systematic risk of overspend, and that any overspend that does occur would be partly mitigated by input price risk protections. That is, we do not consider that a notionally efficient WaSC or WoC can be expected to overspend its enhancement allowance in the base-case scenario.

Non-delivery PCD risk

8.34 Ofwat used non-delivery PCDs in its final determinations to protect customers by returning funding where companies fail to deliver funded improvements by the end of AMP8 (see chapter 6 (Outcomes), paragraph 6.10(a)). Ofwat did not estimate the risk associated with non-delivery PCDs, as this mechanism is designed to leave the company no better or worse off.[773]

8.35 In contrast, KPMG considered that the non-delivery PCD mechanism generated a significant downside risk for companies, insofar as it enabled the clawback of allowances related to projects that had been started during AMP8 but had not been fully delivered by the cut-off date (3 months after the end of AMP8).[774]

8.36 For each enhancement category, KPMG estimated the PCD clawback by calculating the proportion of scope undelivered at the cut-off date (explained at paragraph 8.37 below) and applying this to enhancement spend subject to the non-delivery PCD. The resulting clawback was multiplied by the cost sharing rate to estimate the cost borne by the notional company, which was then converted into RoRE terms.

8.37 KPMG estimated the proportion of scope undelivered at the cut-off date as the share of projects delayed multiplied by the proportion of scope undelivered for delayed projects.[775] Based partly on its infrastructure database, KPMG assumed

[772] Ofwat (2024) PR24 final determinations: Expenditure allowances, pp6–7 and pp271–272.
[773] Ofwat (2025) Response to common issues on risk and return, p39, paragraph 2.50.
[774] Ofwat (2025) Response to common issues on expenditure allowances, p250, paragraph 8.36.
[775] KPMG calculated total proportion of scope undelivered by multiplying (1) the proportion of delayed projects and (2) the proportion of scope undelivered for those delayed projects. KPMG modelled proportion of delayed projects using a PertAlt distribution, assuming a range from 10% to 70% with a most likely value of 40%. KPMG suggested the 40% value is conservative compared to 55% from KPMG's infrastructure database and 46% from an industry data cross-check. KPMG modelled proportion of scope undelivered for those delayed projects by fitting an exponential distribution (with shift) to delay percentages for 27 infrastructure projects, measuring delay as the percentage difference between planned and actual durations. The parameters of the exponential distribution fitted to the delay data are found to be 31.4% with a shift of 3.46%. References: Northumbrian response to Northumbrian RFI01, Q1 (document 2 of 11), 'PR24 notional company enhancement cost risk model' tab 'C_Performance', row 79; KPMG (2025) Technical session on PR24 risk

10–70% of projects would be delayed, with 40% as the most likely value. Among delayed projects, the undelivered scope was expected to range from 6.6% to 75.8%, with a median of 25.2%. For example, if 40% of projects were delayed and 25% of their scope was undelivered, total undelivered scope is 10%.[776]

8.38 Table 8.5 below shows KPMG's estimated non-delivery PCD risk ranges from -0.83% to 0.04% (base case: -0.25%) for a WaSC, and from -0.03% to 0% (base case: -0.01%) for a WoC.

Table 8.5: Non-delivery PCD risk (%RoRE) for WaSCs and WoCs, KPMG

Percentile	WaSCs	WoCs
P10	-0.83%	-0.03%
P50	-0.25%	-0.01%
P90	-0.04%	0.00%

Source: KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 11.

8.39 Ofwat submitted that KPMG's approach overestimated the risk of delay: KPMG assumed that 60% of projects were delivered on time,[777] but Ofwat's analysis of PR19 WINEP data indicated that 76% of schemes were delivered on time.[778] [779] Where time incentives were applied in PR19 (for Anglian, Bristol Water, SES, and South East) on-time delivery exceeded 88%.[780] Ofwat said that this was further supported by WRMP data (78% on time) and metering programme data (64% on time, although affected by COVID-19).

Our assessment and provisional decisions

8.40 We discuss the risks induced by the non-delivery PCD in chapter 6 (Outcomes), paragraphs 6.59 to 6.74. Our provisional view is that the most appropriate way for this risk to be addressed would be for Ofwat to provide appropriate guidance on how it would expect to apply the clawback arrangements and provide clear guidelines as to how Ofwat would apply the material discretion it would otherwise appear to have under the description of the clawback arrangements set out in its PR24 FD. Ofwat initiated a consultation on draft guidance on its approach to applying non-delivery PCD clawbacks shortly before we published our provisional

analysis for a notional company, p14; KPMG 'Infrastructure Project Database' provided in response to Northumbrian response to Northumbrian RFI01, Q1 (document 3 of 11); KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 8.2.3.

[776] This is an illustrative example. In general, the median of the product of two independent random variables is not equal to the product of their individual medians.

[777] Ofwat (2025) Response to common issues on expenditure allowances, p228, paragraph 7.83.

[778] Ofwat (2024) PR24 final determinations: Expenditure allowances, p311.

[779] Ofwat define 'on time' delivery as a scheme being delivered by the financial year when the regulatory date falls into. This is consistent with the incentive structure Ofwat are proposing to apply for time incentive PCDs in PR24.

[780] Ofwat (2025) Response to common issues on expenditure allowances, paragraph 7.81, Table 23.

determinations.[781] Our provisional view is that the publication of the final guidance would address the risk highlighted by KPMG.

Time incentive PCD risk

8.41 The PR24 FD time incentive PCD is intended to encourage timely delivery by rewarding on-time and early delivery and penalising late delivery (see chapter 6 (Outcomes), paragraph 6.10(b)).[782] The net penalty is based on the proportion of planned output undelivered as of 30 March each year. Ofwat sets the underperformance rate with reference to the full WACC and the outperformance rate with reference to one-third of WACC. Under this structure, there is no penalty if 75% of output is delivered (25% undelivered) at 30 March each year, while greater delays result in a penalty, and fewer delays result in a reward. The net penalty is calculated as:[783] [784]

$$Time\ incentive\ net\ penalty\ in\ year\ t = [\ WACC * P_t - \frac{WACC}{3} * (1 - P_t)] * C_t$$

Where P is the proportion of planned output undelivered at 30 March in year t and C_t is enhancement expenditure in year t.

8.42 Ofwat's risk modelling assumes the proportion of planned output undelivered is in line with the calibration of the scheme, with a P10 of 60% on-time delivery, a P90 of 90%, and a midpoint of 75% (zero net penalty).[785] In contrast, KPMG estimated risk by proxying for 'proportion of planned output undelivered' with 'proportion of projects delivered late'[786] based on KPMG's infrastructure database. This implicitly assumed a 40% undelivered rate at the end of AMP8 for the median scenario and estimated the expected base case return to be -0.08% for WaSCs, and -0.02% for WoCs.[787] KPMG said that this does not make explicit judgements on interdependencies, for example how delays in early years may impact delivery in later years.[788]

8.43 In a follow-up RFI to Northumbrian, we pointed out that this approach appeared to be inconsistent with Ofwat's methodology. In response, KPMG, on behalf of Northumbrian, applied a different methodology ('Scenario 1'), which estimated risk

[781] Ofwat (2025) Consultation on changes to PR24 price control deliverables, section 2.1.
[782] Ofwat (2024) PR24 final determinations: Expenditure allowances, p306.
[783] Ofwat calculation of net payment derived from Ofwat (2025) PCD RoRE impact model, tab 'RoRE Impact' & Ofwat (2024) draft determination: Expenditure allowances, p172, Table 41, Option 2 column.
[784] For example, if the WACC is 3% and the enhancement expenditure is £100, the underperformance rate would be £3 and the outperformance rate would be £1 (one-third of WACC). If a company delivers 70% of its outputs on time (meaning 30% are delivered late), it would receive a £0.70 reward (£1 × 0.7) for timely delivery and incur a £0.9 penalty (£3 × 0.30) for late delivery, resulting in a net penalty of £0.20.
[785] Ofwat (2025) PCD RoRE impact model, tab 'RoRE Impact', rows 23, 26 and 27.
[786] Northumbrian response to Northumbrian RFI05, Q1, paragraph 15.
[787] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 11.
[788] Northumbrian response to Northumbrian RFI05, Q1, paragraph 24.

for a measure of proportion of output undelivered rather than projects delayed.[789] This approach implicitly assumed 6.8% undelivered output in the median case at the end of AMP8.[790] Under this methodology, the notional WaSC would earn a net reward of 0.09% in the base-case scenario, and the notional WoC would earn a net reward of 0.03%.

8.44 KPMG said 'Scenario 1' materially underestimates the risk, as no adjustment is made for delivery unit size and interdependency of annual delivery.[791] KPMG explained these risks as follows:[792]

(a) Larger delivery units (eg storm tanks) are costlier, slower, and more prone to partial delivery at assessment points, raising the risk of penalties, while smaller units (eg smart meters) are quicker and cheaper, reducing this risk.

(b) Interdependencies between annual stages mean that early delays (eg supply chain issues) can disrupt later delivery, compounding underperformance and penalty risks.

8.45 To capture these additional risk factors, KPMG applied a different methodology ('Scenario 2'), which estimated the proportion of scope undelivered accounting for how early delays may influence subsequent performance at future milestones. KPMG assumed that the proportion of delayed projects is 40% in the first year of AMP8 and increases each subsequent year.[793] This implicitly assumed 72.3% undelivered output at the end of AMP8 for the median scenario.[794] KPMG said that

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[789] KPMG use the formula $proportion\ of\ planned\ output\ not\ delivered = D.\frac{E[delay\ |delay=1]}{1+E[delay\ |delay=1]}$,
Where D = $Prob(delay = 1)$ i.e the probability a project is delayed in that year, and $E[delay\ |delay = 1]$ is the expected delay if there is a delay.
See Northumbrian response to Northumbrian RFI05, 'RFI05-NWL-001 KPMG PR24 notional company enhancement cost risk model – sensitivity', tab 'C_Performance', rows 131–132.

[790] KPMG use the formula $proportion\ of\ planned\ output\ not\ delivered = D.\frac{E[delay\ |delay=1]}{1+E[delay\ |delay=1]}$. Where D = $Prob(delay = 1)$ ie the probability a project is delayed in that year, and $E[delay\ |delay = 1]$ is the expected delay if there is a delay. Both $E[delay\ |delay = 1]$ and D are random variables with their distributions described in footnote 755 above. We simulate 10,000 draws from these distributions and calculate the proportion of planned output not delivered (using the equation above) for each draw. We find the median of the resulting distribution (proportion of planned output not delivered) is 6.8%.

[791] Northumbrian response to Northumbrian RFI05, Q2, paragraph 20.

[792] Northumbrian response to Northumbrian RFI05, Q1, paragraphs 5–13.

[793] CMA analysis of the ''RFI05-NWL-001 KPMG PR24 notional company enhancement cost risk model – sensitivity', tab 'C_Performance' finds that KPMG use the following formula:

$$proportion\ of\ planned\ output\ not\ delivered\ in\ year\ t = \frac{1-(1-D)^t}{5}$$

Where D = $Prob(delay = 1)$ ie the probability a project is delayed in that year.

[794] We have reviewed KPMG's Scenario 2 analysis and note that, although the proportion of planned output undelivered is calculated annually, the net penalty is assessed at the end of AMP8. It is therefore more appropriate to examine the equation used to estimate undelivered output at the end of the AMP8 period. We derive the closed-form solution to KPMG's proxy for this end-of-period value as follows:

$$proportion\ of\ planned\ output\ not\ delivered\ in\ year\ t = \frac{1-(1-D)^t}{5}$$

$Where\ D = Prob(delay = 1)\ i.e.$ the probability a project is delayed in that year
We sum over 5 years of AMP8:

$$S = \sum_{t=1}^{5}\frac{1-(1-D)^t}{5} = 1 - \frac{1}{5}\sum_{t=1}^{5}(1-D)^t$$

this may overestimate risk as it did not incorporate a reward for partial delivery on smaller unit schemes and may overstate the impact of 'interdependency of annual delivery'.[795] Under this methodology, the notional WaSC would earn a net penalty of 0.24% in the P50 scenario, and the notional WoC would earn a net penalty of 0.06%.

Table 8.6: Time incentive PCD risk, KPMG

Percentile	WaSC			WoC		
	KPMG methodology	Scenario 1	Scenario 2	KPMG methodology	Scenario 1	Scenario 2
P10	-0.22%	0.03%	-0.33%	-0.06%	0.01%	-0.09%
P50	-0.08%	0.09%	-0.24%	-0.02%	0.03%	-0.06%
P90	0.06%	0.12%	-0.03%	0.02%	0.03%	-0.00%

Source: Northumbrian response to Northumbrian RFI05, Q2, Table 1.

Our assessment and provisional decisions

8.46 Ofwat's framework for time incentive PCD penalties and rewards links risk to the proportion of planned output undelivered. If the proportion exceeds Ofwat's 25% threshold, a penalty applies; if it is below, a reward is earned. We therefore assess the expected proportion of planned output undelivered.

8.47 Ofwat's WINEP data indicates that the proportion of output undelivered at the end of AMP7 was 24%[796] and those with bespoke WINEP commitments (Anglian, Bristol, SES, South East) delivered at most 12% of schemes late.[797]

8.48 KPMG's initial methodology for estimating time incentive PCD risk, which proxied the proportion of undelivered output using the proportion of projects delayed, is inconsistent with Ofwat's net penalty calculation and overstates risk in the base case by assuming 40% undelivered output. KPMG's Scenario 1 is consistent with Ofwat's framework and implies 6.8% undelivered output which is broadly aligned with WINEP evidence where there is a time incentive PCD, but potentially overstate the net reward (as 6.8% is below 12%). KPMG's Scenario 2 assumed compounding delays leading to 72.3% undelivered output in the median case. There is no evidence of historical interdependency between annual delivery stages and unit size affecting delivery performance to such a large extent in the base

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Using the sum of a geometric series: $\sum_{t=1}^{n} r^t = r.\frac{1-r^n}{1-r}$ $where\ r = (1-D)\ and\ n = 5$, we find the closed form solution for the proportion of planned output undelivered at end of AMP8:

$$S = 1 - \frac{(1-D)(1-(1-D)^5)}{5D}$$

Inserting the median value for D of 40% (as stated in footnote 790), we find the median value for S (proportion of planned output undelivered at end of AMP8) is 72.3%. We have verified by simulating 10,000 draws from the distribution D and calculate S for each draw, finding the median of the resulting distribution for S.

[795] Northumbrian response to Northumbrian RFI05, Q2, paragraph 22.

[796] Ofwat (2025) Response to common issues on expenditure allowances, p227, paragraph 7.81.

[797] Ofwat (2025) Response to common issues on expenditure allowances, p227, paragraph 7.81 and Table 23.

case, therefore we consider Scenario 2 substantially overstates risk and the net penalty.

8.49 Given that historical undelivered output in AMP7 has been less than 24% at the median, and that stronger time incentive mechanisms in AMP8 may reduce this further, we provisionally conclude that the most reasonable assumption for the median scenario is that undelivered output will be at or below Ofwat's 25% breakeven threshold (for example, Scenario 1), implying no net penalty or a small net reward.

ODI risk

8.50 The ODI framework imposes financial penalties when companies fail to meet performance targets and offers financial rewards for outperformance. As performance is inherently uncertain, this creates a risk to companies' financial returns.

Ofwat's PR24 FD approach

8.51 At PR24 FD, Ofwat estimated ODI risk as the payments earned or lost from a range of performance values around the PCLs in 2025-30.[798] Ofwat used a Monte Carlo simulation as its main approach to estimate this risk. Ofwat's Monte Carlo model simulates how a company might perform across all performance commitments in a given year as follows:

(a) using all available historical data, Ofwat calculated the difference between actual performance and the PCL for each company, year, and performance commitment;[799]

(b) Ofwat fitted a truncated normal distribution to these performance differences (except for water supply interruptions where it used a log-normal distribution), shifting the mean of the distribution to zero.[800] Ofwat said that it had set the mean performance difference from the PCL to zero to ensure that any historical stretch, where the PCL may have been easier or harder to achieve in the past than in the future, was not carried forward into future performance estimates;[801]

[798] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p5.
[799] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p6. Ofwat uses the absolute difference between actual performance and the PCL for biodiversity, bathing water quality, the compliance risk index, and serious pollution incidents. For all other performance commitments, Ofwat uses the percentage difference between actual performance and the PCL.
[800] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p13. Where a truncation is applied, Ofwat said it is set at the natural limit of performance or at the performance commitment-specific industry frontier with an uplift. Ofwat additionally apply several company-specific changes to the standard deviation and truncation points of some performance commitments to more closely align with historical performance data. See CMA teach-in on 20 February 2025, slides 48–49.
[801] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p8.

(c) for each company, year, and performance commitment, Ofwat used its fitted distribution to generate 1,000 random draws ('simulations') representing deviations from the PCL;[802]

(d) Ofwat incorporated correlations between performance commitments for two groups:[803] 'Group 1', comprised of internal sewer flooding, external sewer flooding, and total pollution incidents; and 'Group 2', comprised of compliance risk index and water quality contacts;

(e) for each simulation, the deviation from the PCL was applied to the PR24 PCL ('anchor point') to produce predicted performance levels for each simulation, company, year, and performance commitment.[804] Using the PR24 PCL anchor point assumed that companies would achieve the PR24 PCL in the average scenario;

(f) predicted performance levels were converted into annual total ODI payments using the PR24 ODI rates, caps, collars, and deadbands.[805] These were then summed across performance commitments and years to calculate the total ODI payment for each company; and

(g) Ofwat calculated the P10 and P90 total ODI payments for each company.[806] The P10 and P90 payments were converted into percentage changes in return on regulated equity (RoRE) by dividing by regulated equity.[807] The expected payment from ODIs was calculated as the midpoint between the P10 and P90 RoRE values.[808]

8.52 Ofwat also estimated the risk arising from measures of experience (C-MeX, D-MeX, BR-MeX and Business Customer Experience in Wales (**BCEW**)[809]). Ofwat said that the outcome of customer satisfaction score can be subjective, so estimating future performance was difficult especially as there was a limited pool of four years of historical data.[810] For this reason, Ofwat said that for C-MeX and D-MeX it had assumed that an efficient company earned the collar of payments at the P10, the cap at the P90 and earned payments of zero at the P50.[811] For BR-

[802] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p7.
[803] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p23. This is based on Ofwat's analysis of correlations between performance commitments using historical data.
[804] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p21. Ofwat noted that for CRI and SPL the mean performance was set to the deadband rather than the PCL. See CMA teach-in on 20 February 2025, slide 71.
[805] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p7.
[806] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p7.
[807] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p7.
[808] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p2.
[809] This performance commitment applies to customers of non-household premises using the supply system of a company operating wholly or mainly in Wales. For the purposes of this performance commitment 'non-household premises' are premises other than 'household premises' (as defined by section 17C of the Act). See Ofwat (2024) Business customers experience in Wales – PC definition.
[810] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p31.
[811] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p31.

MeX, as payments were based on relative rankings to other companies, Ofwat assumed the P10 and P90 were set at the upper and lower bound of payments that companies could earn. For BCEW, Ofwat calculated the P10 and P90 values by taking the maximum percentage difference between performance and the PCL observed during PR19 and applied it in both the outperformance and underperformance directions to the average PR24 PCL, setting the P50 to be at the PR24 PCL.[812]

8.53 For each bespoke performance commitment, Ofwat estimated a suitable best-case and worst-case annual performance (P10 and P90). Ofwat set the P50 estimate to be at the PR24 PCL.[813]

8.54 Ofwat's Monte Carlo model (inclusive of the MeX and bespoke performance commitment payments) estimated a return of between -1.90% and 1.52% with an expected payment of -0.17%.[814] Ofwat said that the small negative skew was primarily caused by underperformance-only performance commitments and water supply interruptions which had a large tail of underperformance and a limited potential for outperformance.[815] Ofwat also estimated a simpler additive model as a sense check which showed broadly consistent results.[816]

KPMG's approach

8.55 KPMG's approach has the following key differences to Ofwat's approach.[817]

(a) Range of historical performance data used: KPMG used only AMP7 data, whereas Ofwat used all available historical data which includes AMP7 and AMP6 data.[818] KPMG said that AMP6 data was a poorer proxy for AMP8 risk than AMP7 data because in AMP6 there were fewer common ODIs set with less stretching targets, different performance commitment definitions, fewer extreme weather events, and a smaller, simpler capital programme. In response to a follow-up RFI KPMG (on behalf of the Disputing Companies) submitted analysis which it stated showed that the range of historical data changed the outcomes base case risk results by 1 basis point for WaSCs and 14 basis points for WoCs.[819]

(b) Choice of performance distribution: KPMG fitted Metalog distributions to the performance data, whereas Ofwat used mainly truncated normal

[812] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, pp31–32.
[813] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p32.
[814] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p33, Table 11.
[815] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p33.
[816] Ofwat (2025) PR24 final determinations: Outcomes approach to risk modelling appendix, p33, Table 11.
[817] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 5.2.
[818] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 2.
[819] Disputing Companies response to Disputing Companies RFI03, Q3, paragraphs 79–80.

distributions. KPMG said that its Metalog distribution was flexible and captured asymmetry.[820]

(c) Central estimate of performance (or 'anchor point'): KPMG set its anchor point using AMP7 historical data and business plan forecasts, whereas Ofwat used the PR24 PCL.[821]

(d) Choice of correlations: KPMG's correlations broadly aligned with Ofwat's for wastewater performance commitments influenced by precipitation but differed for water performance commitments. Ofwat observed a link between the CRI and water quality contacts, which it stated that KPMG's data did not support, while KPMG identified additional relationships not noted by Ofwat. Overall, KPMG's analysis suggested a higher concentration of risk on water performance commitments, with a similar concentration of risk on wastewater performance commitments.[822]

8.56 KPMG decomposed its base case estimate into (i) calibration risk, the risk from under- or overperforming Ofwat's PR24 PCL target in the base-case; and (ii) design risk, the risk purely from the regulatory incentive mechanisms (assuming base-case performance meets the target).[823] KPMG found the design risk for ODIs and MeXes for the base-case to be -0.29% for WaSCs and -0.33% for WoCs.[824] KPMG found the calibration risk for ODIs and MeXes for the base-case to be -0.40% for WaSCs and -0.45% for WoCs.[825]

8.57 In response to the Disputing Companies' statements of case, Ofwat said that:

(a) KPMG's anchor point risked capturing historical poor performance and did not sufficiently build in expected performance improvements particularly from companies' cost allowances for final determinations;[826]

(b) using only PR19 data provided limited information to define the shape of a performance distribution, which Ofwat did not consider to be sufficiently robust. Instead Ofwat managed this uncertainty by adjusting the distribution parameters in its model on a company specific level;[827] and

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[820] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 8.2.1.
[821] KPMG calculated the anchor for year t in AMP8 as the midpoint between (1) the average of yearly median actual performance across firms in AMP7, and (2) the median business plan forecast for year t in AMP8.
[822] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 8.2.5.
[823] KPMG (2025) Technical session on PR24 risk analysis for a notional company, p32; KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 2.
[824] CMA analysis of KPMG 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11). See Note 3 for Table 8.2 above for reasons for revisions to KPMG's originally published results.
[825] CMA analysis of KPMG 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11). See Note 3 for Table 8.2 above for reasons for revisions to KPMG's originally published results.
[826] Ofwat (2025) Response to common issues on outcomes, paragraph 5.10.
[827] Ofwat (2025) Response to common issues on outcomes, pp42–43, paragraph 5.9.

(c) correlations were used sparingly in Ofwat's model compared to the KPMG model because there had been limited availability of data to inform statistically significant correlations. Ofwat said that it had also tested more extreme correlation scenarios, with results showing that negative skew did not increase from including extra correlations, as increases in payments were curtailed by risk protections.[828]

Our assessment and provisional decisions

8.58 To assess the risk implications of ODIs, it is useful to follow the distinction between 'calibration risk' and 'design risk' introduced by KPMG.

Calibration risk

8.59 Calibration risk arises if PCLs are too stretching, in the sense that a notional company would underperform at least some of its PCLs even in the base-case scenario. Ofwat essentially 'assumes away' calibration risk by centring performance distributions around zero, while KPMG essentially assumes that performance distributions for AMP8 will partially reflect those observed for AMP7, implying a significant level of underperformance even in the base case scenario. In other words, KPMG essentially argues that, because water companies tended to underperform their targets in AMP7, we should assume that they will also systematically underperform their targets in AMP8.

8.60 We consider that KPMG's approach is not valid. The significant levels of underperformance observed in AMP7 were partly due to exceptional factors. For example, in its submissions related to storm overflows, Southern referred to 2023/24 as having been one of the wettest on record with this having led to a deterioration in storm overflow performance across the sector.[829] [830] We consider that the underperformance observed in AMP7 does not amount to evidence that the process for setting performance commitments systematically overestimates the level of performance that can be achieved by efficient companies.

8.61 We have reviewed the specific requests submitted by Disputing Companies regarding their PCLs, and we have made some provisional adjustments in response. This is consistent with their submissions to us that we should fix any

[828] Ofwat (2025) Response to common issues on outcomes, p43, paragraph 5.12.
[829] Southern SoC, p396, paragraph 148.
[830] Also, Anglian reported that its WRMP19 interconnector programme faced significant cost increases and delays due to Covid-19 lockdowns, the war in Ukraine (which disrupted steel pipe supplies and raised prices), and a record number of named storms: Anglian SoC, pp102–103, paragraphs 380–381. Southern and South East said they have experienced unprecedented pressure on water supplies as during and post-Covid-19 most customers were home during the day and using more water than they did in their place of work: Southern SoC, p222, paragraph 42; South East SoC, p4, paragraph 1.3(b).

downside skew at source.[831] In particular, we have provisionally applied less demanding PCLs for external sewer flooding (for Anglian), water supply interruptions (common PCL for all companies and company-specific PCL for South East), and leakages (for Anglian and South East) (see chapter 6 (Outcomes), paragraphs 6.172 to 6.174, 6.231, 6.295 and 6.316). As a result of our review, we see no basis for concluding that the resulting PCLs remain systematically too ambitious, and we have seen no evidence that the remaining PCLs for which Disputing Companies have not made specific requests are wrongly calibrated. For these reasons, we provisionally conclude that our provisional determinations do not give rise to any significant calibration risk in relation to ODIs.

Design risk

8.62 Design risk arises because, for some ODIs, companies face a risk of penalties on the downside that is not compensated by an equivalent probability of rewards on the upside. It is common ground between Ofwat and KPMG that design risk implies a negative skew in expected returns. However, Ofwat and KPMG diverge in terms of their quantitative evaluation of this risk: Ofwat's risk modelling indicated a design risk of –0.22% for WaSCs and –0.25% for WoCs,[832] whereas KPMG's risk modelling indicated a base-case design risk of –0.29% for WaSCs and –0.33% for WoCs.[833] That is, KPMG estimated that the impact on RoRE was roughly 8bp stronger compared to Ofwat. This divergence in overall results is underpinned by differences in assumed distributions, and different assessments regarding the range of ODIs that should be viewed as giving rise to design risk. Table 8.7 below shows the contribution of different ODIs to design risk in KPMG's analysis.

Table 8.7: ODI design risk (%RoRE) for WaSCs and WoCs, Ofwat and KPMG

ODIs	KPMG	
	WaSC	WoC
Serious Pollution Incidents	-0.02%	0.00%
CRI	-0.02%	-0.09%
Discharge Compliance	0.00%	N/A
Water Supply Interruptions	-0.04%	-0.15%
Customer Contacts on Water Quality	0.00%	0.00%
Sewer Collapse	-0.01%	N/A
Total Pollution Incidents	-0.10%	N/A
Unplanned Outage	0.00%	0.00%

[831] (Non-confidential) transcript of the hearing for Outcomes on 30 June 2025, p10, lines 19–22. See also Anglian SoC, p187, paragraph 707; Southern SoC, p367; Northumbrian SoC, pp112–113, paragraphs 404–408; South East SoC, pp75–76, paragraph 5.48–5.52; and Wessex SoC, pp8–9, paragraph 2.47.
[832] CMA analysis of Ofwat (2024) PR24 final determinations: PR24 RoRE model, PR24-FD-RR04-PR24-RoRE, tab 'Table – PR24 FD RoRE'. As set out in Note 2 for Table 8.2 above, Ofwat's base case risk estimate is the midpoint between its P10 and P90 estimates and is not a P50 estimate.
[833] CMA analysis of KPMG 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11). See Note 3 for Table 8.2 above.

ODIs	KPMG	
	WaSC	WoC
Internal Sewer Flooding	-0.03%	N/A
Business demand	-0.01%	-0.02%
Mains Repairs	0.01%	0.06%
Leakage	-0.03%	-0.15%
Per Capita Consumption	-0.01%	-0.03%
External Sewer Flooding	-0.03%	N/A
C-Mex	-0.03%	-0.03%
D-Mex	-0.01%	-0.01%

Source: CMA analysis KPMG 'PR24 notional company risk model' provided in Northumbrian response to Northumbrian RFI01, Q1 (Document 1 of 11).
Note: We decompose design risk from the mean risk (rather than at the median), as the design risk at the P50 for each ODI is 0%. While this approach does not capture design risk at the median, the decomposition from the mean provides an indication of the key drivers of ODI risk.

8.63 In Ofwat's assessment, design risk was driven substantially by only four ODIs: serious pollution incidents, compliance risk index, discharge permit compliance, and water supply interruptions.[834] We consider there to be a well-founded basis for treating these four ODIs as giving rise to material design risk:

(a) For the first three of these ODIs, design risk is a 'mechanical' consequence of their structure, as they are 'one-sided' or penalty-only ODIs.[835]

(b) For water supply interruptions, design risk results from the PCL having been set (at 5:00 minutes) close to the 'natural' boundary of zero, in a context where there is a material probability of performance levels that are much worse than the PCL.[836]

8.64 We note that the ODI arrangements in Ofwat's PR24 FD included features that mitigate the impact of the characteristics described in paragraph 8.63(b) above on expected returns: collars were applied to the levels of penalty that can be incurred, and the opportunity to earn materially higher rewards per unit of outperformance was provided for some ODIs (including water supply interruptions) through the use of enhanced ODI rates.[837] However, Ofwat found the characteristics of the water supply interruptions ODI to be such that it was a material source of design risk under its PR24 FD notwithstanding these mitigating features of the framework.[838]

8.65 While there may be scope for design risk stemming from other ODIs to offset this to some extent, we do not consider the KPMG report to have shown that the assumptions it adopted with respect to additional sources of negative skew were

[834] Ofwat (2024) PR24 final determinations: Delivering outcomes for customers and the environment, p53.
[835] Ofwat (2024) PR24 final determinations: Delivering outcomes for customers and the environment, p53.
[836] Ofwat (2024) PR24 final determinations: Delivering outcomes for customers and the environment, p53, pp84–89; Anglian SoC, paragraphs 549–553; Southern SoC, p387; and South East SoC, paragraph 5.20.
[837] Ofwat (2025) PR24 final determinations: Delivering outcomes for customers and the environment, pp5–6, p26, p28.
[838] Ofwat (2024) PR24 final determinations: Delivering outcomes for customers and the environment, p53.

appropriate, or that Ofwat's estimate of design risk associated with its PR24 FD was likely to have been too high, for reasons including the following.

(a) We do not consider the evidence on C-MeX to support KPMG's assumption that there would be a negative skew in expected returns, in line with our provisional assessment in chapter 6 (Outcomes).

(b) We do not consider the KPMG report to have shown that its assessment of AMP7 performance on leakage provides a reliable basis for assuming a negative skew in AMP8 leakage ODI returns, including because of the clawback role the ODI provided for in AMP7.

(c) We consider the KPMG report to have provided limited reasoning or evidence in support of the negative skew it treated as arising across a range of ODIs (including, for example, D-Mex and internal sewer flooding).

8.66 For these reasons, we have provisionally decided to put more weight on Ofwat's quantitative assessment of design risk and to treat it as an upper bound. As set out in chapter 6 (Outcomes), for the water supply interruptions PCL, we have provisionally decided to set a less stringent common PCL for all Disputing Companies, to set a company-specific PCL for South East, and to reduce the size of South East's penalty collar to 1% RoRE (instead of 2% in Ofwat's PR24 FD). Our provisional view is that these changes materially reduce the extent of design risk under the ODI arrangements relative to Ofwat's PR24 FD. In line with that our provisional conclusion is that the ODI arrangements would give rise to a downside skew for the notional company of no more than -0.2%.[839]

Finance risk

8.67 There are two main sources of finance risk to equity investors in the price control, as follows.[840]

(a) **Interest rate risk**: when raising new debt, companies may outperform or underperform relative to the benchmark used to set the cost of new debt allowance. According to Ofwat, companies do not face risk on embedded debt as it is expected that the embedded cost of debt allowance provides for efficiently incurred debt costs for a notional company.[841] The issue of embedded debt risk is an area of contention with the Disputing Companies, which we discuss below.

[839] Ofwat's base-case is stated to be –0.22% for WaSCs and –0.25% for WoCs in KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 2 and Table 3.
[840] In the PR24 final methodology, Ofwat also identified a third source of risk from revenue recovery. However, this is a relatively small risk compared to the inflation and interest rate risk, and therefore we do not cover this in detail in this chapter. Ofwat (2024) PR24 final determinations: Aligning risk and return, pp28–29 and p33. Ofwat's estimated RoRE range for revenue recovery risk is -0.05 to 0.00%.
[841] Ofwat (2024) PR24 final determinations: Aligning risk and return, pp28–29.

(b) **Inflation**: the RCV is indexed to CPIH but companies may raise nominal fixed, floating or indexed-linked debt (which could be linked to RPI or CPI rather than CPIH). Differences between outturn CPIH, as well as outturn RPI-CPIH and CPI-CPIH wedges, relative to the assumptions used in the price control will lead to deviations in outturn equity returns compared to expectation.

8.68 At the PR24 FD, Ofwat estimated the overall RoRE risk from finance to be in the range of -0.8% to 1.3%, with a mid-point of 0.3%.[842]

8.69 This range was calculated by adding up the risk ranges on inflation, the cost of new debt and the revenue recovery (see Table 8.8 below).[843]

Table 8.8: Ofwat PR24 Finance risk range

	P10	Mid-point	P90
Interest rate risk	-0.2%	N/A	0.3%
Inflation	-0.4%	N/A	0.9%
Revenue recovery	-0.05%	N/A	0%
Total finance risk range	-0.8%	0.3%	1.3%

Source: Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, pp28–29.

Summary of Disputing Companies' position

8.70 Disputing Companies submitted that Ofwat's PR24 FD is negatively skewed for the notional company, including with respect to the finance risk.[844] [845]

8.71 KPMG, advisers to Anglian, Northumbrian, South East and Southern, presented a wider range of finance risk between -1.92% and 1.66%, at P10 and P90 respectively. KPMG estimated the base-case for a notional company on finance risk to be slightly negatively skewed at -0.08% (see Table 8.9 below).

8.72 To arrive at its risk range, KPMG identified correlations between financing risk components and implemented them in its modelling, presenting its results for finance risk (along with other components) on a simulation basis rather than using an additive basis like Ofwat.[846]

[842] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p10, Table 1.
[843] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, pp28–29.
[844] Anglian, Northumbrian, South East and Southern referenced the KPMG risk analysis in their statements of case, with the exception of Wessex who did not comment on finance risk specifically in their representations and focused on the imbalance of the package on Outcomes.
[845] Anglian SoC, p173, paragraph 653, and p174, Table 15; Northumbrian SoC, p111, paragraph 400, Figure 34, and p112, paragraph 403; South East SoC p77, paragraph 6; Southern SoC, pp71–72, paragraphs 83–84, Table 7; Wessex SoC, pp160–161, paragraphs 1.28–1.32.
[846] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 8.2.7.

Table 8.9: Finance risk range submitted by disputing companies

Finance risk range	P10	Base-case	P90
Notional company	-1.92%	-0.08%	1.66%

Sources: Anglian SoC, p174; Southern SoC, p29; South East SoC, p86.

8.73 Table 8.10 below sets out KPMG's estimated financing risk faced by a notional company in AMP8.

Table 8.10: Financing AMP8 simulated risk, KPMG

Category	Worst-case	Base-case	Best-case
Real interest rate, embedded debt	-0.56%	-0.06%	0.44%
Real interest rate, new debt	-0.53%	-0.10%	0.14%
CPIH impact on fixed debt, embedded and new	-1.27%	0.00%	1.29%
RPI-CPIH wedge impact on RPI-linked debt, embedded	-0.37%	0.05%	0.47%
CPI-CPIH wedge impact on CPI-linked debt, embedded and new	0.00%	0.06%	0.12%
Simulated financing risk	-1.92%	-0.08%	1.66%

Source: KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 17.

8.74 KPMG submitted that the key contributors to the negative risk exposure in the base-case scenario is performance of the notional company against the allowances on embedded and new debt.[847] KPMG submitted that the cost of embedded debt allowance is lower than the all-in cost of embedded debt for the median company in the sector.[848]

8.75 In response, Ofwat submitted that it is unnecessary to use Monte Carlo analysis to understand finance risk, and that KPMG's suggested negative skew on finance risk for an efficient notional company does not match the reality of the underlying evidence base.

(a) Generally, in the past companies have benefited from financing over time. Ofwat noted that reports based on companies' Annual Performance Reports for 2015-20 (AMP6) the median large company reported 1.1% RoRE outperformance and the range of performance was 2.8% to -0.3% RoRE. For the latest period (2020-24) the median large company gained 1.4% and the range was 5.1% to -1.0% RoRE.

(b) Companies may expect to outperform or underperform the cost of debt allowance but this can be a consequence of a number of factors that link also to past financing choices and company performance. Historical evidence suggests that inflation has persistently been above the 2% inflation target set by the Bank of England and companies will continue to benefit from inflation

[847] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.
[848] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.

where inflation is above the 2% long term inflation target used in Ofwat's determination.[849]

8.76 We consider the above points to be useful overall context in which to consider the detailed submissions on each individual risk component. We discuss interest rate risk on embedded debt, interest rate risk on new debt and inflation risk in turn, before providing our overall conclusion on finance risk.

Interest rate risk on embedded debt

Ofwat's PR24 FD approach

8.77 Ofwat did not include any risk from embedded debt in its risk modelling. This is because Ofwat stated that the cost of embedded debt allowance provides appropriate remuneration for efficiently incurred embedded debt for the notional company. While actual company costs will deviate from the allowance, this deviation reflects past financing choices and is a known risk to equity investors, which is not relevant to a forward-looking assessment of risk for a notional company.[850]

Disputing Companies submissions

8.78 KPMG estimated an interest rate risk range for embedded debt by considering the differences between the sector's expected cost of debt performance 'all-in' cost of embedded debt by company to the allowance.[851]

Ofwat's response

8.79 On risk exposure from embedded debt, Ofwat submitted that the difference in cost between companies' embedded debt and the allowance must be allocated to companies and should not be part of the forward-looking assessment of returns at risk in setting price controls for a company with the notional capital structure.[852] Ofwat submitted that over the long term, the companies are responsible for their own financing strategies (including the quantum of debt raised, the type of debt raised and the duration).[853] This approach, Ofwat submitted, is consistent with previous determinations.[854]

[849] Ofwat (2025) Response to common issues on risk and return, pp37–38, paragraph 2.43.
[850] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, pp28–29.
[851] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, Table 7 and section 6.3.5.
[852] Ofwat (2025) Response to common issues on risk and return, p34, paragraph 2.32.
[853] Ofwat (2025) Response to common issues on risk and return, p34, paragraph 2.32.
[854] Ofwat (2025) Response to common issues on risk and return, p34, paragraph 2.33.

Our assessment and provisional decision

8.80 One of the reasons why KPMG's overall risk range is slightly negatively skewed on finance is its inclusion of embedded debt risk (see Table 8.10 above). This risk is estimated by comparing companies' actual all-in cost of embedded debt to the embedded cost of debt allowance (which makes some adjustments to the all-in cost, as described under 'Cost of embedded debt' at chapter 7 (Allowed return)).

8.81 We provisionally agree with Ofwat's approach to setting the embedded cost of debt allowance. We therefore agree with Ofwat that for the notionally efficient firm the risk from embedded debt is not a risk which needs to be explicitly factored into the risk modelling. Individual companies will outperform or underperform relative to the allowance but there is no impact on the expected base return on equity for the notionally efficient firm. It is another form of 'calibration risk' in KPMG's model which should not be included in the risk modelling in our view.

Interest rate risk on new debt

Ofwat's PR24 FD approach

8.82 To estimate the risk range associated with raising new debt, Ofwat analysed water company bond issuances over the most recent five-year period to September 2024. Ofwat included 72 instruments issued by the water companies with an initial tenor of more than ten years between November 2019 and September 2024.

8.83 Ofwat compared the rates achieved on these bonds to the average iBoxx benchmark value for the financial year in which the debt was issued to establish the P10, P50 and P90 range. It then added the 30bps benchmark adjustment (consistent with Ofwat's cost of new debt methodology). Based on this analysis, Ofwat estimated a risk range of -0.28% to 0.30%.[855]

Disputing Companies submissions

8.84 For cost of new debt risk, KPMG submitted the allowance based on the iBoxx A/BBB indices is significantly lower than the cost of new debt issuances achieved by water companies in the last 12 months.[856]

8.85 KPMG carried out its risk analysis of the cost of new debt using 15 instruments issued by water companies between November 2022 and April 2024. KPMG selected the sample of 15 instruments by applying the following criteria:

(a) GBP denominated;

[855] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, pp28–29.
[856] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.

(b) fixed rate debt;

(c) instruments with no embedded derivatives (eg callable); and

(d) instruments issued between November 2022 and October 2024.[857]

8.86 KPMG controlled the instruments[858] both for the rating of the bond at issuance and the tenor of the bond by matching the tenor of the bond to the corresponding tenor on the relevant iBoxx index.[859] KPMG submitted that inclusion of instruments prior to November 2022 would not appear to be representative of future borrowing costs due to market distortions arising from large sections of the economy being shut down during COVID-19, with water and utility companies generally priced more favourably. KPMG stated that water companies had been able to issue bonds in line with the iBoxx benchmark until November 2022. Since then, nearly all new bonds had been issued at a cost above the benchmark, indicating that the iBoxx benchmark has become increasingly unachievable for water companies.[860]

Ofwat's response

8.87 Ofwat submitted that it was not clear which data range KPMG had used and that Ofwat did not publish its own analysis due to licensing reasons.[861] Ofwat also submitted that it was not clear how a perfect correlation between embedded and cost of new debt of 1 was derived by KPMG.[862] Ofwat submitted that it is not necessarily the case that companies with new debt above the benchmark will also have expensive embedded debt.[863] Companies' ability to raise debt can change over time and debt spreads to Ofwat's benchmark can also change over time.[864]

Our assessment and provisional decision

8.88 In setting the cost of new debt allowance, we sought to ensure that it appropriately remunerates the notional firm for efficiently incurred costs (see 'Cost of new debt' at chapter 7 (Allowed return) above). Therefore, our starting position is that interest rate risk on new debt should be broadly balanced for the notional firm on a forward-looking basis.

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[857] Southern response to Southern RFI05, Q5, p4.
[858] In its analysis KPMG compared each selected bond's yield at issuance to a simulated iBoxx yield curve (the hypothetical curve for iBoxx A and BBB) which corresponds to the bond's credit rating at the time of issue. Southern response to Southern RFI05, Q5, p4.
[859] Southern response to Southern RFI05, Q5, p4.
[860] Southern response to Southern RFI05, Q5, p4.
[861] Ofwat (2025) Response to common issues on risk and return, p34, paragraph 2.34.
[862] Ofwat (2025) Response to common issues on risk and return, p34–35, paragraph 2.35.
[863] Ofwat (2025) Response to common issues on risk and return, pp34–35, paragraph 2.35. Ofwat used Thames Water as an example where in 2023 Thames Water issued a 17-year bond at 191bps more than the benchmark index but the cost of Thames Water's embedded debt is median in the industry.
[864] Ofwat (2025) Response to common issues on risk and return, pp34–35, paragraph 2.35.

8.89 This accords with the conclusion of Ofwat's analysis of a risk range of -0.28% to 0.30%. KPMG's risk modelling shows a negative skew of -10bps and slightly more downside risk (-0.53% to 0.14%).

8.90 The overall methodology deployed by Ofwat and KPMG is similar but with some differences in the underlying assumptions, of which the most material ones were:

(a) the size of Ofwat's sample (72 instruments) was much larger than KPMG's (15 instruments);

(b) Ofwat's date range for the chosen instruments of November 2019 to September 2024 was wider than KPMG's date range of November 2022 to October 2024;

(c) Ofwat compared the instruments' yields to iBoxx A/BBB indices average annual yields whereas KPMG chose to adjust for tenor and rating by comparing yields to hypothetically constructed iBoxx curves; and

(d) Ofwat included a 30bps uplift in their risk range assessment; KPMG did not appear to take account of the uplift.

8.91 Consistent with our approach to estimating the cost of new debt (see 'Cost of new debt' at chapter 7 (Allowed return) above), we do not think it is appropriate to adjust for tenor and rating using the method deployed by KPMG.

8.92 If Ofwat's 30bps uplift for cost of new debt were to be included in KPMG's modelling using the original dataset, this uplift would remove a significant part of the negative skew by changing KPMG's base-case to -1bp and the overall range to -0.44% to 0.23% (compared to the interest risk on new debt set out in Table 8.10).

8.93 Therefore, we find that overall Ofwat's approach is more appropriate. The choice of the data period is inevitably a judgement call. Ofwat's analysis benefits from a bigger sample, while KPMG's analysis might be more representative of forward-looking risks (given that the costs of raising new debt in the sector relative to the benchmark appear to have changed around 2022).[865] Adjusting Ofwat's date range (as set out in Table 8.8 above) to include instruments issued only between 2022 to 2024 changes the risk range to -0.36% to 0.21% with the base-case at 1bp, resulting in a broadly neutral position.

8.94 Overall, we provisionally conclude that the risk on raising new debt is broadly balanced.

[865] As discussed under 'Assessment of recent market evidence' at 'Cost of new debt' at chapter 7 (Allowed return) above.

Inflation risk

Ofwat's PR24 FD approach

8.95 Ofwat based its assessment of inflation risk impacts using historical inflation data from 1997 when the Bank of England gained independence. Ofwat found overall that there was likely to be a positive skew from inflation with a risk range of -0.37% to 0.94%.[866]

8.96 This range is based on Ofwat's analysis which considered how the notional company would have performed on inflation against a series of modelled 5-year periods, starting from 1997 on a monthly basis, and found that on average companies would have more often benefitted rather than lost under the PR24 arrangements. However, Ofwat noted that these gains and losses were generally modest.[867]

Disputing Companies' submissions

8.97 On behalf of Anglian, Northumbrian, South East and Southern, KPMG submitted that the PR24 FD provides some protection against deviations from the long-term CPIH assumption. KPMG submitted that variance to the long-term assumption in excess of ±1% requires the governor of the Bank of England to write a letter to the Chancellor.[868] However, KPMG submitted that historical series of CPIH from April 2000 suggested that variation in excess of the allowed threshold can occur with a worst-case/best case of 0.9% to 4%.[869]

8.98 KPMG also submitted that companies face basis risk should the outturn RPI-CPIH wedge exceed the assumed long-term wedge of 0.90% in the PR24 FD.[870] The basis risk primarily arises on embedded debt given that companies still have a significant portion of RPI-linked debt due to the limited availability of CPIH-linked debt in the market.[871]

8.99 KPMG submitted that the PR24 FD incorrectly assumes that all non-CPIH index linked debt is linked to RPI despite 3% of current debt being indexed to CPI.[872] KPMG submitted that an efficient notional firm is exposed to the CPI-CPIH wedge because new debt issuances were likely to be CPI-linked as a result of a lack of liquidity in the CPIH market.[873]

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[866] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p33.
[867] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, pp31–32.
[868] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.
[869] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.
[870] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.
[871] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.
[872] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.
[873] KPMG (2025) PR24 Final Determinations – risk analysis for a notional company, section 6.3.5.

8.100 KPMG submitted that the approach it had taken to estimating the forward-looking inflation estimates was underpinned by academic literature and best captured the higher volatility in inflation which had been observed post-COVID-19.[874]

8.101 KPMG's approach to estimating inflationary risk for each inflation parameter (CPIH, RPI-CPIH and CPI-CPIH) used Monte Carlo simulations based on historical monthly data from March 1997.[875]

8.102 KPMG considered 11 distinct time series statistical models to model each inflation parameter and used the Akaike Information Criterion (**AIC**) to choose an optimal model for each.[876]

8.103 To estimate the CPIH inflation risk range, KPMG said that it chose to use the Brownian Motion Process with Mean Reversion and Jump Diffusion due to its common use of modelling continuous processes.[877] KPMG submitted that its choice of the model was based on the model's ability to account for possible material and sudden changes, such as jumps.[878] KPMG submitted that higher the volatility in the dataset, the higher the size of the jumps that occur across the forward-looking period.[879]

Ofwat's response

8.104 Ofwat submitted that it considered it unnecessary to use Monte Carlo analysis to understand finance risk.[880] Ofwat submitted that it was not clear how the correlation assumptions were arrived at by KPMG advisers to Anglian, Northumbrian, South East and Southern, for individual elements of inflation modelled through the Monte Carlo simulation.[881]

8.105 Using historical RPI and CPIH data, Ofwat submitted that the median value of both CPI and CPIH has been close to 2% but on average both have exceeded this value for the period since the Bank of England was given its independence (in May 1997).[882]

8.106 Ofwat submitted that in its PR24 DD and PR24 FD finance risk modelling it did not include the CPI-CPIH wedge risk due to the small amount of CPI-linked debt issued by companies.[883] In response to the Disputing Companies, Ofwat performed analysis which assumed that 4% of debt was linked to CPI and found

[874] Southern response to Disputing Companies RFI05, Q1–2.
[875] Southern response to Disputing Companies RFI05, Q1.
[876] Southern response to Disputing Companies RFI05, p8, Q9. AIC is a statistical measure used to estimate the relative quality of different models from a given set of data.
[877] Southern response to Disputing Companies RFI05, p2, Q2.
[878] Southern response to Disputing Companies RFI05, p2, Q2.
[879] Southern response to Disputing Companies RFI05, p2, Q2.
[880] Ofwat (2025) Response to common issues on risk and return, p37, paragraph 2.43.
[881] Ofwat (2025) Response to common issues on risk and return, p35, paragraph 2.37.
[882] Ofwat (2025) Response to common issues on risk and return, p36, paragraph 2.40.
[883] Ofwat (2025) Response to common issues on risk and return, p36. paragraph 2.39.

that the impact of the CPI to CPIH wedge was insignificant (see Table 8.11 below noting that RoRE P10 and RoRE P90 rows in columns 'FD' and 'FD including CPI/CPIH wedge impact' are identical).[884]

8.107 Ofwat stated that inflation risk has a positive skew in the calculation of risk ranges, and that this result is not dependent on the specification of the notional company as it arises in any situation where fixed rate debt is in place. It showed the P90 is greater (in absolute terms) than the P10 for a large range of possible structures (see Table 8.11 below).[885]

Table 8.11: Ofwat's analysis of inflation RoRE risk including and excluding CPI-linked debt

			Sensitivities		
	FD	**FD including CPI/CPIH wedge impact**	**Higher gearing**	**Double indexed linked debt**	**Higher gearing and indexed linked debt**
Gearing	55%	55%	70%	55%	70%
RPI-linked	33%	29%	29%	58%	58%
CPI-linked	0%	4%	4%	8%	8%
Fixed	67%	67%	67%	34%	34%
Impact on equity from CPIH	82%	82%	156%	42%	79%
Impact on equity from RPI wedge	40%	36%	68%	71%	136%
Impact on equity from CPI wedge	0%	5%	9%	9%	18%
RORE 10	-0.4%	-0.4%	-0.7%	-0.2%	-0.4%
RORE 90	1.0%	1.0%	1.8%	0.6%	1.1%

Source: Ofwat (2025) Response to common issues on risk and return, Table 2.1 Inflation RoRE risk, p37.

Our assessment and provisional decision

8.108 First, we consider this issue conceptually, before commenting on the specific modelling approaches.

8.109 In general, when firms make decisions about the optimal mix of debt financing (nominal vs index-linked) we do not expect equity investors to systematically 'benefit or lose' from these decisions. While treasury decisions will inevitably reflect particular expectations about inflation and interest rates, we do not expect company treasuries to be able to systematically 'beat the market'.

8.110 Using similar reasoning, provided that the regulator's inflation assumptions in a price control are not systematically biased relative to market's inflation expectations, our starting point is that inflation should have a relatively neutral impact on the base expected return on equity, ie we do not expect a positive or a negative skew in returns.

[884] Ofwat (2025) Response to common issues on risk and return, p36, paragraph 2.40.
[885] Ofwat (2025) Response to common issues on risk and return, pp36–37, paragraph 2.41.

8.111 However, we also acknowledge that regulators, including Ofwat, tend to anchor their long-term inflation forecasts around official inflation targets. This was also the case in the PR24 FD where Ofwat assumed a long-term CPIH of 2% (based on the official Bank of England target of 2% for CPI and an assumption that CPIH would outturn at similar levels to CPI over the long-term).

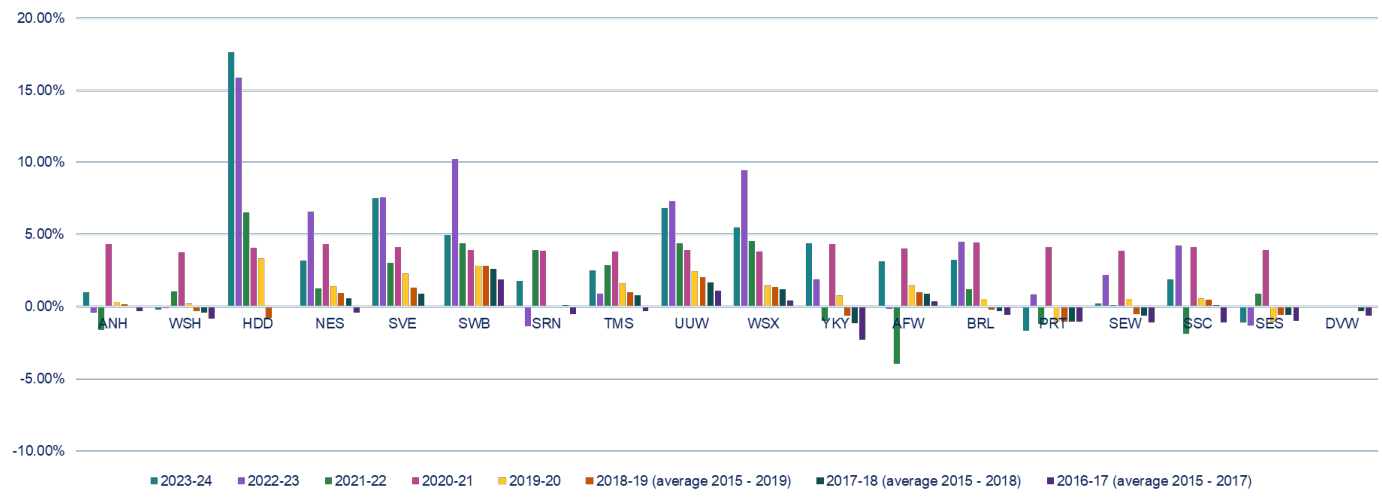
8.112 Our provisional approach is to use a 2.4% long-term CPIH, rather than 2% (see 'Inflation and estimating the cost of capital in real terms' in chapter 7 (Allowed return) above). We would still describe it as an approach rooted in official targets, as it is based on the OBR's official view of the long-term wedge between CPIH and CPI.

8.113 Intuitively we see some merit in Ofwat's argument that inflation risk is likely to be asymmetric as inflation can overshoot official targets by a wide margin but deflation is relatively rare. This may lead to a conclusion that if the regulator's inflation assumption is anchored around official targets, gains to equity investors from outturn inflation being different to the regulator's assumption might be slightly more likely than losses.

8.114 AMP7 is clearly an example of a period demonstrating that inflation materially overshot targets, and this has indeed resulted in material finance outperformance for water companies. However, we need to be careful not to extrapolate performance from one relatively atypical AMP into the future. In particular, Ofwat's own analysis of historical data suggests that such gains (and losses) were generally modest overall.

8.115 Figure 8.1 below shows outturn performance from financing expressed in RoRE terms for water companies between 2017 and 2024 as reported by the companies and presented in the Monitoring Financial Resilience reports. A high-level review of the trends presented shows a general outperformance on finance for the companies, with the size of outperformance being larger than underperformance.

Figure 8.1: Financing RoRE (%) between 2017 to 2024



Source: CMA analysis of Ofwat published annual Monitoring Financial Resilience reports.
Note: financing RoRE will include the impact of both inflation and interest rate performance – the data does not allow to separate out the two impacts.

8.116 In terms of the specifics of Ofwat's and KPMG's approaches, we observe that Ofwat's approach is transparent and easy to replicate. It uses all available historical information on inflation and provides a reasonable way to assess how inflation might have impacted outturn returns based on historical data, without needing to deploy complex modelling techniques.

8.117 KPMG's modelling is less transparent even if more technically sophisticated. As with any approach which fits a time series model on historical data, the outputs are subject to assumptions. We also observe that overall KPMG's modelling does not present a fundamentally different picture to Ofwat's. For example, KPMG's analysis shows a slight positive skew for two out of the three inflation risks it models (see Table 8.11 above) and a neutral outcome for the other. While the scale of the upside is different to Ofwat, both sets of modelling results appear to suggest that an assumption of a positive skew on inflation risk might be reasonable.

8.118 All in all, taking into account the modelling approaches put to us and our general observations, our provisional conclusion is that in principle some upward skew from inflation could be a reasonable assumption, but we need to be cautious about the likely scale of this upside. In particular, Ofwat's assumption that the base case is an upside of 0.3% might be overstating the upside.

Conclusion on finance risk

8.119 Overall, the main issue on finance risk is whether intuitively and empirically a negative or a positive skew is more likely for the base-case. Ofwat considers that there is overall upside from finance risk, focusing on a mid-point of its range of 0.3%, while KPMG, advisers to Anglian, Northumbrian, South East and Southern, reports a slightly negative base case of -0.08%.

8.120 Our provisional conclusion is that an assumption of a small positive skew on finance is reasonable, largely due to the impact of inflation, but we would not expect it to be as high as 0.3% of RoRE. This is because we start with the general view that we do not expect companies to systematically be able to outperform the real cost of debt allowance, but at the same time recognising that inflation risk is likely to be asymmetric, with inflation more likely to exceed official targets and forecasts than to be below target.

Our assessment and provisional decision

8.121 Our provisional decision is that the overall package is broadly balanced:

(a) on costs, our provisional decision is that the package is broadly balanced;

(b) on outcomes, our provisional decision is that the ODI regime implies a slight downside skew for the notional company (of no more than -0.2% RoRE) – this is similar to Ofwat's view; and

(c) on finance, our provisional decision is that a small positive skew is likely but we do not expect it to be as high as 0.3% of RoRE expected by Ofwat.

ASMs (ie Aggregate Sharing Mechanisms)

Ofwat's PR24 FD approach

8.122 In its PR24 FD, Ofwat introduced a separate ASM for outcomes and for wholesale cost allowances.[886] Ofwat noted that the inclusion of an aggregate sharing mechanism provides greater certainty to companies and investors about the overall range of the financial incentives for the 2025-30 period given the step change in investment that is required in AMP8.[887]

8.123 The thresholds proposed for totex and outcomes at PRD24 DD were maintained at PR24 FD with Ofwat concluding that they provide an appropriate balance between maintaining strong incentives for companies to improve services to customers (considering the whole of the real allowed return on equity is at risk in the event of material underperformance) and maintaining the principle of symmetry in the balance of risk and return where investors could earn double digit returns for exceptional levels of outperformance.[888]

Wholesale totex Aggregate Sharing Mechanism

8.124 The wholesale totex Aggregate Sharing Mechanism (**totex ASM**) applies to the costs incurred over the full five years of the price control where the net return on equity outperformance or underperformance due to wholesale costs performance exceeds a trigger of 200 bps of the RoRE over the five years.[889]

8.125 The totex ASM applies additional sharing of overspend or underspend with customers beyond the 'cost sharing' mechanism. A company will share 50% of the financial impact post-'cost sharing' greater than ±2% RoRE.[890]

8.126 The totex ASM will reduce the effect of outperformance or underperformance on equity returns by 50% once a 200bps return on equity trigger has been passed.

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[886] Ofwat (2024) PR24 final determinations: Aligning risk and return, p20.
[887] Ofwat (2024) PR24 final determinations: Aligning risk and return, p20.
[888] Ofwat (2024) PR24 final determinations: Aligning risk and return, p20.
[889] Ofwat (2024) PR24 final determinations: Aligning risk and return, p20.
[890] Southern SoC, Annex 5, paragraph 8.

There will be a single calculation across the five years for each company at the Appointee level across the wholesale price controls but will exclude any adjustments from PCDs.[891]

Outcomes Aggregate Sharing Mechanism

8.127 The Outcomes Aggregate Sharing Mechanism (**outcomes ASM**) is triggered on an annual basis where net ODI payments exceed a threshold of ±300bps of regulatory equity (at which point payments between 300 and 500bps are reduced by 50% ie the excess payments are shared between companies and customers on a 50:50 basis). In addition, if returns exceed ±500bps of regulatory equity in a year, the excess beyond this threshold would be reduced by 90% (ie with companies bearing 10% of the excess payments and customers 90%).[892] [893]

8.128 Ofwat stated that the higher threshold for outcomes than for costs was devised to maintain the relative strength of the incentives on companies to improve services to customers and the environment.[894]

8.129 For PR24, the outcomes ASM was designed to reduce the impact on customer bills and equity returns of extreme levels of out- and underperformance. The outcomes ASM covers the equity returns generated from the outcomes package, including C-MeX, D-MeX, BR-MeX and BCEW.[895]

Parties' submissions

Disputing Companies

8.130 Two Disputing Companies, South East and Southern, submitted that the current design of the ASM (totex and outcomes) limits its effectiveness as a risk mitigation tool due to its wide thresholds.

8.131 Southern submitted that the ASM does not provide sufficient risk mitigation in a plausible downside scenario because the combined ASM thresholds are set at 500bps RoRE before any benefit is granted to the companies.[896]

8.132 Southern submitted that the thresholds set are a policy decision which leaves the entire cost of equity at risk and has no connection to the financeability assessment.[897] Southern noted that the combined ASM package allows for

[891] Ofwat response to common issues on risk and return, p43, paragraph 2.64.
[892] Ofwat (2024) PR24 final determinations: Aligning risk and return, p20.
[893] Ofwat (2024) PR24 final determinations: Delivering outcomes for customers and the environment, p48.
[894] Ofwat (2024) PR24 final determinations: Aligning risk and return, p20.
[895] Ofwat (2024) PR24 final determinations: Delivering outcomes for customers and the environment, p48.
[896] Southern SoC, Appendix 2, p559, paragraph 8.
[897] Southern SoC, p86, paragraph 169.

potentially 500bps RoRE (approximately £182 million pa) underperformance to occur before any protection is afforded to the companies.[898]

8.133 Southern submitted that there is an inconsistency in the approach to the design of the ASM with the totex ASM applying to both water and wastewater price controls but with the outcomes ASM applying separately to water and wastewater price control ODIs.[899] Southern submitted that such inconsistency may discriminate (positively or negatively) against companies based on whether they are a WoC or a WaSC.[900]

8.134 South East submitted that the ASM thresholds should be changed to support a notional company with financeability.[901]

8.135 Both South East and Southern submitted the following remedy:

(a) to amend the ASM thresholds across the totex and outcomes ASM so that they sum to ±300bps with 50% sharing and ±400bps with 90% sharing:

(i) totex ASM: 50% sharing at ±150bps and 90% sharing at ±200bps; and

(ii) outcomes ASM: 50% sharing at ±150bps and 90% sharing at ±200bps.[902,903]

8.136 In addition, Southern proposed to separate the totex ASM between water and wastewater price controls to align with the outcomes ASM.[904]

8.137 Anglian and Wessex did not raise the ASM design as a concern in their statements of case. Northumbrian submitted that the ASM and the OAM are mitigants for the more extreme variations in operational performance but do not alter the inherent asymmetry in the package.[905]

Ofwat

8.138 Ofwat submitted that a recalibration of the ASM thresholds is neither necessary nor appropriate. Reducing the thresholds for the aggregate sharing mechanisms would have the effect of dialling down the incentives on poorer performing companies to deliver improved levels of service to customers.[906]

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[898] Southern SoC, p86, paragraph 169.
[899] Southern SoC, p86, paragraph 170.
[900] Southern SoC, p86, paragraph 170.
[901] South East SoC, p90, paragraph 7.34(c) and footnote 136.
[902] Southern SoC, pp104–105, paragraph 281.
[903] South East SoC, p90, paragraph 7.34(c).
[904] Southern SoC, p104, paragraph 281.
[905] Northumbrian SoC, p47, paragraph 147.
[906] Ofwat response to common issues on risk and return, p44, paragraph 2.68.

8.139 During the hearings, Ofwat noted that its Board wanted to ensure that the incentive regime was strong enough to drive companies and management to improve performance.[907] For companies to have the full base return at risk would only occur where a company is breaching both ASM thresholds on costs and outcomes, which is an extreme scenario.[908]

8.140 Ofwat also noted that should the totex ASM be split between water and wastewater, this would result in halving the impact of the incentive.[909] Ofwat also submitted that keeping the totex ASM as a whole would incentivise the companies to invest in areas where it is needed.[910]

8.141 Ofwat presented an example that should the totex ASM be split between water and wastewater, the incentives to overspend on a service on which a company was already overspending would increase. However, incentives to underspend on a service on which a company was not overspending would increase regardless of whether such investment was worthwhile.[911]

Disputing Companies' response

8.142 Disputing Companies noted during the hearings that there are many pressures and drivers that incentivise companies to perform, outside of the ASM thresholds.[912] Disputing Companies submitted that doubling the penalties would not make them work harder to achieve a better outcome.[913]

8.143 Disputing Companies drew a comparison with Ofgem's RIIO-3 Draft Determination[914] in which Ofgem proposed to set the risk mechanism[915] at a level that ensures that effectively the equity return does not fall below the debt return and in a downside scenario the company would be protected from falling into a sub-investment grade rating.[916]

8.144 As to whether the totex ASM should be split between water and wastewater, the Disputing Companies submitted that a large proportion of the capital programme is covered by statutory requirements.[917] The Disputing Companies submitted that the

[907] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p19, lines 2–3.
[908] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p19, lines 23–25.
[909] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p57, lines 7–9.
[910] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p57, lines 14–15.
[911] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p57, lines 7–13.
[912] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p20, lines 19–23.
[913] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p20, lines 23–24.
[914] Ofgem (2025) RIIO-3 Draft Determinations for the Electricity Transmission, Gas Distribution and Gas Transmission sectors.
[915] Ofgem introduced a risk protection mechanism for customers and investors in RIIO-2 called Regulatory Adjustment Mechanisms (RAM). The intention of the RAM is to protect customers and investors in the event that network company returns are significantly higher or lower than anticipated at the time of setting the price control. Ofgem (2025) RIIO-3 Draft Determinations for the Electricity Transmission, Gas Distribution and Gas Transmission sectors: Finance Annex, pp133–141.
[916] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p17, lines 18–19.
[917] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p58, lines 20–21.

separation between water and wastewater price control exists to equalise the incentives between water only and sewerage companies and the same should apply to the totex ASM.[918]

Our assessment and provisional decision

8.145 We consider it important that the totex and outcomes ASM have been introduced as an additional risk mitigation tool for PR24, with broad support from stakeholders throughout the PR24 methodology development.[919] We therefore provisionally conclude that the ASM should be retained.

Separation of totex ASM between water and wastewater

8.146 In relation to the request to separate the totex ASM between water and wastewater we are not persuaded that this is necessary.

8.147 We agree with Ofwat that splitting the mechanism would increase the risk protection for the Disputing Companies. A WaSC would then need to only overspend or underspend by more than the threshold on one of the services for the ASM to kick in, rather than in aggregate. This is because the RoRE impact of the overspend or underspend would be measured relative to the equity RCV for that service (water or wastewater), rather than combined wholesale equity RCV. As the purpose of the ASM is to provide protection against relatively extreme performance, we do not think that increasing the level of protection is necessary. We also do not consider that this approach discriminates between WaSCs and WoCs. We consider it an appropriate approach that cost overspends or underspends are considered relative to the overall equity RCV for that company (regardless of whether it is a WaSC or a WoC) as this is what reflects the total shareholder capital at risk.

8.148 We also acknowledge that the split could have some impact on incentives depending on how the company was performing on water versus wastewater. For example, if a company overspends on water such that it breaches the ASM threshold, the impact of further overspend on the water service would be reduced by 50% relative to the impact on wastewater.

Calibration of ASM thresholds

8.149 We understand that the main reason why Ofwat introduced the ASM was to provide protection to customers and shareholders against extreme scenarios, and it is not expected to be triggered in most circumstances. It is also important to bear

[918] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p58, lines 22–25 to p59, line 1.
[919] Ofwat (2022) PR24 Draft methodology: Appendix 8 – Outcome delivery incentives, pp47–48. Ofwat (2022) PR24 Final methodology: Appendix 8 – Outcome delivery incentives, pp57–60. Ofwat (2024) PR24 Draft determinations: Delivering outcomes for customers and the environment, p34.

in mind that in general the risk of cost and outcome performance during the five-year price control is allocated to shareholders under the regulatory regime, after accounting for various risk protections in the price control such as cost sharing. This risk allocation has been long established and is reflected in observed betas for the listed water companies. The ASM is an additional failsafe mechanism, but one that was not intended to fundamentally change that risk allocation.

8.150 We broadly agree with these overarching principles and consider that it is important to consider the requests on reducing the thresholds at which the ASM triggers in this context. This also appears to be similar to the motivation behind Ofgem's Regulatory Adjustments Mechanisms (**RAM**), in that Ofgem only expects the RAM to be triggered in very rare circumstances.[920]

8.151 Most of the submitted reasoning for reducing the ASM thresholds is around the combined downside faced by companies, which is driven in part by the assumption of a significant downside skew and the downside risk relative to the base case.

8.152 First, we note that we provisionally conclude that the package is broadly balanced (see paragraph 8.121 above), and that in of itself makes the severe RoRE downside less likely compared to Disputing Companies' views. Second, we note that the choice of where to set the thresholds is ultimately a judgement. For example, it is not clear to us that setting it to expected P10/P90 or some other level is analytically justified, or that the threshold should be set in such a way as to ensure that the actual return on equity can never fall below the cost of debt. There also needs to be consistency with the level of risk which is compensated for through the beta, which draws on listed water companies which have accepted the PR24 FD risk and return package as it is.

8.153 Ofwat's position is that the entire return on equity should be potentially at risk in a downside, while top performers should have reasonable prospects of earning double digit returns. The risk modelling which the Disputing Companies prefer implies that significantly less of the return is at risk (around ±2.6% of RoRE relative to the base case in the P90/P10, see Table 8.2 above. We agree that this suggests that the ASM is unlikely to be triggered but we consider this is consistent with the purpose of the mechanism.

8.154 Finally, we also test financeability against a 100bps and a 200bps RoRE downside (see paragraphs 8.262 to 8.268 below) and provisionally find that the notional company can still maintain an investment grade credit rating.

8.155 Overall we do not see any compelling reasons to change the ASM thresholds.

[920] Ofgem does not expect any of the companies to breach the RAM thresholds in RIIO3. Ofgem (2025) RIIO-3 Draft Determinations Finance Annex, p136, paragraph 9.20.

OAM (ie Outturn adjustment mechanism)

8.156 The OAM is a mechanism which is designed to recalibrate investor returns in the event there is systematic outperformance or underperformance across the sector, providing protection for customers and companies against the potential for miscalibration of the outcomes package.[921] The OAM is applied separately for wholesale water and wastewater activities on an annual basis.[922]

Ofwat's PR24 FD approach

8.157 If the median ODI performance of the sector passes an equity return (RoRE) trigger threshold of ±50 basis points, Ofwat will apply an adjustment to all companies calculated as the difference between the median OAM benchmark and the trigger threshold.[923]

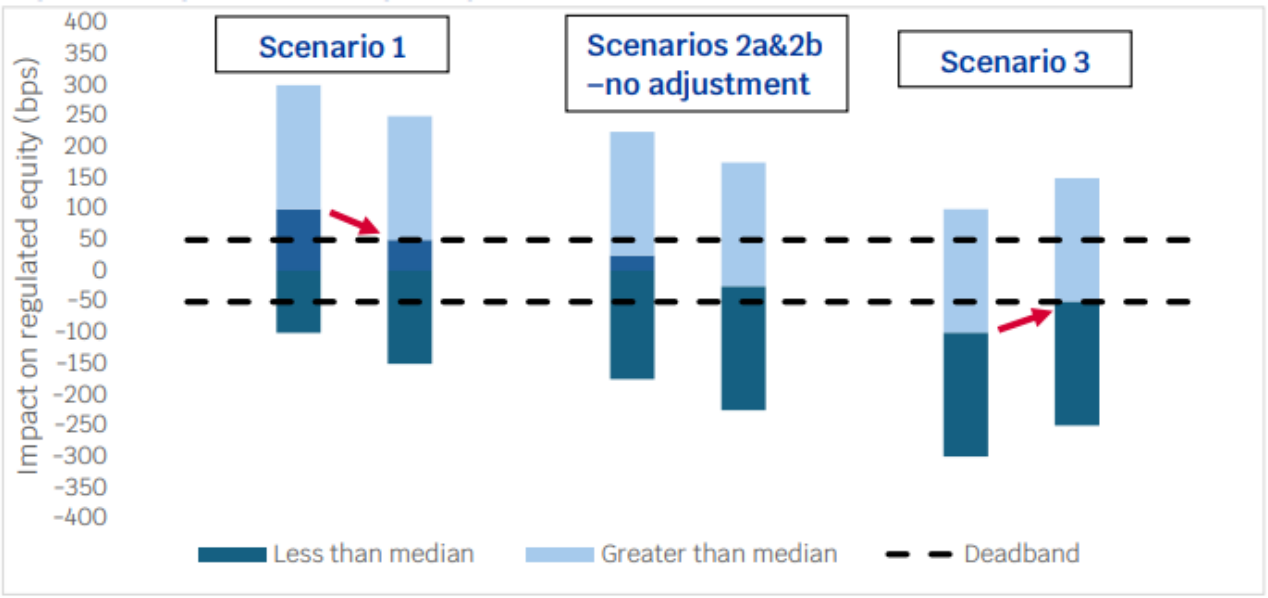
8.158 The OAM was introduced in the PR24 FD following an October 2024 consultation. The design of the OAM changed between the consultation and the PR24 FD, with Ofwat initially consulting on a mechanism which did not include a deadband. Following the consultation, and its recalibration of the outcomes package between the PR24 DD and PR24 FD, Ofwat concluded that the OAM should be revised, and included a ±50bps trigger threshold.[924] Ofwat noted that the mechanism would only be triggered when outturns across the sector are significantly higher or lower than expected (see Figure 8.2).[925]

8.159 Ofwat's expectation was and remains that the OAM would be triggered infrequently and in a limited number of circumstances. Taking prior price controls as examples, Ofwat noted that if the OAM had been applied in AMP6 (2015-20) the mechanism would not have been triggered and in AMP7 (2020-24) it would have been triggered once for wastewater service and twice for water service.[926]

8.160 If the sector outperforms materially (at the median earning rewards of more than 0.5% RoRE), the OAM adjustment would reduce the returns of all companies. If all of the companies performed poorly (at the median earning penalties of more than 0.5% RoRE), the OAM would increase returns of all companies.[927]

[921] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p12.
[922] Ofwat (2024) PR24 final determinations: Aligning risk and return, p22.
[923] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p16.
[924] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p16.
[925] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p16.
[926] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p17.
[927] Ofwat (2024) Consultation on outturn adjustment mechanism, pp9–10, paragraphs 2.10–2.11.

Figure 8.2: Illustration of the OAM included in Ofwat's final determinations (with scenario 1 representing an upside scenario and scenario 3 a downside scenario)



Source: Ofwat Final determinations Aligning risk and return appendix p16.

Parties' submissions

Disputing Companies

8.161 Four Disputing Companies – Anglian, Northumbrian, South East and Southern – submitted that the deadband of ±50bps should be removed.[928] These Disputing Companies submitted that the inherent downward skew in the outcomes package is not addressed by the OAM and removal of the ±50bps deadband would go some way toward addressing the downward skew in the outcomes package.

8.162 Northumbrian submitted that without the deadband, the OAM would have avoided downside skew in the calibration of the outcomes package.[929] Northumbrian and Anglian submitted that without the deadband the skewed outturn would be avoided by adjusting every company's returns and resulting in the median performing company earning zero returns from ODIs, those who outperform earning positive returns, and poorer performing companies earning negative returns.[930]

8.163 Anglian submitted that it cautiously welcomed the OAM as described in the consultation.[931] It noted that the OAM appeared to represent the core principle of yardstick regulation where relative performance should drive outperformance payments.[932] It submitted that yardstick regulation mimics competition by setting

[928] Anglian SoC, p18, paragraph 67. Northumbrian SoC, p138, paragraph 533. South East SoC, p10. Southern SoC, p42, paragraph 50.
[929] Northumbrian SoC, paragraph 533.
[930] Northumbrian SoC, p138, paragraph 533. Anglian SoC, p18, paragraph 67.
[931] Anglian SoC, p146, paragraph 559.
[932] Anglian SoC, p146, paragraph 559.

companies against one another.[933] It noted that even if the average industry returns are recalibrated each period, a true yardstick regime will still have very strong incentive properties because each company's individual performance will have little effect on overall industry performance.[934]

8.164 Anglian submitted that without a deadband, the OAM provides security by ensuring that common overperformance or underperformance by the industry does not result in across-the-board rewards or penalties.[935]

8.165 Anglian submitted that the OAM being based on the median company (rather than the industry's overall performance), does not harm the companies' incentives to outperform because each company will aim to be or beat the median company.[936]

8.166 Southern submitted analysis on OAM using AMP7 data which it considered suggested that if the OAM was applied in AMP7, with a deadband, adjustments to both wastewater (+0.36% RoRE) and water (+0.59% RoRE) price controls would have been made. However, without the deadband these adjustments would have been much greater at +0.98% RoRE for wastewater and +2.11% RoRE for water price controls.[937]

8.167 Southern submitted that introduction of the deadband undermined the intent of Ofwat's original proposal and kept the inherent downside skew in the outcomes package: which first needed to be solved at source and then by removing the OAM deadband.[938]

8.168 South East submitted the OAM deadband should be removed to address the expected underperformance.[939]

8.169 Wessex submitted that the OAM partly mitigates the impact of methodological flaws in the price control package on the overall balance of risk and return but it does not address the issues at source.[940]

Third party submissions

8.170 Water UK submitted that although in theory the OAM was designed to address excessive downside ODI risk, the mechanism still leaves companies exposed to errors made in calibrating individual performance commitments which have not been addressed in Ofwat's ODI methodology.[941] Water UK submitted that the

[933] Anglian SoC, p146, paragraph 560.
[934] Anglian SoC, p146, paragraph 560.
[935] Anglian SoC, p146, paragraph 560.
[936] Anglian SoC, p146, paragraph 561.
[937] Southern SoC, p383, paragraph 87.
[938] Southern SoC, p383, paragraph 88.
[939] South East SoC, pp90–91, paragraph 7.34 (c).
[940] Wessex SoC, Annex A5, p165, paragraph 1.32.
[941] Water UK (2025) Third party submission on the Water PR24 References, p7.

introduction of the OAM at the final determinations was a positive step but the deadband of 50bps does not fully address the concerns around the balance of risk and reward in the ODI package.[942]

8.171 Water UK submitted its concerns that the OAM was:

(a) consulted on two months before the final determinations with limited time for companies to respond; and

(b) introduced as part of the final determinations (with a deadband) in a form that was not consulted on.[943]

8.172 Water UK submitted a preference for the ODI package concerns to be addressed 'at source' rather than through adjustments to the ASM and the OAM.[944]

8.173 Severn Trent noted that changes in favour of the Disputing Companies on ODIs and performance commitments would positively affect the Disputing Companies' overall ODI net payments in terms of RoRE but would negatively affect the 11 non-disputing companies through the OAM.[945]

8.174 Severn Trent proposed that Ofwat agrees to apply the OAM for the non-disputing companies and Disputing Companies on a broadly consistent basis in relation to targets set for PR24 final determinations.[946]

8.175 Pennon submitted that any changes to comparator-based mechanisms (like the OAM) would risk undermining confidence and weakening delivery incentives for non-disputing companies.[947] Pennon submitted that the threshold to amend a protection like the OAM should be high.[948]

Ofwat

8.176 Ofwat submitted that the OAM with the deadband provides a more stable and predictable regulatory framework for investment to improve performance.[949] Ofwat said that not everyone shares the view that the median company will underperform:

(a) Barclays Capital expected Severn Trent to receive a 15bps downward adjustment post-OAM for AMP8 as a result of outperformance on outcomes; and

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[942] Water UK (2025) Third party submission on the Water PR24 References, p47.
[943] Water UK (2025) Third party submission on the Water PR24 References, p17.
[944] Water UK (2025) Third party submission on the Water PR24 References, p48.
[945] Severn Trent (2025) Third party submission on the Water PR24 References, p1.
[946] Severn Trent (2025) Third party submission on the Water PR24 References, p1.
[947] Pennon (2025) Third party submission on the PR24 Water References, p3.
[948] Pennon (2025) Third party submission on the PR24 Water References, p8.
[949] Ofwat (2025) Response to common issues on risk and return, p46, paragraph 2.76.

(b) Moody's expected the median company to outperform, and without the deadband this would reduce ODI payments for all companies.[950]

8.177 Ofwat submitted that the removal of the deadband could have a negative impact on companies' incentives to outperform the median company. Ofwat submitted that if the majority of the companies were to focus on a median position, removing the deadband would reduce the incentives for all companies and in the worst case could lead to companies bunching around similar poor performance.[951]

8.178 Ofwat submitted that the OAM with a deadband addresses the following concerns raised by CCW and Thames Water in response to the OAM consultation, that the original OAM proposal would:

(a) increase the uncertainty companies will face when assessing the impact of their performance on equity returns;

(b) risk diluting incentives to improve performance;

(c) risk customers paying for service improvements which may not materialise if the entire sector performs poorly;

(d) reduce transparency and increases complexity of the regime;

(e) increase the challenge for the sector to raise necessary levels of finance if half of companies would always be in penalty under the mechanism; and

(f) reduce incentives for companies to collaborate to share best practice as the mechanism would more strongly incentivise companies to outperform their peers.[952]

8.179 During the hearings, Ofwat noted that it had introduced the deadband at the PR24 FD because it did not expect the OAM to be triggered during the price control.[953] It also stated that removing the deadband just for the Disputing Companies might lead to complaints from non-disputing companies who would perceive there to be one rule for one set of companies and another rule for another.[954]

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[950] Ofwat (2025) Response to common issues on risk and return, paragraph 2.77. Reflecting on Severn Trent's capital markets day on 5 March 2025, Barclays stated 'Of note, we assume a 15bps downward OAM adjustment in our 1.1% estimate. With six referrals to the CMA there is potential for this OAM to increase, in our view.': see Barclays Capital – Severn Trent CMD provides route to beating regulatory challenge increasingly good value. 6 March 2025, p1. Moody's noted that from an ODIs perspective it expects a median RoRE impact to be slight net reward but companies who will require to achieve targets that are a significant step up will performer worse: see Moody's Regulated Water Utilities – UK: Increased business risk weakens credit quality, despite improved settlement, 28 March 2025, p8.
[951] Ofwat (2025) Response to common issues on risk and return, p46, paragraph 2.78.
[952] Ofwat (2025) Response to common issues on risk and return, p44, paragraph 2.71.
[953] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p38, lines 14–15.
[954] (Non-confidential) transcript of the hearing for Risk & Return (day 2) on 2 July 2025, p43, lines 8–9.

Our assessment and provisional decision

Outcomes package is not a 'fair bet' which could be addressed through removal of the 50bps deadband

8.180 One of the key arguments which the Disputing Companies have used to argue for the removal of the deadband is to address the downside skew in the outcomes package. We have assessed the Disputing Companies' concerns regarding the outcomes package 'at source', in line with their preferences, and provisionally concluded that the remaining negative skew is small (see paragraphs 8.65 and 8.66 above). The remaining skew on outcomes is a 'design risk' issue which does not necessitate the removal of the deadband in our view.

Other consequences of removing the deadband

8.181 In the PR24 FD, Ofwat raised several potential concerns about not having a deadband, of which the most material appear to us to be:

(a) impact on incentives;

(b) increasing the challenge to raise finance;

(c) companies being rewarded despite poor performance; and

(d) reducing incentives to collaborate to share best practice.

8.182 With regard to impact on incentives, it is not clear to us that there would be a material impact on marginal incentives to improve performance, were the deadband to be removed, as the marginal financial impact from improving performance would stay the same irrespective of whether a deadband was in place. We broadly agree with the Disputing Companies that they should still have strong incentives to outperform. However, we are mindful of concerns raised by some of the non-disputing companies that changes to comparator-based mechanisms could risk undermining confidence in the mechanism more broadly.

8.183 The impact of a deadband on the ability of companies to raise finance is also not clear in our view. It might depend on whether certain companies are consistently in the bottom half of performance on outcomes, but it is not obvious that this should be the case.

8.184 On rewarding poor performance, if the deadband was to be removed for the Disputing Companies, we agree that removing the deadband may result in instances where a company which has not met its performance targets could still achieve a net positive position on ODI payment (ie would receive a reward, rather than a penalty), and that these rewards could be significant (as demonstrated by Southern's AMP7 example). This would not be a fair outcome for customers.

8.185 On sharing best practice, we do not consider this to be a major concern.[955] Companies are routinely compared to each other throughout the regulatory regime to set costs and targets – it is not clear that adding one more relative comparison would fundamentally change incentives to collaborate.

Provisional conclusion

8.186 We find that the majority of the factors above are relatively weak arguments against removing the deadband. However, we are concerned that the removal of the deadband could result in potentially rewarding poor performance across the industry.

8.187 More importantly, we have addressed the Disputing Companies' concerns around the outcomes package 'at source'. We therefore provisionally conclude that the OAM is only needed to guard against significant miscalibration of the package. Removing the deadband would be a material change in the risk and reward balance – in favour of the Disputing Companies and to the disadvantage of customers, which does not seem necessary or appropriate.

8.188 We provisionally conclude that it is appropriate to retain the OAM and that we are not persuaded to remove the ±50bps deadband.

8.189 We note that while we are not amending the design of the OAM, we have provisionally made two common adjustments to the outcomes package (see chapter 6 (Outcomes)): we are setting a less stretching target for the water supply interruption common PCL, and we are reducing the ODI rate for the total pollution incidents. This might have some impact on the relative performance of Disputing Companies versus non-disputing companies and whether the OAM deadband is triggered or not.[956] While the application of the OAM for non-disputing companies is a matter for Ofwat, rather than the CMA, we consider that a coherent approach would calculate the OAM separately for the Disputing Companies and the non-disputing companies. For Disputing Companies, the OAM could be calculated using our revised PCLs and ODI rates for all 16 companies in the sector, while for the non-disputing companies it could be based on the Ofwat's PR24 FD package for all companies. In practice, there might not be much difference between the two since the OAM considers performance across the whole outcomes package, and we have by and large retained Ofwat's PCLs and ODI rates.

[955] When asked about the extent of collaboration between companies and tangible benefits of collaboration Ofwat could not provide quantitative evidence of collaboration but noted instances where lack of collaboration has resulted in beneficial outcomes either being missed or delayed. The examples of missed or delayed benefits were the comments by the National Infrastructure Commission in 2018 about lack of progress made by water companies; in April 2025 a statement from Spring (responsible for delivering innovation strategy by water companies) noted the urgency of finding new approaches, tools and techniques which need to be created in collaboration as well as acknowledging that collaboration is growing across the sector, Ofwat response to Ofwat RFI05, Q10.
[956] As noted in Pennon (2025) Third party submission on the PR24 Water References, p3.

Cost recovery

8.190 Totex allowances determine how much expenditure companies can recover from customers. This expenditure is recovered through allowed revenues in two ways:

(a) expenditure can be recovered in customer bills in the year it is incurred through pay-as-you-go (**PAYG**); or

(b) expenditure can be added to the RCV and then recovered over a number of years through **RCV run-off**.

8.191 PAYG and RCV run-off rates set the speed at which companies recover their costs from customers and therefore determine the proportion of costs which are borne by current and future customers. Typically, PAYG remunerates companies for operating costs and RCV run-off covers capital expenditure.

PAYG rates

8.192 In the PR24 final methodology, Ofwat stated that its starting point for the assessment of companies' PAYG rates would be the 'natural rate' (ie the proportion of net operating costs to net totex).[957] However, companies could choose to include infrastructure renewals expenditure (**IRE**) in the calculation of PAYG, provided they evidenced the reasons why, with Ofwat noting that the recovery of IRE both through PAYG or the RCV run-off would still be consistent with its PR24 methodology.[958] The approach of including IRE in the PAYG calculation increases the revenues that can be recovered in year and reduces the level of totex added to the RCV.

Ofwat's PR24 FD approach

8.193 For four Disputing Companies (Anglian, Northumbrian, South East and Southern) Ofwat set PAYG rates to reflect net operating costs as a proportion of net totex.[959]

8.194 For Wessex, Ofwat set PAYG rates reflecting operating costs plus IRE,[960] as a proportion of net totex. Ofwat stated that Wessex's proposals allow Wessex to recover the majority of its capital maintenance expenditure in year, which it said was consistent with the approach for Wessex at previous price reviews. Wessex's approach was also consistent with ensuring the total bill rise over AMP8 did not exceed the 30% limit Wessex set out in its original business plan.[961] There were two other companies at PR24 which Ofwat allowed to include IRE in PAYG.

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[957] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p3.
[958] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p31.
[959] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p45.
[960] Ofwat stated that Wessex was permitted to recover 85% of its IRE costs through PAYG.
[961] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, pp44–45.

8.195 The table below sets out Ofwat's PAYG rates for each Disputing Company.

Table 8.12: Ofwat final determination PAYG rates

Company	*Water resources*	*Water network*	*Wastewater network*	*Bioresources*
Anglian	32.1%	41.2%	33.2%	49.9%
Northumbrian	68.5%	46.4%	25.8%	34.8%
Southern	42.8%	40.6%	28.3%	36.8%
Wessex	48.8%	62.4%	31.0%	38.1%
South East	81.3%	41.9%	N/A	N/A

Source: PR24-final-determinations-Aligning-risk-and-return-appendix.pdf, Tables 12–15.

Parties' submissions

Disputing Companies

8.196 South East submitted that it did not consider PAYG and run-off rates to be in dispute but that the CMA may wish to consider them as part of its financeability assessment and to update them as necessary in light of its redetermined costs.[962]

8.197 Southern submitted that it may ask the CMA to assess the financeability of its final settlement and adjust cashflow levers such as PAYG and run-off rates to ensure the notional company can finance its operations.[963]

8.198 Wessex submitted that its Board was committed to a maximum bill rise, in real terms, of less than 30% by 2030, providing this is financeable. Wessex stated that affordability levers (such as PAYG and run-off rates) could be used to limit the actual rise in bills to less than 30%.[964]

Ofwat's response

8.199 Ofwat stated that it supported adjustments to Wessex's cost recovery rates to limit bill increases to 30%.[965]

Our assessment and provisional decisions

8.200 For four of the Disputing Companies (Anglian, Northumbrian, South East and Southern) we calculate the PAYG rates as a proportion of operating costs to totex.

8.201 We understand that Wessex's PAYG rates include IRE, as well as operating costs. As it is not clear how much of the additional totex we have allowed in our cost

[962] South East SoC, p11, paragraph 1.33(e).
[963] Southern SoC, p575, paragraph 11.
[964] Wessex SoC, p11, paragraphs 2.53–2.55.
[965] Ofwat (2025) Response to common issues on risk and return, p148, paragraph 8.12.

determination for Wessex is IRE, we have provisionally calculated the PAYG for Wessex's additional totex using the natural rate

8.202 We therefore calculate Wessex's PAYG rates such that:

(a) for the totex allowed in Ofwat's final determination (£3,904 million)[966] we retain Ofwat's final determination PAYG rate (which is calculated as net operating costs plus IRE divided by net totex); and

(b) for additional totex included due to our cost determination (approximately £300 million) we include this at a PAYG rate calculated as net operating costs as a proportion of net totex. We consider there might be benefits from applying a consistent approach across all totex. Therefore, depending on the responses from parties, we may revise this assumption for the final determination.

8.203 We note that under this approach Wessex's bill increase from 2024–25 to 2025–30 is below Wessex's proposed cap of 30%.

8.204 Table 8.13 below sets out our provisional PAYG rates for each Disputing Company.

Table 8.13: CMA provisional PAYG rates

	Water resources	*Water network*	*Wastewater network*	*Bioresources*
Anglian	30.4%	40.2%	33.9%	50.6%
Northumbrian	70.1%	48.1%	23.9%	34.1%
Southern	42.5%	41.4%	32.0%	37.4%
Wessex	49.6%	61.6%	28.2%	36.1%
South East	81.1%	41.1%	N/A	N/A

Source: CMA analysis.

RCV run-off rates

Ofwat's PR24 FD approach

8.205 Ofwat set out a framework for determining RCV run-off rates which considered intergenerational fairness between current and future customers, affordability, financeability and its guidance on upper limits for run-off.[967] Ofwat stated that for most companies it applied the RCV run-off rates proposed in company representations in its final determinations.[968]

8.206 Ofwat reduced Southern's overall run-off rate from 4.49% to 4.36%, in line with Southern's representations. Ofwat stated that this approach aligned with its

[966] Wessex's net totex for PAYG from Ofwat FD Wessex financial model, 'PAYG calc' sheet, rows 11–14.
[967] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p46.
[968] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p53.

assessment framework, and it concluded that Southern had sufficient headroom in its financeability assessment of the notional company. Ofwat also noted that its final determination run-off rate aligned with Southern's historic cost depreciation rate across 2020–24.[969]

8.207 The tables immediately below set out Ofwat's PR24 FD run-off rates for each Disputing Company.

Table 8.14: Ofwat PR24 FD pre-2025 run-off rates (ie applied to opening RCV)

	Water resources	*Water network*	*Wastewater network*	*Bioresources*
Anglian	4.29%	3.73%	4.29%	5.72%
Northumbrian	4.50%	4.50%	4.50%	7.28%
Southern	4.37%	4.23%	4.29%	6.19%
Wessex	4.50%	3.57%	3.81%	8.00%
South East	4.08%	3.80%	N/A	N/A

Source: PR24-final-determinations-Aligning-risk-and-return-appendix.pdf, Tables 16–19.

Table 8.15: Ofwat PR24 FD post-2025 run-off rates (ie applied to AMP8 additions)

	Water resources	*Water network*	*Wastewater network*	*Bioresources*
Anglian	4.29%	3.73%	4.29%	5.72%
Northumbrian	3.23%	3.23%	1.67%	3.88%
Southern	4.37%	4.23%	4.29%	6.19%
Wessex	4.50%	4.50%	3.24%	8.00%
South East	4.08%	3.80%	N/A	N/A

Source: PR24-final-determinations-Aligning-risk-and-return-appendix.pdf, Tables 16–19.

Parties' submissions

Disputing Companies

8.208 Anglian submitted that its run-off rates in Ofwat's PR24 FD were too low. Anglian stated that at PR19 it reduced its run-off rates to limit customer bill impacts but anticipated increasing rates back to their 'natural rate' at PR24. However, Ofwat introduced new requirements at PR24 which meant Anglian reduced its run-off rates further to comply with Ofwat's guidance.[970]

8.209 Anglian noted that it did not challenge Ofwat's run-off rates proposals in its business plan or PR24 DD representations but that due to the changes in required credit metrics from rating agencies (specifically funds from operation (**FFO**)/net debt), an increase in run-off rates is required to achieve a BBB+/Baa1 rating. Anglian stated that the CMA should increase its run-off rates to PR19 levels to achieve the required level of financeability for the notional company.[971]

[969] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p55.
[970] Anglian SoC, pp204–205, paragraphs 795–796.
[971] Anglian SoC, p205, paragraph 797.

Third parties

8.210 MCC Economics, on behalf of CCW, stated that the adopted run-off rates imply a remaining asset life of approximately 25 years. MCC noted that this seemed low for water assets and suggested that owners are receiving their capital back at an accelerated rate. MCC also noted that run-off rates generally exceed historical cost depreciation by a material margin and that a run-off rate based on the historical cost depreciation would be more than adequate for the price determination.[972]

Ofwat's response

8.211 Ofwat also stated that it considered the run-off rates set in its determinations achieved a fair allocation of costs between current and future customers, while maintaining adequate levels of financial headroom in its financeability assessment.[973]

Our assessment and provisional decision

8.212 We note MCC's observation that run-off rates exceed companies' historical cost depreciation rates. The RCV represents totex additions in previous periods, inflation, and performance adjustments for ODIs and cost over/underspends. This results in divergence between companies' fixed assets and the RCV. There are also other relevant factors which Ofwat considered in setting its framework for run-off rates such as intertemporal fairness, affordability for customers, and financeability.[974] We therefore caution against an approach which would estimate the run-off rates solely based on historical cost depreciation rates at PR24 FD.

8.213 We also note that the Independent Water Commission included a recommendation in its final report: 'Following the establishment of a new methodology for assessing asset condition and expected life, the regulator should consider the merits of linking RCV run-off more closely to the economic depreciation of assets. This applies to England and Wales'.[975] Although we can see a benefit in estimating run-off rates more closely linked to economic depreciation relating to a revised approach to assessing asset condition, this would need to be implemented in parallel with future work on asset health.

8.214 In relation to Anglian's concerns around the need to increase run-off rates to improve financeability, our assessment in the next section does not demonstrate

[972] MCC Economics (2025) A review of Ofwat's PR24 Final Determination WACC allowance: a report for CCW, p35, paragraphs 102–103.
[973] Ofwat (2025) Response to common issues on risk and return, paragraph 8.16.
[974] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p3.
[975] Independent Water Commission (2025) Final Report, Recommendation 20, p208.

that this is necessary. We therefore retain the run-off rates set by Ofwat in its PR24 FD (and as presented in Table 8.14 and Table 8.15 above).

Financeability

8.215 Ofwat's approach to financeability in its PR24 FD largely followed the approach used at previous determinations and consisted of the following main elements:

(a) each water company submitting a plan that is financeable, with board assurance that the plan is financeable on the basis of the notional capital structure with an opening level of gearing of 55%;[976]

(b) a financeability assessment carried out at the Appointee level using the PR24 financial model by reference to an efficient company with the notional capital structure. The financeability assessment considered a range of financial metrics and other factors to help assess the financeability of water companies' business plans and Ofwat's determinations;[977]

(c) notional capital structure, with opening proportion of ILD of 33% – maintained at a minimum of 33% over 2025-30 – with new ILD raised over the period being linked to CPIH;[978]

(d) financeability assessed before taking account of the revenue impact of any adjustments relating to the previous price review periods (for example, from reconciliation mechanisms);[979]

(e) targeting a credit rating at least two notches above minimum investment grade (BBB+/Baa1);[980]

(f) a dividend yield of 4%;[981] and

(g) use of equity to fund real RCV growth such that notional gearing does not increase materially from 55%;[982] where equity is requited to fund real RCV growth, an allowance of 2.5% of the equity raised is provided.[983]

Ofwat's PR24 FD approach

8.216 Ofwat set out that its financeability assessment considered whether, when all of the individual components of its PR24 FD are taken together (including totex,

[976] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p39.
[977] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p39.
[978] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p39.
[979] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p39.
[980] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, pp39–40.
[981] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p69.
[982] Ofwat (2022) PR24 Final methodology - Appendix 10 - Aligning risk and return, p40.
[983] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p68.

allowed return and retail margin, PAYG rates and RCV run-off), an efficient company with the notional capital structure would be able to generate cashflows sufficient to meet its financing needs.[984]

8.217 Ofwat targeted a credit rating two notches above the minimum investment grade (ie a target rating of BBB+/Baa1) for the notional company.[985] Ofwat updated its assessment to take account of the revised guidance published by Moody's but noted that neither Fitch nor S&P had updated their guidance between Ofwat's PR24 DD and PR24 FD.[986]

8.218 Ofwat considered guidance at Baa1/BBB+ for Adjusted Interest Cover Ratio (**AICR**) of 1.6x and an FFO/net debt of around 10% (equivalent to 9% in its alternative approach).[987] Ofwat noted that where average financial ratios are below defined guidance, it considered whether the financial ratios overall and in the round were consistent with the target credit rating.[988] Table 8.16 below sets out Ofwat's PR24 FD AICR and FFO/net debt for the Disputing Companies.

Table 8.16: Ofwat PR24 FD average financial ratios and other metrics for 2025-30

2025-30 average	*AICR*	*FFO/net debt*
Anglian	1.71x	8.45%
Northumbrian	1.68x	9.01%
Southern	1.70x	9.80%
South East	1.73x	8.90%
Wessex	1.73x	8.96%

Source: Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p70, Table 8. Note: we include FFO/net debt based on Ofwat's 'alternative' approach which recognises the full interest charge for ILD (rather than the cash interest charge in the standard version).

8.219 Ofwat also performed headroom tests in its financeability assessment. Ofwat reduced funds from operations in its PR24 FD, through an increase to costs or a reduction to revenue, to the point where the adjusted interest cover ratio is one.[989] Ofwat concluded that its determinations provided sufficient headroom for the Disputing Companies (on a notional basis) to withstand reasonable downside risk, which in severe cases could be mitigated by a reduction to dividends or the provision of further equity.[990]

[984] Ofwat (2024) PR24 final determinations Aligning risk and return, p58.
[985] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p69.
[986] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p69.
[987] Ofwat response to Ofwat RFI07, Q3, p6. Ofwat's 'alternative' approach recognises the full interest charge for index linked debt (rather than the cash interest charge in the standard version).
[988] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p69.
[989] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p72.
[990] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p73.

Parties' submissions

Disputing Companies

Notional capital structure

8.220 Anglian,[991] South East[992] and Southern[993] submitted that Ofwat's PR24 FD wrongly assumed that 90% of the opening ILD is linked to RPI. They stated that given for AMP8 companies would not have any RCV linked to RPI, it was not internally consistent to assume that the notional company would run this level of basis risk for such a large proportion of their index-linked debt, with a material mismatch between assets (linked to CPIH) and debt (linked to RPI).

8.221 Anglian also stated that the PR24 FD wrongly concluded that investors would make a sizeable equity injection into Anglian, to maintain gearing below 57.5%, on a notional basis whilst receiving negative net dividends over AMP8.[994] South East[995] and Southern[996] similarly stated that Ofwat wrongly assumed new equity investment would be available without a supporting equity financeability analysis.

8.222 South East[997] and Southern[998] submitted that a revised notional financing structure should be adopted, which reflected 100% CPIH-linked debt and debt financing costs consistent with the PR24 FD's methodology but increasing over time as embedded debt matures and new debt was issued.

8.223 Southern noted that the rating methodologies for Moody's and Fitch place significant weight on RCV gearing and coverage metrics such as AICR. These were largely independent constraints on ratings. Southern stated that 60% gearing typically implies a Moody's and Fitch rating of A3/A and that gearing was not a constraint for the notional company.[999]

8.224 Southern, South East and their advisers, KPMG, set out a number of arguments relating to the level of notional gearing: see 'Notional gearing' in chapter 7 (Allowed return) above.

Financeability of Ofwat's PR24 FD

8.225 Northumbrian said that it was unlikely that a notionally financed company would be able to attract the level of equity investment required to meet Ofwat's target credit

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[991] Anglian SoC, p182, paragraph 687.
[992] South East SoC, Annex H – risk and financeability, paragraph 21.
[993] Southern SoC, p91, paragraphs 201–202.
[994] Anglian SoC, p180, paragraph 681.
[995] South East SoC, Annex H – risk and financeability, paragraph 20(a).
[996] Southern SoC, p92, paragraph 215.
[997] South East SoC, Annex H – risk and financeability, paragraph 29.
[998] Southern SoC, p91, paragraph 203.
[999] Southern SoC, p502, paragraph 578.

rating under its financeability assessment. Northumbrian added that without the equity injections assumed, it calculated that the rating for the notionally financed company would fall to Baa2/BBB, and potentially further in future AMPs.[1000]

8.226 South East submitted that Ofwat's PR24 FD did not allow a notional company operating in its region to achieve the target credit rating.[1001]

8.227 Southern stated that the PR24 FD was not financeable for the notional company, and therefore the PR24 FD did not accord with Ofwat's financing duty in respect of debt.[1002]

Rating agency methodologies and thresholds

8.228 Northumbrian,[1003] South East[1004] and Southern[1005] submitted that updated rating agency guidance implied that Moody's AICR of at least 1.60x and S&P's FFO/net debt of at least 11% were needed for a BBB+/Baa1 rating. Anglian submitted that a minimum of 1.70x for Moody's AICR and 11% on S&P's FFO/net debt was needed for a BBB+/Baa1 rating.[1006]

8.229 Anglian,[1007] Northumbrian[1008] and South East[1009] also submitted a range of views on the appropriate thresholds for Fitch's nominal and cash post-maintenance interest cover ratio (1.80x nominal Post-Maintenance Interest Coverage Ratio (**PMICR**) and 1.70x cash PMICR).

8.230 The Disputing Companies submitted that when inferring S&P's FFO/net debt thresholds for the sector, we should use the Standalone Credit Profile (**SACP**) because S&P's instrument ratings are affected by structural features not relevant to the notional company, particularly covenanted financing structures.[1010]

Stress testing and sensitivities

8.231 Anglian submitted that the sector's ODI performance in AMP7 suggests that the likelihood for downside risk outweighs the likelihood of outperformance. Anglian referenced analysis from KPMG which modelled ODI penalties of £290 million over the period to test the impact of 'plausible but severe downside events' on Anglian's financial resilience on a notional basis. Anglian stated that this downside scenario would result in credit metrics consistent with a rating below or at

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[1000] Northumbrian SoC, p154, paragraph 587.
[1001] South East SoC, p88.
[1002] Southern SoC, p96, paragraph 239.
[1003] Northumbrian SoC, Appendix 1: Supporting information, Figure 24, p62.
[1004] South East SoC, p88, paragraph 7.23.
[1005] Southern SoC, p90, Table 11.
[1006] Anglian SoC, p181, paragraph 684.
[1007] Anglian SoC, p181, paragraph 684.
[1008] Northumbrian SoC, Appendix 1: Supporting information, Figure 24, p62.
[1009] South East SoC, p88, paragraph 7.23.
[1010] Disputing Companies' response to Disputing Companies RFI04, p4, paragraph 11.

Baa3/BBB- at Moody's and S&P and below investment grade at Fitch, which would result in cash lock-up.[1011]

8.232 Northumbrian stated that keeping revenue fixed as per Ofwat PR24 FD levels but spending the capex, opex and interest costs in line with its statement of case, would result in the notional company dropping a credit rating. Northumbrian added that this suggested that it was critical for notional financeability for the correct levels of totex and interest to be assumed in the price controls.[1012]

8.233 South East submitted that the notional company's financeability challenge then became more acute when considering expected (ie P50) performance. South East stated that if the notional company performs in line with P50 totex, ODIs, etc, it would face downgrading below investment grade with all credit rating agencies, calling into question its ability to satisfy Condition P of South East's licence, which requires it to maintain two investment grade credit ratings.[1013]

8.234 Southern submitted that, for the notional company, the PR24 FD debt financeability assessment assumed neutral operational and financing performance against its allowances, including that the actual cost of debt would be in line with that allowed. Southern stated that robust risk analysis indicated P50 performance equivalent to -3.75% RoRE for a notionally efficient company operating in its region, which should be considered when evaluating financeability.[1014] Southern stated that metrics would fall to levels consistent with sub-investment grade when accounting for P50 performance.[1015]

8.235 In their joint reply to Ofwat's response to the statements of case, the Disputing Companies submitted that RoRE underperformance of 2.4% in cash terms would jeopardise the ability of the notional company to maintain two Baa3/BBB- ratings. The Disputing Companies noted that RoRE underperformance of 2.4% is also below the 3% threshold at which the ASM would begin to mitigate ODI penalties.[1016]

Ofwat

Rating agency methodologies and thresholds

8.236 In its response to the Disputing Companies' statements of case, Ofwat reiterated the approach it took in the PR24 FD. Ofwat noted that it calculated AICR and FFO/net debt as the key credit metrics and also recognised that each credit rating agency applies its own methodology in assessing financial metrics, making

[1011] Anglian SoC, p182, paragraph 688.
[1012] Northumbrian SoC, Appendix 1: Supporting information, p73, paragraph 199.
[1013] South East SoC, pp88–89, paragraph 7.25.
[1014] Southern SoC, p91, paragraph 206.
[1015] Southern SoC, p95, Figure 4.
[1016] Disputing Companies (2025) Joint reply to Ofwat's responses, p10, paragraphs 44–45.

adjustments that may be specific to each company. Ofwat stated that this requires careful interpretation when considering the levels of financial ratios that should be considered for the purposes of the financeability assessment.[1017]

8.237 Ofwat stated that it took account of the changes to guidance published by the credit rating agencies in its PR24 FD to the extent the guidance was clear and relevant to the notional company.[1018] Ofwat noted that Moody's had updated its assessment of the stability and predictability of the regulatory environment from Aa to A ahead of final determinations, and tightened its guidance for adjusted interest cover for the target credit rating of Baa1 to at or above 1.6x (previously 1.5x) and gearing to at or below 68% (previously 72%).[1019]

8.238 Ofwat noted that S&P does not publish sector wide guidance for its assessment of financial metrics. Thresholds for companies can vary as a result of different assessments of business risk based on historical and expected levels of performance, and gearing levels relative to regulatory assumptions.[1020] Ofwat stated that it considered an FFO to net debt financial ratio of around 10% – equating to around 9% under a measure closer to S&P's methodology – to be consistent with a BBB+ rating, noting that it considered this to be guidance rather than an absolute minimum.[1021]

Stress testing and sensitivities

8.239 Ofwat submitted that, taking account of its interpretation of its duties, it did not consider that it was the role of the price determinations to protect companies under all scenarios. Ofwat added that investor returns should be at risk and as such, under severe downside scenarios, it may not expect a company to exhibit financial ratios consistent with the target credit rating in the short term. Ofwat stated that the target credit rating should not be considered a floor for stress testing as the target credit rating, itself, provides headroom to deal with cost shocks and other stressed scenarios.[1022]

8.240 Ofwat also noted that it had carried out its financeability assessment before taking account of revenue adjustments for PR19 reconciliations which totalled around £1.5 billion for the sector over 2025-30 and that this would provide additional headroom to the financial ratios for most companies.[1023]

[1017] Ofwat (2025) Response to common issues on risk and return, pp161–162, paragraph 9.46.
[1018] Ofwat (2025) Response to common issues on risk and return, p163, paragraph 9.52.
[1019] Ofwat (2025) Response to common issues on risk and return, pp162–163, paragraph 9.49.
[1020] Ofwat (2025) Response to common issues on risk and return, p164, paragraph 9.58.
[1021] Ofwat response to Ofwat RFI07, Q3, p5.
[1022] Ofwat (2025) Response to common issues on risk and return, p168, paragraphs 9.74–9.75.
[1023] Ofwat (2025) Response to common issues on risk and return, p169, paragraph 9.76.

Our assessment and provisional decision

Notional capital structure

8.241 The Disputing Companies made limited submissions on the calibration of Ofwat's notional capital structure, which can be categorised into the following areas:

(a) the level of notional gearing;

(b) the availability of new equity;

(c) which inflation measure ILD should be indexed to; and

(d) the profile of debt financing costs.

8.242 We set out our assessment of notional gearing in chapter 7 (Allowed return) above and the availability of new equity in the 'Investability' section below and therefore we do not repeat those points here.

8.243 Ofwat's assumption of 90% of opening ILD being linked to RPI broadly aligns with the actual financing structures observed in the sector, per Ofwat's PR24 FD cost of debt model.[1024] In addition, we note that the impact on financeability of revenues and the RCV being linked to CPIH and 90% of ILD being linked to RPI is reduced in our PD (compared to Ofwat's FD) as the wedge between RPI and CPIH has reduced from 90bps to 50bps.

8.244 On the profile of debt financing costs raised by Southern and South East, we note that the cost of debt used in the financial model is an average over the period, which reflects the average share of new and embedded debt over AMP8. Including an annual cost of debt which reflected the changing share of new debt, would alter the profile of interest costs in the financial model but not the average over AMP8. In addition, we note that it would be inconsistent to alter the cost of debt used for interest costs in the financial model but not the corresponding cost of debt used in the WACC to determine the allowed revenue. If both of these were updated there would not be an impact on financeability.

8.245 We therefore retain the notional capital structure assumptions used by Ofwat in its FD. The one exception being the estimate of long-term CPIH, which we set to 2.4%, as we discuss under 'Inflation and estimating the cost of capital in real terms' in chapter 7 (Allowed return) above.

[1024] Per Ofwat's embedded debt model, as of 31 March 2024 there was £21,423 million of RPI-linked debt and £2,354 million of CPI-linked debt equating to 90% RPI-linked ILD and 10% CPI-linked ILD. See Ofwat (2024) PR24-FD-RR02-Cost-of-debt.

Rating agencies methodologies and thresholds

8.246 In this section, we describe our approach to the use of credit ratios in the financeability assessment. The key area of disagreement between Ofwat and the Disputing Companies is the relevant thresholds for the credit ratios to target a Baa1/BBB+ credit rating.

8.247 Table 8.17 below shows the categorisation used by the key ratings agencies, with risk profile increasing from left to right. Consistent with Ofwat, we agree that the target rating for the notional company should be two 'notches' above the threshold for 'investment grade' ratings.

Table 8.17: Credit ratings used to assess

Investment grade											***Non-investment grade***					
S&P/ Fitch	AAA	AA+	AA	AA-	A+	A	A-	**BBB+**	BBB	BBB-	BB+	BB	BB-	B+	B	B-
Moody's	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	**Baa1**	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3

Source: CMA

8.248 We focus our financeability assessment on AICR and FFO/net debt for the notional company. With notional gearing at 55%, the level of gearing is not a constraint for the Baa1/BBB+ rating.[1025]

8.249 We set out below our assessment of the rating agency guidance and our conclusions on the relevant Baa1/BBB+ thresholds for AICR (interest cover ratios) and FFO/net debt.

Interest cover ratios

8.250 Moody's sets out ratio guidance for UK water utilities. Moody's updated its ratio thresholds in November 2024 to reflect its revised view of the sector's business risk. Moody's revised AICR guidance for a Baa1 rating is [✂]x, with [✂]x acting as a threshold for an A3 rating.[1026] Fitch's generic guidance for water companies sets out a range of around [✂]x[1027] for a BBB+ rating for its cash PMICR. However, we note that Fitch now [✂].[1028]

8.251 For our financeability assessment we target an AICR of 1.7x, but we note that an AICR below 1.7x may still be consistent with a Baa1/BBB+ rating.

[1025] For a Baa1 rating, Moody's includes gearing less than equal to 68%. Moody's (2024) Reduced predictability of regulatory environment pressures credit quality, Exhibit 4, p4. For BBB+ rating, Fitch includes gearing less than or equal to [✂]%. Fitch (2025) UK Water in AMP8: navigating challenges.
[1026] Moody's (2024) Regulated Water Utilities – UK, Sector in-depth, Exhibit 4, p4.
[1027] Fitch (2025) UK Water in AMP8: navigating challenges, p4.
[1028] Fitch (2025) UK Water in AMP8: navigating challenges, p4.

FFO/net debt ratios

8.252 In respect of FFO/net debt ratios, S&P does not publish sector wide guidance for ratio thresholds. We summarise below the individual FFO/net debt thresholds and whether they relate to a BBB+ or BBB rating (we do not include ratings for Class B debt). We note that S&P expresses ranges so that the bottom of a range is the threshold required to enter a given rating (or a 'tipping point' below which a company may be downgraded), and the top of a range indicates a 'tipping point' for upgrade to a higher credit rating.

Table 8.18: S&P FFO/net debt thresholds for BBB and BBB+ ratings

Company	Affinity Water Finance PLC	South Staffordshire Water	Yorkshire Water Services Finance Ltd.	Anglian Water Services Financing PLC	SES	Severn Trent	United Utilities
Volatility table	Medial	Medial	Medial	Medial	Medial	Low	Low
BBB+	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]
BBB	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]	[✂]

Source: S&P (2025) U.K. Water Regulatory Framework Support, Low Financial Flexibility In Coming Regulatory Period Drive Rating Actions, pp2–3.

8.253 Due to their small size, we do not place weight on the rating thresholds for South Staffordshire Water and SES for sector wide FFO/net debt thresholds in our financeability assessment. Excluding these companies, the bottom of the BBB+ thresholds ranges from [✂]% and the top of the BBB thresholds is [✂]%.

8.254 In our approach to assessing financeability, we use a target of 10.0% for FFO/net debt but note that an FFO/net debt lower than this (ie 8-9%) is likely to be consistent with a rating of Baa1/BBB+.

8.255 We note the Disputing Companies' argument that we should use the SACP rather than the rating and outlook as the SACP does not capture company specific structural features. However, in the absence of sector wide guidance on thresholds, the individual company thresholds will always reflect, to some extent, company specific features.

Our assessment of financeability

8.256 Credit ratio analysis assesses whether the determination, specifically the amount of cash generated from regulated activities, is consistent with rating agency expectations. We note that the underlying definitions of ratios and the accounting conventions used to present inputs are important. In particular the interaction between regulatory concepts (such as totex, PAYG rates and RCV run-off) and accounting concepts (in relation to whether a particular cost is expensed in a

single year or capitalised and subject to a periodic depreciation charge) affects the values of credit ratios. Accordingly, the point value of a single credit ratio at a particular point in time is not likely to be determinative in itself of the conclusion on financeability.

8.257 Ratings agencies consider a range of quantitative and qualitative factors to rate corporate debt issuers and individual financial instruments. We note that the overall assessment of a credit rating requires judgement about the overall quality of credit with respect to a broad range of factors that contribute to a ratings assessment. Although financial ratios play an important role in the assessment of credit ratings, these are not applied mechanistically by agencies. We consider that caution is required in a financeability assessment to avoid placing undue emphasis on the value of a particular ratio.

8.258 However, we, and Ofwat, approach financeability by assessing the notional company, for which we do not have an assessment of the qualitative factors considered by rating agencies and therefore our focus is on key ratios.

8.259 In order to calculate ratios, we have used Ofwat's financial model which calculated the ratios that reflect our decisions on totex allowances, cost of capital and the assumptions on the notional capital structure as set out above.

8.260 Table 8.19 sets out the average AMP8 AICR and FFO/net debt for the Disputing Companies based on our provisional determinations. Our analysis assumes that the Disputing Companies will spend in line with their totex allowances and have no out or underperformance on ODIs or financing. We consider potential downside sensitivities and their impact on financeability in the section below.

Table 8.19: CMA provisional average financial ratios and other metrics for 2025-30

2025-30 average	*AICR*	*FFO/net debt*
Anglian	1.75x	9.8%
Northumbrian	1.74x	9.4%
Southern	1.76x	10.3%
South East	1.78x	9.3%
Wessex	1.78x	9.3%

Source: CMA analysis. Note, we include FFO/net debt based on Ofwat's 'alternative' approach which recognises the full interest charge for interest-linked debt (rather than the cash interest charge in the standard version).

8.261 As set out above, we target AICRs of 1.70x and this threshold is met by all of the Disputing Companies, with additional headroom. Only Southern has an FFO/net debt above 10%, however, as noted above, given the lack of sector wide guidance on FFO/net debt thresholds, we consider FFO/net debt of 8-9% would still be consistent with a Baa1/BBB+ rating, and all the Disputing Companies have an FFO/net debt above 9% on a notional basis.

Stress testing and sensitivities

8.262 In understanding whether our determinations impose reasonable financial risks on the water companies, the financial exposure that the companies face to downside risks is relevant. We have considered the size of exposure of the Disputing Companies modelled financial ratios to reasonable downside scenarios.

8.263 As a downside sensitivity for the exposure on totex and ODIs, we have modelled the impact of:

(a) a 1% RoRE penalty incurred by the firm in each year of the price control; and

(b) a 2% RoRE penalty in two years of the price control, with a 1% RoRE penalty in the remaining years.

8.264 We have modelled the impact of the downside sensitivities as in-year revenue shocks. We note the following on this approach:

(a) in practice, ODI shocks would be incurred with a two-year lag but for simplicity we model downsides in-year; and

(b) modelling downsides as a revenue shock will reflect the cash-flow impacts of ODI penalties and operating cost overspends. A capital expenditure overspend would have less of an impact on key ratios as it would not impact the numerator (eg FFO), but only the denominator (eg interest costs and net debt).

8.265 These downsides are implemented on a cash basis and assume the RoRE impact is net of mitigants such as cost sharing. These scenarios also assume consistent underperformance across all five years of the AMP, including two years of relatively significant underperformance (2% of RoRE) in one of the scenarios.

Table 8.20: downside sensitivities impact on AICR, FFO/net debt and gearing

Key ratios	***Anglian***	***Northumbrian***	***Southern***	***South East***	***Wessex***
AICR					
Base case	1.75x	1.74x	1.76x	1.78x	1.78x
RoRE downside: 1% in all years	1.53x	1.51x	1.54x	1.56x	1.56x
RoRE downside: 1% Y1/4/5, 2% in Y2/Y3	1.44x	1.42x	1.45x	1.47x	1.47x
FFO/net debt					
Base case	9.8%	9.4%	10.3%	9.3%	9.3%
RoRE downside: 1% in all years	8.6%	8.3%	9.1%	8.1%	8.2%
RoRE downside: 1% Y1/4/5, 2% in Y2/Y3	8.1%	7.8%	8.6%	7.7%	7.7%
Gearing					
Base case	55.5%	55.8%	55.5%	55.9%	55.6%

Key ratios	*Anglian*	*Northumbrian*	*Southern*	*South East*	*Wessex*
RoRE downside: 1% in all years	56.9%	57.2%	56.9%	57.4%	57.0%
RoRE downside: 1% Y1/4/5, 2% in Y2/Y3	57.6%	57.9%	57.6%	58.1%	57.7%

Source: CMA analysis. Note, we include FFO/net debt based on Ofwat's 'alternative' approach which recognises the full interest charge for interest-linked debt (rather than the cash interest charge in the standard version).

8.266 We observe that in the first downside scenario (an annual 1% RoRE penalty) the ratios for the notional company are more in line with a credit rating of BBB/Baa2 than BBB+/Baa1. In the more severe scenario (with 2% RoRE downside in two years), the metrics, as expected, worsen but remain consistent with an investment grade rating. Predicting the impact on the credit rating in these downsides is difficult, as it will depend on whether the shock is one-off or persistent and an overall assessment in the round by the ratings agencies, as we noted earlier. However, overall we are satisfied that an investment grade rating can be maintained in reasonable downside scenarios.

8.267 Cognisant of (i) our assessment of the package as a whole and (ii) the need to maintain incentives for companies to achieve cost efficiency and perform in line with targets, we consider that the outcomes of these tests are likely to demonstrate sufficient headroom for notionally structured companies. We also note that these downsides do not factor in any mitigants. For example, we do not assume any new equity is injected as can be seen by the increase in gearing in the downside scenarios. If a company is consistently underperforming, it would be reasonable for equity investors to provide support and/or other mitigants be considered.

8.268 Finally, we note that we broadly agree with Ofwat that it is not the role of the price control settlement to provide protection against a ratings downgrade in all downside scenarios.

Conclusions on financeability

8.269 Our provisional view is that we have taken an approach to the wider determination which properly takes account of the risks of setting allowances too high and too low. We have re-assessed the WACC and wholesale totex requirements. Our provisional view is that our revised totex allowances represent a reasonable level of costs foreach of the Disputing Companies. We have reduced some of the downside risks in the outcomes package relative to Ofwat's PR24 FD. Each of these factors improves financeability.

8.270 In line with regulatory practice, we have also completed a financial ratio analysis based on the approach taken by the credit rating agencies (in particular regarding the level of cash flow) and provisionally concluded that this supports the view that our provisional determinations are financeable. Our base case ratio analysis

produces ratios broadly consistent with a strong investment grade credit rating (BBB+/Baa1). We have also considered a range of downside sensitivities and concluded that the notional company can maintain an investment grade credit rating.

Investability

8.271 We interpret 'investability' (which is also sometimes referred to as equity financeability) as consideration of whether the overall package is such that the notional company can attract and retain the equity investment required.

8.272 In its PR24 final methodology, Ofwat concluded that equity financeability was best addressed by setting an allowed return on equity based on market data and setting a balanced package of risk and reward. It included dividend yields in the suite of financial metrics to reflect its expectations of reasonable dividend policies but did not consider the need to include any additional metrics or analysis (in addition to what was already considered elsewhere) with regard to equity financeability.[1029]

Ofwat's PR24 FD approach

8.273 In its PR24 FD, Ofwat responded to concerns raised by companies in their PR24 DD representations regarding the investability of Ofwat's determinations.[1030]

8.274 Ofwat stated that it had addressed company concerns relating to investability by selecting an allowed return on equity towards the top of its range.[1031] Ofwat also noted that it made further adjustments to the balance of risk and return and introduced the OAM alongside the ASMs for costs and outcomes.[1032]

8.275 Ofwat noted that some investors valued a stable income stream, whereas other investors preferred growth of their investment. Ofwat stated that it had changed its approach to maintain the dividend yield at 4% irrespective of the level of RCV growth and that the equity required to fund investment growth was provided through new equity rather than an increase in retained earnings.[1033] Ofwat noted that it provided an allowance of £0.3 billion for the costs of issuing £12.7 billion of new equity.[1034]

8.276 Ofwat stated that it was for each company to decide when and to what extent it requires new equity over 2025-30 and beyond. Ofwat also said that it was also for each company to decide how it obtained that equity, through retained earnings

[1029] Ofwat (2022) PR24 final methodology: Aligning risk and return – appendix, p46.
[1030] Ofwat (2024) PR24 Final Determinations Aligning Risk and Return, p10.
[1031] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p75.
[1032] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p75.
[1033] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p75.
[1034] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p76.

and/or through new equity issuance. Ofwat considered its PR24 FD provided the basis for an efficient company to make those choices.[1035]

Parties' submissions

8.277 We note that the submissions relating to investability at times overlap with financeability. The majority of the other arguments raised by the Disputing Companies, and their advisers, in relation to investability are concerned with:

(a) setting a sufficient allowed return, including drawing on cross-check evidence in addition to the CAPM; and

(b) ensuring an appropriate balance of risk and return.

8.278 We discuss the points raised by the Parties in relation to the allowed return, including the use of cross-checks, and set out our provisional view of the allowed return in chapter 7 (Allowed return). Similarly, we consider submissions relating to the overall balance of risk and return and the calibration of risk mechanisms such as the ASM and the OAM, earlier in this chapter. We therefore do not repeat submissions already covered earlier in this chapter and in the preceding chapters for the relevant building blocks.

Disputing Companies

General points on investability

8.279 Each Disputing Company submitted that there were increasing requirements for debt and equity investment in the water sector in AMP8 due to the large capital programme. The Disputing Companies noted that it was important to ensure that the allowed return was sufficient and there was an appropriate balance of risk and reward so that the sector was able to attract the required investment.[1036]

8.280 Northumbrian and Southern also stated that attracting this finance means ensuring that investors, who can invest anywhere in the world in any sector, consider that the returns on offer in UK water adequately compensate them for the risks that they are taking.[1037]

8.281 Southern stated that a robust approach to assessing investability should include the following quantitative and qualitative tests:[1038]

[1035] Ofwat (2024) PR24 final determinations: Aligning risk and return – appendix, p76.
[1036] Wessex SoC, p87. paragraphs 10.4–10.7. Northumbrian SoC, pp14–15, paragraph 43, South East SoC, p85, paragraphs 7.1–7.2. Southern SoC, p97, paragraph 241. Anglian SoC, p165, paragraph 629.
[1037] Northumbrian SoC, p15, paragraph 44, Southern SoC, p97, paragraph 242.
[1038] Southern SoC, p99, paragraphs 250 and 252.

(a) the expected (P50) equity return for the notional company should be equal to the allowed cost of equity;

(b) the expected excess equity return over a risk-free benchmark for the notional company should be in line with, or above, market benchmarks for comparable investments;

(c) risk exposure for the notional company should be in line with what would typically be considered appropriate for a regulated utility;

(d) the regulatory framework should be one where there is a high degree of stability and predictability of regulatory decisions; and

(e) the notional company should not be exposed to significant, open-ended downside risk, including the prospect of being unable to achieve a positive dividend yield across the regulatory period.

8.282 Southern concluded that the notional company would fail all five investability tests under Ofwat's PR24 FD and be unable to attract the capital required in AMP8.[1039]

8.283 Anglian submitted that to ensure the notional company's investability over AMP8 and beyond the CMA should:[1040]

(a) revise the WACC, RCV run-off rates and retail margin so that it provides a sufficient return for an investor in the notional company, and confirm that the cost of equity is expected to increase over future AMPs to provide reasonable certainty to investors over the investment time horizon; and

(b) address or mitigate risks in the PR24 FD at source where reasonably practicable to do so.

Oxera analysis

8.284 Anglian submitted a report from Oxera, on investability and financeability.[1041]

8.285 Oxera submitted that the water sector faced a steep increase in investment requirements across the coming decades and that water companies were at the start of a multi-AMP period of significant RCV growth, which would be the fastest rate since privatisation.[1042]

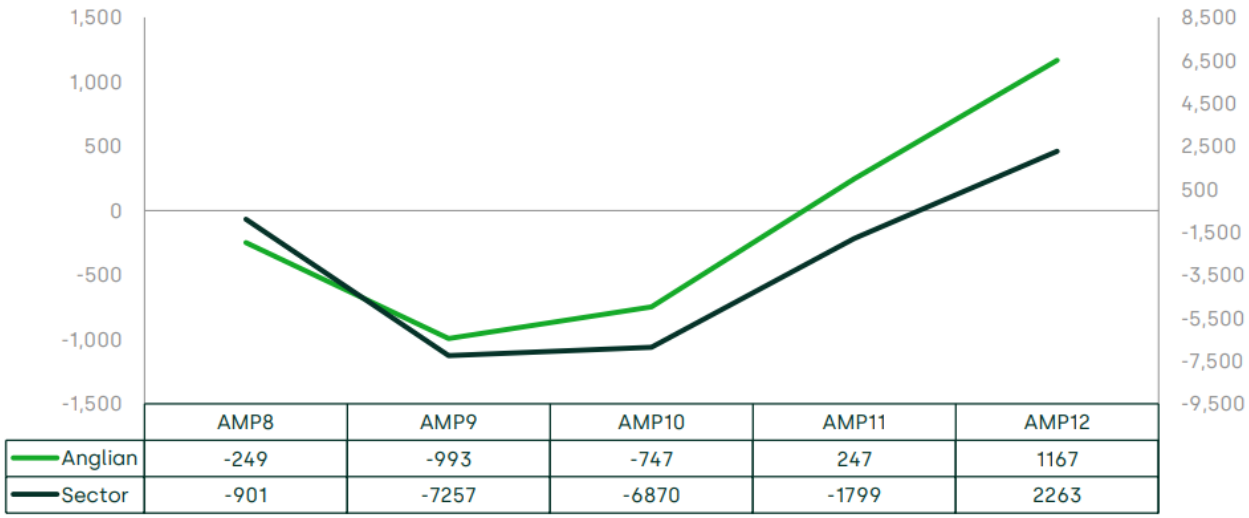
8.286 Oxera stated that its analysis showed that, at the sector level, even if all base returns were retained to fund investment (ie no dividends are paid), net new equity

[1039] Southern SoC, p101, paragraph 264.
[1040] Anglian SoC, p166, paragraph 635.
[1041] Oxera (2025) Investability and Financeability in PR24.
[1042] Oxera (2025) Investability and Financeability in PR24, p3, section 1.1.

would still be required for the notional company in AMP8 and AMP9. Oxera noted that notwithstanding Ofwat's dividend payment assumptions for the notional company in the PR24 FD, investors would face an 'implied net dividend' that was negative for at least ten years from the start of AMP8.[1043]

8.287 Oxera submitted Figure 8.3 below to show its analysis of cumulative returns to investors in the water sector. Oxera noted that on average, based on Ofwat's notional company, investors would only receive net positive dividends partway through AMP11 – over 15 years after the initial AMP8 investment. Oxera stated that even upon achieving net positive cash flows, investors would not receive a reasonable dividend yield on their investments, even up to AMP12.[1044]

Figure 8.3: Oxera analysis of cumulative net dividends, Anglian v Sector (WaSCs only), no de-gearing (£m real, 2022/23 prices)



	AMP8	AMP9	AMP10	AMP11	AMP12
Anglian	-249	-993	-747	247	1167
Sector	-901	-7257	-6870	-1799	2263

Source: Oxera (2025) Investability and Financeability in PR24, p9, Figure 1.5.

8.288 Referencing Oxera's analysis, Anglian submitted that its investors would not receive a reasonable dividend yield on their investments even by AMP12. Anglian added that no reasonable investor would accept this, no matter how long-term focused they are, especially considering what the current profile in the sector signals for future risks.[1045]

Ofwat

General points on investability

8.289 Ofwat stated that it maintained that its PR24 FD would allow an efficient company with the notional capital structure to raise the required equity. Ofwat explained that

[1043] Oxera (2025) Investability and Financeability in PR24, p7, section 1.3.
[1044] Oxera (2025) Investability and Financeability in PR24, p7, section 1.3.
[1045] Anglian SoC, p182, paragraph 689.

the recalibration of expenditure allowances and performance targets – together with the changes to the overall risk and return package and its decision to set an allowed return on equity towards the top of its range – aimed to support companies to raise the necessary levels of equity finance in the 2025-30 period. Ofwat added that where equity was not forthcoming, a dividend restriction, even to zero, would provide material additional support across the sector for companies to meet their investment requirements.[1046]

8.290 Ofwat stated that the levels of investment growth in 2025-30 and beyond provided significant opportunities for investors. Ofwat submitted that there were opportunities for investors to earn enhanced returns where companies delivered high levels of performance to customers and where companies outperformed, this would support equity financeability and support companies to raise necessary finance at efficient cost.[1047]

Oxera analysis

8.291 Ofwat noted that, given evidence of companies scaling equity injections in a manner that supported the ongoing payment of dividends, in its PR24 FD it had accepted that it was appropriate to amend the approach in its financeability assessment, to apply a 4% dividend yield and the greater use of equity injections. Ofwat referenced recent equity raises by National Grid and Severn Trent which scaled up their issuance requirements to maintain dividend yields. Ofwat stated that this appeared to contradict evidence provided to the CMA that the sector would have to wait until 2040 before seeing any cash dividend.[1048]

Recent equity raises

8.292 In its response to the Disputing Companies' statements of case, Ofwat noted that a number of equity injections in the water sector, which went beyond statements made by companies as part of the PR24 process, supported the view that the sector remains 'investable'.[1049]

(a) South West Water did not consider equity financing to be necessary in either its business plan or its PR24 DD representation. However, its group had carried out a rights issue in January 2025, successfully raising £490 million of new equity.

(b) South East raised £75 million equity in December 2024. While this was to improve the company's liquidity position, this was additional to the £75 million

[1046] Ofwat (2025) Response to common issues on risk and return, p153, paragraph 9.11.
[1047] Ofwat (2025) Response to common issues on risk and return, pp153–154, paragraph 9.12.
[1048] Ofwat (2025) Response to common issues on risk and return, pp160–161, paragraph 9.41.
[1049] Ofwat (2025) Response to common issues on risk and return, pp4-5, paragraph 1.4.

to £125 million equity that its investors had already proposed as necessary to support investment in the 2025-30 period.

(c) Affinity proposed no new equity in its PR24 DD representations. It had since confirmed that its investors had entered into a legally binding, unconditional agreement to inject into it £150 million equity before 31 March 2026.

(d) Southern announced that it would raise £900 million of committed equity to support its 2025-30 investment programme. Ofwat noted that this announcement, made in February 2025, after Ofwat's PR24 FD, is greater than the £650 million proposed in its PR24 DD representation.

Disputing Companies' reply to Ofwat

Recent equity raises

8.293 In their joint reply to Ofwat's response, the Disputing Companies stated that the equity raises cited by Ofwat were not a holistic assessment of the investability of the sector. The Disputing Companies also noted that Pennon was targeting outperformance of approximately two percentage points of regulatory equity yet raised equity at a discount to RCV.[1050]

8.294 The Disputing Companies stated that the equity raises referenced by Ofwat represented only £1.6 billion of the £12.6 billion notional equity investment Ofwat assumed in the PR24 FD, and that Ofwat's response ignored the conditions upon which the equity was raised. For example, the Disputing Companies noted that the stated equity raises for Southern and South East were to support lower gearing and credit ratings, rather than a vote of confidence for the PR24 FDs.[1051]

8.295 The Disputing Companies noted that Ofwat did not report the value that Pennon shares traded at prior to the rights issue – which was a 3% discount to RCV (ie MAR below one) with zero market value attributed to the non-appointed businesses – nor that the rights issue was at a 35% discount.[1052]

8.296 The Disputing Companies added that Pennon was targeting a 7% equity return, as confirmed in its investor presentation at the launch of the rights issue, which represented an implied return on equity significantly higher than that allowed by Ofwat's PR24 FD and that this cannot be argued to be supportive of the investability of the notional water company.[1053]

[1050] Disputing Companies (2025) Joint reply to Ofwat's responses, p7.
[1051] Disputing Companies (2025) Joint reply to Ofwat's responses, p7, paragraph 29.
[1052] Disputing Companies (2025) Joint reply to Ofwat's responses, paragraph 30.
[1053] Disputing Companies (2025) Joint reply to Ofwat's responses, paragraphs 30–31.

Third parties

8.297 Pennon submitted that the cost of capital set by Ofwat in the PR24 FD was appropriate and consistent with the market conditions at that time. Pennon noted that following the PR24 FD, it successfully raised £490 million in equity. Pennon added that this clearly signalled investor confidence in the regulatory package and Pennon's ability to deliver within it.[1054]

8.298 Yorkshire Water submitted that ensuring the water sector is attractive to investors was crucial to delivering the service and environmental outcomes expected by its customers, and for the industry to comply with its legal obligations. Yorkshire Water added that it had significant concerns with the approach in Ofwat's PR24 FD on the WACC and balance of risk and return.[1055]

Our assessment and provisional decision

8.299 We do not repeat our assessment of the individual building blocks or the balance of risk and return here and instead focus our assessment on new issues raised in relation to investability, notably:

(a) Oxera's analysis on net dividend payments; and

(b) recent equity raises in the sector.

8.300 Southern set out a series of tests (see paragraphs 8.281(a) to (e)) for assessing investability. As set out above, we have addressed tests (a) to (d) through our assessment of the individual building blocks in our provisional determination. We cover (e) in our discussion of Oxera's analysis on net dividend payments.

8.301 Anglian argued that the required cost of equity was likely to increase in future AMPs, and certainty was needed for investors to invest over the long term. As set out in chapter 7 (Allowed return) there is significant uncertainty in estimating the cost of equity. This uncertainty increases as we look further ahead in time and it is not reasonable for us to estimate the market cost of equity for future AMPs. It certainly would not be appropriate for us to speculate on whether the allowed return on equity would need to increase in future AMPs.

Oxera analysis

8.302 Oxera's analysis of 'net dividend' payments for the notional company set out that, at a sector level,[1056] equity investors would not receive cash payments over and above total injected equity until AMP10. Oxera characterises this as an investment

[1054] Pennon (2025) Third Party Submission on the Water PR24 References, pp1–2.
[1055] Yorkshire Water (2025) Third Party submission on the Water PR24 References, p2.
[1056] Oxera's analysis defines the sector as the WaSCs only.

proposition which has shifted to a materially longer and uncertain payback period.[1057] Oxera's suggested remedies for increasing net cash returns (or 'payback') to equity investors were (i) increasing run-off rates; and (ii) increasing the allowed return.[1058]

8.303 In our view – particularly in the context of a sector going through a high capital investment phase and that sector being a regulated monopoly – it is not reasonable for equity investors to expect short (ie within 5 to 10 years) 'payback' periods, meaning that (i) all new equity injected to fund investment is returned through cash dividends, and (ii) additional dividend payments are made over and above this to form a 'net dividend', within a short timeframe. We provisionally consider that the current framework provides for sufficient returns to equity shareholders, which can materialise in a few ways. Examples are set out below.

(a) Companies can continue to maintain a stable dividend yield which provides cash dividend payments to shareholders. Equity injections can be scaled up to maintain this level of dividend yield. Depending on whether the new equity comes from new or existing shareholders, this may allow existing investors to maintain an income stream, without needing to provide additional capital (although the choice not to participate in supporting the growth of the capital base will come at a cost of longer-term dilution of their holdings).

(b) Companies can restrict dividends and reinvest more of their retained earnings to fund the growth in the capital base. The reinvested earnings still belong to shareholders but investors can forego an immediate cash return, in exchange for reducing the need for new equity to fund the growth in the capital base (which can increase the value of their shares).

8.304 In our view, a reduction in net cash outflows to equity holders (or 'net dividends' as described by Anglian) is likely to be a feature of any period of high capital investment, including for companies in competitive markets. Put simply, a company cannot do both when it is in a high capex environment: (1) maintain a steady dividend yield; and (2) not expect shareholders to provide any capital to fund the capital programme. We find Oxera's concept of a 'net dividend' not meaningful, in this context.

8.305 In the context of the regulated water sector, we provisionally consider that – given the high capex phase expected over the AMP8 period – the package is likely to provide sufficient returns to shareholders to allow for equity financeability when considering: (i) our relatively high point estimate within our range when setting the allowed cost of equity (see below); a (ii) 4% cash dividend yield provided for in our

[1057] Oxera (2025) Investability and Financeability in PR24, p11.
[1058] Oxera (2025) Investability and Financeability in PR24, p2.

financial modelling, which increases allowed revenue by providing an allowance for equity issuance; and (iii) an RCV indexed with inflation.

8.306 We note Oxera's arguments to increase run-off rates to increase net cashflows to equity investors. We set out above our approach to setting cost recovery rates, including run-off rates. Increasing run-off rates does not change the NPV of future cashflows to equity investors, it simply changes the timing of these cashflows, and therefore this is value-neutral for investors. Instead, cashflows increase in the short-term but reduce in future due to the accelerated RCV run-off. Given Oxera's arguments that the high levels of capital investment are likely to be sustained over multiple price controls, we do not think that higher run-off rates to improve short-term cashflows is an appropriate remedy.

8.307 With respect to arguments around increasing the rate of return, we note that while different sets of investors might have different preferences around the timing of cash flow returns, this does not affect the required rate of return on equity in the CAPM. Further, as noted above, the companies have flexibility to choose the right balance between maintaining dividends and equity injections, to cater to their investor preferences.

8.308 Further, in chapter 7 (Allowed return) above, we set out our allowed return on equity of 5.90%, which represents a point estimate 30bps above the mid-point of our CAPM range. When selecting our point estimate we considered the Disputing Companies' ability to raise the required debt and equity, and the welfare impacts of underinvestment.

Recent equity raises

8.309 In addition to the equity raises cited by Ofwat in its response (see paragraph 8.292 above), there have been a number of additional equity raises in the sector.

(a) South East raised £200 million from existing shareholders in May 2025, to reduce gearing below 65% and reinforce its financial stability.[1059]

(b) Anglian announced unconditional and legally binding commitments to inject £500 million into its group, pro-rata to their current shareholdings. Anglian noted that the investment reflected shareholders' continuing confidence in both the business and the strength of its arguments to the CMA, as well as government's recent commitment to address the long-term attractiveness of the sector to investors.[1060]

[1059] Result of Equity Issue - 14:00:00 15 May 2025 - 53HO News article | London Stock Exchange (accessed 28 August 2025)
[1060] Anglian Water announces £500m shareholder equity injection (accessed 28 August 2025).

(c) Southern announced in July 2025 an equity support package totalling up to £1.2 billion comprising an initial £655 million of binding equity commitments with up to a further £545 million intended to be committed by December 2025.[1061]

8.310 We note that the reasoning for these recent equity raises from South East, Anglian and Southern are relating to debt restructuring or improving the financial resilience of the company. However, it is further evidence that investors are willing to commit new equity into the sector.

8.311 With regard to Pennon's rights issue, the price discount does not necessarily imply that Ofwat's cost of equity is too low. Rights issues are typically done at a discount to incentivise participation. The rights price does not indicate the intrinsic value of the business.[1062] However, we recognise that Pennon is targeting outperformance and this may be influencing its current share price (following the rights issue) and consequently the MAR.

8.312 As set out in our MARs analysis (see 'Market-to-asset ratios' in chapter 7 (Allowed return) above), Pennon's MAR was above 1.0x as of June 2025 (see Table 7.14) and the MARs for United Utilities and Severn Trent were 1.14x and 1.17x respectively. These observed metrics do not obviously raise concerns on the allowed return on equity. Our provisional determinations also adjust the overall package to support investment from the Disputing Companies to better deliver for customers and the environment.

Provisional conclusions

8.313 We recognise that the capital programme in AMP8 and beyond results in a significant increase in the required levels of equity and debt investment in the sector and it is crucial these determinations are set in a manner such that the Disputing Companies are able to raise finance to fund these activities.

8.314 There is no mechanism for guaranteeing that water companies will be able to raise the necessary capital in AMP8, and a number of factors relating to actual company performance and financial resilience may influence outcomes. However we consider that overall our provisional decision is investable for the following reasons.

(a) We have assessed the allowed return afresh, reflecting the latest market data and evidence. We have also selected a point estimate for the allowed return on equity above the mid-point of our CAPM range, recognising that the sector

[1061] Capital Reorganisation - 08:41:41 01 Jul 2025 - BU33 News article | London Stock Exchange (accessed 28 August 2025).
[1062] Allen, F, Brealey, RA, Edmans, A and Myers, SC (2022) Myers, *Principles of Corporate Finance: Fourteenth edition*, pp419–420.

needs to attract significant amounts of new capital to deliver the large-scale investment programme, the delivery of which is in long-term customer interests.

(b) We have updated the cost allowances and made some targeted adjustments to the outcomes package, to ensure efficient costs are funded and that performance targets are stretching but achievable.

(c) We have considered the arguments around the balance of risk and reward and have satisfied ourselves that the package is broadly balanced.

(d) We have tested the financeability of a notional company, including against reasonable downside scenarios, and have concluded that the notional company can maintain an investment grade credit rating.

(e) We have retained an assumption of a cash dividend yield of 4%, regardless of RCV growth. We have also funded equity issuance costs of 2.5% for notional company structures, which increases allowed revenues.

8.315 We are of the view that our provisional determinations provide an investable settlement for the Disputing Companies on a notional basis.

Tax

8.316 Ofwat's calculation of allowed revenues included an allowance for corporation tax. However, the large investment programme in AMP8 along with the ability to deduct the full capital expenditure from taxable revenue means that the tax allowance in Ofwat's PR24 FD had a zero contribution to allowed revenues and customer bills for all of the Disputing Companies for the 2025-30 period.[1063] None of the Disputing Companies challenged Ofwat's approach to tax allowances.

8.317 We have retained Ofwat's tax allowance methodology in our calculation of allowed revenues and customer bills for these provisional determinations. This results in a zero tax allowance for all of the Disputing Companies.

[1063] Ofwat (2024) PR24 Final Determinations Aligning Risk and Return, p37.

9. Provisional determinations

Introduction

9.1 In this chapter we set out, by way of summary, various tables reflecting the provisional determinations set out above in this report.

9.2 In particular, this chapter provides:

(a) our provisional determinations on the base cost allowance for each Disputing Company (Table 9.1 below);

(b) our provisional determinations on the enhancement cost allowance for each Disputing Company (Table 9.2 below);

(c) our provisional determinations on each Disputing Company's wholesale totex (Table 9.3 below);

(d) our provisional determinations on requested revisions to PCDs, ODIs, the ASM and the OAM compared to Ofwat's PR24 FD (Table 9.4 and paragraphs 9.7 to 9.9 below);

(e) our provisional determinations on the appropriate level of the cost of capital, compared with the views of Ofwat and Disputing Companies (Table 9.5 below);

(f) our provisional determinations on Appointee allowed revenue for each Disputing Company (Table 9.6 below) and allowed revenue for AMP8 based on our provisional determinations (Table 9.7 below); and

(g) the indicative impact of our provisional determinations on average annual customer bills (Table 9.8 below).

Expenditure (base cost allowance) – provisional determinations

9.3 Our provisional determinations on the base cost allowance for each Disputing Company are set out in Table 9.1.

Table 9.1: Implication of provisional determinations on each Disputing Company's base allowance, including variations from Ofwat's PR24 FD (£ million, 2022/23 CPIH real prices, over 5 years)

	Anglian	*Northumbrian*	*South East*	*Southern*	*Wessex*
Ofwat PR24 FD allowances (before frontier shift)	6,121	3,614	1,282	4,080	2,232
CMA provisional determination changes (before frontier shift)					
Base modelling updates (water and wastewater); and real input price inflation and energy adjustment set to zero	-93	-84	40	80	39
Sector Wide CACs	36	35	13	46	9
Other Cost adjustment claims (ie removal of allowances for growth at WTW)			-14	-19	-5
Total CMA provisional determination changes	**-57**	**-49**	**39**	**107**	**44**
Total base allowance from CMA provisional determination (before frontier shift)	**6,064**	**3,565**	**1,321**	**4,186**	**2,276**
Adjustment for frontier shift	-134	-77	-31	-99	-54
Total base allowance from CMA provisional determination (after frontier shift)	**5,930**	**3,488**	**1,290**	**4,087**	**2,222**
Ofwat PR24 FD allowance (after frontier shift)	5,996	3,542	1,255	3,991	2,183
% change vs Ofwat's PR24 FD (after frontier shift)	***-1.1%***	***-1.5%***	***2.8%***	***2.4%***	***1.8%***

Source: CMA analysis. Disputing Companies' total base expenditure allowance (£m)
Note: Totals include base expenditure allowances for: wholesale water, wastewater network plus, bioresources, and retail AMP8 total.

Expenditure (enhancement cost allowance) – provisional determinations

9.4 Our provisional determinations on the enhancement cost allowance for each Disputing Company are set out in Table 9.2 below.

Table 9.2: Implication of provisional determination on each Disputing Company's enhancement allowance, including variations from Ofwat's PR24 FD (£ million, 2022/23 CPIH real prices, over 5 years)

£m	*Anglian*	*Northumbrian*	*South East*	*Southern*	*Wessex*
Ofwat PR24 FD allowance (before frontier shift)	5,092	2,660	580	4,618	2,100
CMA provisional determination changes					
Benchmark models	*-73*	*157*	*0*	*-18*	*240*
Individual assessments	*-6*	*11*	*61*	*6*	*0*
Schemes moved to RAPID or large scheme gated processes	*0*	*-148*	*-9*	*-81*	*0*
Total CMA provisional determination changes	**-79**	**20**	**52**	**-92**	**240**
Total enhancement allowance from CMA provisional determination (before frontier shift)	**5,013**	**2,680**	**632**	**4,526**	**2,340**
Adjustment for frontier shift	-54	-22	-7	-36	-28
Total enhancement allowance from CMA provisional determination (after frontier shift)	***4,959***	***2,658***	***625***	***4,490***	***2,312***
Ofwat PR24 FD allowance (after frontier shift)	4,975	2,611	566	4,539	2,048
% change vs Ofwat's PR24 FD (after frontier shift)	*-0.3%*	*1.8%*	*10.3%*	*-1.1%*	*12.9%*

Source: CMA analysis.

Totex (ie total expenditure) – provisional determinations

9.5 Our provisional determinations on each Disputing Company's wholesale totex are in Table 9.3. That table shows total cost allowances as set out in our provisional determination for each Disputing Company split between base and enhancement costs before frontier shift and RPE, including Retail costs, but excluding third party costs and other costs (eg equity issuance costs). The cost allowances presented are representative of total expenditure, covering both operational (opex) and capital expenditure (capex) for AMP8.

Table 9.3: CMA provisional determinations on totex by type of cost, 2025–30 (£ million, 2022/23 CPIH real prices)

£m	*Anglian*	*Northumbrian*	*South East*	*Southern*	*Wessex*
Ofwat PR24 FD totex allowances (after frontier shift and real price effects)	10,971	6,153	1,821	8,530	4,231
CMA provisional determinations totex allowances (after frontier shift and RPEs)					
Base cost allowances	5,930	3,488	1,290	4,087	2,222
Enhancement cost allowances	4,959	2,658	625	4,490	2,312
CMA provisional determination totex allowances (after frontier shift and real price effects)	**10,889**	**6,146**	**1,915**	**8,577**	**4,534**
CMA provisional determination vs Ofwat FD	*-82*	*-7*	*94*	*47*	*303*
% change CMA provisional determination vs Ofwat FD	*-0.8%*	*-0.1%*	*5.2%*	*0.6%*	*7.2%*

Source: CMA analysis

PCDs and ODIs, ASM and OAM – provisional determinations

PCDs and ODIs

9.6 Our provisional determinations on requested revisions to PCDs and ODIs from Ofwat's PR24 FD are set out in Table 9.4 below.

Table 9.4: CMA provisional determinations on requested revisions to PCDs and ODIs compared to Ofwat PR24 FD

Category	*Performance commitment*	*CMA provisional decision compared to Ofwat PR24 FD*
PCDs applied to enhancement costs	Metering	No change
	Lead	No change
PCDs applied to base costs	Mains renewal	No change
	Network reinforcement	No change
Non-delivery PCD clawback arrangements		No change, subject to Ofwat's final written guidance appropriately addressing issues we identified concerning how the clawback arrangements would be applied.
Time incentive PCDs		No change
Adjustments to PCDs during AMP		No change
PCDs and overlapping penalties		No change

Category	*Performance commitment*	*CMA provisional decision compared to Ofwat PR24 FD*
PCDs and administrative and regulatory burdens		No change
ODI PCLs	Storm overflow PCL	No change
	External sewer flooding	Anglian PCL set closer to the industry median. No change for other Disputing Companies
	Total pollution incidents	No change
	Water supply interruptions	Baseline level for common PCL set according to industry median (ie higher) with glidepath to 5 minutes in year 5 (for all Disputing Companies except South East)
		For South East: we apply a higher company specific PCL, with a glidepath to the common PCL in year 5; a common penalty collar of 1% RoRE; and a deadband for performance between the company-specific and common PCL
	Leakage	For Anglian and South East: 2024/25 baseline reset to align with closing position at the end of AMP7; glidepath to the 2029/30 PCL as per Ofwat's PR24 FD
	C-MeX	No change
	Non-household voids (PR19 penalty)	No change
ODI rates	Storm overflows	No change
	Total pollution incidents	Calculation of performance range changed, resulting in lower ODI rates for all Disputing Companies than in Ofwat's PR24 FD
	Water supply interruptions	No change
	Experience measures (C-MeX, D-MeX and BR-MeX)	No change
Individual risk protections	Caps, collars and deadbands	No change (except as above for South East's company-specific water supply interruptions PCL)

Source: CMA analysis.

ASM and OAM

9.7 We provisionally make no changes to the ASM and the OAM.

9.8 Our provisional determinations on the ASM are:

(a) to maintain the existing design of the totex ASM by not separating the mechanism between water and wastewater; and

(b) to maintain the existing thresholds of the totex and outcomes ASM.

9.9 We provisionally retain the OAM with the ±50bps deadband.

WACC (ie Weighted Average Cost of Capital) – provisional determinations

9.10 Ofwat and the Disputing Companies had different views on the right level of the allowed return. These are set out in Table 9.5 below, alongside the CMA's provisional determinations on the appointee real CPIH-based WACC. Our provisional determination on WACC is based on data up to 30 June 2025. Our real appointee WACC is based on a cost of equity of 5.90% and a cost of debt of 2.98%, all real CPIH-based, and a notional gearing of 55%. We set the wholesale WACC equal to the appointee WACC.

Table 9.5: Disputing Company positions and CMA's provisional determination on CPIH-real appointee WACC estimate

Inflation adjusted CPIH-real point estimate or midpoint of range	*Anglian*	*Northumbrian*	*South East*	*Southern*	*Wessex*	*Ofwat PR24 FD*	*CMA provisional determination*
Appointee WACC	**4.86%**	**4.51-4.66%**	**4.89%** (industry WACC) **5.01%** (South East specific WACC)	**4.98%** (industry WACC) **5.15%** (Southern specific WACC)	**4.58%**[1064]	**4.03%**	**4.29%**

Source: Anglian SoC, pp189–190, Table 23; Northumbrian SoC, p156, Figure 52; South East SoC, p82, Table 6.2 included the cost of equity estimate of 6.32% (NB South East referred to the KPMG report (KPMG (2025) KPMG Estimating the Cost of Capital for PR24, p19, Table 6) for the cost of debt and cost of capital); Southern SoC, p508, Table 12; NB Wessex SoC did not include a point estimate or range for the cost of capital, but see sources cited in footnote 1064 below; Ofwat (2025) PR24 Final Determinations Aligning Risk and Return - allowed return appendix, Table 1; CMA analysis.
Note: The Appointee WACC is the term used in Ofwat's PR24 FD for the weighted average cost of capital allowance for companies including the relevant WoCs or WaSCs considered within the CMA's redeterminations.

Appointee allowed revenue – provisional determinations

9.11 Our provisional determinations with respect to appointee allowed revenue are set out for each Disputing Company in Table 9.6 below. The Disputing Companies requested a total of £2.7 billion more allowed revenue than Ofwat allowed them in its PR24 FD. Our provisional determinations allow a total increase of £556 million (21% of what they asked for).

Table 9.6: Impact of our provisional determinations on Appointee allowed revenue (£ million, 2022/23 CPIH real prices)

	Ofwat's PR24 FD	*Disputing company statement of case AMP8 allowed revenue*		*CMA provisional determinations AMP8 allowed revenue*	
Disputing Company	*AMP8 allowed revenue*	*AMP8 allowed revenue*	*Percentage change from Ofwat's PR24 FD AMP8 allowed revenue*	*AMP8 allowed revenue*	*Percentage change from Ofwat's PR24 FD AMP8 allowed revenue*
Anglian	£9,634	£10,552	9.5%	£9,751	1.2%
Northumbrian	£5,205	£5,495	5.6%	£5,257	1.0%
South East*	£1,679	£1,960	16.8%	£1,751	4.3%
Southern	£6,466	£7,416	14.7%	£6,645	2.8%
Wessex	£3,632	£3,875	6.7%	£3,768	3.8%

Source: CMA analysis; Ofwat's PR24 FD 'AMP8 allowed revenue' from Ofwat (2024) PR24 Key Dataset 2 Costs Past Delivery and Risk and Return data, 'Allowed Revenue' sheet (in 2022/23 CPIH real prices); 'Disputing company statement of case AMP8 allowed revenue' percentage changes based on Disputing Companies responses to Disputing Companies RFI08.
**Bills for South East do not include the cost of wastewater services as it is a WoC; each of the other Disputing Companies is a WaSC.*

9.12 Table 9.7 below shows allowed revenue per price control for AMP8 based on our provisional determinations.

[1064] Based on 4.52% wholesale WACC included in Wessex's financial modelling (see Wessex reply to Disputing Companies RFI02, supporting document titled 'A364 - PR24-FD-FM02-Financial-model-Wessex-Water SOC - Post Affordability.xlsx', sheet 'RCV', rows 45–50) plus a RMA of 0.055% from Wessex SoC, paragraph 10.12(f).

Table 9.7: Calculation of Appointee allowed revenue for each Disputing Company by price control for AMP8 (£ million, 2022/23 CPIH real prices)

	Anglian CMA provisional determination	*Northumbrian CMA provisional determination*	*South East CMA provisional determination*	*Southern CMA provisional determination*	*Wessex CMA provisional determination*
Water resources	617	575	199	280	126
Water network	3,505	2,183	1,429	1,764	1,051
Wastewater network	4,433	1,914	N/A	3,828	2,107
Bioresources	566	185	N/A	349	236
Retail	630	400	123	424	249
Appointee allowed revenue	**9,751**	**5,257**	**1,751**	**6,645**	**3,768**

Source: CMA analysis.

Indicative impact on customer bills of provisional determinations

9.13 The indicative impact of our provisional determinations on average annual customer bills is indicated in Table 9.8 below. To profile the customer bills we have used a simplified assumption of maintaining bills flat in real terms in years 2 to 5, for all Disputing Companies. It does not represent any CMA preference for this approach of bill profiling.

Table 9.8: Indicative impact of our provisional determination on annual customer bills (£, 2022/23 CPIH real prices)

		Ofwat's PR24 FD		*Disputing Company statement of case - company average bill for AMP8*		*CMA provisional determinations - company average bill for AMP8*	
Disputing Company	*Company average bill 2024/25 (final year of AMP7)*	*Company average bill for AMP8*	*Percentage change from final year of AMP7*	*Company average bill for AMP8*	*Disputing Company*	*Company average bill for AMP8*	*Company average bill for AMP8*
Anglian	£491	£591	20.4%	£649	9.8%	£599	1.3%
Northumbrian	£422	£488	15.6%	£515	5.5%	£495	1.3%
South East*	£232	£274	18.1%	£322	17.5%	£286	4.4%
Southern	£420	£620	47.6%	£710	14.5%	£638	2.8%
Wessex	£508	£594	16.9%	£642	8.0%	£622	4.7%

Source: Ofwat's PR24 FD financial models for 'Ofwat PR24 FD' bills; CMA analysis (for ;'CMA provisional determinations - company average bill for AMP8'); Disputing Companies responses to Disputing Companies RFI07 (for all other columns), which requested £ figures in 2022/23 CPIH real prices as per Disputing Companies' statements of case.
Note: these are forecasts of average bills. Actual bills will vary according to, for example, average customer water consumption and company performance.
**Bills for South East do not include the cost of wastewater services as it is a WoC; each of the other Disputing Companies is a WaSC.*

10. Next steps

10.1 We are now inviting comments on our provisional determinations.

10.2 To submit views on our provisional determinations, please email: waterpr24references@cma.gov.uk.

10.3 All parties are requested to make any submissions in response to this report by **5:30pm (UK time) on Thursday 6 November 2025**.

10.4 The CMA may publish non-sensitive submissions on the CMA's website. Where parties believe that information contained within a submission is sensitive information which should not be disclosed, the following should be provided to the CMA:

(a) a version with sensitive information clearly highlighted;

(b) a non-sensitive version with any sensitive information redacted; and

(c) a table setting out your reasons for treating each item or category of information as sensitive information.

10.5 We will consider all submitted responses to our provisional determinations and carry out any additional information gathering and analysis before making our final determinations. We must issue our final determinations before 17 March 2026. Any changes to our administrative timetable will be indicated on our case page.

10.6 In addition to reviewing and addressing responses, we will carry out the following before our final determinations.

(a) **Inclusion of the K-factors for each price control in our final determination**: We have used Ofwat's financial models for financial modelling of our provisional determinations, which include the relevant K-factors as outputs. We intend to publish the K-factors and the consequences for licences, as well as the supporting modelling, alongside our final determinations. However, we welcome submissions on any further steps that would be required to effectively implement the provisional determinations in this report should they be retained in our final determinations.

(b) **Consider using updated information**: we may decide to use additional or updated information available to update our assessment for our final determinations.[1065] This may result in us amending certain numbers or data relevant to a provisional determination in principle set out in this report (even if doing so does not change our provisional determination in principle),

[1065] CMA PR24 Approach document, paragraphs 95–98.

including where appropriate any matters identified through Ofwat's 'blind year reconciliation' process.[1066]

(c) **Assessment of costs incurred in connection with the references**: as part of our final determinations, the CMA will decide what costs incurred by Disputing Companies (both payment of CMA costs and Disputing Companies' own costs) can be recovered by the Disputing Companies as part of the price control.

(d) **Bill profiles for AMP8**: as set out in chapter 2 (Background) at paragraph 2.23, we have used a simplifying assumption that additional revenue relating to our provisional determination would be profiled over years 2 to 5 in AMP8 so that customers' bills remain constant in real terms (ie before impacts of inflation). We welcome any submissions and evidence on customer preferences for the profiling of bills in AMP8.

[1066] We will consider any implications of Ofwat's blind year reconciliations process, including the information published by Ofwat on 2 October 2025 at Ofwat publishes draft determinations for blind-year reconciliation 2024-25 - Ofwat.